GEORGINA

Final Report

Dam Safety Assessment
Pefferlaw Dam

Town of Georgina, Pefferlaw Ontario

D.M. Wills Project Number 19-5381



D.M. Wills Associates Limited
Partners in Engineering, Planning and Environmental Services
Peterborough

WILLS

September 2022

Prepared for:
Town of Georgina

Summary of Revisions

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3	Final Report	September 7, 2022	Issued as Final

This report / proposal has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

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1.0 Project Initiation, Data Collection and Site Inspection

1.1 Introduction

D.M. Wills Associates Limited (Wills) was retained by the Town of Georgina (Town) to undertake a Dam Safety Assessment (DSA) and a Public Safety Risk Assessment (PSRA) for the Pefferlaw Dam, which is located in the Regional Municipality of York, Town of Georgina, Village of Pefferlaw, Ontario. It is noted that the PSRA has been submitted as a separate stand-alone report.

Wills inspected the Pefferlaw Dam in November 2019 at the request of the Lake Simcoe Region Conservation Authority (LSRCA). The dam inspection consisted of a visual inspection of the dam to provide information regarding any condition, operation or safety (dam safety, operator safety, public safety) issues. Wills found the dam and steel truss structures to generally be in poor condition with severe concrete deterioration in some locations as well as cracks in some of the steel truss members. Wills provided a number of recommendations for additional study, including the completion of a Concrete Condition Assessment, Dam Safety Assessment and Public Safety Risk Assessment, as well as recommendations for repair and rehabilitation measures.

The most recent Dam Safety Review was completed by Totten Sims Hubicki (TSH) in 2008. This work was completed in accordance with the Draft Ontario Dam Safety Guidelines (ODSG) (MNR, 1999). The report identified a Low Hazard Potential Classification (HPC) for the dam; however, a detailed dam breach assessment was not completed. The Inflow Design Flood (IDF) was selected as the 100-year flood. The dam is said to have inadequate hydraulic capacity for the IDF and the earth embankments are expected to overtop. The stability assessment that was completed for the dam indicated that the concrete sections of the dam did not meet the required factors of safety for all loading conditions.

The Town is currently considering taking over ownership of the Pefferlaw Dam from the LSRCA. Prior to moving forward with taking over ownership, the Town is investigating the feasibility of a dam rehabilitation. For the dam rehabilitation alternative to be considered feasible, the existing structure must satisfy the requirements of the Lakes and Rivers Improvement Act Technical Bulletins (MNR, 2011) or be relatively easily modified to meet said requirements. Since the existing dam safety information is 14 years old, updated analyses are required in order to make this determination. To update the existing dam safety information, the Town and Wills prepared a detailed scope of work and work plan. **Section 1.2** provides a general description of the scope of work for the project.

1.2 Scope of Work

Wills, in conjunction with the LSRCA and Town, determined that the scope of work for the Dam Safety Assessment should include the following activities:

- Background Data Collection and Review

- Dam Inspection
- Borehole Investigation and Physical Soil Testing
- Hydrology Study
- Dam Breach Assessment
- Inundation Mapping and Incremental Loss Assessment
- Hazard Potential Classification and Inflow Design Flood Selection
- Assess Spillway Capacity and Freeboard for the Inflow Design Flood
- Structural (Gravity Dam) Stability Assessment
- Geotechnical (Slope) Stability Assessment
- Prepare Dam Safety Assessment Report

1.3 Site Location

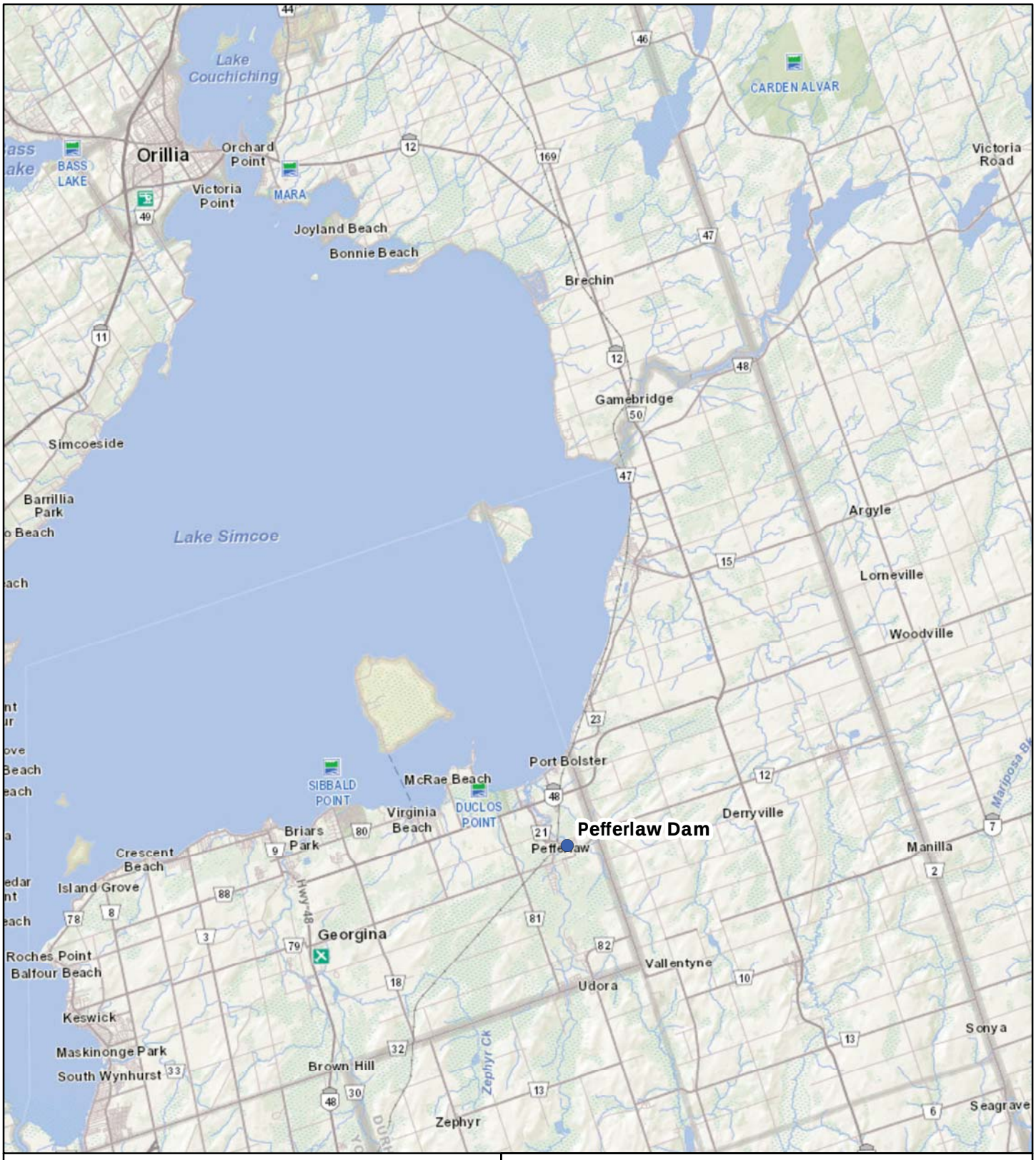
The Pefferlaw Dam is located approximately 200 m south (upstream) of Pefferlaw Road in the Village of Pefferlaw, Regional Municipality of York, Town of Georgina, Ontario. The location of the dam is shown in **Figure 1**. The Pefferlaw Dam outlets to the Main Branch of the Pefferlaw River which discharges into Lake Simcoe approximately 5.2 km downstream of the dam.

1.4 Guidelines

In August 2011, the Ministry of Natural Resources (MNR), now the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF), replaced the 1999 (Draft) Ontario Dam Safety Guidelines (ODSG) with a series of Dam Safety Technical Bulletins under Sections 14 and 16 under the Lakes and Rivers Improvement Act (LRIA). Following the release of the 2011 Technical Bulletins by the MNR, the bulletins became the standard for the review and analysis of dams in Ontario. Consequently, Wills has used the criteria within the August 2011 Technical Bulletins for this assignment. Where the information contained in the Technical Bulletins is not sufficient, Wills relied on the Canadian Dam Association (CDA) Dam Safety Guidelines and Technical Bulletins or other relevant documentation, as appropriate.

1.5 Vertical Datum

All elevations within this report are referenced to the CGVD2013 vertical datum. Elevations shown on the available drawings were assumed to be referenced to the CGVD28 vertical datum and therefore, only relative elevation differences were used from these drawings. According to documentation from the MNRF (Ontario GeoHub), the provided LiDAR data is referenced to the CGVD2013 vertical datum.



Legend

- Pefferlaw Dam

N

NAD 1983 UTM Zone 17N
1:250,000

Created in ArcMap 10.7
Queens Printer for Ontario, 2022
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0 2.25 4.5 9 km

Figure 1 - Location Plan

Drawn By:	DG
Checked By:	DG
Map Date:	2022-04-21
Project Number:	5381
Map File:	220421-5381

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1.6 Site Reconnaissance

1.6.1 Introduction

Wills undertook a site inspection of the Pefferlaw Dam on April 4, 2022. The purpose of this site visit was to undertake an updated inspection of the dam; including its various components, public safety measures and operator safety measures.

1.6.2 Record of Observations

A written record of the dam inspection, Dam Inspection Report Form B-2, as well as a selection of relevant photographs, is included in **Appendix A**. The locations of specific dam features referenced looking downstream.

1.6.2.1 Dam General Description



The Pefferlaw Dam was originally constructed in the early 1880's in conjunction with another dam on the Wilfrid Branch of the Pefferlaw River. The original purpose of the dams was to provide water storage to power three mills located on the watercourse. Mill races were constructed on both the east and west sides of the Main Branch of the Pefferlaw River to channel water to the mills. The mills ceased operations some time ago, and the dam's current function is to provide a headpond for summer recreation and contribute to the general aesthetic of the area, as the former mill sites downstream of the dam have been redeveloped as a municipal park and a number of residences have been constructed adjacent to the headpond. Several residences have docks constructed on the headpond.

The dam consists of an approximately 31 m long concrete gravity structure with a 20 m long earth embankment on the west side and a 30 m long earth embankment on the east side. The concrete gravity structure includes a 13 m long concrete weir topped with timber flash boards on the left (west) side of the structure, a 4.8 m wide sluiceway with timber stoplogs in the middle of the structure and a 7.2 m long overflow weir on the right (east) side of the structure. There are concrete aprons below the weirs and the centre sluiceway as well as concrete wingwalls on both the left (west) and right (east) sides. Access across the dam is provided by a 1.1 m wide steel truss bridge. The truss bridge is supported on stub concrete abutments located behind the dam wingwalls and by steel posts at the sluiceway piers. The dam is accessed from Pefferlaw Road, which is located approximately 200 m north (downstream) of the structure. Access by motorized vehicles is available via a gravel road on the west side of the Pefferlaw Brook. A gate at Pefferlaw Road restricts unauthorized vehicles from accessing the west side access road. There is a secondary gated access on the east side of the Pefferlaw

River that could be used as an emergency or maintenance access to the east side of the dam.

The latest inspection of the Pefferlaw Dam was completed by Wills in 2019. The inspection report indicated that the concrete and steel truss are generally in poor condition. The report provides recommendations for additional study, including the completion of a Concrete Condition Assessment, Dam Safety Assessment and Public Safety Risk Assessment, as well as recommendations for repair and rehabilitation measures

1.6.2.2 Dam General Condition

The following is a summary of the general condition of the dam. Additional details are provided on NDMNRF Form B-2, dam inspection report, which is included in **Appendix A**. Selected photographs are also included in **Appendix A**.

Earth Embankment

The embankment surfaces are well vegetated with grass and some small plants and shrubs. Minor settlement was noted in isolated areas.

Erosion was noted on the upstream left and right embankments at the normal summer water level, and there was erosion noted behind the left and right downstream armour stone retaining walls.

There are a number of large trees growing on the embankments and immediately adjacent to the concrete structures. The root systems from these trees have the potential to cause damage to the concrete sections of the dam and encourage piping through the earth sections of the dam. Additionally, if one of the large trees were to fall and pull up the root ball, the ability of the earth embankment to retain the head pond may be compromised. A section of one of the large trees on the downstream right side of the dam has fallen and is resting on the abutment wall and spillway apron.

There is a portion of the right (east) embankment that is retained by the stone foundation wall of the former mill. The stone wall generally appears to be in fair condition.

Concrete Structures

Upstream Left (West) Retaining Wall – The upstream left (west) retaining wall is generally in fair condition. There is medium scaling above the high water mark, revealing the large round aggregate used in the concrete. The wall is also spalling along the edge of the wall and top face.

Left (West) Dam Abutment – The left (west) dam abutment is generally in poor condition. There is a large spall at the interface of the upstream face of the left (west) weir and the left (west) abutment. There are a number of smaller spalls near the base of the wall at the winter water level. There is some delaminated concrete near the flashboard gain. There is a wide crack at a construction joint that extends across the height of the wall extending from the interface with the left (west) weir to the top of the wall. There are two large spalls above the downstream crest of the weir along the wide crack

(exposed and corroded steel reinforcing, large round aggregate). There is another spall at the base of the abutment (where it meets the apron).

Left (West) Bridge Abutment – The left (west) bridge abutment is generally in good condition. There is a spall around the bearing seat for the truss bridge (upstream side), exposing the bearing anchor and reducing the bearing area of the truss support. Video from the underwater inspection showed severe scaling / concrete disintegration below the waterline, near the riverbed along the entire abutment.

Upstream Right (East) Retaining Wall – The upstream right (east) retaining wall generally appears to be in good condition.

Right (East) Dam Abutment – The right (east) abutment is in poor to very poor condition. There is evidence of patch repairs at this wall area. The majority of the wall surface is delaminated, and there are several large spalls. There is some map cracking with efflorescence at the far downstream end of the wall, with large void. The entire face of the wall is exhibiting some level of concrete disintegration. There is a masonry wall on the downstream edge of the right (east) abutment that is in very poor condition.

Right (East) Bridge Abutment – The right (east) bridge abutment is generally in fair to good condition. There is medium scaling along the face of the abutment, and there is a wide crack in the precast concrete block that is supporting the cast in place abutment. The precast concrete blocks appear to show some movement on the upstream side.

Left (West) Weir – There is a large gap (25 mm) at the construction joint where the flat section of the weir crest meets the sloping section of the weir crest. There is also a wide crack located approximately 200 mm downstream of the construction joint. The crack runs almost the entire length of the weir crest, and the area between the crack and the joint is delaminating. The flat section of the weir crest contains a number of square holes for the installation of the flashboard posts. There appears to be a construction joint approximately 60 mm below the downstream weir crest on the downstream face of the weir. The downstream face of the weir is in good condition, however, there is a 30 mm gap at the interface of the weir and the apron. Video from the underwater inspection did not identify any undercutting of the upstream side of the weir.

Left (West) Apron – The entire surface of the apron is severely eroded on the face. There is a wide crack at the downstream left side of the apron. The edge of the apron wall is spalling in several areas exposing the aggregate. Closer to the sluiceway, the edge is disintegrating due to the increased flow in this area. Video from the underwater inspection identified the possibility of some cracks with efflorescence and some minor spalls. There was also one location that appeared to show some minor undercutting of the apron. Adjacent to the sluiceway, the top face of the apron is wet. It is apparent that seepage is infiltrating under the weir wall and onto the top of the apron.

Right (East) Weir – The upstream face of the weir is generally in good condition with some bug holes. The weir crest is in good condition. The downstream face of the weir is in fair to good condition with honeycombing noted near the interface with the abutment.

Right (East) Apron – There are some medium width cracks along the apron surface. The apron is undermined by approximately 750 mm to1500 mm, and it would appear as

though the end of the apron has spalled off. Video from the underwater inspection appears to indicate that the undermining is restricted to the right side of the apron and does not extend to the sluiceway. A wide crack is present and runs diagonally from the north east corner back to the east pier. Adjacent to the sluiceway, the top face of the apron is wet. It is apparent that seepage is infiltrating under the weir wall and onto the face of the apron.

Pier 1 (West Pier) – The downstream face and top surface of the pier is in good condition. The upstream, west and east faces are also in good condition with some map cracking, cracks with efflorescence and pitting above the high water mark. Video of the underwater inspection did not indicate any undermining of the pier or significant concrete deterioration below the winter water level.

Pier 2 (East Pier) – The downstream face of the pier is in good condition with some cracking. The upstream, west and east faces are also in good condition with some scaling at the water line and minor map cracking with efflorescence above the high water mark. Video of the underwater inspection did not indicate any undermining of the pier or significant concrete deterioration below the winter water level.

Sluiceway and Apron – Due to the presence of fast flowing water, the sluiceway and the apron downstream of the sluiceway could not be fully inspected. Video from the underwater inspection indicated that there may be severe erosion of the concrete surface in this area (similar to the left (west) apron surface). A severe wide crack was observed that runs perpendicular to the flow along the whole width of the sluiceway.

Wooden and Metal Structures

Truss Bridge – The east and west pedestrian spans are in fair condition, with coating failure and light corrosion throughout. The operation span is in poor condition. The northwest, southwest, and southeast truss end posts have deformed/bowed out; however, the previous repairs appear to be holding. The south face of the square HSS support of the operation span at the southwest support is deformed. This appears to have been in this condition for some time.

Deck Grating – The galvanized steel deck grating is supported by and secured to the truss bridge. The grating is in fair condition with some surface rust and damaged sections. A deck panel on the operation span has broken welds. Several deck panels have displaced or loose deck clips that should be replaced/re-attached.

Pier Nosings – The pier nosings appear to be galvanized steel are generally in fair to good condition with minor corrosion and section loss below the high water mark.

Gain Liners – The gain liners are in fair condition with failure of the coating material, surface rusting and minor section loss below the high water mark.

Fall Arrest System – The fall arrest support posts appear to be galvanized steel, are mounted to the truss bridge and appear to be in good condition. The steel cable is secured at both ends and in the middle and appears to be in good condition. All connections for the cable appear to be secure.

Railings – The deck railings are formed as part of the truss bridge. Welded wire mesh has been added to the inside of the truss to cover the gaps between the truss sections. The

railing on the dam deck is approximately 1070 mm high. The welded wire mesh is in good condition, however, as described above, the truss bridge is in poor condition.

Chain Link Fence – The chain link fencing on the dam wingwalls is in good condition and measures approximately 1220 mm high. The chain link fence between the park and the private property to the west is damaged (bent upper rail and disjointed connection at the end post).

Flow Control Equipment

Stoplogs – The dam is supplied with six 11 in high by 8 in wide wooden stoplogs. Five stoplogs are used for operation and one spare remains on the deck. Five stoplogs were stored on the deck at the time of the inspection (winter drawdown) and were chained and locked to the railing. Each stoplog end has a steel mounting bracket this is used to lift the logs. The steel mounting brackets show signs of surface rust and section loss while the wooden stoplogs show signs of deterioration. The stoplog gain cover is level with the remainder of the dam deck and is locked. The frame and grating show signs of surface rust but generally appear to be in fair condition.

Flashboards – The flashboards were not on site during the inspection. Based on information collected during Wills' November 2019 inspection, it was understood that the flashboards were going to be replaced for the 2020 operating season. It is not clear if this replacement was completed.

Winches – The winches were not in site during the inspection. The following is based on Wills' inspection of the winces in November 2019:

> The dam is equipped with two Jeamar heavy duty hand winches. The winches are stored off site. Only one of the two winches was on site at the time of the dam inspection. The name plate on the winch provided was scratched and difficult to read; however, the operator indicated that the capacity of the winches is 2100 lbs.
>
> The winch provided exhibited signs of damage/repair, surface rust and paint chipping; however, the operator indicated that the winches were generally in good working order and that they are greased at the end of each year.
>
> The winches are installed onto the dam for log operations and removed after log operations are complete. A J-shaped mounting plate/bracket bolted to the winch slides over a mounting bar that is installed into steel brackets on the truss that supports the deck. The mounting bars have end plates that would prevent them from moving horizontally and the weight of the stoplogs would prevent the mounting bar from moving vertically. The J-shaped mounting plate/bracket and the mounting bar have surface rust and chipping paint but are generally considered to be in fair condition.

Erosion and Seepage

Erosion was noted on the upstream left and right sides of the earth embankment at what is expected to be the normal summer water level. Erosion was also noted on the

downstream left and right sides behind the armour stone retaining walls. The area with the most significant erosion noted was downstream of the left wing wall where there was a large void under/behind the armour stone.

It appears as though there is seepage between the weir wall sections and aprons on the left and right sides of the dam. No seepage through the earth embankments was identified because the water level was drawn down for winter.

Public and Operator Safety

Public Safety – There is no safety boom located upstream of the dam. The reservoir is used primarily by the private property owners surrounding the head pond for non-power boating. Access to the head pond by members of the public is possible through the park adjacent to the dam or from upstream in the Pefferlaw River.

There is expected to be significant public interaction with the deck of the structure due to its location within the park and the convenience for members of the public to cross the Pefferlaw River at this location. Access to the deck of the dam deck was restricted at the time of the inspection.

There are small (600 mm x 600 mm) "DANGER, Keep Out" signs on the fencing that blocks access to the dam deck from both sides of the river. The signs do not identify the hazards associated with accessing the dam deck and the Lake Simcoe Region Conservation Authority logo has been spray painted white. There is standardized dam safety signage located on the upstream and downstream sides of the control structure. The signs read "DANGER, Keep Out, Swift Currents & Undertow May Occur at Anytime", provide contact information for the dam owner and identify that 911 should be called in an emergency. Both signs are in good condition; however, the Lake Simcoe Region Conservation Authority logo has been spray painted white on the downstream facing public safety sign. There is a "NO DIVING FROM BRIDGE, SHALLOW WATER" sign located on the upstream side of the dam to the left of Pier 1 (West Pier). The sign is in poor condition and appears to have been vandalized.

Members of the public could climb the stoplogs that are stored on the deck of the dam. If they do, the railing in that area is not high enough to prevent them from falling.

Operator Safety – The dam is equipped with a fall arrest system, which is located above the overflow weir/flashboards. The fall arrest system does not cover dam operators during stoplog operations, and during the November 2019 inspection the operators indicated that they tie off to the railing. The height an operator could fall from the deck to the downstream sill is just over 3.0 m, meaning that fall arrest is required when the stoplog gain covers are opened.

1.7 Data Collection and Review

The LSRCA and the Town provided Wills with the available background information related to the Pefferlaw Dam. The information that was determined to be relevant to the current study is outlined in **Table 1**.

Table 1 – Relevant Background Information

Title	Date	Author	Description of Contents
Original Dam Configuration up to 1975	-	Unknown	• Legal survey plan of site showing the site layout before 1975.
Technical Information for the Operation of the Pefferlaw Dam	1975	Ministry of Natural Resources	• Provides hydrologic and hydraulic information to assist in the operation of the Pefferlaw Dam.
Pefferlaw Dam Structural Study	1980	MMM Group	• Details of field investigations. • Hydrologic and hydraulic analyses. • Structural evaluation. • Identification of removal, reconstruction and rehabilitation alternatives. • Golder Associates Subsurface Investigation for a proposed dam reconstruction (1969).
Dam Restoration Drawings	1982	MMM Group	• D1: Site Plan. • D2: Dam Restoration, Bridge, Fishpass and Misc. Details. • D3: Pedestrian Bridge, Elevation, Plan and Details
Site Visit Photos – July 2001	2001	LSRCA	• Digital photos from a July 2001 site visit.
Dam Safety Assessment	2008	TSH	• Dam inspection. • HPC and IDF selection. • Stability assessment for the concrete structure. • Drawings (PDF). • Photographs. • Rating tables/curves.
Dam Inspection Report	2019	Wills	• Report on the condition of the Pefferlaw Dam.

Title	Date	Author	Description of Contents
Concrete Condition Assessment	2020	Bridge Check Canada	• Concrete core test results and photographs. • Drawings detailing the concrete deterioration across the structure.
Structural Design Memorandum	2020	Wills	• Present the results of the Bridge Check Concrete Condition Assessment. • Describe the rehabilitation plan. • Structural assessment of the operational span of the pedestrian truss bridge. • Identification of adequate fall arrest anchor points. • Identification of trust repair and replacement alternatives and life cycle cost assessment.
Design Drawings for Repairs to the Steel Truss Bridge Operational Span	2020	Wills	• Design drawings, details and specifications.

2.0 Hydrologic Assessment

2.1 Introduction

The hydrologic assessment was undertaken to provide an estimate of the 2-year to 100-year peak flows, the 1000-year peak flow, the Regional (Hurricane Hazel) Storm peak flow and the Probable Maximum Flood (PMF) peak flow.

Since there are numerous methods for estimating peak flows, it was determined that a weight of evidence approach would be the most appropriate way to estimate peak flows for the 2-year to 100-year return period storms, the 1000-year storm, the Regional Storm and the Probable Maximum Precipitation (PMP). This means that all of the credible methods of peak flow estimation available were reviewed, and based on the evidence, the most appropriate estimates were selected for further use in the study.

The following sections describe the background information used in the analyses, present the results of the various methods of peak flow estimation and identify the selected peak flows.

2.2 Available Data

2.2.1 Precipitation Data

2.2.1.1 2-year to 100-year Design Storm Events and Distribution

The 2-year to 100-year total rainfall volumes are based on the Intensity Duration Frequency (IDF) parameters for the location of the Pefferlaw Dam from the MTO IDF Curve Lookup Tool. The Intensity Duration Frequency parameters are provided in **Appendix B.**

The total rainfall volumes were distributed based on various synthetic storm distributions for use within the hydrologic model. The most appropriate synthetic storm distributions for this application are the 12-hour AES storm distribution and the 6-hour, 12- hour and 24-hour SCS storm distributions. The results of the hydrologic model for each storm distribution are presented in **Section 2.6** and are compared to other methods of estimating the 2-year to 100-year peak flows in **Section 2.7**.

2.2.1.2 Regional Storm

The Regional Storm is considered to be the worst storm on record to have hit a particular region. This storm is taken into consideration to present a hydrologic worst-case scenario resulting from rain only precipitation. The Regional Storm within the LSRCA jurisdiction is the Hurricane Hazel Storm. The Hurricane Hazel Storm occurred in October 1954, affecting the Humber River Watershed and causing 81 deaths. The recorded rainfall depth was 285 mm over a 48-hour period. The Hurricane Hazel Storm was adopted by the Ministry of Natural Resources as the storm to produce the regional flood standard for watersheds within southwestern Ontario (Zone 1). The rainfall distribution for the Hurricane Hazel Storm is based on the Technical Guide - River and Stream Systems: Flood Hazard Limit (MNR, 2002). Additional details on the Regional Storm are provided in **Section 2.6.3**.

2.2.1.3 Probable Maximum Precipitation

The PMP is defined as the largest precipitation event that can be reasonably expected to occur over a selected basin (MNR, 2002). There are two basic methodologies available for PMP estimation, meteorological and statistical. In some jurisdictions (including Ontario), regional PMP estimates are also available. Typically, regional PMP estimates are based on meteorological methodologies (OPG, 2011). Meteorological approaches use theoretical climate maximums as the basis for PMP estimation and require large amounts of data to be analyzed by complex hydrometeorological models, whereas statistical approaches use historical rainfall data as the basis for PMP estimation. Due to the complexity of the meteorological and statistical approaches, regional PMP estimates will be considered for the Pefferlaw Dam hydrologic analysis.

Regional PMP estimates were found through a number of different sources. MNR 1977 provided a figure showing PMP estimates from Bruce 1957, MNR 2004 provided a table showing PMP estimates from Bruce 1965 and OPG 2011 provided a table showing PMP estimates from MNR 2006. The MNR 2006 PMP for Ontario (Draft completed by the IBI Group) was requested from the MNR in the past; however, it is Wills' understanding that they are not distributing the document at this time because it was neither finalized nor endorsed by the Ministry. A fourth source of regional PMP estimates was released by the MNR in 2014 (Probable Maximum Precipitation: For the Province of Ontario). MNR 2014 provides PMP estimates for a number of Environment Canada rain gauge stations, which were calculated using a statistical analysis of the available rainfall data. The regional PMP estimates from MNRF 2014 (Average Environment Canada Climate ID 6110557, 6158084, 6151042, 6164432) and the other regional PMP estimates are provided in **Table 2**.

Table 2 – PMP Estimates – Summary

Storm Duration (hours)	Total Rainfall by Source (mm)				
	MNR 1977[1]	MNR 2004[2]	MNR 2006[3]	MNR 2014[4]	Average
6	338	405	550	330	406
12	345	420	570	372	427
24	353	440	596	414	451

Notes: 1. Values taken from Part B - Appendix, Figure 4, MNR 1977 referencing Bruce 1957.
2. Values taken from Appendix A, Table A.4, MNR 2004 referencing Bruce 1965.
3. Values taken from Table 5.8, OPG 2011 referencing MNR 2006.
4. Values taken from the Probable Maximum Precipitation: For the Province of Ontario database, dated October 8, 2014.

The MNR 2014 values were selected for further use in this study because they are the most recent PMP values that have been published by the MNR.

The total rainfall volumes were distributed based on various synthetic storm distributions for use within the hydrologic model. The most appropriate synthetic storm distributions for this application are the 12-hour and 24-hour SCS storm distributions and the 12-hour AES storm distribution. Two additional PMP storm distributions, provided in MNR 2004, for the 6-hour and 12-hour storm durations were also evaluated. The results of the hydrologic model for each storm distribution are compared and described in **Section 2.6.4**.

In Ontario, the peak flow resulting from the PMP, PMF, is considered to have a 1,000,000-year return period; which is a probability of 0.0001% in any given year (MNR, 2011). The PMF is the largest possible flood based on an analysis of the PMP across the Pefferlaw Dam watershed.

2.2.2 Recorded Hydrometric Data

Maximum annual instantaneous peak flow data and daily average flow data was downloaded from the Water Survey of Canada website for the stream gauge located within the Pefferlaw River watershed. It is noted that the original gauging station (02EC103) that was installed in 1969 was replaced by the currently operational gauging station (02EC018) in 1987. The data from both stations was combined for use in the station frequency analysis. The gauging station information is provided in **Table 3.**

Table 3 – Water Survey of Canada Gauge Station Data

Station Name	Station Number	Catchment Area (km^2)	Distance from Pefferlaw Dam (km)	Years of Data
Pefferlaw Brook Near Udora	02EC103 / 02EC018	347	5.1 km Upstream	51

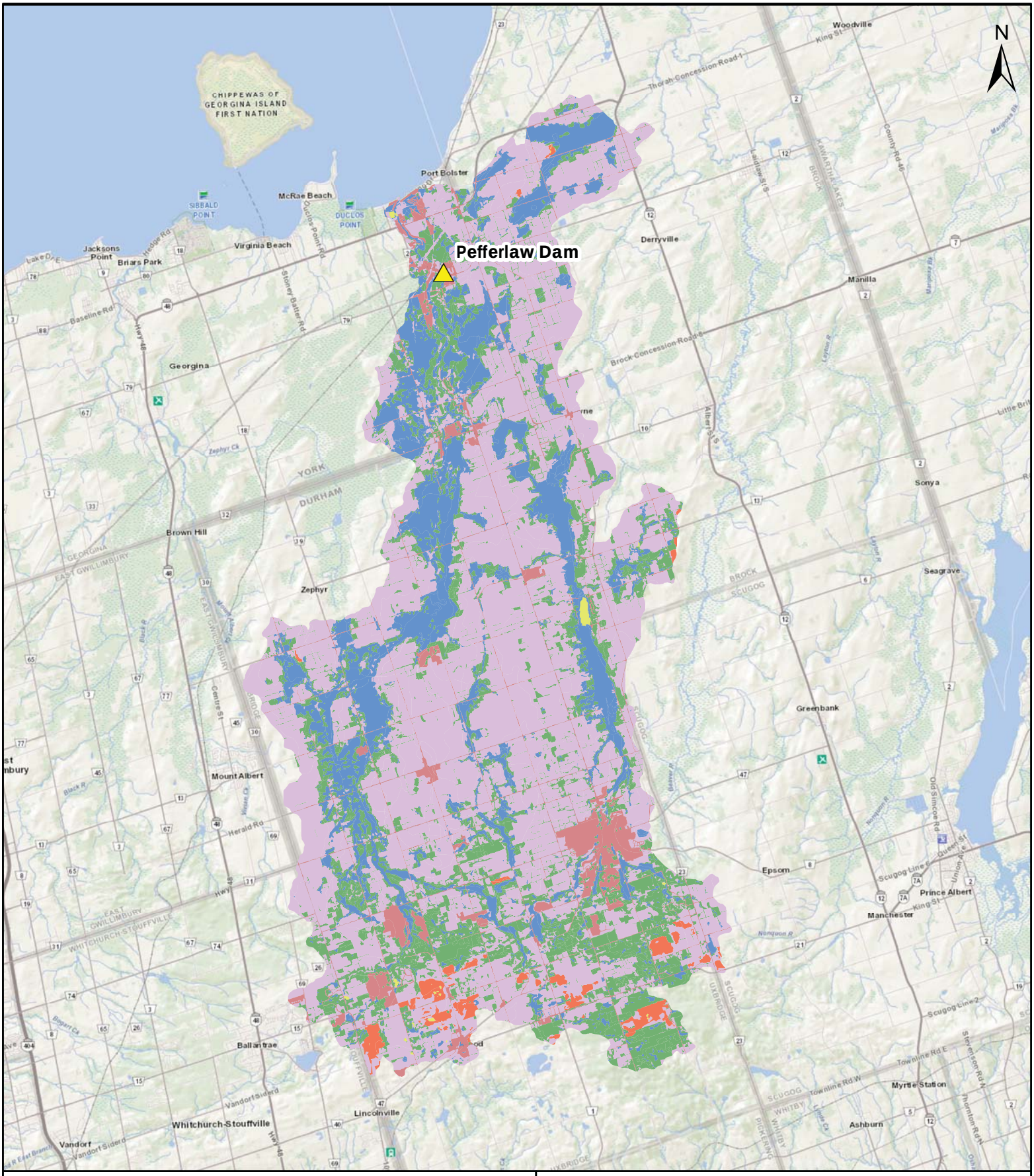
2.2.3 Land Cover and Soil Data

The Ontario Land Cover Compilation (OLCC) defined the land cover within the Pefferlaw Dam watershed and was downloaded Ontario GeoHub. The OLCC is a rationalized land cover product for the province of Ontario, combining three separate land cover databases: Far North Land Cover, Southern Ontario Land Resources Information System and Provincial Land Cover. The Pefferlaw Dam watershed is primarily comprised of agricultural land with some wooded areas, wetland and community / infrastructure areas. The land cover plan is included in **Figure** 2. Based on Wills' understanding of the area, it was assumed that only minimal development would occur within the study area over the next 10 to 15 years and that it would have no major effects on the hydrology.

Soils data was obtained from the Ontario Soil Survey Report No. 19, Soil Survey of York County (Regional Municipality of York) and Ontario Soil Survey Report No. 23, Soil Survey of Ontario County (Part of Municipality of Durham and Simcoe County) prepared by the University of Guelph Ontario Agricultural College and the Experimental Farms Service. In 2015, the Ontario Ministry of Agriculture, Food and Rural Affairs and Agriculture (OMAFRA) and Agri-Food Canada, in cooperation with the Ministry of Natural Resources, compiled a geo-spatial soils database for Southern Ontario. The database consolidated the existing digital soil data, mapped on a county basis, into a digitally stitched and standardized product. The GIS data indicates that the majority of the watershed consists of Loam, Clay Loam, Loam and Sand. The soils plan is included in **Figure 3.**

2.2.4 Ontario Base Map Data

Ontario Base Map (OBM) data was downloaded from the NDMNRF Land Information Ontario (LIO) GeoHub website. Key data used in this study included watercourses, waterbodies, wetlands, woods, roads and contours.



Land Use

- Agriculture
- Bare Earth (70% Rock)
- Developed
- Impervious
- Wetland
- Woods

Data Sources
Land Information Ontario 2022
Created In: ArcMap 10.7

Meters
0 2,600 5,200 10,400

NAD 1983 UTM Zone 17N 1:200,000

Figure 2 - Land Cover Plan

Drawn By:	JF
Checked By:	MH
Map Date:	5/31/22
Project Number:	5381
Map File Number:	22-5381-2

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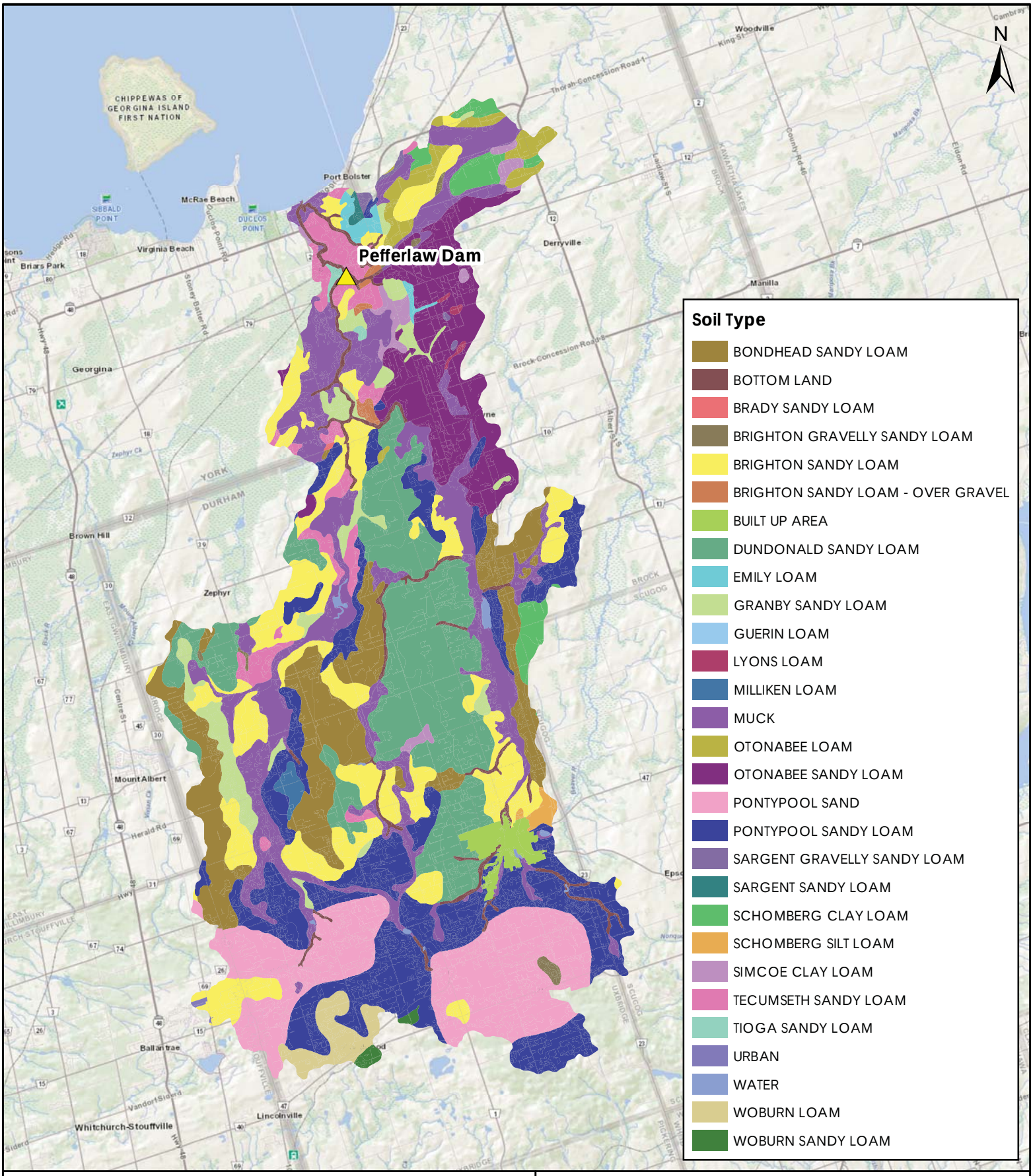


Figure 3 - Soils Plan

Data Sources
Land Information Ontario 2021
Created In: ArcMap 10.7

Meters
0 2,600 5,200 10,400
NAD 1983 UTM Zone 17N 1:200,000

Drawn By:	JF
Checked By:	MH
Map Date:	5/31/22
Project Number:	5381
Map File Number:	22-5381-3

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2.2.5 LiDAR Digital Elevation Model

The primary source of topographic data for the hydrology study was the Ontario Integrated Hydrology Digital Elevation Model (DEM) that was downloaded from the NDMNRF Land Information Ontario (LIO) GeoHub website. This DEM was used to delineate the Pefferlaw Dam catchment and sub-catchments using GIS tools.

2.2.6 Existing Hydrology Studies

In the 2008 DSA, TSH referenced flows from the Pefferlaw Brook – Beaver River Watershed Study Hydrology Report (Marshall Macklin Monaghan Limited, 1980) that were used in a 1986 HEC-2 model that they obtained from the LSRCA. TSH also used the available data form the Pefferlaw Brook Near Udora Water Survey of Canada (WSC) stream flow gauge to complete a station frequency analysis (SFA) using Environment Canada's Consolidated Frequency Analysis (CFA) software and then transposed those flows to the Pefferlaw Dam. The peak flows identified in the TSH DSA are presented in **Table 4**.

Table 4 – MMM 1980 and TSH 2008 SFA Peak Flows

Storm Event	Peak Flow (m^3/s)	
	MMM 1980 from 1986 HEC-2 Model	WSC Stations 02EC103/02EC018
5-Year	80.0	43.2
10-Year	96.0	62.4
25-Year	120.0	87.3
50-Year	141.0	131.0
100-Year	155.0	173.0
Regional	295.0	N/A

2.3 Watershed Description

The Pefferlaw River watershed has a drainage area of approximately 421.6 km^2. It has a south-north orientation with a relatively constant width of approximately 13.5 km and a main channel slope of 0.3% (flat). The Pefferlaw River flows through a series of wetlands. The contributing areas are primarily farmland, woods and wetlands; however, they also include parts of some developed areas. The Pefferlaw Dam controls approximately 86% of the total catchment for the Pefferlaw River. A short distance downstream of the dam, the watercourse flows beneath the County Road 21 (Pefferlaw Road); 3.9 km downstream of the dam, the watercourse flows beneath the Highway 48. The watercourse discharges into Lake Simcoe approximately 1.4 km downstream of Highway 48.

2.3.1 Catchment Delineation

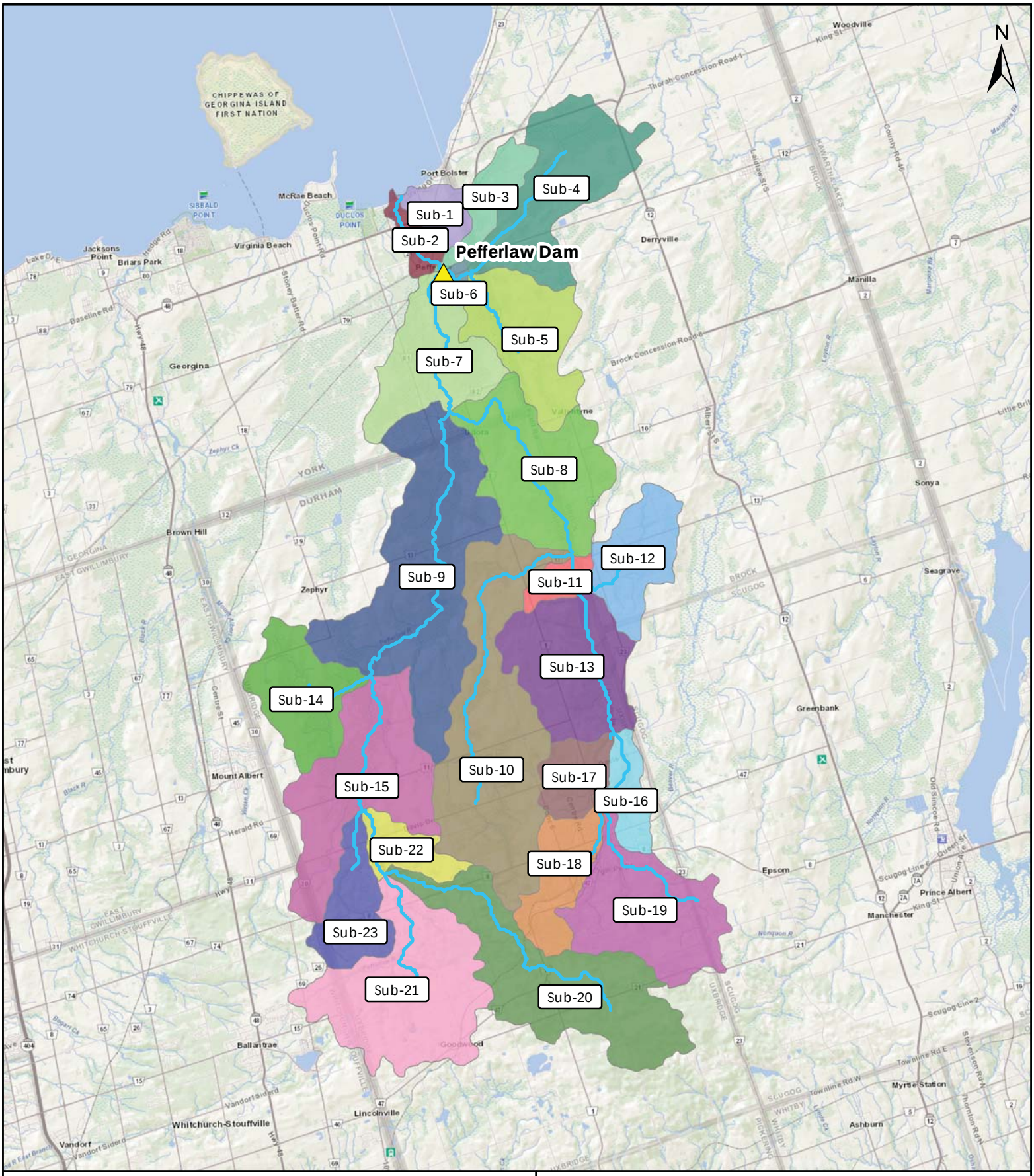
As described previously, the Pefferlaw Dam is located within the Pefferlaw River watershed. The Pefferlaw River watershed was delineated starting at Lake Simcoe and was divided into 23 sub-catchments. All catchments were delineated in ArcGIS 10.7 using the LiDAR DTM. The drainage area plan showing the full catchment area of the dam for application to the hydraulic model are shown in **Figure 4**.

2.3.2 Hydrologic Parameters

A summary of the catchment area parameters is provided in **Table 5,** and the detailed hydrologic parameters are provided in **Appendix B**. The catchment area plan is provided in **Figure 4.**

Table 5 – Catchment Parameters

Catchment ID	Area (ha)	Length (m)	Slope (%)	Impervious (%)	CN	Initial Abstraction (mm)	Time to Peak[1] (hr.)
Sub-1	492	3854	0.6	16	69.1	22.7	2.25
Sub-2	319	3809	0.4	20	70.7	21.1	2.51
Sub-3	679	7276	0.7	4	68.7	23.2	3.26
Sub-4	2528	11238	0.2	3	68.4	23.5	6.00
Sub-5	1839	8794	0.6	3	70.1	21.7	3.78
Sub-6	154	1963	0.4	11	66.9	25.1	3.18
Sub-7	1892	9216	0.2	5	61.5	31.8	16.43
Sub-8	2695	11056	0.6	4	65.6	26.6	6.67
Sub-9	4750	16061	0.5	3	63.1	29.7	10.88
Sub-10	4353	19005	0.4	3	68.3	23.5	19.78
Sub-11	330	3432	1.7	2	67.4	24.5	1.99
Sub-12	1349	6974	0.9	3	65.5	26.7	9.88
Sub-13	2374	7701	1.0	4	68.6	23.3	5.13
Sub-14	1578	6578	0.6	2	65.3	27.0	3.26
Sub-15	2931	11436	0.8	4	66.0	26.2	6.73
Sub-16	665	5532	0.8	18	70.7	21.0	3.33
Sub-17	759	4804	1.9	4	69.3	22.5	2.91
Sub-18	1141	8259	1.1	22	69.0	22.9	13.14
Sub-19	2494	11409	0.9	14	59.4	34.7	8.49
Sub-20	3625	17400	0.7	4	56.2	39.6	12.94
Sub-21	3419	10711	0.9	12	63.8	28.8	4.69
Sub-22	656	5629	1.2	2	63.0	29.9	2.08
Sub-23	1136	7710	5.0	4	58.9	35.5	3.39
Sub-Dam	36149	48875	0.3	6	64.0	28.6	32.18
Sub-Outlet	42160	53412	0.3	6	64.7	27.7	35.61



Legend

Streams

Data Sources
Land Information Ontario 2021
Created In: ArcMap 10.7

Meters
0 2,600 5,200 10,400

NAD 1983 UTM Zone 17N 1:200,000

Figure 4 - Catchment Area Plan

Drawn By:	JF
Checked By:	MH
Map Date:	5/31/22
Project Number:	5381
Map File Number:	22-5381-4

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2.4 Station Frequency Analysis

2.4.1 Flood Flows

As discussed in **Section 2.2.2**, the available data was downloaded from the Water Survey of Canada for the Pefferlaw Book Near Udora. There are two sets of data available, 02EC103 (1970-1986) and 02EC018 (1987 to current). These two sets of data were combined in order to complete the station frequency analysis. According to HydroVision 2008, more than 50 years of data would be required in order for a statistically determined 1000-year return period peak flow to be considered valid. There are 47 years of data available for the statistical analysis, and therefore the calculated peak flows for the 2-year to 100-year return periods remain relevant to the study. The statistically determined 1000-year peak flow is not considered sufficiently accurate to be relied upon; however, it does provide a basis of comparison for the other methodologies used to estimate the 1000-year return period peak flow.

The maximum annual instantaneous peak flows from the gauging station data were formatted and used in the statistical software package HEC-SSP. HEC-SSP is used to complete a statistical analysis of the data to determine the peak flows for the selected return periods. The Log Pearson Type III frequency distribution was used for the statistical analysis. The resulting peak flows were transposed to the full catchment area of the Pefferlaw Dam as well as at the outlet of the Pefferlaw River to Lake Simcoe. The results of the station frequency analysis and transposition are presented in **Table 6** and the detailed calculations and transposition results are provided in **Appendix B**.

Table 6 – Station Frequency Analysis Results

Return Period (years)	Probability	SFA Peak Flows (m^3/s)	Transposed Peak Flows (m^3/s)	
		02EC103 / 02EC018	Pefferlaw Dam	Pefferlaw River Outlet
2	0.5	24.80	25.6	28.7
5	0.2	39.60	40.8	45.8
10	0.1	51.90	53.5	60.1
25	0.04	70.80	73.0	81.9
50	0.02	87.40	90.1	101.1
100	0.01	106.60	109.9	123.4
1000	0.001	193.40	199.4	223.8

2.4.2 Sunny Day Flow

The Sunny Day flow was estimated as 2.0 m^3/s using the available flow data from the Pefferlaw Brook Near Udora Water Survey of Canada gauging station (02EC018) and is based on the average daily flow for the months of June, July and August for the period

of record (1987 to 2021). While this Sunny Day flow may be indicative of the base flow in the river, a detailed baseflow separation was not conducted as part of this study. This value will only be used to provide a base flow within the HEC-RAS model during the Sunny Day dam breach scenario to ensure a stable model run.

2.5 Regional Frequency Analysis

Several regional frequency analysis methods have been developed to estimate peak flows for ungauged watercourses throughout Ontario. Three regional frequency analysis methods were considered for this project. The background, methodology and application of each method is described below.

MTO Unified Ontario Flood Method

The Unified Ontario Flood Method (UOFM) has been developed through a research project with the University of Toronto to provide instantaneous flow rates for large catchment areas within Ontario. This method provides a new approach to calculating the design flow rates based on up-to-date stream flow and rainfall information from Water Survey of Canada (2014). This method is developed for watersheds in this region having areas in excess of 13.16 km^2. The applicability of this method is detailed in Errata Sheet to Chapter 8, MTO Drainage Management Manual (1997), Issued March 31, 2016.

MTO Modified Index Flood Method

The Modified Index Flood Method (MIFM) was originally developed by the U.S. Geological Service and modified for the MTO in 1986 to reflect Ontario conditions. In 1996, the accuracy of the method was evaluated by comparing flow estimates from the method, to flows obtained from Ontario station frequency analyses of 49 representative gauged watersheds. The method is recommended for medium to large watersheds (Area > 25 km^2).

MNR Index Flood Method

The MNR Index Flood Method (IFM) was developed by the MNR to provide flow rates in catchments where a limited number of years of data were available. A total of 238 gauging stations were analyzed to determine homogeneous regions with common hydrologic characteristics. Twelve regions were identified and a frequency curve was developed for each. This method is recommended for medium to large watersheds (3960 km^2 > Area > 86.0 km^2).

The results of the regional frequency analyses are provided in **Table 7** and the detailed calculations are provided in **Appendix B**.

Table 7 – Regional Frequency Analysis Results

Return Period (Year)	Peak Flows (m^3/s)					
	Pefferlaw Dam			Pefferlaw River Outlet		
	MTO UFM	MTO MIFM	MNR IFM	MTO UFM	MTO MIFM	MNR IFM
2	46.1	21.2	47.2	51.0	23.9	53.5
5	57.2	28.4	61.4	63.1	32.1	69.5
10	75.7	34.8	70.8	83.2	39.2	80.2
25	90.0	42.4	80.3	98.8	47.9	90.9
50	100.3	47.9	94.4	110.0	54.1	107.0
100	110.9	53.8	108.6	121.4	60.8	123.0

2.6 Hydrologic Model

The hydrologic modelling software Visual Otthymo Version 6.2 (VO6.2) was used to model the watershed area contributing to Pefferlaw River upstream of Lake Simcoe using parameters as described in **Section 2.3.** The layout of the hydrologic model is included in **Appendix B**.

2.6.1 Synthetic Storm Distributions

Various storm distributions were tested within the VO6.2 model to add to the weight of evidence. The initial results of the hydrologic model are provided in **Table 8** and **Table 9.**

Table 8 – Initial Hydrologic Model Results for Pefferlaw Dam

Design Storm	Probability	Peak Flows (m^3/s)						
		6hr PMP[1]	12hr PMP[1]	12hr AES	6hr SCS	12hr SCS	24hr SCS	Station Frequency
2-year	0.5	-	-	9.8	2.9	9.7	18.1	25.6
5-year	0.2	-	-	25.2	12.0	24.9	42.0	40.8
10-year	0.1	-	-	38.5	21.2	37.4	60.2	53.5
25-year	0.04	-	-	59.1	32.8	55.4	85.1	73.0
50-year	0.02	-	-	76.4	42.9	69.6	105.9	90.1
100-year	0.01	-	-	91.1	54.7	84.8	123.2	109.9
PMF	0.000001	686.9	833.8	752.4	551.4	838.0	971.3	-

Table 9 – Initial Hydrologic Model Results for Outlet at Lake Simcoe

Design Storm	Probability	Peak Flows (m^3/s)						
		6hr PMP[1]	12hr PMP[1]	12hr AES	6hr SCS	12hr SCS	24hr SCS	Station Frequency
2-year	0.5	-	-	11.4	3.8	11.4	20.7	28.7
5-year	0.2	-	-	28.0	13.7	27.6	47.0	45.8
10-year	0.1	-	-	42.2	23.1	41.0	66.5	60.1
25-year	0.04	-	-	64.0	35.8	59.7	92.3	81.9
50-year	0.02	-	-	82.6	46.5	74.3	114.8	101.1
100-year	0.01	-	-	97.9	58.8	90.4	133.2	123.4
PMF	0.000001	722.4	881.5	782.8	564.1	886.2	1053.3	-

2.6.2 Model Calibration and Validation

As can be seen in **Table 8** and **Table 9**, the initial hydraulic model results were higher than the results of the station frequency analysis for the 100-year 24-hour SCS Type II storm distribution. Therefore, the model was calibrated by modifying the hydrologic parameters (within tolerable limits) in order to better match the results of the station frequency analysis. The final calibration values included decreasing the curve numbers (CN) by 15%, and decreasing the initial abstraction values by 20% respectively. The calibrated hydraulic parameters are shown in **Table 10,** and the associated calibrated results are shown in **Table 11** and **Table 12**. The calibrated hydrologic model peak flows for the 100-year 24-hour SCS Type II storm distribution are much closer to the station frequency values and remain conservative.

The 24-hour SCS Type II storm distribution produced the highest peak flows and appears to be the most appropriate distribution given the catchment size and time of concentration.

Table 10 – Calibrated Catchment Parameters

Catchment ID	Area (ha)	Length (m)	Slope (%)	Impervious (%)	CN (-15%)	Initial Abstraction (mm) (-20%)	Time to Peak[1] (hr.)
Sub-1	492	3854	0.6	16	58.7	18.16	2.25
Sub-2	319	3809	0.4	20	60.1	16.88	2.51
Sub-3	679	7276	0.7	4	58.4	18.56	3.26
Sub-4	2528	11238	0.2	3	58.1	18.8	6.00
Sub-5	1839	8794	0.6	3	59.6	17.36	3.78
Sub-6	154	1963	0.4	11	56.9	20.08	3.18
Sub-7	1892	9216	0.2	5	52.3	25.44	16.43
Sub-8	2695	11056	0.6	4	55.8	21.28	6.67
Sub-9	4750	16061	0.5	3	53.6	23.76	10.88
Sub-10	4353	19005	0.4	3	58.1	18.8	19.78
Sub-11	330	3432	1.7	2	57.3	19.6	1.99
Sub-12	1349	6974	0.9	3	55.7	21.36	9.88
Sub-13	2374	7701	1.0	4	58.3	18.64	5.13
Sub-14	1578	6578	0.6	2	55.5	21.6	3.26
Sub-15	2931	11436	0.8	4	56.1	20.96	6.73
Sub-16	665	5532	0.8	18	60.1	16.8	3.33
Sub-17	759	4804	1.9	4	58.9	18	2.91
Sub-18	1141	8259	1.1	22	58.7	18.32	13.14
Sub-19	2494	11409	0.9	14	50.5	27.76	8.49
Sub-20	3625	17400	0.7	4	47.8	31.68	12.94
Sub-21	3419	10711	0.9	12	54.2	23.04	4.69
Sub-22	656	5629	1.2	2	53.6	23.92	2.08
Sub-23	1136	7710	5.0	4	50.1	28.4	3.39

Table 11 – Calibrated Hydrologic Model Results for Pefferlaw Dam

Design Storm	Probability	Peak Flows (m^3/s)						
		6hr PMP	12hr PMP	12hr AES	6hr SCS	12hr SCS	24hr SCS	Station Frequency
2-year	0.5	-	-	10.5	4.2	10.5	17.5	25.6
5-year	0.2	-	-	23.6	12.5	23.2	37.4	40.8
10-year	0.1	-	-	34.9	20.2	33.6	52.2	53.5
25-year	0.04	-	-	51.6	30.3	49.4	76.5	73.0
50-year	0.02	-	-	65.3	37.8	62.4	93.0	90.1
100-year	0.01	-	-	79.5	47.1	74.1	109.8	109.9
PMP	0.000001	618.9	747.6	665.6	558.2	753.2	884.2	-

Table 12 – Calibrated Hydrologic Model Results for Outlet at Lake Simcoe

Design Storm	Probability	Peak Flows (m^3/s)						
		6hr PMP	12hr PMP	12hr AES	6hr SCS	12hr SCS	24hr SCS	Station Frequency
2-year	0.5	-	-	11.8	4.9	11.9	19.5	28.7
5-year	0.2	-	-	25.9	13.9	25.3	41.5	45.8
10-year	0.1	-	-	38.0	21.6	36.5	57.2	60.1
25-year	0.04	-	-	55.6	32.9	53.1	83.3	81.9
50-year	0.02	-	-	70.2	40.6	66.7	100.7	101.1
100-year	0.01	-	-	85.3	50.3	79.1	118.8	123.4
PMP	0.000001	651.5	790.4	691.9	579.3	797.2	960.7	-

2.6.3 Regional Storm

The Regional Storm, as described in **Section 2.2.1.2**, was analyzed in the calibrated hydrologic model and the result is shown **Table 13.**

Table 13 – Hydrologic Model Results for Regional Storm

Regional Storm	Peak Flow (m^3/s)	
	Pefferlaw Dam	Pefferlaw River Outlet
Hurricane Hazel	323.1	344.9

2.6.4 Probable Maximum Flood (PMF) Peak Flow

The selection of the PMF peak flow is an important part of the HPC and Inflow Design Flood (IDF) selection process. The PMF peak flow directly influences both the selection of the 1000-year peak flow (when using interpolation), and depending on the HPC, the PMF may need to be used when selecting the IDF. Typically, the peak flows resulting from the critical storm distribution would be selected for further use; however, because the PMF is already a conservative storm (in terms of its return period and rainfall volume), adding additional conservativism by selecting the highest PMF peak flow could unnecessarily skew the 1000-year peak flow and the IDF selection.

The hydrologic model was used to estimate the peak flow for the PMF. For the Pefferlaw Dam, the results of the hydrologic model ranged from 558.2 m^3/s to 884.2 m^3/s with an average of 704.6 m^3/s. For the Pefferlaw River Outlet, the results of the hydrologic model ranged from 579.3 m^3/s to 960.7 m^3/s with an average of 745.26 m^3/s. The 24-hour SCS distribution produced the highest peak flow while the 6-hour SCS distributions produced the lowest.

Based on a review of all hydrologic model distributions and peak flows, it is recommended that the peak flow generated by the 24-hour SCS Type II storm distribution be selected for use as the PMF. The calibrated peak flows for the PMF is shown in **Table 14**.

Table 14 – Hydrologic Model Results for PMF (24-hour SCS Type II)

Flood Event	Peak Flow (m^3/s)	
	Pefferlaw Dam	Pefferlaw River Outlet
PMF	884.2	960.7

2.7 Peak Discharge Summary and Selection

As was discussed in **Section 2.1,** given the range of different methods available to apply to the hydrologic assessment, a weight of evidence approach was taken. The various methodologies have been laid out above, and this section discusses the final selections for application to the hydraulic model.

2.7.1 Sunny Day Flow

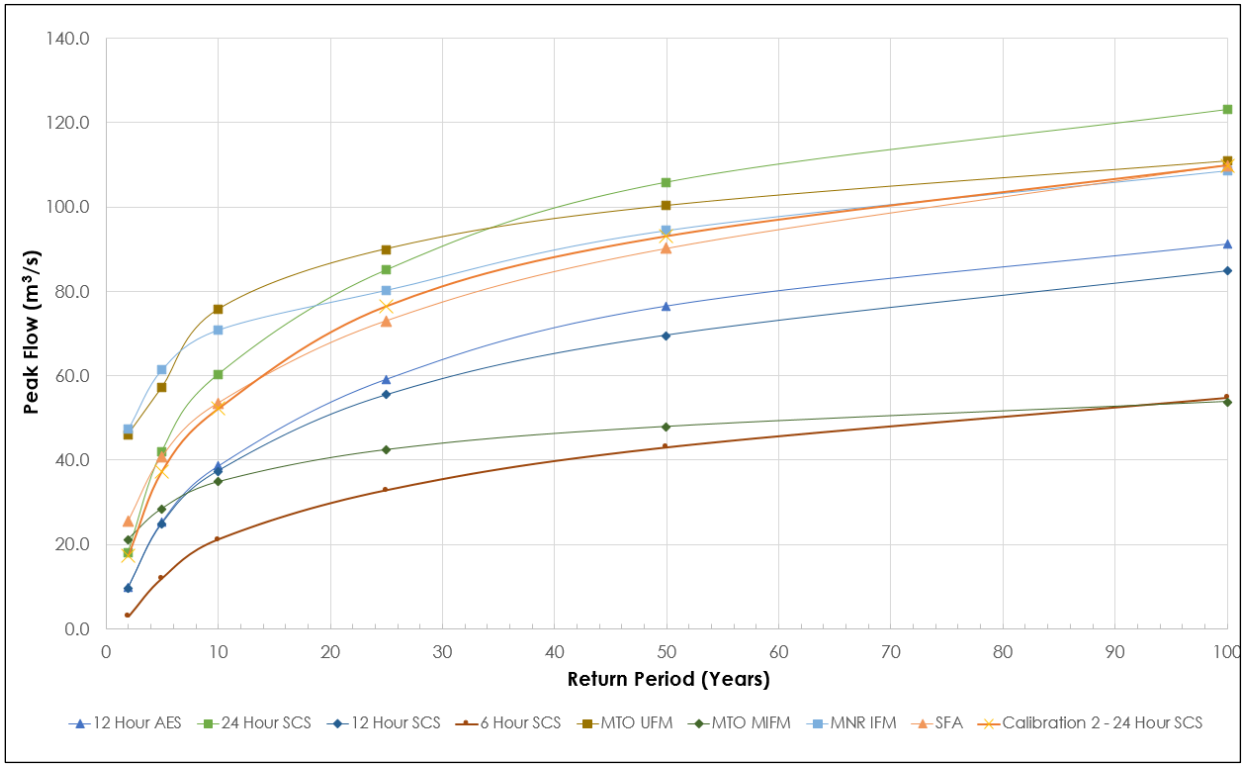
The Sunny Day flow was estimated as 2.0 m^3/s using the available flow data from the Pefferlaw Book Near Udora Water Survey of Canada gauging station (02EC103/02EC018) and is based on the average flow for the months of June, July and August for the period of record (1970 to 2021).

2.7.2 2-Year to 100-Year Return Period Peak Flows

The methodologies utilized to estimate the 2-year to 100-year return period peak flows included station frequency analysis, regional frequency analysis and hydrologic

modelling. The results from the hydrologic model (24-hour SCS) produced peak flows that were relatively consistent with the station frequency analysis results. **Figure 5** shows a plot comparing the different methods used to estimate the 2-year to 100-year peak flows. The selected peak flows are included in **Table 16**.

Figure 5 – 2 Year to 100 Year Peak Flow Comparison – Pefferlaw Dam



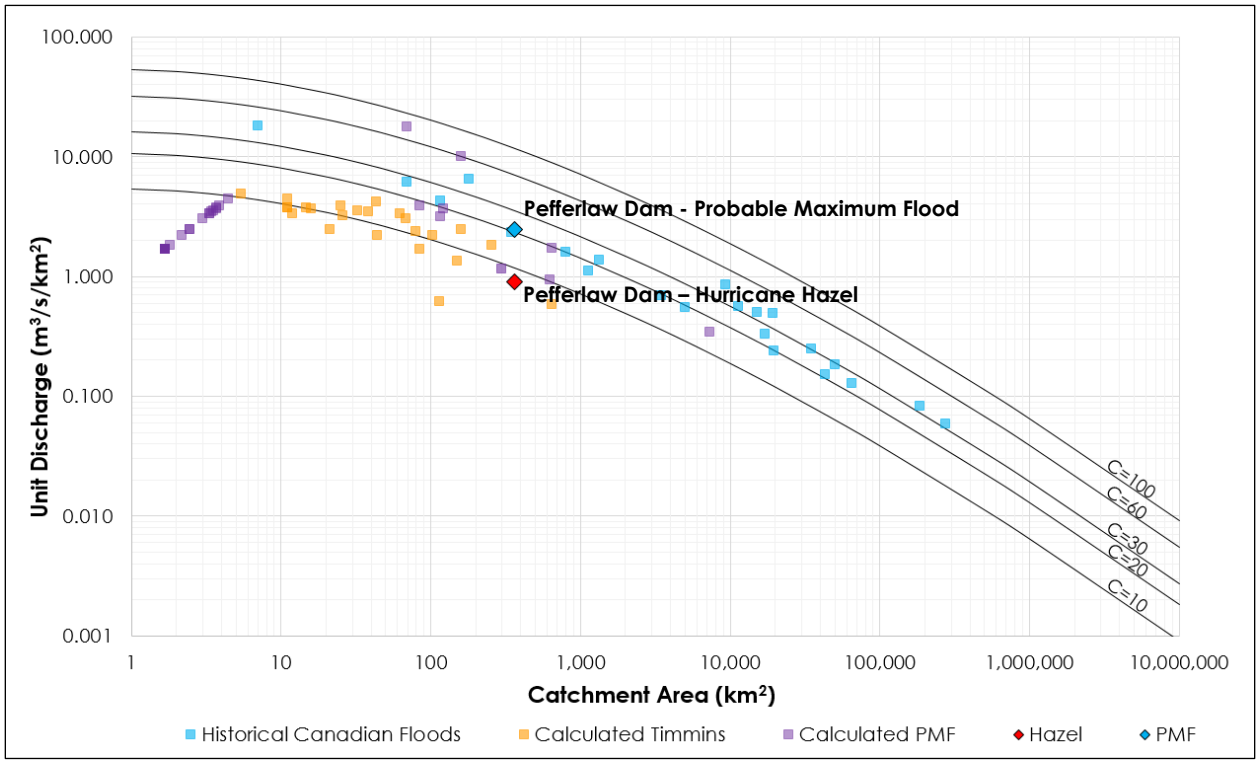
2.7.3 Probable Maximum Flood (PMF) Peak Flow

The peak flow generated by the 24-hour SCS Type II storm distribution was selected for use as the PMF. This results in a PMF peak flow of 884.2 m^3/s at the Pefferlaw Dam and a PMF peak flow of 960.7 m^3/s at the Pefferlaw River Outlet.

The PMF for the Pefferlaw Dam is the Summer/Fall PMF resulting from the rain-only PMP. The estimated peak flow compares favourably to other PMF estimates and to other large floods that have occurred in Canada. This comparison is typically conducted using the Creager diagram, a version of which is shown in **Figure 6**.

The position of each flood in the diagram is given by the relationship between unit discharge (peak flow per unit area) and total drainage area. Based on this relationship, different events are plotted over a common set of curves defined by the Creager coefficient: "C". The magnitude of this coefficient can be used as a measure of the flood-producing characteristics of a region. The plot position for the Pefferlaw Dam PMF, when compared to other PMF estimates and historical large floods, is reasonable and well within the enveloping curves plotted in **Figure 6**.

Figure 6 – Creager Diagram for Pefferlaw Dam



2.7.4 1000-Year Return Period Peak Flow

The determination of the 1000-year peak flow is important because it may be needed to calculate the Inflow Design Flood (IDF) for the dam, depending on the selected HPC. There are a number of methods of determining the 1000-year peak flow, including:

1. Selecting the peak flow from the statistical station frequency analysis results.
2. Extrapolation from the 2-year to 100-year station frequency analysis results.
3. Linear interpolation between the 100-year station frequency analysis results and PMF hydrologic model results.
4. Curved interpolation between the 100-year and PMF model results.

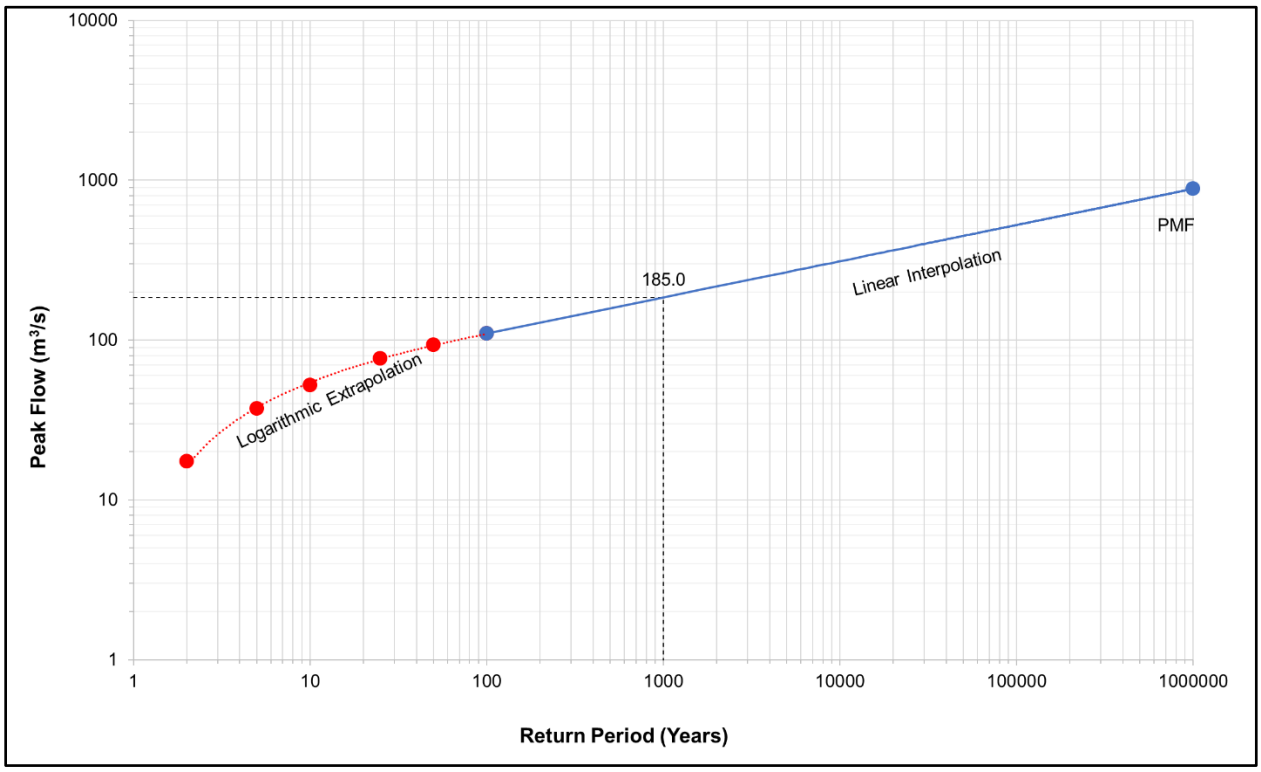
The Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011) states that the preferred method of determining the 1000-year peak flow is interpolation between the 100-year peak flow and the PMF as outlined in the Guidelines on Extreme Flood Analysis (Alberta Transportation, 2004). The Alberta Guidelines discuss completing the interpolation using a straight line, or other curve as may appear appropriate, between the 100-year and PMF peak flows on a log-probability plot. The results of the station frequency, extrapolation and, interpolation methods are provided in **Table 15** and the extrapolation / interpolation graphs are provided in **Figure 7**.

Ultimately, a straight-line interpolation on an extended log-probability plot was chosen as the preferred method for estimating the 1000-year return period, giving a peak flow of 185.0 m^3/s.

Table 15 – 1000-Year Peak Flow Determination

Methodology	Peak Flow (m^3/s)
Station Frequency Analysis (Log Pearson type III statistical model)	223.8
Extrapolation from Station Frequency Analysis (Straight line on semi-log plot)	174.1
Straight Line Interpolation between 100-year and PMF on semi-log plot	303.4
Straight Line Interpolation between 100-year and PMF on log plot	185.0

Figure 7 – Interpolation of 1000-Year Peak Flow



2.8 Summary of Selected Peak Flows

The summary of selected peak flows is provided in **Table 16.** These peak flows will be utilized when completing the hydraulic model as well as the HPC IDF selection.

Table 16 – Summary of Selected Peak Flows for Pefferlaw Dam

Flood Event	Peak Flow (m^3/s)	Methodology
Sunny Day	2.0	Gauge Station Data
2-Year	17.5	Hydrologic Model, 24-Hour SCS
5-Year	37.4	Hydrologic Model, 24-Hour SCS
10-Year	52.2	Hydrologic Model, 24-Hour SCS
25-Year	76.5	Hydrologic Model, 24-Hour SCS
50-Year	93.0	Hydrologic Model, 24-Hour SCS
100-Year	109.8	Hydrologic Model, 24-Hour SCS
1000-Year	185.0	Interpolation on Log-Log Plot
Regional Flood	323.1	Hydrologic Model, Hurricane Hazel Storm
PMF	884.2	Hydrologic Model, 24-Hour SCS

3.0 Hydraulic Assessment

3.1 Introduction

A detailed dam breach assessment was undertaken in order to estimate the potential incremental losses associated with a dam failure and determine the HPC and subsequently the IDF of the dam. The dam breach assessment uses the peak flows presented in **Section 2.8** and a HEC-RAS model run under unsteady flow conditions to evaluate a number of different dam breach scenarios (Sunny Day and a range of flood scenarios). The results of the hydraulic modelling are used to estimate the potential incremental losses that would result from a dam failure.

3.2 Available Data

3.2.1 Topographic Data

The primary source of topographic data for this project was the LiDAR DTM that was provided by the MNRF through the Land Information Ontario (LIO) Ontario GeoHub. The LiDAR-derived Ontario Digital Terrain Model (DTM) represents the bare earth surface and was generated from the classified LiDAR point cloud data. The User Guide, LiDAR – Digital Terrain Model (MNRF, 2020), identifies the coordinate reference systems used as:

- The horizontal coordinate system of the Ontario Digital Terrain Model (LiDAR-Derived) is Universal Transverse Mercator (UTM), Zone 17. The horizontal datum of

the product is the North American Datum of 1983 Canadian Spatial Reference System epoch 2010 (NAD83 (CSRS)). The horizontal unit of measure (coordinate system axis units) for all raster grid cells is meters (m).

- The vertical coordinate system of the study area is CGVD2013. The vertical unit of measure (coordinate system axis units) for all raster grid cells in the products is meters (m). One single vertical elevation value represents each raster grid cell in the DTM. For more information on Canadian vertical datums see the Height Reference System Modernization of Natural Resources Canada (https://www.nrcan.gc.ca/height-reference-system-modernization/9054#_Canadian_ Geodetic_Vertical_1).

With the aid of GIS software, the DTM was used to create the overbank portions of cross-sections for input into the hydraulic model. The DTM was also used as the base dataset to create the inundation maps for the dam breach scenarios.

3.2.2 Drawings

The drawings prepared by Totten Sims Hubicki (2006) were used as the basis for the dam geometry and dimensions for the HEC-RAS model. Elevations were based on topographic survey completed by Wills in order to account for the difference in the vertical datum between the drawings and the LiDAR data.

3.3 Hydraulic Model Development

GeoHEC-RAS was used to model the Pefferlaw Dam and perform the hydraulic analysis of the river system. GeoHEC-RAS is a proprietary software program developed by CivilGEO Engineering Software that integrates the one-dimensional HEC-RAS Version 5.07 hydraulic model, developed by the U.S. Army Corps of Engineers, Arc-GIS and AutoCAD Civil 3D.

The model was created using a single reach to represent the Pefferlaw River from the outlet at Lake Simcoe to a distance of approximately 5 km upstream of the dam. The geometry and flow files are based on the following:

Cross-Section Data

The model cross sections were defined based on the Digital Terrain Model (DTM) data that is available in Ontario GeoHub. Bathymetry was added to the DEM using topographic survey data collected by Wills, field observations and data available from the Garmin Navionics Web App.

Manning's Roughness

Manning's roughness ("n") coefficients for the channel were estimated from field inspection and literature review. The selected Manning's roughness values are indicative of a clean, winding river with some weeds, pools and stones for the main channel and medium to dense brush in summer for floodplain areas. Manning's roughness ("n") coefficients for the overbanks were assigned based on the OLCC data.

A Manning's roughness value was chosen to correspond with each of the units in that database based on the reference material for OLCC and HEC-RAS.

Boundary Conditions

When using an unsteady flow model, HEC-RAS requires both upstream and downstream boundary conditions. The boundary conditions can be based on critical depth, normal depth, a rating curve, a flow hydrograph or a stage hydrograph. In this case, the upstream boundary condition is a flow hydrograph representing the inflows to the Pefferlaw River. For the downstream boundary condition, a stage hydrograph (known water surface elevation in Lake Simcoe) was used. The location of the downstream boundary condition is sufficiently far away from the dam to ensure that it would not affect the estimation of dam breach flows.

Downstream Bridges/Culverts

The bridges/culverts in the downstream area were modelled based on field measurements/observations and photographs. The DTM data was used to define the roadway sections. In total, three roadway bridges and one railway bridge were identified downstream of the dam.

Peak Flows

The peak flows used in the analysis are those that are discussed and outlined in **Section 2.8**, resulting from the hydrologic assessment. There is one flow change location within the model, at the confluence of the Main Branch of the Pefferlaw River and the Wilfrid Branch of the Pefferlaw River, just downstream of Pefferlaw Road.

3.4 Detailed Dam Breach Model Set-up

Dam breach analyses are completed to simulate the effects of a sudden release ('wave') of water resulting from a dam breach and are used as part of the HPC and IDF selection process. The unsteady flow HEC-RAS model was used to complete the dam breach analysis.

3.4.1 Dam Breach Parameters

When analyzing a dam breach scenario within HEC-RAS, a number of key dam breach parameters are required. The key dam breach parameters include the breach bottom elevation, bottom width and formation time. The selection of the breach bottom elevation is typically based on the natural ground elevation at the dam and, as a starting point, the breach bottom width and formation time are estimated using equations developed with data from historical dam failures. The selected failure mode and the associated dam breach parameters are described below.

For the purpose of this dam breach analysis, all flashboards and stoplogs were assumed to be in place for the sunny day dam breach and removed for the flood dam breach.

The sunny day dam breach was modelled as a partial failure of the concrete dam structure as a result of sliding or overturning. This failure represents a failure of the weir with the flashboards as well as the adjacent pier.

The flood dam breach scenarios were all modelled as a complete failure of all concrete weir and pier sections as a result of sliding or overturning.

The estimated dam breach parameters are included in **Table 18** and the dam breach estimates are included in **Appendix C**.

Table 17 – Dam Breach Parameters

Failure Scenario	Modelled Breach Bottom Elevation (m)	Modelled Breach Bottom Width (m)	Modelled Breach Formation Time (hours)	Modelled Breach Side Slopes (H:V)
Sunny Day	223.50	20	0.3	Vertical
25-Year	223.50	30	0.3	Vertical
100-Year	223.50	30	0.3	Vertical
Regional	223.50	30	0.3	Vertical

3.4.2 Modelled Inflow Rates

One flow rate under the Sunny Day scenario and three flow rates under flood conditions were modelled as part of the dam breach analysis. In order to demonstrate the largest potential incremental impacts of the dam breach, the inflow hydrographs consist of a constant inflow rate over the period of analysis. The flows shown in **Table 18** are the modelled inflow rates used for the HEC-RAS model for upstream of the Pefferlaw Dam.

Table 18 – Modelled Inflow Rates Upstream of Pefferlaw Dam

Flood Event	Inflow Rate (m^3/s)
Sunny Day	3.5
25-Year	76.5
100-year	109.8
Regional	323.1

3.5 Dam Breach Results

As described previously, the unsteady flow HEC-RAS model was used to complete the detailed dam beach analysis. A summary of the flows, incremental flows and depths due to the dam breach for all scenarios is provided in **Table 19**. The inundation maps are included in **Appendix C.**

Table 19 – Summary of Model Results

Flood Event	Dam Condition	Peak Flow Rate (m^3/s)	Max. Incremental Flow (m^3/s)	Max. Incremental Depth (m)
Sunny Day	No Breach	4.5	9.1	0.39
	Dam Breach	13.3		
25-year	No Breach	83.3	19.8	0.59
	Dam Breach	102.8		
100-year	No Breach	118.8	13.7	0.46
	Dam Breach	132.2		
Regional	No Breach	344.9	13.4	0.09
	Dam Breach	354.4		

3.6 Hazard Potential Classification and Inflow Design Flood

3.6.1 Hazard Potential Classification

The Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011), outlines the requirements for the classification of dams. In Ontario, dams are classified using the HPC system, which categorizes dams according to the potential hazards presented by the dam. The HPC is an assessment of the consequences of dam failure, not the risk of dam failure, based on its current condition. The HPC is determined through an assessment of the greatest incremental losses that could result from an uncontrolled release of the reservoir due to the failure of a dam. Potential incremental losses are assessed with respect to life, property, the environment and cultural-built heritage sites at the dam site, upstream and downstream. **Table 20** outlines the four classification categories and describes how the potential incremental losses are assessed for each potential hazard. Dams are classified according to the highest potential incremental hazard. Incremental losses refer to losses from a dam failure that are above and beyond those which may be expected to occur under the same natural conditions with the dam in place but without failure of the dam.

Dams require two HPCs, one based on dam failure during normal (sunny say) conditions and a second based on dam failure under flood conditions. To determine the HPC for the normal (sunny day) and flood scenarios, the inundation maps and HEC-RAS model results were reviewed.

Table 20 – Hazard Potential Classification

Hazard Potential	Life Safety[2]	Property Losses	Environmental Losses	Cultural-Built Heritage Losses[3]
Low	No expected loss of life	Very low damage to property < $300,000	Minimal loss of habitat with high capability of restoration	Reversible damage to municipally designated cultural heritage sites
Moderate	No expected loss of life	Moderate damage < $3 million	Moderate loss of habitat with moderate capability of restoration	Irreversible damage to municipally designated cultural heritage sites
High	Expected loss of life 1-10 persons	Appreciable damage < $30 million	Appreciable loss of habitat - reversible damage to habitat	Irreversible damage to provincially or nationally designated cultural heritage sites
Very High	Expected loss of life 11 or more persons	Extensive damage > $30 million	Extensive loss of habitat with no feasibility of recovery	

Note: 1. Abbreviated Table 1 - Hazard Potential Classification (Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011).
2. Life Safety is assessed using the "2 by 2 Rule" as outlined in the Technical Guide River and Stream Systems: Flooding Hazard Limit. For dam failures under flood conditions, the potential for loss of life is assessed based on permanent dwellings (including habitable buildings and trailer parks) only. For dam failures under normal (sunny day) conditions, the potential for loss of life is assessed based on both permanent dwellings (including habitable buildings, trailer parks and seasonal campgrounds) and transient persons.
3. Cultural-Built Heritage Losses are assessed with respect to sites designated under the Ontario Heritage Act or nationally recognized heritage sites.

3.6.2 Sunny Day Failure

During a sunny day dam failure, the reservoir will be at approximately the elevation of the top stoplog, meaning that there would be a relatively small amount of storage within the reservoir. A failure of the dam under this scenario would result in a flood wave peak of approximately 13.3 m^3/s, and a maximum incremental flow of 9.1 m^3/s over the non-breach peak flow. The extent of the incremental flooding is shown on the inundation mapping included in **Appendix C**.

Life Safety Assessment

In the case of the sunny day dam failure, the incremental water level due to the dam failure is expected to be outside of the main channel of the Pefferlaw River; however, the overbank velocities are expected to be low, resulting in limited potential for incremental loss of life.

Property Losses

In the case of the sunny day dam failure, the incremental property losses are expected to be less than $300,000 since no structures are incrementally inundated.

Environmental Losses

In the case of the sunny day dam failure, the reservoir will almost completely drain, resulting in a moderate temporary loss of aquatic habitat. It is understood that once the dam is re-built, the aquatic habitat within the reservoir could be restored. Downstream of the dam, the incremental water level due to the dam failure is not expected to cause any significant incremental environmental losses.

Cultural / Built Heritage Losses

In the case of the sunny day dam failure, the incremental water level due to the dam failure is not expected to have any measurable effect on cultural or built heritage resources.

Based on the above assessment, **the HPC for the sunny day dam breach scenario is assessed as being Low** since incremental loss of life and property damage are not anticipated to occur during this dam breach scenario.

3.6.3 Flood Failure

During a dam failure in a flood scenario (i.e. 25-year, 100-year and Regional), the reservoir is expected to be at full flood stage; therefore, the failure of the dam will result in a wave of water being released downstream, which could result in incremental losses within the overbank areas. The extent of the incremental flooding is shown on the inundation mapping, included in **Appendix C**.

Life Safety Assessment

In the case of the dam failure during the flood scenario, the incremental water level due to the dam failure is expected to be outside of the main channel of the Pefferlaw River. In accordance with the Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011), the life safety assessment for the flood scenario must consider the potential for loss of life in permanent dwellings; however, it does not need to include transient persons since it is assumed that they would evacuate the area during the flood condition.

The life safety assessment was completed using the 2 by 2 rule, which is outlined in the Technical Guide - River and Stream Systems: Flooding Hazard Limit (MNR, 2002). The life safety assessment was carried out using the RAS Mapper tools within HEC-RAS as well as GIS analyses. The results of the life safety assessment indicate that there are a number of buildings for which egress would be considered unsafe (i.e. 2 x 2 rule exceeded) for both the no dam breach and dam breach scenarios. Safe egress would be possible for the remainder of the inundated structures, and there are no structures that would be considered to transition from being safe in the no dam breach condition to unsafe in the dam breach condition. Therefore, it is anticipated that there is low potential for incremental loss of life during the flood failure scenarios.

Property Losses

Although there is potential for property damage in many of the flooding scenarios, up to a maximum of approximately $15.3 Million in the case of the Regional Flood, the largest estimated incremental property damage is approximately $467,000 (100-year flood). Detailed summary tables can be found in **Appendix C**.

Environmental Losses

In all cases of flood failure, the reservoir will almost completely drain, resulting in a moderate temporary loss of aquatic habitat. It is understood that once the dam is re-built, the aquatic habitat within the reservoir could be restored. Downstream of the dam, the incremental water level due to the dam failure is not expected to cause any significant incremental environmental losses.

Cultural / Built Heritage Losses

In the case of the flood failure scenarios, the incremental water level due to the dam failure is not expected to have any measurable effect on cultural or built heritage resources.

Based on the above assessment, **the HPC for flood dam breach scenario is assessed as being Moderate** due to potential incremental losses exceeding $300,000.

3.6.4 Inflow Design Flood

The IDF is the most severe inflow flood for which a dam and its associated facilities are designed. Two methods can be used to determine the IDF. The IDF is typically selected using Table 2 in the Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011); however, the Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011) also makes allowance for the use of an incremental analysis for cases where the dam owner wishes to explore the possibility of selecting a lower magnitude IDF. The incremental analysis is discussed in more detail in the Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011); however, Wills' does not believe it would provide a benefit in this case.

Table 21 – Range of Minimum Inflow Design Floods[1]

Hazard Potential	Range of Minimum Inflow Design Floods			
	Life Safety		Property and Environment	Cultural-Built Heritage
Low	25-year flood to 100-year flood			
Moderate	100-year flood to 1000-year flood or Regulatory flood (whichever is greater)			
High	1-10	1/3 between the 1000-year flood and the PMF.	1000-year flood or Regulatory flood (whichever is greater) to 1/3 between the 1000-year flood and PMF.	1000-year flood or Regulatory flood (whichever is greater).
Very High	11-100	2/3 between the 1000-year flood and the PMF.	1/3 between the 1000-year flood and PMF to PMF.	
	Greater than 100	PMF		

Note: 1. Abbreviated Table 2 - Range of Minimum Inflow Design Floods (Technical Bulletin for Classification and Inflow Design Flood Criteria (MNR, 2011).

Table 16 outlines the peak flows estimated for the Pefferlaw River at the Pefferlaw Dam, and **Table 21** outlines the range of minimum Inflow Design Floods for the various HPCs. With reference to **Table 16**, and given the Moderate HPC for the flood scenario, the IDF should be selected as a value between the 100-year flood and the 1000-year flood or the Regulatory Flood (whichever is greater).

The peak flow of 109.8 m^3/s, 100-year flood, was selected as the IDF peak flow since the incremental property damages are expected to be on the low end of the Moderate range**.**

3.7 Hydraulic Capacity and Freeboard Assessment

3.7.1 Hydraulic Capacity for IDF

The hydraulic capacity for the IDF as assessed using the steady-flow HEC-RAS model. Based on the model results, the IDF (100-year flood, 109.8 m^3/s) reaches an elevation of 226.68 m. The elevation of the lowest point surveyed by Wills on the earth embankments was 226.20 m; therefore, the IDF is expected to overtop the earth embankment section but up to 0.48 m. **The dam does not have sufficient hydraulic capacity to convey the IDF.** This result is consistent with the 2008 TSH DSR which indicates that the earth embankments would be overtopped by approximately 0.45 m for the IDF (100-year flood).

3.7.2 Freeboard Assessment

A freeboard analysis was carried out for the earth embankment for two (2) scenarios as recommended in the Technical Bulletin for Spillways and Flood Control Structures (MNR, 2011):

1. No overtopping of the crest of the dam by 95% waves caused by the most critical wind with a return frequency of 1:1000 with the reservoir at its normal maximum.
2. No overtopping of the crest of the dam by 95% of the waves caused by the design wind or, if information to calculate the design wind is not available, a critical wind with a return frequency of 1:100 with the reservoir at its maximum level during passage of the IDF.

Detailed hourly wind data to calculate the design wind was not available; therefore, critical wind speed with 1000-year return period was approximated by extrapolating the wind pressures provided for Uxbridge in Supplementary Standard SB-1 of the 2012 Ontario Building Code. The Pefferlaw Dam is approximately 25 km northwest of Uxbridge. The method used was straight line extrapolation on a log-probability plot. The wind speeds are shown in **Table 22.**

Table 22 – Wind Speed Data

Return Period	Wind Speed (km/h)	Source
10-year	78.5	Ontario Building Code
50-year	94.7	Ontario Building Code
100-year	101.8	Ontario Building Code
1000-year	132.5	Log-Probability Extrapolation

The significant wave height and wave run-up level with a 5% exceedance probability were calculated using methods laid out in the Coastal Engineering Manual (USACE, 2011).

The elevation of the top stoplog (225.08 m) was adopted as normal maximum operating level for freeboard calculation during non-flood conditions. The dam characteristics used for the freeboard analysis are shown in **Table 23,** and the results of the freeboard calculations are shown in **Table 24**. The freeboard calculation spreadsheet is provided in **Appendix C**.

Table 23 – Dam Characteristics for Freeboard Analysis

Dam Characteristics	Parameter
Hazard Classification	Low / Moderate
Crest Elevation (m)	226.20
Average Reservoir Depth (m)	2.0
Embankment Slope (H:V)	3:1
Embankment Material	1 Layer of Rock
Normal Operating Water Level (m)	225.08
IDF Water Level (m)	226.68

Table 24 – Results of Freeboard Analysis

Description	Result	
	Normal	IDF
Critical Wind Return Period	1:1000	1:100
Critical Wind Direction	S	S
Wind Speed (km/hr)	132.5	101.8
Effective Fetch (km)	0.08	0.08
Significant Wave Height (m)	0.27	0.20
Effective Fetch for Wind Setup (km)	0.08	0.08
Wave Run-up (5% Exceedance, m)	0.23	0.15
Wind Setup (m)	0.01	0.007
Required Freeboard, Crest (m)	0.24	0.16
Available Freeboard, Crest (m)	1.12	-0.48
Adequate Freeboard	**Yes**	**No**

Notes: 1. Wind data taken from Ontario Building Code 2012.
2. The analysis was checked to be fetch-limited for the normal operating analysis, and fetch-limited for the IDF analysis.
3. Wave run-up Calculations use methods from USACE.

The results of the analysis indicate that there is sufficient freeboard for the Normal Operating Level but not for the Inflow Design Flood Level.

4.0 Structural Stability Assessment

4.1 Introduction

The structural stability assessment was completed in accordance with the Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011). The purpose of the structural stability assessment was to assess the stability of the concrete gravity dam sections with respect to sliding, overturning and overstressing of the concrete dam or foundation.

The structural stability assessment was completed for three typical sections, the left overflow weir, the right overflow weir and a typical pier. The LSRCA provided background information for the structure and design drawings as part of the background materials.

The methodology and the results of the structural stability assessment are presented herein, and the detailed calculations are provided in **Appendix D**.

4.2 Methodology

The analysis was based on a rigid body limit equilibrium method with the various load combinations treated as static because of the relatively sustained nature of the loads involved. The following loads were considered in the assessment of the concrete structures:

- Dead loads of permanent structures, rock or soil backfill, silt deposited against the structure and any significant equipment loads
- Hydrostatic loads, including the normal summer, normal winter and IDF headwater levels, with corresponding tailwater levels.
- Internal water pressure and foundation uplift
- Ice load
- Earthquake load

Seismic analyses are performed at different levels of sophistication. Since there is a relatively low earthquake potential in central Ontario, a pseudo-static method of analysis was used to assess the earthquake loading on the concrete gravity dam sections.

The position of the resultant force, the normal stresses at the heel and toe and the calculated sliding and overturning factors were reviewed and compared to the requirements of the Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011).

In accordance with the Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011), the following loading combinations were considered:

1. Usual Load (Summer) includes the following loads acting in combination: Dead load; Hydrostatic Load (maximum normal operating level); Soil Load; and Uplift.
2. Usual Load (Winter) includes the following loads acting in combination: Dead load; Hydrostatic Load (winter operating level); Ice Load; Soil Load; and Uplift.
3. Unusual Load (Flood) includes the following loads acting in combination: Dead Load; Hydrostatic Load (IDF flood level); Soil Load; and Uplift Load.
4. Earthquake loading includes the following loads acting in combination; Maximum Design Earthquake, Dead loads, Hydrostatic Load (maximum normal operating level); Soil Load; and Uplift.

It is noted that a number of assumptions have been made in order to complete the gravity dam stability analysis. The main assumptions are that the two weir sections are not directly connected to the concrete apron (due to evidence of seepage between the weir and apron sections), ice loading does not occur on the right (east) weir due to winter water levels being lower than the sediment upstream and the sediment upstream of all sections is saturated (i.e. silt collected at the dam).

4.3 Design Earthquake

The HPC under the normal (sunny day) scenario is used to determine the Design Earthquake (DE). **Table 25** outlines the DE selection criteria.

Table 25 – Design Earthquake Criteria

Hazard Potential	Earthquake Design Ground Motion Annual Exceedance Probability			
	Life Safety		Property and Environment	Cultural-Built Heritage
Low	500 year			
Moderate	500 year to 1000 year			
High	1-10	2,500 year	1,000 year to 2,500 year	1,000 year
Very High	11-100	5,000 year	2,500 year to 10,000 year	
	Greater than 100	10,000 year		

Note: 1. Abbreviated Table 1 - Design Earthquake Criteria (Technical Bulletin for Seismic Hazard Criteria, Assessment and Considerations (MNR, 2011).

With reference to **Table 25** and given the selection of an HPC of Low for the normal (sunny day) scenario, the DE should be the 500-year event.

4.4 Loading Data

Wills determined the loading data to be used in the analysis based on the identified loading combinations and the existing information. The loading data is summarized in **Table 26**.

Table 26 – Loading Data

Loading Case	Water Level (m)		Ice Load (kN/m)	Seismic Coefficient (%g)
	Headwater	Tailwater		
1. Usual Load (Summer)	225.08	222.45	0	-
2. Usual Load (Winter)	224.65	222.45	75	-
3. Unusual Load (Flood)	226.68	225.62	0	-
4. Extreme Load (Earthquake)	225.08	222.45	0	0.031

4.5 Results

As described in **Section 4.1**, the stability analysis was completed for three typical sections. The results of the structural stability assessment are summarized in **Table 27** for the left overflow weir, **Table 28** for the right overflow weir and **Table 29** for the typical pier and the detailed calculations and results are provided in **Appendix D**.

The results of the analyses indicate that the typical pier meets the stability requirements listed in the Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011); however, the Left (West) Overflow Weir and Right (East) Overflow Weir sections do not.

For the Left (West) Overflow Weir, the factor of safety for sliding is less than 1.0 for all loading conditions and the factor of safety for overturning is less than 1.0 for the winter (ice) loading condition and less than the standard for the IDF loading condition. This is primarily due to the large hydrostatic forces that are assumed to be acting on this section of the dam.

For the Right (East) Overflow Weir, the factors of safety for sliding and overturning are less than 1.0 for the IDF loading condition. Similar to the above, this is primarily due to the large hydrostatic forces that are assumed to be acting on this section of the dam.

While the results of the analyses could lead to the conclusion that the dam is unstable in certain loading conditions, there are no signs of that instability in the field, and it would appear as though the dam has performed satisfactorily since its construction. This means that the stability analysis completed as part of this study may be too conservative in some areas (i.e. standard ice loading is greater than what is actually experienced in the field). Additionally, there may be some connection between the weir walls and the concrete aprons that is not shown in the existing information. In the 2008 DSA Report, TSH stated that if the concrete aprons were considered in the analysis then the dam would meet the criteria of that time.

Table 27 – Stability Assessment Results, Left Overflow Weir

Loading Case	FOS Sliding		FOS Overturning		Position of Resultant from Toe (m)	Location of Resultant	Foundation Bearing Stress at Toe (kPa)	
	Required	Computed	Required	Computed			Allowable	Computed
1. Usual Load (Summer)	1.5	**0.9**	1.5	1.7	0.69	Inside Middle Third	500	20
2. Usual Load (Winter)	1.5	**0.2**	1.5	**0.6**	-1.02	**Outside of Base**	500	97
3. Unusual Load (Flood)	1.3	**0.3**	1.3	**1.1**	0.27	Within Base	500	27
4. Extreme Load (Earthquake)	1.1	**0.8**	1.1	1.6	0.66	Inside Middle Third	500	21

Table 28 – Stability Assessment Results, Right Overflow Weir

Loading Case	FOS Sliding		FOS Overturning		Position of Resultant from Toe (m)	Location of Resultant	Foundation Bearing Stress at Toe (kPa)	
	Required	Computed	Required	Computed			Allowable	Computed
1. Usual Load (Summer)	1.5	1.7	1.5	23	0.56	Inside Middle Third	500	44
2. Usual Load (Winter)	1.5	2.9	1.5	3.8	0.66	Inside Middle Third	500	35
3. Unusual Load (Flood)	1.3	**0.3**	1.3	**0.8**	-0.59	**Outside of Base**	500	99
4. Extreme Load (Earthquake)	1.1	1.4	1.1	2.1	0.52	Inside Middle Third	500	47

Table 29 – Stability Assessment Results, Typical Pier

Loading Case	FOS Sliding		FOS Overturning		Position of Resultant from Toe (m)	Location of Resultant	Foundation Bearing Stress at Toe (kPa)	
	Required	Computed	Required	Computed			Allowable	Computed
1. Usual Load (Summer)	1.5	5.4	1.5	3.9	2.16	Inside Middle Third	500	62
2. Usual Load (Winter)	1.5	1.6	1.5	2.8	1.78	Inside Middle Third	500	91
3. Unusual Load (Flood)	1.3	1.5	1.3	1.7	1.96	Inside Middle Third	500	50
4. Extreme Load (Earthquake)	1.1	3.9	1.1	3.4	2.10	Inside Middle Third	500	65

5.0 Geotechnical Stability Assessment

5.1 Introduction

Cambium Inc. (Cambium) was retained by Wills to complete the stability assessment of the earth embankment sections of the Pefferlaw Dam. Two typical sections, one on each side of the concrete structure, were analyzed. A summary of Cambium's analyses and results is included below, and the full details of Cambium's study are included in their Geotechnical Engineering Report, which is included in **Appendix E**.

5.2 Existing Geotechnical Information

5.2.1 Subsurface Soil Conditions

A borehole investigation was completed by Cambium on March 21, 2022, to assess the subsurface conditions within and below the existing embankment structures. Three boreholes were advanced through the existing earth embankments, one through the west earth embankment and two through the east earth embankment. Laboratory soil testing was completed by Cambium, including Grain Size Distribution Analyses (LS 702) for five soil samples, Natural Moisture Content (LS 701) for all soil samples and Atterberg Limit analysis for one selected sample.

The subsurface conditions encountered at the site generally consist of a surficial topsoil layer (up to approximately 150 mm in thickness) underlain by surficial fill, presumably utilized to construct the earth embankments. The fill transitions to native materials consisting of till (gravels, silts and sands with varying clay content).

Fill Materials

Fill materials were encountered below the surficial topsoil layer and extended to depths of approximately 2.3 mbgs in BH101-22 and BH102-22. The fill material primarily consisted of brown sand with some gravel and varying silt and clay components. The silt content generally increased with depth, with the fill being characterized as silt and sand between 1.5 mbgs and 2.3 mbgs in BH102-22 and as gravelly silty sand between 1.2 mbgs and 1.8 mbgs in BH103-22.

It is noted that the fill materials used to construct the earth fill embankments and to backfill the excavations required to reconstruct the dam may also consist of reworked native materials. Particularly in BH102-22, reworked native material may extend to a depth of approximately 3.0 mbgs or further. In general, the transition between fill and native materials at the site is fluid, with the fill and inferred native materials being similar in composition within shallower depths.

Native Soils

Below the inferred fill material, native soils consisted of glacial till. Glacial till consists of a heterogeneous mixture of all grain sizes.

5.2.2 Bedrock

BH101-22 and BH102-22 were terminated due to auger refusal at depths of 6.1 mbgs and 6.2 mbgs respectively. These depths correspond to elevations of 220.3 mASL in BH101-22 and of 220.7 mASL in BH102-22.

During a previous investigation conducted at the site, bedrock was encountered at a depth of 220.9 mASL in the vicinity of BH101-22 and at a depth of 220.5 mASL in the vicinity of BH102-22. The bedrock was cored during that investigation and described as relatively flat lying, fairly sound to sound bedrock, consisting of a calcareous shale with numerous limestone inclusions.

Given the consistency between the findings of the previous investigation and the bedrock elevations encountered during the current investigation, it is inferred that the depths of auger refusal represent the bedrock surface at the site. The sandy gravel with some silt and trace clay encountered from approximately 1.5 m above the termination depth in BH101-22 could therefore represent weathered/fractured bedrock.

5.2.3 Groundwater Conditions

BH101-22 and BH102-22 were outfitted with monitoring wells to allow for the measurement of stabilized groundwater elevations within or below the earthfill embankments.

In BH101-22, wet soils were observed beginning at a depth of approximately 2.3 mbgs, transitioning to saturated (by visual observation) at a depth of 4.6 mbgs.

In BH102-22, soils encountered were described as dry to moist up to a depth of 4.6 mbgs. The clayey silt material below this depth was described as moist to wet, with saturated soils observed at approximately 6 mbgs.

A subsequent site visit and water level measurement was conducted on April 6, 2022, with water levels between approximately 3.0 mbgs and 3.5 mbgs being measured in the installed monitoring wells.

Generally, the measured water level within the embankment can be expected to fall between the retained water level on the reservoir/pond side of the structure and the water level on the downstream side of the embankment.

5.3 Methodology

Slope stability analyses were carried out to assess the Factor of Safety (FoS) against slope failure for both the upstream and downstream faces of the left and right embankments of the dam structure. The slope stability analyses were performed using Slope/W, an industry standard two-dimensional limit equilibrium slope modelling program. Inputs required for the Slope/W program include soil stratigraphy and geotechnical design parameters.

The loading cases used in the stability evaluation are based on the LRIA Technical Bulletin for Geotechnical Design and Factors of Safety (MNR, 2011). The design criteria contained within the LRIA Technical Bulletins include hydrotechnical, seismic and static stability criteria as determined by the Hazard Potential Classification (HPC) of the dam.

Two typical cross sections were used to model the upstream and downstream slopes of the earth embankments on either side of the concrete spillway. The cross sections were based on topographic survey data. The subsurface information used in the model was based on the field data collection and laboratory testing completed by Cambium.

5.4 Results

The results of Cambium's slope stability analyses are provided in **Table 30** and additional details are included in the Geotechnical Engineering Report, which is included in **Appendix E**.

Table 30 – Slope Stability Assessment Results

Loading Case	Factor of Safety	
	Calculated	Minimum
Right (East) Embankment		
Steady State / Sunny Day Analysis (Upstream)	1.8	1.5
Pseudostatic Analysis (Upstream)	1.2	> 1.0
IDF Condition Analysis (Upstream)	2.0	1.3
Rapid Drawdown Analysis (Upstream)	**1.2**	1.3
Steady State / Sunny Day Analysis (Downstream)	1.7	1.5
Pseudostatic Analysis (Downstream)	1.3	> 1.0
IDF Condition Analysis (Downstream)	**0.8**	1.3
Left (West) Embankment Section		
Steady State / Sunny Day Analysis (Upstream)	2.3	1.5
Pseudostatic Analysis (Upstream)	1.6	> 1.0
IDF Condition Analysis (Upstream)	2.5	1.3
Rapid Drawdown Analysis (Upstream)	2.3	1.3
Steady State / Sunny Day Analysis (Downstream)	3.7	1.5
Pseudostatic Analysis (Downstream)	2.0	> 1.0
IDF Condition Analysis (Downstream)	2.3	1.3

The results of the stability assessment show that the analyzed sections meet the minimum factors of safety recommended within the LRIA Technical Bulletin for Geotechnical Design and Factors of Safety (MNR, 2011) for the majority of loading cases with the exception of the rapid drawdown loading condition for the upstream

slope of the right (east) earth embankment and the IDF condition for the downstream slope of the right (east earth embankment.

6.0 Conclusions

This section summarizes and concludes the findings of the Dam Safety Assessment for the Pefferlaw Dam.

6.1 Hydrotechnical

- The Sunny Day peak flow for the Pefferlaw Dam was assumed to be 2.0 m^3/s.
- The 100-year peak flow for the Pefferlaw Dam is 109.8 m^3/s, as estimated by the hydrologic model.
- The 1000-year peak flow for the Pefferlaw Dam is 185.0 m^3/s, as determined by the interpolation between the 100-year peak flow and the PMF peak flow.
- The Probable Maximum Flood (PMF) peak flow for the Pefferlaw Dam is 884.2 m^3/s, as estimated by the hydrologic model.
- The Pefferlaw Dam is classified as a Low hazard dam for normal (Sunny Day) dam breach scenario.
- The Pefferlaw Dam is classified as a Moderate hazard dam for the flood dam breach scenario.
- The recommended Inflow Design Flood (IDF) for the Pefferlaw Dam is the 100-year flood, which is estimated as 109.8 m^3/s.
- The headwater elevation for the IDF (109.8 m^3/s) is 226.68 m, as estimated using the steady-flow HEC-RAS model.
- The dam does not have sufficient hydraulic capacity to convey the IDF and overtops the earth embankments by approximately 0.45 m.
- The dam has sufficient freeboard for the normal operating condition but not for the IDF condition due to dam overtopping.

6.2 Civil / Structural

6.2.1 Condition Assessment

- The earth embankment surfaces are well vegetated with grass and some small plants and shrubs with minor settlement noted in isolated areas. There was erosion on the upstream left and right embankment slopes up to the normal summer water level and a number of large trees growing on the embankment sections and adjacent to the concrete structures.
- Some of the concrete sections of the dam are in fair condition; however, there are a number of areas where the concrete is in poor condition with large spalls, delaminations, wide cracks and exposed reinforcement.

- The east and west pedestrian spans of the steel truss bridge are in fair condition, with coating failure and light corrosion throughout. The operation span is in poor condition with failure of the coating material and light corrosion throughout. The northwest, southwest, and southeast truss end posts of the operation span have deformed/bowed out.
- The galvanized steel deck grating on the steel truss bridge is in fair condition with some surface rust and damaged sections. A deck panel on the operation span has broken welds. Several deck panels have displaced or loose deck clips.
- Erosion was also noted on the downstream left and right sides behind the armour stone retaining walls. The area with the most significant erosion noted was downstream of the left wing wall where there was a large void under/behind the armour stone.
- It appears as though there is seepage between the weir wall sections and aprons on the left and right sides of the dam. No seepage through the earth embankments was identified because the water level was drawn down for winter.

6.2.2 Structural Stability Assessment

- The results of the structural (gravity dam) stability assessment indicate that the typical pier meets the required factors of safety identified in the LRIA Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011).
- The results of the structural (gravity dam) stability assessment indicate that the left (west) overflow weir does not meet the required factors of safety identified in the LRIA Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011) for all loading conditions. The factor of safety for sliding is less than 1.0 for all loading conditions and the factor of safety for overturning is less than 1.0 for the winter (ice) loading condition and less than the standard for the IDF loading condition
- The results of the structural (gravity dam) stability assessment indicate that the right (east) overflow weir does not meet the required factors of safety identified in the LRIA Technical Bulletin for Structural Design and Factors of Safety (MNR, 2011) for all loading conditions. The factors of safety for sliding and overturning are less than 1.0 for the IDF loading condition.

6.3 Geotechnical

6.3.1 Field Investigation

- Three boreholes were advanced through the existing earth embankments, one through the west earth embankment and two through the east earth embankment. The subsurface conditions encountered at the site generally consist of a surficial topsoil layer (up to approximately 150 mm in thickness) underlain by surficial fill, presumably utilized to construct the earth embankments. The fill transitions to native materials consisting of till (gravels, silts and sands with varying clay content).

- Within the boreholes, fill materials were encountered below the surficial topsoil layer and extended to depths of approximately 2.3 mbgs. The fill material primarily consisted of brown sand with some gravel and varying silt and clay components. The silt content generally increased with depth, with the fill being characterized as silt and sand between 1.5 mbgs and 2.3 mbgs in BH102-22 and as gravelly silty sand between 1.2 mbgs and 1.8 mbgs in BH103-22.
- Cambium noted that the fill materials used to construct the earth fill embankments and to backfill the excavations required to reconstruct the dam may also consist of reworked native materials. Particularly in BH102-22, reworked native material may extend to a depth of approximately 3.0 mbgs or further. In general, the transition between fill and native materials at the site is fluid, with the fill and inferred native materials being similar in composition within shallower depths.
- Below the inferred fill material, native soils consisted of glacial till. Glacial till consists of a heterogeneous mixture of all grain sizes.
- Based on Cambium's results and the results of previous studies that Cambium reviewed, bedrock is expected to be present at the site at elevations of between 6.1 m and 6.2 m below ground in the vicinity of BH101-22 and BH102-22.
- Static water levels at the site ranged from 3.0 m below ground to 3.5 m below ground.

6.3.2 Geotechnical Stability Assessment

- The results of the geotechnical stability assessment completed by Cambium show that the right (east) embankment section does not meet the minimum factors of safety recommended within the LRIA Technical Bulletin for Geotechnical Design and Factors of Safety (MNR, 2011) for the rapid drawdown analysis of the upstream slope and the IDF condition analysis for the downstream slope.
- The results of the geotechnical stability assessment completed by Cambium show that the left (west) embankment section meets the minimum factors of safety recommended within the LRIA Technical Bulletin for Geotechnical Design and Factors of Safety (MNR, 2011) for all loading conditions.

7.0 Recommendations

Upon taking ownership of the Pefferlaw Dam, it is recommended that the Town of Georgina undertake the steps necessary to address the deficiencies that have been identified in this report and through previous inspections. Alternatives that may be considered by the Town of Georgina include Rehabilitation, Replacement and Decommissioning.

The rehabilitation alternative would need to address the dam condition deficiencies identified as part of the previous inspections and concrete condition assessment, the

dam safety deficiencies identified as part of this report and the recommended public safety measures identified in the Public Safety Risk Assessment.

In order to address the identified dam condition deficiencies, the rehabilitation would generally need to include the following elements:

- Rehabilitate the deteriorated concrete surfaces of the dam as identified in the dam inspection reports and concrete condition assessment.
- Implement measures to stop the seepage between the weir walls and aprons on the left and right sides of the dam.
- Replace the steel truss bridge and operating deck and incorporate adequate fall arrest measures for dam operators and railings for both the public and dam operators.
- Remove the trees from the earth embankments and from adjacent to concrete or masonry structures and remediate the voids left by the root systems.
- Repair the erosion on the upstream left (west) and right (east) sides of the earth embankment.
- Repair the erosion behind the downstream left (west) and right (east) armour stone retaining walls.
- Repair the chain link fence along the west property line.

In addition to the above, and in order to address the identified dam safety deficiencies, the rehabilitation would also likely need to include the following elements:

- Hardening of the earth embankment slopes in order to allow for stable overtopping during the IDF to address the hydraulic capacity/freeboard deficiency.
- Installation of soil/rock anchors for the weir structures to address the gravity dam stability deficiency.
- Flatten the upstream and downstream slopes for the right (east) earth embankment and provide erosion protection along the upstream slope in order to address the slope stability deficiency.

From the Public Safety Risk Assessment Report (Wills, 2022), the recommended updates to the public safety measures include:

- Replacement of the large upstream and downstream facing public safety signs.
- Installation of new permanent small public safety signs at the access points to the left and right sides of the steel truss bridge.
- Installation of three private hazard buoys upstream of the dam to warn approaching boaters of the hazards at the dam and delineate the potentially dangerous area.

An updated rehabilitation cost estimate that considers all of the above items is included in **Appendix F**. The cost estimate includes the estimated engineering costs (25% of the total fee) as well as a 35% contingency. This cost estimate is indicative of a Class 4 / Class D (conceptual level) cost estimate, having an accuracy of approximately +/- 30%. The cost estimate would be refined as part of the detailed rehabilitation design and contract document preparation process. It is noted that the cost estimate represents Wills' best estimate of the pricing at the time of preparation (June 2022) and does not account for inflation, changes that may occur in the construction industry or other unknown factors (i.e. pandemics like COVID-19).

The process to complete the rehabilitation would generally include the following stages: Detailed Design, Permitting (LSRCA and NDMNRF), Tendering and Construction. Based on our understanding of the Municipal Class Environmental Assessment (MCEA) (MEA, 2015) document, the rehabilitation alternative would be considered as a Schedule A project under the MCEA, meaning that the project is pre-approved and that the work could proceed without following the procedures set out in the MCEA.

If another alternative is to be considered then a MCEA may need to be completed prior to commencing the detailed design. Based on our understanding of the MCEA document, a dam replacement, where the purpose use and capacity of the dam are changed, and dam decommissioning would both be considered as Schedule B projects under the MCEA.

The recommended additional public safety measures should be implemented within 1 year and the identified structure condition and dam safety deficiencies should be addressed within 1 to 5 years (either through rehabilitation, replacement or decommissioning). It is further recommended that all of the work required to address the structure condition and dam safety deficiencies be completed at the same time in order to simplify the design and permitting processes, reduce overall construction costs and minimize the disturbance to the site and community.

8.0 Closure

We appreciate the opportunity to provide Professional Engineering Services to the Town of Georgina. Should you have any questions regarding any of the material contained herein, please do not hesitate to contact the undersigned.

Respectfully submitted,





David Green, P.Eng.
Assistant Manager,
Water Resources Engineering

DG/jh

Appendix A

Site Inspection

Form B2

Dam Inspection Report

Date:	April 4, 2022
Name of Dam:	Pefferlaw Dam
Municipality:	Town of Georgina, Regional Municipality of York
Location:	Pefferlaw, Ontario
GPS Coordinates:	643765 m E, 4908276 m N, UTM Zone 17T
Inspected By:	David Green, P.Eng., Alex Payette, EIT, Nate Napper, EIT
Weather:	1°C, sun and cloud

1 – Earth Embankment

The embankment surface is well vegetated with grass and some small plants and shrubs. Minor settlement was noted in isolated areas.

As further described in Section 9, erosion was noted on the upstream left and right embankments at the normal summer water level and there was erosion noted behind the left and right downstream armour stone retaining walls.

There are a number of large trees growing on the embankment and immediately adjacent to the concrete structures. The root systems from these trees have the potential to cause damage to the concrete sections of the dam and encourage piping through the earth sections of the dam. Additionally, if one of the large trees were to fall and pull up the root ball, the ability of the earth embankment to retain the head pond may be compromised. A section of one of the large trees on the downstream right side of the dam has fallen and is resting on the abutment wall and spillway apron.

There is a portion of the right (east) embankment that is retained by the stone foundation wall of the former mill. The stone wall generally appears to be in fair condition.

2 – Concrete Structures (wingwalls, piers, deck, spillways, apron, etc.)

Upstream Left (West) Retaining Wall – The upstream left (west) retaining wall is generally in fair condition. There is medium scaling above the high water mark, revealing the large round aggregate used in the concrete. The wall is also spalling along the edge of the wall and top face.

Left (West) Dam Abutment – The left (west) dam abutment is generally in poor condition. There is a large spall measuring approximately 500 mm by 400 mm by 200 mm deep at the interface of the upstream face of the left (west) weir and the left (west) abutment. There are a number of smaller spalls near the base of the wall at the winter water level. There is some delaminated concrete near the flashboard gain.

There is a wide crack at a construction joint that extends across the height of the wall extending from the interface with the left (west) weir to the top of the wall. There are

two large spalls above the downstream crest of the weir along the wide crack measuring approximately 400 mm by 600 mm (exposed and corroded steel reinforcing, large round aggregate) and 450 mm by 700 mm. There is another spall at the base of the abutment (where it meets the apron) that measures approximately 600 mm by 200 mm.

Left (West) Bridge Abutment – The left (west) bridge abutment is generally in good condition. There is a spall around the bearing seat for the truss bridge (upstream side), exposing the bearing anchor and reducing the bearing area of the truss support.

Video from the underwater inspection showed severe scaling / concrete disintegration below the waterline, near the riverbed along the entire abutment.

Upstream Right (East) Retaining Wall – The upstream right (east) retaining wall generally appears to be in good condition.

Right (East) Dam Abutment – The right (east) abutment is in poor to very poor condition. There is evidence of patch repairs at this wall area. The majority of the wall surface is delaminated and there are several large spalls. There is some map cracking with efflorescence at the far downstream end of the wall, with a 300 mm by 1000 mm by 300 mm deep void. The entire face of the wall is exhibiting some level of concrete disintegration. There is a masonry wall perched on the downstream edge of the right (east) abutment that is in very poor condition.

Right (East) Bridge Abutment – The right (east) bridge abutment is generally in fair to good condition. There is medium scaling along the face of the abutment, and there is a wide crack in the precast concrete block that is supporting the cast in place abutment. The precast concrete blocks appear to show some movement on the upstream side.

Left (West) Weir – There is a large gap (25 mm) at the construction joint where the flat section of the weir crest meets the sloping section of the weir crest. There is also a wide crack located approximately 200 mm downstream of the construction joint. The crack runs almost the entire length of the weir crest and the area between the crack and the joint is delaminating. The flat section of the weir crest contains a number of square holes for the installation of the flashboard posts. There appears to be a construction joint approximately 60 mm below the downstream weir crest on the downstream face of the weir. The downstream face of the weir is in good condition, however, there is a 30 mm gap at the interface of the weir and the apron. Video from the underwater inspection did not identify any undercutting of the upstream side of the weir.

Left (West) Apron – The entire surface of the apron is severely eroded on the face (100%). There is a wide crack at the downstream left side of the apron. The cracked area is approximately 1600 mm by 2300 mm. The downstream edge of the apron is approximately 800 mm high. The edge of the apron wall is spalling in several areas exposing the aggregate. Closer to the sluiceway, the edge is disintegrating due to

the increased flow in this area. Video from the underwater inspection identified the possibility of some cracks with efflorescence and some minor spalls. There was also one location that appeared to show some minor undercutting of the apron. Adjacent to the sluiceway, the top face of the apron is wet. It is apparent that seepage is infiltrating under the weir wall and onto the top of the apron.

Right (East) Weir – The upstream face of the weir is generally in good condition with some bug holes. The weir crest is in good condition. The downstream face of the weir is in fair to good condition with honeycombing noted near the interface with the abutment (1.2 m^2).

Right (East) Apron – There are some medium width cracks along the apron surface. The apron is undermined by approximately 750 to1500 mm and it would appear as though the end of the apron has spalled off. Video from the underwater inspection appears to indicate that the undermining is restricted to the right side of the apron and does not extend to the sluiceway. The top of the apron is approximately 700 mm off the river bottom. A wide crack is present and runs diagonally from the north east corner back to the east pier. Adjacent to the sluiceway, the top face of the apron is wet. It is apparent that seepage is infiltrating under the weir wall and onto the face of the apron.

Pier 1 (West Pier) – The downstream face and top surface of the pier is in good condition. The upstream, west and east faces are also in good condition with some map cracking, cracks with efflorescence and pitting above the high water mark. Video of the underwater inspection did not indicate any undermining of the pier or significant concrete deterioration below the winter water level.

Pier 2 (East Pier) – The downstream face of the pier is in good condition with some cracking. The upstream, west and east faces are also in good condition with some scaling at the water line and minor map cracking with efflorescence above the high water mark. Video of the underwater inspection did not indicate any undermining of the pier or significant concrete deterioration below the winter water level.

Sluiceway and Apron – Due to the presence of fast flowing water, the sluiceway and the apron downstream of the sluiceway could not be fully inspected. Video from the underwater inspection indicated that there may be severe erosion of the concrete surface in this area (similar to the left (west) apron surface). A severe wide crack was observed that runs perpendicular to the flow along the whole width of the sluiceway.

3 – Wooden and Metal Structures (decks, gains, railings, conduits, etc.)

Truss Bridge – The east and west pedestrian spans are in fair condition, with coating failure and light corrosion throughout.

The operation span is in poor condition. The northwest, southwest, and southeast truss end posts have deformed/bowed out; however, the previous repairs appear to be holding.

The south face of the square HSS support of the operation span at the southwest support is deformed. This appears to have been in this condition for some time.

Deck Grating – The galvanized steel deck grating is supported by and secured to the truss bridge. The grating is in fair condition with some surface rust and damaged sections. A deck panel on the operation span has broken welds. Several deck panels have displaced or loose deck clips that should be replaced/re-attached.

Pier Nosings – The pier nosings appear to be galvanized steel are generally in fair to good condition with minor corrosion and section loss (<10%) below the high water mark.

Gain Liners – The gain liners are in fair condition with failure of the coating material, surface rusting and minor section loss below the high water mark.

Fall Arrest System – The fall arrest support posts appear to be galvanized steel, are mounted to the truss bridge and appear to be in good condition. The steel cable is secured at both ends and in the middle and appears to be in good condition. All connections for the cable appear to be secure.

Railings – The deck railings are formed as part of the truss bridge. Welded wire mesh has been added to the inside of the truss to cover the gaps between the truss sections. The railing on the dam deck is approximately 1070 mm high. The welded wire mesh is in good condition, however, as described above, the truss bridge is in poor condition.

Chain Link Fence – The chain link fencing on the dam wingwalls is in good condition and measures approximately 1220 mm high. The chain link fence between the park and the private property to the west is damaged (bent upper rail and disjointed connection at the end post).

4 – Gates and/or Stop Logs (identified looking downstream left to right)

Stoplogs – The dam is supplied with six (6) 11 in high by 8 in wide wooden stoplogs. Five (5) stoplogs are used for operation and one (1) spare remains on the deck. Five (5) stoplogs were stored on the deck at the time of the inspection (winter drawdown) and were chained and locked to the railing. Each stoplog end has a steel mounting bracket this is used to lift the logs. The steel mounting brackets show signs of surface rust and section loss while the wooden stoplogs show signs of deterioration. The stoplog gain cover is level with the remainder of the dam deck and is locked. The frame and grating show signs of surface rust but generally appear to be in fair condition.

Flashboards – The flashboards were not on site during the inspection. Based on information collected during Wills' November 2019 inspecting, it was understood that the flashboards were going to be replaced for the 2020 operating season. It is not clear if this replacement was completed.

5 – Water Level Gauge (reading and condition)

There is no water level or flow gauge located at the Pefferlaw Dam site. Operators use the flow data from the "Pefferlaw Brook Near Udora" (02EC018) Water Survey of Canada stream gauge to anticipate the need for operations at the dam.

6 – Winches (type and number)

The winches were not in site during the inspection. The following is based on Wills' inspection of the winces in November 2019:

> The dam is equipped with two (2) Jeamar heavy duty hand winches. The winches are stored off site. Only one (1) of the two (2) winches was on site at the time of the dam inspection. The name plate on the winch provided was scratched and difficult to read; however, the operator indicated that the capacity of the winches is 2100 lbs.
>
> The winch provided exhibited signs of damage/repair, surface rust and paint chipping; however the operator indicated that the winches were generally in good working order and that they are greased at the end of each year.
>
> The winches are installed onto the dam for log operations and removed after log operations are complete. A J-shaped mounting plate/bracket bolted to the winch slides over a mounting bar that is installed into steel brackets on the truss that supports the deck. The mounting bars have end plates that would prevent them from moving horizontally and the weight of the stoplogs would prevent the mounting bar from moving vertically. The J-shaped mounting plate/bracket and the mounting bar have surface rust and chipping paint but are generally considered to be in fair condition.

7 – Valves (type and number)

This dam is not equipped with a valve.

8 – Boom (driftwood, chains, anchors)

This dam is not equipped with a debris or public safety boom.

9 – Erosion (upstream and downstream)

Erosion was noted on the upstream left and right sides of the earth embankment at what is expected to be the normal summer water level.

Erosion was noted on the downstream left and right sides behind the armour stone retaining walls. The area with the most significant erosion noted was downstream of the left wing wall where there was a large void under/behind the armour stone.

10 – Seepage or Leaks

It appears as though there is seepage between the weir wall sections and aprons on the left and right sides of the dam.

11 – Access Route

The main dam access is via an approximately 3 m wide gravel access road located on the west side of the Pefferlaw River. The access road is gated and locked to prevent entry by unauthorized vehicles; however, pedestrians are able to walk around the gate to access the park area surrounding the dam. The gravel surface of the access road is in poor condition with vegetation growth, rutting and pooling of water.

There is a secondary access on the east side of the Pefferlaw River. The access is gated and locked to prevent entry by unauthorized vehicles; however, pedestrians are able to walk around the gate to access the park area surrounding the dam. There is no formal access road to the dam as part of the secondary access.

12 – Safety Issues (public and operator)

Public Safety – There is no safety boom located upstream of the dam. The reservoir is used primarily by the private property owners surrounding the head pond for non-power boating. Access to the head pond by members of the public is possible through the park adjacent to the dam or from upstream in the Pefferlaw River.

There is expected to be significant public interaction with the deck of the structure due to its location within the park and the convenience for members of the public to cross the Pefferlaw River at this location. Access to the deck of the dam deck was restricted at the time of the inspection.

There are small (600 mm x 600 mm) "DANGER, Keep Out" signs on the fencing that blocks access to the dam deck from both sides of the river. The signs do not identify the hazards associated with accessing the dam deck and the Lake Simcoe Region Conservation Authority logo has been spray painted white.

Members of the public could climb the stoplogs that are stored on the deck of the dam. If they do, the railing in that area is not high enough to prevent them from falling.

Operator Safety – The dam is equipped with a fall arrest system; which is located above the overflow weir/flashboards. The fall arrest system does not cover dam operators during stoplog operations and during the November 2019 inspection the operators indicated that they tie off to the railing. The height an operator could fall from the deck to the downstream sill is just over 3.0 m, meaning that fall arrest is required when the stoplog gain covers are opened.

13 – Signage

There is standardized dam safety signage located on the upstream and downstream sides of the control structure. The signs read "DANGER, Keep Out, Swift Currents &

Undertow May Occur at Anytime", provide contact information for the dam owner and identify that 911 should be called in an emergency. Both signs are in good condition; however, the Lake Simcoe Region Conservation Authority logo has been spray painted white on the downstream facing public safety sign.

There is a "NO DIVING FROM BRIDGE, SHALLOW WATER" sign located on the upstream side of the dam to the left of Pier 1 (West Pier). The sign is in poor condition and appears to have been vandalized.

There are signs near the entrances to the park, near the gated access points, by the Town of Georgina indicating the rules for using the park area.

14 – Divestment and/or Decommissioning Opportunities

It is understood that the Lake Simcoe Region Conservation Authority is in the process of divesting this dam to the Town of Georgina.

15 – General Remarks

There is no target water level for the head pond, however operators do follow an operating plan for when to install/remove the stoplogs and flash boards (spring/fall operations). The dam is rarely operated outside of the spring/fall operating seasons.

There are the remnants of the fish ladder downstream of the overflow weir with some mounting brackets remaining on the pedestrian bridge truss.

A Public Safety Risk Assessment and a Public Safety Plan have not been prepared for this site; however, there is significant public interaction with the dam.

The latest Dam Safety Review (DSR) was completed by TSH in 2008 using the 1977 Lakes and Rivers Improvement Act Guidelines (MNR) as well as the Draft 1999 Ontario Dam Safety Guidelines (MNR). The DSR concluded that the Hazard Potential Classification (HPC) for the dam was Low; however, dam breach modelling was not undertaken as part of the analysis. Based on the HPC of Low an Inflow Design Flood (IDF) of the 100-year peak flow was selected. TSH indicated that the dam has adequate hydraulic capacity for the IDF. The structural stability assessment of the concrete gravity dam sections indicated that some sections do not meet the required factors of safety for some loading conditions.

16 – Recommendations

Following the completion of the Dam Safety Review and Public Safety Risk Assessment (expected June 2022), undertake the steps necessary to address the identified deficiencies. Alternatives that may be considered include Rehabilitation, Replacement (similar or modified configuration) and Removal.

In order for the Rehabilitation alternative to be considered viable, the existing structure must satisfy the requirements of the Lakes and Rivers Improvement Act Technical Bulletins (MNR, 2011) or be relatively easily modified to meet said

requirements. The Rehabilitation alternative would generally need to include the following elements:

- Rehabilitate the deteriorated concrete surfaces of the dam as identified in the dam inspection reports and concrete condition assessment.
- Implement measures to stop the seepage between the weir walls and aprons on the left and right sides of the dam.
- Replace the steel truss bridge and operating deck and incorporate adequate fall arrest measures for dam operators and railings for both the public and dam operators.
- Remove the trees from the earth embankments and from adjacent to concrete or masonry structures and remediate the voids left by the root systems.
- Repair the erosion on the upstream left (west) and right (east) sides of the earth embankment.
- Repair the erosion behind the downstream left (west) and right (east) armour stone retaining walls.
- Implement public safety measures as identified in the Public Safety Risk Assessment.
- Repair the chain link fence along the west property line.
- Implement other measures, as required, based on the outcome of the Dam Safety Review analyses.

The process to complete the Rehabilitation would generally include the following stages: Detailed Design, Permitting (LSRCA and NDMNRF), Tendering and Construction. If another alternative (i.e. Replacement or Removal) is to be considered then a Municipal Class Environmental Assessment may need to be completed prior to commencing the Detailed Design.





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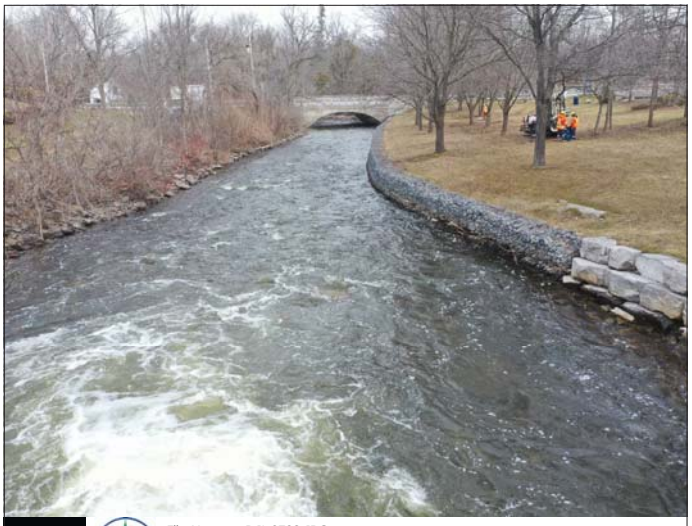
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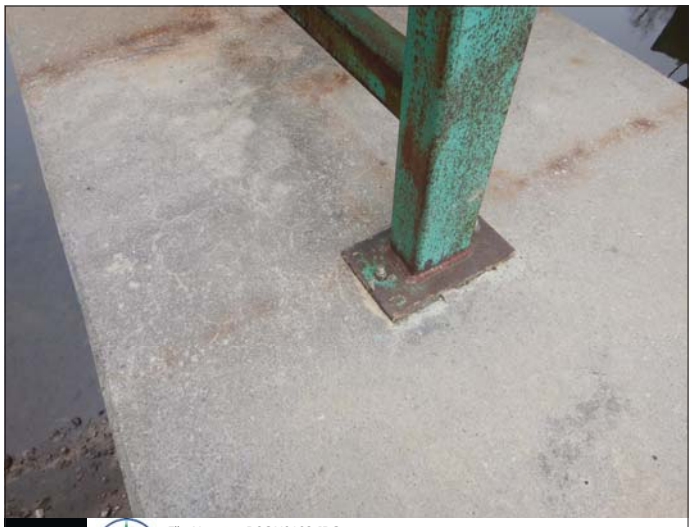
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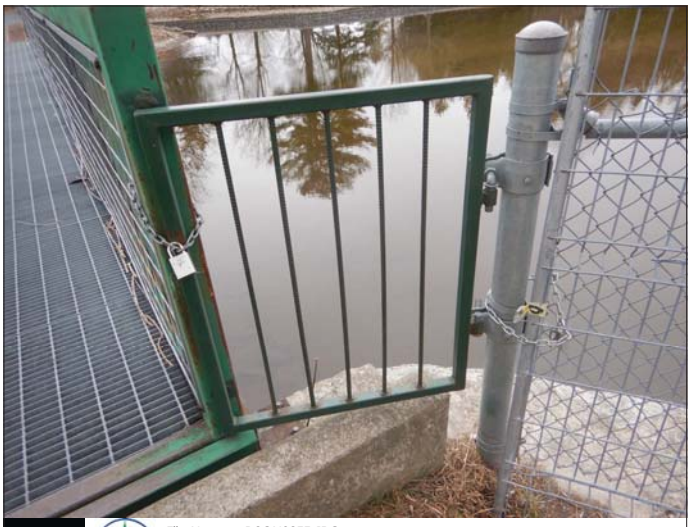
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Pefferlaw Dam

Appendix B

Hydrologic Assessment

Station Frequency Analysis for Pefferlaw Dam

Project No: 19-5381
Project Name: Pefferlaw Dam DSR
Designed/Checked By: DG / MJH
Date: Thursday, May 5, 2022

Hydrologic Properties of Catchment Area

Catchment Name	Pefferlaw Dam
Catchment Area	361.5 km^2
Hydrology Model Catchment ID	199

Hydrometric (Gauging Station) Data

Station Number	Station Name	Period of Record	Drainage Area (km^2)	Source
02EC018 / 02EC103	Pefferlaw Brook Near Udora	51	347.0	WSC
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

HEC-SSP Results

Percent Chance Exceedance	Return Period (years)	Probability	Peak Flow (cms)					
			02EC018 / 02EC103					
50	2	0.5	24.80					
20	5	0.2	39.60					
10	10	0.1	51.90					
4	25	0.04	70.80					
2	50	0.02	87.40					
1	100	0.01	106.60					
0.1	1000	0.001	193.40					

Transposition

Transposition Equation
$Q2 = Q1 (A2/A1)^{0.75}$

Return Period (years)	Probability	Peak Flows Transposed to Pefferlaw Dam (cms)						
		02EC018 / 02EC103						Average
2	0.5	25.6						25.6
5	0.2	40.8						40.8
10	0.1	53.5						53.5
25	0.04	73.0						73.0
50	0.02	90.1						90.1
100	0.01	109.9						109.9
1000	0.001	199.4						199.4

Station Frequency Analysis for Pefferlaw River Outlet

Project No: 19-5381
Project Name: Pefferlaw Dam DSR
Designed/Checked By: DG / MJH
Date: Thursday, May 5, 2022

Hydrologic Properties of Catchment Area

Catchment Name	Pefferlaw River Outlet
Catchment Area	421.6 km^2
Hydrology Model Catchment ID	101

Hydrometric (Gauging Station) Data

Station Number	Station Name	Period of Record	Drainage Area (km^2)	Source
02EC018 / 02EC103	Pefferlaw Brook Near Udora	51	347.0	WSC
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

HEC-SSP Results

Percent Chance Exceedance	Return Period (years)	Probability	Peak Flow (cms)					
			02EC018 / 02EC103					
50	2	0.5	24.80					
20	5	0.2	39.60					
10	10	0.1	51.90					
4	25	0.04	70.80					
2	50	0.02	87.40					
1	100	0.01	106.60					
0.1	1000	0.001	193.40					

Transposition

Transposition Equation
$Q2 = Q1 (A2/A1)^{0.75}$

Return Period (years)	Probability	Peak Flows Transposed to Pefferlaw River Outlet (cms)						
		02EC018 / 02EC103						Average
2	0.5	28.7						28.7
5	0.2	45.8						45.8
10	0.1	60.1						60.1
25	0.04	81.9						81.9
50	0.02	101.1						101.1
100	0.01	123.4						123.4
1000	0.001	223.8						223.8

Design Chart 1.03: Hurricane Hazel

	Depth		Percent of 12 hour
	(mm)	(inches)	
First 36 hours	73	2.90	
37th hour	6	.25	3
38th hour	4	.17	2
39th hour	6	.25	3
40th hour	13	.50	6
41st hour	17	.66	8
42nd hour	13	.50	6
43rd hour	23	.91	11
44th hour	13	.50	6
45th hour	13	.50	6
46th hour	53	2.08	25
47th hour	38	1.49	18
48th hour	13	.50	6
	285	11.21	100

Drainage Area (km^2)	Percentage
0 to 25	100.0
26 to 45	99.2
46 to 65	98.2
66 to 90	97.1
91 to 115	96.3
116 to 140	95.4
141 to 165	94.8
166 to 195	94.2
196 to 220	93.5
221 to 245	92.7
246 to 270	92.0
271 to 450	89.4
451 to 575	86.7
576 to 700	84.0
701 to 850	82.4
851 to 1000	80.8
1001 to 1200	79.3
1201 to 1500	76.6
1501 to 1700	74.4
1701 to 2000	73.3
2001 to 2200	71.7
2201 to 2500	70.2
2501 to 2700	69.0
2701 to 4500	64.4
4501 to 6000	61.4
6001 to 7000	58.9
7001 to 8000	57.4

Source: Ministry of Transportation, MTO (1989)

Design Chart 1.04: Timmins Storm

	Depth		Percent of 12 hour
	(mm)	(inches)	
1st hour	15	0.6	8
2nd hour	20	0.8	10
3rd hour	10	0.4	6
4th hour	3	0.1	1
5th hour	5	0.2	3
6th hour	20	0.8	10
7th hour	43	1.7	23
8th hour	20	0.8	10
9th hour	23	0.9	12
10th hour	13	0.5	6
11th hour	13	0.5	7
12th hour	8	0.3	4
	193	7.6	100

Drainage Area (km^2)	Percentage
0 to 25	100.0
26 to 50	97
51 to 75	94
76 to 100	90
101 to 150	87
151 to 200	84
201 to 250	82
251 to 375	79
376 to 500	76
501 to 750	74
751 to 1000	70
1001 to 1250	68
1251 to 1500	66
1501 to 1800	65
1801 to 2100	64
2101 to 2300	63
2301 to 2600	62
2601 to 3900	58
3901 to 5200	56
5201 to 6500	53
6501 to 8000	50

Source: Ministry of Transportation, MTO (1989)

Design Chart 1.05: SCS Type II Distribution

6 hour			12 hour			24 hour		
Time end'g, hour	F_{inc} (%)	F_{cum} (%)	Time end'g, hour	F_{inc} (%)	F_{cum} (%)	Time end'g, hour	F_{inc} (%)	F_{cum} (%)
0	0	0	0	0	0	0	0	0
0.5	2	2	2	5	5	2	2.2	2.2
1	3	5	3	3	8	4	2.6	4.8
1.5	3	8	3.5	2	10	6	3.2	8.0
2	5	13	4	2	12	7	-	-
2.5	6	19	4.5	3	15	8	4.0	12.0
2.75	15	34	5	4	19	8.5	-	-
3	39	73	5.5	6	25	9	2.7	14.7
3.5	11	84	5.75	12	37	9.5	1.6	16.3
4	5	89	6	33	70	9.75	-	-
4.5	4	93	6.5	9	79	10	1.8	18.1
5	3	96	7	4	83	10.5	2.3	20.4
6	4	100	7.5	3	86	11	3.1	23.5
			8	3	89	11.5	4.8	28.3
			10	7	96	11.75	10.4	38.7
			12	4	100	12	27.6	66.3
						12.5	7.2	73.5
						13	3.7	77.2
						13.5	0.7	77.9
						14	4.1	82.0
						16	6.0	88.0
						20	7.2	95.2
						24	4.8	100

Source: Ministry of Natural Resources - MNR (1986)

Active coordinate

44° 18' 45" N, 79° 11' 45" W (44.312500,-79.195833)

Retrieved: Tue, 10 May 2022 18:37:32 GMT



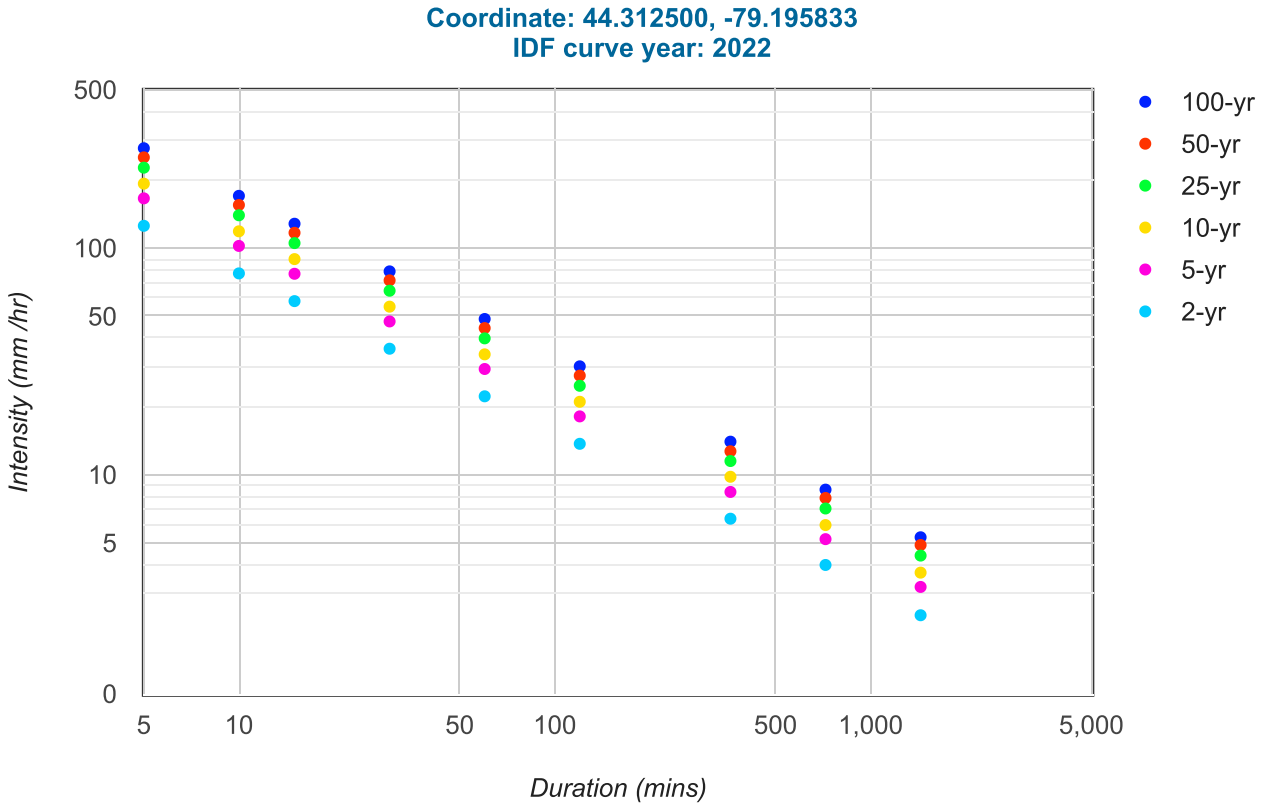
Location summary

These are the locations in the selection.

IDF Curve: 44° 18' 45" N, 79° 11' 45" W (44.312500,-79.195833)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 44° 18' 45" N, 79° 11' 45" W (44.312500,-79.195833)

Retrieved: Tue, 10 May 2022 18:37:32 GMT

Data year: 2010
IDF curve year: 2022

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	125.5	77.4	58.4	36.0	22.2	13.7	6.4	4.0	2.4
5-yr	165.9	102.3	77.1	47.5	29.3	18.1	8.4	5.2	3.2
10-yr	192.6	118.7	89.5	55.2	34.0	21.0	9.8	6.0	3.7
25-yr	226.6	139.7	105.3	64.9	40.0	24.7	11.5	7.1	4.4
50-yr	251.6	155.1	116.9	72.1	44.4	27.4	12.7	7.9	4.9
100-yr	276.1	170.2	128.2	79.0	48.7	30.1	14.0	8.6	5.3

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.5	12.9	14.6	18.0	22.2	27.4	38.4	48.0	57.6
5-yr	13.8	17.1	19.3	23.8	29.3	36.2	50.4	62.4	76.8
10-yr	16.0	19.8	22.4	27.6	34.0	42.0	58.8	72.0	88.8
25-yr	18.9	23.3	26.3	32.5	40.0	49.4	69.0	85.2	105.6
50-yr	21.0	25.9	29.2	36.0	44.4	54.8	76.2	94.8	117.6
100-yr	23.0	28.4	32.0	39.5	48.7	60.2	84.0	103.2	127.2

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Table B.2: AES 1 Hour Distributions

Elapsed Time [min.]	10%		30%		50%		70%		90%	
	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %
0	0	0	0	0	0	0	0	0	0	0
5	20	20	9	9	5	5	3	3	2	2
10	57	37	23	14	12	7	9	6	3	1
15	70	13	44	21	26	14	15	6	10	7
20	79	9	55	11	35	9	22	7	17	7
25	94	15	68	13	50	15	39	17	23	6
30	96	2	77	9	65	15	46	7	37	14
35	98	2	87	10	76	11	61	15	48	11
40	100	2	92	5	84	8	71	10	57	9
45	100	0	96	4	91	7	82	11	69	12
50	100	0	99	3	95	4	91	9	80	11
55	100	0	100	1	99	4	95	4	90	10
60	100	0	100	0	100	1	100	5	100	10

Table B.1: AES 12 Hour Distributions

Elapsed Time [Hours]	10%		30%		50%		70%		90%	
	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %
0	0	0	0	0	0	0	0	0	0	0
1	45	45	13	13	4	4	3	3	1	1
2	85	40	39	26	18	14	8	5	3	2
3	98	13	59	20	30	12	14	6	4	1
4	100	2	74	15	42	12	24	10	10	6
5	100	0	88	14	60	18	39	15	14	4
6	100	0	96	8	75	15	50	11	27	13
7	100	0	99	3	84	9	60	10	36	9
8	100	0	100	1	91	7	72	12	44	8
9	100	0	100	0	96	5	84	12	58	14
10	100	0	100	0	100	4	92	8	61	3
11	100	0	100	0	100	0	96	4	92	31
12	100	0	100	0	100	0	100	4	100	8

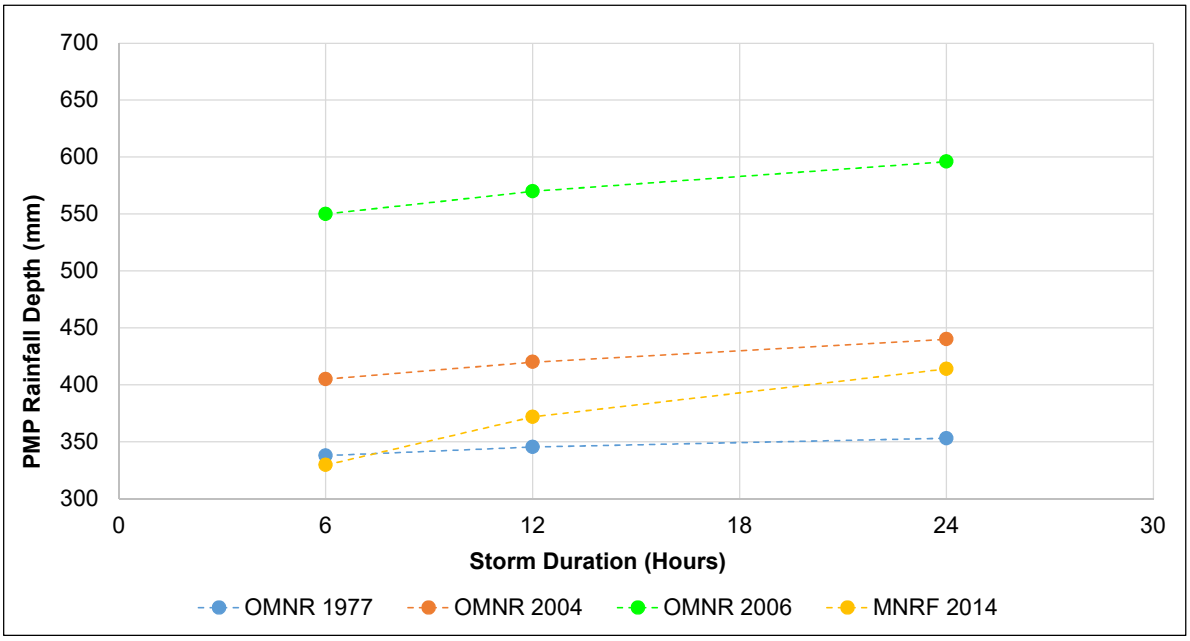
PMP Value Determination for Pefferlaw Dam

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH / KS
Date: May 19, 2022

Catchment Area	
42160.00	ha
421.60	km^2
162.78	mi^2

<--- Use this value to look-up on the Bruce Table (OMNR 1977)

Storm Duration (hour)	OMNR 1977 (mm)	OMNR 2004 (mm)	OMNR 2006 (mm)	MNRF 2014 (mm)
6	338	405	550	330
12	345	420	570	372
24	353	440	596	414

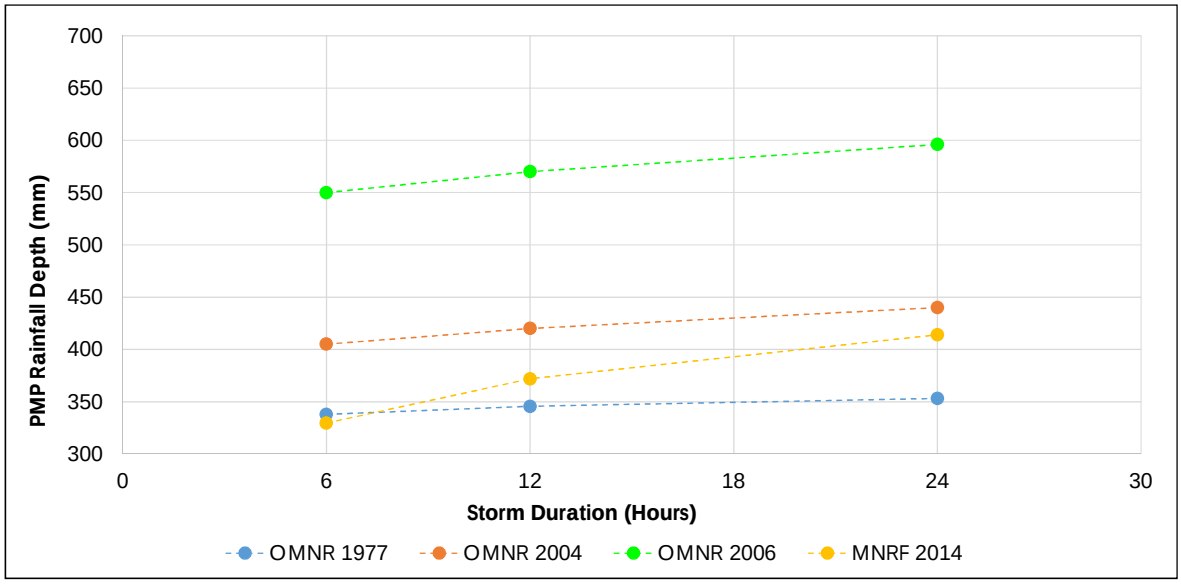


PMP Value Determination for Pefferlaw Dam

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH / KS
Date: May 19, 2022

Storm Duration (hour)	OMNR 1977 (mm)	OMNR 2004 (mm)	OMNR 2006 (mm)	MNRF 2014 (mm)	Average (mm)
6	338	405	550	330	406
12	345	420	570	372	427
24	353	440	596	414	451

Selected Values (mm)
330
372
414



PMP Rainfall Distributions for Pefferlaw Dam

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH / KS
Date: May 19, 2022

MNR PMP Storm Distributions

6-Hour MNR PMP Distribution

Total Rainfall Depth = 330 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
1	8	26.40	26.40
2	9	29.70	29.70
3	11	36.30	36.30
4	49	161.70	161.70
5	15	49.50	49.50
6	8	26.40	26.40

12-Hour MNR PMP Distribution

Total Rainfall Depth = 372 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
1	2	7.44	7.44
2	3	11.16	11.16
3	3	11.16	11.16
4	4	14.88	14.88
5	6	22.32	22.32
6	51	189.72	189.72
7	15	55.80	55.80
8	4	14.88	14.88
9	4	14.88	14.88
10	3	11.16	11.16
11	3	11.16	11.16
12	2	7.44	7.44

AES Storm Distributions

6-Hour AES Distribution

Total Rainfall Depth = 330 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
0.5	13	42.90	85.80
1.0	26	85.80	171.60
1.5	20	66.00	132.00
2.0	15	49.50	99.00
2.5	14	46.20	92.40
3.0	8	26.40	52.80
3.5	3	9.90	19.80
4.0	1	3.30	6.60
4.5	0	0.00	0.00
5.0	0	0.00	0.00
5.5	0	0.00	0.00
6.0	0	0.00	0.00

12-Hour AES Distribution

Total Rainfall Depth = 372 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
1	13	48.36	48.36
2	26	96.72	96.72
3	20	74.40	74.40
4	15	55.80	55.80
5	14	52.08	52.08
6	8	29.76	29.76
7	3	11.16	11.16
8	1	3.72	3.72
9	0	0.00	0.00
10	0	0.00	0.00
11	0	0.00	0.00
12	0	0.00	0.00

SCS Storm Distributions

6-Hour SCS Distribution

Total Rainfall Depth = 330 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
0.25	1	3.30	13.20
0.50	1	3.30	13.20
0.75	1	3.30	13.20
1.00	1	3.30	13.20
1.25	2	6.60	26.40
1.50	2	6.60	26.40
1.75	2	6.60	26.40
2.00	2	6.60	26.40
2.25	3	9.90	39.60
2.50	4	13.20	52.80
2.75	6	19.80	79.20
3.00	45	148.50	594.00
3.25	9	29.70	118.80
3.50	4	13.20	52.80
3.75	3	9.90	39.60
4.00	3	9.90	39.60
4.25	2	6.60	26.40
4.50	2	6.60	26.40
4.75	2	6.60	26.40
5.00	1	3.30	13.20
5.25	1	3.30	13.20
5.50	1	3.30	13.20
5.75	1	3.30	13.20
6.00	1	3.30	13.20

12-Hour SCS Distribution

Total Rainfall Depth = 372 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
0.50	1	3.72	7.44
1.00	1	3.72	7.44
1.50	1	3.72	7.44
2.00	1	3.72	7.44
2.50	2	7.44	14.88
3.00	2	7.44	14.88
3.50	2	7.44	14.88
4.00	2	7.44	14.88
4.50	3	11.16	22.32
5.00	4	14.88	29.76
5.50	6	22.32	44.64
6.00	45	167.40	334.80
6.50	9	33.48	66.96
7.00	4	14.88	29.76
7.50	3	11.16	22.32
8.00	3	11.16	22.32
8.50	2	7.44	14.88
9.00	2	7.44	14.88
9.50	2	7.44	14.88
10.00	1	3.72	7.44
10.50	1	3.72	7.44
11.00	1	3.72	7.44
11.50	1	3.72	7.44
12.00	1	3.72	7.44

6-Hour SCS Distribution

Total Rainfall Depth = 414 mm

Timestep (hours)	Rainfall Distribution (percent)	Rainfall (mm)	Rainfall (mm/hr)
1	1	4.14	4.14
2	1	4.14	4.14
3	1	4.14	4.14
4	1	4.14	4.14
5	2	8.28	8.28
6	2	8.28	8.28
7	2	8.28	8.28
8	2	8.28	8.28
9	3	12.42	12.42
10	4	16.56	16.56
11	6	24.84	24.84
12	45	186.30	186.30
13	9	37.26	37.26
14	4	16.56	16.56
15	3	12.42	12.42
16	3	12.42	12.42
17	2	8.28	8.28
18	2	8.28	8.28
19	2	8.28	8.28
20	1	4.14	4.14
21	1	4.14	4.14
22	1	4.14	4.14
23	1	4.14	4.14
24	1	4.14	4.14

Design Chart 1.05: SCS Type II Distribution

6 hour			12 hour			24 hour		
Time end'g, hour	F_{inc} (%)	F_{cum} (%)	Time end'g, hour	F_{inc} (%)	F_{cum} (%)	Time end'g, hour	F_{inc} (%)	F_{cum} (%)
0	0	0	0	0	0	0	0	0
0.5	2	2	2	5	5	2	2.2	2.2
1	3	5	3	3	8	4	2.6	4.8
1.5	3	8	3.5	2	10	6	3.2	8.0
2	5	13	4	2	12	7	-	-
2.5	6	19	4.5	3	15	8	4.0	12.0
2.75	15	34	5	4	19	8.5	-	-
3	39	73	5.5	6	25	9	2.7	14.7
3.5	11	84	5.75	12	37	9.5	1.6	16.3
4	5	89	6	33	70	9.75	-	-
4.5	4	93	6.5	9	79	10	1.8	18.1
5	3	96	7	4	83	10.5	2.3	20.4
6	4	100	7.5	3	86	11	3.1	23.5
			8	3	89	11.5	4.8	28.3
			10	7	96	11.75	10.4	38.7
			12	4	100	12	27.6	66.3
						12.5	7.2	73.5
						13	3.7	77.2
						13.5	0.7	77.9
						14	4.1	82.0
						16	6.0	88.0
						20	7.2	95.2
						24	4.8	100

Source: Ministry of Natural Resources - MNR (1986)

Ministry of Natural Resources
Ministère des richesses naturelles

Ontario

LAKES & RIVERS IMPROVEMENT ACT TECHNICAL GUIDELINES - CRITERIA AND STANDARDS FOR APPROVAL






2004 June **DRAFT**

A-1.3.3 Aerial Reduction

Rainfall amounts shown in Table A.2 are point rainfall amounts. For areas greater than 10 square kilometres, the point rainfall amounts need to be reduced to reflect the way rainfall fans out from the eye of a storm. The area of a circle circumscribing the watershed with a diameter equal to the long axis of watershed is used to determine the circular watershed area (sometimes referred to as the equivalent circular area). The isohyetal pattern over the watershed is assumed to be circular for these two storms. Care should be exercised with elongated watersheds to avoid reductions that are too large. In such situations, the aerial reduction should be rationalized by reviewing isohyetal patterns for the design storm.

For watersheds less than 25 square kilometers in area, the 25 square kilometer rainfall may be used as point rainfall for all storms.

Rainfall reductions for the Hurricane Hazel and Timmins storms are shown in Table A.3. Reductions for other rainfalls can be based on the curves produced by the World Meteorological Office (WMO), shown in Figure A.3. These curves are similar to those of the U.S. National Weather Service.

Table A.2: Rainfall Distributions (Percent)

Type of Storm	Storm Duration	Hours											
		1	2	3	4	5	6	7	8	9	10	11	12
PMP	6 hour	8	9	11	49	15	8						
PMP	12 hour	2	3	3	4	6	51	15	4	4	3	3	2
Hurricane Hazel (total rainfall 211 mm)	12 hour	3	2	3	6	8	6	11	6	6	25	18	6
Timmins Storm (total rainfall 193 mm)	12 hour	8	10	6	1	3	10	23	10	12	6	7	4
SCS 2	24 hours*	2	3	3	4	6	48	16	6	4	3	3	2
AES Southern Ont.	12 hour	15	25	22	14	12	8	9	1	0	0	0	0
AES Northern Ont.	12 hour	8	17	15	14	18	14	6	3	3	1	1	0

* 2 hour increments

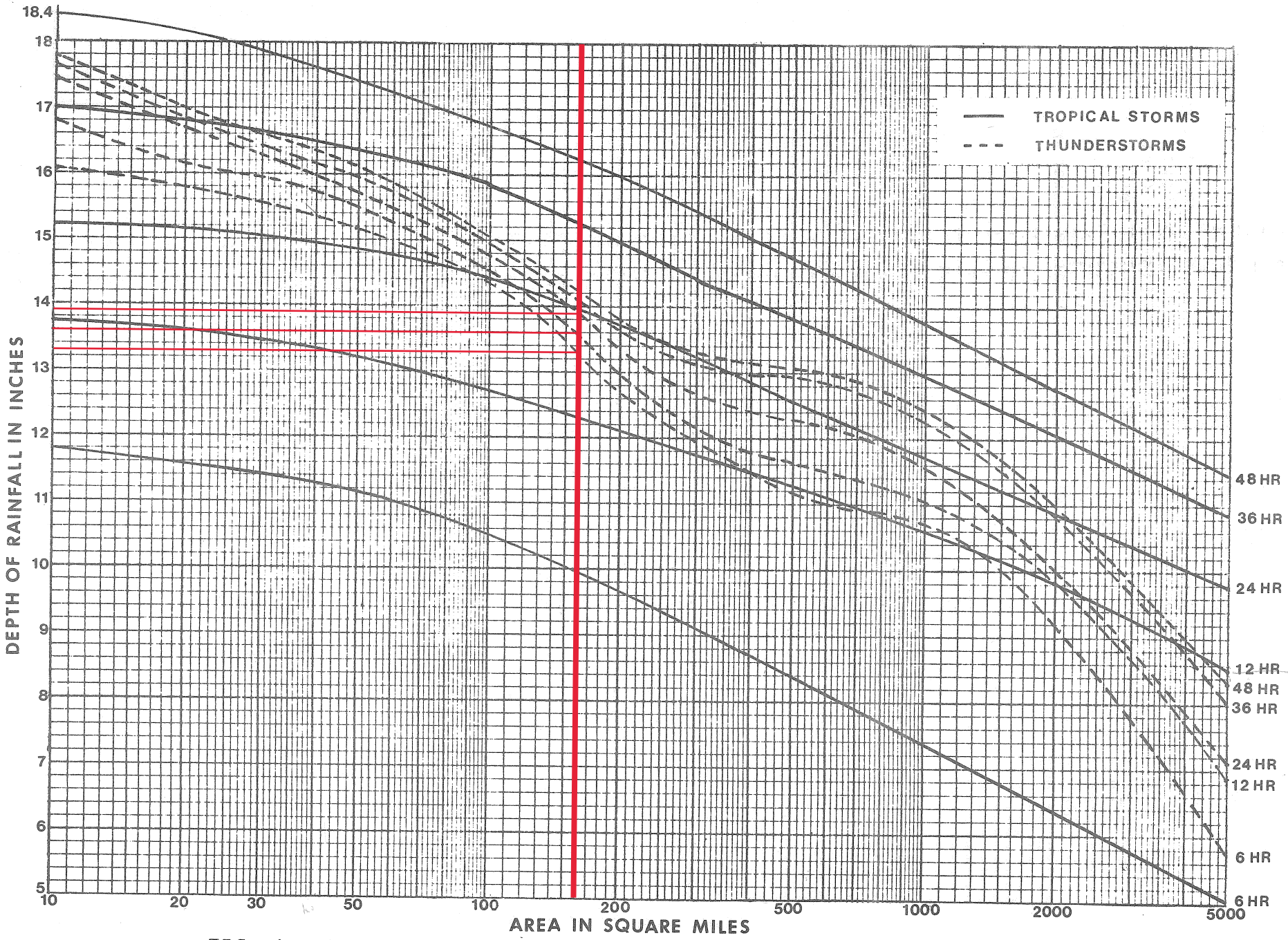


FIG. 4 PRELIMINARY ESTIMATES OF PROBABLE MAXIMUM PRECIPITATION DEPTH - DURATION - AREA CURVES FOR SOUTHERN ONTARIO (J. P. Bruce)

Hydrologic Parameters for Sub-1

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	104.35	127.10	19.50	4.52	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	30.48	50.59	10.83	0.85	ha
Wetland	13.71	22.49	13.69	17.73	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	22.97	22.71	10.77	19.96	ha
SUM	**171.50**	**222.89**	**54.79**	**43.07**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.25	0.22	0.27	0.46	
CN (Nashyd)	63.7	70.4	75.0	76.6	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**492.25**	ha
Impervious Area	**76.42**	ha
Percent Impervious	**15.5%**	
Connected Impervious	15.5%	

Pervious

Length	3854	m
US Elev	100.0	m
DS Elev	76.4	m
Slope	0.6	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.25	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.22	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.27	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.46	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	63.7	58.4
	B	74	65	61	58	50	85	98	70.4	67.3
	C	82	76	74	71	50	89	98	75.0	69.3
	D	86	81	80	77	50	91	98	76.6	58.0
Initial Abstraction[5], mm									22.7	28.8

Time of Concentration[6]

Total Length	3854	m	
Average Slope	0.6	%	
Airport	**201.2**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	130.4	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	134.8	min.	
	2.25	**hr.**	

Composite Parameters

Drainage Area	492.25 ha	
Runoff Coefficient	0.25	
SCS Curve No.	**69.1**	63.8
Modified Curve No.[4], CN*	66.3	61.2
Initial Abstraction.	**22.7**	28.8

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-2

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	3.46	60.46	11.17	16.16	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	1.84	6.54	1.79	3.46	ha
Woods	0.44	86.05	6.84	1.74	ha
Wetland	0.00	16.73	25.35	12.76	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	7.85	27.90	8.92	19.72	ha
SUM	**13.59**	**197.67**	**54.07**	**53.83**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.58	0.21	0.22	0.40	
CN (Nashyd)	79.9	68.0	68.0	81.2	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**319.15**	ha
Impervious Area	**64.38**	ha
Percent Impervious	**20.2%**	
Connected Impervious	20.2%	

Pervious

Length	3809	m
US Elev	100.0	m
DS Elev	84.1	m
Slope	0.4	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.58	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.21	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.22	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.40	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	79.9	55.0
	B	74	65	61	58	50	85	98	68.0	63.0
	C	82	76	74	71	50	89	98	68.0	62.1
	D	86	81	80	77	50	91	98	81.2	71.5
Initial Abstraction[5], mm									21.1	28.8

Time of Concentration[6]

Total Length	3809	m	
Average Slope	0.4	%	
Airport	**225.2**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	145.3	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	150.9	min.	
	2.51	**hr.**	

Composite Parameters

Drainage Area	319.15 ha	
Runoff Coefficient	0.26	
SCS Curve No.	**70.7**	63.8
Modified Curve No.[4], CN*	67.5	61.2
Initial Abstraction.	**21.1**	28.8

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-3

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	107.19	234.45	80.18	18.30	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	7.08	31.36	20.01	3.88	ha
Wetland	21.04	32.71	23.01	69.65	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	7.79	15.13	3.02	3.74	ha
SUM	**143.10**	**313.66**	**126.22**	**95.57**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.20	0.20	0.16	0.11	
CN (Nashyd)	63.9	71.1	74.8	59.9	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**678.55**	ha
Impervious Area	**29.69**	ha
Percent Impervious	**4.4%**	
Connected Impervious	4.4%	

Pervious

Length	7276	m
US Elev	100.0	m
DS Elev	51.1	m
Slope	0.7	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.20	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.20	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.11	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	63.9	61.9
	B	74	65	61	58	50	85	98	71.1	69.7
	C	82	76	74	71	50	89	98	74.8	74.2
	D	86	81	80	77	50	91	98	59.9	58.3
Initial Abstraction[5], mm									23.2	24.7

Time of Concentration[6]

Total Length	7276	m	
Average Slope	0.7	%	
Airport	**292.2**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	233.9	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	195.8	min.	
	3.26	**hr.**	

Composite Parameters

Drainage Area	678.55 ha	
Runoff Coefficient	0.18	
SCS Curve No.	**68.7**	67.3
Modified Curve No.[4], CN*	65.8	64.2
Initial Abstraction.	**23.2**	24.7

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-4

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	171.85	914.32	299.30	147.96	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	23.64	113.31	50.84	58.65	ha
Wetland	35.54	66.06	21.59	546.02	ha
Bare Earth (70% Rock)	14.12	0.00	0.00	0.00	ha
Impervious	17.27	21.63	5.04	20.54	ha
SUM	**262.42**	**1115.32**	**376.77**	**773.18**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.23	0.18	0.17	0.10	
CN (Nashyd)	64.3	71.4	78.9	60.2	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**2527.68**	ha
Impervious Area	**64.48**	ha
Percent Impervious	**2.6%**	
Connected Impervious	2.6%	

Pervious		
Length	11238	m
US Elev	100.0	m
DS Elev	75.5	m
Slope	0.2	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	A	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.23	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.18	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.10	
SCS Curve No.[3], CN	A	66	49	39	36	50	86	98	64.3	61.9
	B	74	65	61	58	50	91	98	71.4	70.9
	C	82	76	74	71	50	93	98	78.9	78.6
	D	86	81	80	77	50	94	98	60.2	59.2
Initial Abstraction[5], mm									23.5	24.4

Time of Concentration[6]

Total Length	11238	m	
Average Slope	0.2	%	
Airport	**537.3**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	396.8	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	360.0	min.	
	6.00	**hr.**	

Composite Parameters

Drainage Area	2527.68 ha	
Runoff Coefficient	0.16	
SCS Curve No.	**68.4**	67.6
Modified Curve No.[4], CN*	65.4	64.5
Initial Abstraction.	**23.5**	24.4

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-5

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	13.57	1044.85	119.87	53.11	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	3.19	151.18	31.91	61.21	ha
Wetland	5.07	41.05	39.89	223.61	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	0.77	37.02	9.35	3.74	ha
SUM	**22.61**	**1274.11**	**201.03**	**341.66**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.16	0.19	0.17	0.08	
CN (Nashyd)	59.3	72.0	74.6	61.0	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**1839.41**	ha
Impervious Area	**50.89**	ha
Percent Impervious	**2.8%**	
Connected Impervious	2.8%	

Pervious

Length	8794	m
US Elev	100.0	m
DS Elev	47.5	m
Slope	0.6	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.08	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	59.3	57.9
	B	74	65	61	58	50	85	98	72.0	71.2
	C	82	76	74	71	50	89	98	74.6	73.5
	D	86	81	80	77	50	91	98	61.0	60.5
Initial Abstraction[5], mm									21.7	22.5

Time of Concentration[6]

Total Length	8794	m	
Average Slope	0.6	%	
Airport	**338.1**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	262.1	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	226.5	min.	
	3.78	**hr.**	

Composite Parameters

Drainage Area	1839.41 ha	
Runoff Coefficient	0.17	
SCS Curve No.	**70.1**	69.3
Modified Curve No.[4], CN*	67.2	66.5
Initial Abstraction.	**21.7**	22.5

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-6

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	19.52	31.16	21.05	0.00	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	10.26	18.28	2.69	0.07	ha
Wetland	2.03	29.59	2.63	0.00	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	1.04	11.98	3.82	0.00	ha
SUM	**32.86**	**91.01**	**30.19**	**0.07**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.16	0.21	0.26	0.05	
CN (Nashyd)	56.7	66.1	80.3	75.6	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**154.12**	ha
Impervious Area	**16.84**	ha
Percent Impervious	**10.9%**	
Connected Impervious	10.9%	

Pervious

Length	1963	m
US Elev	100.0	m
DS Elev	92.1	m
Slope	0.4	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.21	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.26	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.05	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	56.7	55.3
	B	74	65	61	58	50	85	98	66.1	61.3
	C	82	76	74	71	50	89	98	80.3	77.7
	D	86	81	80	77	50	91	98	75.6	75.6
Initial Abstraction[5], mm									25.1	29.7

Time of Concentration[6]

Total Length	1963	m	
Average Slope	0.4	%	
Airport	174.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	81.1	min.	
Uplands	**284.8**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	190.8	min.	
	3.18	**hr.**	

Composite Parameters

Drainage Area	154.12 ha	
Runoff Coefficient	0.21	
SCS Curve No.	**66.9**	63.1
Modified Curve No.[4], CN*	63.8	59.7
Initial Abstraction.	**25.1**	29.7

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-7

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	182.05	143.34	60.59	43.38	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	126.64	75.40	95.13	230.97	ha
Wetland	60.59	67.39	142.57	563.00	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	27.60	25.20	7.59	40.63	ha
SUM	**396.89**	**311.33**	**305.88**	**877.99**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.17	0.18	0.10	0.10	
CN (Nashyd)	56.2	66.9	64.1	61.1	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**1892.08**	ha
Impervious Area	**101.03**	ha
Percent Impervious	**5.3%**	
Connected Impervious	5.3%	

Pervious		
Length	9216	m
US Elev	100.0	m
DS Elev	77.9	m
Slope	0.2	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.18	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.10	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.10	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	56.2	53.1
	B	74	65	61	58	50	85	98	66.9	64.1
	C	82	76	74	71	50	89	98	64.1	63.2
	D	86	81	80	77	50	91	98	61.1	59.3
Initial Abstraction[5], mm									31.8	34.7

Time of Concentration[6]

Total Length	9216	m	
Average Slope	0.2	%	
Airport	487.4	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	328.5	min.	
Uplands	**1471.3**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	985.8	min.	
	16.43	**hr.**	

Composite Parameters

Drainage Area	1892.08 ha	
Runoff Coefficient	0.13	
SCS Curve No.	**61.5**	59.4
Modified Curve No.[4], CN*	57.5	54.9
Initial Abstraction.	**31.8**	34.7

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-8

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	351.08	1191.31	18.97	31.67	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	113.27	216.01	22.76	31.55	ha
Wetland	88.46	67.01	19.99	447.38	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	29.39	61.45	2.65	2.40	ha
SUM	**582.19**	**1535.79**	**64.37**	**512.99**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.18	0.19	0.13	0.06	
CN (Nashyd)	59.3	71.7	68.8	54.1	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**2695.33**	ha
Impervious Area	**95.89**	ha
Percent Impervious	**3.6%**	
Connected Impervious	3.6%	

Pervious		
Length	11056	m
US Elev	100.0	m
DS Elev	37.0	m
Slope	0.6	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.18	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.13	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.06	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	59.3	57.3
	B	74	65	61	58	50	85	98	71.7	70.6
	C	82	76	74	71	50	89	98	68.8	67.6
	D	86	81	80	77	50	91	98	54.1	53.9
Initial Abstraction[5], mm									26.6	28.1

Time of Concentration[6]

Total Length	11056	m	
Average Slope	0.6	%	
Airport	386.7	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	320.1	min.	
Uplands	**597.0**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	400.0	min.	
	6.67	**hr.**	

Composite Parameters

Drainage Area	2695.33 ha	
Runoff Coefficient	0.16	
SCS Curve No.	**65.6**	64.4
Modified Curve No.[4], CN*	63.0	61.9
Initial Abstraction.	**26.6**	28.1

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-9

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	959.90	1491.86	31.94	38.23	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	255.92	223.74	39.87	76.17	ha
Wetland	288.88	328.60	197.08	656.81	ha
Bare Earth (70% Rock)	0.93	0.00	0.00	0.00	ha
Impervious	100.50	47.63	6.40	5.60	ha
SUM	**1606.13**	**2091.83**	**275.29**	**776.82**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.19	0.17	0.09	0.06	
CN (Nashyd)	60.4	69.1	57.9	54.8	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**4750.07**	ha
Impervious Area	**160.13**	ha
Percent Impervious	**3.4%**	
Connected Impervious	3.4%	

Pervious

Length	16061	m
US Elev	100.0	m
DS Elev	24.6	m
Slope	0.5	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.09	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.06	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	86	98	60.4	57.8
	B	74	65	61	58	50	91	98	69.1	68.4
	C	82	76	74	71	50	93	98	57.9	56.9
	D	86	81	80	77	50	94	98	54.8	54.5
Initial Abstraction[5], mm									29.7	31.2

Time of Concentration[6]

Total Length	16061	m	
Average Slope	0.5	%	
Airport	502.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	456.7	min.	
Uplands	**974.1**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	652.6	min.	
	10.88	**hr.**	

Composite Parameters

Drainage Area	4750.07 ha	
Runoff Coefficient	0.15	
SCS Curve No.	**63.1**	61.9
Modified Curve No.[4], CN*	59.8	58.0
Initial Abstraction.	**29.7**	31.2

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-10

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	857.21	2032.89	56.22	158.96	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	259.05	182.58	33.09	144.00	ha
Wetland	63.69	84.92	58.00	266.01	ha
Bare Earth (70% Rock)	5.20	0.00	0.00	5.25	ha
Impervious	32.36	86.49	11.94	15.28	ha
SUM	**1217.51**	**2386.88**	**159.25**	**589.50**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.17	0.20	0.16	0.11	
CN (Nashyd)	59.7	72.8	69.3	67.9	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**4353.13**	ha
Impervious Area	**146.06**	ha
Percent Impervious	**3.4%**	
Connected Impervious	3.4%	

Pervious		
Length	19005	m
US Elev	100.0	m
DS Elev	17.8	m
Slope	0.4	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.20	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.11	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	86	98	59.7	58.7
	B	74	65	61	58	50	91	98	72.8	71.8
	C	82	76	74	71	50	93	98	69.3	66.9
	D	86	81	80	77	50	94	98	67.9	67.1
Initial Abstraction[5], mm									23.5	24.7

Time of Concentration[6]

Total Length	19005	m	
Average Slope	0.4	%	
Airport	545.5	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	554.2	min.	
Uplands	**1771.6**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	1187.0	min.	
	19.78	**hr.**	

Composite Parameters

Drainage Area	4353.13 ha	
Runoff Coefficient	0.18	
SCS Curve No.	**68.3**	67.3
Modified Curve No.[4], CN*	65.4	64.2
Initial Abstraction.	**23.5**	24.7

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-11

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	0.00	198.17	0.00	3.84	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	0.00	54.50	0.08	6.45	ha
Wetland	0.02	11.03	0.00	50.90	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	0.00	5.20	0.00	0.03	ha
SUM	**0.02**	**268.90**	**0.08**	**61.21**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.05	0.17	0.05	0.06	
CN (Nashyd)	50.0	70.2	71.0	55.1	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**330.21**	ha
Impervious Area	**5.22**	ha
Percent Impervious	**1.6%**	
Connected Impervious	1.6%	

	Pervious	
Length	3432	m
US Elev	100.0	m
DS Elev	41.7	m
Slope	1.7	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.05	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.05	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.06	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	50.0	50.0
	B	74	65	61	58	50	85	98	70.2	69.7
	C	82	76	74	71	50	89	98	71.0	71.0
	D	86	81	80	77	50	91	98	55.1	55.1
Initial Abstraction[5], mm									24.5	25.1

Time of Concentration[6]

Total Length	3432	m	
Average Slope	1.7	%	
Airport	152.5	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	98.5	min.	
Uplands	**178.6**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	119.7	min.	
	1.99	**hr.**	

Composite Parameters

Drainage Area	330.21 ha	
Runoff Coefficient	0.15	
SCS Curve No.	**67.4**	66.9
Modified Curve No.[4], CN*	64.3	63.8
Initial Abstraction.	**24.5**	25.1

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-12

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	304.30	326.48	155.70	46.75	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	206.77	47.47	15.09	53.37	ha
Wetland	55.36	12.84	2.28	70.36	ha
Bare Earth (70% Rock)	15.26	0.00	0.00	0.00	ha
Impervious	17.92	13.37	2.49	3.25	ha
SUM	**599.62**	**400.15**	**175.56**	**173.73**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.16	0.19	0.19	0.10	
CN (Nashyd)	55.6	72.1	80.9	68.9	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**1349.05**	ha
Impervious Area	**37.03**	ha
Percent Impervious	**2.7%**	
Connected Impervious	2.7%	

Pervious

Length	6974	m
US Elev	100.0	m
DS Elev	39.2	m
Slope	0.9	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.10	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	86	98	55.6	54.3
	B	74	65	61	58	50	91	98	72.1	71.2
	C	82	76	74	71	50	93	98	80.9	80.6
	D	86	81	80	77	50	94	98	68.9	68.3
Initial Abstraction[5], mm									26.7	27.8

Time of Concentration[6]

Total Length	6974	m	
Average Slope	0.9	%	
Airport	266.2	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	198.7	min.	
Uplands	**884.9**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	592.9	min.	
	9.88	**hr.**	

Composite Parameters

Drainage Area	1349.05 ha	
Runoff Coefficient	0.17	
SCS Curve No.	**65.5**	64.6
Modified Curve No.[4], CN*	63.0	62.2
Initial Abstraction.	**26.7**	27.8

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-13

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	123.43	1209.99	118.53	36.04	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	71.54	197.92	27.20	95.08	ha
Wetland	34.84	35.04	24.99	309.98	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	18.26	30.90	35.77	4.89	ha
SUM	**248.07**	**1473.84**	**206.49**	**445.98**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.18	0.18	0.28	0.07	
CN (Nashyd)	57.5	71.8	79.5	59.2	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**2374.39**	ha
Impervious Area	**89.82**	ha
Percent Impervious	**3.8%**	
Connected Impervious	3.8%	

Pervious

Length	7701	m
US Elev	100.0	m
DS Elev	22.1	m
Slope	1.0	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.18	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.18	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.28	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.07	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	57.5	54.2
	B	74	65	61	58	50	85	98	71.8	71.2
	C	82	76	74	71	50	89	98	79.5	75.6
	D	86	81	80	77	50	91	98	59.2	58.8
Initial Abstraction[5], mm									23.3	24.5

Time of Concentration[6]

Total Length	7701	m	
Average Slope	1.0	%	
Airport	265.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	201.3	min.	
Uplands	**459.2**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	307.7	min.	
	5.13	**hr.**	

Composite Parameters

Drainage Area	2374.39 ha	
Runoff Coefficient	0.17	
SCS Curve No.	**68.6**	67.4
Modified Curve No.[4], CN*	65.7	64.3
Initial Abstraction.	**23.3**	24.5

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-14

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	139.70	695.50	23.23	7.96	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	40.18	115.07	89.16	20.43	ha
Wetland	49.34	64.99	154.65	146.90	ha
Bare Earth (70% Rock)	2.30	3.37	0.00	0.00	ha
Impervious	7.57	11.38	5.02	1.58	ha
SUM	**239.09**	**890.31**	**272.07**	**176.87**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.16	0.17	0.08	0.06	
CN (Nashyd)	58.9	70.6	60.5	55.2	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**1578.34**	ha
Impervious Area	**25.56**	ha
Percent Impervious	**1.6%**	
Connected Impervious	1.6%	

Pervious

Length	6578	m
US Elev	100.0	m
DS Elev	57.3	m
Slope	0.6	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	A	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.08	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.06	
SCS Curve No.[3], CN	A	66	49	39	36	50	86	98	58.9	57.6
	B	74	65	61	58	50	91	98	70.6	70.2
	C	82	76	74	71	50	93	98	60.5	59.8
	D	86	81	80	77	50	94	98	55.2	54.8
Initial Abstraction[5], mm									27.0	27.6

Time of Concentration[6]

Total Length	6578	m	
Average Slope	0.6	%	
Airport	**292.0**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	195.8	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	195.7	min.	
	3.26	**hr.**	

Composite Parameters

Drainage Area	1578.34 ha	
Runoff Coefficient	0.14	
SCS Curve No.	**65.3**	64.8
Modified Curve No.[4], CN*	62.8	62.4
Initial Abstraction.	**27.0**	27.6

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-15

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	512.20	1256.30	26.04	13.98	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	163.56	80.32	107.18	60.82	ha
Wetland	111.17	13.58	102.72	379.75	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	21.47	59.88	4.66	17.85	ha
SUM	**808.40**	**1410.07**	**240.60**	**472.40**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.16	0.21	0.08	0.09	
CN (Nashyd)	58.6	73.9	63.7	56.4	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**2931.47**	ha
Impervious Area	**103.85**	ha
Percent Impervious	**3.5%**	
Connected Impervious	3.5%	

Pervious		
Length	11436	m
US Elev	100.0	m
DS Elev	11.0	m
Slope	0.8	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.21	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.08	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.09	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	58.6	57.5
	B	74	65	61	58	50	85	98	73.9	72.8
	C	82	76	74	71	50	89	98	63.7	63.1
	D	86	81	80	77	50	91	98	56.4	54.7
Initial Abstraction[5], mm									26.2	27.6

Time of Concentration[6]

Total Length	11436	m	
Average Slope	0.8	%	
Airport	353.5	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	308.5	min.	
Uplands	**603.1**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	404.1	min.	
	6.73	**hr.**	

Composite Parameters

Drainage Area	2931.47 ha	
Runoff Coefficient	0.17	
SCS Curve No.	**66.0**	64.8
Modified Curve No.[4], CN*	63.2	62.4
Initial Abstraction.	**26.2**	27.6

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-16

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	153.28	78.14	111.23	11.86	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	59.72	25.09	13.04	8.20	ha
Wetland	16.90	10.44	13.27	47.00	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	29.86	3.23	81.87	1.56	ha
SUM	**259.76**	**116.90**	**219.41**	**68.63**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.23	0.17	0.44	0.09	
CN (Nashyd)	61.7	69.1	85.4	60.5	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**664.69**	ha
Impervious Area	**116.52**	ha
Percent Impervious	**17.5%**	
Connected Impervious	17.5%	

Pervious		
Length	5532	m
US Elev	100.0	m
DS Elev	55.3	m
Slope	0.8	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.23	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.44	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.09	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	61.7	57.0
	B	74	65	61	58	50	85	98	69.1	68.3
	C	82	76	74	71	50	89	98	85.4	77.9
	D	86	81	80	77	50	91	98	60.5	59.7
Initial Abstraction[5], mm									21.0	27.5

Time of Concentration[6]

Total Length	5532	m	
Average Slope	0.8	%	
Airport	215.0	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	171.8	min.	
Uplands	**298.3**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	199.9	min.	
	3.33	**hr.**	

Composite Parameters

Drainage Area	664.69 ha	
Runoff Coefficient	0.27	
SCS Curve No.	**70.7**	64.9
Modified Curve No.[4], CN*	67.5	62.5
Initial Abstraction.	**21.0**	27.5

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-17

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	174.05	400.33	17.28	0.82	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	27.21	65.64	4.29	0.74	ha
Wetland	18.87	3.98	9.76	6.42	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	15.26	12.90	1.48	0.00	ha
SUM	**235.40**	**482.86**	**32.81**	**7.98**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.21	0.19	0.16	0.06	
CN (Nashyd)	63.3	72.3	71.8	56.2	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**759.04**	ha
Impervious Area	**29.63**	ha
Percent Impervious	**3.9%**	
Connected Impervious	3.9%	

Pervious

Length	4804	m
US Elev	100.0	m
DS Elev	10.1	m
Slope	1.9	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.21	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.16	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.06	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	63.3	60.9
	B	74	65	61	58	50	85	98	72.3	71.6
	C	82	76	74	71	50	89	98	71.8	70.5
	D	86	81	80	77	50	91	98	56.2	56.2
Initial Abstraction[5], mm									22.5	23.8

Time of Concentration[6]

Total Length	4804	m	
Average Slope	1.9	%	
Airport	166.8	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	124.5	min.	
Uplands	**260.8**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	174.8	min.	
	2.91	**hr.**	

Composite Parameters

Drainage Area	759.04 ha	
Runoff Coefficient	0.19	
SCS Curve No.	**69.3**	68.1
Modified Curve No.[4], CN*	66.5	65.2
Initial Abstraction.	**22.5**	23.8

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-18

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	150.58	309.54	22.78	7.43	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	3.74	1.54	14.50	0.16	ha
Woods	176.67	57.70	25.41	5.67	ha
Wetland	46.97	6.86	27.88	37.55	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	46.09	19.04	178.82	2.00	ha
SUM	**424.04**	**394.68**	**269.39**	**52.81**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.19	0.20	0.63	0.10	
CN (Nashyd)	55.0	72.4	87.8	59.9	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**1140.91**	ha
Impervious Area	**245.94**	ha
Percent Impervious	**21.6%**	
Connected Impervious	21.6%	

Pervious		
Length	8259	m
US Elev	100.0	m
DS Elev	10.4	m
Slope	1.1	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.20	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.63	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.10	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	55.0	49.7
	B	74	65	61	58	50	85	98	72.4	71.1
	C	82	76	74	71	50	89	98	87.8	67.8
	D	86	81	80	77	50	91	98	59.9	58.4
Initial Abstraction[5], mm									22.9	32.5

Time of Concentration[6]

Total Length	8259	m	
Average Slope	1.1	%	
Airport	232.6	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	229.1	min.	
Uplands	**1176.7**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	788.4	min.	
	13.14	**hr.**	

Composite Parameters

Drainage Area	1140.91 ha	
Runoff Coefficient	0.29	
SCS Curve No.	**69.0**	61.0
Modified Curve No.[4], CN*	66.2	56.7
Initial Abstraction.	**22.9**	32.5

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-19

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use						Rainfall Data		
						Gauging Station =	MTO (44.31,-79.20, 2022)	
Agriculture	792.38	ha	31.22	14.17	ha	**12 hr, 100 Yr Rainfall =**	103.3	mm
Range	0.00	ha	0.00	0.00	ha			
Grass	0.00	ha	0.00	0.00	ha			
Woods	916.11	ha	52.99	12.11	ha	**Drainage Area**	**2493.96**	ha
Wetland	117.14	ha	37.99	62.28	ha	**Impervious Area**	**349.12**	ha
Bare Earth (70% Rock)	108.44	ha	0.00	0.00	ha	**Percent Impervious**	**14.0%**	
Impervious	162.22	ha	180.50	6.40	ha	Connected Impervious	14.0%	
SUM	**2096.29**		**302.70**	**94.96**				
							Pervious	
Hydrologic Soil Group[1]	A		C	D		**Length**	11409	m
Soil Type	0		0	0		**US Elev**	100.0	m
						DS Elev	-7.7	m
C	0.20		0.57	0.13		**Slope**	0.9	%
CN (Nashyd)	55.5		85.6	62.1			Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	A	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.20	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90		
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.57	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.13	
SCS Curve No.[3], CN	A	66	49	39	36	50	86	98	55.5	51.9
	B									
	C	82	76	74	71	50	93	98	85.6	67.3
	D	86	81	80	77	50	94	98	62.1	59.5
Initial Abstraction[5], mm									34.7	44.8

Time of Concentration[6]			
Total Length	11409	m	
Average Slope	0.9	%	
Airport	305.7	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	300.9	min.	
Uplands	**760.7**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	509.7	min.	
	8.49	**hr.**	

Composite Parameters		
Drainage Area	2493.96 ha	
Runoff Coefficient	0.24	
SCS Curve No.	**59.4**	53.1
Modified Curve No.[4], CN*	54.9	47.6
Initial Abstraction.	**34.7**	44.8

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-20

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	1508.86	31.67	0.88	12.18	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	1319.44	5.10	17.38	39.76	ha
Wetland	188.54	0.00	15.99	141.94	ha
Bare Earth (70% Rock)	205.42	0.00	0.00	0.32	ha
Impervious	132.46	0.86	0.06	4.04	ha
SUM	**3354.72**	**37.62**	**34.31**	**198.25**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.18	0.19	0.06	0.08	
CN (Nashyd)	55.8	72.4	61.5	58.7	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**3624.90**	ha
Impervious Area	**137.42**	ha
Percent Impervious	**3.8%**	
Connected Impervious	3.8%	

Pervious

Length	17400	m
US Elev	100.0	m
DS Elev	-28.9	m
Slope	0.7	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	A	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.18	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.06	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.08	
SCS Curve No.[3], CN	A	66	49	39	36	50	86	98	55.8	54.1
	B	74	65	61	58	50	91	98	72.4	71.8
	C	82	76	74	71	50	93	98	61.5	61.5
	D	86	81	80	77	50	94	98	58.7	57.9
Initial Abstraction[5], mm									39.6	42.4

Time of Concentration[6]

Total Length	17400	m	
Average Slope	0.7	%	
Airport	440.8	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	464.1	min.	
Uplands	**1158.7**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	776.4	min.	
	12.94	**hr.**	

Composite Parameters

Drainage Area	3624.90 ha	
Runoff Coefficient	0.17	
SCS Curve No.	**56.2**	54.5
Modified Curve No.[4], CN*	51.3	49.3
Initial Abstraction.	**39.6**	42.4

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-21

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	1089.26	377.41	4.84	3.79	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	914.30	44.88	19.60	21.92	ha
Wetland	112.18	26.46	25.87	44.83	ha
Bare Earth (70% Rock)	208.07	106.75	0.00	0.00	ha
Impervious	309.28	76.77	19.65	13.22	ha
SUM	**2633.08**	**632.27**	**69.96**	**83.76**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.25	0.32	0.30	0.19	
CN (Nashyd)	60.2	77.6	71.6	66.3	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**3419.07**	ha
Impervious Area	**418.91**	ha
Percent Impervious	**12.3%**	
Connected Impervious	12.3%	

Pervious

Length	10711	m
US Elev	100.0	m
DS Elev	8.4	m
Slope	0.9	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Bare Earth (70% Rock)	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.25	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.32	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.30	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	86	98	60.2	55.2
	B	74	65	61	58	50	91	98	77.6	74.8
	C	82	76	74	71	50	93	98	71.6	61.3
	D	86	81	80	77	50	94	98	66.3	60.3
Initial Abstraction[5], mm									28.8	35.2

Time of Concentration[6]

Total Length	10711	m	
Average Slope	0.9	%	
Airport	297.6	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	279.2	min.	
Uplands	**419.9**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	281.4	min.	
	4.69	**hr.**	

Composite Parameters

Drainage Area	3419.07 ha	
Runoff Coefficient	0.26	
SCS Curve No.	**63.8**	59.1
Modified Curve No.[4], CN*	61.3	54.7
Initial Abstraction.	**28.8**	35.2

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-22

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	289.51	99.68	ha	10.00	ha
Range	0.00	0.00	ha	0.00	ha
Grass	0.00	0.00	ha	0.00	ha
Woods	74.44	29.18	ha	48.76	ha
Wetland	33.60	6.23	ha	52.01	ha
Gravel	0.00	0.00	ha	0.00	ha
Impervious	8.00	3.66	ha	1.28	ha
SUM	**405.54**	**138.75**		**112.06**	
Hydrologic Soil Group[1]	A	B		D	
Soil Type	0	0		0	
C	0.17	0.17		0.07	
CN (Nashyd)	59.8	70.2		65.5	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**656.35**	ha
Impervious Area	**12.94**	ha
Percent Impervious	**2.0%**	
Connected Impervious	2.0%	

Pervious

Length	5629	m
US Elev	100.0	m
DS Elev	30.2	m
Slope	1.2	%
	Flat	

Parameter	Soil Group	Land Use: Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Weighted Value: Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	A	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.17	
		0.19	0.10	0.05	0.05	0.05	0.57	0.90		
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.07	
SCS Curve No.[3], CN	A	66	49	39	36	50	76	98	59.8	59.0
	B	74	65	61	58	50	85	98	70.2	69.4
	D	86	81	80	77	50	91	98	65.5	65.1
Initial Abstraction[5], mm									29.9	30.8

Time of Concentration[6]

Total Length	5629	m	
Average Slope	1.2	%	
Airport	216.0	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	160.7	min.	
Uplands	**185.9**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	124.6	min.	
	2.08	**hr.**	

Composite Parameters

Drainage Area	656.35 ha	
Runoff Coefficient	0.15	
SCS Curve No.	**63.0**	62.3
Modified Curve No.[4], CN*	59.4	58.4
Initial Abstraction.	**29.9**	30.8

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-23

Sheet 1 of 1

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	457.05	36.33	2.82	16.73	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	273.75	25.86	3.74	92.71	ha
Wetland	53.95	10.77	6.88	108.32	ha
Gravel	0.00	0.00	0.00	0.00	ha
Impervious	41.64	1.24	0.00	3.96	ha
SUM	**826.39**	**74.21**	**13.44**	**221.72**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.20	0.16	0.09	0.09	
CN (Nashyd)	56.6	65.3	62.6	64.9	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**1135.75**	ha
Impervious Area	**46.85**	ha
Percent Impervious	**4.1%**	
Connected Impervious	4.1%	

Pervious

Length	7710	m
US Elev	100.0	m
DS Elev	-285.3	m
Slope	5.0	%
	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.22	0.16	0.10	0.08	0.05	0.57	0.90	0.20	n.a.
	B	0.22	0.16	0.10	0.08	0.05	0.57	0.90	0.16	
	C	0.22	0.16	0.10	0.08	0.05	0.57	0.90	0.09	
	D	0.22	0.16	0.10	0.08	0.05	0.57	0.90	0.09	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	56.6	54.4
	B	74	65	61	58	50	85	98	65.3	64.8
	C	82	76	74	71	50	89	98	62.6	62.6
	D	86	81	80	77	50	91	98	64.9	64.3
Initial Abstraction[5], mm									35.5	38.0

Time of Concentration[6]

Total Length	7710	m	
Average Slope	5.0	%	
Airport	156.2	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	157.6	min.	
Uplands	**303.2**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	203.2	min.	
	3.39	**hr.**	

Composite Parameters

Drainage Area	1135.75 ha	
Runoff Coefficient	0.17	
SCS Curve No.	**58.9**	57.2
Modified Curve No.[4], CN*	54.5	52.4
Initial Abstraction.	**35.5**	38.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for Sub-Outlet

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	8464.75	12291.27	1233.33	697.83	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	5073.67	1897.23	689.12	1075.10	ha
Wetland	1417.90	958.79	966.08	4261.21	ha
Gravel	559.74	110.12	0.00	5.57	ha
Impervious	1063.14	603.62	596.12	195.30	ha
SUM	**16579.20**	**15861.03**	**3484.66**	**6235.01**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.19	0.19	0.24	0.09	
CN (Nashyd)	57.8	71.6	73.7	60.2	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**42160**	ha
Impervious Area	**2458**	ha
Percent Impervious	**5.8%**	
Connected Impervious	5.8%	

Pervious		
Length	53412	m
US Elev	300.0	m
DS Elev	132.3	m
Slope	0.3	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.24	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.09	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	57.8	55.1
	B	74	65	61	58	50	85	98	71.6	70.6
	C	82	76	74	71	50	89	98	73.7	68.7
	D	86	81	80	77	50	91	98	60.2	59.0
Initial Abstraction[5], mm									27.7	30.3

Time of Concentration[6]

Total Length	53412	m	
Average Slope	0.3	%	
Airport	1012.3	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1323.2	min.	
Uplands	**3189.1**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	2136.7	min.	
	35.61	**hr.**	

Composite Parameters

Drainage Area	42159.90 ha	
Runoff Coefficient	0.18	
SCS Curve No.	**64.7**	62.6
Modified Curve No.[4], CN*	62.3	58.8
Initial Abstraction.	**27.7**	30.3

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Visual Otthymo Model for Sub-Outlet	Sheet 2 of 6

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2	**20.7**	11.4	3.8		11.4			
5	**47.0**	27.6	13.7		28.0			
10	**66.5**	41.0	23.1		42.2			
25	**92.3**	59.7	35.8		64.0			
50	**114.8**	74.3	46.5		82.6			
100	**133.2**	90.4	58.8		97.9			
Regional	**386.3**							

Notes:

1. Storm used to determine peak flow values **24hr SCS**

NASHYD	
DT (min)	5.0
Area (ha)	42159.90
DWF (m3/s) - Default [0.0]	0.0
CN*	62.3
IA (mm)	27.7
N - Default [3.0]	3
TP (hr)	35.61

MTO Unified Ontario Flood Method for Sub-Outlet

(Errata April 2016 to Chapter 8, M.T.O. Drainage Management Manual)

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Drainage Area	**A = 421.60**	km^2
Lake and Wetland Area	**Ad = 76.04**	km^2
Area Ratio	**Ad/A = 0.18**	

1. **Lake Attenuation Index**[1] — **LI = 1.180**
2. **Mean Annual Precipitation**[2] — **P = 900** **mm**
3. **Stepwise Regression Constant**[3] — **K_R = as below**
4. **Constants: Mixed Wood Plai** [4]

Return Period (years)	x	a	b	c	K_R
2	-5.483	0.756	-3.061	1.837	3.3E-06
5	-	-	-	-	-
10	-4.139	0.734	-3.780	1.491	7.3E-05
25	-3.680	0.728	-4.017	1.372	2.1E-04
50	-3.397	0.724	-4.162	1.299	4.0E-04
100	-3.151	0.721	-4.287	1.236	7.1E-04

Return Period (years)	Q_{UOFM} (m^3/s)	Lower Limit of Q_{UOFM} (m^3/s)	Upper Limit of Q_{UOFM} (m^3/s)
2	**51.0**	36.2	71.5
5[5]	**63.1**	43.9	90.2
10	**83.2**	56.6	121.5
25	**98.8**	66.2	148.2
50	**110.0**	71.5	168.2
100	**121.4**	77.7	190.6

Notes:

1. Taken as (1+WA / A) where WA is the area of the Lakes and Wetlands; and A is area (dimensionless)
2. Figure 2: IsoHyetal Map; Design and Contract Standards Office #2016-03; Appendix A March 3, 2106
3. Taken as 10^x (value of contstant obtained from the output of the stepwise regression)
4. Table 1: Coefficients; Design and Contract Standards Office #2016-03; Appendix A March 3, 2106
5. Interpolated from 2 year and 10 year results

M.T.O. Modified Index Flood Method for Sub-Outlet

(Chapter 8, M.T.O. Drainage Management Manual)

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Region		**Southern**	(Design Chart 1.14)[1]
Watershed Area	**A =**	**421.60**	**km²**
Storage Area from Lakes & Swamps	**Ad =**	**76.04**	**km²**
Watershed Slope	**S =**	**0.31**	**%**

1.	**Percent Storage**	**Ad/A =**	**18.0**	**%**
2.	**Watershed Base Class**	**WCb =**	**6.7**	(Design Chart 1.16 or 1.17, based on lakes & wetland curve)[2]
3a.	**Base Adjustment in Northern Basin**			
	1. Storage mostly in upper 1/3 of the Watershed	Adjust =	0.5	
	2. Storage well distributed or within the middle 1/3	Adjust =	0.0	
	3. Storage mostly in lower 1/3 of the Watershed	Adjust =	-0.5	
	Storage is distributed throughout the basin	**Adjust =**	**0.0**	
3b.	**Base Adjustment in Southern Basin**			
	1. Slope Adjustment	Adjust =	-0.2	(Design Chart 1.18)[3]
	2. Detention Adjustment	Adjust =	-2.1	(Design Chart 1.19)[4]
		Adjust =	**-2.3**	
4.	**Adjusted Watershed Class**	**WCa =**	**4.4**	
5.	**Class Coefficient**	**C =**	**0.51**	(Design Chart 1.15)[5]
6.	**25 Year Flow** (Equation 8.20)[6]	**Q_{25} =**	**47.86**	**m^3/s**
7.	**Return Period Flows**			

Return Period (year)	Frequency Conversion Factor[7]	Peak flow (m^3/s)
2	0.50	**23.9**
5	0.67	**32.068**
10	0.82	**39.247**
25	1.00	**47.862**
50	1.13	**54.084**
100	1.27	**60.785**

Notes:

1. Design Chart 1.14: Hydrologic Regions and Precipitation Index, from MTO Drainage Management Manual, Part 4
2. Design Chart 1.16 : Base Class Chart Determination: Northern Basins, from MTO Drainage Management Manual, Part 4
3. Design Chart 1.18: Base Class Adjustment for Slope - Southern Basins
4. Design Chart 1.19: Base Class Adjustment for Detention - Southern Basins
5. Design Chart 1.15: Typical Watershed Classes, from MTO Drainage Management Manual, Part 4
6. Equation 8.20 from MTO Drainage Management Manual, Chapter 8: Hydrology, Hydraulics & Stormwater Quality
7. Frequency conversion factors from Chart H5-9, Chapter H, M.T.O. Drainage Manual

MNR Index Flood Method for Sub-Outlet

(Appendix 5, M.N.R. Flood Plain Management in Ontario)

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Area	**A =**	**421.59899**	km^2
Region		**9**	(Figure 1)[1]
			1a refers to A<60km^2
Constant	**C =**	**0.40**	(Table 8)[2]
Exponent	**n =**	**0.810**	(Table 8)

1. Index Flood

$Q_2 = CAn$

$Q_2 = 53.48$ m^3/s

2. Flood Discharge, Qf

Return Period (years)	Ratio to Index Flood Rf[3]	Flood Discharge (m^3/s)
2	1.00	**53.5**
5	1.30	**69.5**
10	1.50	**80.2**
25	1.70	**90.9**
50	2.00	**107.0**
100	2.30	**123.0**

Notes:

1. Flood Frequency Regions Index Method, Figure 1
2. Table 8 from Regional Regression Equation Coefficients, M.N.E. Flood Plain Management in Ontario, Appendix 5
3. Rf factor from Regional Frequency Curve, Figure 10A for Region 9

Peak Flow Comparison for Sub-Outlet

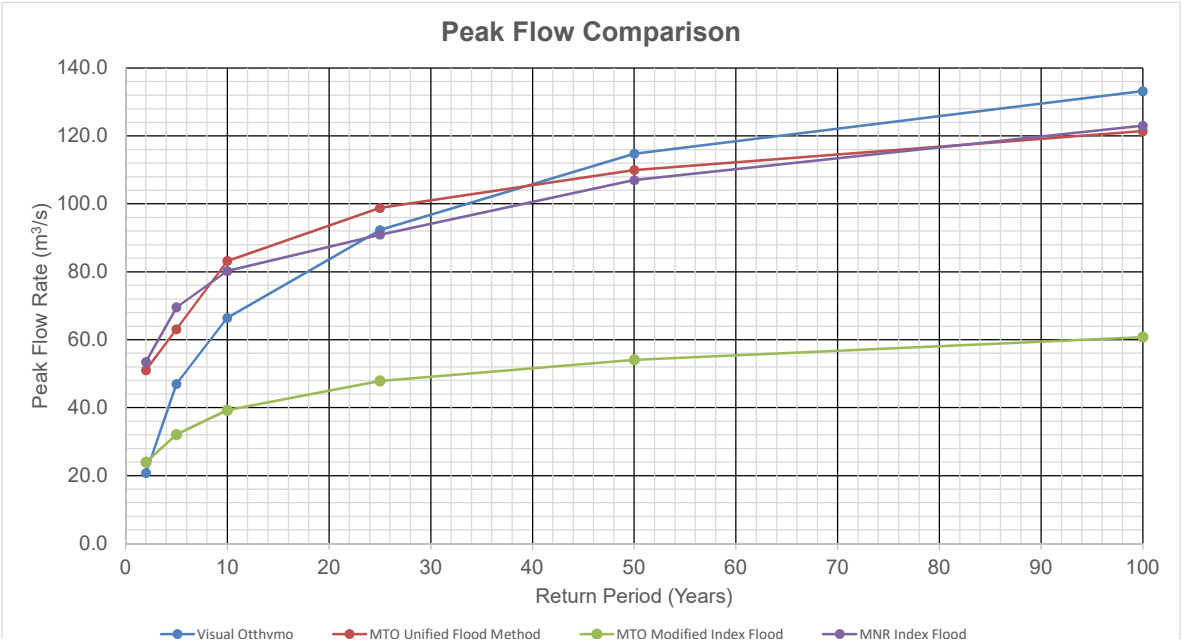
Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Return Period (Year)	Rational Method	Visual Otthymo	MTO Unified Flood Method (Mean)	MTO Northern Ontario	MTO Modified Index Flood	MNR Index Flood	Average Values
2		**20.7**	51.0		23.9	53.5	37.3
5		**47.0**	63.1		32.1	69.5	52.9
10		**66.5**	83.2		39.2	80.2	67.3
25		**92.3**	98.8		47.9	90.9	82.5
50		**114.8**	110.0		54.1	107.0	96.4
100		**133.2**	121.4		60.8	123.0	109.6
		0.0					
Regional Event		-	-		-	-	-

Method used to determine the peak flows values **Visual Otthymo**

Notes:

1. Not Used
2. Not Used
3. Not Used



Hydrologic Parameters for Sub-Dam

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Land Use

Agriculture	8044.82	9878.95	682.27	457.79	ha
Range	0.00	0.00	0.00	0.00	ha
Grass	0.00	0.00	0.00	0.00	ha
Woods	4998.58	1446.46	566.00	948.71	ha
Wetland	1340.51	750.14	839.93	3391.44	ha
Gravel	545.61	110.12	0.00	5.57	ha
Impervious	1003.61	460.70	553.40	124.14	ha
SUM	**15933.12**	**12646.37**	**2641.60**	**4927.64**	
Hydrologic Soil Group[1]	A	B	C	D	
Soil Type	0	0	0	0	
C	0.19	0.19	0.26	0.09	
CN (Nashyd)	57.6	71.7	72.8	59.8	

Rainfall Data

Gauging Station = MTO (44.31,-79.20, 2022)
12 hr, 100 Yr Rainfall = 103.3 mm

Drainage Area	**36149**	ha
Impervious Area	**2142**	ha
Percent Impervious	**5.9%**	
Connected Impervious	5.9%	

Pervious

Length	48875	m
US Elev	300.0	m
DS Elev	135.1	m
Slope	0.3	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**A**	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	n.a.
	B	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.19	
	C	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.26	
	D	0.19	0.10	0.05	0.05	0.05	0.57	0.90	0.09	
SCS Curve No.[3], CN	**A**	66	49	39	36	50	76	98	57.6	54.9
	B	74	65	61	58	50	85	98	71.7	70.7
	C	82	76	74	71	50	89	98	72.8	66.1
	D	86	81	80	77	50	91	98	59.8	58.8
Initial Abstraction[5], mm									28.6	31.4

Time of Concentration[6]

Total Length	48875	m	
Average Slope	0.3	%	
Airport	945.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1212.0	min.	
Uplands	**2881.4**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	1930.6	min.	
	32.18	**hr.**	

Composite Parameters

Drainage Area	36148.74 ha	
Runoff Coefficient	0.18	
SCS Curve No.	**64.0**	61.8
Modified Curve No.[4], CN*	61.4	57.8
Initial Abstraction.	**28.6**	31.4

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values for the SCS method, The formula is: Ia = 0.2S, where S = (1000/CN)-10 and P = Precipitation (in)
6. Based on the results of the Uplands Method
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Visual Otthymo Model for Sub-Dam	Sheet 2 of 6

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Design Storm (yr)	24hr SCS	12hr SCS	6hr SCS	1hr AES	12hr AES	1hr Chic	4hr Chic	6 hr Chic
2	**18.149**	9.727	2.929		9.784			
5	**41.981**	24.881	11.998		25.228			
10	**60.243**	37.387	21.177		38.458			
25	**85.076**	55.436	32.820		59.070			
50	**105.916**	69.592	42.942		76.440			
100	**123.175**	84.843	54.663		91.126			
Regional	**363.102**							

Notes:

1. Storm used to determine peak flow values **24hr SCS**

NASHYD	
DT (min)	5.0
Area (ha)	36148.74
DWF (m3/s) - Default [0.0]	0.0
CN*	61.4
IA (mm)	28.6
N - Default [3.0]	3
TP (hr)	32.18

MTO Unified Ontario Flood Method for Sub-Dam

(Errata April 2016 to Chapter 8, M.T.O. Drainage Management Manual)

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Drainage Area	**A = 361.49**	km^2
Lake and Wetland Area	**Ad = 63.22**	km^2
Area Ratio	**Ad/A = 0.17**	

1. **Lake Attenuation Index**[1] — **LI = 1.175**
2. **Mean Annual Precipitation**[2] — **P = 900** **mm**
3. **Stepwise Regression Constant**[3] — **K_R = as below**
4. **Constants: Mixed Wood Plai** [4]

Return Period (years)	x	a	b	c	K_R
2	-5.483	0.756	-3.061	1.837	3.3E-06
5	-	-	-	-	-
10	-4.139	0.734	-3.780	1.491	7.3E-05
25	-3.680	0.728	-4.017	1.372	2.1E-04
50	-3.397	0.724	-4.162	1.299	4.0E-04
100	-3.151	0.721	-4.287	1.236	7.1E-04

Return Period (years)	Q_{UOFM} (m^3/s)	Lower Limit of Q_{UOFM} (m^3/s)	Upper Limit of Q_{UOFM} (m^3/s)
2	**46.089**	32.724	64.525
5[5]	**57.176**	39.744	81.748
10	**75.653**	51.444	110.454
25	**90.019**	60.313	135.029
50	**100.298**	65.194	153.456
100	**110.854**	70.947	174.041

Notes:

1. Taken as (1+WA / A) where WA is the area of the Lakes and Wetlands; and A is area (dimensionless)
2. Figure 2: IsoHyetal Map; Design and Contract Standards Office #2016-03; Appendix A March 3, 2106
3. Taken as 10^x (value of contstant obtained from the output of the stepwise regression)
4. Table 1: Coefficients; Design and Contract Standards Office #2016-03; Appendix A March 3, 2106
5. Interpolated from 2 year and 10 year results

M.T.O. Modified Index Flood Method for Sub-Dam

(Chapter 8, M.T.O. Drainage Management Manual)

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Region		**Southern**	(Design Chart 1.14)[1]
Watershed Area	**A =**	**361.49**	**km²**
Storage Area from Lakes & Swamps	**Ad =**	**63.22**	**km²**
Watershed Slope	**S =**	**0.34**	**%**

1.	**Percent Storage**	**Ad/A =**	**17.5**	**%**
2.	**Watershed Base Class**	**WCb =**	**6.6**	(Design Chart 1.16 or 1.17, based on lakes & wetland curve)[2]
3a.	**Base Adjustment in Northern Basin**			
	1. Storage mostly in upper 1/3 of the Watershed	Adjust =	0.5	
	2. Storage well distributed or within the middle 1/3	Adjust =	0.0	
	3. Storage mostly in lower 1/3 of the Watershed	Adjust =	-0.5	
	Storage is distributed throughout the basin	**Adjust =**	**0.0**	
3b.	**Base Adjustment in Southern Basin**			
	1. Slope Adjustment	Adjust =	-0.2	(Design Chart 1.18)[3]
	2. Detention Adjustment	Adjust =	-2.0	(Design Chart 1.19)[4]
		Adjust =	**-2.2**	
4.	**Adjusted Watershed Class**	**WCa =**	**4.4**	
5.	**Class Coefficient**	**C =**	**0.51**	(Design Chart 1.15)[5]
6.	**25 Year Flow** (Equation 8.20)[6]	**Q_{25} =**	**42.39**	**m^3/s**
7.	**Return Period Flows**			

Return Period (year)	Frequency Conversion Factor[7]	Peak flow (m^3/s)
2	0.50	**21.195**
5	0.67	**28.401**
10	0.82	**34.760**
25	1.00	**42.390**
50	1.13	**47.901**
100	1.27	**53.835**

Notes:

1. Design Chart 1.14: Hydrologic Regions and Precipitation Index, from MTO Drainage Management Manual, Part 4
2. Design Chart 1.16 : Base Class Chart Determination: Northern Basins, from MTO Drainage Management Manual, Part 4
3. Design Chart 1.18: Base Class Adjustment for Slope - Southern Basins
4. Design Chart 1.19: Base Class Adjustment for Detention - Southern Basins
5. Design Chart 1.15: Typical Watershed Classes, from MTO Drainage Management Manual, Part 4
6. Equation 8.20 from MTO Drainage Management Manual, Chapter 8: Hydrology, Hydraulics & Stormwater Quality
7. Frequency conversion factors from Chart H5-9, Chapter H, M.T.O. Drainage Manual

MNR Index Flood Method for Sub-Dam

(Appendix 5, M.N.R. Flood Plain Management in Ontario)

WILLS

Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Area	**A =**	**361.48736**	km^2
Region		**9**	(Figure 1)[1]
			1a refers to A<60km^2
Constant	**C =**	**0.40**	(Table 8)[2]
Exponent	**n =**	**0.810**	(Table 8)

1. Index Flood

$Q_2 = CAn$

$Q_2 = 47.22$ m^3/s

2. Flood Discharge, Qf

Return Period (years)	Ratio to Index Flood Rf[3]	Flood Discharge (m^3/s)
2	1.00	**47.219**
5	1.30	**61.385**
10	1.50	**70.828**
25	1.70	**80.272**
50	2.00	**94.438**
100	2.30	**108.603**

Notes:

1. Flood Frequency Regions Index Method, Figure 1
2. Table 8 from Regional Regression Equation Coefficients, M.N.E. Flood Plain Management in Ontario, Appendix 5
3. Rf factor from Regional Frequency Curve, Figure 10A for Region 9

Peak Flow Comparison for Sub-Dam	Sheet 6 of 6

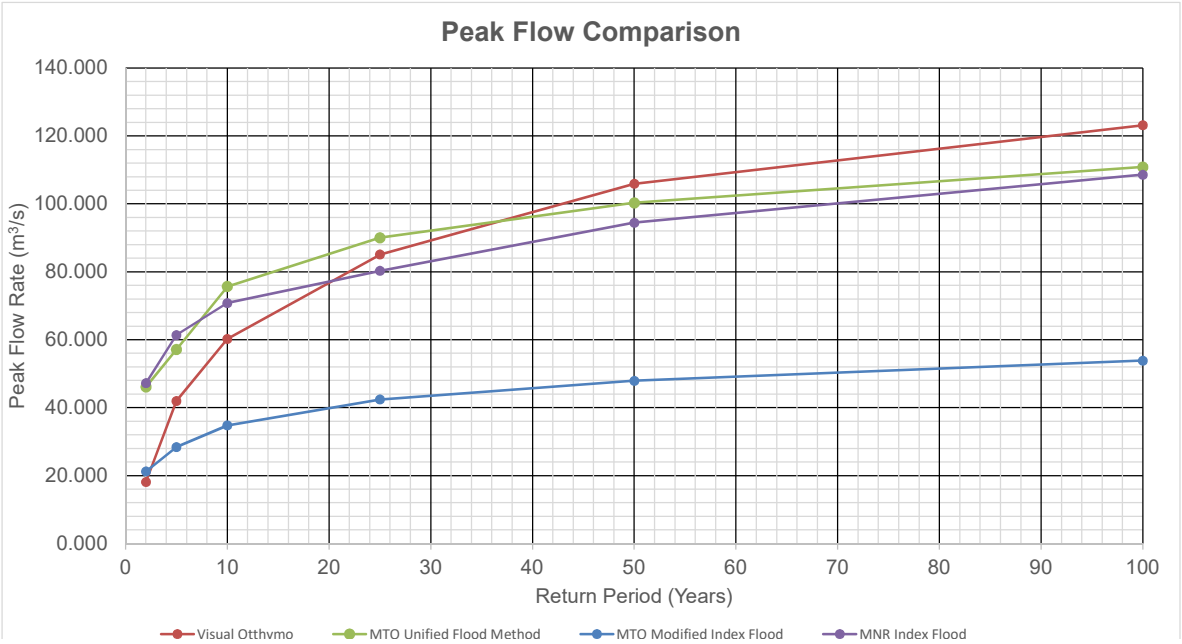
Project No: 5681
Project Name: Pefferlaw
Designed/Checked By: MJH / KS
Date: 19-May-22

Return Period (Year)	Rational Method	Visual Otthymo	MTO Unified Flood Method (Mean)	MTO Northern Ontario	MTO Modified Index Flood	MNR Index Flood	Average Values
2		**18.149**	46.089		21.195	47.219	33.163
5		**41.981**	57.176		28.401	61.385	47.236
10		**60.243**	75.653		34.760	70.828	60.371
25		**85.076**	90.019		42.390	80.272	74.439
50		**105.916**	100.298		47.901	94.438	87.138
100		**123.175**	110.854		53.835	108.603	99.117
		0.000					
Regional Event		-	-		-	-	-

Method used to determine the peak flows values **Visual Otthymo**

Notes:

1. Not Used
2. Not Used
3. Not Used



Report Ouputs for Pefferlaw Dam

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH/KS
Date: May 20, 2022

Regional Frequency Analysis Results

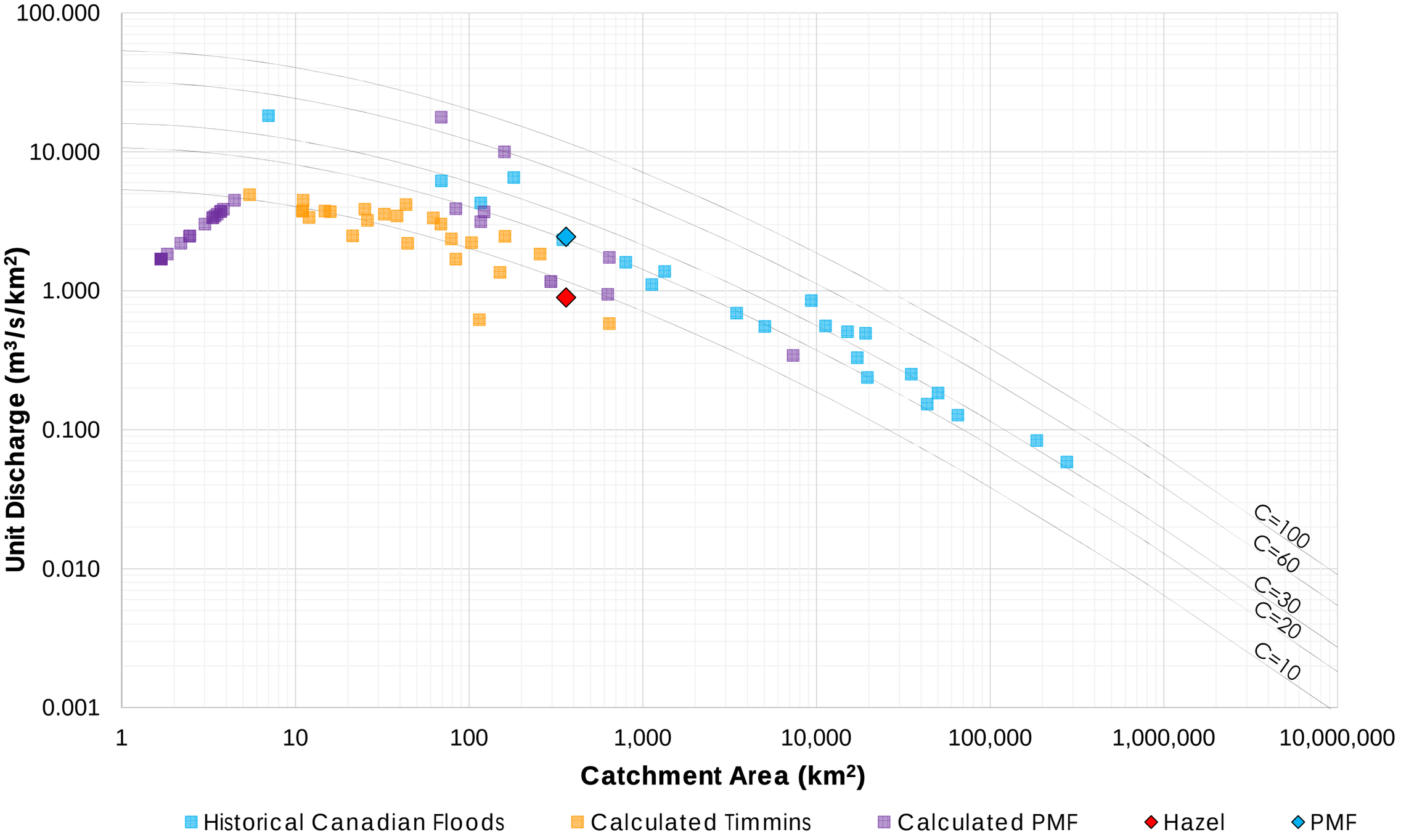
Return Period (years)	Peak Flows (m^3/s)			
	MTO UFM	MTO NO	MTO MIFM	MNR IFM
2	51.0		23.9	53.5
5	63.1		32.1	69.5
10	83.2		39.2	80.2
25	98.8		47.9	90.9
50	110.0		54.1	107.0
100	121.4		60.8	123.0

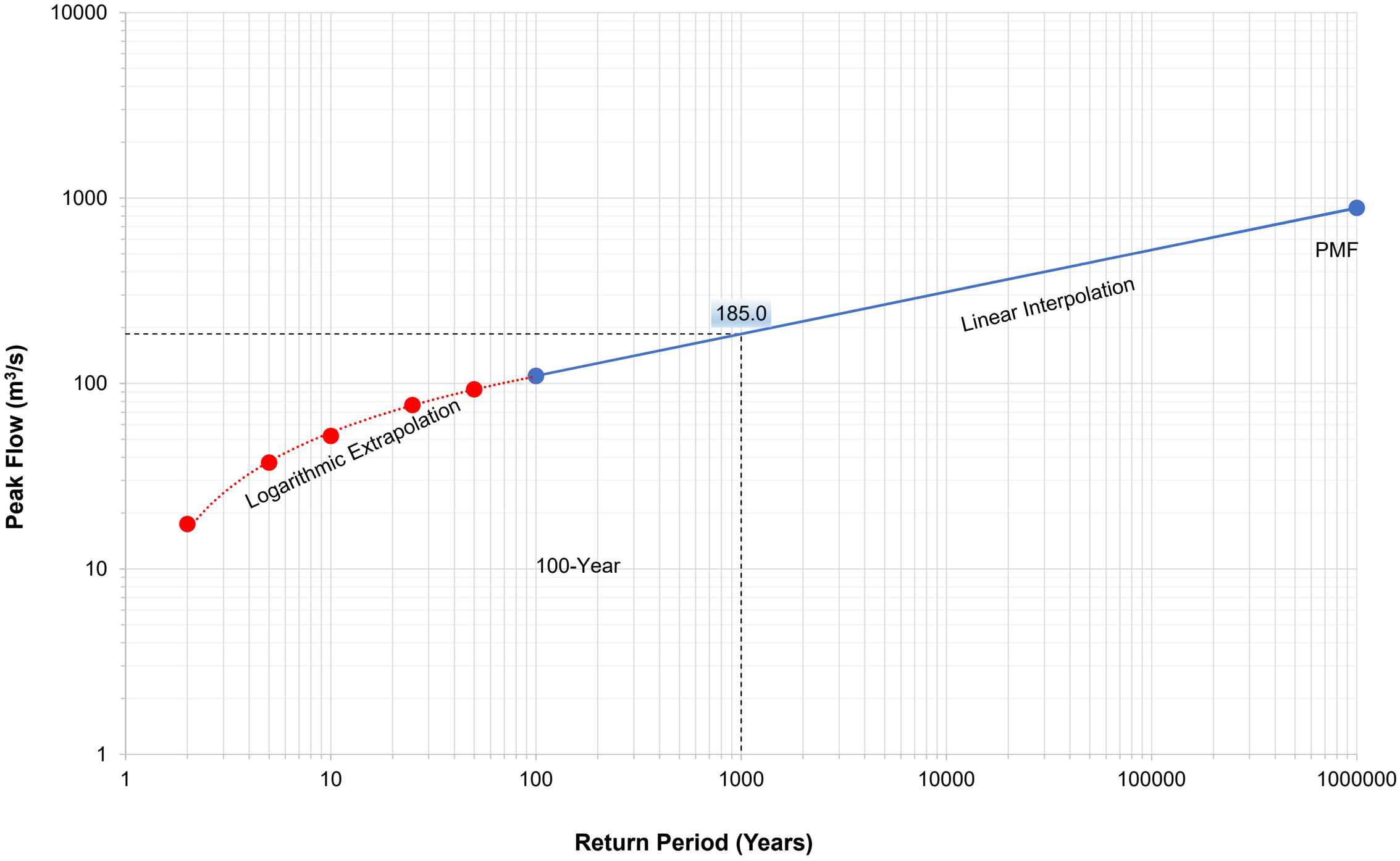
Visual OTTHYMO Results

Flood Event	Return Period (years)	Hydrologic Model Results - Peak Flow (m^3/s)						
		6-Hour MNR PMP	12-Hour MNR PMP	12-Hour AES	6-Hour SCS	12-Hour SCS	24-Hour SCS	Hazel
2	2			10.5	4.2	10.5	17.5	
5	5			23.6	12.5	23.2	37.4	
10	10			34.9	20.2	33.6	52.2	
25	25			51.6	30.3	49.4	76.5	
50	50			65.3	37.8	62.4	93.0	
100	100			79.5	47.1	74.1	109.8	
PMF	1000000	618.9	747.6	665.6	558.2	753.2	884.2	
Regional	N/A							323.1

1000-Year Peak Flow

Methodology	Peak Flow (m^3/s)
Station Frequency Analysis (Log Pearson Type III Statistical Model)	223.8
Extrapolation from Station Frequency Analysis (Straight Line on Semi-Log Plot)	174.1
Interpolation between 100-Year and PMF (Straight Line on Semi-Log Plot)	303.4
Interpolation between 100-Year and PMF (Straight Line on Log-Log Plot)	185.0


100.000
10.000
1.000
0.100
0.010
0.001
Unit Discharge (m³/s/km²)
1
10
100
1,000
10,000
100,000
1,000,000
10,000,000
Catchment Area (km²)
C=100
C=60
C=30
C=20
C=10
Historical Canadian Floods
Calculated Timmins
Calculated PMF
Hazel
PMF


10000
1000
100
10
1
Peak Flow (m³/s)
1
10
100
1000
10000
100000
1000000
Return Period (Years)
185.0
100-Year
Logarithmic Extrapolation
Linear Interpolation
PMF

Report Ouputs for Pefferlaw River Outlet - Calibrated

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH/KS
Date: May 20, 2022

Regional Frequency Analysis Results

Return Period (years)	Peak Flows (m^3/s)			
	MTO UFM	MTO NO	MTO MIFM	MNR IFM
2	51.0		23.9	53.5
5	63.1		32.1	69.5
10	83.2		39.2	80.2
25	98.8		47.9	90.9
50	110.0		54.1	107.0
100	121.4		60.8	123.0

Visual OTTHYMO Results

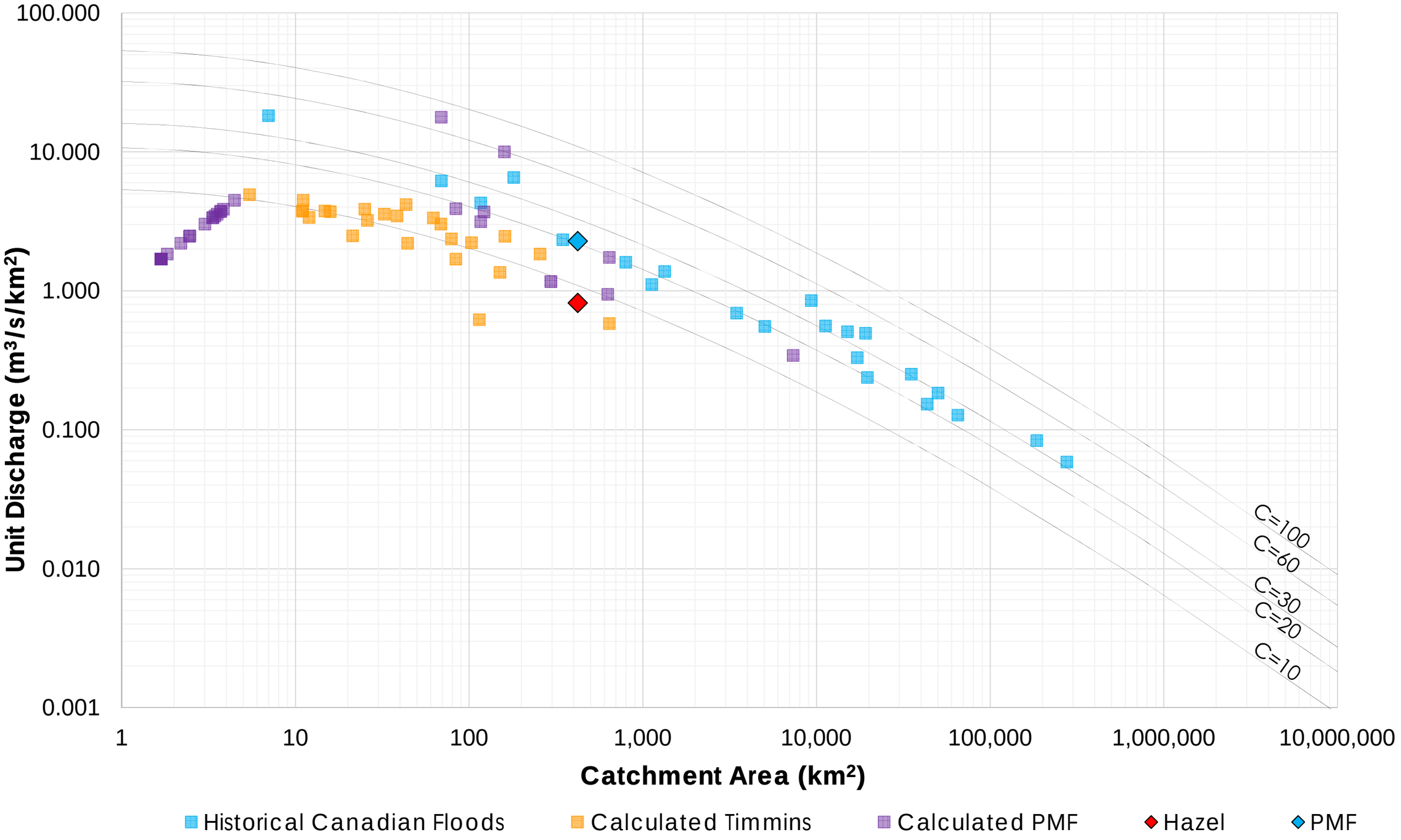
Flood Event	Return Period (years)	Hydrologic Model Results - Peak Flow (m^3/s)						
		6-Hour MNR PMP	12-Hour MNR PMP	12-Hour AES	6-Hour SCS	12-Hour SCS	24-Hour SCS	Hazel
2	2			11.8	4.9	11.9	19.5	
5	5			25.9	13.9	25.3	41.5	
10	10			38.0	21.6	36.5	57.2	
25	25			55.6	32.9	53.1	83.3	
50	50			70.2	40.6	66.7	100.7	
100	100			85.3	50.3	79.1	118.8	
PMF	1000000	651.5	790.4	691.9	579.3	797.2	960.7	
Regional	N/A							344.9

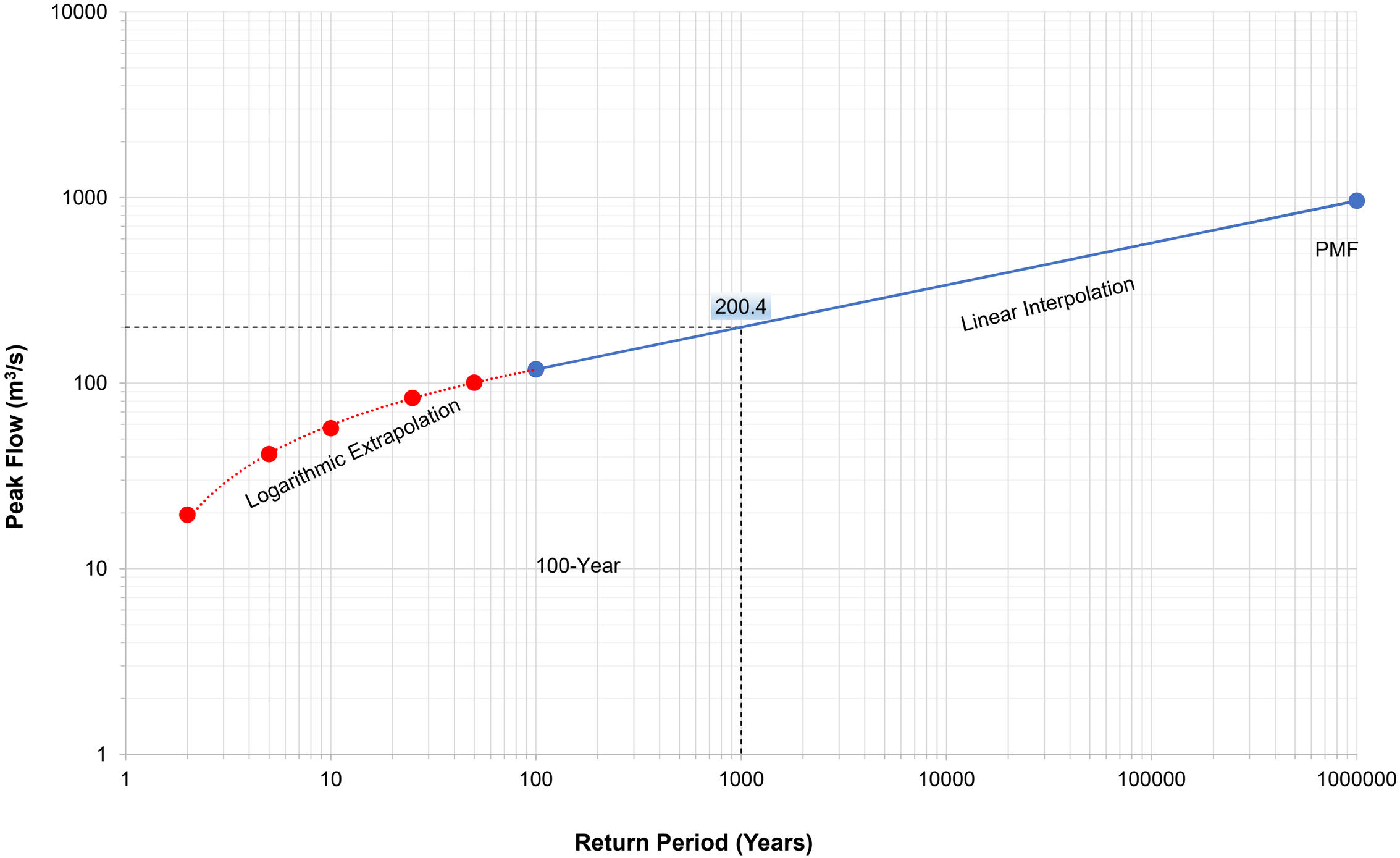
1000-Year Peak Flow

Methodology	Peak Flow (m^3/s)
Station Frequency Analysis (Log Pearson Type III Statistical Model)	223.8
Extrapolation from Station Frequency Analysis (Straight Line on Semi-Log Plot)	174.1
Interpolation between 100-Year and PMF (Straight Line on Semi-Log Plot)	329.3
Interpolation between 100-Year and PMF (Straight Line on Log-Log Plot)	200.4

Peak Flow Summary

Storm Event	Peak Flow (m^3/s)	Methodology
Sunny Day	2.00	Gauge Station Data
2-Year	19.5	24-Hour SCS
5-Year	41.5	24-Hour SCS
10-Year	57.2	24-Hour SCS
25-Year	83.3	24-Hour SCS
50-Year	100.7	24-Hour SCS
100-Year	118.8	24-Hour SCS
1000-Year	200.4	Interpolation on Log-Log Plot
Regional Flood	344.9	Hazel
1/3 between 1000-Year Flood and PMF	453.8	Linear Interpolation
2/3 between 1000-Year Flood and PMF	707.2	Linear Interpolation
Probable Maximum Flood	960.7	24-Hour SCS


100.000
10.000
1.000
0.100
0.010
0.001
Unit Discharge (m³/s/km²)
1
10
100
1,000
10,000
100,000
1,000,000
10,000,000
Catchment Area (km²)
C=100
C=60
C=30
C=20
C=10
Historical Canadian Floods
Calculated Timmins
Calculated PMF
Hazel
PMF


10000
1000
100
10
1
Peak Flow (m³/s)
1
10
100
1000
10000
100000
1000000
Return Period (Years)
200.4
100-Year
Linear Interpolation
Logarithmic Extrapolation
PMF

Report Ouputs for Pefferlaw River Outlet

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH/KS
Date: May 20, 2022

Regional Frequency Analysis Results

Return Period (years)	Peak Flows (m^3/s)			
	MTO UFM	MTO NO	MTO MIFM	MNR IFM
2	46.1		21.2	47.2
5	57.2		28.4	61.4
10	75.7		34.8	70.8
25	90.0		42.4	80.3
50	100.3		47.9	94.4
100	110.9		53.8	108.6

Visual OTTHYMO Results

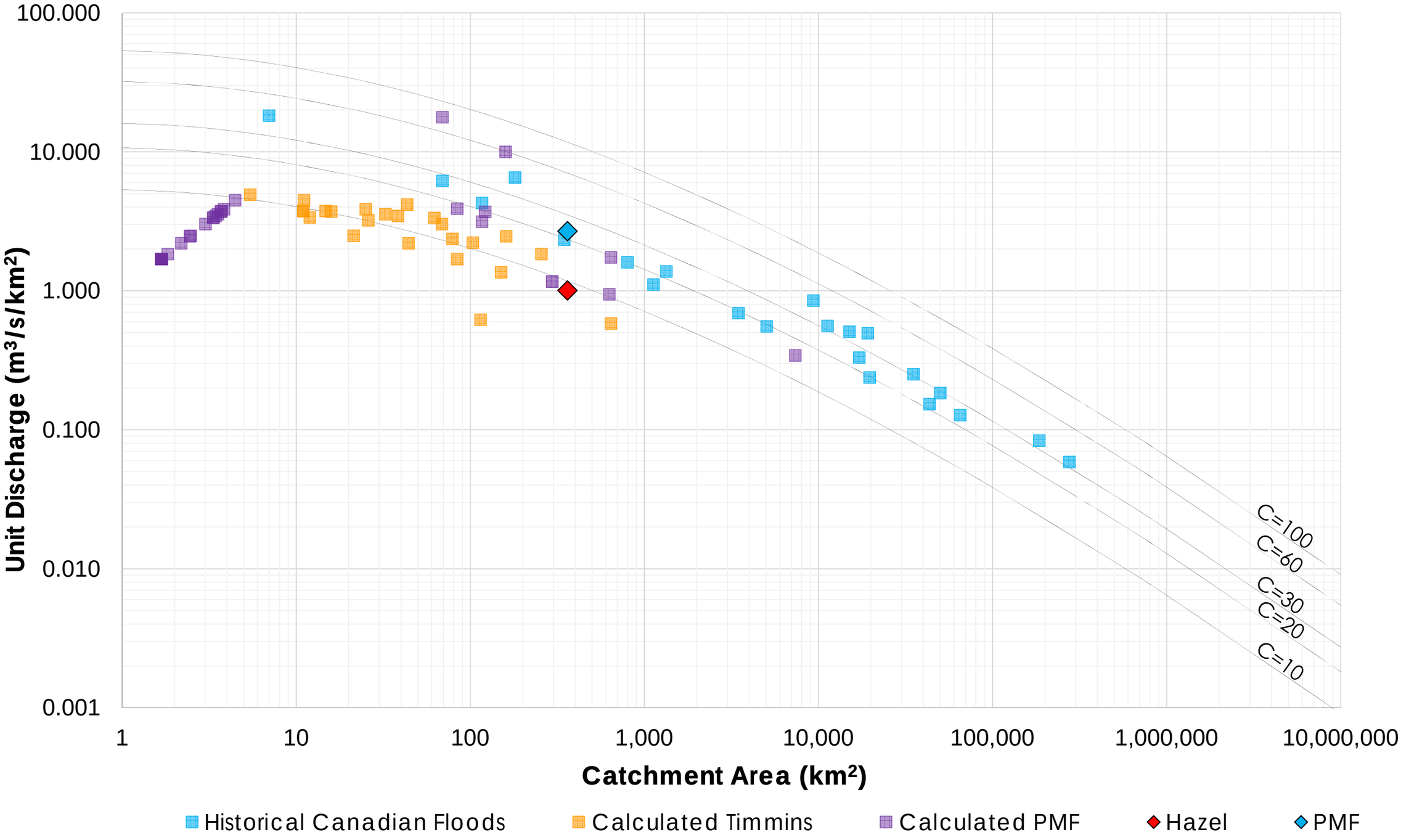
Flood Event	Return Period (years)	Hydrologic Model Results - Peak Flow (m^3/s)						
		6-Hour MNR PMP	12-Hour MNR PMP	12-Hour AES	6-Hour SCS	12-Hour SCS	24-Hour SCS	Hazel
2	2			9.8	2.9	9.7	18.1	
5	5			25.2	12.0	24.9	42.0	
10	10			38.5	21.2	37.4	60.2	
25	25			59.1	32.8	55.4	85.1	
50	50			76.4	42.9	69.6	105.9	
100	100			91.1	54.7	84.8	123.2	
PMF	1000000	686.9	833.8	752.4	551.4	838.0	971.3	
Regional	N/A							363.1

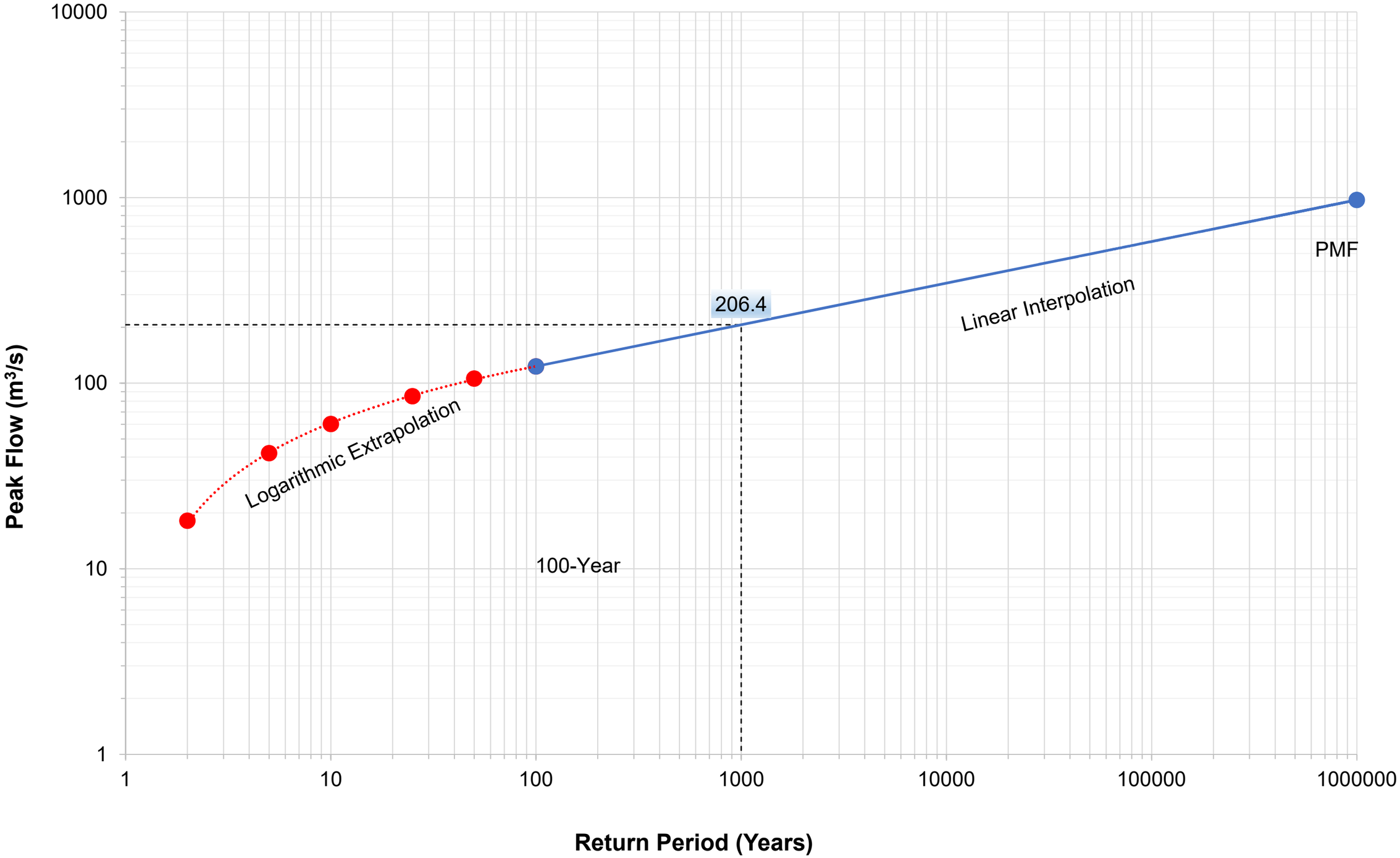
1000-Year Peak Flow

Methodology	Peak Flow (m^3/s)
Station Frequency Analysis (Log Pearson Type III Statistical Model)	199.4
Extrapolation from Station Frequency Analysis (Straight Line on Semi-Log Plot)	155.2
Interpolation between 100-Year and PMF (Straight Line on Semi-Log Plot)	335.2
Interpolation between 100-Year and PMF (Straight Line on Log-Log Plot)	206.4

Peak Flow Summary

Storm Event	Peak Flow (m^3/s)	Methodology
Sunny Day	2.00	Gauge Station Data
2-Year	18.1	24-Hour SCS
5-Year	42.0	24-Hour SCS
10-Year	60.2	24-Hour SCS
25-Year	85.1	24-Hour SCS
50-Year	105.9	24-Hour SCS
100-Year	123.2	24-Hour SCS
1000-Year	206.4	Interpolation on Log-Log Plot
Regional Flood	363.1	Hazel
1/3 between 1000-Year Flood and PMF	461.4	Linear Interpolation
2/3 between 1000-Year Flood and PMF	716.3	Linear Interpolation
Probable Maximum Flood	971.3	24-Hour SCS


100.000
10.000
1.000
0.100
0.010
0.001
Unit Discharge (m³/s/km²)
1
10
100
1,000
10,000
100,000
1,000,000
10,000,000
Catchment Area (km²)
C=100
C=60
C=30
C=20
C=10
Historical Canadian Floods
Calculated Timmins
Calculated PMF
Hazel
PMF


10000
1000
100
10
1
Peak Flow (m³/s)
1
10
100
1000
10000
100000
1000000
Return Period (Years)
206.4
Linear Interpolation
PMF
Logarithmic Extrapolation
100-Year

Report Ouputs for Pefferlaw Dam

Project No: 5681
Project Name: Pefferlaw Dam DSR
Designed/Checked By: MJH/KS
Date: May 20, 2022

Regional Frequency Analysis Results

Return Period (years)	Peak Flows (m^3/s)			
	MTO UFM	MTO NO	MTO MIFM	MNR IFM
2	51.0		23.9	53.5
5	63.1		32.1	69.5
10	83.2		39.2	80.2
25	98.8		47.9	90.9
50	110.0		54.1	107.0
100	121.4		60.8	123.0

Visual OTTHYMO Results

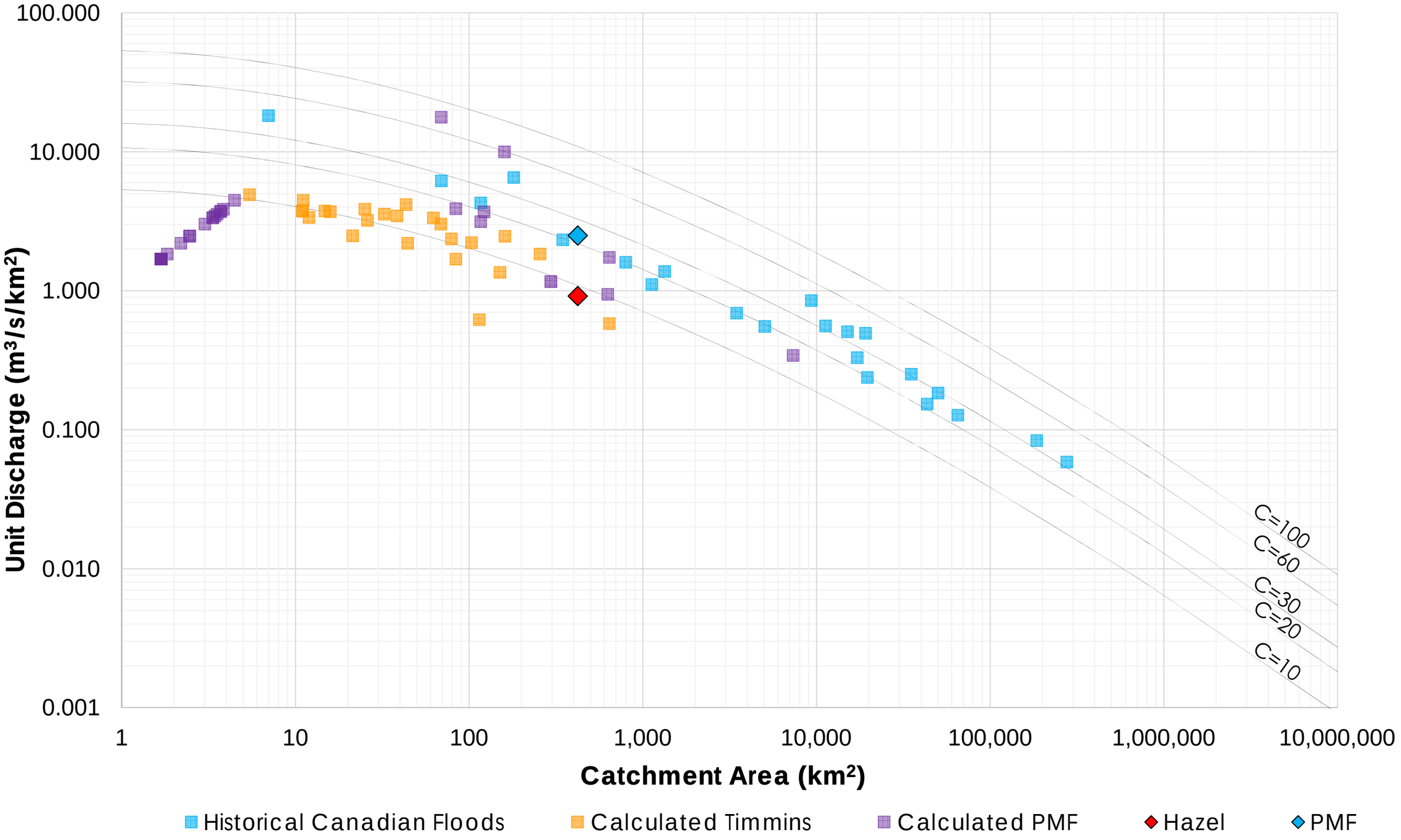
Flood Event	Return Period (years)	Hydrologic Model Results - Peak Flow (m^3/s)						
		6-Hour MNR PMP	12-Hour MNR PMP	12-Hour AES	6-Hour SCS	12-Hour SCS	24-Hour SCS	Hazel
2	2			11.4	3.8	11.4	20.7	
5	5			28.0	13.7	27.6	47.0	
10	10			42.2	23.1	41.0	66.5	
25	25			64.0	35.8	59.7	92.3	
50	50			82.6	46.5	74.3	114.8	
100	100			97.9	58.8	90.4	133.2	
PMF	1000000	722.4	881.5	782.8	564.1	886.2	1053.3	
Regional	N/A							386.3

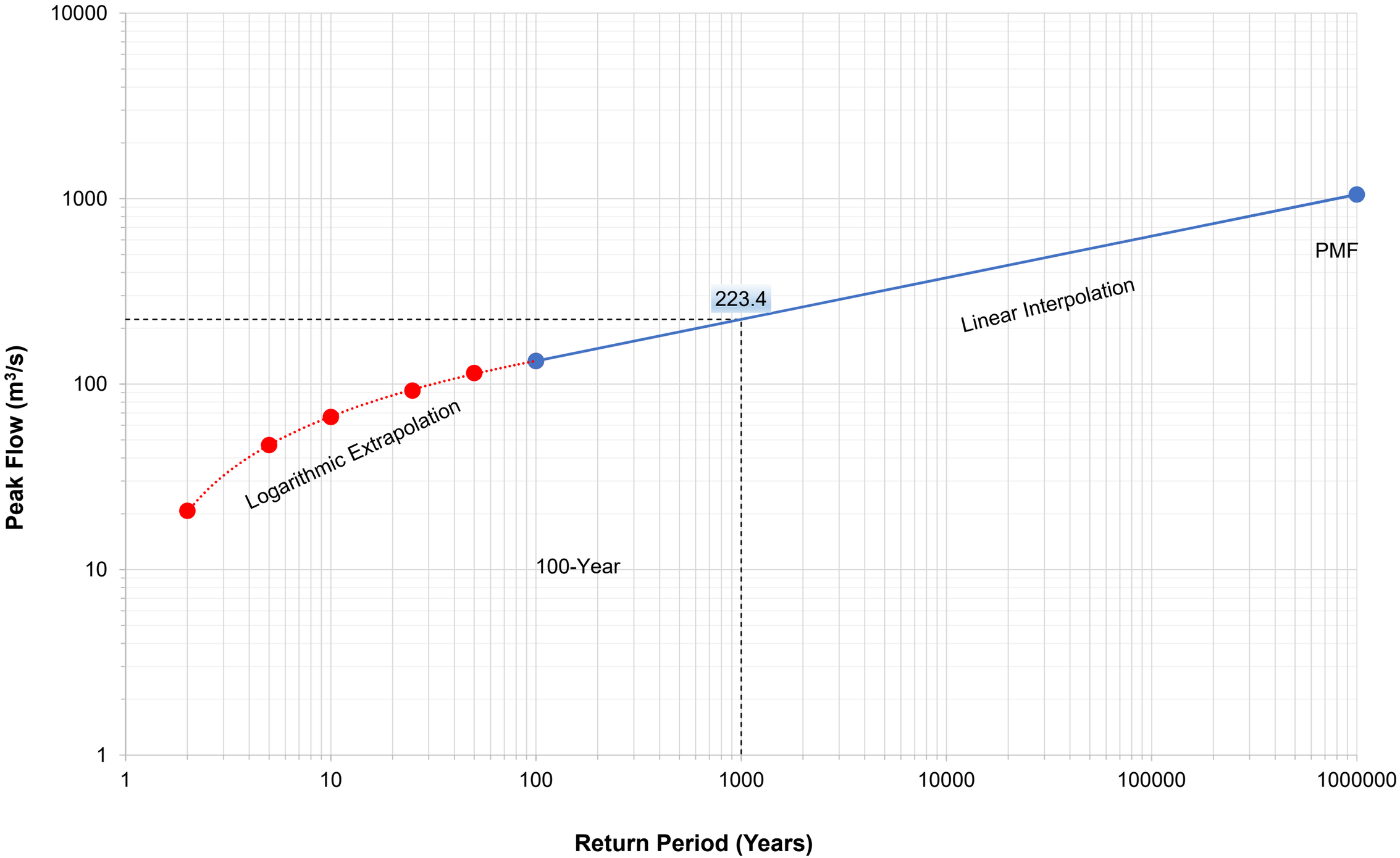
1000-Year Peak Flow

Methodology	Peak Flow (m^3/s)
Station Frequency Analysis (Log Pearson Type III Statistical Model)	223.8
Extrapolation from Station Frequency Analysis (Straight Line on Semi-Log Plot)	174.1
Interpolation between 100-Year and PMF (Straight Line on Semi-Log Plot)	363.2
Interpolation between 100-Year and PMF (Straight Line on Log-Log Plot)	223.4

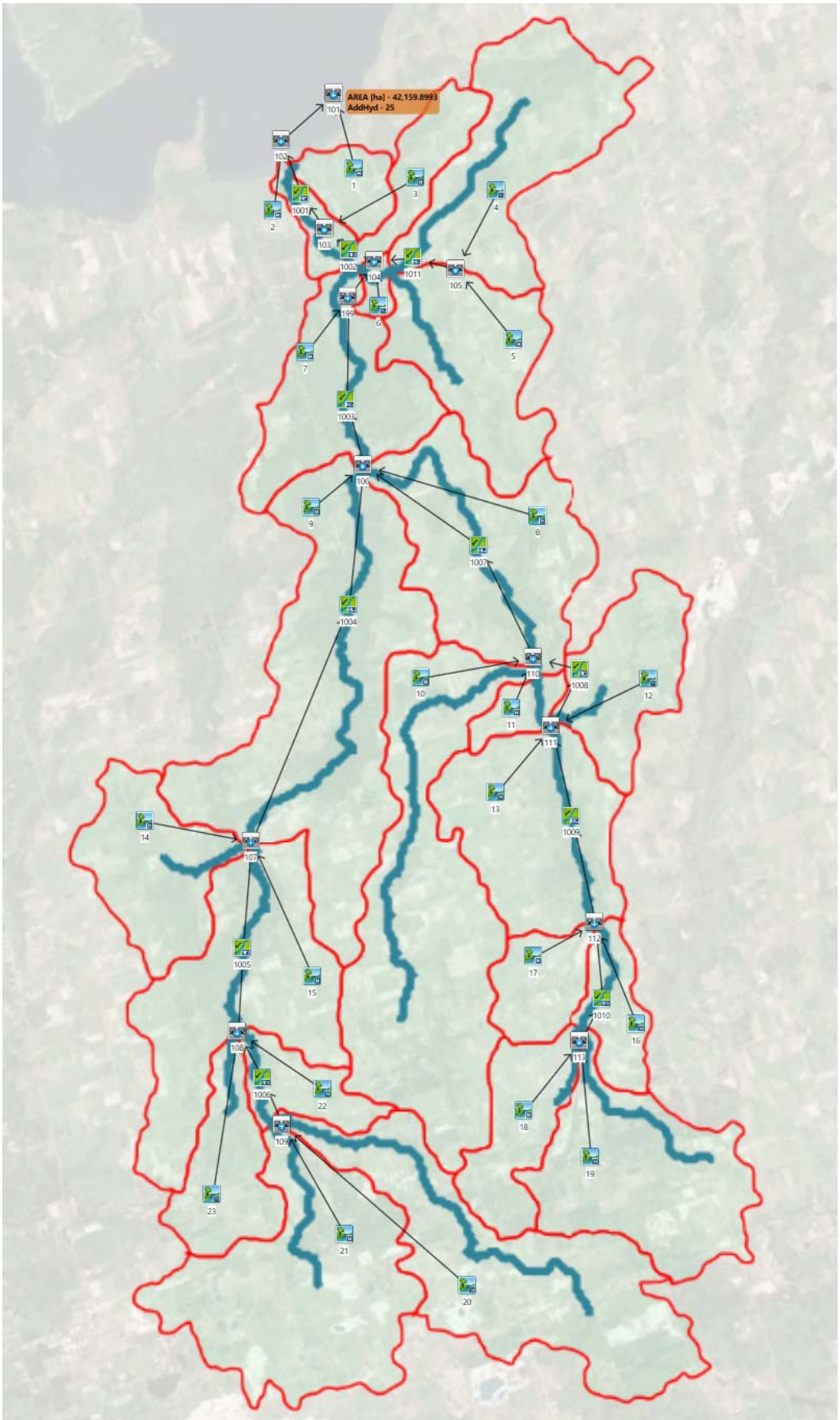
Peak Flow Summary

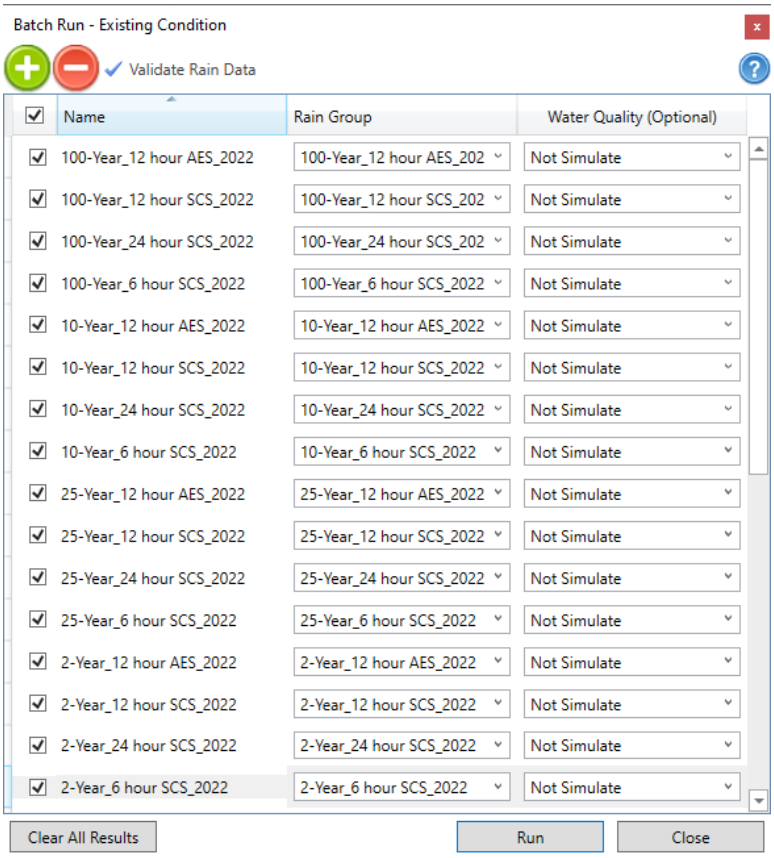
Storm Event	Peak Flow (m^3/s)	Methodology
Sunny Day	2.00	Gauge Station Data
2-Year	20.7	24-Hour SCS
5-Year	47.0	24-Hour SCS
10-Year	66.5	24-Hour SCS
25-Year	92.3	24-Hour SCS
50-Year	114.8	24-Hour SCS
100-Year	133.2	24-Hour SCS
1000-Year	223.4	Interpolation on Log-Log Plot
Regional Flood	386.3	Hazel
1/3 between 1000-Year Flood and PMF	500.0	Linear Interpolation
2/3 between 1000-Year Flood and PMF	776.7	Linear Interpolation
Probable Maximum Flood	1053.3	24-Hour SCS

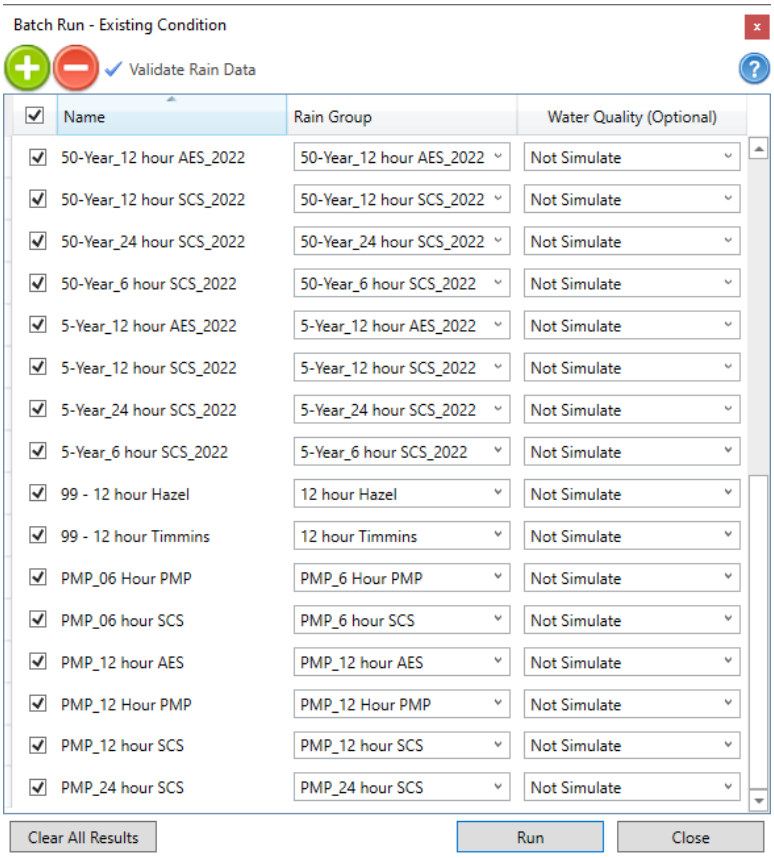

100.000
10.000
1.000
0.100
0.010
0.001
Unit Discharge (m³/s/km²)
1
10
100
1,000
10,000
100,000
1,000,000
10,000,000
Catchment Area (km²)
C=100
C=60
C=30
C=20
C=10
Historical Canadian Floods
Calculated Timmins
Calculated PMF
Hazel
PMF


10000
1000
100
10
1
Peak Flow (m³/s)
1
10
100
1000
10000
100000
1000000
Return Period (Years)
223.4
100-Year
Linear Interpolation
Logarithmic Extrapolation
PMF

Catchment Map




Batch Run - Existing Condition
Validate Rain Data
Name
Rain Group
Water Quality (Optional)
100-Year_12 hour AES_2022
100-Year_12 hour AES_202
Not Simulate
100-Year_12 hour SCS_2022
100-Year_12 hour SCS_202
Not Simulate
100-Year_24 hour SCS_2022
100-Year_24 hour SCS_202
Not Simulate
100-Year_6 hour SCS_2022
100-Year_6 hour SCS_2022
Not Simulate
10-Year_12 hour AES_2022
10-Year_12 hour AES_2022
Not Simulate
10-Year_12 hour SCS_2022
10-Year_12 hour SCS_2022
Not Simulate
10-Year_24 hour SCS_2022
10-Year_24 hour SCS_2022
Not Simulate
10-Year_6 hour SCS_2022
10-Year_6 hour SCS_2022
Not Simulate
25-Year_12 hour AES_2022
25-Year_12 hour AES_2022
Not Simulate
25-Year_12 hour SCS_2022
25-Year_12 hour SCS_2022
Not Simulate
25-Year_24 hour SCS_2022
25-Year_24 hour SCS_2022
Not Simulate
25-Year_6 hour SCS_2022
25-Year_6 hour SCS_2022
Not Simulate
2-Year_12 hour AES_2022
2-Year_12 hour AES_2022
Not Simulate
2-Year_12 hour SCS_2022
2-Year_12 hour SCS_2022
Not Simulate
2-Year_24 hour SCS_2022
2-Year_24 hour SCS_2022
Not Simulate
2-Year_6 hour SCS_2022
2-Year_6 hour SCS_2022
Not Simulate
Clear All Results
Run
Close


Batch Run - Existing Condition
Validate Rain Data
Name
Rain Group
Water Quality (Optional)
50-Year_12 hour AES_2022
50-Year_12 hour AES_2022
Not Simulate
50-Year_12 hour SCS_2022
50-Year_12 hour SCS_2022
Not Simulate
50-Year_24 hour SCS_2022
50-Year_24 hour SCS_2022
Not Simulate
50-Year_6 hour SCS_2022
50-Year_6 hour SCS_2022
Not Simulate
5-Year_12 hour AES_2022
5-Year_12 hour AES_2022
Not Simulate
5-Year_12 hour SCS_2022
5-Year_12 hour SCS_2022
Not Simulate
5-Year_24 hour SCS_2022
5-Year_24 hour SCS_2022
Not Simulate
5-Year_6 hour SCS_2022
5-Year_6 hour SCS_2022
Not Simulate
99 - 12 hour Hazel
12 hour Hazel
Not Simulate
99 - 12 hour Timmins
12 hour Timmins
Not Simulate
PMP_06 Hour PMP
PMP_6 Hour PMP
Not Simulate
PMP_06 hour SCS
PMP_6 hour SCS
Not Simulate
PMP_12 hour AES
PMP_12 hour AES
Not Simulate
PMP_12 Hour PMP
PMP_12 Hour PMP
Not Simulate
PMP_12 hour SCS
PMP_12 hour SCS
Not Simulate
PMP_24 hour SCS
PMP_24 hour SCS
Not Simulate
Clear All Results
Run
Close

```
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\2346ca5a-d53e-464f-8f1c-c2c194c6331c\scenar


DATE: 05/13/2022                          TIME: 08:57:37

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_12 hour AES_2022     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    5.20  6.83  35.91 0.35   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    8.56  7.67  32.63 0.32   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   22.26  8.17  34.92 0.34   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   19.28 10.25  32.17 0.31   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   39.82  8.92  33.33  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   39.73  9.17  33.33  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.82  7.67  29.87 0.29   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.80 20.75  21.99 0.21   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
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    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   16.25 11.00  27.91 0.27   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   15.69 15.25  24.27 0.24   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   10.56 23.83  31.64 0.31   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    5.26  6.42  30.67 0.30   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    5.59 14.17  27.77 0.27   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   20.96  9.50  32.48 0.32   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
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    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    9.07  7.67  35.97 0.35   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04   10.64  7.33  33.64 0.33   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
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    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    4.27 17.25  33.08 0.32   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    8.34 13.00  19.33 0.19   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   12.21 14.00  23.65  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   12.16 14.58  23.65  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   15.83 10.08  25.56  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   24.80  8.25  26.77  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   20.82 10.92  26.77  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   25.81 11.42  26.98  n/a   0.000
*
```

```
    ADD [  0111+  0013]  0111  1  5.0 8782.04   45.74 10.33  28.47  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   45.60 10.67  28.47  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   50.35 11.17  29.67  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   51.31 10.83  29.69  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   43.81 14.58  29.69  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   16.88  7.75  27.44 0.27   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   17.87 11.08  28.47 0.28   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    6.44 17.50  15.42 0.15   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   25.49  9.17  25.27 0.25   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   28.71  9.58  20.20  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   28.42 10.17  20.20  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    8.20  6.67  24.10 0.23   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    8.17  8.08  18.66 0.18   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   32.01  9.25  20.54  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   39.76  8.92  20.30  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   37.24 10.33  20.30  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   50.61  9.33  21.38  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   67.51  9.75  22.93  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   37.51 15.58  22.93  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   81.12 15.08  26.32  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   94.26 14.25  26.47  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  109.84 14.33  26.16  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   87.33 20.50  26.15  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   91.13 20.50  25.94  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   98.21 18.50  26.73  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   98.26 18.50  26.75  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   98.26 18.50  26.75  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   98.56 17.92  26.84  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   97.93 19.67  26.84  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   97.94 19.67  26.91  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    7.95  6.67  33.32 0.32   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   97.95 19.67  26.99  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c9ca5aa2-0890-4f92-a9ad-9ec2d78269d4\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c9ca5aa2-0890-4f92-a9ad-9ec2d78269d4\scenar


DATE: 05/13/2022                          TIME: 08:57:35

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_12 hour SCS_2022     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    5.18  9.00  36.06 0.35   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    8.15 10.08  32.78 0.32   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   21.25 10.67  35.07 0.34   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   18.77 13.33  32.32 0.31   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   38.04 11.75  33.48  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   37.98 12.00  33.48  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.72 10.00  30.01 0.29   0.000
    [CN=66.9         ]
```

```
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.80 23.75  22.08 0.21   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   15.86 14.08  28.04 0.27   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   15.60 18.25  24.40 0.24   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   10.59 26.92  31.67 0.31   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    5.37  8.42  30.81 0.30   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    5.55 17.17  27.90 0.27   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   20.17 12.42  32.63 0.32   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    8.72 10.08  36.13 0.35   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04   10.26  9.58  33.79 0.33   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    4.27 20.33  33.22 0.32   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    8.21 16.08  19.44 0.19   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   12.08 17.08  23.78  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   12.04 17.75  23.78  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   15.48 13.50  25.68  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   23.41 10.92  26.90  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   19.88 14.25  26.90  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   24.99 14.83  27.11  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   43.93 13.50  28.60  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   43.82 13.83  28.60  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   48.78 14.42  29.80  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   49.83 14.00  29.83  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   42.60 18.08  29.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   15.77 10.17  27.57 0.27   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   17.47 14.17  28.60 0.28   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    6.41 20.58  15.51 0.15   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   24.07 12.08  25.40 0.25   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   27.38 12.67  20.32  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   27.18 13.25  20.32  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    7.89  8.67  24.22 0.23   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    7.35 10.67  18.77 0.18   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   30.53 12.42  20.65  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   37.28 12.00  20.41  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   35.47 13.50  20.41  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   47.59 12.42  21.49  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   64.26 12.83  23.05  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   33.53 19.50  23.04  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   75.84 18.67  26.45  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   88.22 17.67  26.60  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  103.78 17.75  26.29  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   81.05 24.58  26.28  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   84.84 24.58  26.06  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   90.66 22.42  26.86  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   90.69 22.42  26.87  n/a   0.000
```

```
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   90.69 22.42  26.87  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   90.89 22.25  26.97  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   90.39 23.67  26.97  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   90.40 23.67  27.04  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    8.01  8.67  33.47 0.32   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   90.40 23.67  27.11  n/a   0.000
*
==============================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\980825a0-196a-4d91-83c3-a52a66d79548\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\980825a0-196a-4d91-83c3-a52a66d79548\scenar


DATE: 05/13/2022                          TIME: 08:57:31

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_24 hour SCS_2022     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    6.55 14.92  53.13 0.42   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55   10.42 15.92  49.10 0.39   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   26.88 16.58  51.92 0.41   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   23.97 19.42  48.52 0.38   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   48.20 17.58  49.95  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   48.12 17.83  49.95  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    2.22 15.83  45.65 0.36   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    5.89 31.42  35.28 0.28   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   20.82 20.50  43.17 0.34   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   22.65 25.92  38.51 0.30   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   15.53 34.33  46.91 0.37   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    6.92 14.33  46.64 0.37   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    7.74 24.67  42.99 0.34   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   25.63 18.25  48.91 0.39   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69   11.00 15.92  53.20 0.42   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04   13.07 15.42  50.34 0.40   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    6.03 27.83  49.58 0.39   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
```

```
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   11.82 23.42  32.05 0.25   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   17.41 24.75  37.59  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   17.36 25.33  37.59  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   20.76 22.33  40.00  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   30.05 16.83  41.55  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   25.77 21.42  41.55  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   33.11 22.50  41.85  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   56.21 19.75  43.76  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   56.13 20.17  43.76  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   63.25 21.25  45.30  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   64.82 21.00  45.33  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   58.79 26.08  45.33  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   20.58 16.00  42.57 0.34   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   22.89 20.58  43.88 0.35   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   10.40 28.42  26.73 0.21   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   31.49 17.92  39.81 0.31   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   36.10 18.58  33.11  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   35.89 19.25  33.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35   10.51 14.50  38.30 0.30   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   10.05 16.42  31.17 0.25   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   40.12 18.42  33.55  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   49.25 17.75  33.24  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   46.86 19.67  33.24  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   62.18 18.33  34.66  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   83.82 18.92  36.68  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   44.80 47.75  36.67  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  102.64 27.08  41.02  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  118.16 25.75  41.21  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  140.80 25.83  40.84  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  117.31 32.42  40.82  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  123.17 32.42  40.55  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  133.00 29.83  41.56  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  133.15 29.75  41.58  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  133.15 29.83  41.58  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  133.93 29.42  41.70  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  133.06 31.08  41.70  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  133.14 31.00  41.79  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25   10.22 14.58  49.95 0.39   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  133.22 30.92  41.88  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a3a63d63-2b73-4252-90f1-a6d29918b730\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a3a63d63-2b73-4252-90f1-a6d29918b730\scenar


DATE: 05/13/2022                          TIME: 08:57:41

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_6 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.95  6.17  23.53 0.28   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    6.06  6.92  20.94 0.25   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   15.72  7.42  22.75 0.27   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
```

```
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   12.75  9.58  20.58 0.25   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   27.15  8.17  21.49  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   27.08  8.42  21.49  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.26  6.92  18.80 0.22   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.23 20.08  12.85 0.15   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   10.32 10.33  17.29 0.21   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    9.48 14.50  14.54 0.17   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    6.78 23.33  20.25 0.24   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.98  5.58  19.41 0.23   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.50 13.50  17.18 0.20   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   14.05  8.75  20.82 0.25   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    6.57  7.00  23.59 0.28   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    7.73  6.58  21.73 0.26   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.77 16.67  21.30 0.25   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.76 12.25  10.90 0.13   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    7.25 13.42  14.17  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    7.23 14.00  14.17  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   10.05  8.75  15.62  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   16.82  7.33  16.54  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   13.29 10.08  16.54  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   16.38 10.58  16.68  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   29.76  9.58  17.80  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   29.66 10.00  17.80  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   32.56 10.33  18.70  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   33.14 10.08  18.72  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   27.78 14.00  18.71  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   11.37  7.00  16.92 0.20   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   11.40 10.33  17.71 0.21   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.41 16.75   8.13 0.10   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   16.13  8.42  15.29 0.18   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   17.79  8.75  11.61  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   17.59  9.33  11.61  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    5.63  5.83  14.40 0.17   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    4.86  7.25  10.42 0.12   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   19.83  8.33  11.84  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   24.44  8.00  11.66  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   22.68  9.58  11.66  n/a   0.000
```

```
*
    ADD [  1005+  0014]  0107  3  5.0 *******   31.54  8.50  12.46  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   42.18  8.92  13.61  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   21.93 25.92  13.60  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   49.32 14.50  16.17  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   57.55 13.67  16.27  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   66.97 13.75  16.03  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   52.44 20.17  16.02  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   54.66 20.17  15.86  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   59.02 18.08  16.47  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   59.04 18.00  16.47  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   59.04 18.08  16.47  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   59.19 17.92  16.55  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   58.78 19.33  16.55  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   58.79 19.33  16.60  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    6.03  5.83  21.49 0.26   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   58.79 19.33  16.66  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\0363ab2c-986c-4a52-8a62-29ba3bfc00af\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\0363ab2c-986c-4a52-8a62-29ba3bfc00af\scenar


DATE: 05/13/2022                          TIME: 08:57:36

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10-Year_12 hour AES_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    2.48  7.08  16.64 0.23   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    3.89  7.92  14.53 0.20   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   10.36  8.42  16.00 0.22   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    8.59 10.58  14.23 0.20   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   18.14  9.17  14.98  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   18.09  9.42  14.98  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.80  7.92  12.79 0.18   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.40 21.17   8.12 0.11   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    6.79 11.33  11.59 0.16   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    6.10 15.58   9.41 0.13   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    4.67 24.17  13.99 0.19   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    2.37  6.67  13.29 0.18   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.32 14.42  11.50 0.16   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    9.40  9.75  14.43 0.20   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    4.29  7.92  16.70 0.23   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
```

```
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    4.91  7.58  15.17 0.21   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.92 17.50  14.81 0.21   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    2.87 13.42   6.63 0.09   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    4.63 14.58   9.20  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    4.61 15.17   9.20  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    6.44  9.83  10.36  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   10.77  8.33  11.08  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    9.02 10.75  11.08  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   11.01 11.25  11.17  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   20.11 10.42  12.05  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   20.04 10.75  12.05  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   22.05 11.17  12.76  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******   22.52 10.83  12.77  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   19.31 14.33  12.77  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    7.11  8.08  11.30 0.16   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    7.53 11.33  11.92 0.17   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    1.92 18.00   4.58 0.06   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   10.23  9.50  10.00 0.14   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97   11.13  9.75   7.21  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   11.02 10.33   7.21  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    3.31  7.00   9.31 0.13   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.82  8.50   6.26 0.09   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   12.53  9.33   7.39  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07   15.27  9.00   7.25  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   14.34 10.50   7.25  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   20.11  9.50   7.86  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   27.15  9.92   8.75  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   15.55 15.33   8.75  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   34.77 14.83  10.77  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   40.51 14.17  10.84  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   46.52 14.33  10.64  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   37.06 20.00  10.63  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   38.46 20.08  10.50  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   42.22 17.92  10.99  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   42.25 17.92  10.99  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   42.25 17.92  10.99  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   42.42 17.75  11.05  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   42.16 19.00  11.05  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   42.17 19.00  11.09  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.69  6.92  14.97 0.21   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   42.17 19.00  11.14  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\ba784086-7d69-471a-bedb-e1edf6f2199a\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\ba784086-7d69-471a-bedb-e1edf6f2199a\scenar


DATE: 05/13/2022                          TIME: 08:57:34

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10-Year_12 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ----------------------
    READ STORM                15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    2.30  9.25  16.56 0.23   0.000
    [CN=70.7         ]
```

```
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    3.51 10.42  14.45 0.20   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    9.50 11.00  15.92 0.22   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    8.19 13.58  14.16 0.20   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   16.85 12.08  14.90  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   16.83 12.33  14.90  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.71 10.42  12.72 0.18   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.39 24.17   8.05 0.11   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    6.50 14.42  11.52 0.16   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    5.98 18.58   9.36 0.13   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    4.63 27.17  13.86 0.19   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    2.18  8.58  13.22 0.18   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.27 17.50  11.44 0.16   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    8.82 12.75  14.35 0.20   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    3.93 10.42  16.62 0.23   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    4.45  9.83  15.10 0.21   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.89 20.50  14.73 0.20   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    2.78 16.50   6.58 0.09   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    4.52 17.67   9.14  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    4.50 18.25   9.14  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    6.14 13.33  10.30  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    9.79 11.08  11.02  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    8.51 14.00  11.02  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   10.51 14.50  11.11  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   19.01 13.50  11.98  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   18.96 13.92  11.98  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   21.05 14.42  12.69  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   21.57 14.00  12.70  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   18.78 17.50  12.70  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    6.26 10.58  11.23 0.16   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    7.22 14.42  11.85 0.16   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    1.88 21.08   4.54 0.06   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    9.36 12.58   9.94 0.14   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   10.29 12.92   7.16  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   10.22 13.33   7.16  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
```

```
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.81  8.92   9.25 0.13   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.38 11.33   6.22 0.09   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   11.62 12.67   7.34  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   13.91 12.42   7.20  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   13.33 13.58   7.20  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   18.40 12.67   7.81  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   25.25 13.08   8.70  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   15.18 26.42   8.69  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   33.44 18.00  10.70  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   38.93 17.33  10.78  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   44.83 17.42  10.58  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   36.01 23.25  10.57  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   37.39 23.25  10.44  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   41.05 21.00  10.92  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   41.08 21.00  10.93  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   41.08 21.00  10.93  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   41.27 20.83  10.99  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   41.00 22.17  10.98  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   41.01 22.08  11.03  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.41  8.92  14.90 0.21   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   41.02 22.08  11.07  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\cdbd0503-996e-444c-9613-db99cea6f597\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\cdbd0503-996e-444c-9613-db99cea6f597\scenar


DATE: 05/13/2022                          TIME: 08:57:33

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


    START @  0.00 hrs
    ---------------------
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.09 15.08  26.70 0.30   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    4.78 16.25  23.93 0.27   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   12.74 16.83  25.86 0.29   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   11.23 19.92  23.54 0.26   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   22.69 17.92  24.52  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   22.65 18.17  24.52  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.98 16.17  21.61 0.24   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.50 32.08  15.02 0.17   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    9.33 21.17  19.97 0.22   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    9.90 26.67  16.97 0.19   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    7.51 34.83  22.72 0.25   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.02 14.50  22.28 0.25   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.54 25.42  19.86 0.22   0.000
```

```
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   11.96 18.67  23.80 0.27   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    5.25 16.25  26.77 0.30   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    6.04 15.67  24.78 0.28   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.94 28.33  24.27 0.27   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.72 24.67  12.99 0.15   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    7.50 25.75  16.55  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    7.48 26.25  16.55  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    9.14 23.83  18.13  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   13.48 17.00  19.12  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   11.86 21.08  19.12  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   15.08 22.58  19.28  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   26.16 20.00  20.50  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   26.12 20.42  20.50  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   29.50 21.67  21.48  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   30.31 21.33  21.50  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   28.02 26.17  21.50  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    8.80 16.42  19.58 0.22   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   10.33 21.17  20.43 0.23   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.83 29.33   9.89 0.11   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   13.29 18.42  17.80 0.20   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   14.88 19.08  13.74  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   14.81 19.67  13.74  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    4.12 14.83  16.83 0.19   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    3.64 17.00  12.46 0.14   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   16.67 18.92  14.00  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   20.04 18.33  13.80  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   19.39 20.00  13.80  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   26.18 18.67  14.68  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   35.88 19.33  15.94  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   22.97 27.42  15.93  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   50.88 26.83  18.73  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   58.48 25.83  18.84  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   68.34 26.00  18.58  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   57.75 31.83  18.57  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   60.24 31.83  18.39  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   66.14 29.33  19.05  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   66.25 29.17  19.06  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   66.25 29.25  19.06  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   66.80 28.83  19.14  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   66.34 30.33  19.14  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   66.41 30.25  19.20  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    4.65 14.83  24.51 0.28   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   66.49 30.17  19.26  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7b81fc7e-c077-410f-8e0f-367079fc6e59\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7b81fc7e-c077-410f-8e0f-367079fc6e59\scenar


DATE: 05/13/2022                          TIME: 08:57:41

USER:
```

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 10-Year_6 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.66  6.33   9.96 0.17   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.42  7.08   8.40 0.14   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    6.54  7.58   9.49 0.16   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    5.06  9.75   8.18 0.14   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   11.06  8.25   8.73  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   11.03  8.50   8.73  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.48  7.08   7.14 0.12   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.68 20.33   3.92 0.07   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    3.75 10.50   6.29 0.11   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    3.12 14.75   4.78 0.08   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    2.69 23.50   8.05 0.14   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.51  5.83   7.51 0.13   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.27 13.67   6.23 0.11   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    5.61  8.92   8.32 0.14   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    2.78  7.17  10.01 0.17   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    3.14  6.75   8.88 0.15   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.12 16.83   8.61 0.15   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.29 12.58   2.95 0.05   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    2.32 14.08   4.73  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    2.30 14.83   4.73  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    3.62  8.42   5.54  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    6.53  7.33   6.04  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    5.48 10.08   6.04  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    6.55 10.08   6.08  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   11.92 10.08   6.69  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   11.83 10.25   6.69  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   12.98 10.33   7.17  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   13.22 10.25   7.18  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   11.14 13.08   7.18  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    4.07  7.25   6.08 0.10   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    4.19 10.58   6.52 0.11   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
```

```
 ** CALIB NASHYD        0020  1  5.0 3624.90    0.72 17.17   1.71 0.03   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0021  1  5.0 3419.07    5.46  8.67   5.18 0.09   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97    5.79  8.83   3.39  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97    5.72  9.33   3.39  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0022  1  5.0  656.35    1.83  6.17   4.71 0.08   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0023  1  5.0 1135.75    1.27  7.67   2.72 0.05   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32    6.53  8.42   3.51  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07    7.76  8.25   3.40  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07    7.27  9.42   3.40  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   10.62  8.58   3.81  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   14.47  8.92   4.41  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******    9.67 18.33   4.40  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   19.12 13.67   5.80  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   22.38 13.08   5.84  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   25.42 13.25   5.69  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   20.50 20.25   5.69  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   21.18 20.25   5.60  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   23.10 16.58   5.93  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   23.12 16.58   5.94  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   23.12 16.58   5.94  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   23.24 16.33   5.98  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   23.10 17.58   5.98  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   23.11 17.50   6.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0001  1  5.0  492.25    2.42  6.08   8.73 0.15   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   23.11 17.50   6.04  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\6995957a-0254-4201-800a-451bce6f69e7\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\6995957a-0254-4201-800a-451bce6f69e7\scenar


DATE: 05/13/2022                          TIME: 08:57:38

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 25-Year_12 hour AES_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0002  1  5.0  319.15    3.56  7.00  24.32 0.29   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0003  1  5.0  678.55    5.73  7.83  21.69 0.25   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0005  1  5.0 1839.41   15.09  8.25  23.53 0.28   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0004  1  5.0 2527.68   12.82 10.42  21.32 0.25   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005] 0105  3  5.0 4367.09   26.73  9.00  22.25  n/a   0.000
*
    CHANNEL[ 2:  0105]  1011  1  5.0 4367.09   26.66  9.25  22.25  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0006  1  5.0  154.12    1.20  7.75  19.50 0.23   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0007  1  5.0 1892.08    2.32 20.92  13.42 0.16   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0008  1  5.0 2695.33   10.48 11.17  17.96 0.21   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0009  1  5.0 4750.07    9.80 15.42  15.14 0.18   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
```

```
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    7.00 24.00  20.96 0.25   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.51  6.58  20.13 0.24   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.60 14.33  17.85 0.21   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   13.97  9.58  21.56 0.25   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    6.19  7.83  24.38 0.29   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    7.18  7.42  22.49 0.26   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.85 17.42  22.05 0.26   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.94 13.17  11.42 0.13   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    7.53 14.25  14.76  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    7.50 14.83  14.76  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56   10.08  9.92  16.25  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   16.26  8.33  17.18  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60   13.66 10.83  17.18  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   16.81 11.33  17.32  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   30.21 10.42  18.47  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04   30.11 10.75  18.47  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   33.20 11.17  19.39  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******   33.87 10.83  19.41  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******   29.01 14.42  19.41  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   10.92  7.92  17.59 0.21   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   11.57 11.25  18.39 0.22   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.58 17.75   8.57 0.10   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   16.14  9.33  15.91 0.19   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97   17.88  9.67  12.13  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97   17.70 10.25  12.13  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    5.20  6.83  15.00 0.18   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    4.84  8.33  10.92 0.13   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   20.00  9.33  12.38  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07   24.62  9.00  12.19  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07   23.15 10.42  12.19  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   31.90  9.42  13.01  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   42.79  9.83  14.19  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******   24.20 15.50  14.18  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   53.07 14.92  16.81  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   61.75 14.17  16.91  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   71.44 14.33  16.67  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   56.76 20.25  16.66  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   59.07 20.33  16.49  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   64.18 18.25  17.11  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   64.22 18.25  17.12  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   64.22 18.25  17.12  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   64.42 18.08  17.19  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   64.03 19.42  17.19  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   64.04 19.42  17.25  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    5.38  6.75  22.24 0.26   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   64.04 19.42  17.31  n/a   0.000
*
================================================================================


      V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
```

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\dabc9381-0fc2-4d08-8701-1a50500421f0\scenar
Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\dabc9381-0fc2-4d08-8701-1a50500421f0\scenar

DATE: 05/13/2022 TIME: 08:57:35

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 25-Year_12 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.41  9.08  24.23 0.28   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    5.30 10.25  21.60 0.25   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   14.07 10.83  23.44 0.28   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   12.30 13.50  21.23 0.25   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   25.10 11.92  22.16  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   25.06 12.17  22.16  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.09 10.25  19.42 0.23   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.29 23.92  13.33 0.16   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   10.10 14.25  17.88 0.21   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    9.63 18.42  15.07 0.18   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    6.95 27.00  20.80 0.24   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.39  8.50  20.05 0.24   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.53 17.33  17.77 0.21   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   13.23 12.58  21.48 0.25   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    5.79 10.25  24.29 0.29   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    6.69  9.75  22.41 0.26   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.82 20.42  21.95 0.26   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.79 16.25  11.36 0.13   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    7.37 17.33  14.69  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    7.34 17.92  14.69  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    9.70 13.42  16.17  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   15.03 11.08  17.11  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   13.00 14.08  17.11  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   16.17 14.58  17.25  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   28.79 13.50  18.39  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   28.72 13.83  18.39  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   31.90 14.33  19.31  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   32.64 14.00  19.33  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   28.06 17.75  19.33  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
```

```
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    9.87 10.42  17.51 0.21   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   11.16 14.25  18.31 0.22   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.52 20.75   8.51 0.10   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   14.94 12.33  15.84 0.19   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   16.73 12.83  12.07  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   16.61 13.33  12.07  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    4.69  8.75  14.93 0.18   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    4.19 11.00  10.86 0.13   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   18.74 12.58  12.32  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   22.67 12.25  12.13  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   21.67 13.58  12.13  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   29.45 12.58  12.95  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   40.08 13.00  14.12  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   22.57 18.92  14.12  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   50.49 18.33  16.73  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   58.71 17.50  16.84  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   68.28 17.58  16.59  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   53.14 24.17  16.58  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   55.44 24.08  16.41  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   59.81 21.92  17.03  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   59.84 21.92  17.04  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   59.84 21.92  17.04  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   60.01 21.83  17.12  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   59.66 23.17  17.12  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   59.67 23.17  17.17  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    5.17  8.83  22.15 0.26   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   59.67 23.17  17.23  n/a   0.000
*
================================================================================================
```

```
        V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
        V    V   I    SS     U   U   A A   L
         V  V    I     SS    U   U  AAAAA  L
         V  V    I      SS   U   U  A   A  L
          VV     I    SSSSS  UUUUU  A   A  LLLLL

         OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
        O   O    T      T    H   H   Y Y   MM MM  O   O
        O   O    T      T    H   H    Y    M   M  O   O
         OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\b4e62f06-03c0-4e75-aba3-4c1b8977d254\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\b4e62f06-03c0-4e75-aba3-4c1b8977d254\scenar


DATE: 05/13/2022                          TIME: 08:57:32

USER:


COMMENTS: _____________________________________________________

  ************************************************
  ** SIMULATION : 25-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    4.53 15.00  37.89 0.36   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    7.11 16.08  34.52 0.33   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   18.64 16.67  36.87 0.35   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   16.53 19.67  34.04 0.32   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   33.31 17.75  35.23  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   33.26 18.00  35.23  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.49 16.00  31.67 0.30   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.89 31.75  23.33 0.22   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0008  1  5.0 2695.33   14.06 20.83  29.64 0.28   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0009  1  5.0 4750.07   15.14 26.33  25.87 0.24   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0010  1  5.0 4353.13   10.88 34.58  32.89 0.31   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0011  1  5.0  330.21    4.62 14.42  32.49 0.31   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0012  1  5.0 1349.05    5.28 25.08  29.49 0.28   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0013  1  5.0 2374.39   17.64 18.50  34.36 0.32   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0016  1  5.0  664.69    7.65 16.08  37.96 0.36   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0017  1  5.0  759.04    8.96 15.58  35.55 0.34   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0018  1  5.0 1140.91    4.24 28.08  34.93 0.33   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0019  1  5.0 2493.96    7.57 24.00  20.74 0.20   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   11.54 25.25  25.22  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   11.51 25.92  25.22  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   13.89 21.58  27.19  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   20.34 16.92  28.44  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   17.60 21.42  28.44  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   22.53 22.58  28.66  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   38.58 19.92  30.20  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   38.53 20.33  30.20  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   43.49 21.50  31.44  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   44.62 21.17  31.47  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   40.88 26.17  31.47  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0014  1  5.0 1578.34   13.61 16.17  29.15 0.28   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0015  1  5.0 2931.47   15.51 20.83  30.22 0.29   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0020  1  5.0 3624.90    6.45 28.83  16.63 0.16   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0021  1  5.0 3419.07   20.70 18.08  26.91 0.25   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   23.48 18.83  21.64  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   23.35 19.42  21.64  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0022  1  5.0  656.35    6.68 14.67  25.69 0.24   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0023  1  5.0 1135.75    6.18 16.67  20.05 0.19   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   26.19 18.58  21.99  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   31.84 18.00  21.74  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   30.53 19.83  21.74  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   40.84 18.50  22.86  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   55.45 19.08  24.48  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   32.61 27.83  24.47  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   73.24 26.92  27.98  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   84.19 25.83  28.13  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   99.31 25.92  27.82  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   81.20 32.67  27.80  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   85.08 32.67  27.58  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   92.09 29.42  28.41  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   92.22 29.42  28.42  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   92.22 29.42  28.42  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   92.87 29.42  28.52  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   92.15 31.08  28.51  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   92.21 31.00  28.59  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
```

```
*
 ** CALIB NASHYD        0001  1  5.0  492.25    6.95 14.67  35.23 0.33   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   92.28 30.92  28.66  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\2cadac64-c774-43f5-be59-620571b95b3d\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\2cadac64-c774-43f5-be59-620571b95b3d\scenar


DATE: 05/13/2022                          TIME: 08:57:39

USER:


COMMENTS: ________________________________________________________


  ************************************************
  ** SIMULATION : 25-Year_6 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0002  1  5.0  319.15    2.50  6.25  14.98 0.22   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0003  1  5.0  678.55    3.75  7.00  12.99 0.19   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0005  1  5.0 1839.41    9.92  7.50  14.37 0.21   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0004  1  5.0 2527.68    7.87  9.67  12.71 0.18   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   16.96  8.25  13.41  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   16.92  8.50  13.41  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0006  1  5.0  154.12    0.76  7.00  11.37 0.16   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0007  1  5.0 1892.08    1.22 20.25   7.03 0.10   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0008  1  5.0 2695.33    6.11 10.42  10.24 0.15   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0009  1  5.0 4750.07    5.36 14.67   8.22 0.12   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0010  1  5.0 4353.13    4.18 23.42  12.50 0.18   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0011  1  5.0  330.21    2.40  5.67  11.83 0.17   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0012  1  5.0 1349.05    2.07 13.58  10.16 0.15   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0013  1  5.0 2374.39    8.70  8.83  12.89 0.19   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0016  1  5.0  664.69    4.18  7.08  15.03 0.22   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0017  1  5.0  759.04    4.82  6.67  13.60 0.20   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0018  1  5.0 1140.91    1.72 16.75  13.26 0.19   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0019  1  5.0 2493.96    2.47 12.42   5.66 0.08   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    4.04 13.67   8.05  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    4.02 14.25   8.05  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    5.89  8.50   9.13  n/a   0.000
```

```
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   10.24  7.33   9.80  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    8.21  9.83   9.80  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    9.97 10.33   9.87  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   18.38  9.50  10.69  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   18.31  9.92  10.69  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   20.05 10.25  11.35  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   20.44 10.00  11.36  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   17.29 13.58  11.36  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    6.68  7.08   9.97 0.14   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    6.78 10.50  10.55 0.15   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    1.59 16.92   3.80 0.06   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    9.24  8.50   8.77 0.13   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    9.99  8.75   6.21  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    9.90  9.25   6.21  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    3.15  6.00   8.12 0.12   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.49  7.42   5.33 0.08   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   11.27  8.33   6.37  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   13.66  8.08   6.24  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   12.76  9.50   6.24  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   18.13  8.50   6.80  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   24.40  8.92   7.63  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   15.00 21.58   7.62  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   30.20 14.08   9.50  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   35.31 13.33   9.56  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   40.60 13.50   9.38  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   31.60 19.67   9.37  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   32.82 19.67   9.25  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   35.92 17.50   9.70  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   35.94 17.42   9.70  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   35.94 17.50   9.70  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   36.06 17.33   9.76  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   35.84 18.58   9.76  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   35.84 18.58   9.80  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.73  6.00  13.41 0.19   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   35.85 18.58   9.84  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a6cd8b2b-f13a-4a18-8cf5-22d3680178ec\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a6cd8b2b-f13a-4a18-8cf5-22d3680178ec\scenar


DATE: 05/13/2022                          TIME: 08:57:38

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_12 hour AES_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.84  7.50   5.44 0.11   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.20  8.33   4.34 0.09   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    3.38  8.75   5.10 0.11   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    2.56 11.00   4.20 0.09   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    5.68  9.42   4.58  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    5.66  9.67   4.58  n/a   0.000
*
```

```
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.23  8.33   3.50 0.07   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.26 21.75   1.47 0.03   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    1.74 11.75   2.94 0.06   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    1.29 16.17   1.99 0.04   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    1.38 24.58   4.12 0.09   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.71  7.08   3.74 0.08   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.59 14.92   2.90 0.06   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    2.84 10.08   4.30 0.09   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.45  8.25   5.48 0.11   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.57  7.92   4.68 0.10   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.58 17.92   4.49 0.09   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.41 14.08   0.93 0.02   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    0.96 15.92   2.05  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    0.95 16.83   2.05  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    1.69  9.17   2.58  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    3.20  8.50   2.89  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    2.54 10.25   2.89  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    2.98 10.75   2.90  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04    5.80 10.42   3.27  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    5.78 10.75   3.27  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******    6.30 11.08   3.58  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******    6.49 10.75   3.58  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    5.58 13.42   3.58  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    1.83  8.50   2.80 0.06   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    1.97 11.83   3.09 0.06   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.14 18.92   0.33 0.01   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    2.33 10.00   2.24 0.05   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    2.39 10.08   1.26  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    2.34 10.75   1.26  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.74  7.50   1.94 0.04   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.38  9.17   0.81 0.02   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    2.67  9.92   1.31  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    3.03  9.75   1.25  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    2.76 11.17   1.25  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    4.18 10.00   1.49  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    6.03 10.42   1.84  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    4.23 14.42   1.83  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******    9.75 14.42   2.71  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   11.29 14.42   2.73  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   12.55 14.42   2.63  n/a   0.000
*
```

```
    CHANNEL[ 2:  0106]   1003  1  5.0 *******    9.54 19.17   2.62  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******    9.78 19.25   2.56  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   11.36 16.75   2.78  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   11.38 16.75   2.78  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   11.38 16.75   2.78  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   11.48 16.33   2.81  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   11.39 17.67   2.81  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   11.40 17.58   2.83  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    1.19  7.25   4.58 0.10   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   11.41 17.58   2.85  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\086d4f70-403f-4723-aeb2-bd0b35d726b2\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\086d4f70-403f-4723-aeb2-bd0b35d726b2\scenar


DATE: 05/13/2022                          TIME: 08:57:34

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_12 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.70  9.83   5.49 0.11   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.02 11.17   4.39 0.09   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    2.98 11.75   5.15 0.11   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    2.44 14.17   4.25 0.09   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    5.21 12.75   4.63  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    5.20 13.00   4.63  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.19 11.33   3.54 0.07   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.26 25.08   1.50 0.03   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    1.68 15.08   2.98 0.06   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    1.29 19.42   2.02 0.04   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    1.39 27.67   4.15 0.09   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.55  9.25   3.79 0.08   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.58 18.17   2.94 0.06   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    2.65 13.42   4.34 0.09   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.25 11.00   5.53 0.12   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.31 10.58   4.73 0.10   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
```

```
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.58 21.08   4.54 0.09   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.41 17.67   0.95 0.02   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    0.96 19.17   2.08  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    0.96 20.08   2.08  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    1.55 12.92   2.61  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60    2.76 11.50   2.93  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60    2.36 13.67   2.93  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65    2.82 14.17   2.93  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04    5.45 13.75   3.31  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04    5.43 14.08   3.31  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******    6.01 14.42   3.62  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******    6.21 14.08   3.62  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******    5.47 16.67   3.62  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    1.53 11.75   2.84 0.06   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    1.90 15.08   3.13 0.07   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.14 22.75   0.35 0.01   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    2.14 13.50   2.27 0.05   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97    2.20 13.58   1.28  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97    2.16 14.17   1.28  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.54 10.50   1.97 0.04   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.34 13.08   0.83 0.02   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32    2.49 13.42   1.34  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07    2.83 13.33   1.27  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07    2.62 14.58   1.27  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******    3.87 13.58   1.51  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******    5.70 13.92   1.87  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******    4.09 17.58   1.86  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******    9.52 17.58   2.74  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   11.02 17.58   2.77  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   12.27 17.58   2.66  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******    9.48 22.42   2.65  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******    9.73 22.42   2.59  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   11.31 19.83   2.81  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   11.33 19.83   2.82  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   11.33 19.83   2.82  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   11.45 19.50   2.84  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   11.37 20.67   2.84  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   11.38 20.58   2.86  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    0.96  9.50   4.63 0.10   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   11.39 20.58   2.88  n/a   0.000
*
================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V  V   I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\b2dc9e44-241b-469b-bf70-3d900ac730fc\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\b2dc9e44-241b-469b-bf70-3d900ac730fc\scenar


DATE: 05/13/2022                          TIME: 08:57:32

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_24 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.96 15.50   9.29 0.16   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.40 16.83   7.78 0.14   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    4.00 17.33   8.83 0.15   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    3.45 21.08   7.58 0.13   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005] 0105  3  5.0 4367.09    7.01 18.67   8.10  n/a   0.000
*
    CHANNEL[ 2:  0105]  1011  1  5.0 4367.09    7.00 18.83   8.10  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.27 16.83   6.59 0.11   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.58 33.42   3.49 0.06   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    2.60 22.75   5.77 0.10   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    2.53 27.92   4.34 0.08   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    2.41 35.58   7.30 0.13   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.79 15.00   6.93 0.12   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.01 26.58   5.71 0.10   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    3.63 19.58   7.71 0.13   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.67 16.67   9.33 0.16   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.80 16.25   8.24 0.14   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.96 29.17   7.97 0.14   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.96 26.58   2.61 0.05   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    1.90 27.50   4.30  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    1.89 28.25   4.30  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    2.45 24.92   5.08  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60    3.80 17.17   5.55  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60    3.36 20.75   5.55  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65    4.22 24.33   5.59  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04    7.70 20.67   6.16  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04    7.69 20.92   6.16  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******    8.77 22.92   6.62  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******    9.05 22.25   6.63  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******    8.67 26.17   6.63  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    2.20 17.17   5.57 0.10   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    2.92 22.75   5.99 0.10   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.57 31.42   1.46 0.03   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    3.22 20.00   4.72 0.08   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97    3.41 20.67   3.04  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97    3.40 21.17   3.04  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.83 15.75   4.27 0.07   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.59 19.42   2.40 0.04   0.000
    [CN=58.9         ]
```

```
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    3.89 20.58   3.15  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    4.48 20.58   3.05  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    4.39 21.75   3.05  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    6.09 20.33   3.43  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    8.91 21.17   3.99  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    7.41 30.67   3.99  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   15.63 30.67   5.31  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   17.64 26.17   5.35  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   20.12 26.42   5.21  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   17.57 32.00   5.20  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   18.15 32.08   5.12  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   20.42 28.67   5.44  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   20.47 28.58   5.44  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   20.47 28.67   5.44  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   20.76 28.08   5.48  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   20.60 29.42   5.48  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   20.66 29.25   5.51  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    1.34 15.25   8.10 0.14   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   20.72 29.00   5.54  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\42380483-dc3d-497b-aef3-66dd879e20e8\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\42380483-dc3d-497b-aef3-66dd879e20e8\scenar


DATE: 05/13/2022                          TIME: 08:57:40

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_6 hour SCS_2022        **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.40  6.67   2.41 0.06   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    0.50  7.50   1.74 0.05   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    1.52  7.92   2.20 0.06   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    1.02 10.17   1.65 0.04   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    2.42  8.58   1.88  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    2.41  8.83   1.88  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.08  7.58   1.25 0.03   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.04 21.25   0.25 0.01   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    0.56 11.00   0.94 0.02   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    0.31 15.50   0.47 0.01   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    0.54 23.83   1.62 0.04   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.28  6.42   1.39 0.04   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.19 14.25   0.92 0.02   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    1.15  9.33   1.71 0.04   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
```

```
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    0.68  7.42   2.44 0.06   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    0.69  7.17   1.94 0.05   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.24 17.17   1.82 0.05   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.03 13.75   0.07 0.00   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    0.27 16.58   0.62  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    0.26 18.00   0.62  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    0.70  7.67   0.90  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    1.39  7.33   1.06  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    0.96  9.58   1.06  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    1.10  9.83   1.03  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04    2.24  9.58   1.21  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    2.23 10.00   1.21  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******    2.43 10.25   1.36  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******    2.50 10.00   1.36  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    2.00 13.08   1.36  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    0.59  7.75   0.87 0.02   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    0.66 11.08   1.02 0.03   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.00  0.00   0.00 0.00   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    0.62  9.25   0.58 0.02   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    0.62  9.25   0.28  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    0.59 10.17   0.28  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.19  6.92   0.45 0.01   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.02  8.83   0.04 0.00   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    0.66  9.58   0.30  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    0.68  9.50   0.26  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    0.57 11.50   0.26  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    0.96  9.42   0.36  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    1.59 10.00   0.50  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    0.90 14.58   0.50  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******    2.87 13.75   0.93  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******    3.38 13.17   0.93  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******    3.67 13.33   0.87  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******    2.89 18.83   0.86  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******    2.93 18.83   0.83  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******    3.63 14.50   0.94  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******    3.64 14.42   0.94  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******    3.64 14.50   0.94  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******    3.75 12.08   0.96  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******    3.71 14.08   0.96  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******    3.74 13.50   0.97  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    0.52  6.58   1.88 0.05   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******    3.76 12.42   0.98  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\efcc776c-d024-4c63-81d0-b17108481ec4\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\efcc776c-d024-4c63-81d0-b17108481ec4\scenar


DATE: 05/13/2022                          TIME: 08:57:39

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 50-Year_12 hour AES_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
```

```
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    4.42  6.92  30.29 0.32   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    7.20  7.75  27.31 0.29   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   18.81  8.17  29.39 0.31   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   16.15 10.33  26.89 0.28   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   33.49  8.92  27.94  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   33.41  9.17  27.94  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.52  7.67  24.81 0.26   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.07 20.83  17.76 0.19   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   13.43 11.08  23.04 0.24   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   12.80 15.25  19.78 0.21   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    8.83 23.92  26.44 0.28   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    4.42  6.50  25.53 0.27   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    4.62 14.17  22.91 0.24   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   17.58  9.50  27.17 0.29   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    7.69  7.75  30.35 0.32   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    8.98  7.33  28.22 0.30   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    3.58 17.33  27.71 0.29   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    6.66 13.08  15.41 0.16   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    9.90 14.08  19.28  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    9.87 14.67  19.28  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   13.01  9.92  20.99  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   20.67  8.33  22.07  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   17.31 10.83  22.07  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   21.41 11.33  22.25  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   38.17 10.33  23.58  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   38.05 10.75  23.58  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   41.98 11.17  24.65  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   42.80 10.83  24.67  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   36.75 14.50  24.67  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   13.99  7.83  22.61 0.24   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   14.80 11.08  23.54 0.25   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    5.01 17.58  11.99 0.13   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   20.92  9.25  20.68 0.22   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
```

```
    ADD [  0020+  0021]  0109  3  5.0 7043.97   23.40  9.58  16.21  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   23.16 10.17  16.21  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    6.75  6.75  19.62 0.21   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    6.53  8.17  14.82 0.16   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   26.12  9.25  16.50  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   32.33  8.92  16.29  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   30.37 10.33  16.29  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   41.53  9.42  17.25  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   55.49  9.75  18.63  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   31.13 15.50  18.62  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   67.70 15.00  21.66  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   78.72 14.17  21.78  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   91.40 14.33  21.51  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   73.38 20.17  21.50  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   76.44 20.17  21.30  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   82.86 18.25  22.02  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   82.90 18.25  22.03  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   82.90 18.25  22.03  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   83.15 18.08  22.12  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   82.62 19.42  22.11  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   82.63 19.42  22.18  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    6.72  6.67  27.93 0.29   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   82.64 19.42  22.24  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d1282846-4d37-4eb5-8d63-886e88ee1f37\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d1282846-4d37-4eb5-8d63-886e88ee1f37\scenar


DATE: 05/13/2022                          TIME: 08:57:35

USER:


COMMENTS: _____________________________________________________________
```

```
  ************************************************
  ** SIMULATION : 50-Year_12 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    4.34  9.08  30.38 0.32   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    6.78 10.17  27.40 0.29   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   17.81 10.75  29.48 0.31   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   15.66 13.42  26.98 0.28   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   31.83 11.83  28.03  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   31.78 12.08  28.03  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.42 10.08  24.90 0.26   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.06 23.83  17.81 0.19   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   13.07 14.17  23.12 0.24   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   12.70 18.33  19.86 0.21   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    8.84 26.92  26.43 0.28   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    4.42  8.42  25.62 0.27   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
```

```
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    4.57 17.25  23.00 0.24   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   16.84 12.50  27.26 0.29   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    7.32 10.17  30.45 0.32   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    8.54  9.58  28.31 0.30   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    3.57 20.33  27.80 0.29   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    6.53 16.17  15.48 0.16   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    9.78 17.17  19.35  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    9.75 17.75  19.35  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   12.67 13.42  21.07  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   19.37 10.92  22.16  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   16.61 14.17  22.15  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   20.77 14.75  22.33  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   36.69 13.50  23.66  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   36.60 13.83  23.66  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   40.69 14.33  24.74  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   41.60 14.00  24.76  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   35.65 17.92  24.76  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   12.91 10.25  22.70 0.24   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   14.42 14.17  23.62 0.25   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    4.98 20.67  12.05 0.13   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   19.64 12.17  20.76 0.22   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   22.19 12.75  16.28  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   22.03 13.25  16.28  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    6.33  8.67  19.70 0.21   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    5.80 10.75  14.89 0.16   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   24.79 12.50  16.57  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   30.16 12.08  16.35  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   28.77 13.50  16.35  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   38.80 12.50  17.32  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   52.54 12.92  18.70  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   27.60 32.75  18.69  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   62.81 18.58  21.74  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   73.16 17.58  21.86  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   85.80 17.67  21.59  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   66.53 24.58  21.57  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   69.59 24.58  21.38  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   74.52 22.42  22.10  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   74.55 22.33  22.11  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   74.55 22.42  22.11  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   74.73 22.25  22.19  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   74.31 23.67  22.19  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   74.32 23.67  22.26  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    6.65  8.75  28.03 0.30   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   74.32 23.67  22.32  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H  Y Y   MM MM  O   O
       O   O    T      T    H   H   Y    M   M  O   O
        OOO     T      T    H   H   Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\baf163f4-aba9-4923-b093-21fdd193e6e6\scenar
  Summary filename:
```

C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\baf163f4-aba9-4923-b093-21fdd193e6e6\scenar

DATE: 05/13/2022 TIME: 08:57:33

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 50-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '   cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    5.63 14.92  46.06 0.39   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    8.90 16.00  42.32 0.36   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   23.10 16.58  44.94 0.38   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   20.53 19.50  41.79 0.36   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   41.35 17.67  43.12  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   41.28 17.92  43.12  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.88 15.92  39.13 0.33   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    4.95 31.58  29.67 0.25   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   17.68 20.58  36.86 0.31   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   19.13 26.08  32.59 0.28   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   13.37 34.42  40.39 0.34   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    5.87 14.33  40.05 0.34   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    6.59 24.83  36.69 0.31   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   21.95 18.33  42.15 0.36   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    9.47 16.00  46.14 0.39   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04   11.19 15.50  43.47 0.37   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    5.20 27.92  42.77 0.36   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    9.82 23.58  26.72 0.23   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   14.65 24.92  31.79  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   14.62 25.58  31.79  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   17.53 22.50  34.01  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   25.57 16.83  35.43  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   21.91 21.33  35.43  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   28.14 22.58  35.69  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   47.99 19.83  37.44  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   47.91 20.25  37.44  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   54.02 21.33  38.84  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   55.38 21.08  38.87  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   50.18 26.25  38.87  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   17.36 16.08  36.31 0.31   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   19.46 20.67  37.51 0.32   0.000
    [CN=66.0         ]
```

```
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    8.53 28.58  21.94 0.19   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   26.47 18.00  33.78 0.29   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   30.21 18.67  27.71  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   30.04 19.33  27.71  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    8.74 14.58  32.39 0.28   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    8.23 16.50  25.92 0.22   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   33.63 18.42  28.11  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   41.13 17.83  27.83  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   39.27 19.67  27.83  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   52.32 18.33  29.11  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   70.68 18.92  30.96  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   38.98 28.08  30.94  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   88.80 27.08  34.92  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  102.12 25.83  35.10  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  121.24 25.92  34.75  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  100.98 32.42  34.73  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  105.92 32.42  34.49  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  114.70 30.17  35.42  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  114.81 30.17  35.43  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  114.81 30.25  35.43  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  115.37 29.42  35.54  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  114.60 31.00  35.54  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  114.68 30.92  35.62  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    8.73 14.67  43.11 0.37   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  114.75 30.83  35.71  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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```

```
                    *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\20da5c1d-c46f-4ecb-932f-da3abf8821ba\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\20da5c1d-c46f-4ecb-932f-da3abf8821ba\scenar


DATE: 05/13/2022                          TIME: 08:57:39

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 50-Year_6 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.17  6.17  18.90 0.25   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    4.81  7.00  16.62 0.22   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   12.58  7.42  18.21 0.24   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   10.10  9.67  16.31 0.21   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   21.63  8.17  17.11  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   21.57  8.42  17.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.99  6.92  14.75 0.19   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.67 20.17   9.64 0.13   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    8.02 10.33  13.44 0.18   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    7.22 14.58  11.06 0.15   0.000
```

```
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    5.37 23.33  16.04 0.21   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.13  5.58  15.29 0.20   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.72 13.50  13.34 0.18   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   11.15  8.75  16.52 0.22   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    5.28  7.00  18.96 0.25   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    6.15  6.58  17.32 0.23   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.20 16.75  16.93 0.22   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    3.49 12.33   7.99 0.10   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    5.48 13.50  10.80  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    5.46 14.08  10.80  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    7.78  8.67  12.06  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   13.23  7.33  12.85  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60   10.55 10.00  12.85  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   12.91 10.42  12.95  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   23.61  9.58  13.92  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04   23.53  9.92  13.92  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   25.79 10.33  14.69  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******   26.27 10.00  14.71  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******   22.04 13.83  14.70  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    8.81  7.08  13.12 0.17   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    8.88 10.42  13.80 0.18   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.39 16.83   5.69 0.07   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   12.36  8.50  11.71 0.15   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97   13.50  8.75   8.62  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97   13.35  9.33   8.62  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    4.27  5.92  10.95 0.14   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    3.54  7.33   7.58 0.10   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   15.09  8.33   8.81  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07   18.47  8.08   8.66  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07   17.24  9.50   8.66  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   24.22  8.50   9.33  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   32.46  8.92  10.31  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******   18.71 23.67  10.31  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   38.84 14.33  12.52  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   45.31 13.58  12.60  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   52.47 13.75  12.39  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   41.27 19.92  12.38  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   42.94 19.92  12.24  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   46.68 17.67  12.76  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   46.70 17.67  12.77  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   46.70 17.67  12.77  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   46.84 17.58  12.83  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   46.53 18.92  12.83  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   46.53 18.92  12.88  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    4.79  5.92  17.10 0.22   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   46.53 18.83  12.93  n/a   0.000
*
================================================================================================


     V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
     V    V   I    SS     U   U   A A   L
      V  V    I     SS    U   U  AAAAA  L
```

```
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\06610b6b-15e2-448c-a7ee-d348bad7f68d\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\06610b6b-15e2-448c-a7ee-d348bad7f68d\scenar


DATE: 05/13/2022                          TIME: 08:57:37

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_12 hour AES_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.76  7.25  11.64 0.19   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.68  8.08   9.92 0.16   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    7.25  8.50  11.11 0.18   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    5.87 10.67   9.68 0.16   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   12.55  9.25  10.29  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   12.52  9.50  10.29  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.54  8.08   8.54 0.14   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.85 21.33   4.92 0.08   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    4.46 11.42   7.58 0.12   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    3.83 15.75   5.90 0.09   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    3.18 24.25   9.51 0.15   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.63  6.83   8.94 0.14   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.52 14.58   7.52 0.12   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    6.44  9.83   9.84 0.16   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    3.03  8.00  11.69 0.19   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    3.42  7.67  10.44 0.17   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.31 17.67  10.15 0.16   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.66 13.58   3.81 0.06   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    2.87 14.92   5.80  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    2.85 15.58   5.80  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    4.19  9.58   6.71  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    7.30  8.42   7.27  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    6.10 10.67   7.27  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    7.43 12.17   7.32  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   13.66 10.42   8.00  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   13.61 10.83   8.00  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   14.94 11.17   8.55  n/a   0.000
*
```

```
    ADD [  0110+  0011]  0110  1  5.0 *******   15.28 10.83   8.56  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   13.14 14.17   8.56  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    4.69  8.17   7.36 0.12   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    4.97 11.50   7.84 0.13   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.99 18.25   2.35 0.04   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    6.54  9.67   6.35 0.10   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    6.98  9.83   4.30  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    6.91 10.33   4.30  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.12  7.17   5.81 0.09   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    1.62  8.67   3.54 0.06   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    7.90  9.50   4.42  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    9.47  9.25   4.31  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    8.94 10.42   4.31  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   12.85  9.58   4.77  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   17.45  9.92   5.45  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   10.69 20.50   5.44  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   23.08 14.58   7.01  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   26.95 14.00   7.06  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   30.69 14.17   6.90  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   24.38 21.08   6.89  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   25.23 21.08   6.79  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   28.01 17.50   7.17  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   28.04 17.42   7.17  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   28.04 17.50   7.17  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   28.19 17.25   7.22  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   28.00 18.58   7.21  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   28.01 18.50   7.25  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    2.58  7.00  10.28 0.16   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   28.02 18.50   7.28  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\f6664b47-6e23-47f9-886e-9ce55868e539\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\f6664b47-6e23-47f9-886e-9ce55868e539\scenar


DATE: 05/13/2022                          TIME: 08:57:36

USER:


COMMENTS: _____


  ************************************************
  ** SIMULATION : 5-Year_12 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.58  9.33  11.64 0.19   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.38 10.58   9.92 0.16   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    6.57 11.17  11.11 0.18   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    5.59 13.75   9.68 0.16   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   11.61 12.25  10.29  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   11.60 12.50  10.29  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.47 10.58   8.54 0.14   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
```

```
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.85 24.33   4.91 0.08   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    4.27 14.58   7.58 0.12   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    3.77 18.75   5.90 0.09   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    3.17 27.25   9.48 0.15   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.42  8.75   8.94 0.14   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.49 17.67   7.52 0.12   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    6.04 12.92   9.84 0.16   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    2.73 10.58  11.69 0.19   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    3.02 10.08  10.44 0.17   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.30 20.67  10.15 0.16   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.61 16.75   3.81 0.06   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    2.82 18.00   5.80  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    2.81 18.67   5.80  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    3.97 13.17   6.71  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    6.55 11.17   7.27  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    5.81 15.08   7.27  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    7.19 15.08   7.32  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   12.92 13.58   8.00  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   12.89 13.92   8.00  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   14.28 14.33   8.55  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   14.67 14.00   8.56  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   12.87 17.17   8.56  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    4.05 10.83   7.36 0.12   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    4.77 14.58   7.84 0.13   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.97 21.42   2.35 0.04   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    5.97 12.75   6.35 0.10   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    6.43 13.08   4.30  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    6.38 13.58   4.30  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    1.70  9.25   5.81 0.09   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    1.36 11.92   3.54 0.06   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    7.29 12.83   4.42  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    8.62 12.58   4.31  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    8.28 13.58   4.31  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   11.67 12.75   4.77  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   16.18 13.17   5.45  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   10.92 23.50   5.44  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   22.44 17.75   7.01  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   26.17 17.17   7.06  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   29.86 17.33   6.90  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   24.04 24.25   6.89  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   24.88 24.25   6.79  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   27.59 20.42   7.16  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   27.63 20.42   7.17  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   27.62 20.42   7.17  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   27.80 20.17   7.22  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   27.62 21.50   7.21  n/a   0.000
```

```
*
    ADD [  1001+  0002]  0102  3  5.0 *******   27.63 21.50   7.25  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    2.29  9.08  10.28 0.16   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   27.64 21.42   7.28  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\513f0270-7d00-4b2e-a8b0-423ef88c5872\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\513f0270-7d00-4b2e-a8b0-423ef88c5872\scenar


DATE: 05/13/2022                          TIME: 08:57:31

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    2.15 15.17  19.20 0.25   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    3.28 16.33  16.90 0.22   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    8.91 17.00  18.51 0.24   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    7.83 20.25  16.58 0.22   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   15.82 18.08  17.39  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   15.80 18.33  17.39  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.66 16.33  15.01 0.20   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.63 32.42   9.76 0.13   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    6.34 21.58  13.68 0.18   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    6.58 26.92  11.28 0.15   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    5.29 35.00  16.00 0.21   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    2.02 14.58  15.55 0.20   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.42 25.75  13.59 0.18   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    8.30 18.92  16.79 0.22   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    3.69 16.33  19.26 0.25   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    4.17 15.83  17.61 0.23   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.08 28.58  17.19 0.22   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    2.98 25.17   8.17 0.11   0.000
    [CN=59.4         ]
```

```
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    4.97 26.25  11.01  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    4.95 26.75  11.01  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    6.14 24.33  12.29  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    9.14 17.00  13.09  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    8.14 21.08  13.09  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   10.30 22.67  13.19  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   18.09 20.25  14.17  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   18.06 20.58  14.17  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   20.45 21.92  14.95  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   21.05 21.58  14.96  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   19.66 26.00  14.96  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    5.81 16.58  13.36 0.17   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    7.05 21.58  14.05 0.18   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.27 29.83   5.84 0.08   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    8.70 18.75  11.94 0.16   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    9.60 19.50   8.80  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    9.57 20.00   8.80  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.58 15.00  11.17 0.15   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.16 17.42   7.76 0.10   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   10.83 19.08   9.01  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   12.87 18.75   8.85  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   12.55 20.33   8.85  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   17.09 18.92   9.53  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   23.70 19.67  10.52  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   16.01 27.17  10.51  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   35.60 26.58  12.75  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   40.96 25.83  12.83  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   47.49 26.00  12.62  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   40.36 31.58  12.61  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   41.98 31.58  12.46  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   46.62 29.00  12.99  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   46.70 28.92  13.00  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   46.70 28.92  13.00  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   47.17 28.42  13.07  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   46.82 29.92  13.06  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   46.89 29.83  13.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.18 14.92  17.39 0.23   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   46.97 29.67  13.16  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\56c39d77-31f0-47ac-ac03-b75835db8d9f\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\56c39d77-31f0-47ac-ac03-b75835db8d9f\scenar


DATE: 05/13/2022                          TIME: 08:57:40

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_6 hour SCS_2022        **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.05  6.42   6.32 0.13   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.48  7.25   5.12 0.10   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    4.10  7.67   5.95 0.12   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    3.07  9.92   4.97 0.10   0.000
```

```
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    6.84  8.33   5.38  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    6.82  8.58   5.38  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.28  7.25   4.19 0.08   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.33 20.58   1.91 0.04   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    2.13 10.67   3.57 0.07   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    1.63 14.92   2.50 0.05   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    1.63 23.58   4.88 0.10   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.90  6.00   4.46 0.09   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.72 13.83   3.52 0.07   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    3.42  9.00   5.07 0.10   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.77  7.25   6.36 0.13   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.94  6.83   5.49 0.11   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.69 16.92   5.29 0.11   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.56 12.83   1.28 0.03   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    1.20 14.58   2.54  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    1.19 15.42   2.54  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    2.10  8.08   3.13  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    3.95  7.33   3.48  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    3.12  9.25   3.48  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    3.66  9.58   3.49  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04    7.05  9.33   3.92  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    7.02  9.67   3.92  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******    7.63  9.92   4.26  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******    7.84  9.67   4.26  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    7.07 12.25   4.26  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    2.29  7.33   3.42 0.07   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    2.40 10.67   3.73 0.07   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.23 17.58   0.54 0.01   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    2.93  8.83   2.78 0.06   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    3.03  8.92   1.63  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    2.97  9.50   1.63  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.96  6.42   2.44 0.05   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.54  7.92   1.13 0.02   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    3.39  8.67   1.70  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    3.91  8.50   1.63  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    3.59  9.83   1.63  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    5.40  8.75   1.90  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    7.64  9.25   2.30  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    5.49 14.75   2.30  n/a   0.000
```

```
*
    ADD [  1004+  1007]  0106  3  5.0 *******   11.92 14.75   3.28  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   13.55 14.75   3.31  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   15.17 14.75   3.20  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   11.67 18.33   3.19  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   12.00 18.42   3.12  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   13.70 16.33   3.37  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   13.72 16.25   3.37  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   13.72 16.25   3.37  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   13.81 16.17   3.40  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   13.71 17.25   3.40  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   13.71 17.17   3.42  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    1.49  6.25   5.38 0.11   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   13.72 17.17   3.44  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V  V   I      SS   U   U A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c3479742-9f6e-438d-ba38-47d4e655fcfc\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c3479742-9f6e-438d-ba38-47d4e655fcfc\scenar


DATE: 05/13/2022                          TIME: 08:57:42

USER:


COMMENTS: _____


  ************************************************
  ** SIMULATION : 99 - 12 hour Hazel           **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0002  1  5.0  319.15   17.62 12.58 123.05 0.58   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0003  1  5.0  678.55   30.26 13.17 117.05 0.55   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   75.77 13.58 121.26 0.57   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   68.58 15.58 116.18 0.55   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  138.76 14.33 118.32  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  138.40 14.58 118.32  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0006  1  5.0  154.12    6.73 13.17 111.76 0.53   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   16.43 25.92  95.12 0.45   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   62.09 16.33 107.89 0.51   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   64.60 20.42 100.44 0.47   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   38.09 29.08 113.59 0.54   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0011  1  5.0  330.21   19.60 12.17 113.28 0.53   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   21.52 19.42 107.60 0.51   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   74.06 14.83 116.76 0.55   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0016  1  5.0  664.69   30.43 13.25 123.14 0.58   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
```

```
 ** CALIB NASHYD        0017  1  5.0  759.04   37.09 12.92 118.90 0.56   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0018  1  5.0 1140.91   15.14 22.50 117.82 0.56   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0019  1  5.0 2493.96   38.44 18.17  89.58 0.42   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87   52.03 19.00  98.48  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87   51.80 19.67  98.48  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56   62.66 16.08 102.29  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   92.03 13.83 104.78  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60   78.45 16.58 104.78  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   98.33 17.08 105.38  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04  167.53 15.83 108.46  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04  167.03 16.17 108.46  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******  185.17 16.67 110.95  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******  188.17 16.33 111.00  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******  163.68 20.00 111.00  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0014  1  5.0 1578.34   65.27 13.25 106.96 0.50   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0015  1  5.0 2931.47   67.65 16.33 109.02 0.51   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0020  1  5.0 3624.90   33.41 22.67  80.18 0.38   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0021  1  5.0 3419.07  102.22 14.50 102.54 0.48   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97  119.88 15.00  91.07  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97  118.71 15.58  91.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0022  1  5.0  656.35   34.59 12.25 100.10 0.47   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0023  1  5.0 1135.75   38.56 13.42  88.07 0.42   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32  132.78 14.58  91.84  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07  169.22 14.17  91.35  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07  158.27 15.58  91.35  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******  210.07 14.75  93.72  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******  274.22 15.00  97.08  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******  156.14 20.83  97.07  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******  319.34 20.42 104.06  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******  369.19 19.58 104.41  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******  433.46 19.67 103.86  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******  346.67 25.75 103.84  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******  363.10 25.75 103.42  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******  387.88 24.08 105.02  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******  388.02 24.08 105.05  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******  388.02 24.08 105.05  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******  388.81 24.00 105.25  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******  386.25 25.33 105.24  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******  386.28 25.33 105.38  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0001  1  5.0  492.25   28.17 12.33 118.31 0.56   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******  386.30 25.33 105.53  n/a   0.000
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\6a987bb5-2d7c-4b31-aae8-16d8c9271c0f\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\6a987bb5-2d7c-4b31-aae8-16d8c9271c0f\scenar


DATE: 05/13/2022                          TIME: 08:57:42

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 99 - 12 hour Timmins          **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD        0002  1  5.0  319.15   12.62 10.75 106.61 0.55   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
```

```
*
 ** CALIB NASHYD         0003  1  5.0  678.55   22.79 11.83 100.98 0.52   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   59.17 12.42 104.93 0.54   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   56.82 14.42 100.16 0.52   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  112.20 13.17 102.17  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  111.96 13.42 102.17  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0006  1  5.0  154.12    5.02 11.83  96.03 0.50   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   13.86 24.67  80.70 0.42   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   51.53 15.08  92.42 0.48   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   54.39 19.17  85.51 0.44   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   32.72 27.75  98.12 0.51   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0011  1  5.0  330.21   13.26 10.00  97.45 0.50   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   18.18 18.17  92.16 0.48   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   60.45 13.58 100.71 0.52   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0016  1  5.0  664.69   23.17 11.92 106.70 0.55   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0017  1  5.0  759.04   27.28 11.42 102.71 0.53   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   12.97 21.17 101.72 0.53   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   31.79 17.00  75.50 0.39   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   43.52 17.75  83.76  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   43.34 18.42  83.76  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   52.45 15.08  87.30  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   73.56 13.00  89.61  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   65.97 15.33  89.61  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   82.86 15.83  90.15  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  139.62 14.67  93.00  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  139.25 15.00  93.00  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  155.42 15.50  95.31  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  158.44 15.08  95.36  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  141.17 18.42  95.36  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   48.69 12.00  91.56 0.47   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   56.23 15.17  93.47 0.48   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   27.67 21.42  66.92 0.35   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   81.55 13.33  87.45 0.45   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   96.87 13.92  76.91  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   96.05 14.50  76.91  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0022  1  5.0  656.35   22.96 10.25  85.19 0.44   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
```

```
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   28.48 12.33  74.11 0.38   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  107.71 13.58  77.62  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  134.75 13.17  77.17  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  128.04 14.50  77.16  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  168.18 13.67  79.35  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  222.18 13.92  82.45  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  141.28 19.08  82.44  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  282.21 18.75  88.93  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  325.36 18.08  89.25  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  379.27 18.25  88.73  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  310.54 23.67  88.71  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  324.35 23.75  88.32  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  350.00 22.00  89.81  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  350.21 22.00  89.83  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  350.21 22.00  89.83  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  351.30 21.83  90.02  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  348.90 23.17  90.01  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  348.96 23.17  90.14  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0001  1  5.0  492.25   19.62 10.33 102.16 0.53   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  349.00 23.17  90.28  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\0a68ee80-a929-4019-b11f-6cf4637d1e1b\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\0a68ee80-a929-4019-b11f-6cf4637d1e1b\scenar


DATE: 05/13/2022                          TIME: 08:57:42

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_06 Hour PMP               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     ---------------------
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0002  1  5.0  319.15   38.63  6.50 230.02 0.70   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0003  1  5.0  678.55   64.45  7.25 222.40 0.67   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  157.16  7.75 227.76 0.69   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  136.99  9.92 221.27 0.67   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  280.57  8.50 224.01  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  279.80  8.75 224.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0006  1  5.0  154.12   14.51  7.17 215.54 0.65   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   33.53 20.33 193.43 0.59   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  125.62 10.58 210.48 0.64   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  130.82 14.75 200.55 0.61   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   72.98 23.58 218.02 0.66   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0011  1  5.0  330.21   44.82  6.00 217.51 0.66   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   42.79 13.75 210.10 0.64   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
```

```
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  149.73  9.00 222.03 0.67   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0016  1  5.0  664.69   64.03  7.25 230.11 0.70   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0017  1  5.0  759.04   80.04  6.92 224.75 0.68   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   29.04 16.92 223.42 0.68   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   81.16 12.42 185.62 0.56   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  106.82 13.25 197.52  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  106.28 13.92 197.52  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  126.47 10.42 202.56  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  187.40  7.92 205.89  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  153.70 11.08 205.89  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  193.73 11.67 206.78  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  330.94 10.17 210.90  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  329.96 10.50 210.90  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  363.11 11.00 214.24  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  368.18 10.67 214.32  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  312.67 14.83 214.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  141.46  7.25 209.26 0.63   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  136.41 10.67 211.98 0.64   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   72.30 16.92 172.28 0.52   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  215.17  8.67 203.36 0.62   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  251.98  9.17 187.40  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  249.02  9.83 187.40  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0022  1  5.0  656.35   80.03  6.17 200.10 0.61   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   86.70  7.42 183.51 0.56   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  276.16  8.83 188.49  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  356.37  8.33 187.85  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  329.03  9.92 187.85  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  435.29  8.92 191.09  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  563.97  9.25 195.68  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  290.40 15.92 195.66  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  601.88 15.33 205.03  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  696.41 14.33 205.53  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  827.04 14.42 204.84  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  653.41 21.00 204.81  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  686.88 21.00 204.26  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  725.92 19.42 206.38  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  726.09 19.33 206.42  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  726.09 19.42 206.42  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  726.99 19.33 206.68  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  722.38 20.67 206.68  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  722.41 20.67 206.86  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0001  1  5.0  492.25   63.02  6.25 224.00 0.68   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  722.42 20.67 207.06  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\5db7ec5b-2080-44a6-a42c-fd2634532a20\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\5db7ec5b-2080-44a6-a42c-fd2634532a20\scenar


DATE: 05/13/2022                          TIME: 08:57:43

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_06 hour SCS              **
```

```
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0002  1  5.0  319.15   39.38  5.75 230.02 0.70   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0003  1  5.0  678.55   64.98  6.58 222.40 0.67   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  158.37  7.08 227.76 0.69   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  137.46  9.25 221.27 0.67   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  281.92  7.83 224.01  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  281.04  8.17 224.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0006  1  5.0  154.12   14.61  6.50 215.54 0.65   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   33.54 19.67 193.47 0.59   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  125.91 10.00 210.48 0.64   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  130.93 14.17 200.55 0.61   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   73.01 23.00 218.16 0.66   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0011  1  5.0  330.21   46.57  5.17 217.51 0.66   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   42.84 13.17 210.10 0.64   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  150.40  8.42 222.03 0.67   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0016  1  5.0  664.69   64.65  6.67 230.11 0.70   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0017  1  5.0  759.04   80.89  6.17 224.75 0.68   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   29.07 16.33 223.43 0.68   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   81.22 11.83 185.62 0.56   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  106.84 12.58 197.52  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  106.27 13.33 197.52  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  126.62  9.83 202.56  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  187.96  7.25 205.89  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  148.39 11.00 205.89  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  189.46 11.50 206.78  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  324.12  9.67 210.90  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  323.10 10.08 210.90  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  357.03 10.50 214.24  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  361.54 10.25 214.32  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  283.17 16.00 214.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  142.17  6.58 209.26 0.63   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  136.73 10.00 211.98 0.64   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   72.31 16.25 172.28 0.52   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  215.75  8.00 203.36 0.62   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  252.61  8.58 187.40  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  249.16  9.25 187.40  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0022  1  5.0  656.35   81.94  5.33 200.10 0.61   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   86.65  6.75 183.51 0.56   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  275.28  8.25 188.49  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  354.50  7.75 187.85  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  314.64  9.83 187.85  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  411.71  8.58 191.09  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  543.12  8.92 195.68  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  250.61 16.67 195.66  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  533.48 16.33 205.03  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  614.09 14.75 205.53  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  744.73 14.58 204.84  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  519.95 24.42 204.75  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  551.38 24.08 204.19  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  567.27 22.67 206.33  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  567.30 22.67 206.36  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  567.30 22.67 206.36  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  567.43 22.67 206.63  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  564.09 24.33 206.62  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  564.09 24.33 206.80  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0001  1  5.0  492.25   64.70  5.42 224.00 0.68   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  564.09 24.33 207.00  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\168fea9c-c303-49e5-942d-040da57fc670\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\168fea9c-c303-49e5-942d-040da57fc670\scenar

DATE: 05/13/2022                          TIME: 08:57:43

USER:

COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_12 hour AES                **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0002  1  5.0  319.15   37.00  6.25 269.83 0.73   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0003  1  5.0  678.55   65.92  7.08 261.81 0.70   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  165.20  7.58 267.46 0.72   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  153.98  9.67 260.62 0.70   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  306.56  8.33 263.50  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  305.82  8.67 263.50  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0006  1  5.0  154.12   14.81  7.00 254.56 0.68   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   39.78 20.00 230.93 0.62   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  143.21 10.42 249.18 0.67   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  153.47 14.50 238.61 0.64   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   85.61 23.25 256.92 0.69   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 10.0
```

```
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0011  1  5.0  330.21   40.57  5.75 256.64 0.69   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   49.81 13.50 248.78 0.67   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  165.45  8.83 261.41 0.70   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0016  1  5.0  664.69   65.55  7.08 269.93 0.73   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0017  1  5.0  759.04   79.71  6.67 264.29 0.71   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   33.85 16.67 262.88 0.71   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   95.11 12.25 222.59 0.60   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  125.28 13.00 235.28  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  124.67 13.67 235.28  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  147.53 10.58 240.63  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  205.74  8.17 244.18  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  171.40 11.58 244.18  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  219.71 12.08 245.15  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  367.37 10.17 249.55  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  366.40 10.58 249.55  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  408.93 11.08 253.12  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  414.89 10.75 253.20  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  351.39 15.33 253.19  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  145.66  7.08 247.89 0.67   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  155.50 10.42 250.78 0.67   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   86.51 16.67 208.16 0.56   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  237.22  8.50 241.61 0.65   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  284.10  9.17 224.44  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  281.30  9.75 224.44  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0022  1  5.0  656.35   74.06  5.92 238.13 0.64   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   91.41  7.33 220.32 0.59   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  312.82  8.83 225.61  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  397.76  8.33 224.93  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  366.09 10.08 224.93  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  475.37  9.00 228.41  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  625.37  9.33 233.32  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  312.48 16.50 233.30  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  662.54 15.83 243.29  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  764.10 14.58 243.83  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  917.56 14.58 243.11  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  713.10 21.92 243.08  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  752.40 21.83 242.49  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  788.05 20.25 244.75  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  788.18 20.17 244.79  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  788.18 20.25 244.79  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  788.88 20.17 245.07  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  782.75 21.83 245.07  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  782.76 21.83 245.26  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0001  1  5.0  492.25   58.81  6.00 263.49 0.71   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  782.77 21.83 245.47  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****
```

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\07d2feec-ed67-41d1-99b6-53c7f891bf37\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\07d2feec-ed67-41d1-99b6-53c7f891bf37\scenar


DATE: 05/13/2022                          TIME: 08:57:44

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_12 Hour PMP               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0002  1  5.0  319.15   39.92  8.50 269.93 0.73   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0003  1  5.0  678.55   66.68  9.42 261.91 0.70   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  163.99 10.00 267.55 0.72   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  151.06 12.67 260.71 0.70   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  298.83 11.08 263.59  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  298.27 11.33 263.59  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0006  1  5.0  154.12   15.00  9.33 254.65 0.68   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   39.70 23.08 230.72 0.62   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  140.89 13.42 249.27 0.67   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  152.65 17.58 238.69 0.64   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   85.53 26.33 256.08 0.69   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0011  1  5.0  330.21   47.05  7.92 256.73 0.69   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   49.48 16.58 248.87 0.67   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  161.66 11.75 261.51 0.70   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0016  1  5.0  664.69   66.28  9.50 270.02 0.73   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0017  1  5.0  759.04   82.52  9.00 264.38 0.71   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   33.75 19.75 262.91 0.71   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   94.09 15.33 222.68 0.60   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  124.21 16.08 235.37  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  123.60 16.75 235.37  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  145.54 14.00 240.73  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  197.74 10.67 244.28  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  174.33 14.33 244.27  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  221.66 14.83 245.24  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  368.23 13.08 249.64  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  367.42 13.50 249.64  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  409.08 14.08 253.21  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  416.70 13.67 253.29  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  361.64 17.83 253.28  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  146.47  9.50 247.98 0.67   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
```

```
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  153.04 13.50 250.87 0.67   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   86.15 19.75 208.20 0.56   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  230.82 11.25 241.70 0.65   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  276.05 12.08 224.53  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  273.99 12.67 224.53  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0022  1  5.0  656.35   83.47  8.08 238.22 0.64   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   90.21  9.67 220.41 0.59   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  303.15 11.92 225.70  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  382.57 11.08 225.02  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  359.93 12.92 225.02  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  465.68 11.83 228.50  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  612.31 12.25 233.41  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  357.80 18.50 233.39  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  718.88 18.17 243.38  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  827.09 17.17 243.92  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  979.56 17.25 243.20  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  794.08 23.42 243.17  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  833.77 23.42 242.58  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  885.43 21.75 244.85  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  885.75 21.75 244.88  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  885.75 21.75 244.88  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  887.42 21.67 245.16  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  881.37 23.08 245.16  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  881.44 23.08 245.35  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0001  1  5.0  492.25   65.50  8.25 263.59 0.71   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  881.48 23.08 245.56  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL


        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d3503752-0665-4dd8-9078-26fefd9af24a\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d3503752-0665-4dd8-9078-26fefd9af24a\scenar


DATE: 05/13/2022                          TIME: 08:57:44

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_12 hour SCS               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0002  1  5.0  319.15   40.96  8.67 269.67 0.73   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0003  1  5.0  678.55   68.18  9.58 261.65 0.70   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  167.40 10.17 267.29 0.72   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  152.76 12.75 260.46 0.70   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  304.15 11.17 263.34  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  303.57 11.42 263.34  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0006  1  5.0  154.12   15.35  9.50 254.39 0.68   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   39.72 23.17 230.47 0.62   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  142.14 13.42 249.02 0.67   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
```

```
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  153.04 17.67 238.44 0.64   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   85.53 26.33 255.80 0.69   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0011  1  5.0  330.21   48.51  8.08 256.48 0.69   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   49.65 16.58 248.61 0.67   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  164.15 11.75 261.25 0.70   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0016  1  5.0  664.69   67.72  9.58 269.76 0.73   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0017  1  5.0  759.04   84.52  9.08 264.12 0.71   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   33.79 19.75 262.66 0.71   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   94.57 15.33 222.44 0.60   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  124.66 16.08 235.12  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  124.04 16.83 235.12  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  146.11 13.92 240.48  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  201.55 10.67 244.02  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  176.67 14.17 244.02  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  223.73 14.67 244.99  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  373.57 13.08 249.39  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  372.69 13.42 249.39  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  413.50 14.00 252.95  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  421.05 13.67 253.04  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  364.79 17.75 253.03  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  149.91  9.58 247.73 0.67   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  154.38 13.50 250.62 0.67   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   86.27 19.75 207.97 0.56   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  235.06 11.33 241.45 0.65   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  279.93 12.08 224.29  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  277.53 12.75 224.29  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0022  1  5.0  656.35   86.06  8.25 237.97 0.64   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   92.40  9.83 220.17 0.59   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  306.76 11.83 225.45  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  388.93 11.17 224.77  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  367.60 12.83 224.77  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  478.71 11.75 228.25  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  625.29 12.17 233.16  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  360.46 18.42 233.15  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  724.65 18.08 243.13  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  834.71 17.08 243.67  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  987.47 17.17 242.95  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  798.23 23.33 242.92  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  837.95 23.33 242.33  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  890.27 21.75 244.59  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  890.59 21.67 244.63  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  890.59 21.75 244.63  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  892.26 21.58 244.91  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  886.11 23.00 244.91  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  886.18 23.00 245.10  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0001  1  5.0  492.25   67.35  8.33 263.33 0.71   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  886.22 23.00 245.31  n/a   0.000
```

```
*
==========================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\61872151-2c2c-4f3f-b46b-13dc9d8061e3\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\61872151-2c2c-4f3f-b46b-13dc9d8061e3\scenar


DATE: 05/13/2022                          TIME: 08:57:45

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_24 hour SCS               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      -----------------
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0002  1  5.0  319.15   40.29 14.58 310.19 0.75   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0003  1  5.0  678.55   67.98 15.50 301.82 0.73   0.000
    [CN=68.7         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  167.21 16.08 307.72 0.74   0.000
    [CN=70.1         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  154.63 18.67 300.58 0.73   0.000
    [CN=68.4         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  306.25 17.00 303.58  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  305.67 17.25 303.58  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0006  1  5.0  154.12   15.34 15.42 294.23 0.71   0.000
    [CN=66.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   44.81 30.33 267.57 0.65   0.000
    [CN=61.5         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  145.02 19.50 288.59 0.70   0.000
    [CN=65.6         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  165.01 24.67 277.39 0.67   0.000
    [CN=63.1         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   96.48 33.42 291.62 0.70   0.000
    [CN=68.3         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0011  1  5.0  330.21   47.62 14.00 296.41 0.72   0.000
    [CN=67.4         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   52.66 23.42 288.14 0.70   0.000
    [CN=65.5         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  165.51 17.67 301.41 0.73   0.000
    [CN=68.6         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0016  1  5.0  664.69   67.33 15.50 310.29 0.75   0.000
    [CN=70.7         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0017  1  5.0  759.04   83.85 15.08 304.41 0.73   0.000
    [CN=69.3         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   36.95 26.92 302.53 0.73   0.000
    [CN=69.0         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   99.33 21.92 260.49 0.63   0.000
    [CN=59.4         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  132.30 22.92 273.86  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  131.88 23.58 273.86  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  152.89 21.25 279.49  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  204.41 16.67 283.23  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  184.06 20.33 283.23  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  233.80 21.25 284.27  n/a   0.000
```

```
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  383.71 19.00 288.90  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  383.00 19.42 288.90  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  426.77 20.17 292.66  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  435.65 19.92 292.75  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  399.09 24.25 292.74  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  150.29 15.50 287.23 0.69   0.000
    [CN=65.3         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  157.53 19.58 290.27 0.70   0.000
    [CN=66.0         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   96.19 27.08 244.80 0.59   0.000
    [CN=56.2         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  237.96 17.25 280.62 0.68   0.000
    [CN=63.8         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  284.48 18.00 262.39  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  282.63 18.58 262.39  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0022  1  5.0  656.35   85.33 14.17 276.96 0.67   0.000
    [CN=63.0         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   93.65 15.75 258.08 0.62   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  313.16 17.67 263.63  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  397.45 17.00 262.92  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  379.24 18.50 262.92  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  495.09 17.50 266.60  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  642.80 17.92 271.80  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  412.96 24.83 271.78  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  811.62 24.58 282.31  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  928.66 23.58 282.88  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 ******* 1092.61 23.75 282.13  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  926.51 29.75 282.10  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  971.27 29.75 281.48  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 ******* 1050.49 28.00 283.86  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 ******* 1051.84 27.92 283.90  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 ******* 1051.82 27.92 283.90  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 ******* 1058.31 27.75 284.19  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 ******* 1051.06 29.08 284.19  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 ******* 1052.11 29.00 284.39  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\7d694c4d-72da-47e5-a4f1-98ead27349f8\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0001  1  5.0  492.25   66.16 14.33 303.58 0.73   0.000
    [CN=69.1         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 ******* 1053.32 28.92 284.61  n/a   0.000
*
 FINISH

================================================================================================================
```

```
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\da53cff6-08f0-4852-8e56-dbb78e213984\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\da53cff6-08f0-4852-8e56-dbb78e213984\scenar


DATE: 05/13/2022                          TIME: 11:32:15

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_12 hour AES_2022     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    4.19  6.83  29.17 0.28   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    7.01  7.67  26.92 0.26   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   18.07  8.17  28.49 0.28   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   15.90 10.25  26.60 0.26   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   32.59  8.92  27.40  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   32.52  9.17  27.40  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.51  7.58  25.00 0.24   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.35 20.67  19.41 0.19   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   13.72 11.00  23.63 0.23   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   13.60 15.17  21.06 0.20   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    8.73 23.83  26.17 0.25   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    4.32  6.42  25.55 0.25   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    4.73 14.08  23.53 0.23   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   17.25  9.42  26.81 0.26   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    7.32  7.67  29.21 0.28   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    8.66  7.33  27.61 0.27   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    3.51 17.25  27.23 0.26   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    7.53 12.92  17.50 0.17   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   10.69 13.83  20.56  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   10.65 14.42  20.56  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   13.57 10.17  21.89  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   20.71  8.33  22.75  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   17.57 11.00  22.75  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   21.85 11.50  22.91  n/a   0.000
*
```

```
    ADD [  0111+  0013]  0111  1  5.0 8782.04   38.16 10.33  23.97  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   38.04 10.75  23.97  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   42.02 11.17  24.82  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   42.80 10.83  24.84  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   36.91 14.50  24.83  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   14.21  7.75  23.30 0.23   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   15.04 11.00  24.02 0.23   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    6.63 17.33  15.91 0.15   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   21.83  9.08  21.77 0.21   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   25.27  9.58  18.76  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   25.04 10.17  18.76  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    6.99  6.58  20.93 0.20   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    7.35  8.00  17.01 0.16   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   28.03  9.25  18.94  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   34.95  8.83  18.69  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   32.92 10.25  18.69  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   44.24  9.33  19.39  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   58.46  9.67  20.41  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   33.29 15.50  20.40  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   70.05 15.00  22.63  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   81.18 14.17  22.72  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   94.69 14.33  22.49  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   76.12 20.25  22.48  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   79.46 20.25  22.32  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   85.56 18.42  22.87  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   85.60 18.33  22.88  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   85.60 18.42  22.88  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   85.82 18.25  22.94  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   85.24 19.58  22.94  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   85.25 19.58  22.99  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=103.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\e0ec215c-0c71-42ad-b078-b3daf
    remark: 100-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    6.46  6.67  27.39 0.27   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   85.26 19.58  23.04  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\e4a98705-1eab-41ef-a6ee-4d96bf1192f7\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\e4a98705-1eab-41ef-a6ee-4d96bf1192f7\scenar


DATE: 05/13/2022                          TIME: 11:32:16

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_12 hour SCS_2022     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    4.19  9.00  29.29 0.28   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    6.72 10.08  27.04 0.26   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   17.30 10.67  28.62 0.28   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   15.50 13.33  26.72 0.26   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   31.20 11.75  27.52  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   31.15 12.00  27.52  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.44 10.00  25.12 0.24   0.000
    [CN=56.9         ]
```

```
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.35 23.67  19.48 0.19   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   13.43 14.00  23.74 0.23   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   13.53 18.17  21.16 0.20   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    8.76 26.92  26.19 0.25   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    4.48  8.42  25.67 0.25   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    4.70 17.17  23.64 0.23   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   16.64 12.42  26.93 0.26   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    7.06 10.08  29.34 0.28   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    8.40  9.58  27.73 0.27   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    3.51 20.33  27.34 0.26   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    7.43 15.92  17.59 0.17   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   10.60 16.92  20.66  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   10.56 17.50  20.66  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   13.32 13.58  22.00  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   19.57 11.00  22.86  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   16.79 14.42  22.86  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   21.18 14.92  23.02  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   36.67 13.50  24.08  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   36.58 13.92  24.08  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   40.73 14.42  24.93  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   41.57 14.08  24.95  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   36.01 17.92  24.95  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   13.42 10.17  23.41 0.23   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   14.74 14.08  24.13 0.23   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    6.62 20.42  15.99 0.15   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   20.75 12.00  21.87 0.21   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   24.26 12.67  18.85  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   24.09 13.25  18.85  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    6.93  8.58  21.04 0.20   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    6.75 10.50  17.10 0.17   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   26.89 12.50  19.04  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   32.98 12.00  18.79  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   31.36 13.50  18.79  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   41.58 12.42  19.49  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   55.66 12.83  20.51  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   28.82 19.67  20.50  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   64.49 18.67  22.73  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   74.92 17.67  22.83  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   88.43 17.75  22.60  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   70.78 24.17  22.58  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   74.13 24.17  22.43  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   79.30 22.17  22.97  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   79.34 22.17  22.98  n/a   0.000
```

```
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   79.34 22.17  22.98  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   79.52 22.00  23.05  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   79.05 23.42  23.05  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   79.06 23.42  23.09  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=103.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bbb9c0c7-990e-415c-9d9f-48e26
    remark: 100-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    6.57  8.67  27.51 0.27   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   79.07 23.42  23.15  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7fdf56c9-d31d-4d34-95e4-cff066a6b1ca\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7fdf56c9-d31d-4d34-95e4-cff066a6b1ca\scenar


DATE: 05/13/2022                          TIME: 11:32:16

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_24 hour SCS_2022     **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    5.29 14.92  43.51 0.34   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    8.56 15.92  40.65 0.32   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   21.88 16.58  42.66 0.34   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   19.79 19.42  40.24 0.32   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   39.53 17.58  41.25  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   39.46 17.83  41.25  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.85 15.83  38.17 0.30   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    5.11 31.33  30.61 0.24   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   17.53 20.50  36.39 0.29   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   19.41 25.83  33.02 0.26   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   12.87 34.33  38.91 0.31   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    5.73 14.25  38.88 0.31   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    6.52 24.67  36.26 0.29   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   21.12 18.25  40.51 0.32   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    8.91 16.00  43.56 0.34   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04   10.68 15.42  41.53 0.33   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    4.98 27.83  40.98 0.32   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
```

```
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   10.46 23.25  28.29 0.22   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   15.02 24.58  32.30  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   14.98 25.17  32.30  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   17.85 22.33  34.04  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   25.05 16.92  35.16  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   21.93 21.50  35.16  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   28.14 22.58  35.39  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   47.12 19.83  36.78  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   47.05 20.17  36.78  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   53.00 21.33  37.89  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   54.30 21.08  37.92  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   49.58 26.00  37.91  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   17.37 16.00  35.96 0.28   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   19.22 20.58  36.91 0.29   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   10.26 28.25  26.35 0.21   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   26.91 17.83  33.96 0.27   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   31.65 18.67  30.07  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   31.48 19.33  30.07  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    9.09 14.50  32.87 0.26   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    9.04 16.33  27.64 0.22   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   35.00 18.42  30.31  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   43.09 17.75  29.96  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   41.00 19.67  29.96  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   53.83 18.33  30.87  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   72.05 18.83  32.20  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   43.31 27.42  32.19  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   92.67 26.67  35.06  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  106.07 25.58  35.18  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  125.47 25.58  34.89  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  104.73 32.00  34.87  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  109.83 32.00  34.66  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  118.70 29.92  35.37  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  118.82 29.92  35.38  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  118.81 30.00  35.38  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  119.39 29.25  35.47  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  118.64 30.75  35.47  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  118.73 30.67  35.53  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=127.03 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9e0c5bc8-4dac-4675-91c4-78b74
    remark: 100-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    8.34 14.58  41.25 0.32   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  118.81 30.58  35.59  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\776f1c22-d5da-4494-8a7d-9670c231e7b7\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\776f1c22-d5da-4494-8a7d-9670c231e7b7\scenar


DATE: 05/13/2022                          TIME: 11:32:17

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100-Year_6 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.21  6.08  19.11 0.23   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    5.03  6.92  17.38 0.21   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   12.84  7.42  18.59 0.22   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
```

```
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   10.62  9.58  17.14 0.20   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   22.37  8.17  17.75  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   22.31  8.42  17.75  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.07  6.83  15.92 0.19   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.04 20.00  11.76 0.14   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    8.88 10.25  14.89 0.18   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    8.46 14.50  12.97 0.15   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    5.65 23.25  16.87 0.20   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.36  5.50  16.34 0.19   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.02 13.42  14.81 0.18   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   11.68  8.75  17.30 0.21   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    5.33  6.92  19.15 0.23   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    6.36  6.58  17.91 0.21   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.29 16.67  17.62 0.21   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.52 12.17  10.36 0.12   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    6.57 13.17  12.64  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    6.54 13.75  12.64  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    8.70  9.00  13.65  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   14.10  7.42  14.29  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   11.36 10.17  14.29  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   14.05 10.67  14.40  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   25.12  9.58  15.18  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   25.03 10.00  15.18  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   27.47 10.33  15.81  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   27.94 10.08  15.83  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   23.64 13.92  15.83  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    9.84  6.92  14.64 0.17   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    9.77 10.33  15.18 0.18   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.81 16.67   9.08 0.11   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   14.25  8.33  13.50 0.16   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   16.15  8.75  11.23  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   15.98  9.33  11.23  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    5.06  5.67  12.87 0.15   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    4.67  7.17  10.01 0.12   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   17.89  8.42  11.37  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   22.27  8.00  11.19  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   20.75  9.50  11.19  n/a   0.000
```

```
*
    ADD [  1005+  0014]  0107  3  5.0 *******   28.40  8.50  11.71  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   37.52  8.83  12.47  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   20.49 26.00  12.47  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   42.64 14.50  14.15  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   49.68 13.67  14.22  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   58.09 13.75  14.05  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   45.04 20.42  14.04  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   47.08 20.42  13.92  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   50.44 18.50  14.33  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   50.45 18.42  14.34  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   50.45 18.50  14.34  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   50.55 18.33  14.39  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   50.25 19.67  14.39  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   50.25 19.67  14.42  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 84.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2a464042-d9cf-4c29-9906-7620c
    remark: 100-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    4.98  5.83  17.74 0.21   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   50.26 19.67  14.46  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\031c5603-4840-41da-9b4f-061b429dd070\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\031c5603-4840-41da-9b4f-061b429dd070\scenar


DATE: 05/13/2022                          TIME: 11:32:17

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10-Year_12 hour AES_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    2.00  7.08  13.62 0.19   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    3.24  7.83  12.22 0.17   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    8.47  8.33  13.20 0.18   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    7.23 10.50  12.03 0.17   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   15.05  9.08  12.52  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   15.01  9.33  12.52  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.68  7.83  11.06 0.15   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.35 20.92   7.79 0.11   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    5.97 11.17  10.23 0.14   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    5.64 15.42   8.72 0.12   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    3.95 24.08  11.83 0.16   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.99  6.58  11.40 0.16   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.05 14.33  10.18 0.14   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    7.88  9.67  12.16 0.17   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    3.47  7.83  13.65 0.19   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
```

```
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    4.04  7.50  12.65 0.18   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.60 17.42  12.41 0.17   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    2.90 13.17   6.70 0.09   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    4.35 14.25   8.50  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    4.33 14.83   8.50  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    5.73 10.17   9.29  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60    9.16  8.42   9.80  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60    7.79 10.83   9.80  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65    9.59 11.33   9.88  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   17.16 10.42  10.49  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04   17.10 10.75  10.49  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   18.84 11.17  10.99  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******   19.22 10.83  11.00  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******   16.65 14.33  11.00  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    6.23  7.92  10.04 0.14   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    6.59 11.25  10.47 0.15   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.36 17.67   5.64 0.08   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    9.26  9.33   9.14 0.13   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97   10.43  9.75   7.34  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97   10.34 10.25   7.34  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.99  6.83   8.65 0.12   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.84  8.25   6.43 0.09   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   11.70  9.25   7.45  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07   14.42  9.00   7.32  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07   13.59 10.33   7.32  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   18.64  9.42   7.73  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   24.82  9.75   8.33  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******   14.54 15.17   8.32  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   31.12 14.75   9.67  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   36.15 14.08   9.72  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   41.72 14.25   9.58  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   33.59 19.83   9.57  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   34.93 19.83   9.48  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   38.13 17.92   9.81  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   38.16 17.92   9.81  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   38.16 17.92   9.81  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   38.29 17.83   9.85  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   38.04 19.00   9.85  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   38.04 19.00   9.88  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 72.10 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\0f54012d-cb5d-4ca8-8ab3-c9815
    remark: 10-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.03  6.83  12.52 0.17   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   38.05 19.00   9.91  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d82f2a99-5905-4600-8802-7c0084ed3cf7\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d82f2a99-5905-4600-8802-7c0084ed3cf7\scenar


DATE: 05/13/2022                          TIME: 11:32:18

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10-Year_12 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.89  9.17  13.55 0.19   0.000
    [CN=60.1         ]
```

```
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.97 10.25  12.16 0.17   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    7.86 10.92  13.14 0.18   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    6.93 13.50  11.97 0.17   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   14.09 12.00  12.46  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   14.07 12.25  12.46  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.62 10.25  11.00 0.15   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.33 23.92   7.73 0.11   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    5.75 14.25  10.18 0.14   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    5.54 18.42   8.67 0.12   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    3.92 27.08  11.73 0.16   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.91  8.50  11.34 0.16   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.01 17.33  10.12 0.14   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    7.45 12.67  12.10 0.17   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    3.22 10.33  13.59 0.19   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    3.74  9.75  12.59 0.18   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.59 20.42  12.35 0.17   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    2.81 16.25   6.66 0.09   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    4.25 17.33   8.45  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    4.23 17.92   8.45  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    5.53 13.58   9.24  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    8.42 11.17   9.75  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    7.42 14.08   9.75  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    9.22 14.58   9.82  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   16.33 13.50  10.44  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   16.29 13.92  10.44  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   18.09 14.42  10.94  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   18.51 14.00  10.95  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   16.20 17.50  10.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    5.62 10.42   9.98 0.14   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    6.34 14.33  10.41 0.14   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.32 20.75   5.60 0.08   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    8.57 12.33   9.09 0.13   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    9.77 12.83   7.29  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    9.71 13.33   7.29  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
```

```
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.70  8.75   8.60 0.12   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.47 10.92   6.39 0.09   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   10.95 12.50   7.41  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   13.25 12.25   7.27  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   12.74 13.50   7.27  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   17.24 12.50   7.68  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   23.25 12.92   8.28  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   14.14 26.42   8.28  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   29.82 18.00   9.62  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   34.63 17.25   9.67  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   40.12 17.42   9.53  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   32.27 23.25   9.52  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   33.60 23.25   9.43  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   36.59 21.17   9.76  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   36.62 21.17   9.76  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   36.62 21.17   9.76  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   36.76 21.00   9.80  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   36.52 22.33   9.80  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   36.53 22.33   9.83  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 71.95 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\f76fa2d3-8d38-4e62-898c-28ed7
    remark: 10-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    2.89  8.83  12.46 0.17   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   36.54 22.33   9.86  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c9a41b4d-6176-4df3-b85d-363e2a48c40a\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c9a41b4d-6176-4df3-b85d-363e2a48c40a\scenar


DATE: 05/13/2022                          TIME: 11:32:18

USER:


COMMENTS: _____


  ************************************************
  ** SIMULATION : 10-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

    START @  0.00 hrs
    ---------------------
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    2.51 15.08  21.67 0.24   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    3.98 16.17  19.80 0.22   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   10.42 16.75  21.10 0.24   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    9.35 19.83  19.53 0.22   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   18.74 17.83  20.19  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   18.71 18.08  20.19  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.84 16.08  18.22 0.20   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.26 31.83  13.57 0.15   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    8.03 20.92  17.09 0.19   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    8.75 26.42  14.99 0.17   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    6.24 34.75  18.87 0.21   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    2.58 14.42  18.67 0.21   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.03 25.25  17.01 0.19   0.000
```

```
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    9.95 18.58  19.71 0.22   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    4.26 16.17  21.71 0.24   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    5.00 15.58  20.37 0.23   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.42 28.25  20.02 0.22   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.41 24.17  12.13 0.14   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    6.68 25.42  14.62  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    6.66 25.92  14.62  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    8.07 23.33  15.72  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   11.41 17.08  16.41  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   10.20 21.33  16.41  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   13.02 22.67  16.54  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   22.13 20.00  17.40  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   22.10 20.42  17.40  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   24.94 21.67  18.09  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   25.60 21.33  18.10  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   23.76 26.08  18.10  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    7.70 16.25  16.82 0.19   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    8.85 21.00  17.41 0.20   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    4.17 28.92  10.74 0.12   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   11.82 18.17  15.57 0.17   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   13.67 19.00  13.10  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   13.60 19.67  13.10  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    3.79 14.67  14.89 0.17   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    3.58 16.67  11.74 0.13   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   15.20 18.83  13.25  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   18.44 18.17  13.06  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   17.84 19.83  13.06  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   23.78 18.50  13.63  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   32.06 19.08  14.46  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   20.40 27.33  14.45  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   44.06 26.75  16.28  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   50.51 25.75  16.35  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   59.24 25.83  16.17  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   49.90 31.83  16.15  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   52.16 31.83  16.03  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   56.92 29.50  16.47  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   57.00 29.42  16.48  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   57.00 29.42  16.48  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   57.43 28.92  16.54  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   57.05 30.50  16.53  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   57.10 30.42  16.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 89.13 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\a8cd5254-d1ac-4967-af47-119b5
    remark: 10-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.87 14.75  20.19 0.23   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   57.16 30.33  16.61  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M  M  M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a9435eed-768d-402c-b366-fb9269099a54\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a9435eed-768d-402c-b366-fb9269099a54\scenar


DATE: 05/13/2022                          TIME: 11:32:19

USER:
```

```
COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 10-Year_6 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      -------------------
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.39  6.25   8.36 0.14   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.12  7.00   7.34 0.12   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    5.55  7.50   8.05 0.14   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    4.45  9.67   7.20 0.12   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    9.54  8.25   7.56  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    9.52  8.42   7.56  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.43  7.00   6.49 0.11   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.73 20.17   4.19 0.07   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    3.52 10.42   5.90 0.10   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    3.15 14.67   4.83 0.08   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    2.37 23.42   7.08 0.12   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.36  5.67   6.74 0.11   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.19 13.58   5.86 0.10   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    4.91  8.83   7.29 0.12   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    2.33  7.08   8.39 0.14   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    2.71  6.67   7.65 0.13   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.97 16.75   7.48 0.13   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.51 12.33   3.45 0.06   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    2.39 13.58   4.72  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    2.37 14.25   4.72  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    3.34  8.83   5.28  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    5.76  7.42   5.64  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    4.86  9.33   5.64  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    5.80  9.67   5.69  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   10.66  9.33   6.12  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   10.57  9.75   6.12  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   11.51 10.08   6.47  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   11.77  9.83   6.48  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    9.99 13.08   6.47  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    3.86  7.08   5.76 0.10   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    3.90 10.50   6.07 0.10   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
```

```
 ** CALIB NASHYD        0020  1  5.0 3624.90    1.12 16.92   2.67 0.05   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0021  1  5.0 3419.07    5.40  8.50   5.13 0.09   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97    5.94  8.83   3.86  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97    5.88  9.42   3.86  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0022  1  5.0  656.35    1.85  6.00   4.78 0.08   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0023  1  5.0 1135.75    1.52  7.42   3.27 0.06   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32    6.65  8.42   3.94  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07    8.10  8.08   3.85  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07    7.61  9.33   3.85  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   10.77  8.50   4.14  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   14.36  8.83   4.57  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******    9.63 18.50   4.56  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   18.69 18.50   5.52  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   20.97 13.08   5.56  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   24.06 13.25   5.46  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   19.47 20.17   5.45  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   20.20 20.17   5.38  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   21.60 19.25   5.62  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   21.60 19.25   5.62  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   21.60 19.25   5.62  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   21.67 16.83   5.65  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   21.58 19.75   5.65  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   21.58 19.75   5.67  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 58.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9a72457c-b735-44b3-92cb-d1947
    remark: 10-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0001  1  5.0  492.25    2.10  6.00   7.56 0.13   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   21.58 19.75   5.69  n/a   0.000
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****

  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\8955cfe0-ade7-4cfa-bf1d-ec45d8293905\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\8955cfe0-ade7-4cfa-bf1d-ec45d8293905\scenar

DATE: 05/13/2022                          TIME: 11:32:19

USER:

COMMENTS: _____________________________________________________

  ************************************************
  ** SIMULATION : 25-Year_12 hour AES_2022      **
  ************************************************
  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0002  1  5.0  319.15    2.86  7.00  19.75 0.23   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0003  1  5.0  678.55    4.71  7.75  17.98 0.21   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0005  1  5.0 1839.41   12.24  8.25  19.21 0.23   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0004  1  5.0 2527.68   10.62 10.33  17.73 0.21   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005] 0105  3  5.0 4367.09   21.92  9.00  18.36  n/a   0.000
*
    CHANNEL[ 2:  0105]  1011  1  5.0 4367.09   21.87  9.25  18.36  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0006  1  5.0  154.12    1.00  7.75  16.49 0.19   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0007  1  5.0 1892.08    2.11 20.83  12.23 0.14   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0008  1  5.0 2695.33    8.98 11.08  15.43 0.18   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD        0009  1  5.0 4750.07    8.71 15.25  13.47 0.16   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
```

```
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    5.82 23.92  17.44 0.20   0.000
    [CN=58.1        ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    2.90  6.50  16.92 0.20   0.000
    [CN=57.3        ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.09 14.17  15.36 0.18   0.000
    [CN=55.7        ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   11.54  9.50  17.90 0.21   0.000
    [CN=58.3        ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    4.98  7.75  19.78 0.23   0.000
    [CN=60.1        ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    5.85  7.42  18.52 0.22   0.000
    [CN=58.9        ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.35 17.33  18.22 0.21   0.000
    [CN=58.7        ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    4.66 13.00  10.80 0.13   0.000
    [CN=50.5        ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    6.78 14.00  13.13  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    6.75 14.58  13.13  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    8.77 10.08  14.16  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   13.65  8.42  14.82  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60   11.59 10.92  14.82  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   14.35 11.42  14.93  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   25.34 10.42  15.73  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04   25.26 10.75  15.73  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   27.88 11.17  16.38  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******   28.42 10.83  16.39  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******   24.58 14.42  16.39  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    9.32  7.83  15.18 0.18   0.000
    [CN=55.5        ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    9.87 11.17  15.73 0.18   0.000
    [CN=56.1        ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.96 17.50   9.49 0.11   0.000
    [CN=50.5        ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   14.11  9.25  14.01 0.16   0.000
    [CN=54.2        ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97   16.13  9.67  11.69  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97   15.97 10.25  11.69  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    4.53  6.67  13.37 0.16   0.000
    [CN=53.5        ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    4.55  8.17  10.44 0.12   0.000
    [CN=50.1        ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   17.93  9.33  11.83  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07   22.23  8.92  11.65  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07   20.97 10.33  11.65  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   28.45  9.42  12.19  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   37.75  9.75  12.97  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******   21.63 15.50  12.96  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   46.09 14.92  14.68  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   53.49 14.17  14.75  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   62.11 14.33  14.57  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   49.47 20.25  14.56  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   51.58 20.25  14.44  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   55.75 18.42  14.87  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   55.78 18.42  14.87  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   55.78 18.42  14.87  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   55.93 18.17  14.92  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   55.59 19.50  14.92  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   55.60 19.50  14.96  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 85.30 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\62dd6882-361b-4a81-b7ba-639ae
    remark: 25-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    4.37  6.75  18.35 0.22   0.000
    [CN=58.7        ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   55.60 19.50  15.00  n/a   0.000
*
================================================================================


      V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
```

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***** S U M M A R Y O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\95561b99-7e29-4b06-a535-270611eb3f5f\scenar
Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\95561b99-7e29-4b06-a535-270611eb3f5f\scenar

DATE: 05/13/2022 TIME: 11:32:20

USER:

COMMENTS: _____

****
** SIMULATION : 25-Year_12 hour SCS_2022 **
****

W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase
min ha ' cms hrs mm cms

START @ 0.00 hrs

READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0002 1 5.0 319.15 2.78 9.08 19.67 0.23 0.000
[CN=60.1]
[N = 3.0:Tp 2.51]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0003 1 5.0 678.55 4.41 10.17 17.91 0.21 0.000
[CN=58.4]
[N = 3.0:Tp 3.26]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0005 1 5.0 1839.41 11.50 10.83 19.14 0.22 0.000
[CN=59.6]
[N = 3.0:Tp 3.78]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0004 1 5.0 2527.68 10.24 13.42 17.66 0.21 0.000
[CN=58.1]
[N = 3.0:Tp 6.00]
*
ADD [0004+ 0005] 0105 3 5.0 4367.09 20.69 11.92 18.29 n/a 0.000
*
CHANNEL[2: 0105] 1011 1 5.0 4367.09 20.66 12.17 18.29 n/a 0.000
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0006 1 5.0 154.12 0.93 10.08 16.43 0.19 0.000
[CN=56.9]
[N = 3.0:Tp 3.18]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0007 1 5.0 1892.08 2.09 23.83 12.16 0.14 0.000
[CN=52.3]
[N = 3.0:Tp16.43]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0008 1 5.0 2695.33 8.68 14.17 15.37 0.18 0.000
[CN=55.8]
[N = 3.0:Tp 6.67]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0009 1 5.0 4750.07 8.57 18.33 13.41 0.16 0.000
[CN=53.6]
[N = 3.0:Tp10.88]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0010 1 5.0 4353.13 5.79 27.00 17.31 0.20 0.000
[CN=58.1]
[N = 3.0:Tp19.78]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0011 1 5.0 330.21 2.88 8.42 16.86 0.20 0.000
[CN=57.3]
[N = 3.0:Tp 1.99]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0012 1 5.0 1349.05 3.04 17.25 15.30 0.18 0.000
[CN=55.7]
[N = 3.0:Tp 9.88]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0013 1 5.0 2374.39 10.99 12.50 17.83 0.21 0.000
[CN=58.3]
[N = 3.0:Tp 5.13]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0016 1 5.0 664.69 4.70 10.25 19.71 0.23 0.000
[CN=60.1]
[N = 3.0:Tp 3.33]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0017 1 5.0 759.04 5.52 9.67 18.45 0.22 0.000
[CN=58.9]
[N = 3.0:Tp 2.91]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0018 1 5.0 1140.91 2.33 20.42 18.15 0.21 0.000
[CN=58.7]
[N = 3.0:Tp13.14]
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
remark: 25-Year_12 hour SCS_2022
*
** CALIB NASHYD 0019 1 5.0 2493.96 4.54 16.08 10.75 0.13 0.000
[CN=50.5]
[N = 3.0:Tp 8.49]
*
ADD [0018+ 0019] 0113 3 5.0 3634.87 6.65 17.08 13.07 n/a 0.000
*
CHANNEL[2: 0113] 1010 1 5.0 3634.87 6.62 17.67 13.07 n/a 0.000
*
ADD [1010+ 0016] 0112 3 5.0 4299.56 8.49 13.67 14.10 n/a 0.000
*
ADD [0112+ 0017] 0112 1 5.0 5058.60 12.69 11.25 14.75 n/a 0.000
*
CHANNEL[2: 0112] 1009 1 5.0 5058.60 11.11 14.17 14.75 n/a 0.000
*
ADD [1009+ 0012] 0111 3 5.0 6407.65 13.87 14.75 14.87 n/a 0.000
*
ADD [0111+ 0013] 0111 1 5.0 8782.04 24.28 13.50 15.67 n/a 0.000
*
CHANNEL[2: 0111] 1008 1 5.0 8782.04 24.22 13.83 15.67 n/a 0.000
*
ADD [0010+ 1008] 0110 3 5.0 ******* 26.90 14.42 16.31 n/a 0.000
*
ADD [0110+ 0011] 0110 1 5.0 ******* 27.50 14.00 16.33 n/a 0.000
*
CHANNEL[2: 0110] 1007 1 5.0 ******* 23.84 17.75 16.33 n/a 0.000
*
READ STORM 15.0
[Ptot= 85.15 mm]
fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94

```
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    8.57 10.25  15.12 0.18   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    9.56 14.17  15.67 0.18   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    3.90 20.58   9.44 0.11   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   13.19 12.17  13.95 0.16   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   15.24 12.83  11.64  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   15.14 13.33  11.64  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    4.27  8.67  13.32 0.16   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    4.05 10.75  10.39 0.12   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   16.96 12.58  11.78  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   20.66 12.17  11.60  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   19.81 13.42  11.60  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   26.53 12.42  12.13  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   35.62 12.83  12.91  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   20.00 19.33  12.90  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   43.70 18.33  14.62  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   50.72 17.42  14.69  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   59.25 17.58  14.51  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   47.32 23.75  14.50  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   49.42 23.75  14.38  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   53.27 21.75  14.80  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   53.30 21.75  14.81  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   53.30 21.75  14.81  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   53.45 21.58  14.86  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   53.11 23.00  14.86  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   53.12 22.92  14.90  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 85.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\3c1ce4d8-7857-4181-86fd-dfb94
    remark: 25-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    4.29  8.75  18.28 0.21   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   53.12 22.92  14.93  n/a   0.000
*
================================================================================================
```

```
        V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
        V    V   I    SS     U   U   A A   L
         V  V    I     SS    U   U  AAAAA  L
         V  V    I      SS   U   U  A   A  L
          VV     I    SSSSS  UUUUU  A   A  LLLLL

         OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
        O   O    T      T    H   H   Y Y   MM MM  O   O
        O   O    T      T    H   H    Y    M   M  O   O
         OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\690f8999-8df9-4544-866b-c0ed4b173ac2\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\690f8999-8df9-4544-866b-c0ed4b173ac2\scenar


DATE: 05/13/2022                          TIME: 11:32:20

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 25-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.66 15.00  30.80 0.29   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    5.86 16.00  28.47 0.27   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   15.15 16.67  30.10 0.28   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   13.65 19.58  28.14 0.27   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   27.31 17.75  28.97  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   27.27 18.00  28.97  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.25 15.92  26.49 0.25   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    3.42 31.58  20.53 0.19   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=105.98 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0008  1  5.0 2695.33   11.91 20.67  25.06 0.24   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0009  1  5.0 4750.07   13.11 26.17  22.39 0.21   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0010  1  5.0 4353.13    8.99 34.58  27.20 0.26   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0011  1  5.0  330.21    3.87 14.33  27.06 0.26   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0012  1  5.0 1349.05    4.47 25.00  24.96 0.24   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0013  1  5.0 2374.39   14.55 18.42  28.36 0.27   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0016  1  5.0  664.69    6.18 16.08  30.84 0.29   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0017  1  5.0  759.04    7.33 15.50  29.19 0.28   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0018  1  5.0 1140.91    3.48 28.08  28.75 0.27   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0019  1  5.0 2493.96    6.84 23.67  18.69 0.18   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   10.07 25.00  21.87  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   10.05 25.50  21.87  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   12.08 22.58  23.25  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   17.01 17.00  24.14  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   15.06 21.42  24.14  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   19.26 22.58  24.32  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   32.46 19.92  25.41  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   32.41 20.33  25.41  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   36.53 21.50  26.29  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   37.46 21.17  26.31  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   34.41 26.08  26.31  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0014  1  5.0 1578.34   11.64 16.08  24.72 0.23   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0015  1  5.0 2931.47   13.09 20.75  25.47 0.24   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0020  1  5.0 3624.90    6.62 28.58  17.04 0.16   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0021  1  5.0 3419.07   17.95 18.00  23.14 0.22   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   20.95 18.83  20.01  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   20.84 19.42  20.01  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0022  1  5.0  656.35    5.92 14.58  22.27 0.21   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
*
 ** CALIB NASHYD        0023  1  5.0 1135.75    5.75 16.50  18.19 0.17   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   23.22 18.58  20.21  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   28.40 17.92  19.95  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   27.27 19.67  19.95  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   36.09 18.42  20.67  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   48.41 18.92  21.72  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   30.15 27.33  21.71  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   64.44 26.75  24.02  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   73.79 25.67  24.12  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   86.88 25.75  23.88  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   73.03 31.83  23.86  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   76.45 31.83  23.70  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   82.98 29.58  24.27  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   83.08 29.50  24.28  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   83.08 29.50  24.28  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   83.64 29.08  24.34  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   83.12 30.58  24.34  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   83.19 30.50  24.39  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=105.98 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\b22a785c-be1a-43e4-9357-9b052
    remark: 25-Year_24 hour SCS_2022
```

```
*
 ** CALIB NASHYD        0001  1  5.0  492.25    5.70 14.67  28.96 0.27   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   83.26 30.42  24.44  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7a9def6c-e162-4364-8c10-6e4916921b3c\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7a9def6c-e162-4364-8c10-6e4916921b3c\scenar


DATE: 05/13/2022                          TIME: 11:32:21

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 25-Year_6 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     ---------------------
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0002  1  5.0  319.15    2.06  6.17  12.30 0.18   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0003  1  5.0  678.55    3.18  7.00  10.99 0.16   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0005  1  5.0 1839.41    8.22  7.42  11.91 0.17   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0004  1  5.0 2527.68    6.70  9.67  10.81 0.16   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   14.22  8.17  11.27  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   14.19  8.42  11.27  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0006  1  5.0  154.12    0.66  6.92   9.91 0.14   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0007  1  5.0 1892.08    1.19 20.08   6.86 0.10   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0008  1  5.0 2695.33    5.45 10.33   9.14 0.13   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0009  1  5.0 4750.07    5.04 14.58   7.73 0.11   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0010  1  5.0 4353.13    3.56 23.33  10.64 0.15   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0011  1  5.0  330.21    2.08  5.58  10.22 0.15   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0012  1  5.0 1349.05    1.85 13.50   9.08 0.13   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0013  1  5.0 2374.39    7.37  8.75  10.93 0.16   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0016  1  5.0  664.69    3.43  7.00  12.34 0.18   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0017  1  5.0  759.04    4.04  6.58  11.40 0.17   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0018  1  5.0 1140.91    1.45 16.75  11.17 0.16   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD        0019  1  5.0 2493.96    2.56 12.25   5.86 0.08   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    3.86 13.42   7.53  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    3.85 13.92   7.53  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    5.24  9.00   8.27  n/a   0.000
```

```
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    8.76  7.42   8.74  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    7.15 10.00   8.74  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    8.75 10.42   8.81  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   15.84  9.58   9.39  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   15.78  9.92   9.39  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   17.28 10.33   9.85  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   17.60 10.00   9.86  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   15.05 13.92   9.86  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    6.01  7.00   8.95 0.13   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    6.01 10.42   9.35 0.14   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.04 16.75   4.86 0.07   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    8.56  8.42   8.11 0.12   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    9.56  8.83   6.44  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    9.47  9.25   6.44  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.99  5.83   7.66 0.11   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.62  7.33   5.61 0.08   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   10.70  8.33   6.54  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   13.19  8.00   6.42  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   12.34  9.42   6.42  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   17.13  8.50   6.81  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   22.71  8.83   7.37  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   14.14 21.67   7.36  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   27.20 14.25   8.61  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   31.63 13.50   8.66  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   36.63 13.67   8.53  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   29.15 19.42   8.52  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   30.34 19.42   8.44  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   33.05 17.50   8.74  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   33.07 17.42   8.75  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   33.07 17.50   8.75  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   33.17 17.25   8.78  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   32.94 18.58   8.78  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   32.94 18.58   8.81  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 69.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\78c9c2b8-b492-457f-ad05-ad39e
    remark: 25-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.14  5.92  11.27 0.16   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   32.95 18.58   8.84  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\f56f70b1-af38-4e14-8de1-32408d46a3d4\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\f56f70b1-af38-4e14-8de1-32408d46a3d4\scenar


DATE: 05/13/2022                          TIME: 11:32:21

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_12 hour AES_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.73  7.33   4.82 0.10   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.11  8.17   4.09 0.09   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    3.01  8.58   4.60 0.10   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    2.42 10.75   3.99 0.08   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    5.19  9.33   4.25  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    5.18  9.50   4.25  n/a   0.000
*
```

```
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.22  8.17   3.51 0.07   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.34 21.42   1.98 0.04   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    1.83 11.50   3.11 0.06   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    1.55 15.83   2.39 0.05   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    1.31 24.33   3.93 0.08   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.67  6.92   3.68 0.08   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.62 14.67   3.08 0.06   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    2.66  9.92   4.06 0.08   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.26  8.17   4.84 0.10   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.42  7.75   4.32 0.09   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.54 17.75   4.19 0.09   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.66 13.67   1.51 0.03   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    1.16 15.00   2.35  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    1.15 15.92   2.35  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    1.68  9.75   2.74  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    2.97  8.50   2.97  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    2.41 10.50   2.97  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    2.91 11.00   2.99  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04    5.53 10.42   3.28  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    5.51 10.75   3.28  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******    6.04 11.08   3.51  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******    6.19 10.75   3.52  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    5.39 13.58   3.52  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    1.92  8.25   3.01 0.06   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    2.04 11.58   3.22 0.07   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.42 18.33   0.99 0.02   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    2.66  9.75   2.58 0.05   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    2.85  9.92   1.76  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    2.80 10.58   1.76  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.86  7.17   2.35 0.05   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.64  8.75   1.39 0.03   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    3.18  9.67   1.81  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    3.79  9.42   1.76  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    3.50 10.75   1.76  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    5.03  9.83   1.95  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    6.94 10.17   2.23  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    5.00 15.17   2.22  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   10.23 15.17   2.87  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   11.71 15.17   2.89  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   13.26 15.17   2.82  n/a   0.000
*
```

```
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   10.20 19.33   2.82  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   10.54 19.33   2.77  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   11.84 17.50   2.93  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   11.85 17.42   2.94  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   11.85 17.42   2.94  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   11.92 17.25   2.95  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   11.82 18.50   2.95  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   11.82 18.42   2.97  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 47.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\02f88c7b-a715-43e0-aaf1-ae79d
    remark: 2-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    1.07  7.08   4.25 0.09   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   11.83 18.42   2.98  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\4c22094f-44a3-441f-8b86-5e2bbea67c87\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\4c22094f-44a3-441f-8b86-5e2bbea67c87\scenar


DATE: 05/13/2022                          TIME: 11:32:22

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_12 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.64  9.50   4.86 0.10   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    0.97 10.75   4.13 0.09   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    2.70 11.42   4.64 0.10   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    2.32 13.92   4.03 0.08   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    4.81 12.50   4.29  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    4.80 12.75   4.29  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.19 10.83   3.55 0.07   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.34 24.50   2.00 0.04   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    1.76 14.75   3.14 0.07   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    1.54 18.92   2.42 0.05   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    1.32 27.42   3.95 0.08   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.57  8.92   3.72 0.08   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.62 17.83   3.11 0.06   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    2.50 13.08   4.10 0.09   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.12 10.75   4.88 0.10   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.23 10.25   4.36 0.09   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
```

```
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.54 20.83   4.23 0.09   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.64 16.92   1.53 0.03   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    1.15 18.25   2.38  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    1.14 19.08   2.38  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    1.60 13.42   2.76  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60    2.65 11.50   3.00  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60    2.29 13.83   3.00  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65    2.81 14.33   3.03  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04    5.26 13.75   3.32  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04    5.24 14.00   3.32  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******    5.81 14.42   3.55  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******    5.98 14.08   3.55  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******    5.31 16.75   3.55  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    1.64 11.08   3.04 0.06   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    1.97 14.75   3.25 0.07   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.42 21.67   1.01 0.02   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    2.45 13.00   2.61 0.05   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97    2.64 13.33   1.79  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97    2.61 13.83   1.79  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.67  9.42   2.38 0.05   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.54 12.25   1.41 0.03   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32    2.97 13.17   1.84  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07    3.50 12.92   1.78  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07    3.30 14.08   1.78  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******    4.64 13.17   1.97  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******    6.53 13.58   2.25  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******    4.87 18.25   2.25  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   10.06 18.25   2.90  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   11.51 18.25   2.93  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   13.05 18.25   2.86  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   10.20 22.42   2.85  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   10.54 22.42   2.80  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   11.88 20.42   2.96  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   11.89 20.33   2.97  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   11.89 20.42   2.97  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   11.97 20.08   2.99  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   11.88 21.42   2.98  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   11.89 21.33   3.00  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 48.05 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\192693c6-d184-4e4b-8879-277eb
    remark: 2-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    0.92  9.17   4.29 0.09   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   11.89 21.33   3.01  n/a   0.000
*
================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V  V   I      SS   U   U  A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c3b4ef54-864e-4687-b8b4-b3dab92ebe75\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\c3b4ef54-864e-4687-b8b4-b3dab92ebe75\scenar


DATE: 05/13/2022                          TIME: 11:32:22

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_24 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.84 15.33   7.83 0.14   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.28 16.50   6.85 0.12   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    3.52 17.08   7.53 0.13   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    3.10 20.50   6.71 0.12   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005] 0105  3  5.0 4367.09    6.25 18.33   7.06  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    6.24 18.50   7.06  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.26 16.50   6.04 0.11   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.63 32.75   3.81 0.07   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    2.49 21.92   5.48 0.10   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    2.59 27.33   4.45 0.08   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    2.14 35.33   6.47 0.11   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.78 14.75   6.27 0.11   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.96 26.08   5.44 0.09   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    3.28 19.17   6.80 0.12   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.45 16.50   7.86 0.14   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.63 16.00   7.15 0.12   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.84 28.83   6.97 0.12   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.14 25.58   3.14 0.05   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    1.95 26.58   4.35  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    1.94 27.33   4.35  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    2.42 24.67   4.89  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60    3.52 17.25   5.23  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    3.16 21.08   5.23  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65    4.02 23.67   5.27  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04    7.10 20.33   5.69  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    7.09 20.67   5.69  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******    8.05 22.25   6.02  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******    8.29 21.92   6.03  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    7.93 25.92   6.02  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    2.24 16.75   5.34 0.09   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    2.78 21.92   5.63 0.10   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.93 30.17   2.39 0.04   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    3.36 19.00   4.73 0.08   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97    3.72 19.83   3.53  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    3.71 20.42   3.53  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.97 15.17   4.40 0.08   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.80 17.67   2.97 0.05   0.000
    [CN=50.1         ]
```

```
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    4.19 19.58   3.61  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    4.94 19.17   3.52  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    4.82 20.75   3.52  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    6.55 19.33   3.80  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    9.18 20.08   4.20  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    7.60 30.58   4.19  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   14.82 30.58   5.11  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   16.78 25.83   5.15  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   19.34 26.00   5.05  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   16.84 31.92   5.04  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   17.47 31.92   4.98  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   19.33 29.08   5.20  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   19.36 29.00   5.21  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   19.36 29.00   5.21  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   19.58 28.25   5.23  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   19.46 29.75   5.23  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   19.50 29.67   5.25  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 57.35 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\7fe663ce-be49-4053-aff8-b1d83
    remark: 2-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    1.23 15.00   7.06 0.12   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   19.54 29.42   5.27  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\549249e5-a37e-48fe-8e77-63d154987c3f\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\549249e5-a37e-48fe-8e77-63d154987c3f\scenar


DATE: 05/13/2022                          TIME: 11:32:23

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 2-Year_6 hour SCS_2022        **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.40  6.50   2.41 0.06   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    0.56  7.25   1.94 0.05   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    1.56  7.75   2.26 0.06   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    1.16  9.92   1.87 0.05   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    2.59  8.42   2.04  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    2.58  8.67   2.04  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.11  7.25   1.57 0.04   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.12 20.67   0.67 0.02   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    0.79 10.75   1.32 0.03   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    0.59 15.00   0.90 0.02   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    0.62 23.67   1.84 0.05   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.34  6.17   1.68 0.04   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.27 13.92   1.31 0.03   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    1.29  9.08   1.92 0.05   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
```

```
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    0.67  7.25   2.43 0.06   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    0.74  6.92   2.08 0.05   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.26 17.00   2.00 0.05   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.19 12.92   0.43 0.01   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    0.43 14.83   0.92  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    0.42 16.00   0.92  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    0.76  8.00   1.15  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    1.46  7.33   1.29  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    1.05  9.67   1.29  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    1.26 10.17   1.30  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04    2.54  9.50   1.46  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    2.52  9.92   1.46  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******    2.76 10.25   1.60  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******    2.83  9.92   1.60  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    2.33 13.17   1.60  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    0.85  7.42   1.26 0.03   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    0.89 10.75   1.39 0.04   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.07 17.75   0.17 0.00   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    1.07  8.92   1.01 0.03   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    1.10  9.00   0.58  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    1.06  9.75   0.58  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    0.35  6.50   0.88 0.02   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.18  8.00   0.37 0.01   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    1.20  9.00   0.60  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    1.36  8.75   0.57  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    1.19 10.50   0.57  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    1.80  9.17   0.68  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    2.65  9.58   0.83  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    1.58 13.83   0.83  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******    3.91 13.50   1.22  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******    4.61 13.08   1.23  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******    5.18 13.17   1.18  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******    4.07 18.58   1.18  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******    4.18 18.58   1.15  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******    4.87 15.92   1.24  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******    4.87 15.83   1.25  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******    4.87 15.83   1.25  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******    4.92 15.17   1.26  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******    4.89 16.33   1.26  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******    4.89 16.25   1.26  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 38.28 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d08b7bf7-8d89-4355-b484-15090
    remark: 2-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    0.56  6.33   2.04 0.05   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******    4.90 16.25   1.27  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\64be4c81-7d50-4bd5-9c10-9f2e2fde101d\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\64be4c81-7d50-4bd5-9c10-9f2e2fde101d\scenar


DATE: 05/13/2022                          TIME: 11:32:23

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 50-Year_12 hour AES_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
```

```
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.55  6.92  24.57 0.26   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    5.90  7.67  22.55 0.24   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   15.25  8.17  23.96 0.25   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   13.33 10.33  22.26 0.24   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   27.41  8.92  22.98  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   27.34  9.17  22.98  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.26  7.67  20.83 0.22   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.74 20.75  15.87 0.17   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   11.40 11.00  19.61 0.21   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   11.19 15.17  17.32 0.18   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    7.31 23.83  21.90 0.23   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.63  6.42  21.33 0.23   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.93 14.17  19.52 0.21   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   14.47  9.50  22.45 0.24   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    6.19  7.75  24.61 0.26   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    7.31  7.33  23.17 0.24   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.95 17.25  22.83 0.24   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    6.11 12.92  14.18 0.15   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    8.76 13.92  16.90  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    8.73 14.42  16.90  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   11.21 10.17  18.09  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   17.28  8.33  18.85  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   14.63 10.92  18.85  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   18.16 11.42  18.99  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   31.88 10.33  19.93  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   31.78 10.75  19.93  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   35.09 11.17  20.68  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   35.75 10.83  20.70  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   30.82 14.50  20.70  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   11.83  7.75  19.31 0.20   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   12.51 11.08  19.95 0.21   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    5.31 17.42  12.72 0.13   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   18.06  9.17  17.95 0.19   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
```

```
    ADD [  0020+  0021]  0109  3  5.0 7043.97   20.78  9.67  15.26  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   20.58 10.25  15.26  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    5.80  6.67  17.21 0.18   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    5.98  8.08  13.75 0.15   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   23.07  9.25  15.43  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   28.70  8.92  15.21  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   27.04 10.25  15.21  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   36.49  9.33  15.83  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   48.30  9.67  16.74  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   27.22 15.58  16.73  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   57.89 15.00  18.72  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   67.16 14.17  18.80  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   78.27 14.33  18.60  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   62.60 20.33  18.59  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   65.34 20.33  18.45  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   70.38 18.50  18.94  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   70.41 18.50  18.94  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   70.41 18.50  18.94  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   70.60 18.33  19.00  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   70.16 19.67  19.00  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   70.16 19.67  19.04  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 94.70 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\ad10a550-678f-44e8-ba28-65ff6
    remark: 50-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    5.46  6.67  22.97 0.24   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   70.17 19.67  19.09  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\cb7b92cf-a0ae-4323-996f-acf5585fb233\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\cb7b92cf-a0ae-4323-996f-acf5585fb233\scenar


DATE: 05/13/2022                          TIME: 11:32:24

USER:


COMMENTS: _____________________________________________________________
```

```
  ************************************************
  ** SIMULATION : 50-Year_12 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    3.51  9.00  24.65 0.26   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    5.60 10.08  22.62 0.24   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   14.51 10.75  24.04 0.25   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   12.96 13.33  22.34 0.24   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   26.13 11.83  23.05  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   26.09 12.08  23.05  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.19 10.00  20.90 0.22   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    2.74 23.75  15.91 0.17   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   11.13 14.08  19.68 0.21   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   11.12 18.25  17.39 0.18   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    7.32 26.92  21.89 0.23   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    3.71  8.42  21.40 0.23   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
```

```
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    3.90 17.17  19.59 0.21   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   13.91 12.42  22.53 0.24   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    5.92 10.17  24.69 0.26   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    7.02  9.58  23.25 0.25   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    2.94 20.33  22.90 0.24   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    6.01 16.00  14.24 0.15   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    8.67 17.00  16.96  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    8.64 17.50  16.96  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   10.97 13.58  18.16  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   16.25 11.08  18.92  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   14.02 14.33  18.92  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   17.63 14.83  19.06  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   30.66 13.50  20.00  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   30.59 13.92  20.00  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   34.03 14.42  20.75  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   34.75 14.08  20.77  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   30.11 17.83  20.77  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   11.07 10.17  19.38 0.20   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   12.22 14.17  20.02 0.21   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    5.28 20.42  12.77 0.13   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   17.07 12.08  18.02 0.19   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   19.87 12.75  15.32  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   19.73 13.25  15.32  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    5.64  8.58  17.27 0.18   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    5.43 10.58  13.81 0.15   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   22.05 12.50  15.49  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   26.97 12.00  15.27  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   25.80 13.42  15.27  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   34.37 12.42  15.90  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   46.01 12.83  16.80  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   25.39 19.17  16.79  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   55.33 18.42  18.79  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   64.18 17.50  18.87  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   75.25 17.58  18.66  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   59.67 24.08  18.65  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   62.41 24.08  18.51  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   66.89 22.08  19.00  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   66.92 22.00  19.01  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   66.92 22.08  19.01  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   67.08 21.92  19.07  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   66.66 23.33  19.07  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   66.67 23.33  19.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 94.85 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\6a100195-a6d0-4fa7-a92e-0ac79
    remark: 50-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    5.48  8.75  23.05 0.24   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   66.67 23.33  19.16  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\593760da-bdc1-4c99-bb6f-7b2181583c60\scenar
  Summary filename:
```

C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\593760da-bdc1-4c99-bb6f-7b2181583c60\scenar

DATE: 05/13/2022 TIME: 11:32:25

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : 50-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    4.54 14.92  37.58 0.32   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    7.32 15.92  34.96 0.30   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   18.78 16.58  36.80 0.31   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   16.94 19.50  34.58 0.29   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   33.88 17.67  35.51  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   33.82 17.92  35.51  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    1.57 15.92  32.70 0.28   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    4.31 31.42  25.87 0.22   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   14.91 20.58  31.08 0.26   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   16.45 26.00  28.02 0.24   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   11.06 34.42  33.44 0.28   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    4.87 14.33  33.35 0.28   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    5.56 24.75  30.96 0.26   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   18.08 18.33  34.83 0.30   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    7.65 16.00  37.63 0.32   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    9.14 15.50  35.76 0.30   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    4.28 27.92  35.27 0.30   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    8.75 23.33  23.76 0.20   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   12.69 24.75  27.39  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   12.66 25.33  27.39  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   15.12 22.42  28.98  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   21.33 17.00  29.99  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   18.81 21.17  29.99  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   24.03 22.42  30.20  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   40.44 19.83  31.45  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   40.38 20.17  31.45  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   45.42 21.25  32.46  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   46.55 21.00  32.48  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   42.37 26.08  32.48  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   14.72 16.00  30.69 0.26   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   16.36 20.58  31.55 0.27   0.000
    [CN=56.1         ]
```

```
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    8.54 28.33  21.94 0.19   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   22.74 17.92  28.88 0.25   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   26.65 18.75  25.33  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   26.51 19.33  25.33  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    7.62 14.50  27.89 0.24   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    7.50 16.42  23.17 0.20   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   29.50 18.50  25.55  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   36.22 17.83  25.24  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   34.57 19.67  25.24  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   45.53 18.33  26.07  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   61.00 18.92  27.27  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   36.66 27.50  27.26  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   78.84 26.75  29.88  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   90.27 25.67  29.99  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  106.71 25.67  29.72  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   88.74 32.17  29.70  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   93.05 32.08  29.52  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  100.53 29.33  30.16  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  100.66 29.33  30.17  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  100.66 29.33  30.17  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  101.30 29.33  30.25  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  100.51 30.83  30.25  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  100.58 30.75  30.30  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=117.48 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\65a3d887-a3b6-4002-9464-36db2
    remark: 50-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    7.13 14.58  35.51 0.30   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  100.65 30.67  30.36  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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```

```
                    *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\76bc4348-3043-4e0a-8392-a4c227c57405\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\76bc4348-3043-4e0a-8392-a4c227c57405\scenar


DATE: 05/13/2022                          TIME: 11:32:25

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 50-Year_6 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    2.59  6.17  15.41 0.20   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    4.02  6.92  13.90 0.18   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   10.33  7.42  14.96 0.20   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    8.48  9.58  13.69 0.18   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   17.95  8.17  14.22  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   17.90  8.42  14.22  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.85  6.92  12.64 0.17   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.57 20.08   9.07 0.12   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    7.01 10.33  11.74 0.15   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    6.58 14.50  10.09 0.13   0.000
```

```
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    4.51 23.33  13.48 0.18   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    2.67  5.50  13.00 0.17   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.38 13.50  11.68 0.15   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    9.34  8.75  13.83 0.18   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    4.30  7.00  15.45 0.20   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    5.11  6.58  14.37 0.19   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.84 16.67  14.11 0.19   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    3.44 12.17   7.87 0.10   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    5.08 13.25   9.83  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    5.06 13.92   9.83  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    6.82  9.00  10.70  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   11.18  7.42  11.25  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60    9.12 10.00  11.25  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   11.20 10.50  11.34  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   20.12  9.58  12.01  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04   20.06  9.92  12.01  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   21.97 10.33  12.56  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******   22.37 10.00  12.57  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******   18.92 13.75  12.57  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    7.75  7.00  11.53 0.15   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    7.72 10.33  11.99 0.16   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.82 16.67   6.73 0.09   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   11.13  8.42  10.55 0.14   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97   12.53  8.75   8.59  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97   12.40  9.33   8.59  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    3.93  5.75  10.01 0.13   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    3.54  7.25   7.57 0.10   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   13.91  8.42   8.71  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07   17.25  8.00   8.56  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07   16.12  9.50   8.56  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******   22.22  8.50   9.01  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******   29.40  8.83   9.67  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******   17.50 23.75   9.66  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******   34.14 14.42  11.12  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******   39.76 13.58  11.18  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******   46.30 13.75  11.03  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******   36.27 20.00  11.02  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******   37.84 20.00  10.92  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******   40.77 18.00  11.27  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******   40.79 18.00  11.28  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******   40.79 18.00  11.28  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******   40.88 17.83  11.32  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******   40.64 19.25  11.32  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******   40.64 19.25  11.35  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 76.15 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\627b5787-14e1-43d2-87d9-d0ce9
    remark: 50-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    3.99  5.83  14.22 0.19   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******   40.64 19.25  11.38  n/a   0.000
*
================================================================================================


     V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
     V    V   I    SS     U   U   A A   L
      V  V    I     SS    U   U  AAAAA  L
```

```
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\1df9e554-7186-43ab-b6df-b9262ec96a21\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\1df9e554-7186-43ab-b6df-b9262ec96a21\scenar


DATE: 05/13/2022                          TIME: 11:32:25

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_12 hour AES_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.43  7.17   9.67 0.16   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.28  7.92   8.55 0.14   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    6.03  8.42   9.33 0.15   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    5.06 10.58   8.39 0.13   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005] 0105  3  5.0 4367.09   10.62  9.17   8.79  n/a   0.000
*
    CHANNEL[ 2:  0105]  1011  1  5.0 4367.09   10.60  9.42   8.79  n/a   0.000
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.47  7.92   7.62 0.12   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.87 21.08   5.06 0.08   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    4.08 11.25   6.97 0.11   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    3.75 15.50   5.78 0.09   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    2.76 24.17   8.25 0.13   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.40  6.67   7.89 0.13   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.40 14.42   6.92 0.11   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    5.53  9.75   8.50 0.14   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    2.48  7.92   9.70 0.16   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    2.87  7.58   8.90 0.14   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.13 17.50   8.70 0.14   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.83 13.33   4.23 0.07   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87    2.86 14.42   5.63  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87    2.84 15.08   5.63  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56    3.84 10.00   6.26  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60    6.34  8.42   6.66  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60    5.45 11.42   6.66  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65    6.70 11.42   6.71  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04   11.94 10.42   7.20  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04   11.90 10.75   7.20  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******   13.10 11.50   7.59  n/a   0.000
*
```

```
    ADD [  0110+  0011]  0110  1  5.0 *******   13.37 10.83   7.59  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   11.59 14.08   7.59  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    4.27  8.08   6.81 0.11   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    4.51 11.33   7.15 0.11   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    1.41 17.83   3.37 0.05   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    6.22  9.42   6.11 0.10   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    6.91  9.83   4.70  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    6.84 10.33   4.70  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.02  6.92   5.72 0.09   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    1.80  8.42   4.02 0.06   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    7.75  9.42   4.79  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    9.47  9.08   4.69  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    8.97 10.25   4.69  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   12.53  9.42   5.01  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   16.72  9.83   5.48  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   10.45 20.58   5.47  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   21.16 14.58   6.54  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   24.67 14.00   6.58  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   28.35 14.17   6.47  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   22.70 21.17   6.46  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   23.58 21.17   6.39  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   25.89 17.75   6.65  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   25.91 17.67   6.65  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   25.91 17.75   6.65  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   26.02 17.50   6.68  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   25.86 18.83   6.68  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   25.86 18.75   6.70  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\2ff49d53-597a-4fec-918d-a33f7
    remark: 5-Year_12 hour AES_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    2.15  6.92   8.79 0.14   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   25.86 18.75   6.73  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\b9aecd5d-4f1f-435e-bf9d-0ccb8f07a817\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\b9aecd5d-4f1f-435e-bf9d-0ccb8f07a817\scenar


DATE: 05/13/2022                          TIME: 11:32:26

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_12 hour SCS_2022       **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.33  9.25   9.67 0.16   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.07 10.42   8.55 0.14   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    5.55 11.00   9.33 0.15   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    4.85 13.58   8.39 0.13   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    9.92 12.17   8.79  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    9.91 12.33   8.79  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.42 10.42   7.62 0.12   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
```

```
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.87 24.08   5.05 0.08   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    3.93 14.33   6.97 0.11   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    3.69 18.58   5.78 0.09   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    2.75 27.17   8.22 0.13   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.29  8.58   7.89 0.13   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    1.38 17.50   6.92 0.11   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    5.22 12.75   8.50 0.14   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    2.28 10.42   9.70 0.16   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    2.61  9.92   8.90 0.14   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.12 20.58   8.70 0.14   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    1.78 16.42   4.23 0.07   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    2.81 17.50   5.63  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    2.79 18.17   5.63  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    3.70 13.58   6.26  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    5.79 11.25   6.66  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    5.25 14.17   6.66  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    6.45 14.17   6.71  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   11.41 13.50   7.20  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   11.38 14.25   7.20  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   12.66 14.42   7.59  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   12.95 14.25   7.59  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   11.39 17.17   7.59  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    3.79 10.58   6.81 0.11   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    4.35 14.42   7.15 0.11   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    1.39 20.92   3.37 0.05   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    5.75 12.50   6.11 0.10   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    6.46 13.00   4.70  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    6.41 13.50   4.70  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    1.74  8.92   5.72 0.09   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    1.54 11.25   4.02 0.06   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    7.25 12.67   4.79  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    8.71 12.42   4.69  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    8.40 13.42   4.69  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   11.52 12.50   5.01  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   15.63 13.00   5.48  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   10.58 23.58   5.47  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   20.71 17.67   6.54  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   24.10 17.08   6.58  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   27.73 17.25   6.47  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   22.29 24.83   6.46  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   23.16 24.83   6.39  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   25.31 20.92   6.64  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   25.33 20.83   6.65  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   25.33 20.83   6.65  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   25.46 20.50   6.68  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   25.30 21.92   6.68  n/a   0.000
```

```
*
    ADD [  1001+  0002]  0102  3  5.0 *******   25.30 21.92   6.70  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 62.40 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\d3fa6255-b2bb-4f42-9183-9cbbf
    remark: 5-Year_12 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    2.00  8.92   8.79 0.14   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   25.31 21.83   6.73  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d5215858-a61b-4c11-a8df-16eda613d067\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\d5215858-a61b-4c11-a8df-16eda613d067\scenar


DATE: 05/13/2022                          TIME: 11:32:26

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_24 hour SCS_2022      **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    1.78 15.08  15.65 0.20   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    2.79 16.25  14.13 0.18   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    7.39 16.83  15.19 0.20   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    6.61 20.08  13.91 0.18   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   13.26 18.00  14.45  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   13.24 18.25  14.45  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.58 16.17  12.85 0.17   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    1.53 32.08   9.17 0.12   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    5.58 21.25  11.94 0.16   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    6.00 26.58  10.27 0.13   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    4.44 34.83  13.43 0.18   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    1.77 14.50  13.22 0.17   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    2.12 25.42  11.88 0.15   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    7.02 18.75  14.05 0.18   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    3.03 16.25  15.69 0.20   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    3.51 15.75  14.60 0.19   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    1.73 28.42  14.31 0.19   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    2.92 24.50   8.03 0.10   0.000
    [CN=50.5         ]
```

```
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    4.56 25.67  10.01  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    4.54 26.25  10.01  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    5.55 23.92  10.89  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    7.89 17.17  11.44  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    7.13 21.33  11.44  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    9.08 22.75  11.54  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04   15.57 20.17  12.22  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04   15.55 20.50  12.22  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******   17.58 21.83  12.77  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******   18.07 21.50  12.78  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******   16.89 25.92  12.77  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    5.25 16.42  11.73 0.15   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    6.17 21.25  12.20 0.16   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    2.67 29.17   6.87 0.09   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    8.01 18.42  10.73 0.14   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    9.17 19.25   8.75  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    9.14 19.83   8.75  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    2.50 14.75  10.19 0.13   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    2.28 16.92   7.73 0.10   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32   10.26 19.00   8.88  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07   12.35 18.25   8.73  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07   12.00 20.00   8.73  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******   16.10 18.58   9.18  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******   21.86 19.33   9.84  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******   14.69 26.92   9.84  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******   31.54 26.42  11.31  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   36.19 25.58  11.37  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   42.16 25.75  11.22  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   35.88 31.42  11.21  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   37.41 31.42  11.10  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   41.22 29.00  11.47  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   41.29 28.92  11.47  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   41.29 29.00  11.47  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   41.65 28.50  11.51  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   41.37 30.00  11.51  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   41.43 29.83  11.54  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 76.68 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\dd6823f0-1169-4c55-a70c-64815
    remark: 5-Year_24 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    2.70 14.83  14.45 0.19   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   41.49 29.75  11.58  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\245d2fe6-7745-4588-8070-f9492dab431b\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\245d2fe6-7745-4588-8070-f9492dab431b\scenar


DATE: 05/13/2022                          TIME: 11:32:27

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 5-Year_6 hour SCS_2022        **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0002  1  5.0  319.15    0.92  6.33   5.51 0.11   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0003  1  5.0  678.55    1.36  7.08   4.72 0.09   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0005  1  5.0 1839.41    3.63  7.58   5.27 0.10   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0004  1  5.0 2527.68    2.86  9.75   4.61 0.09   0.000
```

```
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09    6.19  8.25   4.89  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09    6.17  8.50   4.89  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0006  1  5.0  154.12    0.27  7.08   4.08 0.08   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0007  1  5.0 1892.08    0.41 20.33   2.39 0.05   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0008  1  5.0 2695.33    2.17 10.50   3.64 0.07   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0009  1  5.0 4750.07    1.86 14.75   2.85 0.06   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0010  1  5.0 4353.13    1.52 23.50   4.54 0.09   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0011  1  5.0  330.21    0.86  5.83   4.27 0.08   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0012  1  5.0 1349.05    0.74 13.67   3.61 0.07   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0013  1  5.0 2374.39    3.16  8.92   4.69 0.09   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0016  1  5.0  664.69    1.54  7.17   5.54 0.11   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0017  1  5.0  759.04    1.76  6.75   4.97 0.10   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0018  1  5.0 1140.91    0.63 16.83   4.83 0.10   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0019  1  5.0 2493.96    0.81 12.50   1.86 0.04   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87    1.39 13.92   2.79  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87    1.38 14.67   2.79  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56    2.04  8.50   3.22  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60    3.65  7.33   3.48  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60    2.91  9.42   3.48  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65    3.50  9.92   3.51  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04    6.61  9.33   3.83  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04    6.58  9.67   3.83  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******    7.18 10.00   4.08  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******    7.35  9.67   4.09  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******    6.48 12.33   4.09  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0014  1  5.0 1578.34    2.37  7.17   3.53 0.07   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0015  1  5.0 2931.47    2.42 10.58   3.76 0.07   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0020  1  5.0 3624.90    0.54 17.08   1.29 0.03   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0021  1  5.0 3419.07    3.23  8.58   3.06 0.06   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97    3.48  8.83   2.15  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97    3.43  9.42   2.15  n/a   0.000
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0022  1  5.0  656.35    1.09  6.17   2.81 0.06   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0023  1  5.0 1135.75    0.81  7.58   1.73 0.03   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32    3.89  8.50   2.21  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07    4.66  8.25   2.15  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07    4.31  9.58   2.15  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******    6.20  8.67   2.36  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******    8.45  9.00   2.67  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******    6.08 15.25   2.66  n/a   0.000
```

```
*
    ADD [  1004+  1007]  0106  3  5.0 *******   12.02 15.25   3.38  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******   13.56 15.25   3.40  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******   15.41 15.25   3.32  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******   12.07 18.58   3.32  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******   12.48 18.67   3.27  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******   13.88 16.92   3.44  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******   13.89 16.92   3.45  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******   13.89 16.92   3.45  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******   13.95 16.83   3.47  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******   13.85 17.92   3.47  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******   13.85 17.92   3.48  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 50.25 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\8a301a2f-096e-4876-908f-674d8
    remark: 5-Year_6 hour SCS_2022
*
 ** CALIB NASHYD         0001  1  5.0  492.25    1.36  6.08   4.89 0.10   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******   13.85 17.92   3.50  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V  V   I      SS   U   U A   A  L
          VV    I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7dca1214-6868-49a1-aadb-cf8d1d70ba6f\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\7dca1214-6868-49a1-aadb-cf8d1d70ba6f\scenar


DATE: 05/13/2022                          TIME: 11:32:27

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 99 - 12 hour Hazel           **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0002  1  5.0  319.15   15.09 12.58 104.66 0.49   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0003  1  5.0  678.55   25.87 13.25  99.94 0.47   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   64.65 13.67 103.25 0.49   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   58.56 15.67  99.25 0.47   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  118.47 14.33 100.94  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  118.16 14.58 100.94  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0006  1  5.0  154.12    5.77 13.17  95.77 0.45   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   14.27 25.92  82.65 0.39   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   53.28 16.33  92.73 0.44   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   55.82 20.42  86.88 0.41   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   32.53 29.08  97.04 0.46   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0011  1  5.0  330.21   16.83 12.17  96.97 0.46   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   18.48 19.42  92.51 0.44   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   63.23 14.83  99.71 0.47   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD         0016  1  5.0  664.69   25.98 13.25 104.72 0.49   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
```

```
 ** CALIB NASHYD        0017  1  5.0  759.04   31.73 12.92 101.39 0.48   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0018  1  5.0 1140.91   12.91 22.50 100.53 0.47   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0019  1  5.0 2493.96   33.53 18.17  78.34 0.37   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019] 0113  3  5.0 3634.87   45.09 18.92  85.34  n/a   0.000
*
    CHANNEL[ 2:  0113]  1010  1  5.0 3634.87   44.89 19.58  85.34  n/a   0.000
*
    ADD [  1010+  0016] 0112  3  5.0 4299.56   54.32 16.08  88.33  n/a   0.000
*
    ADD [  0112+  0017] 0112  1  5.0 5058.60   79.42 13.92  90.29  n/a   0.000
*
    CHANNEL[ 2:  0112]  1009  1  5.0 5058.60   67.93 16.58  90.29  n/a   0.000
*
    ADD [  1009+  0012] 0111  3  5.0 6407.65   85.00 17.08  90.76  n/a   0.000
*
    ADD [  0111+  0013] 0111  1  5.0 8782.04  144.15 15.83  93.18  n/a   0.000
*
    CHANNEL[ 2:  0111]  1008  1  5.0 8782.04  143.72 16.25  93.18  n/a   0.000
*
    ADD [  0010+  1008] 0110  3  5.0 *******  159.22 16.67  95.14  n/a   0.000
*
    ADD [  0110+  0011] 0110  1  5.0 *******  161.79 16.33  95.18  n/a   0.000
*
    CHANNEL[ 2:  0110]  1007  1  5.0 *******  140.90 20.00  95.17  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0014  1  5.0 1578.34   56.01 13.25  92.01 0.43   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0015  1  5.0 2931.47   58.01 16.33  93.63 0.44   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0020  1  5.0 3624.90   31.48 22.58  75.66 0.36   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0021  1  5.0 3419.07   87.97 14.50  88.53 0.42   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021] 0109  3  5.0 7043.97  105.03 15.08  81.94  n/a   0.000
*
    CHANNEL[ 2:  0109]  1006  1  5.0 7043.97  104.03 15.67  81.94  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0022  1  5.0  656.35   29.78 12.25  86.62 0.41   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0023  1  5.0 1135.75   33.49 13.42  77.15 0.36   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32  115.85 14.67  82.34  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07  147.34 14.17  81.67  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07  138.17 15.67  81.67  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******  182.62 14.75  83.24  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******  237.63 15.00  85.52  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******  139.86 20.67  85.51  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******  280.45 20.33  90.36  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******  323.54 19.58  90.58  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******  379.05 19.67  90.07  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******  308.81 25.33  90.05  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******  323.06 25.42  89.69  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******  346.21 23.75  90.90  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******  346.36 23.75  90.92  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******  346.36 23.75  90.92  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******  347.15 23.67  91.07  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******  344.80 24.92  91.06  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******  344.83 24.92  91.17  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=212.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\14dff625-25b0-45b3-8e05-9161e
    remark: 12 hour Hazel
*
 ** CALIB NASHYD        0001  1  5.0  492.25   24.15 12.42 100.93 0.48   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******  344.85 24.92  91.28  n/a   0.000
*
================================================================================================================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\80e447a5-1004-4ec5-a77a-e736667451e4\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\80e447a5-1004-4ec5-a77a-e736667451e4\scenar


DATE: 05/13/2022                          TIME: 11:32:28

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 99 - 12 hour Timmins          **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD        0002  1  5.0  319.15   10.58 10.92  89.96 0.47   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
```

```
*
 ** CALIB NASHYD         0003  1  5.0  678.55   19.25 12.00  85.62 0.44   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0005  1  5.0 1839.41   49.90 12.50  88.67 0.46   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0004  1  5.0 2527.68   48.08 14.42  84.98 0.44   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09   94.84 13.25  86.54  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09   94.64 13.50  86.54  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0006  1  5.0  154.12    4.25 11.92  81.79 0.42   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   12.00 24.67  69.89 0.36   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0008  1  5.0 2695.33   43.90 15.08  79.00 0.41   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0009  1  5.0 4750.07   46.76 19.17  73.66 0.38   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   27.75 27.75  83.25 0.43   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0011  1  5.0  330.21   11.14 10.08  82.89 0.43   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   15.51 18.17  78.80 0.41   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0013  1  5.0 2374.39   51.12 13.67  85.41 0.44   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0016  1  5.0  664.69   19.51 12.00  90.03 0.47   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0017  1  5.0  759.04   22.99 11.50  86.95 0.45   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   10.98 21.25  86.18 0.45   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   27.65 17.00  65.90 0.34   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   37.55 17.75  72.29  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   37.39 18.42  72.29  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56   45.25 15.08  75.03  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60   63.11 13.08  76.82  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60   56.55 15.42  76.82  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65   71.02 15.92  77.24  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  118.95 14.75  79.45  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  118.64 15.08  79.45  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  132.45 15.58  81.23  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  134.97 15.17  81.27  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  120.40 18.50  81.26  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0014  1  5.0 1578.34   41.38 12.08  78.34 0.41   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0015  1  5.0 2931.47   47.86 15.17  79.82 0.41   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   26.15 21.33  63.37 0.33   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0021  1  5.0 3419.07   69.68 13.42  75.16 0.39   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97   84.59 14.00  69.11  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97   83.90 14.58  69.11  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0022  1  5.0  656.35   19.50 10.33  73.41 0.38   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
```

```
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   24.64 12.33  64.83 0.34   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022] 0108  3  5.0 7700.32   93.68 13.58  69.48  n/a   0.000
*
    ADD [  0108+  0023] 0108  1  5.0 8836.07  116.94 13.25  68.88  n/a   0.000
*
    CHANNEL[ 2:  0108]  1005  1  5.0 8836.07  111.40 14.50  68.88  n/a   0.000
*
    ADD [  1005+  0014] 0107  3  5.0 *******  145.60 13.67  70.32  n/a   0.000
*
    ADD [  0107+  0015] 0107  1  5.0 *******  191.57 14.00  72.40  n/a   0.000
*
    CHANNEL[ 2:  0107]  1004  1  5.0 *******  121.82 19.17  72.39  n/a   0.000
*
    ADD [  1004+  1007] 0106  3  5.0 *******  241.99 18.83  76.85  n/a   0.000
*
    ADD [  0106+  0008] 0106  1  5.0 *******  278.63 18.17  77.04  n/a   0.000
*
    ADD [  0106+  0009] 0106  3  5.0 *******  325.02 18.25  76.58  n/a   0.000
*
    CHANNEL[ 2:  0106]  1003  1  5.0 *******  264.96 23.83  76.56  n/a   0.000
*
    ADD [  1003+  0007] 0199  3  5.0 *******  276.92 23.92  76.23  n/a   0.000
*
    ADD [  1011+  0199] 0104  3  5.0 *******  298.07 22.17  77.34  n/a   0.000
*
    ADD [  0104+  0006] 0104  1  5.0 *******  298.24 22.17  77.36  n/a   0.000
*
    CHANNEL[ 2:  0104]  1002  1  5.0 *******  298.24 22.17  77.36  n/a   0.000
*
    ADD [  1002+  0003] 0103  3  5.0 *******  299.11 22.08  77.49  n/a   0.000
*
    CHANNEL[ 2:  0103]  1001  1  5.0 *******  297.17 23.33  77.49  n/a   0.000
*
    ADD [  1001+  0002] 0102  3  5.0 *******  297.21 23.33  77.59  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=193.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\1d9d82a9-e56a-4f32-a554-2bd09
    remark: 12 hour Timmins
*
 ** CALIB NASHYD         0001  1  5.0  492.25   16.46 10.50  86.53 0.45   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102] 0101  3  5.0 *******  297.24 23.33  77.69  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\03fb7a2b-d4d3-4d8b-ac58-1f934975b7df\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\03fb7a2b-d4d3-4d8b-ac58-1f934975b7df\scenar


DATE: 05/13/2022                          TIME: 11:32:28

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_06 Hour PMP               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     ---------------------
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0002  1  5.0  319.15   34.12  6.58 203.15 0.62   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0003  1  5.0  678.55   56.96  7.25 196.63 0.60   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  138.84  7.75 201.22 0.61   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  121.11  9.92 195.67 0.59   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005] 0105  3  5.0 4367.09  248.00  8.50 198.01  n/a   0.000
*
    CHANNEL[ 2:  0105]  1011  1  5.0 4367.09  247.30  8.75 198.01  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0006  1  5.0  154.12   12.83  7.25 190.77 0.58   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   29.80 20.33 171.95 0.52   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  111.24 10.58 186.45 0.57   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  116.10 14.75 178.02 0.54   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   64.53 23.58 192.78 0.58   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0011  1  5.0  330.21   39.58  6.08 192.45 0.58   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   37.90 13.75 186.13 0.56   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
```

```
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  132.36  9.08 196.31 0.60   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0016  1  5.0  664.69   56.56  7.33 203.22 0.62   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0017  1  5.0  759.04   70.72  6.92 198.64 0.60   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   25.67 17.00 197.50 0.60   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   72.28 12.42 165.38 0.50   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   94.93 13.25 175.49  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   94.47 13.92 175.49  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  112.61 10.42 179.78  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  166.47  8.00 182.61  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  138.17 11.00 182.61  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  173.33 11.58 183.35  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  295.44 10.17 186.85  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  294.56 10.50 186.85  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  323.65 10.92 189.69  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  328.28 10.67 189.76  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  279.29 14.75 189.75  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  125.19  7.33 185.42 0.56   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  120.77 10.67 187.74 0.57   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   68.05 16.92 162.19 0.49   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  190.72  8.67 180.40 0.55   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  225.79  9.25 171.07  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  223.30  9.83 171.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0022  1  5.0  656.35   70.83  6.17 177.64 0.54   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   77.14  7.50 163.60 0.50   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  247.12  8.83 171.63  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  318.32  8.33 170.60  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  294.14 10.00 170.60  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  388.11  9.00 172.84  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  502.06  9.33 176.11  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  263.30 15.83 176.10  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  541.36 15.25 182.96  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  625.83 14.25 183.27  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  741.72 14.33 182.55  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  589.12 20.83 182.52  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  618.90 20.83 182.00  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  654.96 19.25 183.73  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  655.13 19.25 183.75  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  655.13 19.25 183.75  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  656.00 19.17 183.97  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  651.48 20.58 183.96  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  651.51 20.58 184.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\9c8a0228-12a7-44c8-9ddf-b81d5
    remark: PMP_6 Hour PMP
*
 ** CALIB NASHYD         0001  1  5.0  492.25   55.68  6.33 197.99 0.60   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  651.52 20.58 184.27  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\0c642a7e-916f-4e5f-86e5-17d0546b1a8e\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\0c642a7e-916f-4e5f-86e5-17d0546b1a8e\scenar


DATE: 05/13/2022                          TIME: 11:32:29

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_06 hour SCS               **
```

```
 ************************************************

 W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                 min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     -------------------
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0002  1  5.0  319.15   34.64  5.75 203.15 0.62   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0003  1  5.0  678.55   57.32  6.58 196.63 0.60   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  139.68  7.08 201.22 0.61   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  121.48  9.33 195.67 0.59   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  248.94  7.92 198.01  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  248.13  8.17 198.00  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0006  1  5.0  154.12   12.90  6.50 190.77 0.58   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   29.81 19.75 171.99 0.52   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  111.48 10.00 186.45 0.57   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  116.19 14.17 178.02 0.54   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   64.56 23.00 192.90 0.59   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0011  1  5.0  330.21   40.95  5.17 192.45 0.58   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   37.95 13.17 186.13 0.56   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  132.86  8.42 196.31 0.60   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0016  1  5.0  664.69   56.98  6.67 203.22 0.62   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0017  1  5.0  759.04   71.30  6.25 198.64 0.60   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   25.70 16.42 197.51 0.60   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   72.34 11.83 165.38 0.50   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87   94.96 12.58 175.49  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87   94.46 13.33 175.49  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  112.51  9.83 179.78  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  166.46  7.33 182.61  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  130.49 11.17 182.61  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  167.07 11.58 183.35  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  285.30  9.75 186.85  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  284.33 10.17 186.85  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  314.65 10.58 189.69  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  318.49 10.33 189.76  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  259.23 15.50 189.75  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  125.69  6.67 185.42 0.56   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  121.03 10.00 187.74 0.57   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   68.07 16.25 162.20 0.49   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=329.60 mm ]
```

```
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  191.19  8.08 180.40 0.55   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  226.24  8.58 171.07  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  223.05  9.33 171.07  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0022  1  5.0  656.35   72.37  5.33 177.64 0.54   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   77.12  6.83 163.60 0.50   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  245.51  8.33 171.63  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  315.55  7.75 170.60  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  281.11  9.83 170.60  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  366.72  8.58 172.84  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  483.14  8.92 176.11  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  232.60 16.42 176.10  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  491.16 15.92 182.95  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  565.54 14.50 183.27  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  681.63 14.50 182.55  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  528.90 22.00 182.52  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  558.20 21.92 182.00  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  582.52 20.33 183.73  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  582.59 20.33 183.75  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  582.58 20.42 183.75  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  582.96 20.33 183.97  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  579.34 21.83 183.96  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  579.34 21.83 184.11  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=329.60 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\064cc3cb-a27a-4253-8a6d-a81fc
    remark: PMP_6 hour SCS
*
 ** CALIB NASHYD         0001  1  5.0  492.25   56.91  5.50 197.99 0.60   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  579.35 21.83 184.27  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\5c71d067-eddc-4663-b296-c6307c03f4e4\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\5c71d067-eddc-4663-b296-c6307c03f4e4\scenar

DATE: 05/13/2022                          TIME: 11:32:29

USER:

COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_12 hour AES                **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0002  1  5.0  319.15   33.07  6.33 240.68 0.65   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0003  1  5.0  678.55   58.88  7.17 233.66 0.63   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  147.49  7.67 238.60 0.64   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  137.46  9.75 232.62 0.63   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  273.79  8.42 235.14  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  273.12  8.67 235.14  n/a   0.000
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0006  1  5.0  154.12   13.23  7.08 227.33 0.61   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   35.62 20.08 206.81 0.56   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  127.95 10.42 222.65 0.60   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  137.29 14.58 213.48 0.57   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   76.41 23.25 229.30 0.62   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                10.0
```

```
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0011  1  5.0  330.21   36.24  5.83 229.14 0.62   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   44.50 13.58 222.30 0.60   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  147.72  8.92 233.32 0.63   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0016  1  5.0  664.69   58.54  7.17 240.75 0.65   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0017  1  5.0  759.04   71.19  6.75 235.82 0.63   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   30.20 16.67 234.60 0.63   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   85.28 12.25 199.65 0.54   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  112.15 13.00 210.65  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  111.62 13.67 210.65  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  132.36 10.58 215.30  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  184.64  8.17 218.38  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  155.53 11.50 218.38  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  198.40 11.92 219.21  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  331.36 10.25 223.02  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  330.48 10.58 223.02  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  368.14 11.08 226.11  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  373.63 10.75 226.18  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  312.48 15.50 226.18  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  130.18  7.17 221.53 0.60   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  138.91 10.50 224.05 0.60   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   81.57 16.67 196.34 0.53   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  212.11  8.58 216.08 0.58   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  256.97  9.25 205.96  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  254.31  9.83 205.96  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0022  1  5.0  656.35   66.21  6.00 213.07 0.57   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   81.92  7.42 197.69 0.53   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  281.78  8.92 206.57  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  357.42  8.42 205.43  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  332.26 10.08 205.43  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  431.31  9.00 207.87  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  564.94  9.33 211.42  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  279.40 16.58 211.40  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  590.86 16.00 218.82  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  680.96 14.67 219.17  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  818.23 14.67 218.38  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  630.51 22.25 218.36  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  665.58 22.17 217.79  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  695.70 20.50 219.66  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  695.80 20.50 219.69  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  695.80 20.50 219.69  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  696.35 20.50 219.92  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  691.89 22.00 219.92  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  691.91 22.00 220.08  n/a   0.000
*
    READ STORM                 10.0
    [ Ptot=371.90 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\bd03641a-c409-4351-aac1-b1a32
    remark: PMP_12 hour AES
*
 ** CALIB NASHYD         0001  1  5.0  492.25   52.56  6.08 235.13 0.63   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  691.91 22.00 220.25  n/a   0.000
*
================================================================================================

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                ***** S U M M A R Y   O U T P U T *****
```

```
  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\4942c3e0-b677-407e-8bc9-6b81b320ecc1\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\4942c3e0-b677-407e-8bc9-6b81b320ecc1\scenar


DATE: 05/13/2022                          TIME: 11:32:30

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_12 Hour PMP               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms


     START @  0.00 hrs
     -------------------
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0002  1  5.0  319.15   35.22  8.58 240.77 0.65   0.000
   [CN=60.1         ]
   [ N = 3.0:Tp 2.51]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0003  1  5.0  678.55   59.01  9.50 233.75 0.63   0.000
   [CN=58.4         ]
   [ N = 3.0:Tp 3.26]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  145.27 10.08 238.69 0.64   0.000
   [CN=59.6         ]
   [ N = 3.0:Tp 3.78]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  134.50 12.75 232.71 0.63   0.000
   [CN=58.1         ]
   [ N = 3.0:Tp 6.00]
*
   ADD [  0004+  0005]  0105  3  5.0 4367.09  265.47 11.17 235.23  n/a   0.000
*
   CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  265.00 11.42 235.23  n/a   0.000
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0006  1  5.0  154.12   13.28  9.42 227.41 0.61   0.000
   [CN=56.9         ]
   [ N = 3.0:Tp 3.18]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   35.54 23.17 206.63 0.56   0.000
   [CN=52.3         ]
   [ N = 3.0:Tp16.43]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  125.64 13.50 222.74 0.60   0.000
   [CN=55.8         ]
   [ N = 3.0:Tp 6.67]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  136.47 17.67 213.56 0.57   0.000
   [CN=53.6         ]
   [ N = 3.0:Tp10.88]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   76.32 26.33 228.55 0.61   0.000
   [CN=58.1         ]
   [ N = 3.0:Tp19.78]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0011  1  5.0  330.21   41.50  8.00 229.23 0.62   0.000
   [CN=57.3         ]
   [ N = 3.0:Tp 1.99]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   44.18 16.67 222.38 0.60   0.000
   [CN=55.7         ]
   [ N = 3.0:Tp 9.88]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  143.73 11.75 233.41 0.63   0.000
   [CN=58.3         ]
   [ N = 3.0:Tp 5.13]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0016  1  5.0  664.69   58.63  9.50 240.84 0.65   0.000
   [CN=60.1         ]
   [ N = 3.0:Tp 3.33]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0017  1  5.0  759.04   72.93  9.00 235.91 0.63   0.000
   [CN=58.9         ]
   [ N = 3.0:Tp 2.91]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   30.10 19.83 234.63 0.63   0.000
   [CN=58.7         ]
   [ N = 3.0:Tp13.14]
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   84.30 15.33 199.73 0.54   0.000
   [CN=50.5         ]
   [ N = 3.0:Tp 8.49]
*
   ADD [  0018+  0019]  0113  3  5.0 3634.87  111.12 16.17 210.74  n/a   0.000
*
   CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  110.58 16.83 210.74  n/a   0.000
*
   ADD [  1010+  0016]  0112  3  5.0 4299.56  130.39 14.00 215.39  n/a   0.000
*
   ADD [  0112+  0017]  0112  1  5.0 5058.60  176.26 10.75 218.47  n/a   0.000
*
   CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  156.47 14.33 218.47  n/a   0.000
*
   ADD [  1009+  0012]  0111  3  5.0 6407.65  198.67 14.83 219.29  n/a   0.000
*
   ADD [  0111+  0013]  0111  1  5.0 8782.04  329.32 13.17 223.11  n/a   0.000
*
   CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  328.55 13.58 223.11  n/a   0.000
*
   ADD [  0010+  1008]  0110  3  5.0 *******  365.86 14.17 226.20  n/a   0.000
*
   ADD [  0110+  0011]  0110  1  5.0 *******  372.69 13.75 226.27  n/a   0.000
*
   CHANNEL[ 2:  0110]   1007  1  5.0 *******  322.95 17.92 226.26  n/a   0.000
*
   READ STORM                15.0
   [ Ptot=372.00 mm ]
   fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
   remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  129.85  9.50 221.62 0.60   0.000
   [CN=55.5         ]
   [ N = 3.0:Tp 3.26]
*
```

```
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  136.46 13.50 224.13 0.60   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   81.23 19.75 196.38 0.53   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  205.51 11.33 216.16 0.58   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  249.00 12.17 206.05  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  247.15 12.83 206.05  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0022  1  5.0  656.35   73.83  8.08 213.16 0.57   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   80.41  9.75 197.78 0.53   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  272.77 12.00 206.65  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  342.84 11.25 205.51  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  324.14 13.00 205.51  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  418.26 11.92 207.95  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  549.07 12.33 211.51  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  322.84 18.50 211.49  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  645.33 18.25 218.91  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  741.76 17.25 219.26  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  878.09 17.33 218.47  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  712.03 23.50 218.45  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  747.56 23.42 217.88  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  793.52 21.83 219.75  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  793.80 21.83 219.78  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  793.80 21.83 219.78  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  795.29 21.75 220.01  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  790.28 23.08 220.00  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  790.34 23.08 220.16  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=372.00 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\5f497ed7-c849-40c3-972e-87808
    remark: PMP_12 Hour PMP
*
 ** CALIB NASHYD         0001  1  5.0  492.25   57.79  8.25 235.21 0.63   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  790.38 23.08 220.34  n/a   0.000
*
================================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL
```

```
          OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
         O   O    T      T    H   H   Y Y   MM MM  O   O
         O   O    T      T    H   H    Y    M   M  O   O
          OOO     T      T    H   H    Y    M   M   OOO
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                    *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a6876772-bdd2-4fc7-84bb-4284d95f5b07\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\a6876772-bdd2-4fc7-84bb-4284d95f5b07\scenar


DATE: 05/13/2022                          TIME: 11:32:30

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_12 hour SCS               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0002  1  5.0  319.15   36.19  8.67 240.52 0.65   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0003  1  5.0  678.55   60.39  9.58 233.51 0.63   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  148.40 10.25 238.44 0.64   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  136.01 12.75 232.47 0.63   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  270.29 11.17 234.98  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  269.77 11.50 234.98  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0006  1  5.0  154.12   13.60  9.50 227.17 0.61   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   35.56 23.17 206.39 0.56   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  126.75 13.50 222.50 0.60   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
```

```
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  136.82 17.67 213.32 0.57   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   76.32 26.42 228.29 0.61   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0011  1  5.0  330.21   42.81  8.08 228.99 0.62   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   44.32 16.67 222.14 0.60   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  145.98 11.83 233.16 0.63   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0016  1  5.0  664.69   59.96  9.67 240.59 0.65   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0017  1  5.0  759.04   74.77  9.17 235.67 0.63   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   30.14 19.83 234.39 0.63   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   84.72 15.33 199.50 0.54   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  111.52 16.17 210.50  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  110.97 16.83 210.50  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  130.89 14.00 215.16  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  179.72 10.75 218.23  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  158.20 14.17 218.23  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  200.23 14.75 219.06  n/a   0.000
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  333.57 13.17 222.87  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  332.81 13.50 222.87  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  369.32 14.08 225.96  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  376.10 13.75 226.03  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  327.80 17.67 226.02  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  132.93  9.67 221.38 0.60   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  137.65 13.58 223.89 0.60   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   81.35 19.75 196.16 0.53   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  209.32 11.33 215.93 0.58   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  252.39 12.17 205.82  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  250.46 12.83 205.82  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0022  1  5.0  656.35   76.15  8.25 212.92 0.57   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   82.38  9.83 197.55 0.53   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  276.47 11.92 206.42  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  349.47 11.17 205.28  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  331.19 12.83 205.28  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  430.20 11.75 207.72  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  560.89 12.17 211.27  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  325.39 18.42 211.26  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  652.49 18.08 218.67  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  751.21 17.17 219.02  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  887.74 17.25 218.23  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  717.64 23.33 218.21  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  753.20 23.33 217.64  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  800.47 21.75 219.51  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  800.77 21.67 219.54  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  800.77 21.75 219.54  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  802.30 21.58 219.77  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  797.13 23.00 219.77  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  797.19 23.00 219.93  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=371.73 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\cc292c03-bff3-4f40-8d72-c4067
    remark: PMP_12 hour SCS
*
 ** CALIB NASHYD         0001  1  5.0  492.25   59.47  8.42 234.97 0.63   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  797.23 23.00 220.10  n/a   0.000
```

```
*
==========================================================================================


       V    V   I    SSSSS  U   U    A    L             (v 6.2.2011)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\83376073-6ba1-4b76-a1e3-9b0591b7c7f2\scenar
  Summary filename:
C:\Users\mhoar\AppData\Local\Civica\VH5\40bf67da-b979-4134-87e4-7bb8f9f8abbc\83376073-6ba1-4b76-a1e3-9b0591b7c7f2\scenar


DATE: 05/13/2022                          TIME: 11:32:31

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : PMP_24 hour SCS               **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                   min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      ---------------------
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0002  1  5.0  319.15   35.78 14.67 279.03 0.67   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 2.51]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0003  1  5.0  678.55   60.41 15.50 271.58 0.66   0.000
    [CN=58.4         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0005  1  5.0 1839.41  148.75 16.17 276.83 0.67   0.000
    [CN=59.6         ]
    [ N = 3.0:Tp 3.78]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0004  1  5.0 2527.68  137.97 18.75 270.47 0.65   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp 6.00]
*
    ADD [  0004+  0005]  0105  3  5.0 4367.09  272.87 17.08 273.15  n/a   0.000
*
    CHANNEL[ 2:  0105]   1011  1  5.0 4367.09  272.36 17.33 273.15  n/a   0.000
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0006  1  5.0  154.12   13.63 15.42 264.82 0.64   0.000
    [CN=56.9         ]
    [ N = 3.0:Tp 3.18]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0007  1  5.0 1892.08   40.35 30.42 241.22 0.58   0.000
    [CN=52.3         ]
    [ N = 3.0:Tp16.43]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0008  1  5.0 2695.33  129.58 19.58 259.83 0.63   0.000
    [CN=55.8         ]
    [ N = 3.0:Tp 6.67]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0009  1  5.0 4750.07  148.22 24.83 249.94 0.60   0.000
    [CN=53.6         ]
    [ N = 3.0:Tp10.88]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0010  1  5.0 4353.13   86.74 33.58 262.34 0.63   0.000
    [CN=58.1         ]
    [ N = 3.0:Tp19.78]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0011  1  5.0  330.21   42.19 14.00 266.76 0.64   0.000
    [CN=57.3         ]
    [ N = 3.0:Tp 1.99]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0012  1  5.0 1349.05   47.23 23.58 259.43 0.63   0.000
    [CN=55.7         ]
    [ N = 3.0:Tp 9.88]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0013  1  5.0 2374.39  147.50 17.75 271.21 0.65   0.000
    [CN=58.3         ]
    [ N = 3.0:Tp 5.13]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0016  1  5.0  664.69   59.86 15.58 279.11 0.67   0.000
    [CN=60.1         ]
    [ N = 3.0:Tp 3.33]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0017  1  5.0  759.04   74.48 15.08 273.87 0.66   0.000
    [CN=58.9         ]
    [ N = 3.0:Tp 2.91]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0018  1  5.0 1140.91   33.18 27.00 272.20 0.66   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp13.14]
*
    READ STORM                15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0019  1  5.0 2493.96   89.19 22.00 235.09 0.57   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp 8.49]
*
    ADD [  0018+  0019]  0113  3  5.0 3634.87  118.75 23.00 246.89  n/a   0.000
*
    CHANNEL[ 2:  0113]   1010  1  5.0 3634.87  118.38 23.75 246.89  n/a   0.000
*
    ADD [  1010+  0016]  0112  3  5.0 4299.56  137.46 21.33 251.87  n/a   0.000
*
    ADD [  0112+  0017]  0112  1  5.0 5058.60  182.84 16.75 255.18  n/a   0.000
*
    CHANNEL[ 2:  0112]   1009  1  5.0 5058.60  165.47 20.42 255.17  n/a   0.000
*
    ADD [  1009+  0012]  0111  3  5.0 6407.65  210.09 21.33 256.07  n/a   0.000
```

```
*
    ADD [  0111+  0013]  0111  1  5.0 8782.04  343.73 19.08 260.17  n/a   0.000
*
    CHANNEL[ 2:  0111]   1008  1  5.0 8782.04  343.11 19.50 260.17  n/a   0.000
*
    ADD [  0010+  1008]  0110  3  5.0 *******  382.55 20.33 263.48  n/a   0.000
*
    ADD [  0110+  0011]  0110  1  5.0 *******  390.65 20.08 263.56  n/a   0.000
*
    CHANNEL[ 2:  0110]   1007  1  5.0 *******  359.33 24.25 263.55  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0014  1  5.0 1578.34  133.53 15.58 258.63 0.62   0.000
    [CN=55.5         ]
    [ N = 3.0:Tp 3.26]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0015  1  5.0 2931.47  140.75 19.67 261.32 0.63   0.000
    [CN=56.1         ]
    [ N = 3.0:Tp 6.73]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0020  1  5.0 3624.90   90.80 27.08 231.40 0.56   0.000
    [CN=50.5         ]
    [ N = 3.0:Tp12.94]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0021  1  5.0 3419.07  212.11 17.25 252.79 0.61   0.000
    [CN=54.2         ]
    [ N = 3.0:Tp 4.69]
*
    ADD [  0020+  0021]  0109  3  5.0 7043.97  256.87 18.08 241.98  n/a   0.000
*
    CHANNEL[ 2:  0109]   1006  1  5.0 7043.97  255.28 18.67 241.98  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0022  1  5.0  656.35   75.62 14.17 249.57 0.60   0.000
    [CN=53.5         ]
    [ N = 3.0:Tp 2.08]
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0023  1  5.0 1135.75   83.45 15.75 232.98 0.56   0.000
    [CN=50.1         ]
    [ N = 3.0:Tp 3.39]
*
    ADD [  1006+  0022]  0108  3  5.0 7700.32  282.09 17.83 242.62  n/a   0.000
*
    ADD [  0108+  0023]  0108  1  5.0 8836.07  356.66 17.08 241.38  n/a   0.000
*
    CHANNEL[ 2:  0108]   1005  1  5.0 8836.07  341.31 18.58 241.38  n/a   0.000
*
    ADD [  1005+  0014]  0107  3  5.0 *******  444.30 17.58 244.00  n/a   0.000
*
    ADD [  0107+  0015]  0107  1  5.0 *******  576.29 18.00 247.80  n/a   0.000
*
    CHANNEL[ 2:  0107]   1004  1  5.0 *******  378.84 24.83 247.78  n/a   0.000
*
    ADD [  1004+  1007]  0106  3  5.0 *******  737.88 24.58 255.70  n/a   0.000
*
    ADD [  0106+  0008]  0106  1  5.0 *******  843.21 23.67 256.08  n/a   0.000
*
    ADD [  0106+  0009]  0106  3  5.0 *******  990.41 23.83 255.24  n/a   0.000
*
    CHANNEL[ 2:  0106]   1003  1  5.0 *******  843.88 29.67 255.21  n/a   0.000
*
    ADD [  1003+  0007]  0199  3  5.0 *******  884.15 29.75 254.60  n/a   0.000
*
    ADD [  1011+  0199]  0104  3  5.0 *******  957.74 27.92 256.60  n/a   0.000
*
    ADD [  0104+  0006]  0104  1  5.0 *******  959.02 27.92 256.63  n/a   0.000
*
    CHANNEL[ 2:  0104]   1002  1  5.0 *******  959.01 27.92 256.63  n/a   0.000
*
    ADD [  1002+  0003]  0103  3  5.0 *******  965.18 27.67 256.88  n/a   0.000
*
    CHANNEL[ 2:  0103]   1001  1  5.0 *******  958.48 29.00 256.87  n/a   0.000
*
    ADD [  1001+  0002]  0102  3  5.0 *******  959.50 29.00 257.04  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot=414.33 mm ]
    fname : C:\Users\mhoar\AppData\Local\Temp\cdacd1b1-1496-47f3-9527-d53949878cef\4766773a-f654-465e-8f95-1f48c
    remark: PMP_24 hour SCS
*
 ** CALIB NASHYD         0001  1  5.0  492.25   58.70 14.33 273.13 0.66   0.000
    [CN=58.7         ]
    [ N = 3.0:Tp 2.25]
*
    ADD [  0001+  0102]  0101  3  5.0 *******  960.68 28.92 257.23  n/a   0.000
*
 FINISH

================================================================================================================
```

Appendix C

Hydraulic Assessment

Incremental Property Damages for Sunny Event

WILLS

Project No: 19-5381
Project Name: Pefferalw Dam DSR
Date: 5/31/22

Address	Structure	Area (m^2)	No Dam Breach			Dam Breach			Incremental Damages ($)
			Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	
230 PEFFERLAW RD	Class B - Residential Two Storey	157.14	0.00	$ -	$ -	0.00	$ -	$ -	$ -
28 PINEVIEW CRT	Class B - Residential One Storey	186.78	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 FLORENCE DR	Class A - Residential One Storey	538.75	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	99.72	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	83.17	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	61.68	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	47.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	92.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	119.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	29.67	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	134.30	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	81.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	73.54	0.00	$ -	$ -	0.00	$ -	$ -	$ -
150 RIVERBANK DR	Industrial / Warehouse	88.43	0.00	$ -	$ -	0.00	$ -	$ -	$ -
156 RIVERBANK DR	Class B - Residential One Storey	252.38	0.00	$ -	$ -	0.00	$ -	$ -	$ -
168 RIVERBANK RD	Class B - Residential One Storey	152.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
508 PEFFERLAW RD	Class B - Residential One Storey	482.47	0.00	$ -	$ -	0.00	$ -	$ -	$ -
188 RIVERBANK RD	Class B - Residential One Storey	123.94	0.00	$ -	$ -	0.00	$ -	$ -	$ -
194 RIVERBANK RD	Class B - Residential One Storey	218.75	0.00	$ -	$ -	0.00	$ -	$ -	$ -
200 RIVERBANK DR	Class B - Residential One Storey	179.41	0.00	$ -	$ -	0.00	$ -	$ -	$ -
202 RIVERBANK DR	Class B - Residential One Storey	265.92	0.00	$ -	$ -	0.00	$ -	$ -	$ -
556 PEFFERLAW RD	Class B - Residential One Storey	286.48	0.00	$ -	$ -	0.00	$ -	$ -	$ -
3 QUINN RD	Class B - Residential One Storey	372.00	0.00	$ -	$ -	0.00	$ -	$ -	$ -
5 QUINN RD	Class B - Residential One Storey	177.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
9 QUINN RD	Class B - Residential One Storey	433.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
234 RIVERBANK RD	Class B - Residential One Storey	79.02	0.00	$ -	$ -	0.00	$ -	$ -	$ -
240 RIVERBANK RD	Class B - Residential One Storey	129.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
244 RIVERBANK DR	Class B - Residential One Storey	178.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 QUINN RD	Industrial / Warehouse	109.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
1 MOORINGS RD	Class B - Residential One Storey	517.86	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Class B - Residential One Storey	250.21	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Industrial / Warehouse	124.91	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 RIVERSIDE DR	Class B - Residential One Storey	148.99	0.00	$ -	$ -	0.00	$ -	$ -	$ -

28 RIVERSIDE DR	Class B - Residential One Storey	137.02	0.00	$ -	$ -	0.00	$ -	$ -	$ -
30 RIVERSIDE DR	Class B - Residential One Storey	152.12	0.00	$ -	$ -	0.00	$ -	$ -	$ -
30 RIVERSIDE DR	Industrial / Warehouse	38.49	0.00	$ -	$ -	0.00	$ -	$ -	$ -
32 RIVERSIDE DR	Industrial / Warehouse	77.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
39 VILLA DR	Class B - Residential One Storey	316.36	0.00	$ -	$ -	0.00	$ -	$ -	$ -
32 RIVERSIDE DR	Class B - Residential One Storey	139.65	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 RIVERSIDE DR	Class B - Residential One Storey	190.53	0.00	$ -	$ -	0.00	$ -	$ -	$ -
33 RIVERSIDE DR	Industrial / Warehouse	76.17	0.00	$ -	$ -	0.00	$ -	$ -	$ -
34 RIVERSIDE DR	Class B - Residential One Storey	193.66	0.00	$ -	$ -	0.00	$ -	$ -	$ -
33 RIVERSIDE DR	Class B - Residential One Storey	157.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -
41 VILLA DR	Class B - Residential One Storey	473.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
35 RIVERSIDE DR	Industrial / Warehouse	57.95	0.00	$ -	$ -	0.00	$ -	$ -	$ -
35 RIVERSIDE DR	Class B - Residential One Storey	169.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 RIVERSIDE DR	Class B - Residential Two Storey	183.97	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 RIVERSIDE DR	Industrial / Warehouse	41.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
45 VILLA DR	Class B - Residential One Storey	250.23	0.00	$ -	$ -	0.00	$ -	$ -	$ -
37 RIVERSIDE DR	Industrial / Warehouse	38.49	0.00	$ -	$ -	0.00	$ -	$ -	$ -
37 RIVERSIDE DR	Class B - Residential One Storey	176.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
40 RIVERSIDE DR	Class B - Residential Two Storey	203.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
42 EASY ST	Class B - Residential One Storey	245.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
39 RIVERSIDE DR	Class B - Residential Split Level	397.79	0.00	$ -	$ -	0.00	$ -	$ -	$ -
42 RIVERSIDE DR	Class B - Residential One Storey	203.99	0.00	$ -	$ -	0.00	$ -	$ -	$ -
44 RIVERSIDE DR	Class B - Residential One Storey	228.31	0.00	$ -	$ -	0.00	$ -	$ -	$ -
46 EASY ST	Class B - Residential Split Level	325.80	0.00	$ -	$ -	0.00	$ -	$ -	$ -
52 EASY ST	Class B - Residential Split Level	230.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
48 RIVERSIDE DR	Class B - Residential One Storey	506.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
50 RIVERSIDE DR	Class B - Residential Two Storey	305.33	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	178.86	0.00	$ -	$ -	0.00	$ -	$ -	$ -
52 RIVERSIDE DR	Class B - Residential Two Storey	319.18	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	305.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	371.29	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	404.14	0.00	$ -	$ -	0.00	$ -	$ -	$ -
245 HOLMES POINT RD	Class B - Residential Two Storey	125.18	0.00	$ -	$ -	0.00	$ -	$ -	$ -
237 HOLMES POINT RD	Class B - Residential One Storey	128.41	0.00	$ -	$ -	0.00	$ -	$ -	$ -
100 RIVERVIEW BEACH	Class B - Residential One Storey	112.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
235 HOLMES POINT RD	Class B - Residential Two Storey	201.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
102 RIVERVIEW BEAC RD	Class B - Residential One Storey	178.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -

231 HOLMES POINT RD	Class B - Residential Two Storey	117.20	0.00	$ -	$ -	0.00	$ -	$ -	$ -
229 HOLMES POINT RD	Class B - Residential One Storey	196.29	0.00	$ -	$ -	0.00	$ -	$ -	$ -
104 RIVERVIEW BEAC RD	Class B - Residential One Storey	161.77	0.00	$ -	$ -	0.00	$ -	$ -	$ -
229 HOLMES POINT RD	Industrial / Warehouse	45.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
225 HOLMES POINT RD	Class B - Residential Two Storey	165.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
223 HOLMES POINT RD	Class B - Residential Two Storey	116.30	0.00	$ -	$ -	0.00	$ -	$ -	$ -
106 RIVERVIEW BEAC RD	Class B - Residential Two Storey	185.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
219 HOLMES POINT RD	Class B - Residential One Storey	59.36	0.00	$ -	$ -	0.00	$ -	$ -	$ -
219 HOLMES POINT RD	Industrial / Warehouse	72.94	0.00	$ -	$ -	0.00	$ -	$ -	$ -
217 HOLMES POINT RD	Class B - Residential Two Storey	159.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
165 HOLMES POINT RD	Industrial / Warehouse	85.65	0.00	$ -	$ -	0.00	$ -	$ -	$ -
213 HOLMES POINT RD	Class B - Residential One Storey	93.85	0.00	$ -	$ -	0.00	$ -	$ -	$ -
157 HOLMES POINT RD	Industrial / Warehouse	81.28	0.00	$ -	$ -	0.00	$ -	$ -	$ -
183 HOLMES POINT RD	Industrial / Warehouse	115.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
211 HOLMES POINT RD	Class B - Residential One Storey	285.34	0.00	$ -	$ -	0.00	$ -	$ -	$ -
179 HOLMES POINT RD	Industrial / Warehouse	144.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -
177 HOLMES POINT RD	Industrial / Warehouse	98.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
165 HOLMES POINT RD	Class B - Residential Two Storey	394.50	0.00	$ -	$ -	0.00	$ -	$ -	$ -
202 HOLMES POINT RD	Hotel / Motel	317.92	0.00	$ -	$ -	0.00	$ -	$ -	$ -
61 IRVING DR	Class B - Residential One Storey	274.82	0.00	$ -	$ -	0.00	$ -	$ -	$ -
63 IRVING DR	Class B - Residential One Storey	286.22	0.00	$ -	$ -	0.00	$ -	$ -	$ -
67 IRVING DR	Class B - Residential One Storey	167.77	0.00	$ -	$ -	0.00	$ -	$ -	$ -
85 IRVING DR	Industrial / Warehouse	98.39	0.00	$ -	$ -	0.00	$ -	$ -	$ -
99 IRVING DR	Industrial / Warehouse	48.67	0.00	$ -	$ -	0.00	$ -	$ -	$ -
99 IRVING DR	Class B - Residential One Storey	132.96	0.00	$ -	$ -	0.00	$ -	$ -	$ -
101 IRVING DR	Class B - Residential One Storey	159.10	0.00	$ -	$ -	0.00	$ -	$ -	$ -
85 IRVING DR	Class B - Residential One Storey	175.00	0.00	$ -	$ -	0.00	$ -	$ -	$ -
93 IRVING DR	Industrial / Warehouse	46.79	0.00	$ -	$ -	0.00	$ -	$ -	$ -
150 RIVERVIEW BEAC RD	Class B - Residential One Storey	166.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
91 IRVING DR	Class B - Residential One Storey	298.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
113 IRVING DR	Class B - Residential One Storey	128.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
69 IRVING DR	Class C - Residential One Storey	169.92	0.00	$ -	$ -	0.00	$ -	$ -	$ -
93 IRVING DR	Industrial / Warehouse	110.12	0.00	$ -	$ -	0.00	$ -	$ -	$ -
Totals					**$ -**			**$ -**	**$ -**

Incremental Property Damages for 25 Event

Project No: 19-5381
Project Name: Pefferalw Dam DSR
Date: 5/31/22

Address	Structure	Area (m^2)	No Dam Breach			Dam Breach			Incremental Damages ($)
			Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	
230 PEFFERLAW RD	Class B - Residential Two Storey	157.14	0.00	$ -	$ -	0.00	$ -	$ -	$ -
28 PINEVIEW CRT	Class B - Residential One Storey	186.78	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 FLORENCE DR	Class A - Residential One Storey	538.75	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	99.72	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	83.17	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	61.68	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	47.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	92.24	0.39	$ 888	$ 81,912	0.39	$ 888	$ 81,912	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	119.09	0.58	$ 888	$ 105,748	0.58	$ 888	$ 105,748	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	29.67	0.15	$ 791	$ 23,466	0.15	$ 791	$ 23,466	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	134.30	0.36	$ 888	$ 119,262	0.36	$ 888	$ 119,262	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	81.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	73.54	0.00	$ -	$ -	0.00	$ -	$ -	$ -
150 RIVERBANK DR	Industrial / Warehouse	88.43	0.00	$ -	$ -	0.00	$ -	$ -	$ -
156 RIVERBANK DR	Class B - Residential One Storey	252.38	0.00	$ -	$ -	0.00	$ -	$ -	$ -
168 RIVERBANK RD	Class B - Residential One Storey	152.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
508 PEFFERLAW RD	Class B - Residential One Storey	482.47	0.00	$ -	$ -	0.00	$ -	$ -	$ -
188 RIVERBANK RD	Class B - Residential One Storey	123.94	0.00	$ -	$ -	0.00	$ -	$ -	$ -
194 RIVERBANK RD	Class B - Residential One Storey	218.75	0.00	$ -	$ -	0.00	$ -	$ -	$ -
200 RIVERBANK DR	Class B - Residential One Storey	179.41	0.23	$ 791	$ 141,913	0.23	$ 791	$ 141,913	$ -
202 RIVERBANK DR	Class B - Residential One Storey	265.92	0.00	$ -	$ -	0.00	$ -	$ -	$ -
556 PEFFERLAW RD	Class B - Residential One Storey	286.48	0.00	$ -	$ -	0.00	$ -	$ -	$ -
3 QUINN RD	Class B - Residential One Storey	372.00	0.00	$ -	$ -	0.00	$ -	$ -	$ -
5 QUINN RD	Class B - Residential One Storey	177.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
9 QUINN RD	Class B - Residential One Storey	433.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
234 RIVERBANK RD	Class B - Residential One Storey	79.02	0.00	$ -	$ -	0.00	$ -	$ -	$ -
240 RIVERBANK RD	Class B - Residential One Storey	129.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
244 RIVERBANK DR	Class B - Residential One Storey	178.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 QUINN RD	Industrial / Warehouse	109.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
1 MOORINGS RD	Class B - Residential One Storey	517.86	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Class B - Residential One Storey	250.21	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Industrial / Warehouse	124.91	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 RIVERSIDE DR	Class B - Residential One Storey	148.99	0.00	$ -	$ -	0.00	$ -	$ -	$ -

28 RIVERSIDE DR	Class B - Residential One Storey	137.02	0.00	$ -	$ -	0.00	$ -	$ -	$ -
30 RIVERSIDE DR	Class B - Residential One Storey	152.12	0.00	$ -	$ -	0.00	$ -	$ -	$ -
30 RIVERSIDE DR	Industrial / Warehouse	38.49	0.00	$ -	$ -	0.00	$ -	$ -	$ -
32 RIVERSIDE DR	Industrial / Warehouse	77.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
39 VILLA DR	Class B - Residential One Storey	316.36	0.00	$ -	$ -	0.00	$ -	$ -	$ -
32 RIVERSIDE DR	Class B - Residential One Storey	139.65	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 RIVERSIDE DR	Class B - Residential One Storey	190.53	0.00	$ -	$ -	0.00	$ -	$ -	$ -
33 RIVERSIDE DR	Industrial / Warehouse	76.17	0.00	$ -	$ -	0.00	$ -	$ -	$ -
34 RIVERSIDE DR	Class B - Residential One Storey	193.66	0.00	$ -	$ -	0.00	$ -	$ -	$ -
33 RIVERSIDE DR	Class B - Residential One Storey	157.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -
41 VILLA DR	Class B - Residential One Storey	473.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
35 RIVERSIDE DR	Industrial / Warehouse	57.95	0.00	$ -	$ -	0.00	$ -	$ -	$ -
35 RIVERSIDE DR	Class B - Residential One Storey	169.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 RIVERSIDE DR	Class B - Residential Two Storey	183.97	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 RIVERSIDE DR	Industrial / Warehouse	41.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
45 VILLA DR	Class B - Residential One Storey	250.23	0.00	$ -	$ -	0.00	$ -	$ -	$ -
37 RIVERSIDE DR	Industrial / Warehouse	38.49	0.00	$ -	$ -	0.00	$ -	$ -	$ -
37 RIVERSIDE DR	Class B - Residential One Storey	176.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
40 RIVERSIDE DR	Class B - Residential Two Storey	203.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
42 EASY ST	Class B - Residential One Storey	245.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
39 RIVERSIDE DR	Class B - Residential Split Level	397.79	0.00	$ -	$ -	0.00	$ -	$ -	$ -
42 RIVERSIDE DR	Class B - Residential One Storey	203.99	0.00	$ -	$ -	0.00	$ -	$ -	$ -
44 RIVERSIDE DR	Class B - Residential One Storey	228.31	0.00	$ -	$ -	0.00	$ -	$ -	$ -
46 EASY ST	Class B - Residential Split Level	325.80	0.00	$ -	$ -	0.00	$ -	$ -	$ -
52 EASY ST	Class B - Residential Split Level	230.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
48 RIVERSIDE DR	Class B - Residential One Storey	506.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
50 RIVERSIDE DR	Class B - Residential Two Storey	305.33	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	178.86	0.00	$ -	$ -	0.00	$ -	$ -	$ -
52 RIVERSIDE DR	Class B - Residential Two Storey	319.18	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	305.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	371.29	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	404.14	0.42	$ 485	$ 196,009	0.42	$ 485	$ 196,009	$ -
245 HOLMES POINT RD	Class B - Residential Two Storey	125.18	0.00	$ -	$ -	0.00	$ -	$ -	$ -
237 HOLMES POINT RD	Class B - Residential One Storey	128.41	0.03	$ 621	$ 79,740	0.03	$ 621	$ 79,740	$ -
100 RIVERVIEW BEACH	Class B - Residential One Storey	112.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
235 HOLMES POINT RD	Class B - Residential Two Storey	201.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
102 RIVERVIEW BEAC RD	Class B - Residential One Storey	178.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -

231 HOLMES POINT RD	Class B - Residential Two Storey	117.20	0.45	$ 1,047	$ 122,708	0.45	$ 1,047	$ 122,708	$ -
229 HOLMES POINT RD	Class B - Residential One Storey	196.29	0.00	$ -	$ -	0.00	$ -	$ -	$ -
104 RIVERVIEW BEAC RD	Class B - Residential One Storey	161.77	0.00	$ -	$ -	0.00	$ -	$ -	$ -
229 HOLMES POINT RD	Industrial / Warehouse	45.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
225 HOLMES POINT RD	Class B - Residential Two Storey	165.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
223 HOLMES POINT RD	Class B - Residential Two Storey	116.30	0.00	$ -	$ -	0.00	$ -	$ -	$ -
106 RIVERVIEW BEAC RD	Class B - Residential Two Storey	185.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
219 HOLMES POINT RD	Class B - Residential One Storey	59.36	0.00	$ -	$ -	0.00	$ -	$ -	$ -
219 HOLMES POINT RD	Industrial / Warehouse	72.94	0.00	$ -	$ -	0.00	$ -	$ -	$ -
217 HOLMES POINT RD	Class B - Residential Two Storey	159.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
165 HOLMES POINT RD	Industrial / Warehouse	85.65	0.00	$ -	$ -	0.00	$ -	$ -	$ -
213 HOLMES POINT RD	Class B - Residential One Storey	93.85	0.00	$ -	$ -	0.00	$ -	$ -	$ -
157 HOLMES POINT RD	Industrial / Warehouse	81.28	0.00	$ -	$ -	0.00	$ -	$ -	$ -
183 HOLMES POINT RD	Industrial / Warehouse	115.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
211 HOLMES POINT RD	Class B - Residential One Storey	285.34	0.00	$ -	$ -	0.00	$ -	$ -	$ -
179 HOLMES POINT RD	Industrial / Warehouse	144.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -
177 HOLMES POINT RD	Industrial / Warehouse	98.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
165 HOLMES POINT RD	Class B - Residential Two Storey	394.50	0.00	$ -	$ -	0.00	$ -	$ -	$ -
202 HOLMES POINT RD	Hotel / Motel	317.92	0.25	$ 251	$ 79,797	0.25	$ 251	$ 79,797	$ -
61 IRVING DR	Class B - Residential One Storey	274.82	0.00	$ -	$ -	0.00	$ -	$ -	$ -
63 IRVING DR	Class B - Residential One Storey	286.22	0.00	$ -	$ -	0.00	$ -	$ -	$ -
67 IRVING DR	Class B - Residential One Storey	167.77	0.00	$ -	$ -	0.00	$ -	$ -	$ -
85 IRVING DR	Industrial / Warehouse	98.39	0.00	$ -	$ -	0.00	$ -	$ -	$ -
99 IRVING DR	Industrial / Warehouse	48.67	0.00	$ -	$ -	0.00	$ -	$ -	$ -
99 IRVING DR	Class B - Residential One Storey	132.96	0.00	$ -	$ -	0.00	$ -	$ -	$ -
101 IRVING DR	Class B - Residential One Storey	159.10	0.00	$ -	$ -	0.00	$ -	$ -	$ -
85 IRVING DR	Class B - Residential One Storey	175.00	0.00	$ -	$ -	0.00	$ -	$ -	$ -
93 IRVING DR	Industrial / Warehouse	46.79	0.00	$ -	$ -	0.00	$ -	$ -	$ -
150 RIVERVIEW BEAC RD	Class B - Residential One Storey	166.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
91 IRVING DR	Class B - Residential One Storey	298.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
113 IRVING DR	Class B - Residential One Storey	128.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
69 IRVING DR	Class C - Residential One Storey	169.92	0.00	$ -	$ -	0.00	$ -	$ -	$ -
93 IRVING DR	Industrial / Warehouse	110.12	0.00	$ -	$ -	0.00	$ -	$ -	$ -
Totals					**$ 950,554.50**			**$ 950,554.50**	**$ -**

Incremental Property Damages for 100 Event

Project No: 19-5381
Project Name: Pefferalw Dam DSR
Date: 5/31/22

Address	Structure	Area (m^2)	No Dam Breach			Dam Breach			Incremental Damages ($)
			Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	
230 PEFFERLAW RD	Class B - Residential Two Storey	157.14	0.00	$ -	$ -	0.00	$ -	$ -	$ -
28 PINEVIEW CRT	Class B - Residential One Storey	186.78	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 FLORENCE DR	Class A - Residential One Storey	538.75	0.00	$ -	$ -	0.00	$ -	$ -	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	99.72	0.25	$ 791	$ 78,877	0.29	$ 791	$ 78,877	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	83.17	0.23	$ 791	$ 65,786	0.28	$ 791	$ 65,786	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	61.68	0.15	$ 791	$ 48,786	0.20	$ 791	$ 48,786	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	47.52	0.16	$ 791	$ 37,589	0.21	$ 791	$ 37,589	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	92.24	0.72	$ 1,070	$ 98,700	0.77	$ 1,070	$ 98,700	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	119.09	0.92	$ 1,072	$ 127,660	0.97	$ 1,072	$ 127,660	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	29.67	0.49	$ 888	$ 26,343	0.54	$ 888	$ 26,343	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	134.30	0.69	$ 1,070	$ 143,706	0.74	$ 1,070	$ 143,706	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	81.09	0.18	$ 791	$ 64,143	0.23	$ 791	$ 64,143	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	73.54	0.39	$ 888	$ 65,306	0.43	$ 888	$ 65,306	$ -
150 RIVERBANK DR	Industrial / Warehouse	88.43	0.00	$ -	$ -	0.00	$ -	$ -	$ -
156 RIVERBANK DR	Class B - Residential One Storey	252.38	0.00	$ -	$ -	0.00	$ -	$ -	$ -
168 RIVERBANK RD	Class B - Residential One Storey	152.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
508 PEFFERLAW RD	Class B - Residential One Storey	482.47	0.00	$ -	$ -	0.00	$ -	$ -	$ -
188 RIVERBANK RD	Class B - Residential One Storey	123.94	0.00	$ -	$ -	0.00	$ -	$ -	$ -
194 RIVERBANK RD	Class B - Residential One Storey	218.75	0.00	$ -	$ -	0.00	$ -	$ -	$ -
200 RIVERBANK DR	Class B - Residential One Storey	179.41	0.57	$ 888	$ 159,315	0.61	$ 888	$ 159,315	$ -
202 RIVERBANK DR	Class B - Residential One Storey	265.92	0.00	$ -	$ -	0.00	$ -	$ -	$ -
556 PEFFERLAW RD	Class B - Residential One Storey	286.48	0.00	$ -	$ -	0.00	$ -	$ -	$ -
3 QUINN RD	Class B - Residential One Storey	372.00	0.00	$ -	$ -	0.00	$ -	$ -	$ -
5 QUINN RD	Class B - Residential One Storey	177.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
9 QUINN RD	Class B - Residential One Storey	433.40	0.00	$ -	$ -	0.00	$ -	$ -	$ -
234 RIVERBANK RD	Class B - Residential One Storey	79.02	0.00	$ -	$ -	0.00	$ -	$ -	$ -
240 RIVERBANK RD	Class B - Residential One Storey	129.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
244 RIVERBANK DR	Class B - Residential One Storey	178.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 QUINN RD	Industrial / Warehouse	109.44	0.00	$ -	$ -	0.00	$ -	$ -	$ -
1 MOORINGS RD	Class B - Residential One Storey	517.86	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Class B - Residential One Storey	250.21	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Industrial / Warehouse	124.91	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 RIVERSIDE DR	Class B - Residential One Storey	148.99	0.00	$ -	$ -	0.00	$ -	$ -	$ -

28 RIVERSIDE DR	Class B - Residential One Storey	137.02	0.00	$ -	$ -	0.00	$ -	$ -	$ -
30 RIVERSIDE DR	Class B - Residential One Storey	152.12	0.00	$ -	$ -	0.00	$ -	$ -	$ -
30 RIVERSIDE DR	Industrial / Warehouse	38.49	0.00	$ -	$ -	0.00	$ -	$ -	$ -
32 RIVERSIDE DR	Industrial / Warehouse	77.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
39 VILLA DR	Class B - Residential One Storey	316.36	0.00	$ -	$ -	0.00	$ -	$ -	$ -
32 RIVERSIDE DR	Class B - Residential One Storey	139.65	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 RIVERSIDE DR	Class B - Residential One Storey	190.53	0.00	$ -	$ -	0.00	$ -	$ -	$ -
33 RIVERSIDE DR	Industrial / Warehouse	76.17	0.00	$ -	$ -	0.00	$ -	$ -	$ -
34 RIVERSIDE DR	Class B - Residential One Storey	193.66	0.00	$ -	$ -	0.00	$ -	$ -	$ -
33 RIVERSIDE DR	Class B - Residential One Storey	157.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -
41 VILLA DR	Class B - Residential One Storey	473.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
35 RIVERSIDE DR	Industrial / Warehouse	57.95	0.00	$ -	$ -	0.00	$ -	$ -	$ -
35 RIVERSIDE DR	Class B - Residential One Storey	169.52	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 RIVERSIDE DR	Class B - Residential Two Storey	183.97	0.00	$ -	$ -	0.00	$ -	$ -	$ -
38 RIVERSIDE DR	Industrial / Warehouse	41.24	0.08	$ 62	$ 2,557	0.12	$ 67	$ 2,763	$ 206
45 VILLA DR	Class B - Residential One Storey	250.23	0.00	$ -	$ -	0.00	$ -	$ -	$ -
37 RIVERSIDE DR	Industrial / Warehouse	38.49	0.00	$ -	$ -	0.00	$ -	$ -	$ -
37 RIVERSIDE DR	Class B - Residential One Storey	176.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
40 RIVERSIDE DR	Class B - Residential Two Storey	203.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
42 EASY ST	Class B - Residential One Storey	245.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
39 RIVERSIDE DR	Class B - Residential Split Level	397.79	0.00	$ -	$ -	0.00	$ -	$ -	$ -
42 RIVERSIDE DR	Class B - Residential One Storey	203.99	0.18	$ 791	$ 161,355	0.21	$ 791	$ 161,355	$ -
44 RIVERSIDE DR	Class B - Residential One Storey	228.31	0.18	$ 791	$ 180,594	0.22	$ 791	$ 180,594	$ -
46 EASY ST	Class B - Residential Split Level	325.80	0.00	$ -	$ -	0.00	$ -	$ -	$ -
52 EASY ST	Class B - Residential Split Level	230.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
48 RIVERSIDE DR	Class B - Residential One Storey	506.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
50 RIVERSIDE DR	Class B - Residential Two Storey	305.33	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	178.86	0.19	$ 275	$ 49,187	0.23	$ 275	$ 49,187	$ -
52 RIVERSIDE DR	Class B - Residential Two Storey	319.18	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	305.44	0.12	$ 67	$ 20,464	0.16	$ 275	$ 83,996	$ 63,531
54 RIVERSIDE DR	Industrial / Warehouse	371.29	0.00	$ -	$ -	0.00	$ -	$ -	$ -
54 RIVERSIDE DR	Industrial / Warehouse	404.14	0.71	$ 901	$ 364,132	0.75	$ 901	$ 364,132	$ -
245 HOLMES POINT RD	Class B - Residential Two Storey	125.18	0.00	$ -	$ -	0.00	$ -	$ -	$ -
237 HOLMES POINT RD	Class B - Residential One Storey	128.41	0.32	$ 888	$ 114,024	0.35	$ 888	$ 114,024	$ -
100 RIVERVIEW BEACH	Class B - Residential One Storey	112.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
235 HOLMES POINT RD	Class B - Residential Two Storey	201.40	0.29	$ 878	$ 176,827	0.32	$ 1,047	$ 210,863	$ 34,036
102 RIVERVIEW BEAC RD	Class B - Residential One Storey	178.07	0.00	$ -	$ -	0.00	$ -	$ -	$ -

231 HOLMES POINT RD	Class B - Residential Two Storey	117.20	0.74	$ 1,273	$ 149,195	0.78	$ 1,273	$ 149,195	$ -
229 HOLMES POINT RD	Class B - Residential One Storey	196.29	0.18	$ 791	$ 155,266	0.21	$ 791	$ 155,266	$ -
104 RIVERVIEW BEAC RD	Class B - Residential One Storey	161.77	0.00	$ -	$ -	0.00	$ -	$ -	$ -
229 HOLMES POINT RD	Industrial / Warehouse	45.83	0.07	$ 62	$ 2,841	0.11	$ 67	$ 3,070	$ 229
225 HOLMES POINT RD	Class B - Residential Two Storey	165.52	0.01	$ 76	$ 12,563	0.05	$ 759	$ 125,626	$ 113,063
223 HOLMES POINT RD	Class B - Residential Two Storey	116.30	0.10	$ 759	$ 88,270	0.14	$ 878	$ 102,109	$ 13,839
106 RIVERVIEW BEAC RD	Class B - Residential Two Storey	185.83	0.00	$ -	$ -	0.20	$ 878	$ 163,159	$ 163,159
219 HOLMES POINT RD	Class B - Residential One Storey	59.36	0.21	$ 791	$ 46,957	0.25	$ 791	$ 46,957	$ -
219 HOLMES POINT RD	Industrial / Warehouse	72.94	0.17	$ 275	$ 20,058	0.21	$ 275	$ 20,058	$ -
217 HOLMES POINT RD	Class B - Residential Two Storey	159.84	0.00	$ -	$ -	0.00	$ -	$ -	$ -
165 HOLMES POINT RD	Industrial / Warehouse	85.65	0.20	$ 275	$ 23,555	0.23	$ 275	$ 23,555	$ -
213 HOLMES POINT RD	Class B - Residential One Storey	93.85	0.23	$ 791	$ 74,235	0.26	$ 791	$ 74,235	$ -
157 HOLMES POINT RD	Industrial / Warehouse	81.28	0.06	$ 62	$ 5,040	0.09	$ 62	$ 5,040	$ -
183 HOLMES POINT RD	Industrial / Warehouse	115.40	0.22	$ 275	$ 31,734	0.24	$ 275	$ 31,734	$ -
211 HOLMES POINT RD	Class B - Residential One Storey	285.34	0.10	$ 621	$ 177,197	0.12	$ 791	$ 225,705	$ 48,508
179 HOLMES POINT RD	Industrial / Warehouse	144.07	0.29	$ 275	$ 39,620	0.32	$ 485	$ 69,875	$ 30,255
177 HOLMES POINT RD	Industrial / Warehouse	98.27	0.00	$ -	$ -	0.00	$ -	$ -	$ -
165 HOLMES POINT RD	Class B - Residential Two Storey	394.50	0.00	$ -	$ -	0.00	$ -	$ -	$ -
202 HOLMES POINT RD	Hotel / Motel	317.92	0.62	$ 307	$ 97,600	0.63	$ 307	$ 97,600	$ -
61 IRVING DR	Class B - Residential One Storey	274.82	0.25	$ 791	$ 217,383	0.27	$ 791	$ 217,383	$ -
63 IRVING DR	Class B - Residential One Storey	286.22	0.19	$ 791	$ 226,402	0.20	$ 791	$ 226,402	$ -
67 IRVING DR	Class B - Residential One Storey	167.77	0.27	$ 791	$ 132,708	0.28	$ 791	$ 132,708	$ -
85 IRVING DR	Industrial / Warehouse	98.39	0.37	$ 485	$ 47,721	0.38	$ 485	$ 47,721	$ -
99 IRVING DR	Industrial / Warehouse	48.67	0.34	$ 485	$ 23,604	0.35	$ 485	$ 23,604	$ -
99 IRVING DR	Class B - Residential One Storey	132.96	0.40	$ 888	$ 118,064	0.41	$ 888	$ 118,064	$ -
101 IRVING DR	Class B - Residential One Storey	159.10	0.26	$ 791	$ 125,851	0.26	$ 791	$ 125,851	$ -
85 IRVING DR	Class B - Residential One Storey	175.00	0.26	$ 791	$ 138,421	0.26	$ 791	$ 138,421	$ -
93 IRVING DR	Industrial / Warehouse	46.79	0.29	$ 275	$ 12,866	0.30	$ 275	$ 12,866	$ -
150 RIVERVIEW BEAC RD	Class B - Residential One Storey	166.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
91 IRVING DR	Class B - Residential One Storey	298.51	0.30	$ 791	$ 236,123	0.31	$ 791	$ 236,123	$ -
113 IRVING DR	Class B - Residential One Storey	128.44	0.09	$ 621	$ 79,759	0.09	$ 621	$ 79,759	$ -
69 IRVING DR	Class C - Residential One Storey	169.92	0.19	$ 839	$ 142,560	0.19	$ 839	$ 142,560	$ -
93 IRVING DR	Industrial / Warehouse	110.12	0.29	$ 275	$ 30,284	0.29	$ 275	$ 30,284	$ -
Totals					**$ 4,441,230.37**			**$ 4,908,058.38**	**$ 466,828.01**

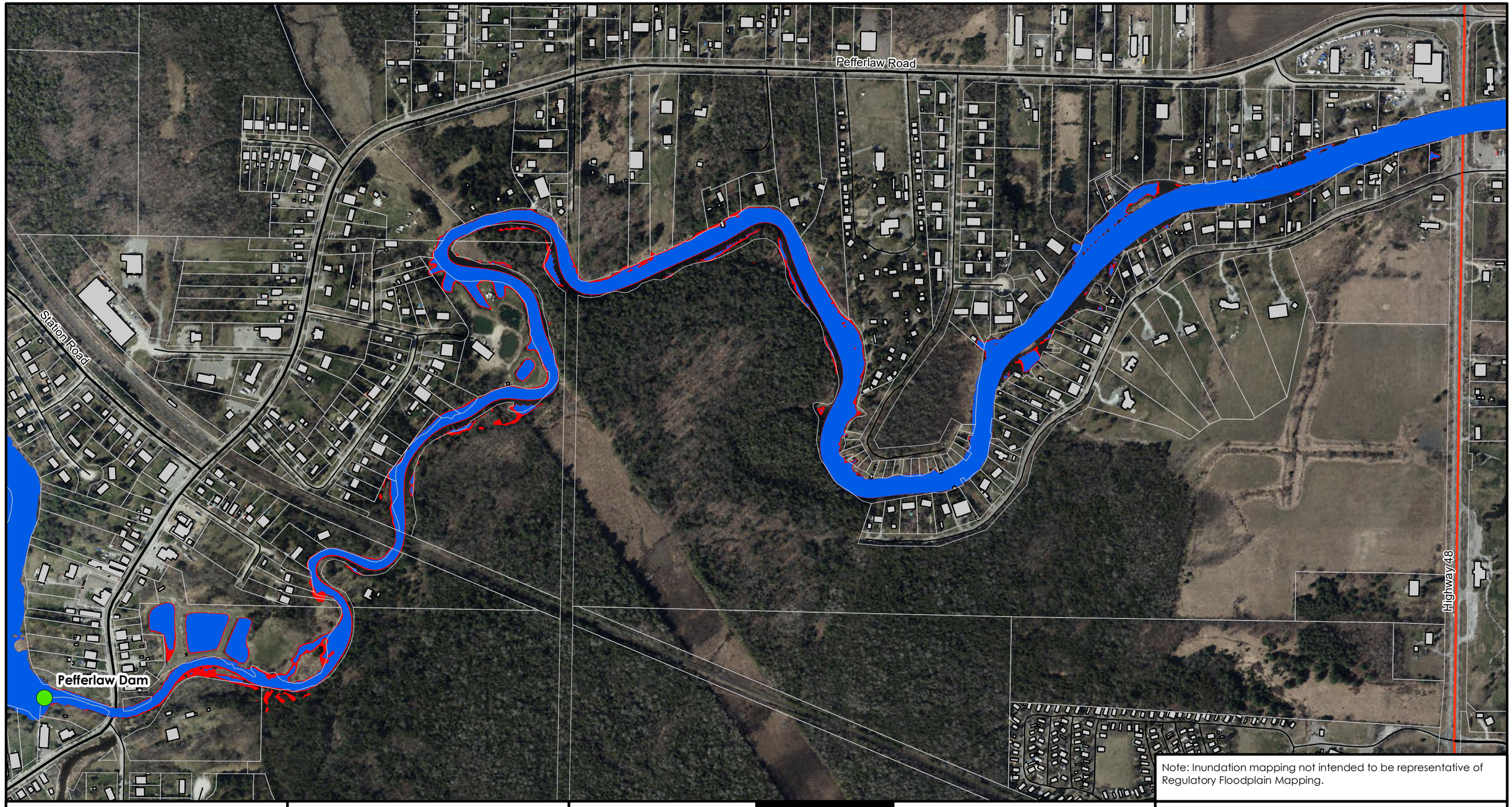
Incremental Property Damages for Reg Event

Project No: 19-5381
Project Name: Pefferalw Dam DSR
Date: 5/31/22

Address	Structure	Area (m^2)	No Dam Breach			Dam Breach			Incremental Damages ($)
			Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	Depth (m)	Estimated Damages ($/$m^2$)	Estimated Damages ($)	
230 PEFFERLAW RD	Class B - Residential Two Storey	157.14	0.59	$ 1,047	$ 164,521	0.64	$ 1,273	$ 200,033	$ 35,513
28 PINEVIEW CRT	Class B - Residential One Storey	186.78	0.21	$ 791	$ 147,747	0.30	$ 791	$ 147,747	$ -
38 FLORENCE DR	Class A - Residential One Storey	538.75	0.39	$ 1,432	$ 771,497	0.43	$ 1,432	$ 771,497	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	99.72	1.49	$ 1,072	$ 106,897	1.52	$ 1,073	$ 106,997	$ 100
470 PEFFERLAW RD	Class B - Residential One Storey	83.17	1.48	$ 1,072	$ 89,156	1.51	$ 1,073	$ 89,239	$ 83
470 PEFFERLAW RD	Class B - Residential One Storey	61.68	1.40	$ 1,072	$ 66,118	1.43	$ 1,072	$ 66,118	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	47.52	1.41	$ 1,072	$ 50,942	1.45	$ 1,072	$ 50,942	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	92.24	1.98	$ 1,073	$ 98,977	2.01	$ 1,073	$ 98,977	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	119.09	2.17	$ 1,073	$ 127,779	2.21	$ 1,073	$ 127,779	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	29.67	1.74	$ 1,073	$ 31,832	1.78	$ 1,073	$ 31,832	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	134.30	1.94	$ 1,073	$ 144,109	1.98	$ 1,073	$ 144,109	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	81.09	1.44	$ 1,072	$ 86,929	1.47	$ 1,072	$ 86,929	$ -
470 PEFFERLAW RD	Class B - Residential One Storey	73.54	1.64	$ 1,073	$ 78,912	1.67	$ 1,073	$ 78,912	$ -
150 RIVERBANK DR	Industrial / Warehouse	88.43	1.00	$ 1,006	$ 88,960	1.03	$ 1,006	$ 88,960	$ -
156 RIVERBANK DR	Class B - Residential One Storey	252.38	0.19	$ 791	$ 199,633	0.22	$ 791	$ 199,633	$ -
168 RIVERBANK RD	Class B - Residential One Storey	152.84	0.14	$ 791	$ 120,897	0.17	$ 791	$ 120,897	$ -
508 PEFFERLAW RD	Class B - Residential One Storey	482.47	0.73	$ 1,070	$ 516,244	0.76	$ 1,070	$ 516,244	$ -
188 RIVERBANK RD	Class B - Residential One Storey	123.94	0.92	$ 1,072	$ 132,861	0.96	$ 1,072	$ 132,861	$ -
194 RIVERBANK RD	Class B - Residential One Storey	218.75	0.45	$ 888	$ 194,254	0.49	$ 888	$ 194,254	$ -
200 RIVERBANK DR	Class B - Residential One Storey	179.41	1.64	$ 1,073	$ 192,506	1.69	$ 1,073	$ 192,506	$ -
202 RIVERBANK DR	Class B - Residential One Storey	265.92	0.13	$ 791	$ 210,346	0.18	$ 791	$ 210,346	$ -
556 PEFFERLAW RD	Class B - Residential One Storey	286.48	0.31	$ 791	$ 226,608	0.35	$ 888	$ 254,397	$ 27,789
3 QUINN RD	Class B - Residential One Storey	372.00	0.51	$ 888	$ 330,340	0.55	$ 888	$ 330,340	$ -
5 QUINN RD	Class B - Residential One Storey	177.83	0.00	$ -	$ -	0.00	$ -	$ -	$ -
9 QUINN RD	Class B - Residential One Storey	433.40	0.45	$ 888	$ 384,860	0.50	$ 888	$ 384,860	$ -
234 RIVERBANK RD	Class B - Residential One Storey	79.02	0.44	$ 888	$ 70,167	0.49	$ 888	$ 70,167	$ -
240 RIVERBANK RD	Class B - Residential One Storey	129.24	0.00	$ -	$ -	0.00	$ -	$ -	$ -
244 RIVERBANK DR	Class B - Residential One Storey	178.09	0.00	$ -	$ -	0.00	$ -	$ -	$ -
26 QUINN RD	Industrial / Warehouse	109.44	0.09	$ 62	$ 6,785	0.12	$ 67	$ 7,333	$ 547
1 MOORINGS RD	Class B - Residential One Storey	517.86	0.00	$ -	$ -	0.00	$ -	$ -	$ -
31 VILLA DR	Class B - Residential One Storey	250.21	0.24	$ 791	$ 197,915	0.26	$ 791	$ 197,915	$ -
31 VILLA DR	Industrial / Warehouse	124.91	0.26	$ 275	$ 34,350	0.28	$ 275	$ 34,350	$ -
26 RIVERSIDE DR	Class B - Residential One Storey	148.99	0.20	$ 791	$ 117,855	0.21	$ 791	$ 117,855	$ -

28 RIVERSIDE DR	Class B - Residential One Storey	137.02	0.26	$ 791	$ 108,379	0.27	$ 791	$ 108,379	$ -
30 RIVERSIDE DR	Class B - Residential One Storey	152.12	0.34	$ 888	$ 135,085	0.36	$ 888	$ 135,085	$ -
30 RIVERSIDE DR	Industrial / Warehouse	38.49	0.23	$ 275	$ 10,585	0.25	$ 275	$ 10,585	$ -
32 RIVERSIDE DR	Industrial / Warehouse	77.24	0.51	$ 485	$ 37,463	0.52	$ 485	$ 37,463	$ -
39 VILLA DR	Class B - Residential One Storey	316.36	0.55	$ 888	$ 280,927	0.57	$ 888	$ 280,927	$ -
32 RIVERSIDE DR	Class B - Residential One Storey	139.65	0.18	$ 791	$ 110,463	0.19	$ 791	$ 110,463	$ -
31 RIVERSIDE DR	Class B - Residential One Storey	190.53	0.01	$ 621	$ 118,317	0.02	$ 621	$ 118,317	$ -
33 RIVERSIDE DR	Industrial / Warehouse	76.17	0.08	$ 62	$ 4,722	0.09	$ 62	$ 4,722	$ -
34 RIVERSIDE DR	Class B - Residential One Storey	193.66	0.31	$ 791	$ 153,187	0.33	$ 888	$ 171,972	$ 18,785
33 RIVERSIDE DR	Class B - Residential One Storey	157.07	0.06	$ 621	$ 97,540	0.08	$ 621	$ 97,540	$ -
41 VILLA DR	Class B - Residential One Storey	473.51	0.50	$ 888	$ 420,479	0.52	$ 888	$ 420,479	$ -
35 RIVERSIDE DR	Industrial / Warehouse	57.95	0.20	$ 275	$ 15,937	0.22	$ 275	$ 15,937	$ -
35 RIVERSIDE DR	Class B - Residential One Storey	169.52	0.22	$ 791	$ 134,090	0.24	$ 791	$ 134,090	$ -
38 RIVERSIDE DR	Class B - Residential Two Storey	183.97	0.37	$ 1,047	$ 192,614	0.39	$ 1,047	$ 192,614	$ -
38 RIVERSIDE DR	Industrial / Warehouse	41.24	0.70	$ 901	$ 37,161	0.72	$ 901	$ 37,161	$ -
45 VILLA DR	Class B - Residential One Storey	250.23	0.50	$ 888	$ 222,206	0.52	$ 888	$ 222,206	$ -
37 RIVERSIDE DR	Industrial / Warehouse	38.49	0.45	$ 485	$ 18,669	0.47	$ 485	$ 18,669	$ -
37 RIVERSIDE DR	Class B - Residential One Storey	176.83	0.33	$ 888	$ 157,027	0.35	$ 888	$ 157,027	$ -
40 RIVERSIDE DR	Class B - Residential Two Storey	203.27	0.32	$ 1,047	$ 212,824	0.34	$ 1,047	$ 212,824	$ -
42 EASY ST	Class B - Residential One Storey	245.09	0.05	$ 621	$ 152,200	0.08	$ 621	$ 152,200	$ -
39 RIVERSIDE DR	Class B - Residential Split Level	397.79	0.40	$ 342	$ 136,046	0.43	$ 342	$ 136,046	$ -
42 RIVERSIDE DR	Class B - Residential One Storey	203.99	0.79	$ 1,070	$ 218,268	0.81	$ 1,070	$ 218,268	$ -
44 RIVERSIDE DR	Class B - Residential One Storey	228.31	0.78	$ 1,070	$ 244,293	0.81	$ 1,070	$ 244,293	$ -
46 EASY ST	Class B - Residential Split Level	325.80	0.17	$ 242	$ 78,844	0.20	$ 242	$ 78,844	$ -
52 EASY ST	Class B - Residential Split Level	230.83	0.23	$ 242	$ 55,862	0.27	$ 242	$ 55,862	$ -
48 RIVERSIDE DR	Class B - Residential One Storey	506.27	0.48	$ 888	$ 449,570	0.51	$ 888	$ 449,570	$ -
50 RIVERSIDE DR	Class B - Residential Two Storey	305.33	0.15	$ 878	$ 268,076	0.18	$ 878	$ 268,076	$ -
54 RIVERSIDE DR	Industrial / Warehouse	178.86	0.77	$ 901	$ 161,155	0.81	$ 901	$ 161,155	$ -
52 RIVERSIDE DR	Class B - Residential Two Storey	319.18	0.29	$ 878	$ 280,236	0.33	$ 1,047	$ 334,176	$ 53,941
54 RIVERSIDE DR	Industrial / Warehouse	305.44	0.69	$ 901	$ 275,200	0.73	$ 901	$ 275,200	$ -
54 RIVERSIDE DR	Industrial / Warehouse	371.29	0.60	$ 901	$ 334,534	0.64	$ 901	$ 334,534	$ -
54 RIVERSIDE DR	Industrial / Warehouse	404.14	1.26	$ 1,035	$ 418,287	1.31	$ 1,035	$ 418,287	$ -
245 HOLMES POINT RD	Class B - Residential Two Storey	125.18	0.38	$ 1,047	$ 131,062	0.47	$ 1,047	$ 131,062	$ -
237 HOLMES POINT RD	Class B - Residential One Storey	128.41	0.80	$ 1,070	$ 137,394	0.89	$ 1,070	$ 137,394	$ -
100 RIVERVIEW BEACH	Class B - Residential One Storey	112.84	0.03	$ 621	$ 70,071	0.12	$ 791	$ 89,254	$ 19,182
235 HOLMES POINT RD	Class B - Residential Two Storey	201.40	0.77	$ 1,273	$ 256,379	0.86	$ 1,273	$ 256,379	$ -
102 RIVERVIEW BEAC RD	Class B - Residential One Storey	178.07	0.06	$ 621	$ 110,581	0.15	$ 791	$ 140,852	$ 30,272

231 HOLMES POINT RD	Class B - Residential Two Storey	117.20	1.22	$ 1,300	$ 152,359	1.31	$ 1,300	$ 152,359	$ -
229 HOLMES POINT RD	Class B - Residential One Storey	196.29	0.66	$ 1,070	$ 210,032	0.75	$ 1,070	$ 210,032	$ -
104 RIVERVIEW BEAC RD	Class B - Residential One Storey	161.77	0.17	$ 791	$ 127,957	0.26	$ 791	$ 127,957	$ -
229 HOLMES POINT RD	Industrial / Warehouse	45.83	0.55	$ 485	$ 22,226	0.64	$ 901	$ 41,291	$ 19,064
225 HOLMES POINT RD	Class B - Residential Two Storey	165.52	0.49	$ 1,047	$ 173,294	0.58	$ 1,047	$ 173,294	$ -
223 HOLMES POINT RD	Class B - Residential Two Storey	116.30	0.57	$ 1,047	$ 121,763	0.67	$ 1,273	$ 148,047	$ 26,283
106 RIVERVIEW BEAC RD	Class B - Residential Two Storey	185.83	0.63	$ 1,273	$ 236,562	0.73	$ 1,273	$ 236,562	$ -
219 HOLMES POINT RD	Class B - Residential One Storey	59.36	0.68	$ 1,070	$ 63,520	0.78	$ 1,070	$ 63,520	$ -
219 HOLMES POINT RD	Industrial / Warehouse	72.94	0.64	$ 901	$ 65,718	0.74	$ 901	$ 65,718	$ -
217 HOLMES POINT RD	Class B - Residential Two Storey	159.84	0.45	$ 1,047	$ 167,357	0.54	$ 1,047	$ 167,357	$ -
165 HOLMES POINT RD	Industrial / Warehouse	85.65	0.62	$ 901	$ 77,175	0.70	$ 901	$ 77,175	$ -
213 HOLMES POINT RD	Class B - Residential One Storey	93.85	0.59	$ 888	$ 83,338	0.67	$ 1,070	$ 100,419	$ 17,081
157 HOLMES POINT RD	Industrial / Warehouse	81.28	0.39	$ 485	$ 39,422	0.46	$ 485	$ 39,422	$ -
183 HOLMES POINT RD	Industrial / Warehouse	115.40	0.53	$ 485	$ 55,967	0.59	$ 485	$ 55,967	$ -
211 HOLMES POINT RD	Class B - Residential One Storey	285.34	0.40	$ 888	$ 253,383	0.46	$ 888	$ 253,383	$ -
179 HOLMES POINT RD	Industrial / Warehouse	144.07	0.59	$ 485	$ 69,875	0.65	$ 901	$ 129,808	$ 59,934
177 HOLMES POINT RD	Industrial / Warehouse	98.27	0.04	$ 62	$ 6,093	0.10	$ 62	$ 6,093	$ -
165 HOLMES POINT RD	Class B - Residential Two Storey	394.50	0.00	$ -	$ -	0.00	$ -	$ -	$ -
202 HOLMES POINT RD	Hotel / Motel	317.92	0.76	$ 307	$ 97,600	0.79	$ 307	$ 97,600	$ -
61 IRVING DR	Class B - Residential One Storey	274.82	0.39	$ 888	$ 244,040	0.42	$ 888	$ 244,040	$ -
63 IRVING DR	Class B - Residential One Storey	286.22	0.32	$ 888	$ 254,166	0.35	$ 888	$ 254,166	$ -
67 IRVING DR	Class B - Residential One Storey	167.77	0.36	$ 888	$ 148,981	0.37	$ 888	$ 148,981	$ -
85 IRVING DR	Industrial / Warehouse	98.39	0.46	$ 485	$ 47,721	0.47	$ 485	$ 47,721	$ -
99 IRVING DR	Industrial / Warehouse	48.67	0.42	$ 485	$ 23,604	0.44	$ 485	$ 23,604	$ -
99 IRVING DR	Class B - Residential One Storey	132.96	0.46	$ 888	$ 118,064	0.48	$ 888	$ 118,064	$ -
101 IRVING DR	Class B - Residential One Storey	159.10	0.32	$ 888	$ 141,284	0.33	$ 888	$ 141,284	$ -
85 IRVING DR	Class B - Residential One Storey	175.00	0.32	$ 888	$ 155,396	0.33	$ 888	$ 155,396	$ -
93 IRVING DR	Industrial / Warehouse	46.79	0.35	$ 485	$ 22,692	0.36	$ 485	$ 22,692	$ -
150 RIVERVIEW BEAC RD	Class B - Residential One Storey	166.51	0.00	$ -	$ -	0.00	$ -	$ -	$ -
91 IRVING DR	Class B - Residential One Storey	298.51	0.36	$ 888	$ 265,079	0.37	$ 888	$ 265,079	$ -
113 IRVING DR	Class B - Residential One Storey	128.44	0.14	$ 791	$ 101,593	0.15	$ 791	$ 101,593	$ -
69 IRVING DR	Class C - Residential One Storey	169.92	0.24	$ 839	$ 142,560	0.25	$ 839	$ 142,560	$ -
93 IRVING DR	Industrial / Warehouse	110.12	0.34	$ 485	$ 53,410	0.35	$ 485	$ 53,410	$ -
Totals					**$ 14,977,965.17**			**$ 15,286,538.26**	**$ 308,573.09**



Note: Inundation mapping not intended to be representative of Regulatory Floodplain Mapping.

1:6,000
NAD 1983 17N

N

0 55 110 220
Meters

Created in ArcMap 10.7
Queens Printer for Ontario, 2022
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Inundation Map
Sunny Day

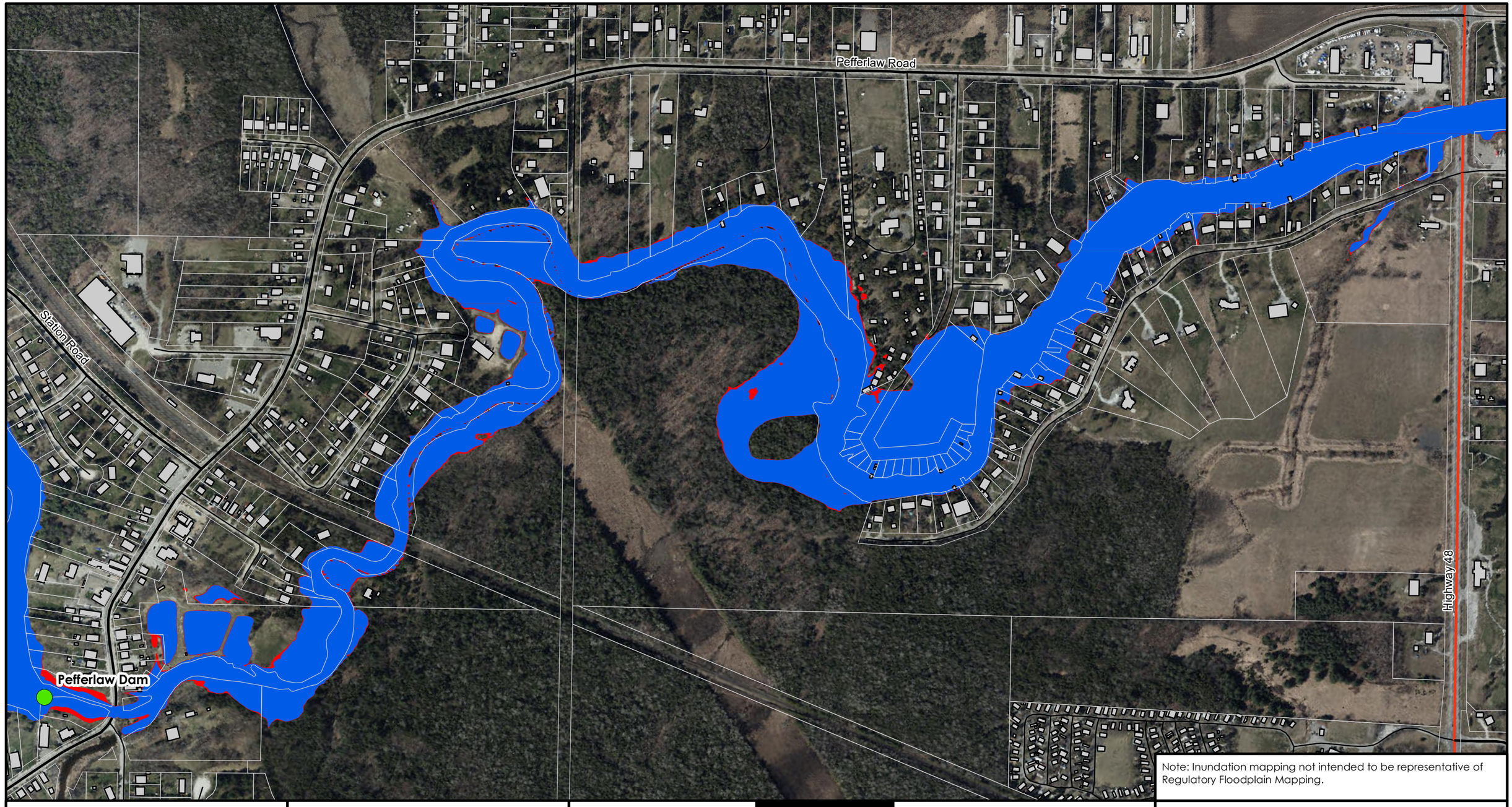
Map Date: June 2022
Drawin By: DG
Checked By: KS
Engineer: DG
Project Number: 19-5381

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Legend

- Pefferlaw Dam Location
- Building Footprints
- Sunny Day - No Dam Breach
- Sunny Day - Dam Breach



Note: Inundation mapping not intended to be representative of Regulatory Floodplain Mapping.

1:6,000
NAD 1983 17N

N

0 55 110 220
Meters

Created in ArcMap 10.7
Queens Printer for Ontario, 2022
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Inundation Map
25-Year Flood

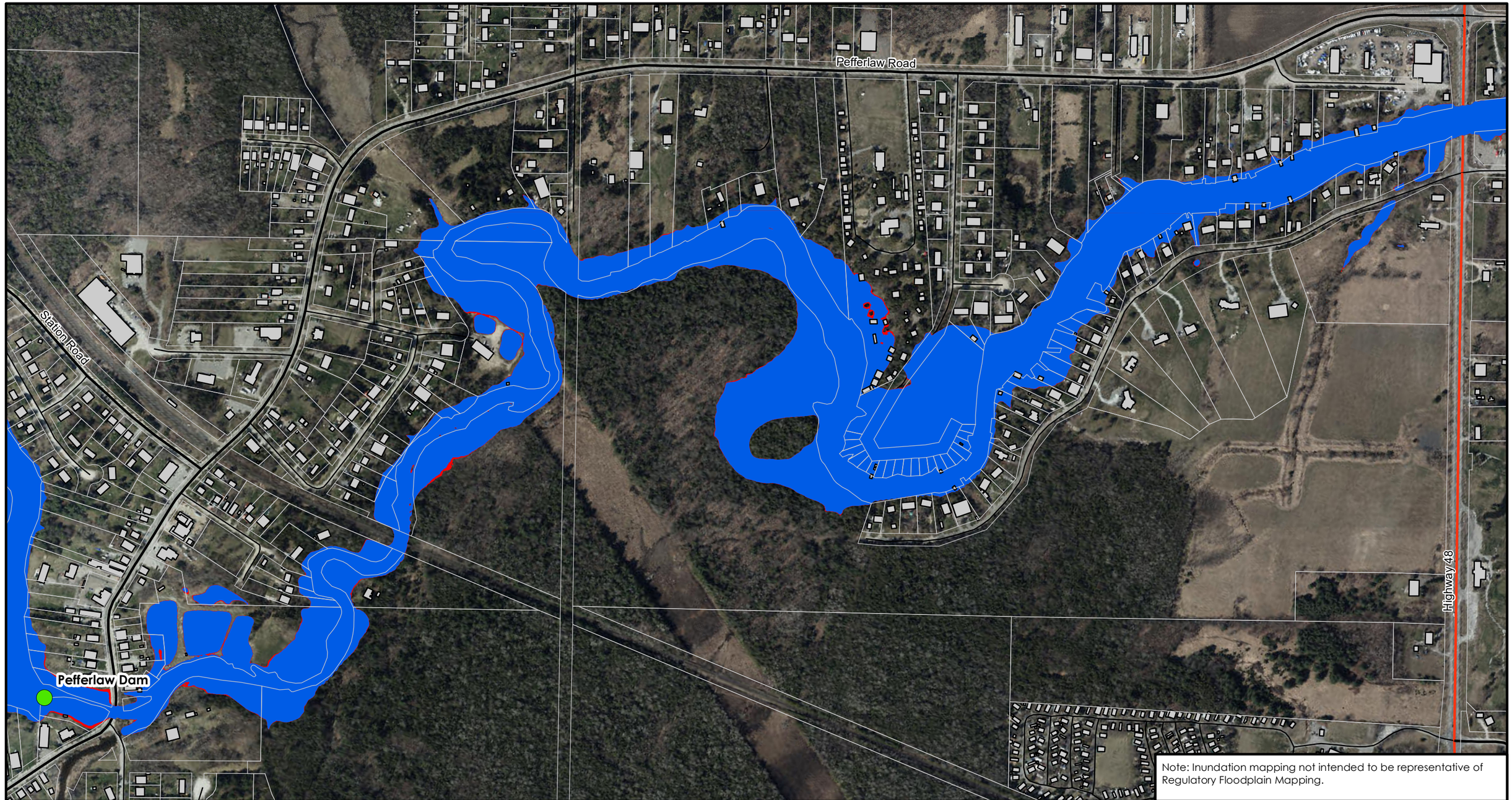
Map Date: June 2022
Drawn By: DG
Checked By: KS
Engineer: DG
Project Number: 19-5381

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Legend

- Pefferlaw Dam Location
- Building Footprints
- 25-Year - No Dam Breach
- 25-Year - Dam Breach



Note: Inundation mapping not intended to be representative of Regulatory Floodplain Mapping.

1:6,000
NAD 1983 17N

N

0 55 110 220
Meters

Created in ArcMap 10.7
Queens Printer for Ontario, 2022
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Inundation Map
100-Year Flood

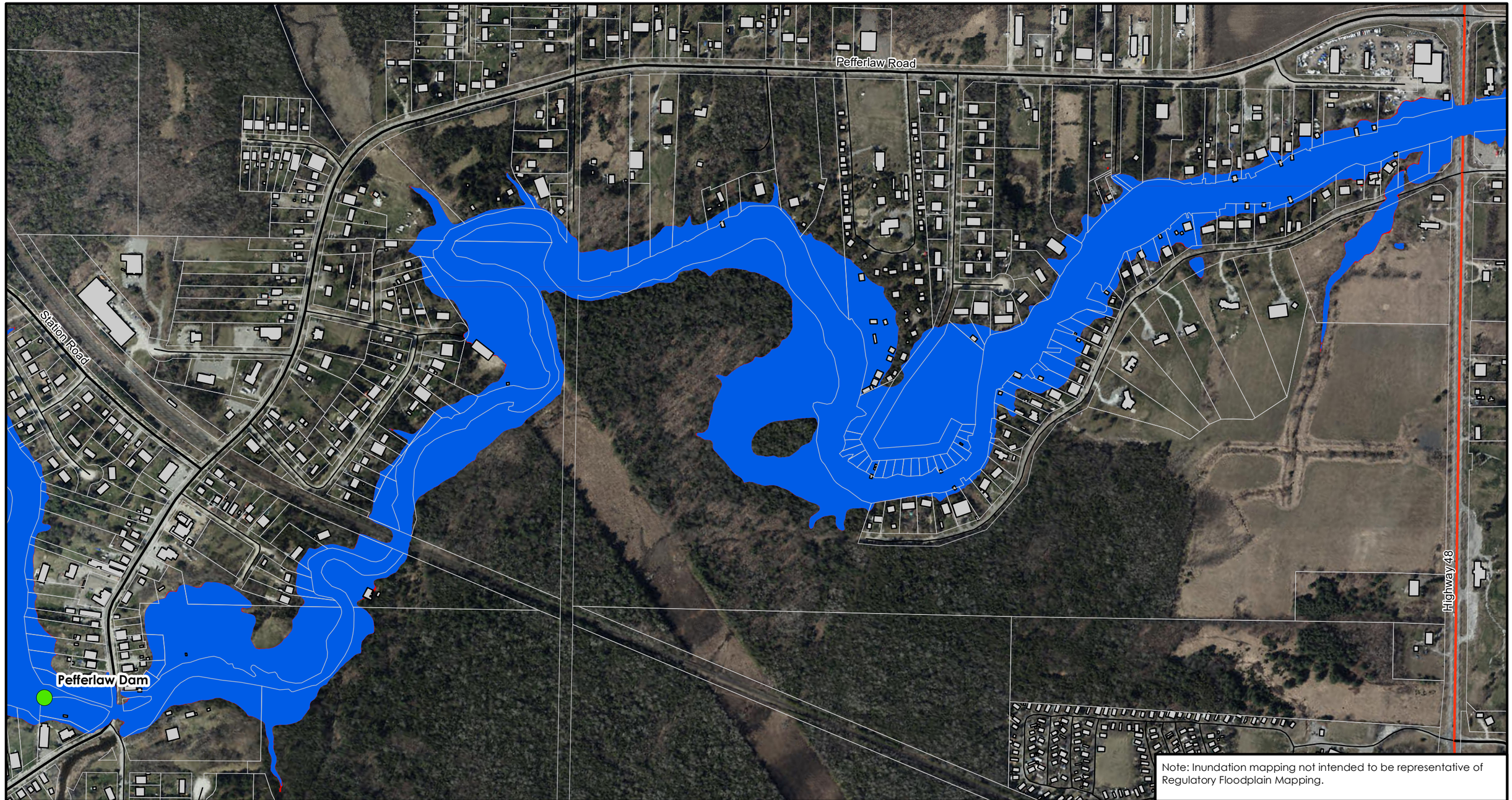
Map Date: June 2022
Drawin By: DG
Checked By: KS
Engineer: DG
Project Number: 19-5381

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Legend

- Pefferlaw Dam Location
- Building Footprints
- 100-Year - No Dam Breach
- 100-Year - Dam Breach



Note: Inundation mapping not intended to be representative of Regulatory Floodplain Mapping.

1:6,000
NAD 1983 17N

N

0 55 110 220
Meters

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Inundation Map
Regional Flood

Map Date: June 2022
Drawin By: DG
Checked By: KS
Engineer: DG
Project Number: 19-5381

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Legend

- Pefferlaw Dam Location
- Building Footprints
- Regional - No Dam Breach
- Regional - Dam Breach

Freeboard Analysis for Pefferlaw Dam

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 31-May-22

Wind Speeds

Direction	Fetch Length (km)	1:1000 AEP km/hr	1:100 AEP km/hr
N	Behind Dam	0.0	0.0
NE	Behind Dam	0.0	0.0
E	Behind Dam	0.0	0.0
SE	Behind Dam	0.0	0.0
S	0.08	132.5	101.8
SW	Behind Dam	0.0	0.0
W	Behind Dam	0.0	0.0
NW	Behind Dam	0.0	0.0

Dam Characteristics

Hazard Classification	Moderate
Crest Elevation (m)	226.2
Impervious Core Elevation (m)	N/A
Average Reservoir Depth (m)	2
Embankment Slope (H:V)	3:1
Embankment Material	1 layer of rock

	Normal Operating Level	IDF Level
Water Level (m)	225.08	226.68
Available Freeboard (m)	1.12	-0.48
Available Freeboard (Top of Impervious Core, m)	N/A	N/A

Freeboard Analysis

	Normal Operating Level	IDF Level
Critical Wind Annual Exceedence Probability	1:1000	1:100
Critical Wind Direction	S	S
Wind Speed (km/hr)	132.5	101.8
Effective Fetch (km)	0.08	0.08
Significant Wave Height (m)	0.27	0.20
Effective Fetch for Wind Setup (km)	0.08	0.08
Wave Runup (5% Exceedence, m)	0.23	0.15
Wind Setup (m)	0.01	0.007
Required Freeboard (m)	0.24	0.16
Required Freeboard (Top of Impervious Core)	N/A	N/A
Adequate Freeboard	***Yes***	***No***

Notes:

1. Wind speeds were multiplied by a factor of 1.2 to convert overland wind speeds into overwater wind speeds following the recommendations in USACE (1984) for fetch conditions <16km.
2. Wind data taken from CHBC.
3. The analysis was checked to be Fetch-Limited for the Normal Operating analysis, and Fetch-Limited for the IDF analysis.
4. Wave Runup Caluclations use methods from USACE.

Appendix D

Structural (Gravity Dam) Stability Assessment

2015 National Building Code Seismic Hazard Calculation

INFORMATION: Eastern Canada English (613) 995-5548 français (613) 995-0600 Facsimile (613) 992-8836
Western Canada English (250) 363-6500 Facsimile (250) 363-6565

Site: 44.314N 79.197W **User File Reference:** Pefferlaw Dam 2022-06-01 15:13 UT

Requested by: D.M. Wills Associates Limited

Probability of exceedance per annum	0.000404	0.001	0.0021	0.01
Probability of exceedance in 50 years	2 %	5 %	10 %	40 %
Sa (0.05)	0.093	0.057	0.037	0.012
Sa (0.1)	0.126	0.081	0.053	0.019
Sa (0.2)	0.120	0.079	0.054	0.020
Sa (0.3)	0.102	0.068	0.047	0.018
Sa (0.5)	0.083	0.056	0.038	0.014
Sa (1.0)	0.050	0.033	0.023	0.007
Sa (2.0)	0.026	0.017	0.011	0.003
Sa (5.0)	0.006	0.004	0.002	0.001
Sa (10.0)	0.003	0.002	0.001	0.000
PGA (g)	0.072	0.046	0.030	0.010
PGV (m/s)	0.069	0.043	0.028	0.009

Notes: Spectral (Sa(T), where T is the period in seconds) and peak ground acceleration (PGA) values are given in units of g (9.81 m/s^2). Peak ground velocity is given in m/s. Values are for "firm ground" (NBCC2015 Site Class C, average shear wave velocity 450 m/s). NBCC2015 and CSAS6-14 values are highlighted in yellow. Three additional periods are provided - their use is discussed in the NBCC2015 Commentary. Only 2 significant figures are to be used. **These values have been interpolated from a 10-km-spaced grid of points. Depending on the gradient of the nearby points, values at this location calculated directly from the hazard program may vary. More than 95 percent of interpolated values are within 2 percent of the directly calculated values.**

References

National Building Code of Canada 2015 NRCC no. 56190; Appendix C: Table C-3, Seismic Design Data for Selected Locations in Canada

Structural Commentaries (User's Guide - NBC 2015: Part 4 of Division B)
Commentary J: Design for Seismic Effects

Geological Survey of Canada Open File 7893 Fifth Generation Seismic Hazard Model for Canada: Grid values of mean hazard to be used with the 2015 National Building Code of Canada

See the websites www.EarthquakesCanada.ca and www.nationalcodes.ca for more information

East (Right) Wier Inputs

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Water Levels

Usual Summer Operating Levels

225.08	m	Headwater
222.84	m	Tailwater

Usual Winter Operating Levels

224.65	m	Headwater
222.84	m	Tailwater

Usual Flood Discharge Levels

226.68	m	Headwater
225.62	m	Tailwater

Ice Loading

0	kN/m	Usual Ice Load
0	kN/m	Unusual Ice Load

Seismic Acceleration

0.031	g	Horizonal, S_H
0.021	g	Vertical, S_V (2/3 S_H)

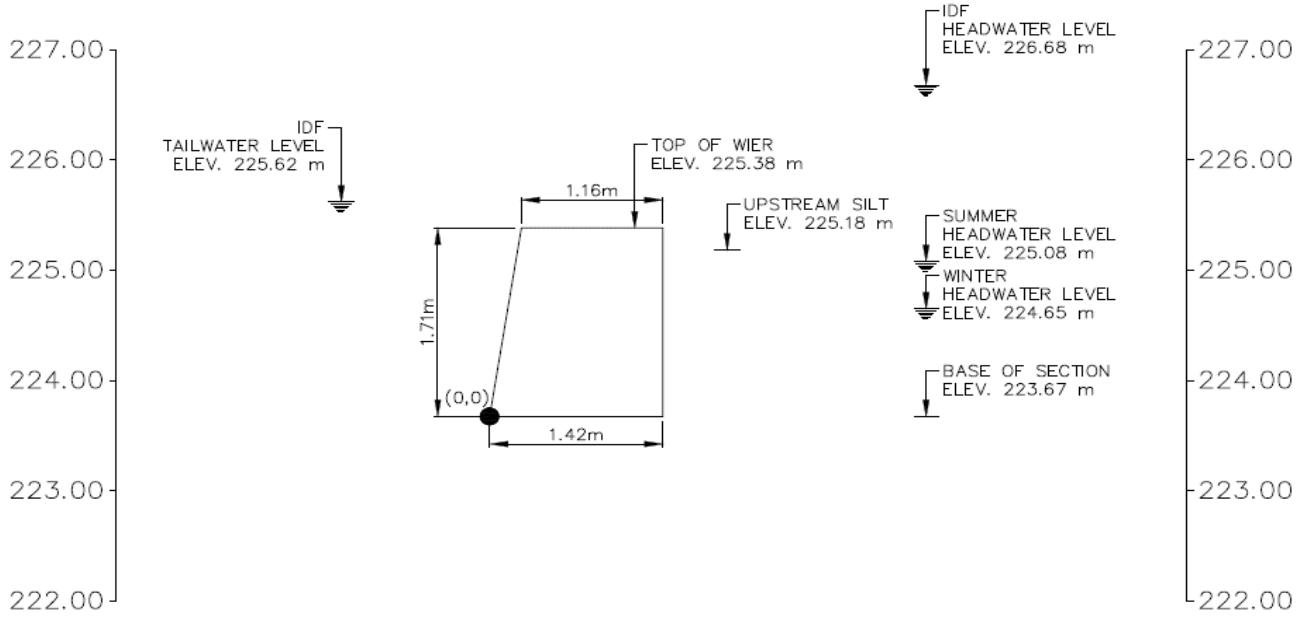
Structure Geometry

225.38	m	Top of Dam Elevation
223.67	m	Upstream Base Elevation
223.67	m	Downstream Base Elevation
1.42	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
2.20	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

225.18	m	Upstream Silt Elevation
0.00	m^2	Upstream Area of Silt on Dam

Dimensioned Sketch of Dam Section



Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Material Properties

9.81	m/s^2	Gravitational Acceleration, g	500	kN/m^2	Allowable Foundation Bearing Pressure
1000	kg/m^3	Density of Water, ρ_{water}	3000	kN/m^2	Allowable Compressive Stress in Concrete
9810	N/m^3	Specific Weight of Water, γ_{water}	420	kN/m^2	Allowable Tensile Stress in Concrete
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$	250	kN/m^2	Allowable Shear Stress
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$			
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}			
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$			
7700	N/m^3	Specific Weight of Backfill, γ_{fill}			
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$			

Structure Geometry

225.38	m	Top of Dam Elevation
223.67	m	Upstream Base Elevation
223.67	m	Downstream Base Elevation
1.42	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
2.20	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

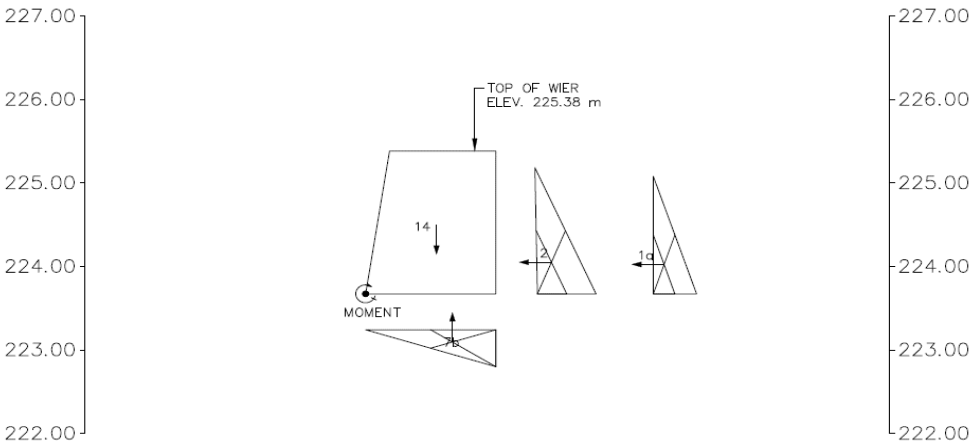
225.18	m	Upstream Silt Elevation

Loading Combination

1. Usual Load (Summer) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (maximum normal operating level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam

Loading Combination Sketch



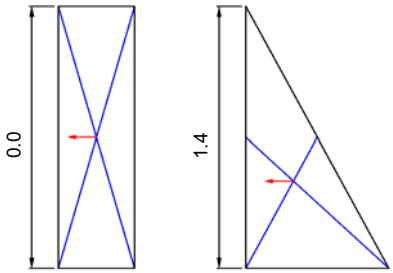
East (Right) Wier - Loading Condition: 1. Usual Load (Summer)

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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

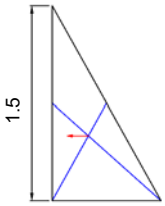
Headwater Elevation	225.08	m
Total Height of Water , h	1.41	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	1.41	m
Hydrostatic Force (Triangular; 1a)	**9752**	**N**
Moment Arm Length	0.47	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**9752**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	1.51	m
Upstream Horizontal Silt Force	**3398**	**N**
Moment Arm Length	0.50	m

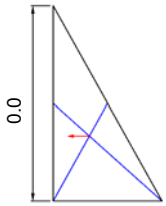


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

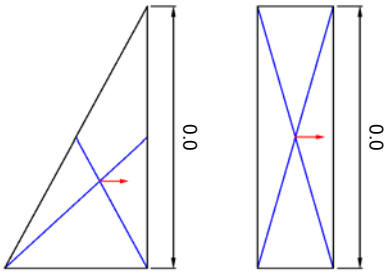


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

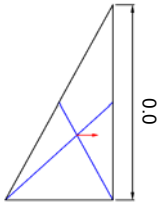


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m



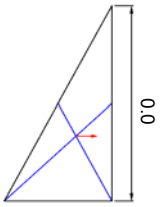
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6. Downstream Horizontal Backfill Force

N/A

Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

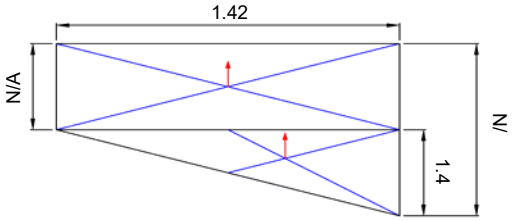
Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

Width of Dam, T	1.42	m
Headwater Height, h	1.41	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**9821**	**N**
Moment Arm Length	0.95	m
Total Uplift Force	**9821**	**N**

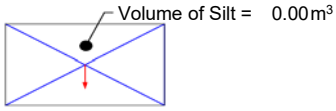


8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

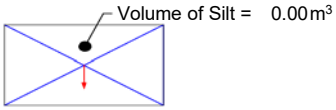


9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

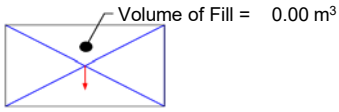


10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

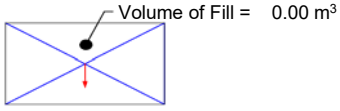


11. Downstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

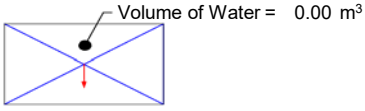
Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m



12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



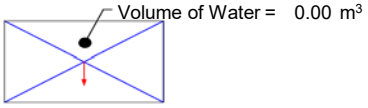
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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

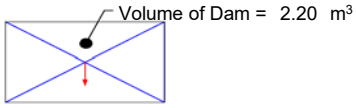
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

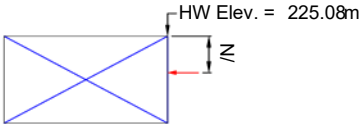
Volume of Dam, V_{dam}	2.20	m^3
Dead Weight of Dam	**47480**	**N**
Moment Arm Length	0.77	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

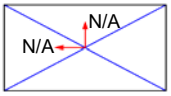
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

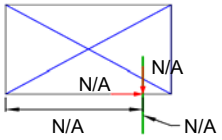


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				9752	0.47		4583
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				3398	0.50		1710
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		9821			0.95		9297
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	47480				0.77	36560	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**47480**	**9821**	**0**	**13149**	**- -**	**36560**	**15591**

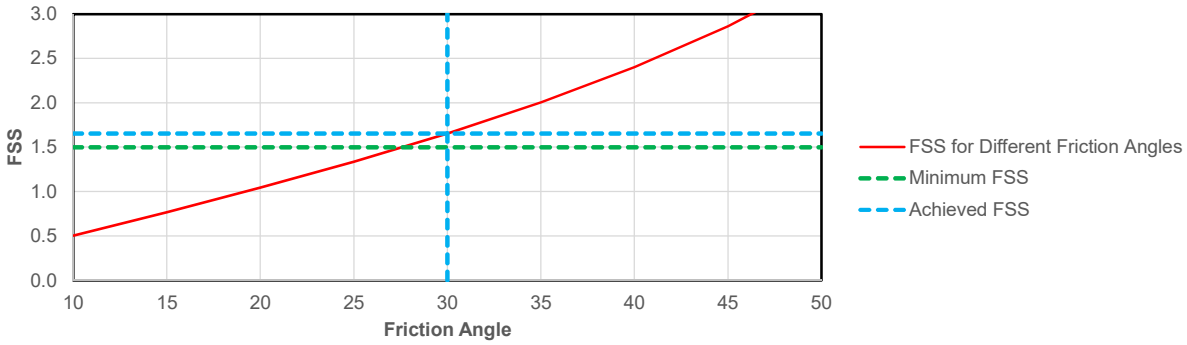
∑Horizontal Forces = **-13149** **N**
∑Vertical Forces = **37660** **N**
∑Clockwise Moment = **36560** **N-m**
∑Counterclockwise Moment = **-15591** **N-m**
∑ Moment = **20969** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 1.65 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

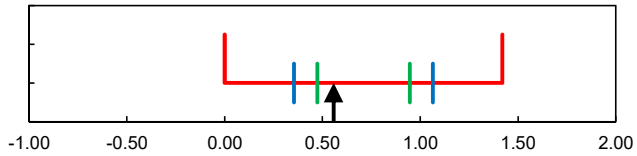
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 2.35 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 0.56 m
Eccentricity (e) = 0.15 m

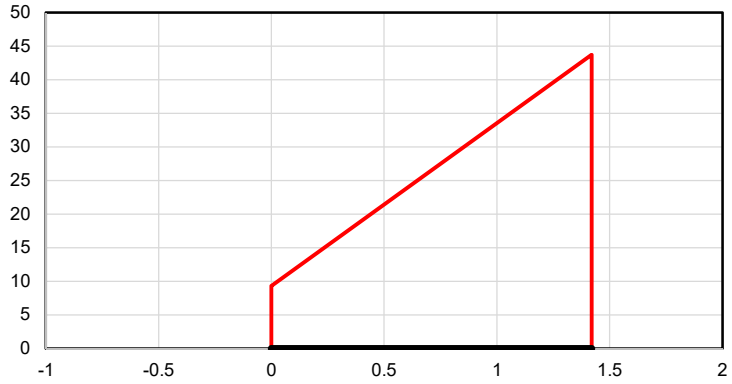
Location of Resultant = Inside Middle Third



Average Vertical Stress = 26521 N/m^2

		Concrete	Foundation
Normal Compressive Stress at Toe = 9355	N/m^2	Acceptable	Acceptable
Normal Compressive Stress at Heel = 43687	N/m^2	Acceptable	Acceptable
Maximum Normal Compressive Stess = 43687	N/m^2		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = 9355	N/m^2	Acceptable
Principle Stress at Heel = 43687	N/m^2	Acceptable
Shear Stress at Toe = 0	N/m^2	Acceptable
Shear Stress at Heel = 0	N/m^2	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g	500	kN/m^2	Allowable Foundation Bearing Pressure
1000	kg/m^3	Density of Water, ρ_{water}	3000	kN/m^2	Allowable Compressive Stress in Concrete
9810	N/m^3	Specific Weight of Water, γ_{water}	420	kN/m^2	Allowable Tensile Stress in Concrete
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$	250	kN/m^2	Allowable Shear Stress
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$			
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}			
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$			
7700	N/m^3	Specific Weight of Backfill, γ_{fill}			
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$			

Structure Geometry

225.38	m	Top of Dam Elevation
223.67	m	Upstream Base Elevation
223.67	m	Downstream Base Elevation
1.42	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
2.20	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

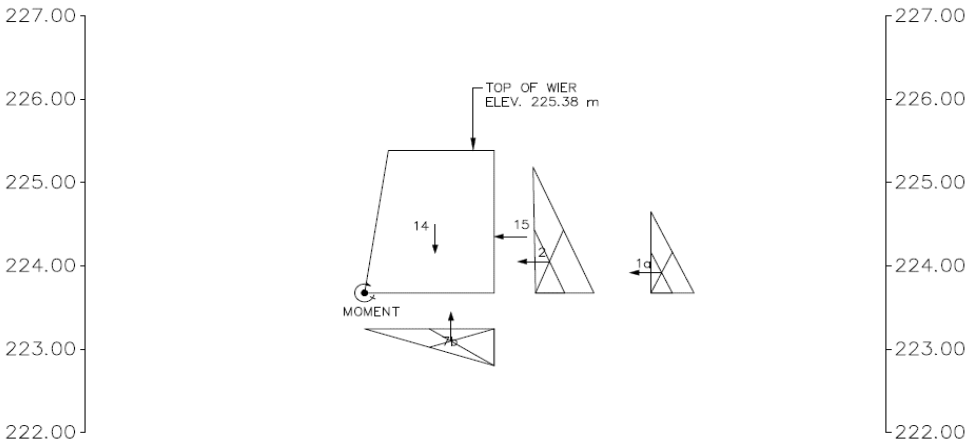
225.18	m	Upstream Silt Elevation

Loading Combination

2. Usual Load (Winter) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (maximum normal operating level); Ice Load (usual); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam
15. Ice Loading

Loading Combination Sketch



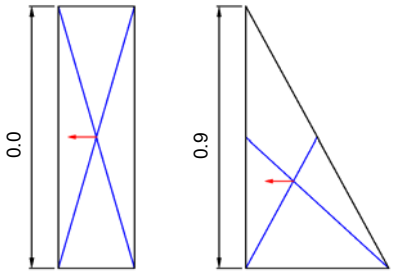
East (Right) Wier - Loading Condition: 2. Usual Load (Winter)

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Date: 6/03/22

1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

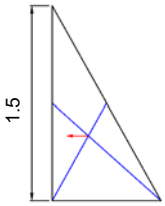
Headwater Elevation	224.65	m
Total Height of Water , h	0.98	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.98	m
Hydrostatic Force (Triangular; 1a)	**4711**	**N**
Moment Arm Length	0.33	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**4711**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	1.51	m
Upstream Horizontal Silt Force	**3398**	**N**
Moment Arm Length	0.50	m

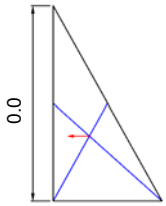


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

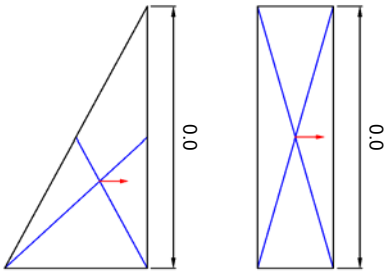


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

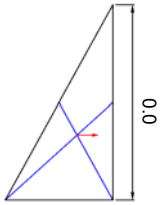


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

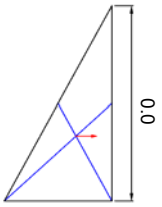


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6. Downstream Horizontal Backfill Force

N/A

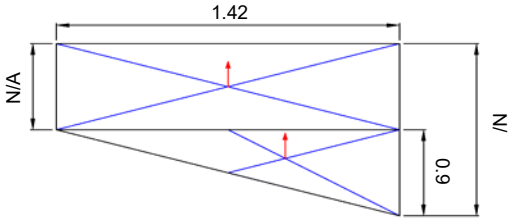
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

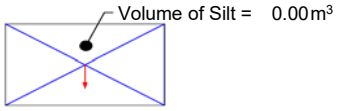


Width of Dam, T	1.42	m
Headwater Height, h	0.98	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**6826**	**N**
Moment Arm Length	0.95	m
Total Uplift Force	**6826**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

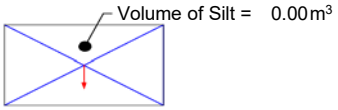


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

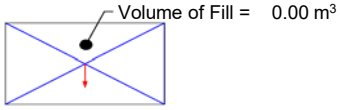


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

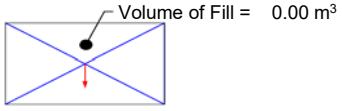


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

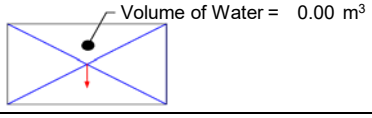
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m

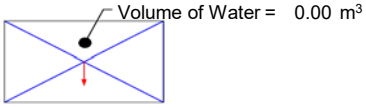
WILLS

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

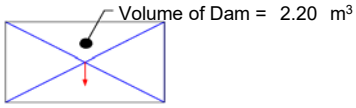
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

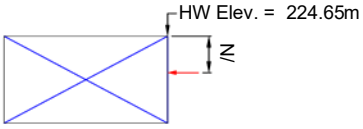
Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

Volume of Dam, V_{dam}	2.20	m^3
Dead Weight of Dam	**47480**	**N**
Moment Arm Length	0.77	m



15. Ice Loading

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

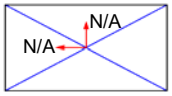
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

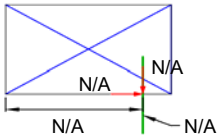


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				4711	0.33		1539
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				3398	0.50		1710
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		6826			0.95		6462
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	47480				0.77	36560	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**47480**	**6826**	**0**	**8109**	**- -**	**36560**	**9711**

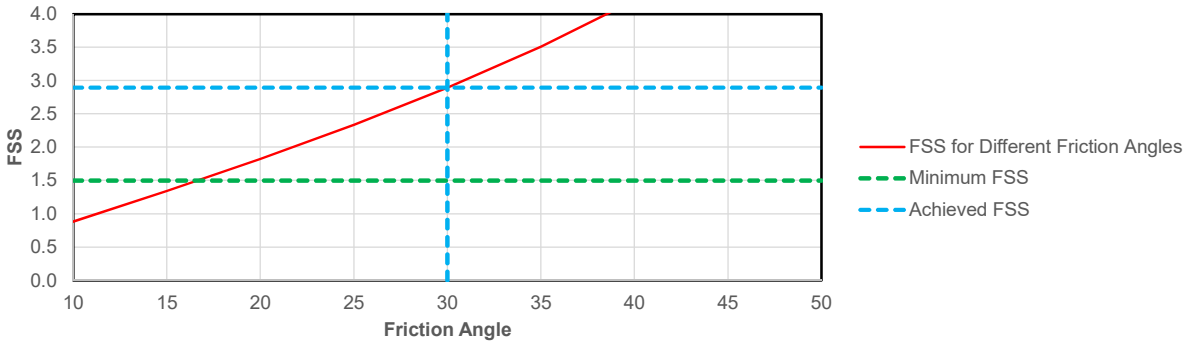
∑Horizontal Forces = **-8109** **N**
∑Vertical Forces = **40655** **N**
∑Clockwise Moment = **36560** **N-m**
∑Counterclockwise Moment = **-9711** **N-m**
∑ Moment = **26849** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 2.89 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

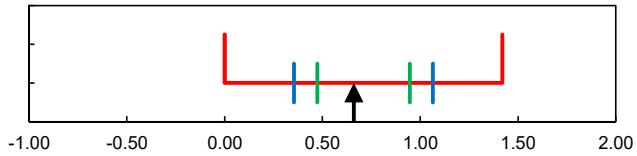
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 3.76 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 0.66 m
Eccentricity (e) = 0.05 m

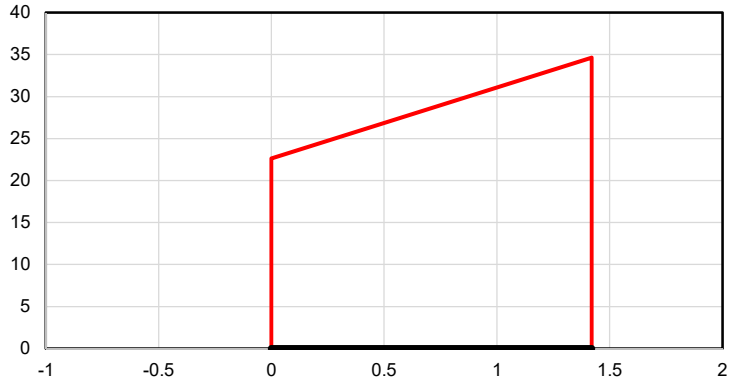
Location of Resultant = Inside Middle Third



Average Vertical Stress = 28630 N/m^2

		Concrete	Foundation
Normal Compressive Stress at Toe = 22632	N/m^2	Acceptable	Acceptable
Normal Compressive Stress at Heel = 34628	N/m^2	Acceptable	Acceptable
Maximum Normal Compressive Stess = 34628	N/m^2		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = 22632	N/m^2	Acceptable
Principle Stress at Heel = 34628	N/m^2	Acceptable
Shear Stress at Toe = 0	N/m^2	Acceptable
Shear Stress at Heel = 0	N/m^2	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

225.38	m	Top of Dam Elevation
223.67	m	Upstream Base Elevation
223.67	m	Downstream Base Elevation
1.42	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
2.20	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

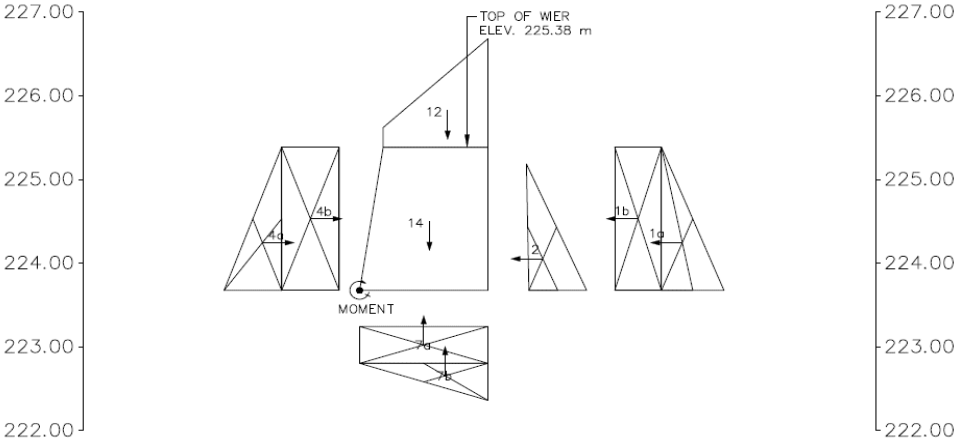
225.18	m	Upstream Silt Elevation

Loading Combination

3. Unusual Load (Flood) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (IDF level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
4. Tailwater Horizontal Hydrostatic Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam

Loading Combination Sketch



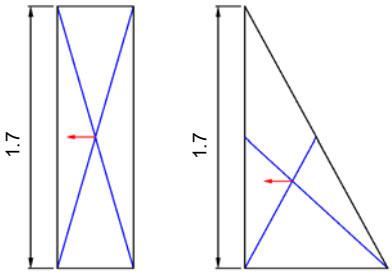
East (Right) Wier - Loading Condition: 3. Unusual Load (Flood)

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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

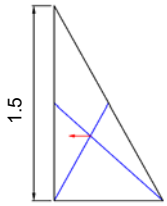
Headwater Elevation	226.68	m
Total Height of Water , h	3.01	m
Height of Water (Above Dam Crest), h'	1.30	m
Height of Water (Below Dam Crest), h"	1.71	m
Hydrostatic Force (Triangular; 1a)	**44440**	**N**
Moment Arm Length	0.57	m
Hydrostatic Force (Rectangular; 1b)	**21808**	**N**
Moment Arm Length	0.86	m
Total Headwater Hydrostatic Force	**66247**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	1.51	m
Upstream Horizontal Silt Force	**3398**	**N**
Moment Arm Length	0.50	m

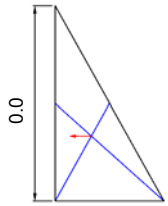


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

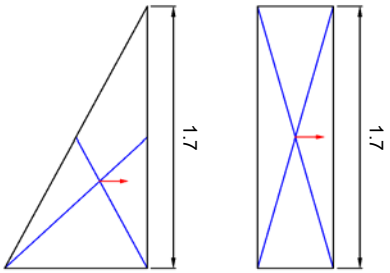
Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



4. Tailwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	225.62	m
Total Height of Water , h	1.95	m
Height of Water (Above Dam Crest), h'	0.24	m
Height of Water (Below Dam Crest), h"	1.71	m
Hydrostatic Force (Triangular; 4a)	**18651**	**N**
Moment Arm Length	0.57	m
Hydrostatic Force (Rectangular; 4b)	**4026**	N
Moment Arm Length	0.86	m
Total Headwater Hydrostatic Force	**22677**	**N**

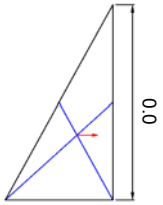


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m



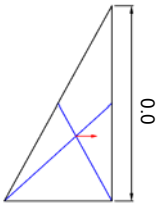
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6. Downstream Horizontal Backfill Force

N/A

Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

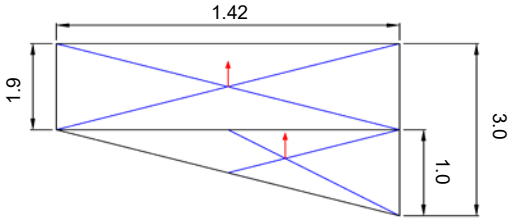
Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

Width of Dam, T	1.42	m
Headwater Height, h	3.01	m
Tailwater Height, h'	1.95	m
Uplift Force (Rectangular Component; 7a)	**27164**	**N**
Moment Arm Length	0.71	m
Uplift Force (Triangular Component; 7b)	**7383**	**N**
Moment Arm Length	0.95	m
Total Uplift Force	**34547**	**N**

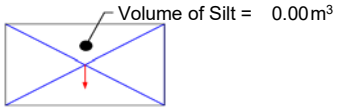


8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

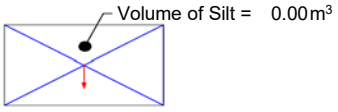


9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

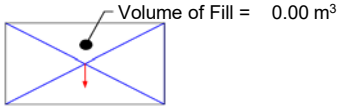


10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

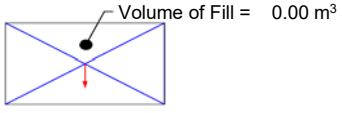


11. Downstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

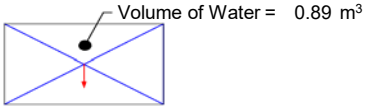
Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m



12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

Volume of Water, V_{water}	0.89	m^3
Upstream Weight of Water	**8731**	**N**
Moment Arm Length	0.97	m

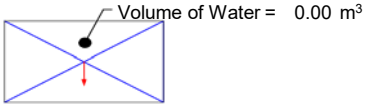


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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

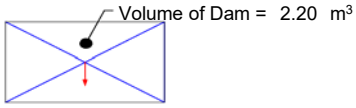
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

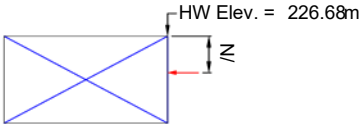
Volume of Dam, V_{dam}	2.20	m^3
Dead Weight of Dam	**47480**	**N**
Moment Arm Length	0.77	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

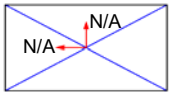
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

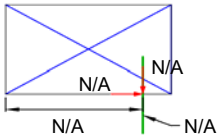


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				44440	0.57		25331
Headwater Horizontal Hydrostatic Force, 1b				21808	0.86		18646
Upstream Horizontal Silt Force, 2				3398	0.50		1710
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a			18651		0.57	10631	
Tailwater Horizontal Hydrostatic Force, 4b			4026		0.86	3442	
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a		27164			0.71		19286
Uplift Force, 7b		7383			0.95		6989
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12	8731				0.97	8469	
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	47480				0.77	36560	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**56211**	**34547**	**22677**	**69645**	**- -**	**59102**	**71962**

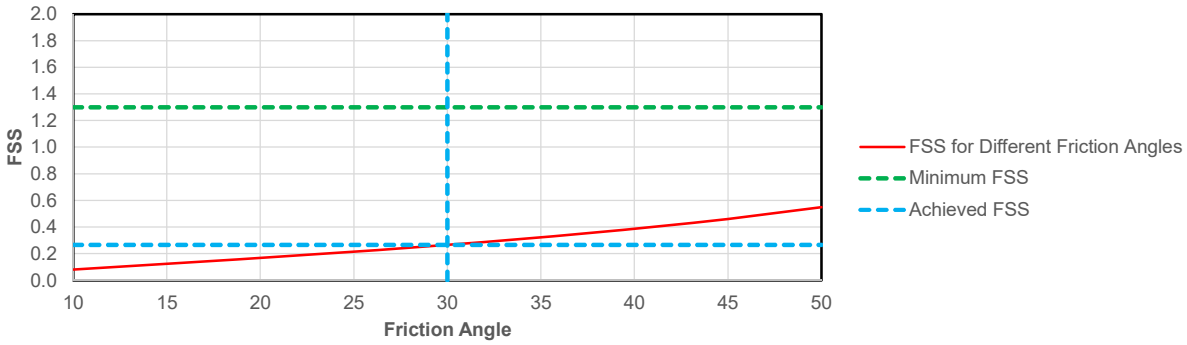
∑Horizontal Forces = **-46968** **N**
∑Vertical Forces = **21664** **N**
∑Clockwise Moment = **59102** **N-m**
∑Counterclockwise Moment = **-71962** **N-m**
∑ Moment = **-12860** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 0.27 Not Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

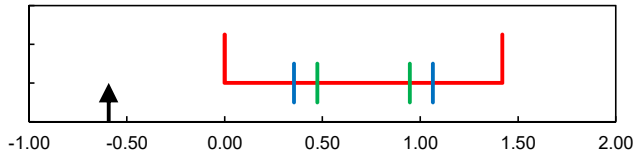
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 0.82 Not Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = -0.59 m
Eccentricity (e) = 1.30 m

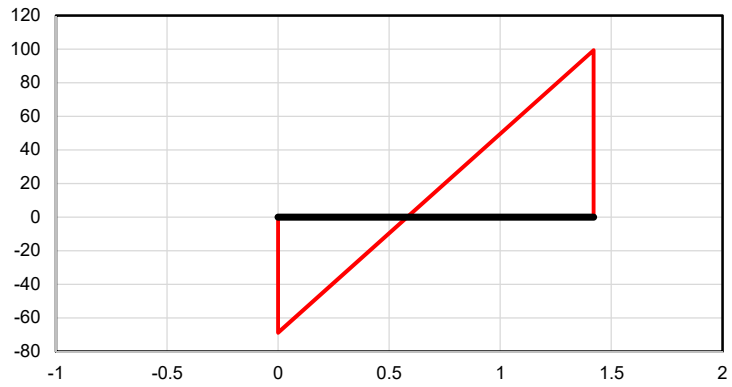
Location of Resultant = Outside Middle Third



Average Vertical Stress = 15257 N/m²

		Concrete	Foundation
Normal Compressive Stress at Toe = -68779	N/m²	Acceptable	Acceptable
Normal Compressive Stress at Heel = 99292	N/m²	Acceptable	Acceptable
Maximum Normal Compressive Stess = 99292	N/m²		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = -68779	N/m²	Acceptable
Principle Stress at Heel = 99292	N/m²	Acceptable
Shear Stress at Toe = 0	N/m²	Acceptable
Shear Stress at Heel = 0	N/m²	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

225.38	m	Top of Dam Elevation
223.67	m	Upstream Base Elevation
223.67	m	Downstream Base Elevation
1.42	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
2.20	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

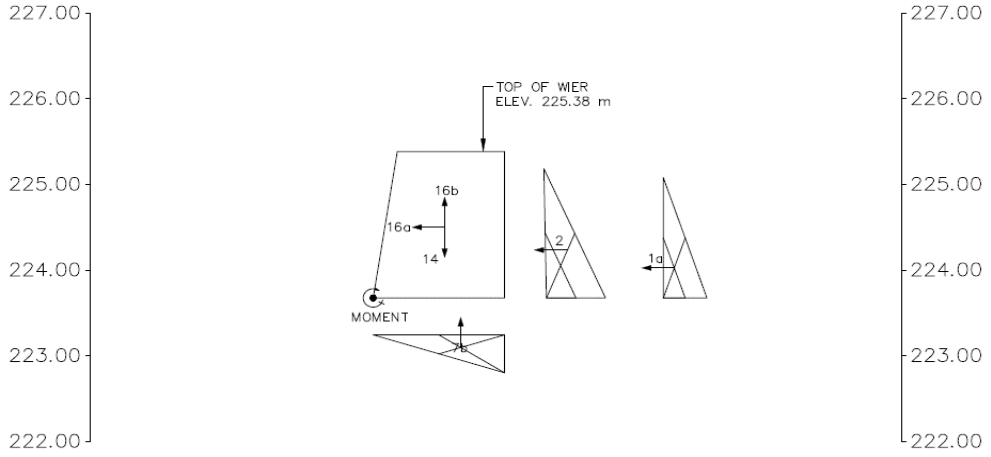
225.18	m	Upstream Silt Elevation

Loading Combination

5. Extreme Load (Earthquake) — Includes the following loads in combination: Dead Loads; Maximum Design Earthquake; Hydrostatic Load (maximum normal operating level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam
16. Seismic Loading

Loading Combination Sketch

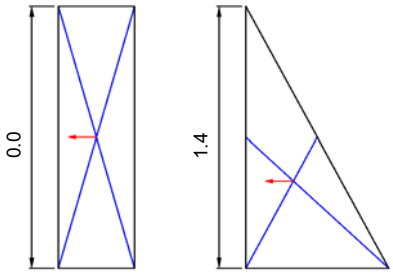


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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

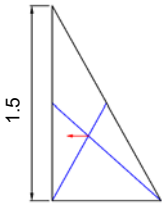
Headwater Elevation	225.08	m
Total Height of Water , h	1.41	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	1.41	m
Hydrostatic Force (Triangular; 1a)	**9752**	**N**
Moment Arm Length	0.47	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**9752**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	1.51	m
Upstream Horizontal Silt Force	**3398**	**N**
Moment Arm Length	0.50	m

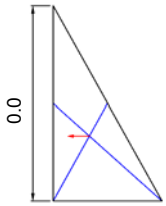


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

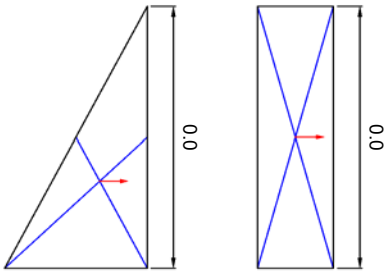


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

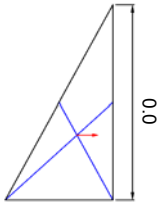


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m



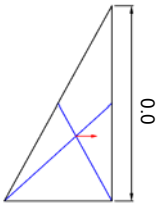
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6. Downstream Horizontal Backfill Force

N/A

Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

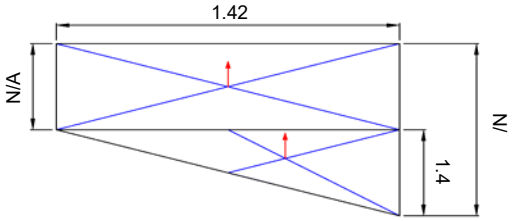
Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

Width of Dam, T	1.42	m
Headwater Height, h	1.41	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**9821**	**N**
Moment Arm Length	0.95	m
Total Uplift Force	**9821**	**N**

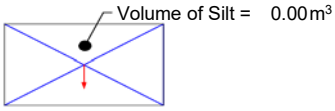


8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

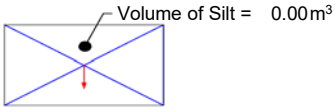


9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

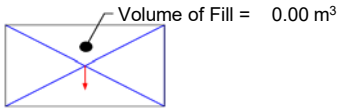


10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

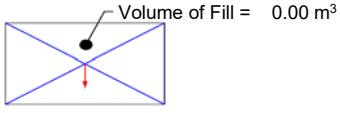


11. Downstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

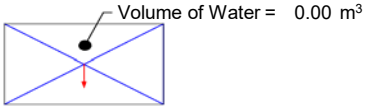
Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m



12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



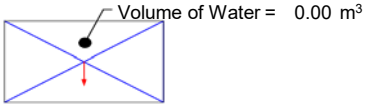
WILLS

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

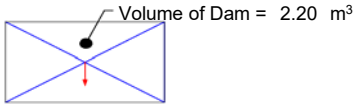
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

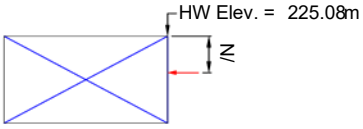
Volume of Dam, V_{dam}	2.20	m^3
Dead Weight of Dam	**47480**	**N**
Moment Arm Length	0.77	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



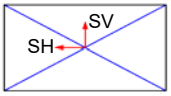
16. Seismic Loading

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**1472**	**N**
Moment Arm Length	0.83	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**981**	**N**
Moment Arm Length	0.77	m

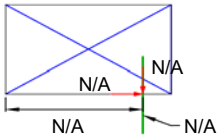


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				9752	0.47		4583
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				3398	0.50		1710
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		9821			0.95		9297
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	47480				0.77	36560	
Ice Loading, 15							
Seismic Loading, 16a				1472	0.83		1222
Seismic Loading, 16b		981			0.77		756
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**47480**	**10802**	**0**	**14621**	**- -**	**36560**	**17568**

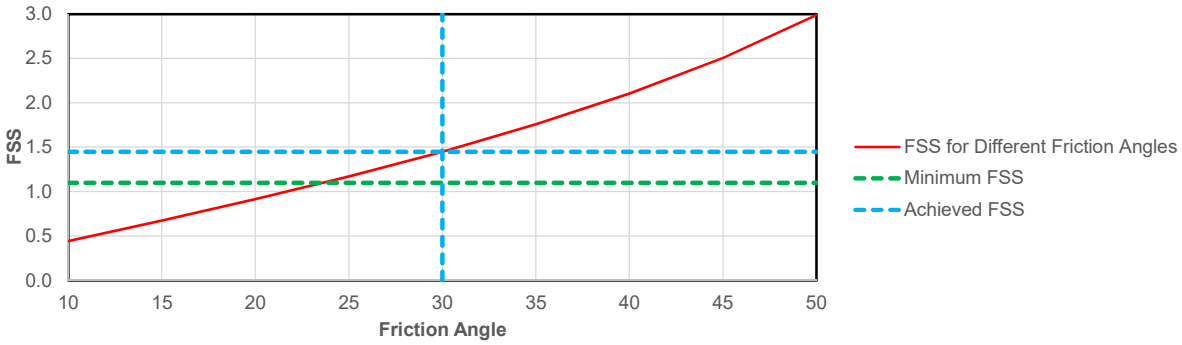
∑Horizontal Forces = **-14621** **N**
∑Vertical Forces = **36678** **N**
∑Clockwise Moment = **36560** **N-m**
∑Counterclockwise Moment = **-17568** **N-m**
∑ Moment = **18992** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 1.45 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

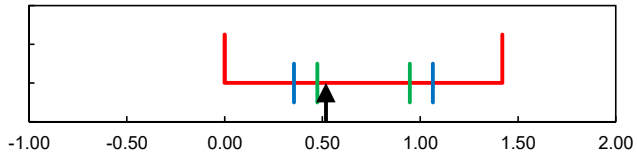
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 2.08 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

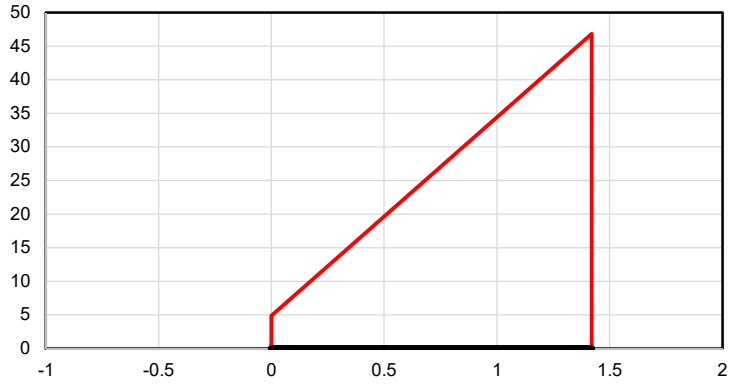
Position of Resultant from Toe = 0.52 m
Eccentricity (e) = 0.19 m

Location of Resultant = Inside Middle Third



			Concrete	Foundation
Average Vertical Stress =	**25830**	**N/m²**		
Normal Compressive Stress at Toe =	**4853**	**N/m²**	Acceptable	Acceptable
Normal Compressive Stress at Heel =	**46806**	**N/m²**	Acceptable	Acceptable
Maximum Normal Compressive Stess =	**46806**	**N/m²**		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe =	**4853**	**N/m²**	Acceptable
Principle Stress at Heel =	**46806**	**N/m²**	Acceptable
Shear Stress at Toe =	**0**	**N/m²**	Acceptable
Shear Stress at Heel =	**0**	**N/m²**	Acceptable

East (Right) Wier Inputs

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Water Levels

Usual Summer Operating Levels

225.08	m	Headwater
222.84	m	Tailwater

Usual Winter Operating Levels

224.65	m	Headwater
222.84	m	Tailwater

Usual Flood Discharge Levels

226.68	m	Headwater
225.62	m	Tailwater

Ice Loading

75	kN/m	Usual Ice Load
0	kN/m	Unusual Ice Load

Seismic Acceleration

0.031	g	Horizonal, S_H
0.021	g	Vertical, S_V (2/3 S_H)

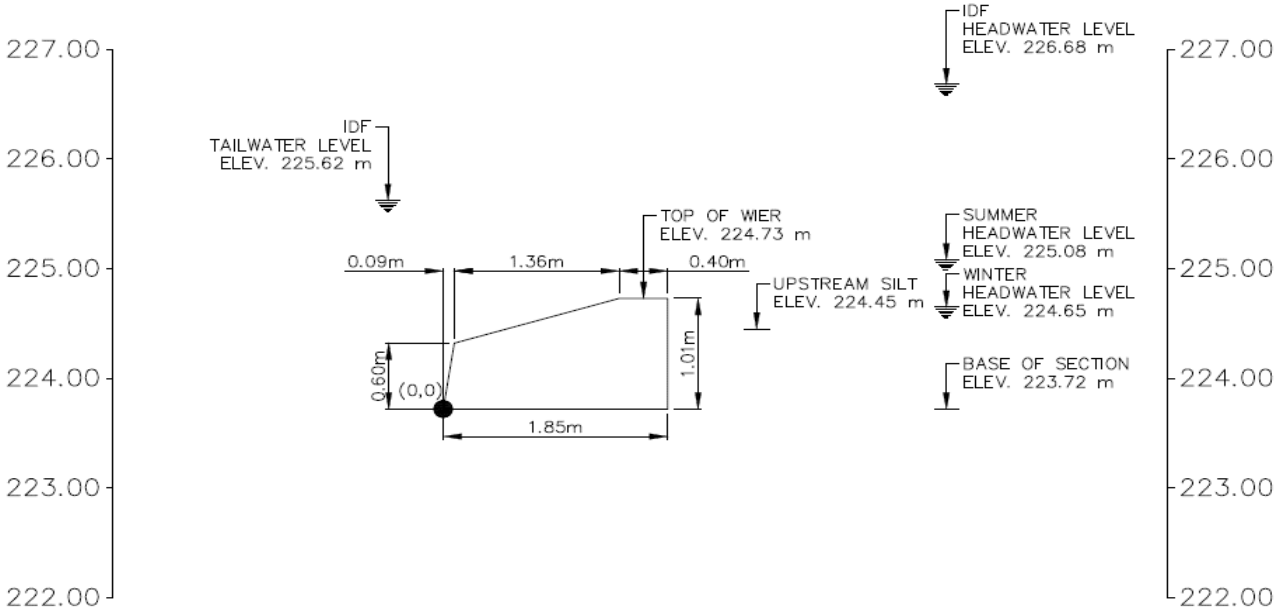
Structure Geometry

224.73	m	Top of Dam Elevation
223.72	m	Upstream Base Elevation
223.72	m	Downstream Base Elevation
1.85	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
1.53	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

224.45	m	Upstream Silt Elevation
0.00	m^2	Upstream Area of Silt on Dam

Dimensioned Sketch of Dam Section



Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Material Properties

9.81	m/s^2	Gravitational Acceleration, g	500	kN/m^2	Allowable Foundation Bearing Pressure
1000	kg/m^3	Density of Water, ρ_{water}	3000	kN/m^2	Allowable Compressive Stress in Concrete
9810	N/m^3	Specific Weight of Water, γ_{water}	420	kN/m^2	Allowable Tensile Stress in Concrete
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$	250	kN/m^2	Allowable Shear Stress
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$			
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}			
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$			
7700	N/m^3	Specific Weight of Backfill, γ_{fill}			
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$			

Structure Geometry

224.73	m	Top of Dam Elevation
223.72	m	Upstream Base Elevation
223.72	m	Downstream Base Elevation
1.85	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
1.53	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

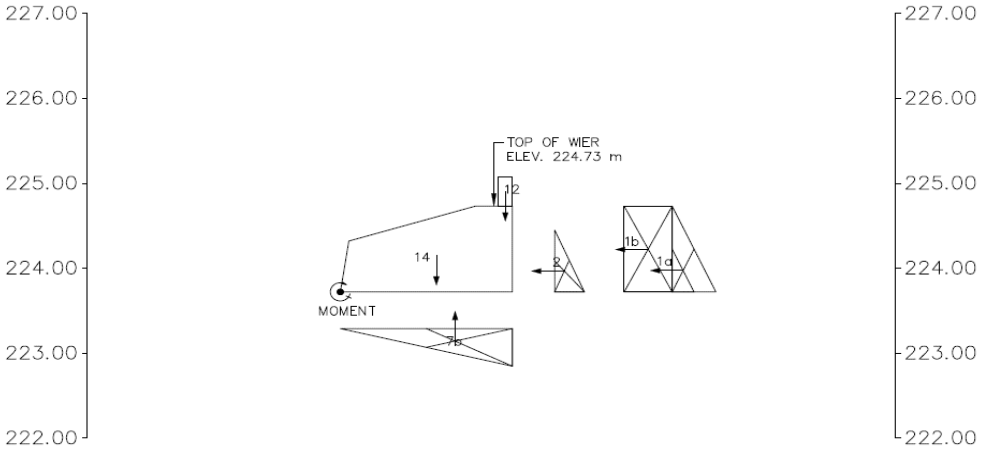
224.45	m	Upstream Silt Elevation

Loading Combination

1. Usual Load (Summer) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (maximum normal operating level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam

Loading Combination Sketch



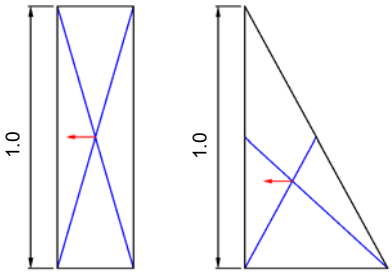
East (Right) Wier - Loading Condition: 1. Usual Load (Summer)

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

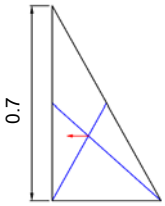
Headwater Elevation	225.08	m
Total Height of Water , h	1.36	m
Height of Water (Above Dam Crest), h'	0.35	m
Height of Water (Below Dam Crest), h"	1.01	m
Hydrostatic Force (Triangular; 1a)	**9072**	**N**
Moment Arm Length	0.34	m
Hydrostatic Force (Rectangular; 1b)	**3468**	**N**
Moment Arm Length	0.50	m
Total Headwater Hydrostatic Force	**12540**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.73	m
Upstream Horizontal Silt Force	**794**	**N**
Moment Arm Length	0.24	m

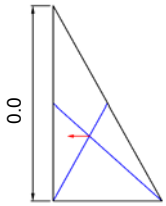


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

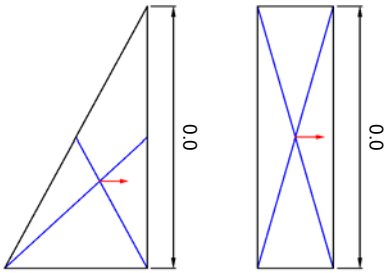


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

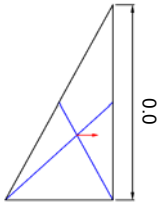


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

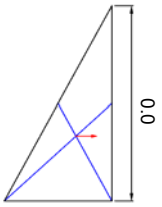


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6. Downstream Horizontal Backfill Force

N/A

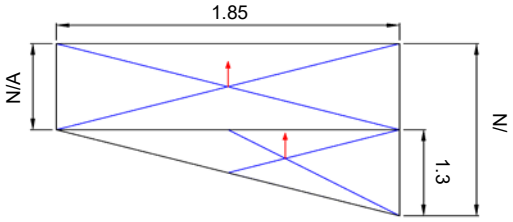
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

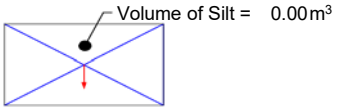


Width of Dam, T	1.85	m
Headwater Height, h	1.36	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**12341**	**N**
Moment Arm Length	1.23	m
Total Uplift Force	**12341**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

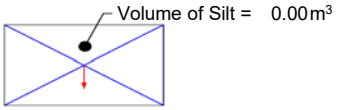


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

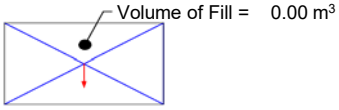


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

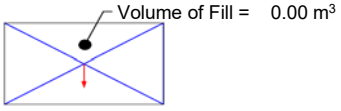


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

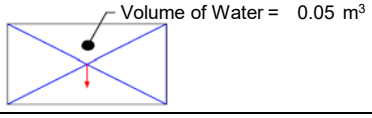
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



Volume of Water, V_{water}	0.05	m^3
Upstream Weight of Water	**530**	**N**
Moment Arm Length	1.77	m

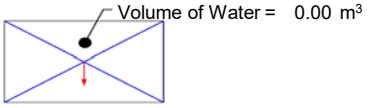
WILLS

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

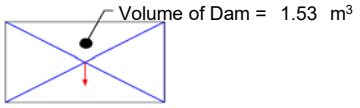
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

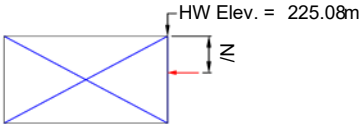
Volume of Dam, V_{dam}	1.53	m^3
Dead Weight of Dam	**33020**	**N**
Moment Arm Length	1.03	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

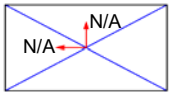
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

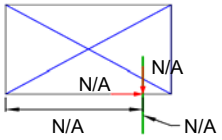


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



East (Right) Wier - Loading Condition: 1. Usual Load (Summer)

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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				9072	0.34		3054
Headwater Horizontal Hydrostatic Force, 1b				3468	0.50		1751
Upstream Horizontal Silt Force, 2				794	0.24		193
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		12341			1.23		15221
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12	530				1.77	938	
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	33020				1.03	34011	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**33550**	**12341**	**0**	**13334**	**- -**	**34949**	**20219**

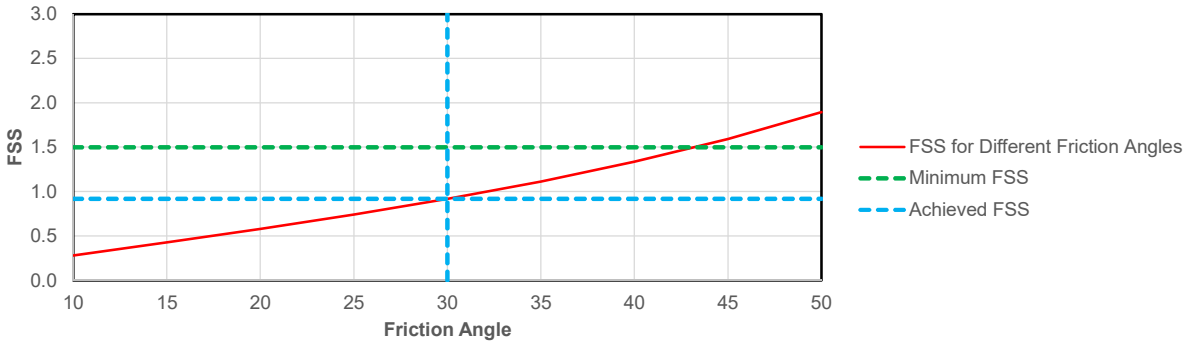
∑Horizontal Forces = **-13334** **N**
∑Vertical Forces = **21209** **N**
∑Clockwise Moment = **34949** **N-m**
∑Counterclockwise Moment = **-20219** **N-m**
∑ Moment = **14729** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 0.92 Not Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

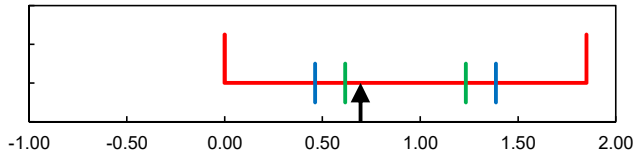
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 1.73 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

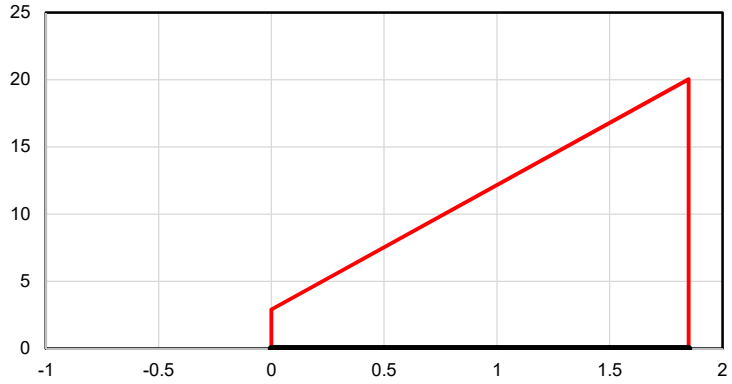
Position of Resultant from Toe = 0.69 m
Eccentricity (e) = 0.23 m

Location of Resultant = Inside Middle Third



			Concrete	Foundation
Average Vertical Stress =	**11464**	**N/m²**		
Normal Compressive Stress at Toe =	**2893**	**N/m²**	Acceptable	Acceptable
Normal Compressive Stress at Heel =	**20036**	**N/m²**	Acceptable	Acceptable
Maximum Normal Compressive Stess =	**20036**	**N/m²**		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe =	**2893**	**N/m²**	Acceptable
Principle Stress at Heel =	**20036**	**N/m²**	Acceptable
Shear Stress at Toe =	**0**	**N/m²**	Acceptable
Shear Stress at Heel =	**0**	**N/m²**	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
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9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

224.73	m	Top of Dam Elevation
223.72	m	Upstream Base Elevation
223.72	m	Downstream Base Elevation
1.85	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
1.53	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

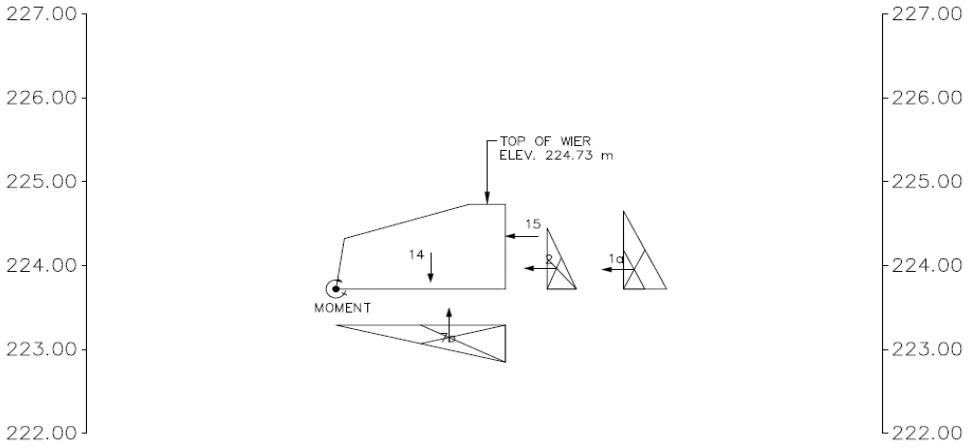
224.45	m	Upstream Silt Elevation

Loading Combination

2. Usual Load (Winter) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (maximum normal operating level); Ice Load (usual); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam
15. Ice Loading

Loading Combination Sketch



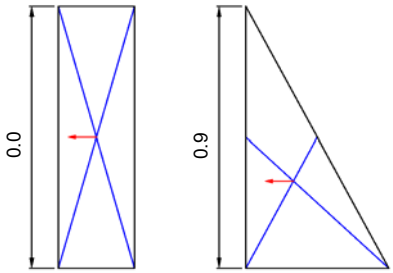
East (Right) Wier - Loading Condition: 2. Usual Load (Winter)

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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

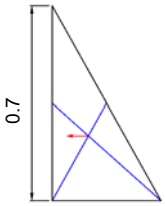
Headwater Elevation	224.65	m
Total Height of Water , h	0.93	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.93	m
Hydrostatic Force (Triangular; 1a)	**4242**	**N**
Moment Arm Length	0.31	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**4242**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.73	m
Upstream Horizontal Silt Force	**794**	**N**
Moment Arm Length	0.24	m

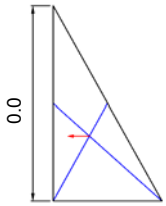


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

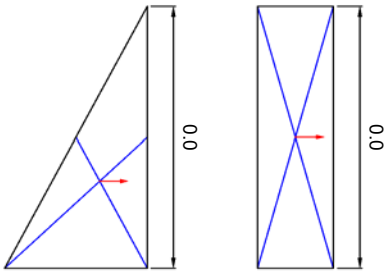


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

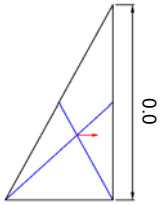


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

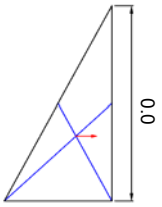


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6. Downstream Horizontal Backfill Force

N/A

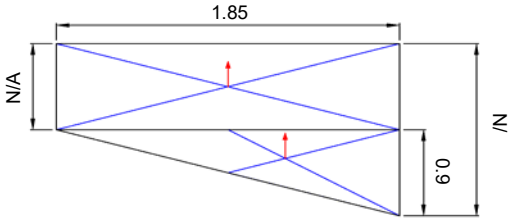
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

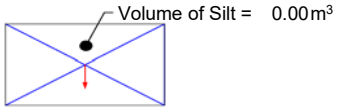


Width of Dam, T	1.85	m
Headwater Height, h	0.93	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**8439**	**N**
Moment Arm Length	1.23	m
Total Uplift Force	**8439**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

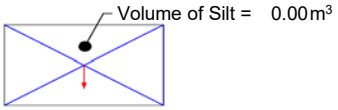


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

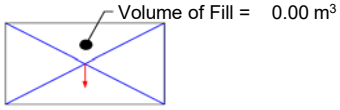


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

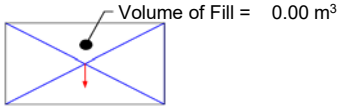


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

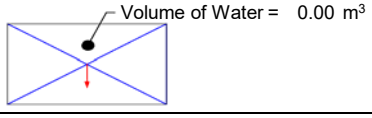
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m

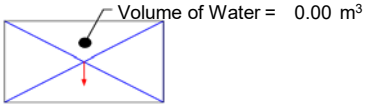
WILLS

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

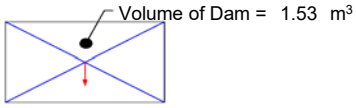
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

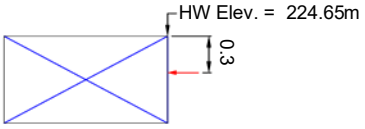
Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

Volume of Dam, V_{dam}	1.53	m^3
Dead Weight of Dam	**33020**	**N**
Moment Arm Length	1.03	m



15. Ice Loading

Ice Load	**75000**	**N**
Moment Arm Length	0.63	m



16. Seismic Loading

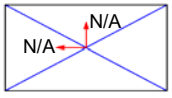
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

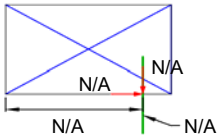


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				4242	0.31		1315
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				794	0.24		193
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		8439			1.23		10408
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	33020				1.03	34011	
Ice Loading, 15				75000	0.63		47250
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**33020**	**8439**	**0**	**80036**	**- -**	**34011**	**59167**

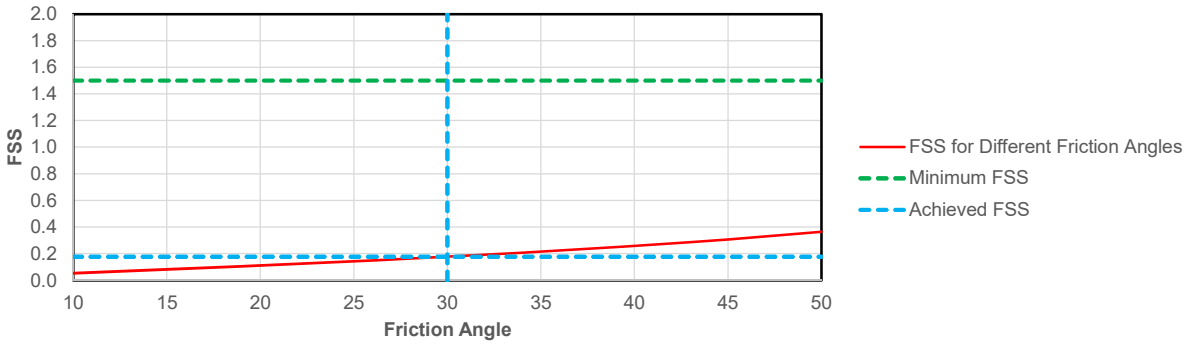
∑Horizontal Forces = **-80036** **N**
∑Vertical Forces = **24581** **N**
∑Clockwise Moment = **34011** **N-m**
∑Counterclockwise Moment = **-59167** **N-m**
∑ Moment = **-25155** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 0.18 Not Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

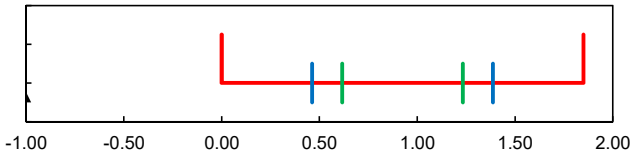
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 0.57 Not Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = -1.02 m
Eccentricity (e) = 1.95 m

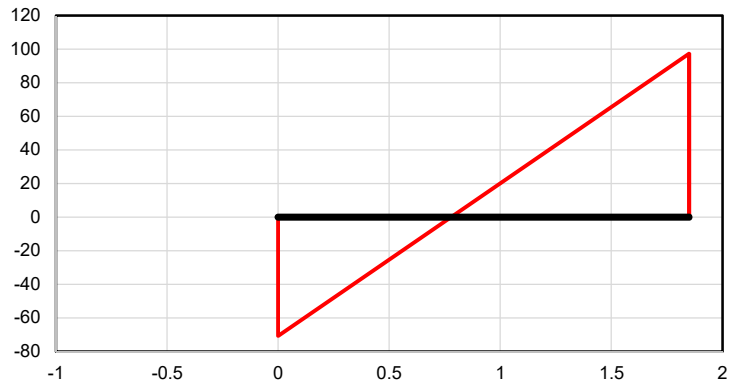
Location of Resultant = Outside Middle Third



Average Vertical Stress = 13287 N/m²

		Concrete	Foundation
Normal Compressive Stress at Toe = -70675	N/m²	Acceptable	Acceptable
Normal Compressive Stress at Heel = 97249	N/m²	Acceptable	Acceptable
Maximum Normal Compressive Stess = 97249	N/m²		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = -70675	N/m²	Acceptable
Principle Stress at Heel = 97249	N/m²	Acceptable
Shear Stress at Toe = 0	N/m²	Acceptable
Shear Stress at Heel = 0	N/m²	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

224.73	m	Top of Dam Elevation
223.72	m	Upstream Base Elevation
223.72	m	Downstream Base Elevation
1.85	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
1.53	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

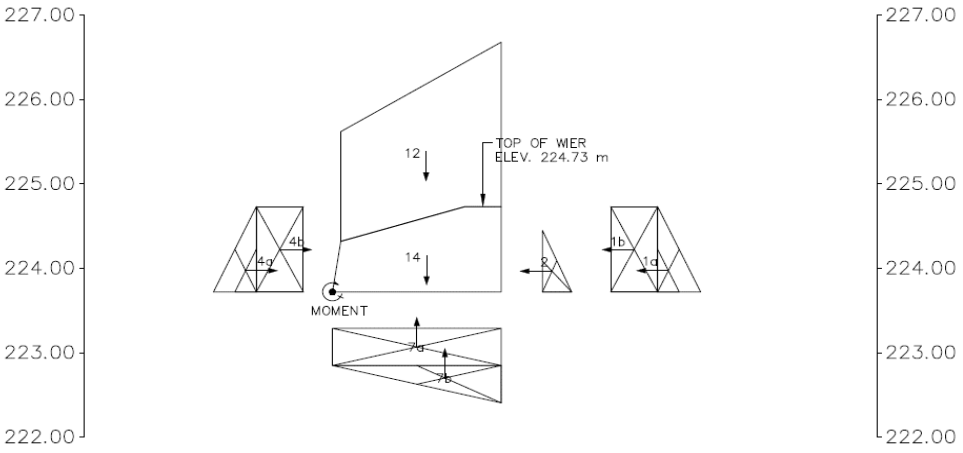
224.45	m	Upstream Silt Elevation

Loading Combination

3. Unusual Load (Flood) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (IDF level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
4. Tailwater Horizontal Hydrostatic Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam

Loading Combination Sketch

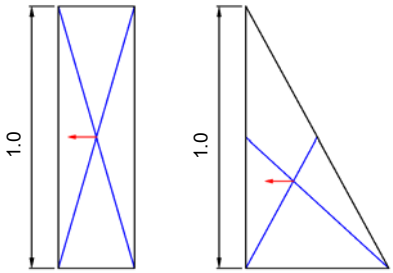


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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

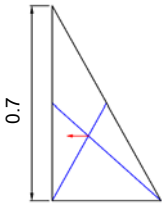
Headwater Elevation	226.68	m
Total Height of Water , h	2.96	m
Height of Water (Above Dam Crest), h'	1.95	m
Height of Water (Below Dam Crest), h"	1.01	m
Hydrostatic Force (Triangular; 1a)	**42976**	**N**
Moment Arm Length	0.34	m
Hydrostatic Force (Rectangular; 1b)	**19321**	**N**
Moment Arm Length	0.50	m
Total Headwater Hydrostatic Force	**62296**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.73	m
Upstream Horizontal Silt Force	**794**	**N**
Moment Arm Length	0.24	m

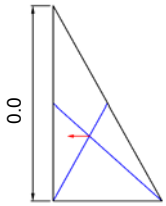


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

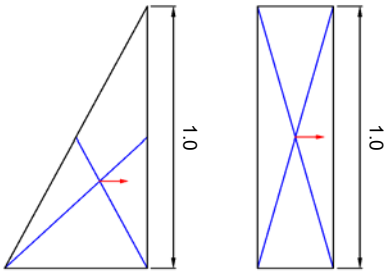
Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



4. Tailwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	225.62	m
Total Height of Water , h	1.90	m
Height of Water (Above Dam Crest), h'	0.89	m
Height of Water (Below Dam Crest), h"	1.01	m
Hydrostatic Force (Triangular; 4a)	**17707**	**N**
Moment Arm Length	0.34	m
Hydrostatic Force (Rectangular; 4b)	**8818**	N
Moment Arm Length	0.50	m
Total Headwater Hydrostatic Force	**26525**	**N**

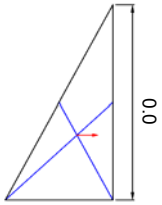


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

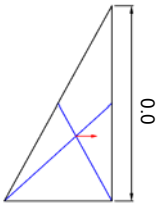


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6. Downstream Horizontal Backfill Force

N/A

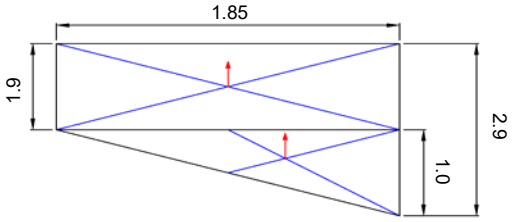
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

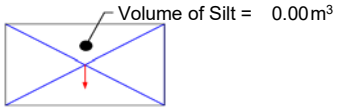


Width of Dam, T	1.85	m
Headwater Height, h	2.96	m
Tailwater Height, h'	1.90	m
Uplift Force (Rectangular Component; 7a)	**34482**	**N**
Moment Arm Length	0.93	m
Uplift Force (Triangular Component; 7b)	**9619**	**N**
Moment Arm Length	1.23	m
Total Uplift Force	**44101**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

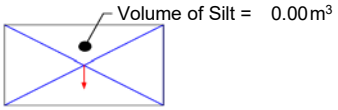


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

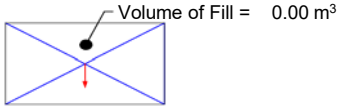


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

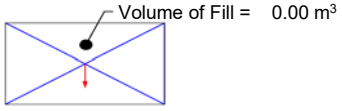


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

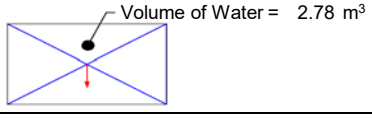
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



Volume of Water, V_{water}	2.78	m^3
Upstream Weight of Water	**27272**	**N**
Moment Arm Length	1.03	m

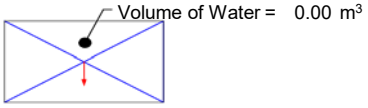
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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

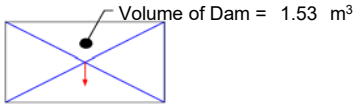
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

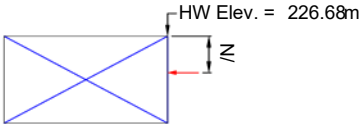
Volume of Dam, V_{dam}	1.53	m^3
Dead Weight of Dam	**33020**	**N**
Moment Arm Length	1.03	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

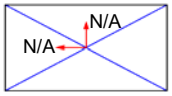
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

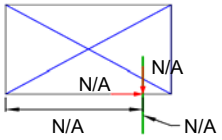


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				42976	0.34		14468
Headwater Horizontal Hydrostatic Force, 1b				19321	0.50		9757
Upstream Horizontal Silt Force, 2				794	0.24		193
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a			17707		0.34	5961	
Tailwater Horizontal Hydrostatic Force, 4b			8818		0.50	4453	
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a		34482			0.93		31896
Uplift Force, 7b		9619			1.23		11863
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12	27272				1.03	28090	
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	33020				1.03	34011	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**60292**	**44101**	**26525**	**63091**	**- -**	**72516**	**68178**

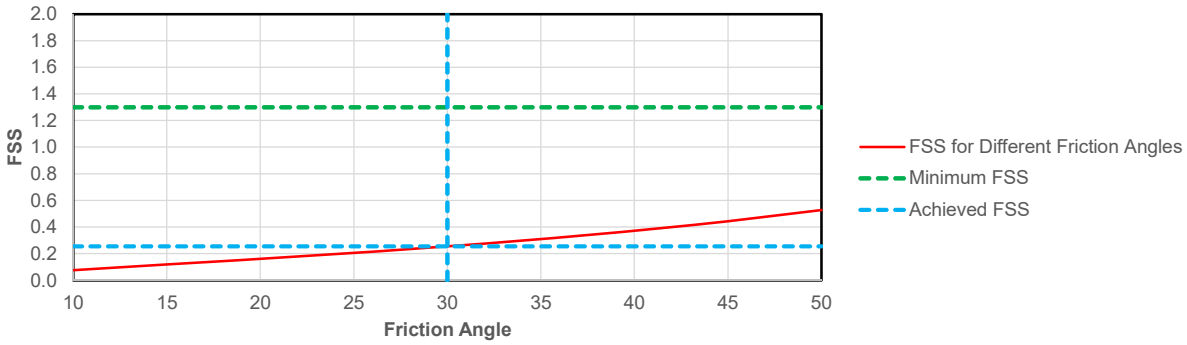
∑Horizontal Forces = **-36565** **N**
∑Vertical Forces = **16191** **N**
∑Clockwise Moment = **72516** **N-m**
∑Counterclockwise Moment = **-68178** **N-m**
∑ Moment = **4338** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 0.26 Not Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

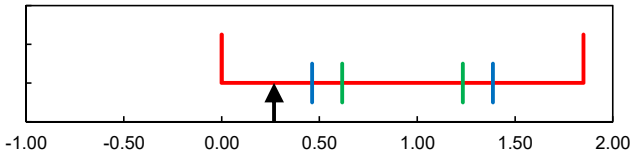
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 1.06 Not Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 0.27 m
Eccentricity (e) = 0.66 m

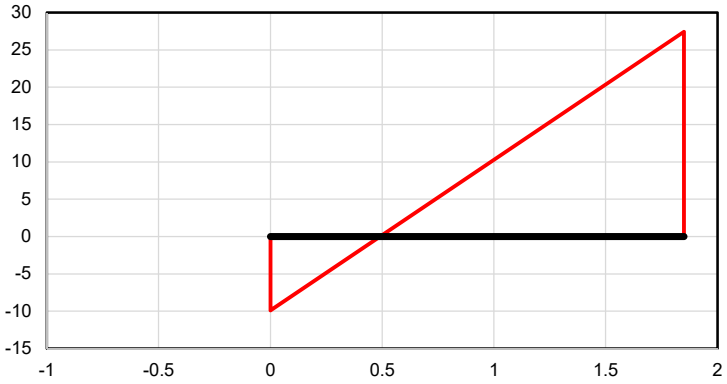
Location of Resultant = Outside Middle Third



Average Vertical Stress = 8752 N/m²

		Concrete	Foundation
Normal Compressive Stress at Toe = -9900	N/m²	Acceptable	Acceptable
Normal Compressive Stress at Heel = 27404	N/m²	Acceptable	Acceptable
Maximum Normal Compressive Stess = 27404	N/m²		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = -9900	N/m²	Acceptable
Principle Stress at Heel = 27404	N/m²	Acceptable
Shear Stress at Toe = 0	N/m²	Acceptable
Shear Stress at Heel = 0	N/m²	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

224.73	m	Top of Dam Elevation
223.72	m	Upstream Base Elevation
223.72	m	Downstream Base Elevation
1.85	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
1.53	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

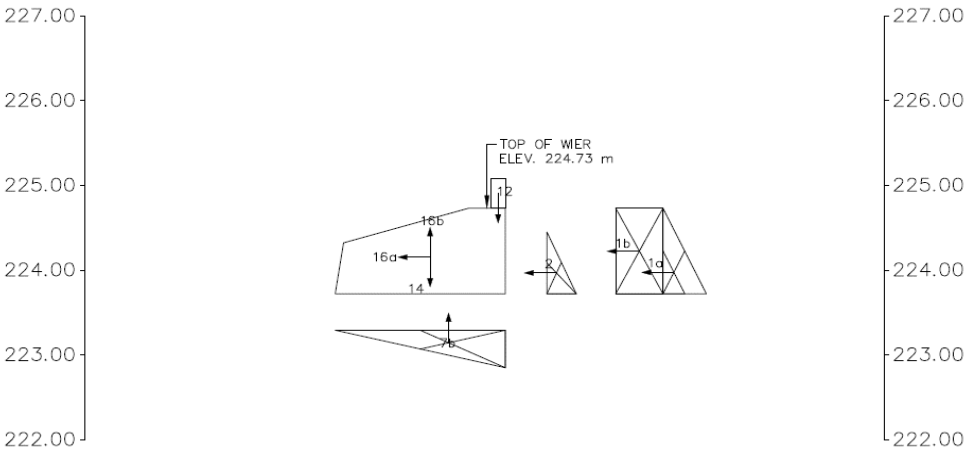
224.45	m	Upstream Silt Elevation

Loading Combination

5. Extreme Load (Earthquake) — Includes the following loads in combination: Dead Loads; Maximum Design Earthquake; Hydrostatic Load (maximum normal operating level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam
16. Seismic Loading

Loading Combination Sketch

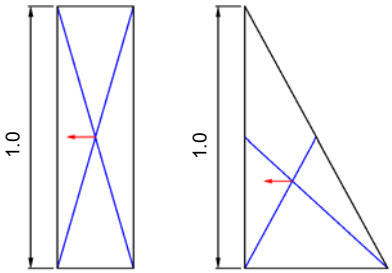


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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

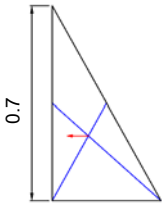
Headwater Elevation	225.08	m
Total Height of Water , h	1.36	m
Height of Water (Above Dam Crest), h'	0.35	m
Height of Water (Below Dam Crest), h"	1.01	m
Hydrostatic Force (Triangular; 1a)	**9072**	**N**
Moment Arm Length	0.34	m
Hydrostatic Force (Rectangular; 1b)	**3468**	**N**
Moment Arm Length	0.50	m
Total Headwater Hydrostatic Force	**12540**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.73	m
Upstream Horizontal Silt Force	**794**	**N**
Moment Arm Length	0.24	m

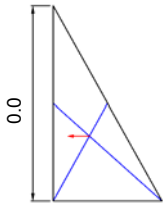


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

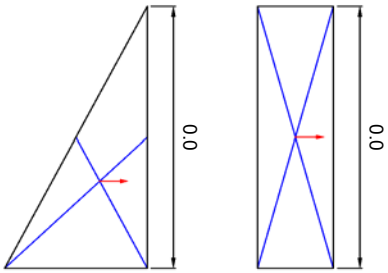


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

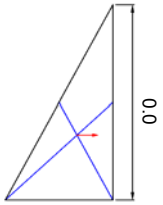


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m



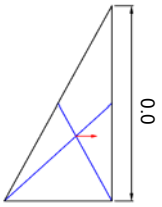
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6. Downstream Horizontal Backfill Force

N/A

Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

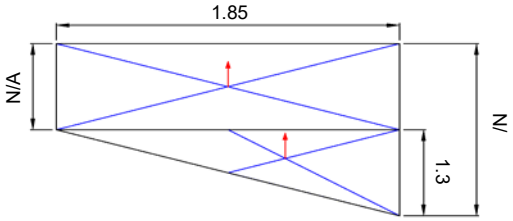
Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

Width of Dam, T	1.85	m
Headwater Height, h	1.36	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**12341**	**N**
Moment Arm Length	1.23	m
Total Uplift Force	**12341**	**N**

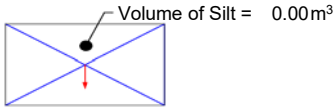


8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

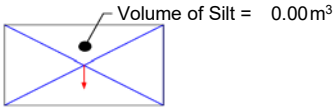


9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

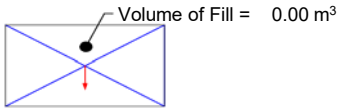


10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

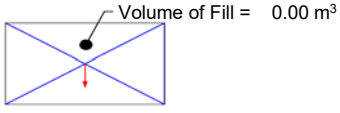


11. Downstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

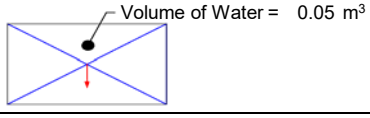
Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m



12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

Volume of Water, V_{water}	0.05	m^3
Upstream Weight of Water	**530**	**N**
Moment Arm Length	1.77	m



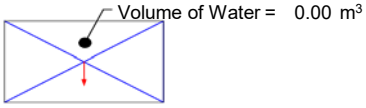
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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

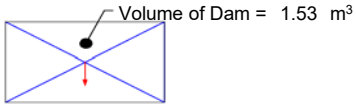
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

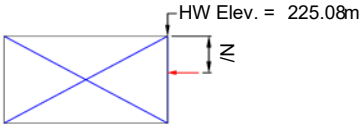
Volume of Dam, V_{dam}	1.53	m^3
Dead Weight of Dam	**33020**	**N**
Moment Arm Length	1.03	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



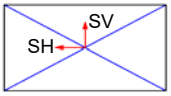
16. Seismic Loading

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**1024**	**N**
Moment Arm Length	0.43	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**682**	**N**
Moment Arm Length	1.03	m

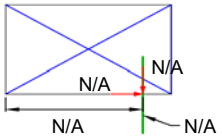


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



Project No: 19-5381
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Designed/Checked By: DG
Date: 6/03/22

Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				9072	0.34		3054
Headwater Horizontal Hydrostatic Force, 1b				3468	0.50		1751
Upstream Horizontal Silt Force, 2				794	0.24		193
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		12341			1.23		15221
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12	530				1.77	938	
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	33020				1.03	34011	
Ice Loading, 15							
Seismic Loading, 16a				1024	0.43		440
Seismic Loading, 16b		682			1.03		703
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**33550**	**13023**	**0**	**14358**	**- -**	**34949**	**21362**

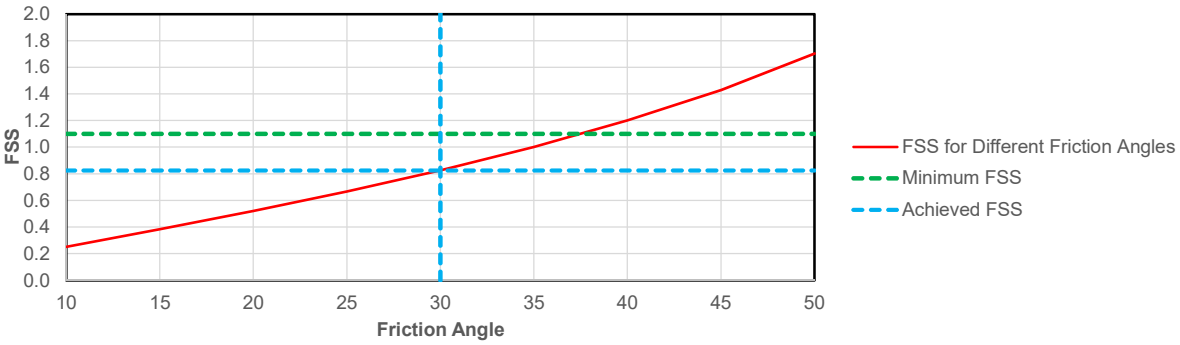
∑Horizontal Forces = **-14358** **N**
∑Vertical Forces = **20527** **N**
∑Clockwise Moment = **34949** **N-m**
∑Counterclockwise Moment = **-21362** **N-m**
∑ Moment = **13586** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 0.83 Not Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

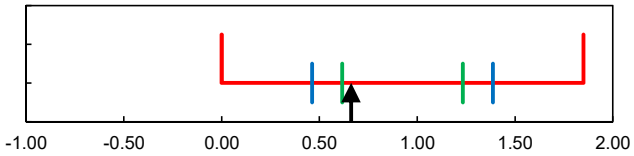
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 1.64 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 0.66 m
Eccentricity (e) = 0.26 m

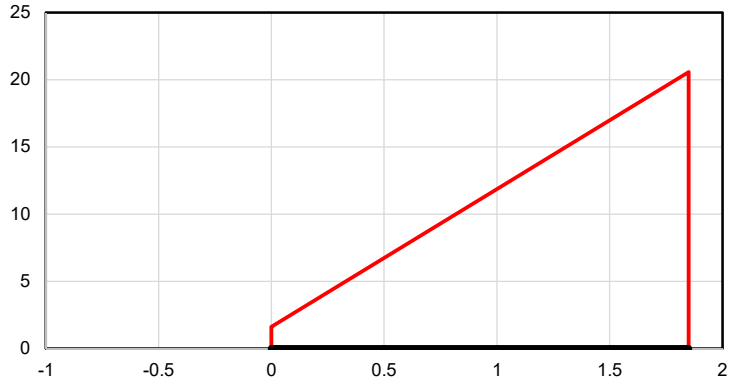
Location of Resultant = Inside Middle Third



Average Vertical Stress = 11096 N/m²

		Concrete	Foundation
Normal Compressive Stress at Toe = 1627	N/m²	Acceptable	Acceptable
Normal Compressive Stress at Heel = 20564	N/m²	Acceptable	Acceptable
Maximum Normal Compressive Stess = 20564	N/m²		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = 1627	N/m²	Acceptable
Principle Stress at Heel = 20564	N/m²	Acceptable
Shear Stress at Toe = 0	N/m²	Acceptable
Shear Stress at Heel = 0	N/m²	Acceptable

Typical Pier Inputs

Project No: 19-5381
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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Water Levels

Usual Summer Operating Levels

225.08	m	Headwater
222.84	m	Tailwater

Usual Winter Operating Levels

224.65	m	Headwater
222.84	m	Tailwater

Usual Flood Discharge Levels

226.68	m	Headwater
225.62	m	Tailwater

Ice Loading

75	kN/m	Usual Ice Load
95	kN/m	Unusual Ice Load

Seismic Acceleration

0.031	g	Horizonal, S_H
0.021	g	Vertical, S_V (2/3 S_H)

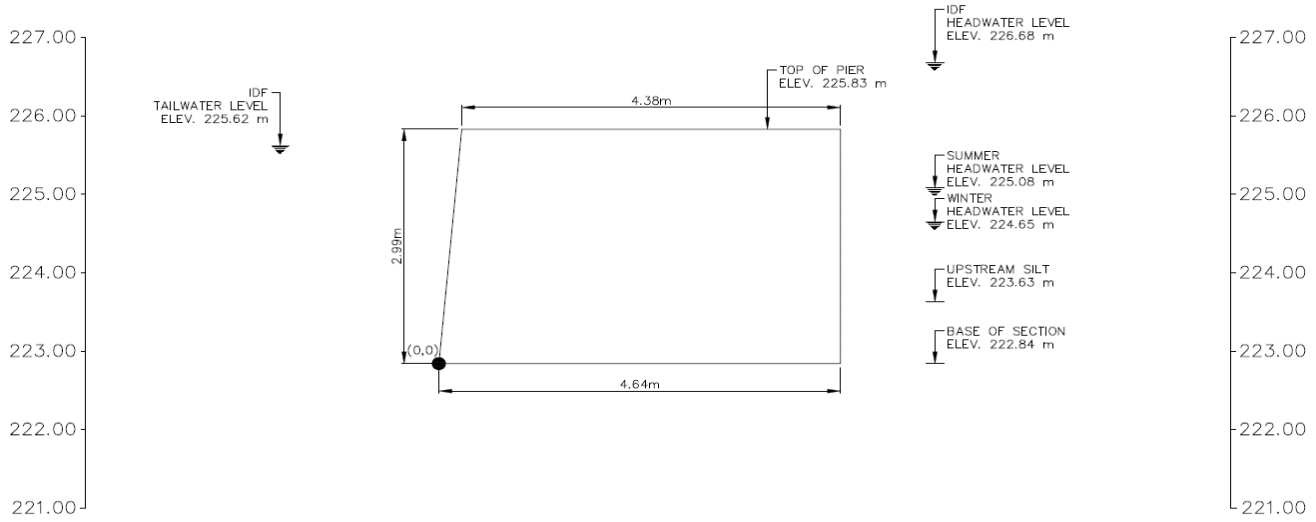
Structure Geometry

225.83	m	Top of Dam Elevation
222.84	m	Upstream Base Elevation
222.84	m	Downstream Base Elevation
4.64	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
13.49	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

223.63	m	Upstream Silt Elevation
0.00	m^2	Upstream Area of Silt on Dam

Dimensioned Sketch of Dam Section



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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

225.83	m	Top of Dam Elevation
222.84	m	Upstream Base Elevation
222.84	m	Downstream Base Elevation
4.64	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
13.49	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

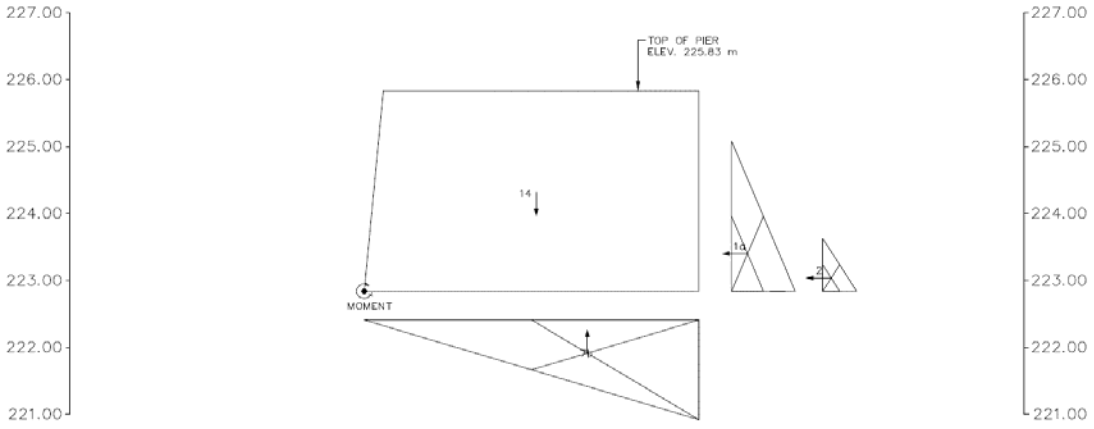
223.63	m	Upstream Silt Elevation

Loading Combination

1. Usual Load (Summer) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (maximum normal operating level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam

Loading Combination Sketch



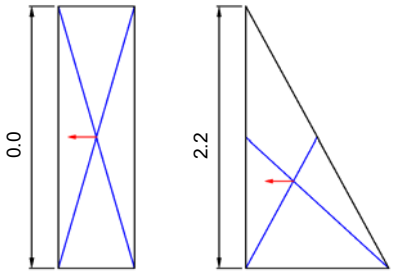
Typical Pier - Loading Condition: 1. Usual Load (Summer)

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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

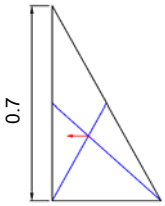
Headwater Elevation	225.08	m
Total Height of Water , h	2.24	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	2.24	m
Hydrostatic Force (Triangular; 1a)	**24611**	**N**
Moment Arm Length	0.75	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**24611**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.79	m
Upstream Horizontal Silt Force	**930**	**N**
Moment Arm Length	0.26	m

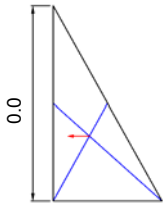


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

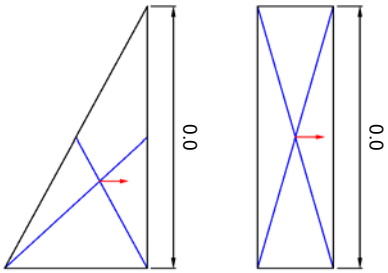


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

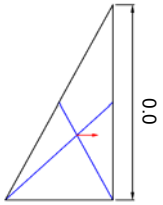


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

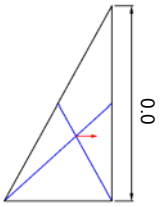


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6. Downstream Horizontal Backfill Force

N/A

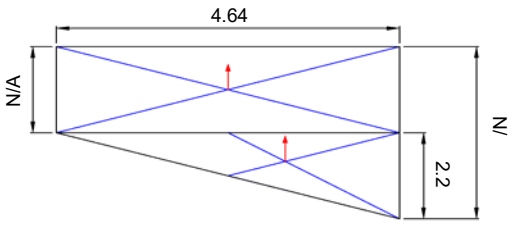
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

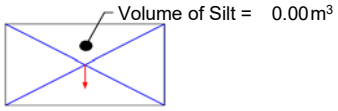


Width of Dam, T	4.64	m
Headwater Height, h	2.24	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**50981**	**N**
Moment Arm Length	3.09	m
Total Uplift Force	**50981**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

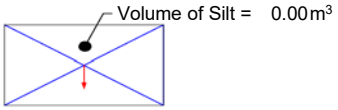


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

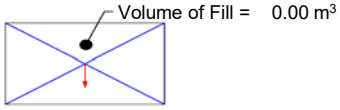


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

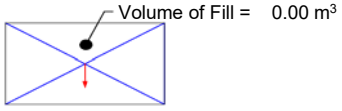


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

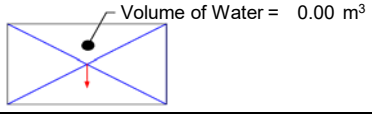
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



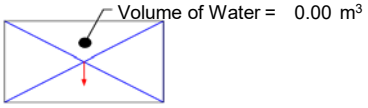
Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

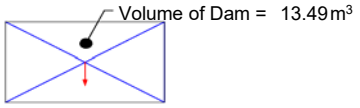
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

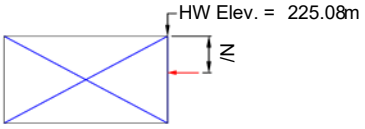
Volume of Dam, V_{dam}	13.49	m^3
Dead Weight of Dam	**291141**	**N**
Moment Arm Length	2.39	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

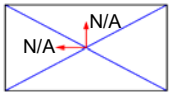
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

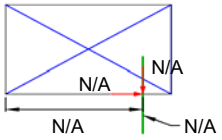


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



WILLS

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				24611	0.75		18376
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				930	0.26		245
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		50981			3.09		157700
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	291141				2.39	695827	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**291141**	**50981**	**0**	**25541**	**- -**	**695827**	**176321**

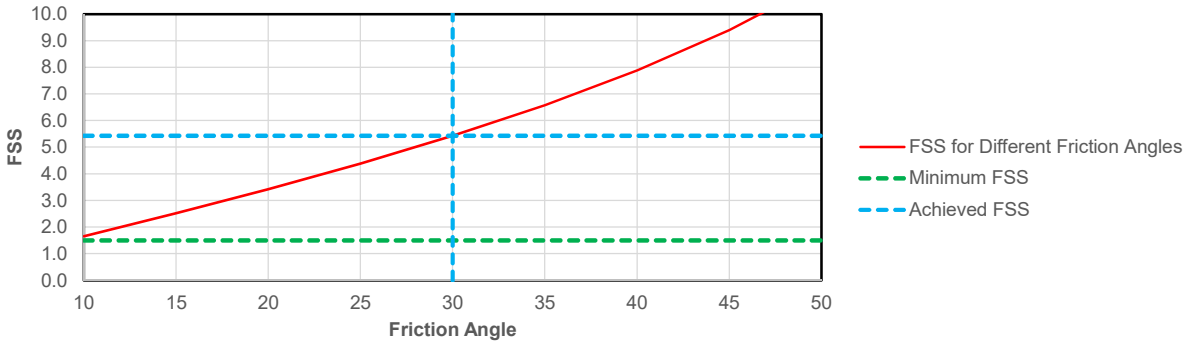
∑Horizontal Forces = **-25541** **N**
∑Vertical Forces = **240161** **N**
∑Clockwise Moment = **695827** **N-m**
∑Counterclockwise Moment = **-176321** **N-m**
∑ Moment = **519506** **N-m**

Project No: 19-5381
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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 5.43 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

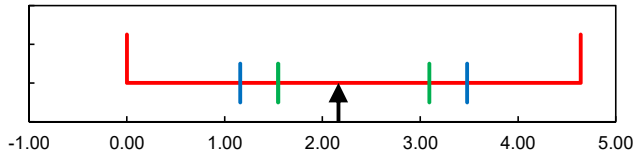
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 3.95 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 2.16 m
Eccentricity (e) = 0.16 m

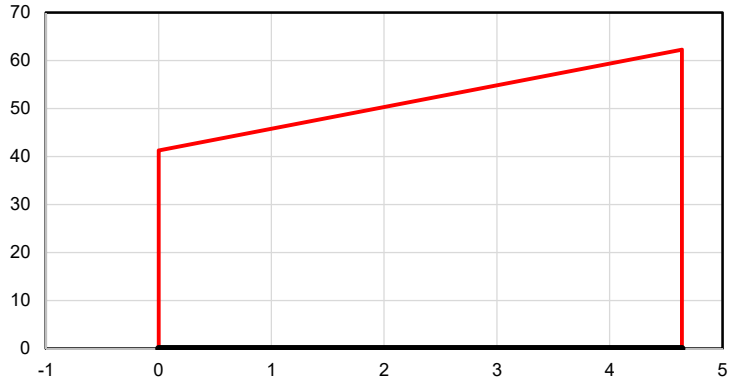
Location of Resultant = Inside Middle Third



Average Vertical Stress = 51759 N/m²

		Concrete	Foundation
Normal Compressive Stress at Toe = 41262	N/m²	Acceptable	Acceptable
Normal Compressive Stress at Heel = 62256	N/m²	Acceptable	Acceptable
Maximum Normal Compressive Stess = 62256	N/m²		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = 41262	N/m²	Acceptable
Principle Stress at Heel = 62256	N/m²	Acceptable
Shear Stress at Toe = 0	N/m²	Acceptable
Shear Stress at Heel = 0	N/m²	Acceptable

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

225.83	m	Top of Dam Elevation
222.84	m	Upstream Base Elevation
222.84	m	Downstream Base Elevation
4.64	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
13.49	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

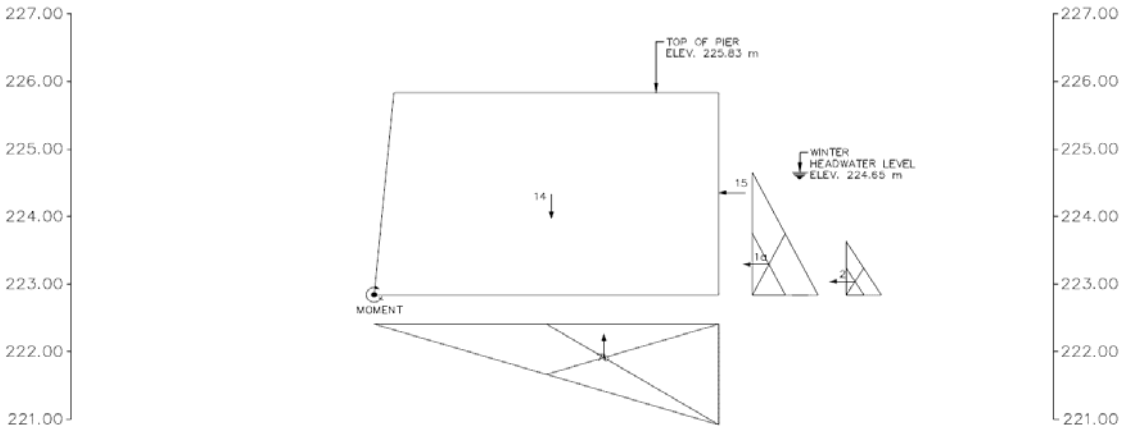
223.63	m	Upstream Silt Elevation

Loading Combination

2. Usual Load (Winter) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (maximum normal operating level); Ice Load (usual); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam
15. Ice Loading

Loading Combination Sketch

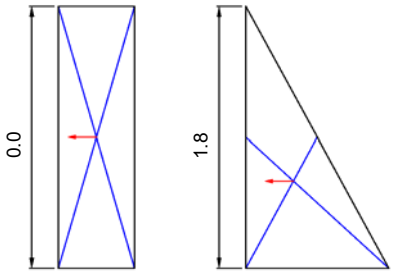


Project No: 19-5381
Project Name: Pefferlaw Dam DSA
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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

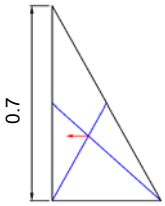
Headwater Elevation	224.65	m
Total Height of Water , h	1.81	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	1.81	m
Hydrostatic Force (Triangular; 1a)	**16069**	**N**
Moment Arm Length	0.60	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**16069**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.79	m
Upstream Horizontal Silt Force	**930**	**N**
Moment Arm Length	0.26	m

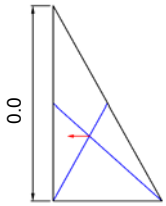


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

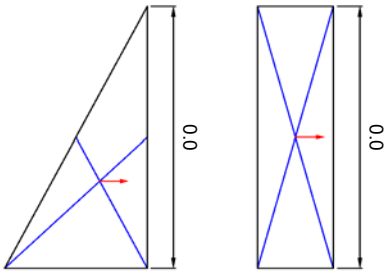


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

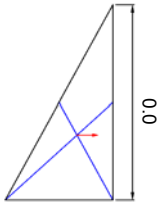


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

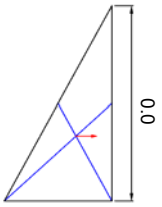


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6. Downstream Horizontal Backfill Force

N/A

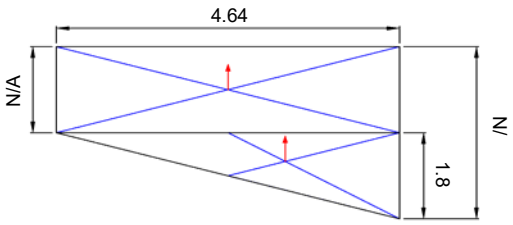
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

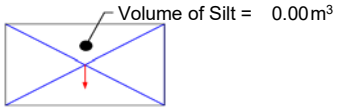


Width of Dam, T	4.64	m
Headwater Height, h	1.81	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**41194**	**N**
Moment Arm Length	3.09	m
Total Uplift Force	**41194**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

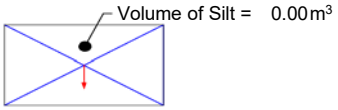


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

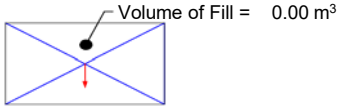


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

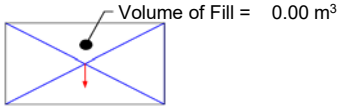


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

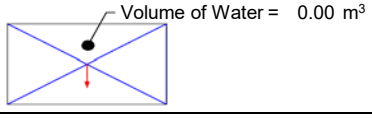
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



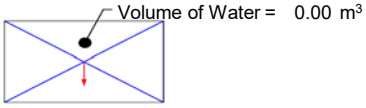
Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

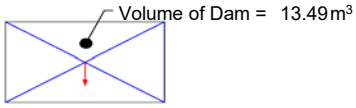
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

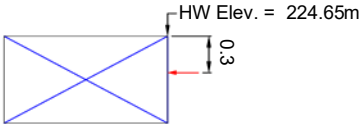
Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

Volume of Dam, V_{dam}	13.49	m^3
Dead Weight of Dam	**291141**	**N**
Moment Arm Length	2.39	m



15. Ice Loading

Ice Load	**75000**	**N**
Moment Arm Length	1.51	m



16. Seismic Loading

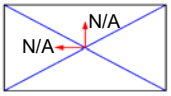
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

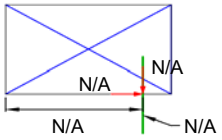


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



WILLS

Project No: 19-5381
Project Name: Pefferlaw Dam DSA
Designed/Checked By: DG
Date: 6/03/22

Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				16069	0.60		9695
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				930	0.26		245
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		41194			3.09		127427
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	291141				2.39	695827	
Ice Loading, 15				75000	1.51		113250
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**291141**	**41194**	**0**	**91999**	**- -**	**695827**	**250617**

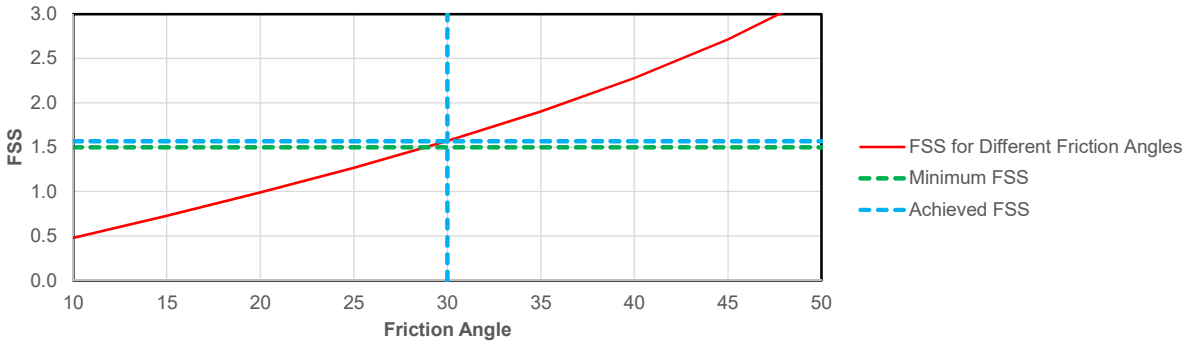
∑Horizontal Forces = **-91999** **N**
∑Vertical Forces = **249947** **N**
∑Clockwise Moment = **695827** **N-m**
∑Counterclockwise Moment = **-250617** **N-m**
∑ Moment = **445210** **N-m**

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Designed/Checked By: DG
Date: 6/03/22

Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 1.57 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

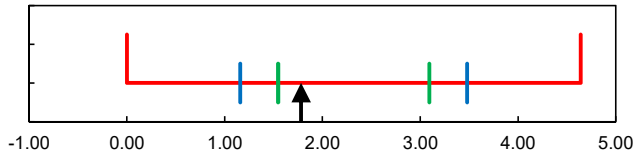
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 2.78 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 1.78 m
Eccentricity (e) = 0.54 m

Location of Resultant = Inside Middle Third



			Concrete	Foundation
Average Vertical Stress =	**53868**	**N/m²**		
Normal Compressive Stress at Toe =	**16338**	**N/m²**	Acceptable	Acceptable
Normal Compressive Stress at Heel =	**91398**	**N/m²**	Acceptable	Acceptable
Maximum Normal Compressive Stess =	**91398**	**N/m²**		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe =	**16338**	**N/m²**	Acceptable
Principle Stress at Heel =	**91398**	**N/m²**	Acceptable
Shear Stress at Toe =	**0**	**N/m²**	Acceptable
Shear Stress at Heel =	**0**	**N/m²**	Acceptable

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Designed/Checked By: DG
Date: 6/03/22

Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

225.83	m	Top of Dam Elevation
222.84	m	Upstream Base Elevation
222.84	m	Downstream Base Elevation
4.64	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
13.49	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

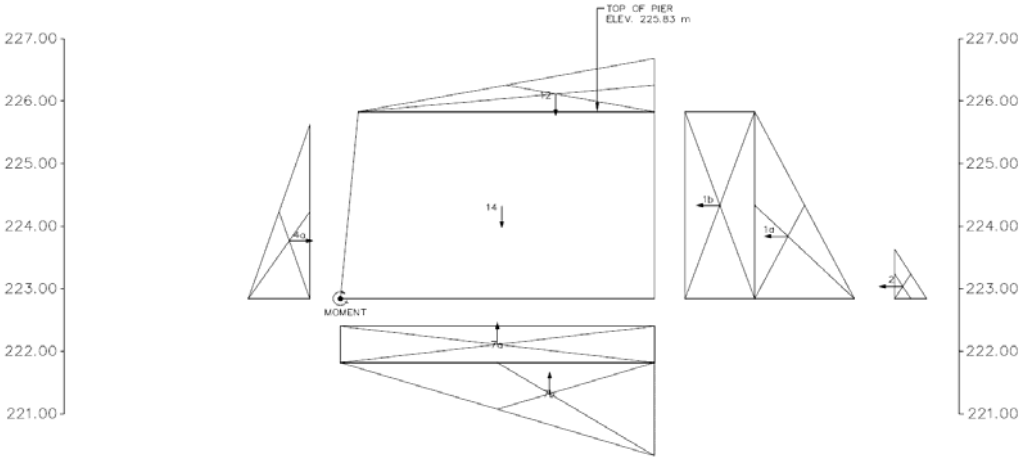
223.63	m	Upstream Silt Elevation

Loading Combination

3. Unusual Load (Flood) — Includes the following loads in combination: Dead Loads; Hydrostatic Load (IDF level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
4. Tailwater Horizontal Hydrostatic Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam

Loading Combination Sketch



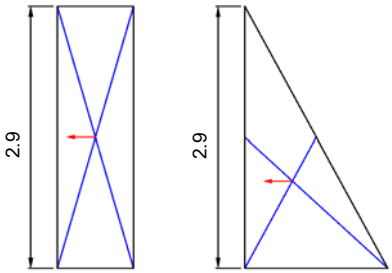
Typical Pier - Loading Condition: 3. Unusual Load (Flood)

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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

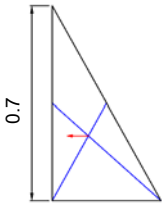
Headwater Elevation	226.68	m
Total Height of Water , h	3.84	m
Height of Water (Above Dam Crest), h'	0.85	m
Height of Water (Below Dam Crest), h"	2.99	m
Hydrostatic Force (Triangular; 1a)	**72327**	**N**
Moment Arm Length	1.00	m
Hydrostatic Force (Rectangular; 1b)	**24932**	**N**
Moment Arm Length	1.50	m
Total Headwater Hydrostatic Force	**97259**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.79	m
Upstream Horizontal Silt Force	**930**	**N**
Moment Arm Length	0.26	m

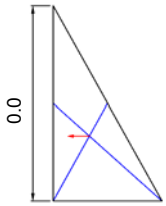


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

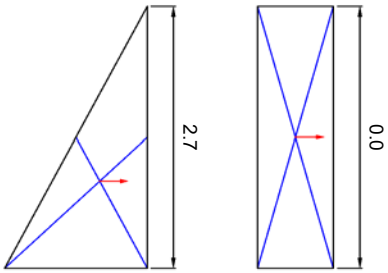
Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m



4. Tailwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	225.62	m
Total Height of Water , h	2.78	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	2.78	m
Hydrostatic Force (Triangular; 4a)	**37908**	**N**
Moment Arm Length	0.93	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**37908**	**N**

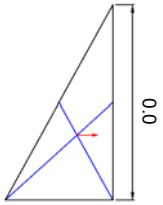


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

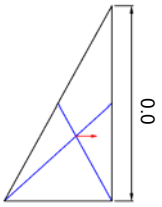


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6. Downstream Horizontal Backfill Force

N/A

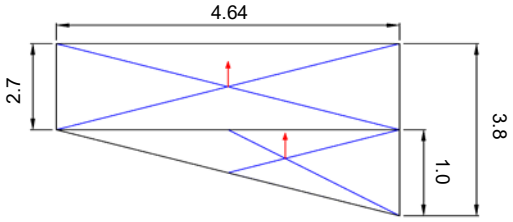
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

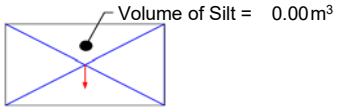


Width of Dam, T	4.64	m
Headwater Height, h	3.84	m
Tailwater Height, h'	2.78	m
Uplift Force (Rectangular Component; 7a)	**126541**	**N**
Moment Arm Length	2.32	m
Uplift Force (Triangular Component; 7b)	**24125**	**N**
Moment Arm Length	3.09	m
Total Uplift Force	**150666**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

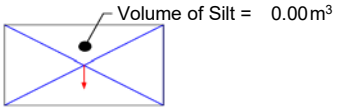


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

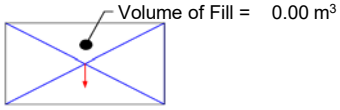


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

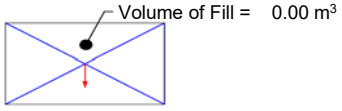


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

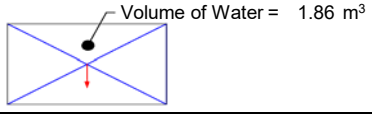
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



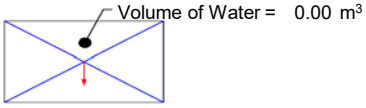
Volume of Water, V_{water}	1.86	m^3
Upstream Weight of Water	**18247**	**N**
Moment Arm Length	3.18	m

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13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

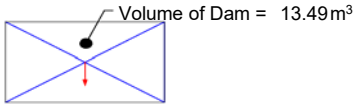
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

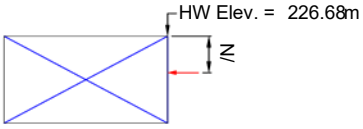
Volume of Dam, V_{dam}	13.49	m^3
Dead Weight of Dam	**291141**	**N**
Moment Arm Length	2.39	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



16. Seismic Loading

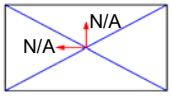
N/A

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**0**	**N**
Moment Arm Length	0.00	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**0**	**N**
Moment Arm Length	0.00	m

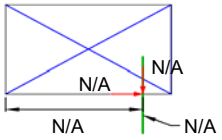


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



WILLS

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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				72327	1.00		72086
Headwater Horizontal Hydrostatic Force, 1b				24932	1.50		37274
Upstream Horizontal Silt Force, 2				930	0.26		245
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a			37908		0.93	35128	
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a		126541			2.32		293575
Uplift Force, 7b		24125			3.09		74626
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12	18247				3.18	58024	
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	291141				2.39	695827	
Ice Loading, 15							
Seismic Loading, 16a							
Seismic Loading, 16b							
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**309388**	**150666**	**37908**	**98189**	**- -**	**788980**	**477806**

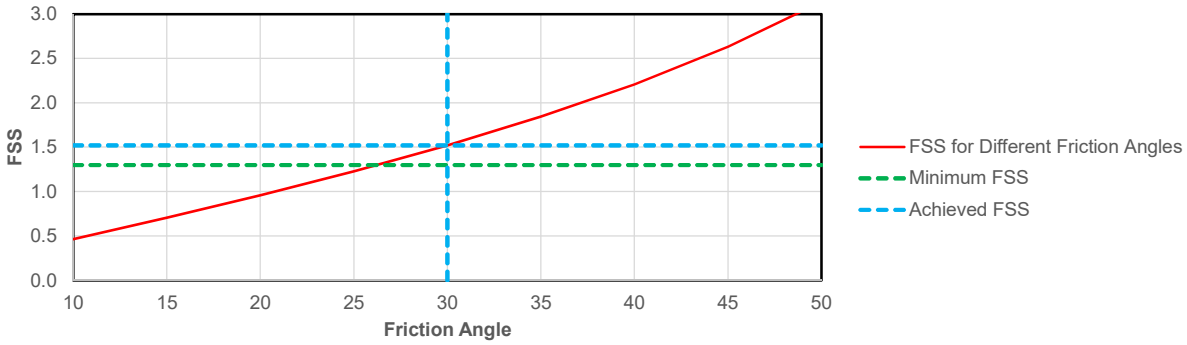
∑Horizontal Forces = **-60282** **N**
∑Vertical Forces = **158722** **N**
∑Clockwise Moment = **788980** **N-m**
∑Counterclockwise Moment = **-477806** **N-m**
∑ Moment = **311174** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 1.52 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

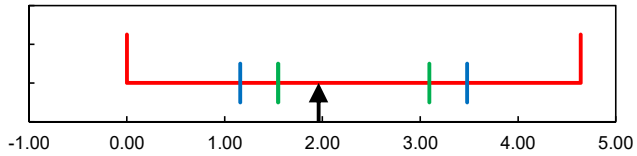
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 1.65 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

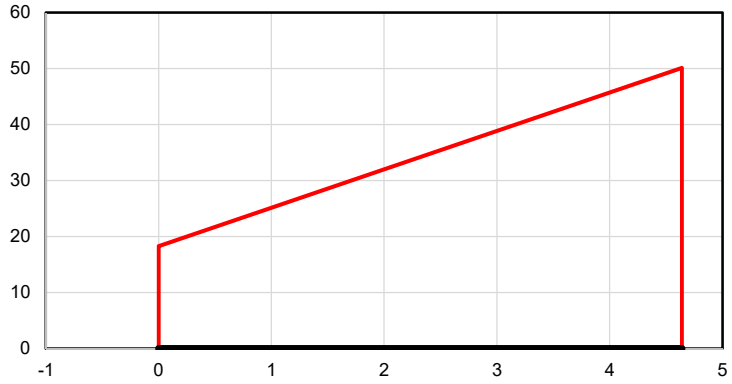
Position of Resultant from Toe = 1.96 m
Eccentricity (e) = 0.36 m

Location of Resultant = Inside Middle Third



			Concrete	Foundation
Average Vertical Stress =	**34207**	**N/m²**		
Normal Compressive Stress at Toe =	**18305**	**N/m²**	Acceptable	Acceptable
Normal Compressive Stress at Heel =	**50109**	**N/m²**	Acceptable	Acceptable
Maximum Normal Compressive Stess =	**50109**	**N/m²**		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe =	**18305**	**N/m²**	Acceptable
Principle Stress at Heel =	**50109**	**N/m²**	Acceptable
Shear Stress at Toe =	**0**	**N/m²**	Acceptable
Shear Stress at Heel =	**0**	**N/m²**	Acceptable

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Material Properties

9.81	m/s^2	Gravitational Acceleration, g
1000	kg/m^3	Density of Water, ρ_{water}
9810	N/m^3	Specific Weight of Water, γ_{water}
2200	kg/m^3	Density of Concrete, $\rho_{concrete}$
30	degrees	Angle of Friction (Concrete/Foundation), $Ø_{cf}$
9700	N/m^3	Specific Weight of Silt (Sediment), γ_{silt}
32	degrees	Angle of Internal Friction Silt (Sediment), $Ø'_{silt}$
7700	N/m^3	Specific Weight of Backfill, γ_{fill}
30	degrees	Angle of Internal Friction Backfill, $Ø'_{fill}$

500	kN/m^2	Allowable Foundation Bearing Pressure
3000	kN/m^2	Allowable Compressive Stress in Concrete
420	kN/m^2	Allowable Tensile Stress in Concrete
250	kN/m^2	Allowable Shear Stress

Structure Geometry

225.83	m	Top of Dam Elevation
222.84	m	Upstream Base Elevation
222.84	m	Downstream Base Elevation
4.64	m	Width of Dam, T
1.00	m	Sectional Length of Dam, t
13.49	m^2	Area of Dam Section
0	degrees	Angle with toe vertical face (α)
0	degrees	Angle with heel vertical face (φ)
No		Rock/Soil Anchors Present?

Additional Geometrical Definitions

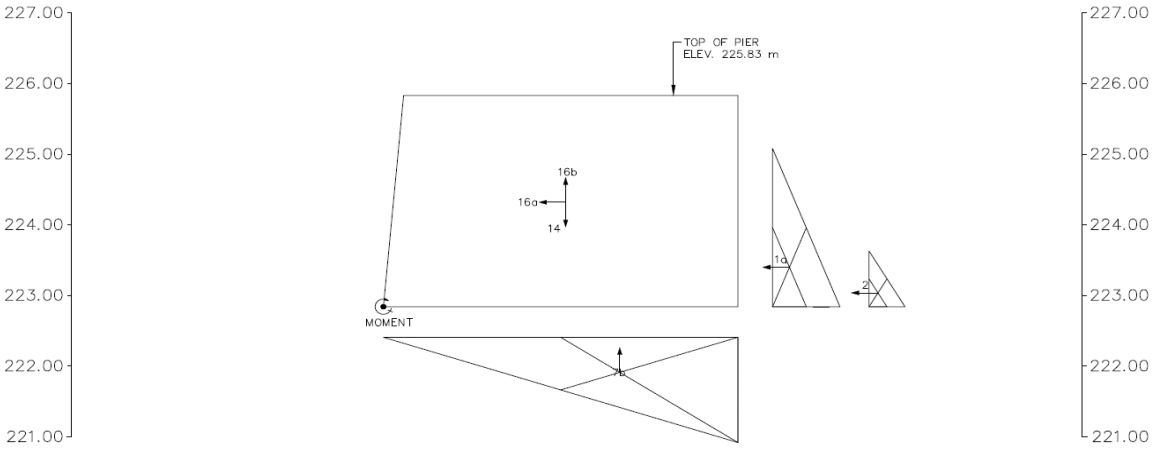
223.63	m	Upstream Silt Elevation

Loading Combination

5. Extreme Load (Earthquake) — Includes the following loads in combination: Dead Loads; Maximum Design Earthquake; Hydrostatic Load (maximum normal operating level); Soil Load; Uplift

1. Headwater Horizontal Hydrostatic Force
2. Upstream Horizontal Silt Force
7. Uplift Force
12. Upstream Weight of Water
13. Downstream Weight of Water
14. Dead Weight of Dam
16. Seismic Loading

Loading Combination Sketch



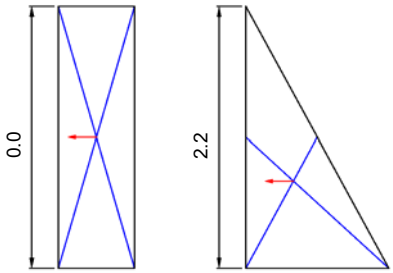
Typical Pier - Loading Condition: 4. Extreme Load (Earthquake)

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1. Headwater Horizontal Hydrostatic Force

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

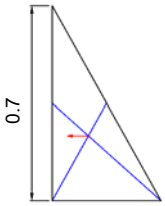
Headwater Elevation	225.08	m
Total Height of Water , h	2.24	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	2.24	m
Hydrostatic Force (Triangular; 1a)	**24611**	**N**
Moment Arm Length	0.75	m
Hydrostatic Force (Rectangular; 1b)	**0**	**N**
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**24611**	**N**



2. Upstream Horizontal Silt Force

Upstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.79	m
Upstream Horizontal Silt Force	**930**	**N**
Moment Arm Length	0.26	m

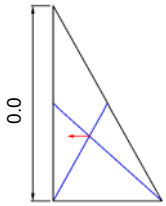


3. Upstream Horizontal Backfill Force

N/A

Upstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$

Height of Backfill, h	0.00	m
Upstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

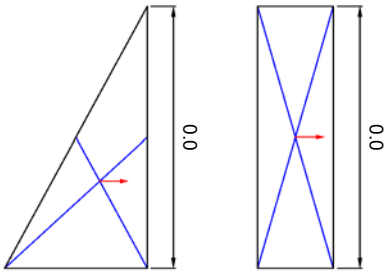


4. Tailwater Horizontal Hydrostatic Force

N/A

Headwater Horizontal Hydrostatic Force = $0.5 * \gamma_{water} * h^2 * t$

Tailwater Elevation	222.84	m
Total Height of Water , h	0.00	m
Height of Water (Above Dam Crest), h'	0.00	m
Height of Water (Below Dam Crest), h"	0.00	m
Hydrostatic Force (Triangular; 4a)	**0**	**N**
Moment Arm Length	0.00	m
Hydrostatic Force (Rectangular; 4b)	**0**	N
Moment Arm Length	0.00	m
Total Headwater Hydrostatic Force	**0**	**N**

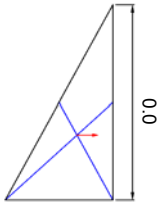


5. Downstream Horizontal Silt Force

N/A

Downstream Horizontal Silt Force = $(\gamma_{Silt} h^2 t/2) * (1-\sin\emptyset'_{Silt}/1+\sin\emptyset'_{Silt})$

Height of Silt, h	0.00	m
Downstream Horizontal Silt Force	**0**	**N**
Moment Arm Length	0.00	m

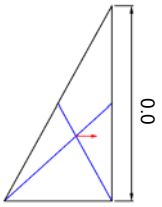


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6. Downstream Horizontal Backfill Force

N/A

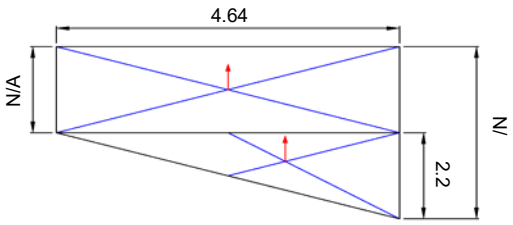
Downstream Horizontal Backfill Force = $(\gamma_{Fill} h^2 t/2) * (1-\sin\emptyset'_{Fill}/1+\sin\emptyset'_{Fill})$



Height of Backfill, h	0.00	m
Downstream Horizontal Backfill Force	**0**	**N**
Moment Arm Length	0.00	m

7. Uplift Force

Uplfit Force = $T((\gamma_{water} h+\gamma_{water} h')/2)t$

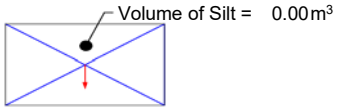


Width of Dam, T	4.64	m
Headwater Height, h	2.24	m
Tailwater Height, h'	0.00	m
Uplift Force (Rectangular Component; 7a)	**0**	**N**
Moment Arm Length	0.00	m
Uplift Force (Triangular Component; 7b)	**50981**	**N**
Moment Arm Length	3.09	m
Total Uplift Force	**50981**	**N**

8. Upstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

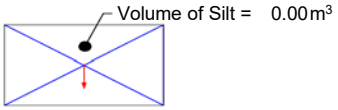


Volume of Silt, V_{Silt}	0.00	m^3
Upstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

9. Downstream Weight of Silt

N/A

Weight of Silt = $V_{Silt} * \gamma_{Silt}$

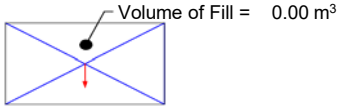


Volume of Silt, V_{Silt}	0.00	m^3
Downstream Weight of Silt	**0**	**N**
Moment Arm Length	0.00	m

10. Upstream Weight of Backfill

N/A

Weight of Fill = $V_{Fill} * \gamma_{Fill}$

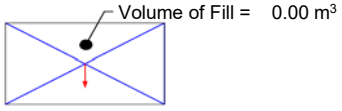


Volume of Fill, V_{Fill}	0.00	m^3
Upstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

11. Downstream Weight of Backfill

N/A

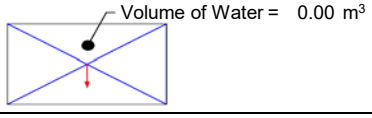
Weight of Fill = $V_{Fill} * \gamma_{Fill}$



Volume of Fill, V_{Fill}	0.00	m^3
Downstream Weight of Fill	**0**	**N**
Moment Arm Length	0.00	m

12. Upstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$



Volume of Water, V_{water}	0.00	m^3
Upstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m

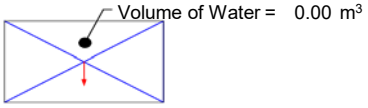
WILLS

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Date: 6/03/22

13. Downstream Weight of Water

Weight of Water = $V_{water} * \rho_{water} * g$

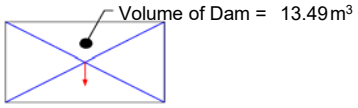
Volume of Water, V_{water}	0.00	m^3
Downstream Weight of Water	**0**	**N**
Moment Arm Length	0.00	m



14. Dead Weight of Dam

Dead Weight of Dam = $V_{dam} * \rho_{dam} * g$

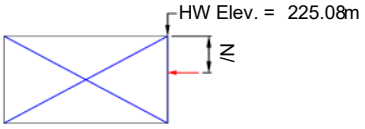
Volume of Dam, V_{dam}	13.49	m^3
Dead Weight of Dam	**291141**	**N**
Moment Arm Length	2.39	m



15. Ice Loading

N/A

Ice Load	**0**	**N**
Moment Arm Length	0.00	m



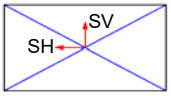
16. Seismic Loading

Horizontal Earhtquake Force = $V_{dam} * \rho_{dam} * S_H * g$

Horizontal Earthquake Force; 16a	**9025**	**N**
Moment Arm Length	1.48	m

Vertical Earthquake Force = $V_{dam} * \rho_{dam} * S_v * g$

Vertical Earthquake Force: 16b	**6017**	**N**
Moment Arm Length	2.39	m

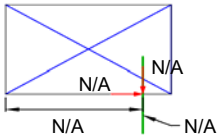


17. Rock/Soil Anchors

N/A

Anchor 1 Tension; 17a	**0**	**N**	**Anchor 1 Shear; 17e**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 2 Tension; 17b	**0**	**N**	**Anchor 2 Shear; 17f**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 3 Tension; 17c	**0**	**N**	**Anchor 3 Shear; 17g**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m
Anchor 4 Tension; 17d	**0**	**N**	**Anchor 4 Shear; 17h**	**0**	**N**
Moment Arm Length	0.00	m	Moment Arm Length	0.00	m

Example Shown for Anchor 1



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Summary of Forces and Moments

Name of Force	Magnitude of Forces (N)				Moment Arm Length (m)	Moments About the Toe (N-m)	
	Vertical Forces		Horizontal Forces			Clockwise (+)	Counter Clockwise (-)
	Down (+)	Up (-)	To U/S (+)	To D/S (-)			
Headwater Horizontal Hydrostatic Force, 1a				24611	0.75		18376
Headwater Horizontal Hydrostatic Force, 1b							
Upstream Horizontal Silt Force, 2				930	0.26		245
Upstream Horizontal Backfill Force, 3							
Tailwater Horizontal Hydrostatic Force, 4a							
Tailwater Horizontal Hydrostatic Force, 4b							
Downstream Horizontal Silt Force, 5							
Downstream Horizontal Backfill Force, 6							
Uplift Force, 7a							
Uplift Force, 7b		50981			3.09		157700
Upstream Weight of Silt, 8							
Downstream Weight of Silt, 9							
Upstream Weight of Backfill, 10							
Downstream Weight of Backfill, 11							
Upstream Weight of Water, 12							
Downstream Weight of Water, 13							
Dead Weight of Dam, 14	291141				2.39	695827	
Ice Loading, 15							
Seismic Loading, 16a				9025	1.48		13358
Seismic Loading, 16b		6017			2.39		14380
Rock/Soil Anchors, 17a							
Rock/Soil Anchors, 17b							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17c							
Rock/Soil Anchors, 17e							
Rock/Soil Anchors, 17f							
Rock/Soil Anchors, 17g							
Rock/Soil Anchors, 17h							
Sum	**291141**	**56998**	**0**	**34567**	**- -**	**695827**	**204059**

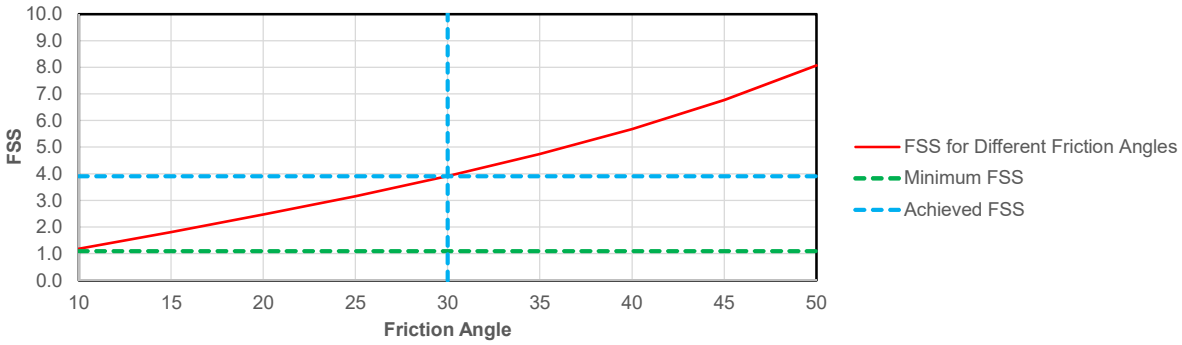
∑Horizontal Forces = **-34567** **N**
∑Vertical Forces = **234144** **N**
∑Clockwise Moment = **695827** **N-m**
∑Counterclockwise Moment = **-204059** **N-m**
∑ Moment = **491768** **N-m**

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Factor of Safety of Sliding

Factor of Safety Against Sliding = (Sliding Coefficient, μ) x (∑Vertical Forces / ∑Horizontal Forces)

Sliding Coefficient, μ = 0.58
Factor of Safety Against Sliding = 3.91 Acceptable



Factor of Safety of Overturning, Location of the Resultant and Bearing Stresses

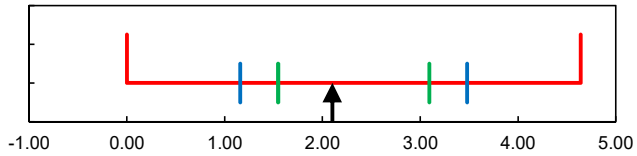
Factor of Safety Against Overturning = ∑Counterclockwise Moments / ∑Clockwise Moments)

Factor of Safety Against Overturning = 3.41 Acceptable

Position of Resultant from Toe = ∑Moments / ∑Vertical Forces)

Position of Resultant from Toe = 2.10 m
Eccentricity (e) = 0.22 m

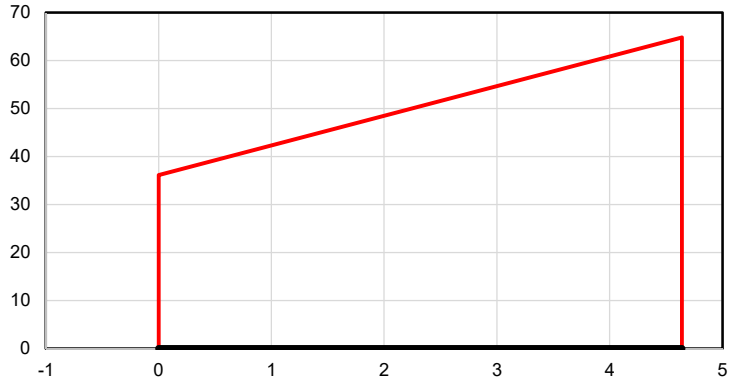
Location of Resultant = Inside Middle Third



Average Vertical Stress = 50462 N/m²

		Concrete	Foundation
Normal Compressive Stress at Toe = 36125	N/m²	Acceptable	Acceptable
Normal Compressive Stress at Heel = 64799	N/m²	Acceptable	Acceptable
Maximum Normal Compressive Stess = 64799	N/m²		

Normal Stresses Acting on Base (kN)



Principle Stress at Toe = 36125	N/m²	Acceptable
Principle Stress at Heel = 64799	N/m²	Acceptable
Shear Stress at Toe = 0	N/m²	Acceptable
Shear Stress at Heel = 0	N/m²	Acceptable

Appendix E

Geotechnical Engineering Report

Geotechnical Report - Dam Safety Review - Pefferlaw Dam

September 7, 2022

Prepared for:
D.M. Wills Associates Limited

Cambium Reference: 14324-001

CAMBIUM INC.
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Peterborough |Barrie | Oshawa | Kingston |Calgary

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1.0 Introduction

Cambium Inc. (Cambium) was retained by D.M. Wills Associates Limited (Client) to complete a geotechnical investigation in support of a Dam Safety Review (DSR) required for soil embankments at Pefferlaw Dam, located at 219 Pefferlaw Road in Pefferlaw, Ontario (Site).

This report presents and summarizes the methodology and findings of the geotechnical investigation conducted by Cambium at the Site. Using the acquired information, the soil embankments were subsequently modelled for the purpose of slope stability analysis. This report also presents the methodology and findings of the slope stability modelling performed for the embankments at the Site.

1.1 Reviewed Documents

The following project documents were received and reviewed during the drafting of this report.

[1] D.M. Wills Associates Limited – Peterborough, Ontario
Pefferlaw DSR Survey and preliminary water levels for slope stability analysis – received by email on April 19, 2022.

[2] Golder Associates – Cooksville, Ontario
Report to Department of Lands and Forests, Ontario on Subsurface Investigation – Proposed Pefferlaw Dam Reconstruction – Pefferlaw, Ontario – August, 1969.

1.2 Standards and Guidelines

Applicable standards, guidelines and other normative documents utilized in preparing geotechnical engineering recommendations for this report are provided below.

[3] Canadian Foundation Engineering Manual – 4th Edition; Canadian Geotechnical Society; 2006.

[4] Geotechnical Design and Factors of Safety – Technical Bulletin – Ontario Ministry of Natural Resources; August 2011.

[5] Seismic Hazard Criteria, Assessment and Considerations – Technical Bulletin – Ontario Ministry of Natural Resources; August 2011.

2.0 Site Description

The Site is located on the south side of Pefferlaw Road in Pefferlaw, Ontario (219 Pefferlaw Road, Pefferlaw, ON), and is located within the Pefferlaw Dam Conservation Area.

The Pefferlaw River flows roughly through the center of the Site from south to north, with the concrete dam structure situated in the southern portion of the Site and retaining the river. Earthfill embankments are located in the abutment areas on the east and west sides of the dam.

The dam is located approximately 110 m south of Pefferlaw Road. Between the dam and Pefferlaw Road, the embankments on both the east and west sides of the river extend upward from the water's edge. The toes of these embankments are currently supported with armour stone walls (east and west embankments, beginning at the existing dam and extending approximately 20 m northward), and with gabion/caged riprap walls (east embankment between the armour stone wall and Pefferlaw Road). The west embankment is currently an unsupported slope between the armour stone wall and Pefferlaw, with minor riprap placement visible at the water's edge in some areas.

The figure below shows the Site with the existing dam and embankment areas.

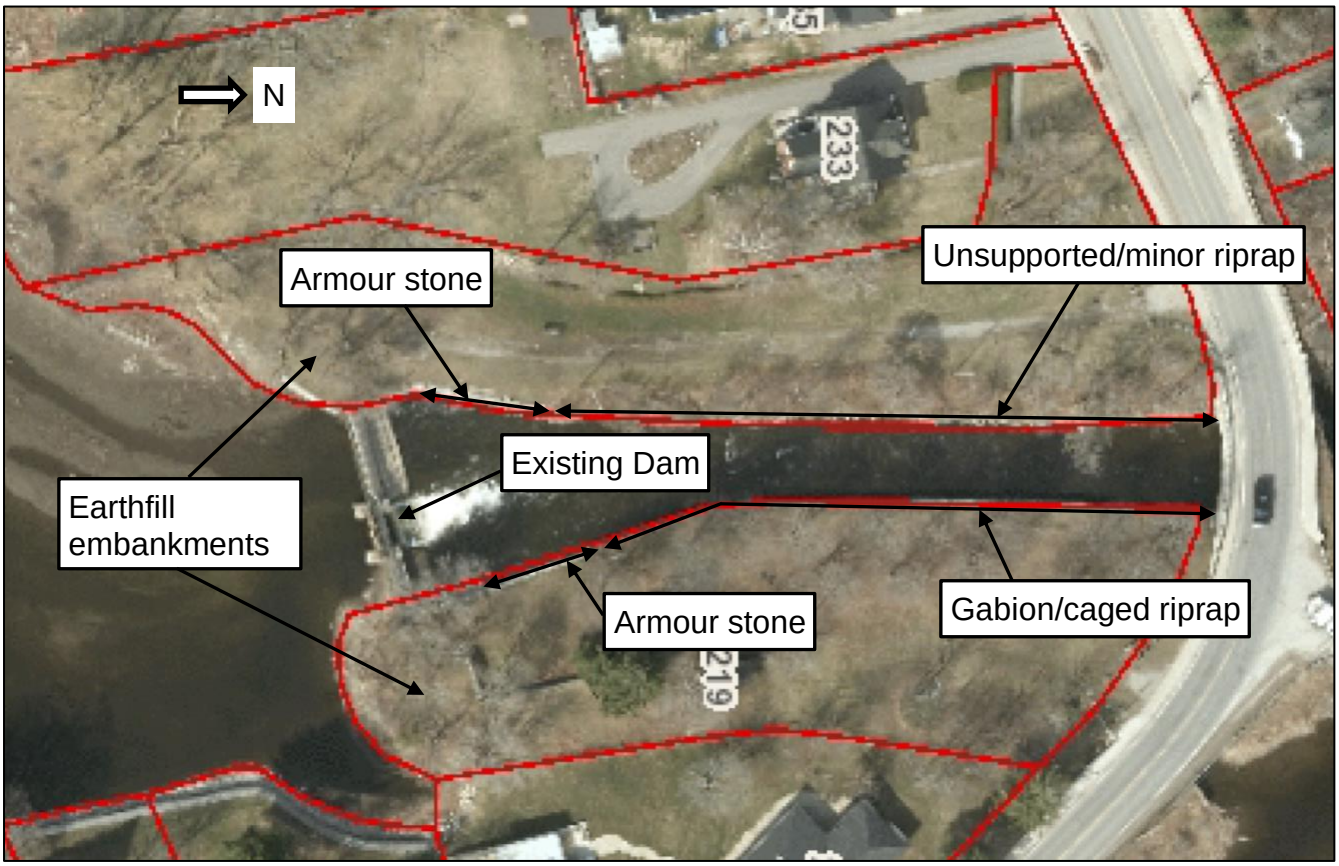


Figure taken from York Region General Map (https://maps.york.ca)

3.0 Methodology

3.1 Borehole Investigation

A borehole investigation was conducted at the Site on March 21, 2022, to assess subsurface conditions within and below the existing earthfill embankments. Three boreholes were advanced at the Site as detailed in Table 1 below and shown on the appended Figure 2.

Table 1 Borehole Locations

Borehole ID	Embankment
BH101-22	West Earthfill Embankment
BH102-22	East Earthfill Embankment
BH103-22	

Borehole drilling and sampling was completed using a track-mounted drill rig operating under the supervision of a Cambium geotechnical analyst. The boreholes were advanced to the sampling depths by means of continuous flight solid stem augers with 50 mm O.D. split spoon samplers. BH101-22 was terminated at a depth of 6.1 m below ground surface (mbgs) and BH102-22 at a depth of 6.2 mbgs. Due to low sample recovery in the upper 1.5 mbgs of BH102-22, BH103-22 was advanced in close proximity to BH102-22 to collect further samples of the fill material and terminated at a depth of 1.8 mbgs.

Standard Penetration Test (SPT) N values were recorded for the sampled intervals as the number of blows required to drive a split spoon sampler 305 mm into the soil, using a 63.5 kg drop hammer falling 750 mm, as per ASTM D1586 procedures.

Soil samples were collected at approximately 0.75 m intervals up to a depth of 3.0 mbgs, and at 1.5 m intervals thereafter. The encountered soil units were logged in the field using visual and tactile methods, and samples were placed in labelled plastic bags for transport, future reference, laboratory testing, and storage.

In order to allow for static water level measurements within the embankments, monitoring wells were installed in boreholes BH101-22 and BH102-22. Borehole logs are provided in ***Appendix A***.

3.2 Site Survey

A topographic survey of the area was completed at the Site by Cambium on April 6, 2022, using a selected benchmark (northeast corner of first armour stone north of the dam, on east side) and obtaining relative elevations for the monitoring wells installed at the Site. Subsequently, a topographic survey of the Site was provided by the Client to Cambium, which captured the ground elevation of the monitoring well at BH101-22 as 226.40 mASL [1].

The elevations of BH102-22 and BH103-22 were determined using the provided elevation for BH101-22 and the differences in relative elevation recorded during Cambium's survey of the Site.

3.3 Laboratory Testing

Laboratory soil testing included five Grain Size Distribution Analyses (LS-702) on soil samples collected during the field investigation. Natural Moisture Content (LS-701) was determined for all soil samples collected from the site. In addition, one Atterberg Limits Analysis (LS-703/704) was completed on a sample collected from BH102-22. The results of laboratory testing are presented in detail in ***Appendix C***.

4.0 Subsurface Conditions

The stratigraphy encountered in the boreholes are indicated on the attached borehole logs in Appendix A. It is noted that the conditions indicated on the borehole logs are for specific locations only and can vary between and beyond the borehole locations. The soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones and should not be interpreted as exact planes of geological change. In addition, the descriptions provided in the borehole logs are inferred from a variety of factors, including visual observations of the soil samples retrieved, laboratory testing, measurements prior to and after drilling, and the drilling process itself (drilling speed, shaking/grinding of the augers, etc.).

4.1 Regional Geology

The Site is situated within the Lake Simcoe basin (approximately 3.3 km south of Lake Simcoe), which forms part of the physiographic region known as the Simcoe Lowlands. The area was inundated by Lake Algonquin, a glacial lake which occupied the present Lake Huron and Georgian Bay basins during the retreat of the latest Pleistocene ice sheet, and is characterized by shore cliffs, beaches and boulder terraces. These lake deposits are underlain by till laid down during the Wisconsin period of glaciation.

The area is underlain by shaly limestone of the Black River formation, Ordovician age [2].

4.2 General Subsurface Conditions

The subsurface conditions encountered at the Site are described in detail in the following Sections and generally consist of a surficial topsoil layer (up to roughly 150 mm in thickness) underlain by surficial fill presumably utilized to construct the earthfill embankments. The fill transitions to native materials consisting of till (gravels, silts and sands with varying clay content) also observed during the previous investigation by Golder Associates.

4.3 Fill Material

Fill materials were encountered below the surficial topsoil layer and extended to depths of approximately 2.3 mbgs in BH101-22 and BH102-22. The fill material primarily consisted of brown sand with some gravel and varying silt and clay components. The silt content generally increased with depth, with the fill being characterized as silt and sand between 1.5 mbgs and 2.3 mbgs in BH102-22 and as gravelly silty sand between 1.2 mbgs and 1.8 mbgs in BH103-22.

It is noted that the fill materials used to construct the earthfill embankments and to backfill the excavations required to reconstruct the dam may also consist of reworked native materials. Particularly in BH102-22, reworked native material may extend to a depth of approximately 3.0 mbgs or further. In general, the transition between fill and native materials at the Site is fluid, with the fill and inferred native materials being similar in composition within shallower depths.

Given that it was recommended in [2] to found the dam on bedrock, fill and/or reworked native materials used to backfill the required excavations may extend, especially in the immediate vicinity of the concrete dam structure, down to bedrock elevations. It is noted that no as-built construction plans for the concrete dam structure were provided to Cambium during the drafting of this report. A review of these plans would need to be conducted in order to determine the actual founding conditions of the dam structure and to allow for a better estimation of fill/backfill depths in the immediate vicinity of the structure.

SPT "N" values recorded within the inferred fill depths generally ranged between 4 and 26, indicative of loose to compact relative density. Natural moisture contents for the fill materials ranged between 4.8% and 25.5% based on laboratory analysis.

Laboratory particle size distribution analysis was completed on one sample collected from inferred fill materials, with a summary of results presented in Table 2. Detailed results of laboratory testing are provided in ***Appendix C***.

Table 2 Grain Size Distribution – Fill Material

BH/Sample	Depth (mbgs)	Description	% Gravel	% Sand	% Silt	% Clay	% Moisture content
BH103-22-SS3	1.2 – 1.8	Gravelly Silty Sand some Clay	26	35	20	19	13.7

4.4 Native Till

Below the inferred fill material, native soils consisted of glacial till. Glacial till consists of a heterogeneous mixture of all grain sizes.

The till materials encountered at this Site consisted primarily of silt-dominant soils (silt and sand, ranging to clayey silt with some sand and trace gravel). Trace to some gravel was observed in the silt-dominant materials. Between a depth of 4.6 mbgs and 6.1 mbgs in BH101-22, the encountered till material was characterized as a sandy gravel with some silt and trace clay. These findings were mostly consistent with the results of the prior investigation conducted at the Site, which described the till material as gravel, cobbles and shale slabs in a sandy silt matrix.

SPT "N" values recorded within the glacial till generally ranged between 14 and 50, indicative of compact to very dense relative density. For the clayey silt till in BH102-22, an "N" value of 39 was recorded, indicative of hard soil consistency. Natural moisture contents for the till material ranged between 5.9% and 11.9% based on laboratory analysis.

Laboratory particle size distribution analyses were performed on four samples collected from the native glacial till, with a summary of results presented in Table 3. Detailed results of laboratory testing are provided in ***Appendix C***.

Table 3 Grain Size Distribution – Native Till

BH/Sample	Depth (mbgs)	Description	% Gravel	% Sand	% Silt	% Clay	% Moisture content
BH101-22-SS4	2.3 – 2.9	Silt and Sand some Gravel some Clay	15	36	37	12	9.8
BH101-22-SS6	4.6 – 5.2	Sandy Gravel some Silt trace Clay	48	32	16	4	7.6
BH102-22-SS5	3.0 – 3.7	Silt and Sand some Clay trace Gravel	6	39	43	12	8.7
BH102-22-SS6	4.6 – 5.2	Clayey Silt some Sand trace Gravel	4	11	65	20	11.9

One Atterberg Limits analysis was performed on a sample collected from the native soil material, with the results summarized in Table 4.

Table 4 Atterberg Limits – Native Till

BH/Sample	Depth (mbgs)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Moisture Content
BH102-22-SS6	4.6 – 5.2	19.3%	12.7%	6.6%	11.9%

4.5 Bedrock

BH101-22 and BH102-22 were terminated due to auger refusal at depths of 6.1 mbgs and 6.2 mbgs respectively. These depths correspond to elevations of 220.3 mASL in BH101-22 and of 220.7 mASL in BH102-22.

During the previous investigation conducted at the Site, bedrock was encountered at a depth of 220.9 mASL in the vicinity of BH101-22 (BH 9 in [2]) and at a depth of 220.5 mASL in the vicinity of BH102-22 (BH10 in [2]). The bedrock was cored during that investigation and described as relatively flat lying, fairly sound to sound bedrock, consisting of a calcareous shale with numerous limestone inclusions. The logs BH9 and BH10 from that investigation are provided in ***Appendix B***.

Given the consistency between the findings of the previous investigation and the bedrock elevations encountered during the current investigation, it is inferred that the depths of auger refusal represent the bedrock surface at the Site. The sandy gravel with some silt and trace clay encountered from approximately 1.5 m above the termination depth in BH101-22 could therefore represent weathered/fractured bedrock.

4.6 Groundwater

BH101-22 and BH102-22 were outfitted with monitoring wells to allow for the measurement of stabilized groundwater elevations within or below the earthfill embankments.

In BH101-22, wet soils were observed beginning at a depth of approximately 2.3 mbgs, transitioning to saturated (by visual observation) at a depth of 4.6 mbgs.

In BH102-22, soils encountered were described as dry to moist up to a depth of 4.6 mbgs. The clayey silt material below this depth was described as moist to wet, with saturated soils observed at approximately 6 mbgs.

A subsequent Site visit and water level measurement was conducted on April 6, 2022, with water levels between approximately 3.0 mbgs and 3.5 mbgs being measured in the installed monitoring wells.

Generally, the measured water level within the embankment can be expected to fall between the retained water level on the reservoir/pond side of the structure and the water level on the downstream side of the embankment.

A summary of the groundwater measurements conducted at the Site is given in Table 5.

Table 5 Groundwater Observations – April 6, 2022

Monitoring Well	Embankment	Borehole Elevation (mASL)	Termination Depth (mbgs)	Depth to Groundwater (mbgs)	Elevation of Groundwater (mASL)
BH101-22	West Earthfill Embankment	226.40	6.1	3.42	222.98
BH102-22	East Earthfill Embankment	226.95	6.2	3.05	223.90

The water level within the embankments should be expected to fluctuate seasonally and in response to climatic events such as precipitation and snow/ice melt, as well as in response to changes in reservoir water levels.

5.0 Geotechnical Considerations

As detailed in Cambium proposal 14324-P, the intention of the geotechnical investigation described above is to assist the Client by providing a geotechnical slope stability analysis for the embankments investigated at the Site. The assessment/analysis should not be construed as a detailed analysis or recommendations for future remediation. Furthermore, assessment of potential geohazards is limited to the depth and location of the boreholes advanced at the Site, and any possible hazards resulting from subsurface conditions beyond these extents are not addressed. It is possible that subsurface conditions beyond the borehole locations may vary from those observed. If significant variations are found before or during any construction/remedial works, Cambium should be contacted so that these findings may be reassessed, if necessary.

5.1 Seismic Classification

The National Building Code of Canada (NBCC) provides guidelines for earthquake resistant designs for seismic zones. Based on the Site location, Natural Resources Canada provides interpolated seismic hazard calculations for spectral and peak ground accelerations, which are 0.120g and 0.072g respectively for the current Site, for a 2% probability of exceedance in 50 years. Spectral acceleration is for a period of 0.2 seconds and accelerations are given in units of g (9.81 m/s^2). A copy of this calculation is included in ***Appendix D*** with its references and statement of limitations.

Given the dam Hazard Potential Classification (HPC) has been classified as High by the Client, the design earthquake ground motion for the stability analyses would be based on a 1:2,500 design earthquake (life safety criterion, 10 or fewer lives) as stipulated in [5]. Under these design considerations, the spectral and peak ground accelerations are 0.120g and 0.072g respectively. These values will be used for the pseudostatic analysis of the embankments.

In accordance with the 2010 NBCC and the encountered soil conditions, the soil embankments at the Site can be classified as Site Class D – Stiff Soil. Per Table 4.1.8.4B from the 2010 NBCC, the horizontal acceleration multiplication factor for Site Class D soils with spectral acceleration of 0.2 seconds < 0.25g is 1.3. Using this factor, the PGA value for design can be assumed as 0.094g.

5.2 Slope Stability Study

5.2.1 General

Slope stability analyses were carried out to assess the Factor of Safety (FoS) against slope failure for the existing soil embankments. Analysis was carried out for the downstream/land side and reservoir/water side of both the east and west earthfill embankments, with an additional analysis per embankment being carried out for the reservoir side to simulate rapid drawdown conditions.

The analyses were performed using Slope/W, an industry standard two-dimensional limit equilibrium slope modelling program.

The Morgenstern-Price method of slices was employed for the analyses, in which Factors of Safety were generated for a variety of potential slip surfaces. The slip surface with the lowest calculated Factor of Safety is determinative for slope stability and is shown for each of the analyzed sections provided in ***Appendix E***.

5.2.2 Slope Geometry

The slope geometry for the analyzed sections was developed using the topographic survey of the embankment areas provided to Cambium by the Client (provided by email on April 19, 2022 [1]), with one representative cross section developed for each embankment (total of two cross sections for stability analysis).

It is noted that the topographic survey extended to the water's edge of the reservoir at the time of surveying. For the west embankment, the survey provided sufficient data to create a representative model for slope stability analysis. For the east embankment, the slope on the reservoir side was extended (with the slope inclination based on the provided topographic survey remaining constant) to an inferred pond base elevation of 223 mASL. This represents a geometric assumption based on engineering judgment, and Cambium therefore recommends confirming the actual pond base elevation in this area using a bathymetric survey or similar. If necessary, adjustments may be made to the stability analyses in the future based on the results of further surveys conducted at the Site.

Based on the borehole logs and topographic survey provided, the stratigraphy provided in Table 6 was assumed for stability analysis.

Table 6 Stratigraphy for Slope Stability Analysis

Embankment	West Embankment		East Embankment	
Borehole	BH101-22		BH102-22, BH103-22	
Dam Crest Elevation	ca. 226.4 mASL		ca. 226.2 mASL	
Stratigraphy (Elevations in mASL)	226.4 – 224.1	Fill: Sand, some Silt to Silt and Sand	226.2 – 224.5	Fill: Sand, some Silt to Silt and Sand
	224.1 – 221.8	Silt and Sand Till	224.5 – 222.3	Silt and Sand Till
	221.8 – 220.3	Sandy Gravel Till	222.3 – 220.7	Clayey Silt Till
	< 220.3	Inferred Bedrock	< 220.7	Inferred Bedrock

5.2.3 Adopted Parameters for Stability Analyses

Soil mechanical parameters were selected based on the visual characterization of the soils during the borehole investigation, on the results of laboratory testing and using engineering judgment and experience working with the encountered soil materials.

The geotechnical parameters for the encountered soil stratigraphy, as adopted for the current slope stability analysis, are presented in Table 7 below.

Table 7 Parameters for Stability Analyses

Lithological Unit	Unit Weight (kN/m^3)	Peak Effective Strength Parameters		Peak Undrained Strength Parameters (kPa)
		Friction Angle (°)	Cohesion (kN/m^2)	
Fill: Sand, some Silt to Silt and Sand *loose to compact rel. density*	19.0	30	0	-
Silt and Sand Till *compact to dense rel. density*	19.5	32	0	-
Sandy Gravel Till (some Silt) *dense rel. density*	21.0	35	0	-
Clayey Silt Till *hard consistency*	19.0	28	10	S_u = 150 kPa
Bedrock: Calcareous Shale	*For the purposes of the current analyses, it is assumed that the bedrock surface represents a boundary condition for the model and that no slip surfaces will intersect the bedrock surface.*			

Hydraulic parameters for the slope analyses were provided by the Client, with results summarized in Table 8.

Table 8 Design Water Levels (provided by D.M. Wills Associates Ltd.)

Scenario	Headpond Water Levels (mASL)
Normal Operating Conditions	225.08
Inflow Design Flood	Embankment crest [1)]

[1)] *Water level overtopping embankment crest; it is noted that the Client has provided this as a preliminary condition for the IDF analysis. If the actual IDF water level elevation is determined to be lower based on formal hydraulic analysis, the slope stability analyses should be adjusted accordingly.*

5.2.4 Loading Cases

The loading cases used in the stability evaluation are presented in Table 9 below along with the recommended minimum FoS based on [4].

Table 9 Loading Cases and Design Minimum FoS

Loading Case ID	Description	Design Minimum FoS per LRIA Technical Bulletin (-)
LC1	Normal Operating Conditions (Upstream & Downstream)	1.5
LC2	Pseudostatic Analysis (Upstream & Downstream)	Greater than 1.0
LC3	Inflow Design Flood (Upstream & Downstream)	1.3
LC4	Rapid Drawdown (Upstream)	1.3

A steady state analysis representing the dam under normal operating conditions was modelled with a reservoir water elevation of 225.08 m ASL. Rapid drawdown analyses assumed that the water level was reduced from the normal operating level to the bottom of pond elevation for the embankment being studied, as discussed in Section 5.2.2.

Given that the IDF condition represents an overtopping scenario for each of the embankments (based on current information provided by the Client), the water level was set to the embankment crest level for the purposes of slope stability analysis.

The water levels on the reservoir side of the embankments were provided by the Client. Within the embankments, water levels were measured in the monitoring wells in BH101-22 and BH102-22 on April 6, 2022 and varied between 222.98 mASL and 223.90 mASL. The water level within the embankments can be expected to decrease northward from the water's edge in the reservoir, finally reaching the water level elevations in the river surveyed along the armour stone walls north of the concrete dam structure (edge of water surveyed at 222.6 mASL in [1]). It is noted that the water levels within the dam embankments were modelled based on engineering judgment using the above-noted boundary conditions, and for the purposes of these analyses are expected to be conservative assumptions for the earthfill embankments.

Peak ground acceleration for pseudostatic analysis was obtained from the 2015 National Building Code Seismic Hazard Calculation as covered in Section 5.1. According to industry standards, the acceleration used in pseudostatic analysis is equal to between 0.5 and 0.67 x PGA. Given that the design earthquake considers a 1:2,500-year earthquake based on a High Hazard Potential Classification, the 1:2,500 PGA value was not adjusted, and the horizontal seismic coefficient value given above (0.094g) was adopted for pseudostatic analyses.

5.2.5 Stability Analysis Results and Discussion

The results of the stability analyses performed on the modelled embankment sections are summarized below in Table 10 and Table 11, along with the design minimum FoS as per LRIA guidelines discussed above. It is noted that all factors of safety presented in the tables below were calculated for drained conditions across all loading cases.

Table 10 Stability Analysis Results – Section 1 – West Earthfill Embankment

Loading Case	Design Minimum FoS (-)	Calculated FoS (-)
LC1 – Normal Operating Conditions (Upstream Slope)	1.5	2.3
LC2 – Pseudostatic Analysis (Upstream Slope)	Greater than 1.0	1.6
LC3 – IDF Condition (Upstream Slope)	1.3	2.5
LC4 – Rapid Drawdown (Upstream Slope)	1.3	2.3
LC1 – Normal Operating Conditions (Downstream Slope)	1.5	3.7
LC2 – Pseudostatic Analysis (Downstream Slope)	Greater than 1.0	2.0
LC3 – IDF Condition (Downstream Slope)	1.3	2.3

Table 11 Stability Analysis Results – Section 2 – East Earthfill Embankment

Loading Case	Design Minimum FoS (-)	Calculated FoS (-)
LC1 – Normal Operating Conditions (Upstream Slope)	1.5	1.8
LC2 – Pseudostatic Analysis (Upstream Slope)	Greater than 1.0	1.2
LC3 – IDF Condition (Upstream Slope)	1.3	2.0
LC4 – Rapid Drawdown (Upstream Slope)	1.3	**1.2**
LC1 – Normal Operating Conditions (Downstream Slope)	1.5	1.7
LC2 – Pseudostatic Analysis (Downstream Slope)	Greater than 1.0	1.3
LC3 – IDF Condition (Downstream Slope)	1.3	**0.8**

In addition to the analyses summarized in the tables above, Cambium carried out conditional analyses considering a lower bound friction angle (27.5º) for the fill material due to the low N values recorded in the transition between the fill and the native soil. Based on the results of the conditional analyses, changes in the factors of safety where not substantial and do not alter the conclusions documented above.

Based on the results of the slope stability analyses, the west earthfill embankment can be expected to meet or exceed LRIA Factor of Safety (FoS) criteria under all analyzed conditions.

The east earthfill embankment can be expected to meet or exceed LRIA Factor of Safety (FoS) criteria under normal operating conditions and pseudostatic conditions.

Lower FoS than required to meet the LRIA minimum criteria were calculated for the upstream slope of the east embankment under rapid drawdown conditions and for the downstream slope under inflow design flood conditions.

It is important to note that based on information provided by the Client, the IDF condition is currently assumed to result in an overtopping of the embankments (pending future hydraulic analysis). Overtopping is considered a failure condition for earthfill embankments, which could lead to significant damage and/or washout of the embankment fill.

The slope stability analysis for the IDF condition should therefore be revisited once hydraulic analysis for this condition is complete. Should the calculated water levels for the IDF condition be lower than the embankment crest, the analysis should be revised accordingly and new FoS values determined, which may significantly alter the recommendations and discussion given here. Because overtopping of earthfill dams is considered a failure condition regardless of the FoS calculated in these analyses, if the IDF event results in water levels at or above the embankment crest(s) it will be recommended to raise the embankment crests to accommodate the IDF water level and an additional minimum freeboard.

In order to increase the FoS for the upstream slope of the east embankment under rapid drawdown conditions, consideration could be given to reducing the angle of the upstream slope. Before these recommendations can be confirmed, it would be necessary to conduct a bathymetric survey of the upstream slope, which could result in a different FoS than calculated here and may result in these recommendations being revised. Consideration may be given to constructing a rip rap berm against the base of the upstream slope in order to mitigate negative effects on slope stability due to erosion.

Should the dam owner determine that the embankments are to be remediated, it is recommended to carry out further slope stability and/or hydraulic and seepage analyses during detailed design stages to confirm that the planned remediation works achieve the minimum FoS per the LRIA Technical Bulletin for Geotechnical Design and Factors of Safety.

5.2.6 Additional Considerations and Further Study

The Hazard Potential Classification (HPC) for the embankments studied in these analyses has been given as High by the Client. It should therefore be noted that the LRIA provides further recommendations for High HPC dams, which should be given consideration. The recommendations include, but are not limited to, the application of more sophisticated methods of analysis in addition to pseudo-static approaches as described in detail in [4].

It should also be noted that the embankments extending along the river north of the concrete dam structure, including their retaining structures (armour stone, gabion/caged rip rap, and unsupported slope areas), are beyond the scope of this analysis. It is strongly recommended

to assess slope stability in these areas, especially as part of dam remediation planning in the future. For this to be possible, a topographic survey of the areas must be provided and construction parameters for the retaining walls (i.e., height, embedment depth, etc.) would need to be known.

5.2.7 Liquefaction Potential and Embankment Stability

During seismic events, additional load is placed on the soil matrix characterized by a sharp initial increase in pore water pressure. This excess pressure can lead to a decrease in the overall effective stress and available shear strength of the soil leading to liquefaction. Liquefaction potential in soils has been linked to geotechnical characteristics such as grain size distribution, degree of saturation, and relative density.

5.2.7.1 Grain Size Distribution

Liquefaction is generally known to occur in fine-grained cohesionless soil and man-made fills with little to no compaction. Sand and silty sands have been shown to have the lowest resistance to liquefaction. Liquefaction resistance increases with increasing amounts of gravel and clay. Generally, soils that have a coefficient of uniformity of less than 5 are considered potentially liquefiable.

The coefficient of uniformity ranged from 66.6 to 904.8 within the silt and sand till and sandy gravel till material encountered below the inferred embankment fill at this Site. For the gravelly silty sand fill material in BH103-22 and the clayey silt till in BH102-22, the coefficient of uniformity could not be calculated due to an appreciable clay content (> 15%) within the respective depths.

It can be expected that the sand fill materials encountered in all boreholes advanced at the Site may have lower coefficients of uniformity and that these materials, based on their grain size distribution, could be more susceptible to liquefaction.

5.2.7.2 Degree of Saturation

Liquefaction is caused by excessive pore water pressures. The potential for liquefaction increases as the degree of saturation reaches 100%. Groundwater was measured at depths as shallow as 3.0 mbgs within the monitoring wells installed in the embankment on April 6, 2022. The presence of a high water table and saturated material increases the overall risk to liquefaction.

5.2.7.3 Relative density

Liquefaction is known to be most prevalent in loose, unconsolidated material. During a seismic event the loose nature of the soils will densify leading to the increase in the pore water pressure. The SPT blow counts across all boreholes ranged between 4 and 26 within the interpreted embankment fill and from 14 to greater than 50 within the native soils indicating a loose to compact fill material and a compact to very dense or hard native soil, as detailed

within Section 3. It is noted that soils have been known to liquefy with ‘N’ values as low as 22 and present a liquefiable hazard.

5.3 Design Review and Inspections

Cambium should be retained to complete testing and inspections during construction operations to examine and approve excavated slopes, subgrade conditions, placement and compaction of fill materials.

We should be contacted to review and approve design drawings, prior to tendering or commencing construction, to ensure that all pertinent geotechnical-related factors have been addressed. It is important that onsite geotechnical supervision be provided at this site for excavation and backfill procedures, slope stability concerns, deleterious soil removal, subgrade inspections and compaction testing.

6.0 Closing

Please note that this work program and report are governed by the attached Qualifications and Limitations. If you have questions or comments regarding this document, please do not hesitate to contact the undersigned at (705) 742.7900.

Respectfully submitted,

Cambium Inc.

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Group Manager – Geotechnical

Stuart Baird, P.Eng.
Director – Geotechnical

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Project Coordinator - Geotechnical

SEB/RG/js



7.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer, and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

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A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

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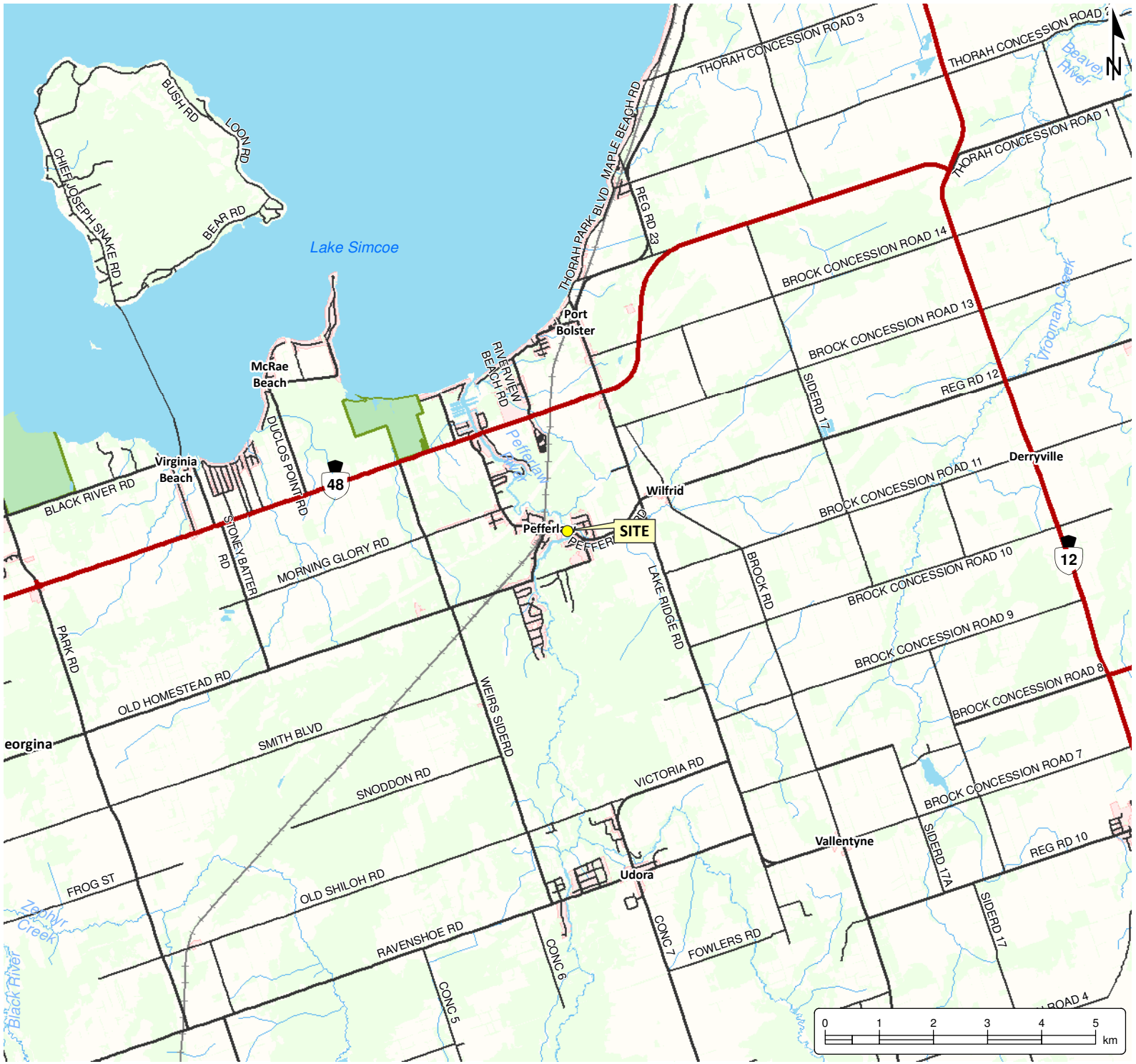
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The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.

Appended Figures



GEOTECHNICAL INVESTIGATION

DM WILLS ASSOCIATES LTD.
219 Pefferlaw Road,
Pefferlaw, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Railroad
- Watercourse
- Water Area
- Provincial Park
- Wooded Area
- Built Up Area

Notes:
- Site is approximate; boundaries were obtained from York Region online GIS database.
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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SITE LOCATION MAP

Project No.: 14324-001		Date: April 2022	Rev.:
Scale: 1:100,000		Projection: NAD 1983 UTM Zone 17N	
Created by: ACS	Checked by: RG	Figure: 1	

O:\GIS\MXDs\14300-14399\14324-001 DM Wills Associates Ltd. - GEO - 219 Pefferlaw Road, Pefferlaw\2022-04-22 FIG 1 - Site Location Map.mxd

GEOTECHNICAL INVESTIGATION

DM WILLS ASSOCIATES LTD.
219 Pefferlaw Road,
Pefferlaw, Ontario



LEGEND

- Borehole
- Monitoring Well
- Cross-Section Location
- Site (approximate)

Notes:
- Site is approximate; boundaries were obtained from York Region online GIS database.
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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BOREHOLE LOCATION PLAN

Project No.: 14324-001		Date: May 2022 Rev.:	
Scale: 1:1,000		Projection: NAD 1983 UTM Zone 17N	
Created by: PAS	Checked by: RG	Figure:	**2**

O:\GIS\MXDs\14300-14399\14324-001 DM Wills Associates Ltd. - GEO - 219 Pefferlaw Road, Pefferlaw\2022-04-22 FIG 2 - Borehole Location Plan.mxd

Appendix A

Borehole Logs

Peterborough
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Log of Borehole: BH/MW101-22

Client: D.M. Wills Associates Ltd.
Project Name: Pefferlaw Dam DSR
Project No.: 14324-001
Contractor: Landshark Drilling
Method: Hollow Stem Auger
Date Completed: March 21, 2022
Location: 219 Pefferlaw Rd., Pefferlaw, ON
UTM: 17T 4908264 N, 643737 E
Elevation: 226.40 mASL

Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (10 20 30 40)	Well Installation	Remarks
226 / 0		TOPSOIL: Topsoil: Sand, trace gravel, organics, loose to compact	1A	SS	80	10			Monument; Cap	Top of Standpipe (TOS) elevation: 227.49 mASL. Groundwater measured at 3.42 mbgs (222.98 mASL.) on April 6, 2022
		SAND: Brown sand, some silt, some gravel, trace clay, trace organics, dry, compact [FILL]	1B							
225 / 1			2	SS	70	10			Bentonite Plug; PVC Standpipe	
		-loose	3	SS	10	5				
224 / 2		SILT AND SAND: Grey silt and sand, some gravel, some clay, wet, compact	4	SS	70	13				GSA SS4: 15% Gravel 36% Sand 37% Silt 12% Clay
223 / 3		-Brown to grey, less silt, dense	5	SS	80	50				
222 / 4									Sand Pack; PVC Screen	
221 / 5		SANDY GRAVEL: Grey sandy gravel, some silt, trace clay, saturated, very dense	6	SS	50	50 / 225 mm				GSA SS6: 48% Gravel 32% Sand 16% Silt 4% Clay. Difficulty augering from 4.6 mbgs to 6.1 mbgs
220 / 6		Borehole terminated in SANDY GRAVEL at 6.1 mbgs (refusal).	7	SS	30	50 / 0 mm			Cap	Spoon bouncing at 6.1 mbgs
219 / 7										

Logged By: J. Schweighofer
Input By: J. Schweighofer

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Log of Borehole: BH/MW102-22

Client:	D.M. Wills Associates Ltd.	**Project Name:**	Pefferlaw Dam DSR	**Project No.:**	14324-001
Contractor:	Landshark Drilling	**Method:**	Hollow Stem Auger	**Date Completed:**	March 21, 2022
Location:	219 Pefferlaw Rd., Pefferlaw, ON	**UTM:**	17T 4908294 N, 643792 E	**Elevation:**	226.95 mASL

SUBSURFACE PROFILE			SAMPLE								
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (10 20 30 40)	Well Installation	Remarks
0 / 226		TOPSOIL: Topsoil: Sand and silt, organics, compact	1A	SS	20	17			*Flushmount* *Cap*	Top of Standpipe (TOS) elevation: 227.90 mASL. Groundwater measured at 3.05 mbgs (223.90 mASL.) on April 6, 2022
		SAND: Brown sand, some gravel, dry, compact [FILL]	1B							
1			2	SS	10	26			*Bentonite Plug* *PVC Standpipe*	
2 / 225		SILT AND SAND: Grey to brown silt and sand, some gravel, trace clay, dry to moist, loose [FILL]	3	SS	70	4				
3 / 224		SILT AND SAND: Grey silt and sand, some clay, trace gravel, moist, compact	4	SS	70	21				
			5	SS	85	14				GSA SS5: 6% Gravel 39% Sand 43% Silt 12% Clay
4 / 223									*Sand Pack* *PVC Screen*	
5 / 222		CLAYEY SILT: Grey clayey silt, some sand, trace gravel, moist to wet, hard	6	SS	85	39				GSA SS6: 4% Gravel 11% Sand 65% Silt 20% Clay AL SS6: LL 19.3% PL 12.7% PI 6.6%
6 / 221		-saturated, very dense	7	SS	20	50 / 150 mm			*Cap*	
7 / 220		Borehole terminated in CLAYEY SILT at 6.2 mbgs (refusal).								

Logged By: J. Schweighofer **Input By:** J. Schweighofer

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Log of Borehole: BH/MW103-22

Client:	D.M. Wills Associates Ltd.	**Project Name:**	Pefferlaw Dam DSR	**Project No.:**	14324-001
Contractor:	Landshark Drilling	**Method:**	Hollow Stem Auger	**Date Completed:**	March 21, 2022
Location:	219 Pefferlaw Rd., Pefferlaw, ON	**UTM:**	17T 4908298 N, 643791 E	**Elevation:**	226.95 mASL

SUBSURFACE PROFILE			SAMPLE							
Elevation (m) / Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (10 20 30 40)	Well Installation	Remarks
0 / 226		TOPSOIL: Topsoil: Sand, organics, compact	1A	SS	30	25				
		SAND: Brown sand, some gravel, compact [FILL]	1B							
1 / 225		-More silt	2	SS	40	18				
		SILTY SAND: Brown gravelly silty sand, some clay, compact [FILL]	3	SS	50	11				GSA SS3: 26% Gravel 35% Sand 20% Silt 19% Clay
2 / 224		Borehole terminated in SAND AND SILT at 1.8 mbgs (target depth).								
3										

Logged By: J. Schweighofer **Input By:** J. Schweighofer

Appendix B

Borehole Logs – Previous Investigation

RECORD OF BOREHOLE 9

LOCATION See Figure 1 BORING DATE MARCH 21-24, 1969 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN. PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	ELEV'N. / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/FT.
WASH BORING NX CASING	744.0 / 0.0	GROUND SURFACE				
		LOOSE MOTTLED BROWN SILTY SAND WITH A TRACE TO SOME CLAY, SOME GRAVEL, SOME CLAYEY POCKETS, TRACE ORGANIC MATTER (FILL)		1	2" O.D.	6
				2	"	7
	737.8 / 6.2	FIRM GREY TO BLACK CLAYEY SILT, SOME SAND AND GRAVEL (ALLUVIUM)		3	"	85
	735.7 / 8.3	VERY DENSE GREY SILTY SAND AND GRAVEL, TRACE TO SOME CLAY. (TILL)		4	"	>100
				5	"	93
ROTARY DRILLING BX CASING BX CORE	729.5 / 14.5	FRACTURED GREY CALCAREOUS SHALE BEDROCK WITH NUMEROUS LIMESTONE INCLUSIONS.		6	BXL RC	—
	724.8 / 19.2	FAIRLY SOUND TO SOUND (8" THICK FRACTURED ZONE AT ABOUT ELEV. 721) GREY CALCAREOUS SHALE BEDROCK WITH NUMEROUS LIMESTONE INCLUSIONS		7	"	—
				8	"	—
	718.6 / 25.4	END OF HOLE		9	"	—

ELEVATION SCALE: 745, 740, 735, 730, 725, 720, 715

DYNAMIC PENETRATION RESISTANCE, BLOWS/FT. (20, 40, 60, 80)

SHEAR STRENGTH Cu., LB./SQ.FT. NAT. V.- + C.-● REM.V.- ⊕ U.-○

COEFFICIENT OF PERMEABILITY, K, CM./SEC. (1×10^{-2}, 1×10^{-3}, 1×10^{-4}, 1×10^{-5})

WATER CONTENT, PERCENT (Wp, W, Wl; 10, 20, 30, 40)

PERCENT CORE RECOVERY: 80, 100, 100, 94

ADDITIONAL LAB. TESTING: MH, MH

PIEZOMETER OR STANDPIPE INSTALLATION: GROUND SURFACE; SURFACE SEAL; PLASTIC TUBING; SAND FILL; PIEZOMETER 'B'; BENTONITE SEAL; PIEZOMETER 'A'; WATER LEVEL IN PIEZOMETE 'A' AT ELEV. 73 AND PIEZOME 'B' AT ELEV. 73 ON MAY 1, 19

15 (0 / 10) 5 Percent axial strain at failure

VERTICAL SCALE 1 IN. TO 5 FT.

Golder Associates

DRAWN JA CHECKED GPD

RECORD OF BOREHOLE 10

LOCATION See Figure 1 BORING DATE APRIL 23-24, 1969 DATUM GEODETIC

SAMPLER HAMMER WEIGHT 140 LB., DROP 30 IN. PENETRATION TEST HAMMER WEIGHT 140 LB., DROP 30 IN.

BORING METHOD	ELEV'N / DEPTH	DESCRIPTION	STRAT. PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/FT.
	743.3	GROUND SURFACE				
WASH BORING	742.1	BROWN SILTY TOPSOIL				
BX CASING	1.2	LOOSE TO COMPACT BROWN SAND AND GRAVEL WITH OCC. CLAYEY POCKETS (FILL)		1	2" O.D.	12
				2	"	10
				3	"	14
	734.3					
ROTARY DRILLING	9.0	FIRM DARK GREY TO BLACK CLAYEY SILT WITH SOME SAND AND GRAVEL TRACE ORGANIC MATTER (ALLUVIUM)		4	"	4
BX CASING	730.3			5	"	7
	13.0	GRAVEL COBBLES AND SHALE SLABS IN VERY DENSE GREY SANDY SILT TO SILT TRACE TO SOME CLAY MATRIX. (TILL)		6	"	>100
				7	BXL R.C.	
	724.8					
	18.5	FRACTURED CALCAREOUS SHALE BEDROCK		8	"	
BX CORE	723.5					
	19.8	FAIRLY SOUND TO SOUND GREY CALCAREOUS SHALE BEDROCK WITH NUMEROUS LIMESTONE INCLUSIONS OCCASIONAL FULLY HEALED FRACTURES		9	"	
	717.5			10	"	
	25.8	END OF HOLE				

ELEVATION SCALE: 745, 740, 735, 730, 725, 720, 715

DYNAMIC PENETRATION RESISTANCE, BLOWS/FT. (20, 40, 60, 80)

SHEAR STRENGTH Cu., LB./SQ.FT. NAT. V.- + C.-● REM.V.- ⊕ U.-○

PERCENT CORE RECOVERY: 71, 79, 100, 100

COEFFICIENT OF PERMEABILITY, K., CM./SEC. (1x10⁻² 1x10⁻³ 1x10⁻⁴ 1x10⁻⁵)

WATER CONTENT, PERCENT (wp, w, wl; 10, 20, 30, 40)

ADDITIONAL LAB. TESTING: M, MH

PIEZOMETER OR STANDPIPE INSTALLATION: GROUND SURFACE; SAND FILL; PLASTIC TUBING; PIEZOMETER 'B'; BENTONITE SEAL; PIEZOMETER 'A'; PIEZOMETERS 'A' AND 'B' DESTROYED APRIL 24, 196[illegible]

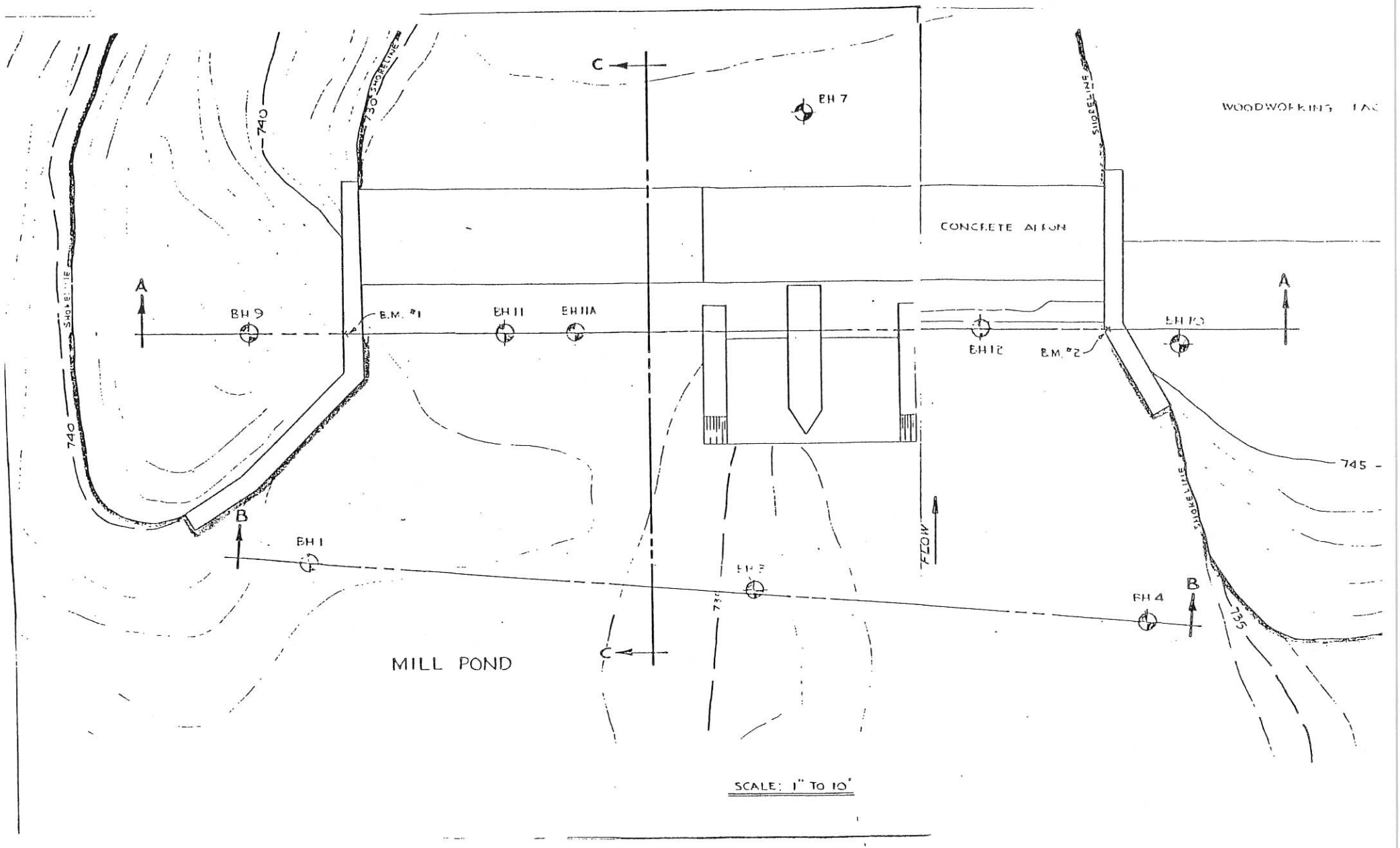
15 ◆ 5 Percent axial strain at failure (0, 10)

VERTICAL SCALE 1 IN. TO 5 FT.

Golder Associates

DRAWN JA

CHECKED GJD


C
BH 7
WOODWORKING FAC
730 SHORELINE
740
CONCRETE APRON
A
BH 9
B.M. #1
BH 11
BH 11A
BH 12
B.M. #2
BH 10
740
745
B
BH 1
FLOW
BH 2
BH 4
735
MILL POND
C
SCALE: 1" TO 10'

Appendix C

Soil Laboratory Testing Results

Grain Size Distribution Chart

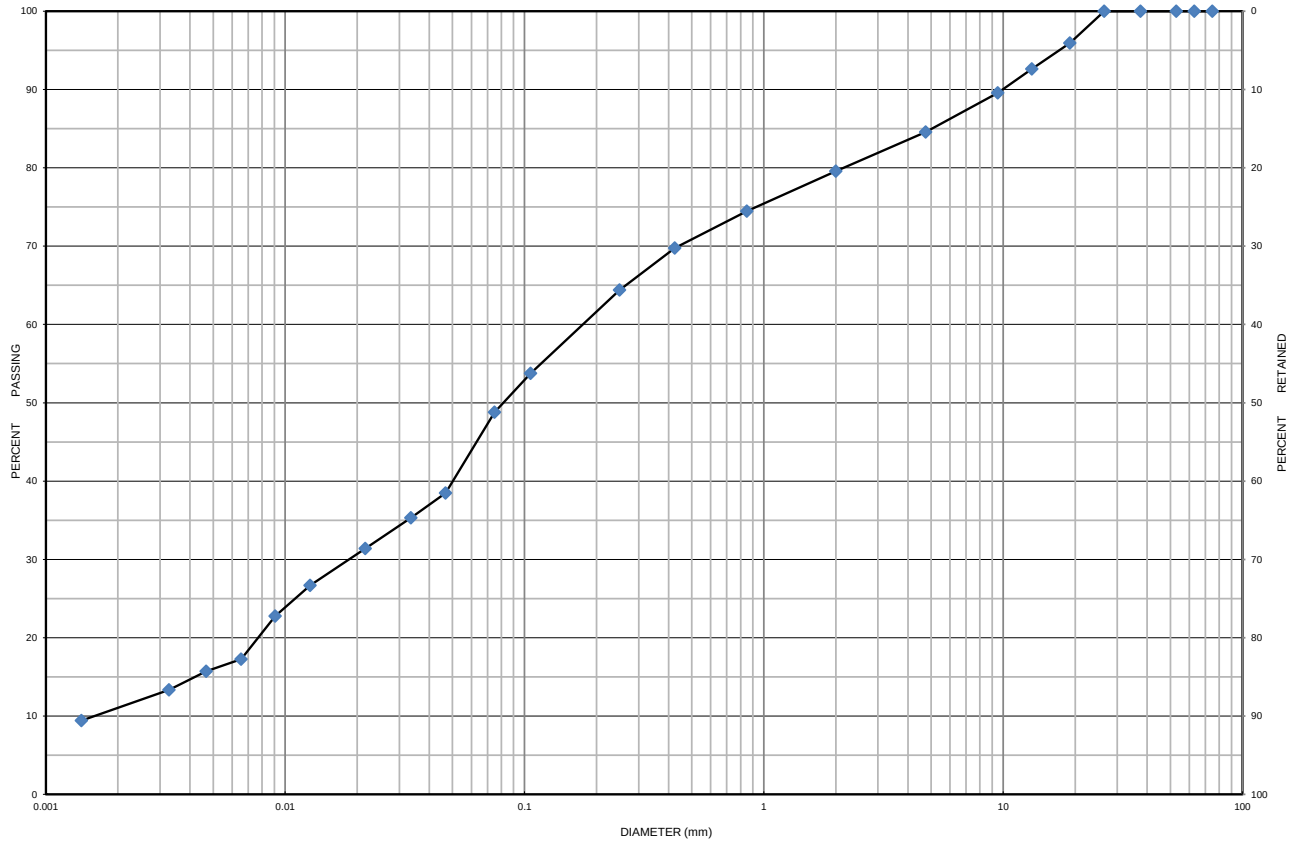
Project Number: *14324-001* **Client:** *DM Wills Associates Ltd.*

Project Name: *Pefferlaw Dam Geotechnical Analysis*

Sample Date: *March 21, 2022* **Sampled By:** *Josef Schweighofer - Cambium Inc.*

Location: *BH 101-22 SS 4* **Depth:** *2.3 m to 2.9 m* **Lab Sample No:** *S-22-0430*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 101-22	SS 4	2.3 m to 2.9 m	15	36	37	12	9.8

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silt and Sand some Gravel some Clay	SM	0.1700	0.0180	0.0016	106.25	1.19

Additional information available upon request

Issued By: _____ *Date Issued:* *April 3, 2022*

(Senior Project Manager)

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Grain Size Distribution Chart

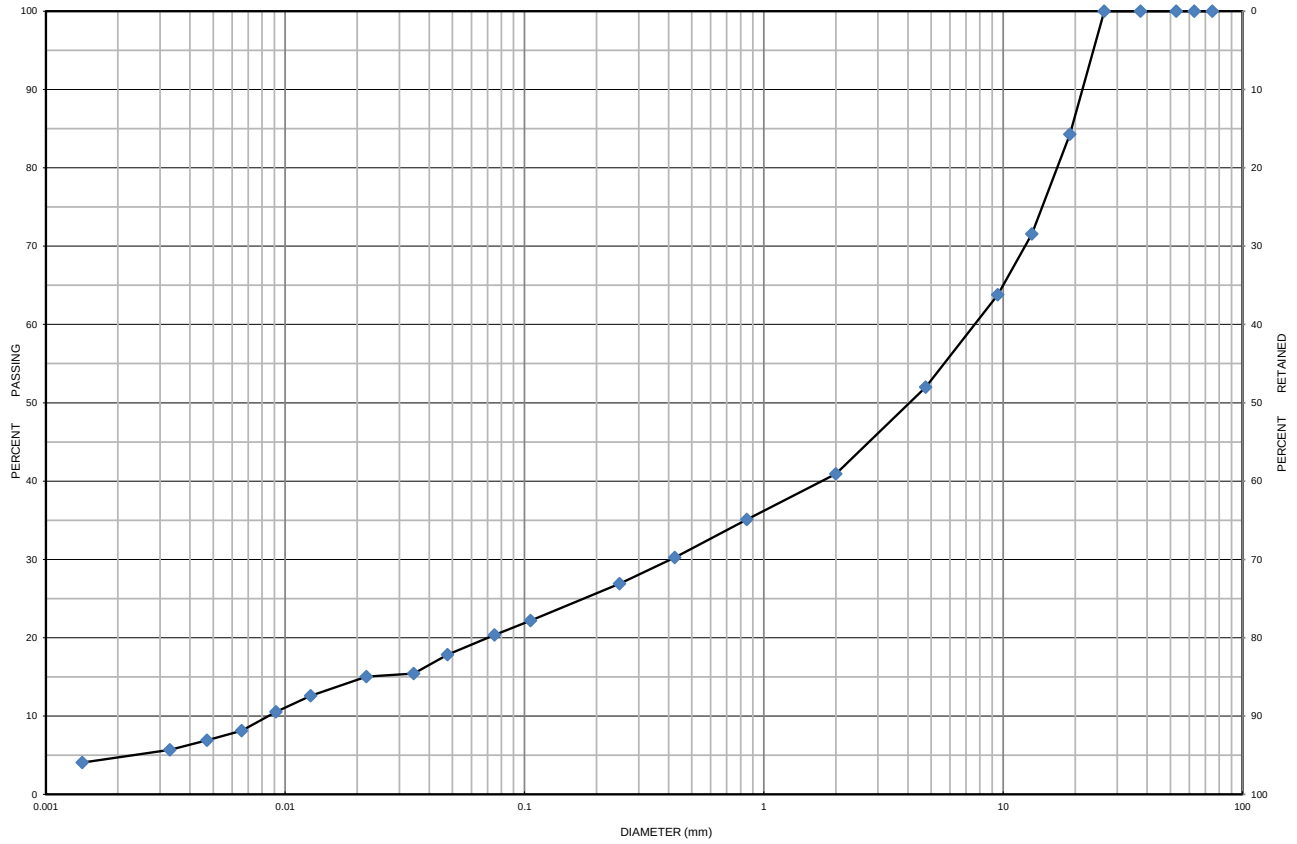
Project Number: *14324-001* **Client:** *DM Wills Associates Ltd.*

Project Name: *Pefferlaw Dam Geotechnical Analysis*

Sample Date: *March 21, 2022* **Sampled By:** *Josef Schweighofer - Cambium Inc.*

Location: *BH 101-22 SS 6* **Depth:** *4.6 m to 5.2 m* **Lab Sample No:** *S-22-0431*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 101-22	SS 6	4.6 m to 5.2 m	48	32	16	4	7.6

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sandy Gravel some Silt trace Clay	SM	7.6000	0.4100	0.0084	904.76	2.63

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Grain Size Distribution Chart

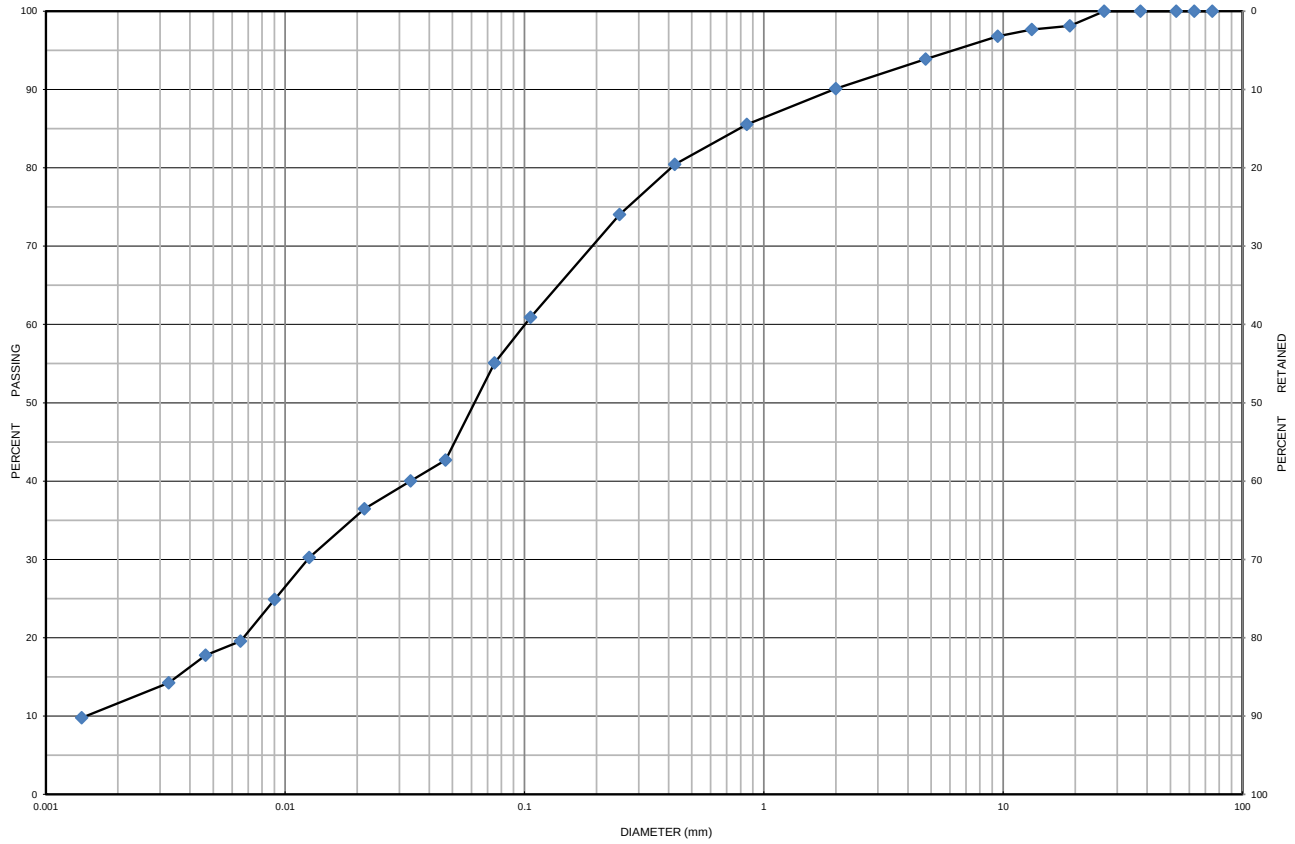
Project Number: *14324-001* **Client:** *DM Wills Associates Ltd.*

Project Name: *Pefferlaw Dam Geotechnical Analysis*

Sample Date: *March 21, 2022* **Sampled By:** *Josef Schweighofer - Cambium Inc.*

Location: *BH 102-22 SS 5* **Depth:** *3 m to 3.7 m* **Lab Sample No:** *S-22-0432*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 102-22	SS 5	3 m to 3.7 m	6	39	43	12	8.7

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silt and Sand some Clay trace Gravel	ML	0.1000	0.0140	0.0015	66.67	1.31

Additional information available upon request

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Grain Size Distribution Chart

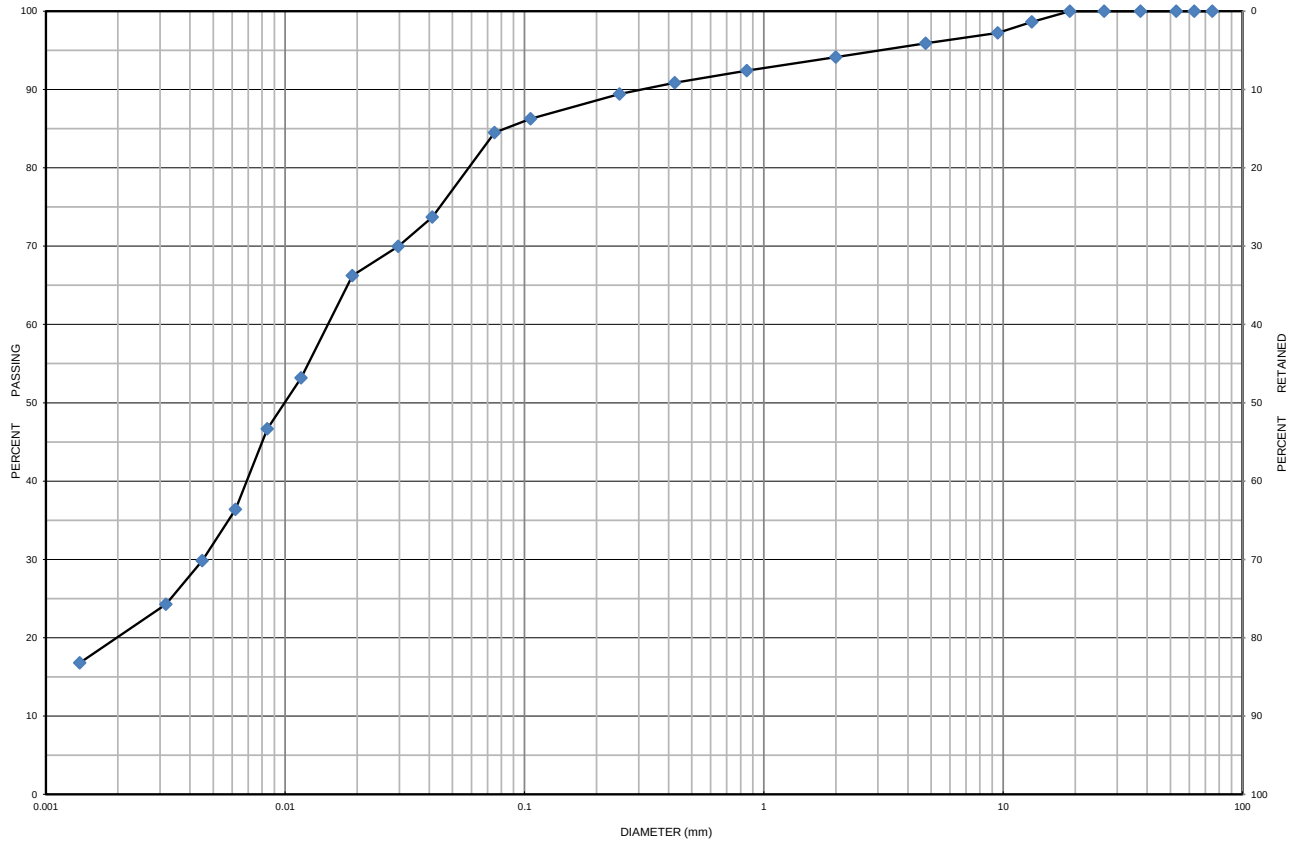
Project Number: *14324-001* **Client:** *DM Wills Associates Ltd.*

Project Name: *Pefferlaw Dam Geotechnical Analysis*

Sample Date: *March 21, 2022* **Sampled By:** *Josef Schweighofer - Cambium Inc.*

Location: *BH 102-22 SS 6* **Depth:** *4.6 m to 5.2 m* **Lab Sample No:** *S-22-0433*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 102-22	SS 6	4.6 m to 5.2 m	4	11	65	20	11.9

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Clayey Silt some Sand trace Gravel	ML	0.0160	0.0046	-	-	-

Additional information available upon request

Issued By: _____ *Date Issued:* *April 3, 2022*

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Grain Size Distribution Chart

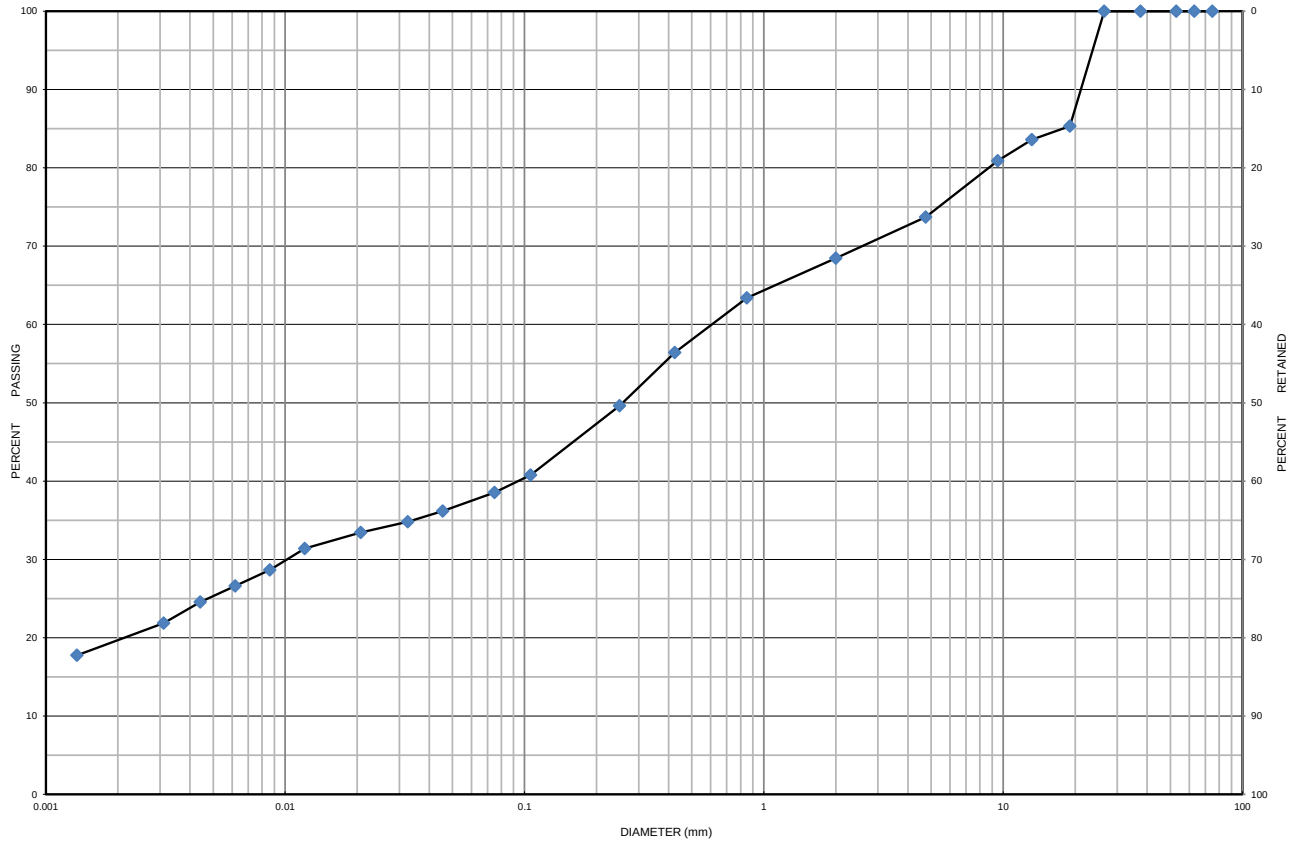
Project Number: *14324-001* **Client:** *DM Wills Associates Ltd.*

Project Name: *Pefferlaw Dam Geotechnical Analysis*

Sample Date: *March 21, 2022* **Sampled By:** *Josef Schweighofer - Cambium Inc.*

Location: *BH 103-22 SS 3* **Depth:** *1.2 m to 1.8 m* **Lab Sample No:** *S-22-0434*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 103-22	SS 3	1.2 m to 1.8 m	26	35	20	19	13.7

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Gravelly Silty Sand some Clay	SM	0.600	0.010	-	-	-

Additional information available upon request

Issued By: _____ *Date Issued:* *April 3, 2022*

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Plasticity Chart

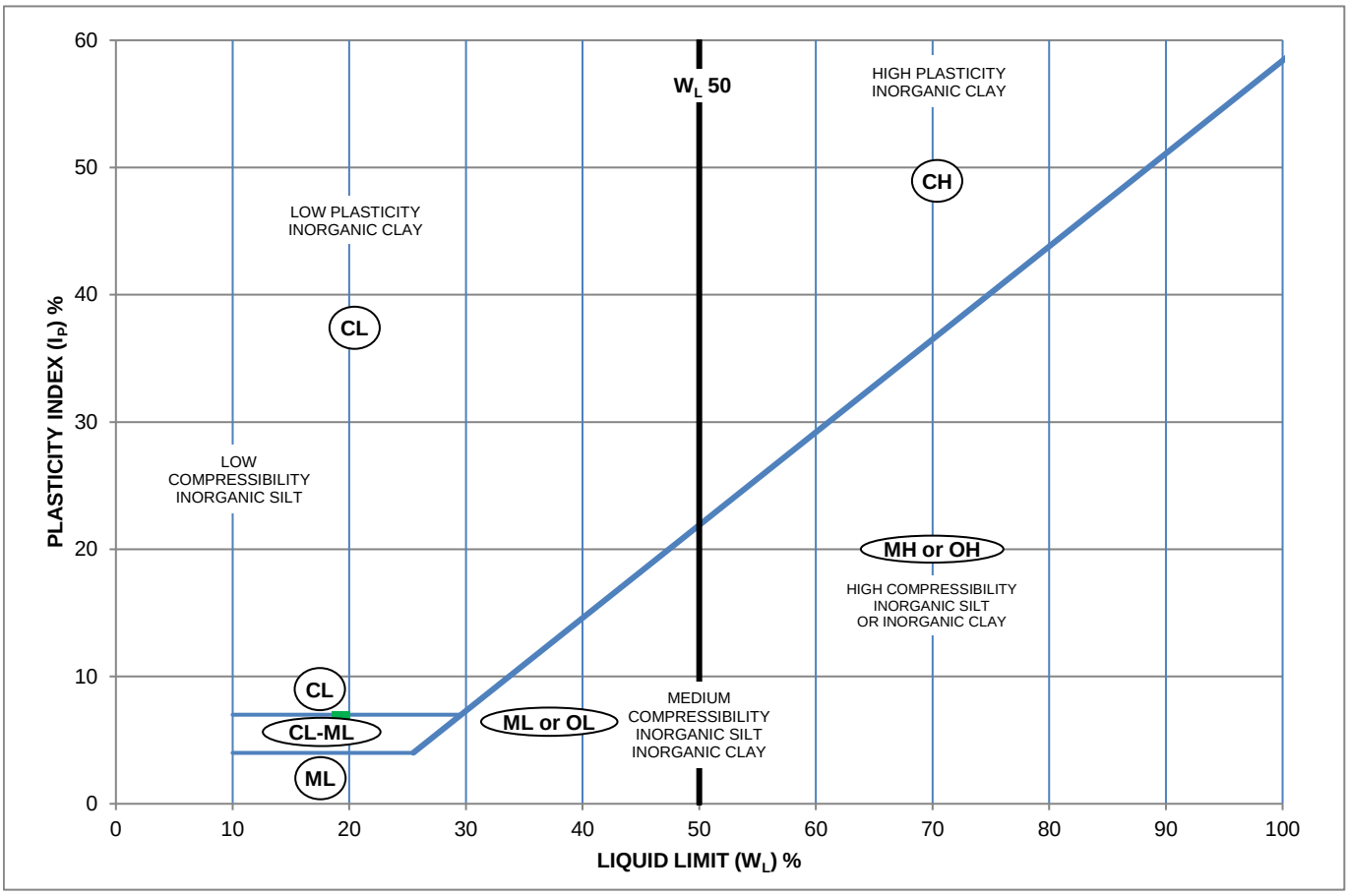
Project Number: *14324-001* **Client:** *DM Wills Associates Ltd.*

Project Name: *Pefferlaw Dam Geotechnical Analysis*

Sampled By: *Josef Schweighofer - Cambium Inc.* **Sample Date:** *March 21, 2022*

Hole No.: *BH 102-22 SS 6* **Depth:** *4.6 m to 5.2 m* **Lab Sample No:** *S-22-0433*

Low Plasticity	High Plasticity



Symbol	Borehole	Sample	Depth	Description
■	BH 102-22	SS 6	4.6 m to 5.2 m	Clayey Silt some Sand trace Gravel

Liquid Limit (%)	Plastic Limit	Plasticity Index (%)
19.3	***12.7***	***6.6***

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Moisture Content

Project Number: 14324-001
Project Name: Pefferlaw Dam Geotechnical Analysis
Client: DM Wills Associates Ltd.
Date Taken: 2022-03-21

Lab Number: S-22-0429
Date Tested: 2022-03-25
Tested By: K. Dickson

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
101	1A	0.00-0.30	25.8	20.0	NR,1
101	1B	0.30-0.61	21.9	10.3	
101	2	0.76-1.37	21.6	9.8	
101	3	1.52-2.13	35.7	23.9	NR,1
101	4	2.29-2.74	69.9	9.8	
101	5	3.05-3.66	14.9	5.9	
101	6	4.57-5.18	31.3	7.6	
101	7	6.10-6.71	29.7	9.4	NR
102	1A	0.00-0.30	47.7	35.9	NR,1
102	1B	0.30-0.61	9.5	7.8	NR,1
102	2	0.76-1.37	46.7	25.5	NR,1
102	3	1.52-2.13	20.3	11.9	NR
102	4	2.29-2.90	21.4	8.1	
102	5	3.05-3.66	90.6	8.7	
102	6	4.57-5.18	100.2	11.9	NR
102	7	6.10-6.71	39.0	9.9	
103	1A	0.00-0.30	27.7	22.9	NR,1
103	1B	0.30-0.61	11.9	4.8	NR
103	2	0.61-1.22	16.9	6.4	
103	3	1.22-1.83	49.9	13.7	

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Appendix D

2015 National Building Code Seismic Hazard Values

2015 National Building Code Seismic Hazard Calculation

INFORMATION: Eastern Canada English (613) 995-5548 français (613) 995-0600 Facsimile (613) 992-8836
Western Canada English (250) 363-6500 Facsimile (250) 363-6565

Site: 44.313N 79.198W **User File Reference:** 219 Pefferlaw Rd., Pefferlaw, ON 2022-05-12 19:57 UT

Requested by: Cambium Inc.

Probability of exceedance per annum	0.000404	0.001	0.0021	0.01
Probability of exceedance in 50 years	2 %	5 %	10 %	40 %
Sa (0.05)	0.093	0.057	0.037	0.012
Sa (0.1)	0.126	0.081	0.053	0.019
Sa (0.2)	0.120	0.079	0.054	0.020
Sa (0.3)	0.102	0.068	0.047	0.018
Sa (0.5)	0.083	0.056	0.038	0.014
Sa (1.0)	0.050	0.033	0.023	0.007
Sa (2.0)	0.026	0.017	0.011	0.003
Sa (5.0)	0.006	0.004	0.002	0.001
Sa (10.0)	0.003	0.002	0.001	0.000
PGA (g)	0.072	0.046	0.030	0.010
PGV (m/s)	0.069	0.043	0.028	0.009

Notes: Spectral (Sa(T), where T is the period in seconds) and peak ground acceleration (PGA) values are given in units of g (9.81 m/s^2). Peak ground velocity is given in m/s. Values are for "firm ground" (NBCC2015 Site Class C, average shear wave velocity 450 m/s). NBCC2015 and CSAS6-14 values are highlighted in yellow. Three additional periods are provided - their use is discussed in the NBCC2015 Commentary. Only 2 significant figures are to be used. **These values have been interpolated from a 10-km-spaced grid of points. Depending on the gradient of the nearby points, values at this location calculated directly from the hazard program may vary. More than 95 percent of interpolated values are within 2 percent of the directly calculated values.**

References

National Building Code of Canada 2015 NRCC no. 56190; Appendix C: Table C-3, Seismic Design Data for Selected Locations in Canada

Structural Commentaries (User's Guide - NBC 2015: Part 4 of Division B)
Commentary J: Design for Seismic Effects

Geological Survey of Canada Open File 7893 Fifth Generation Seismic Hazard Model for Canada: Grid values of mean hazard to be used with the 2015 National Building Code of Canada

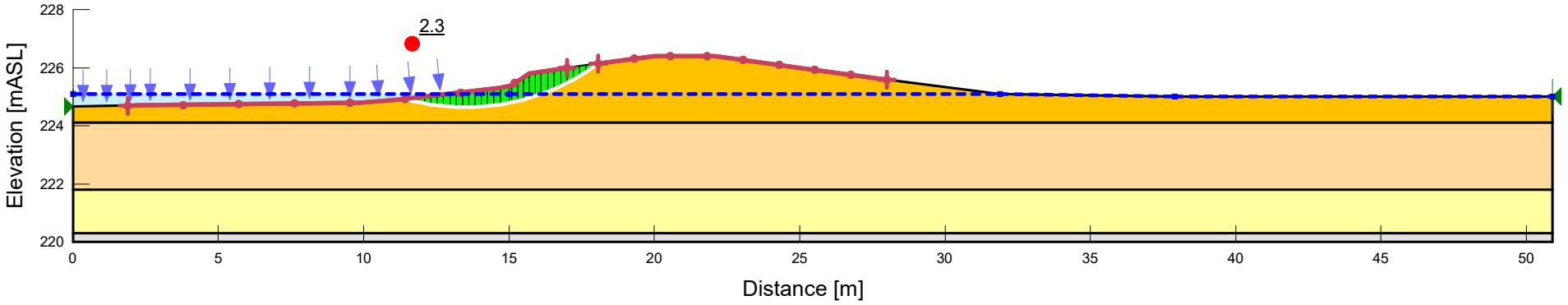
See the websites www.EarthquakesCanada.ca and www.nationalcodes.ca for more information

Appendix E

Slope Stability Analysis - Results

Section 1-1: West Embankment
LC1 - Normal Operating Conditions
Upstream Embankment

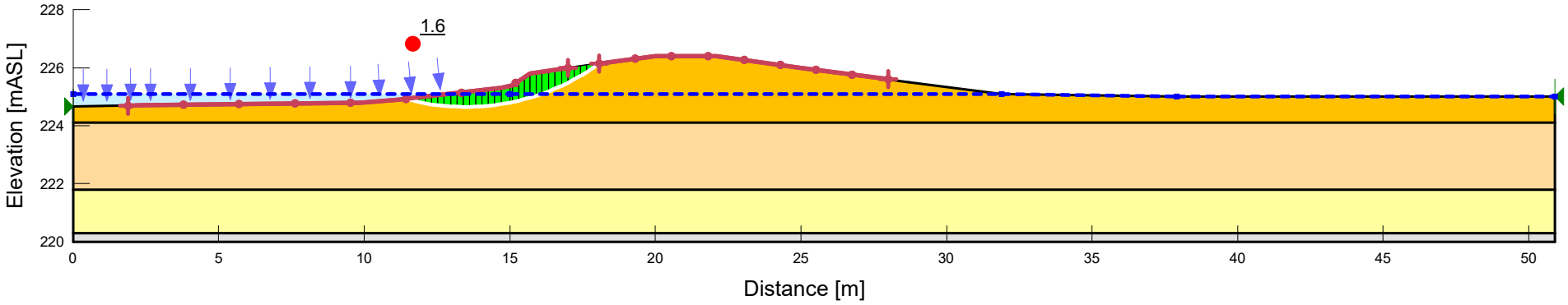
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



S1-West Embankment	
S1-W_LC1_Upstream.gsz	
2022-05-17	1:214

Section 1-1: West Embankment
LC2 - Pseudostatic Analysis
Upstream Embankment

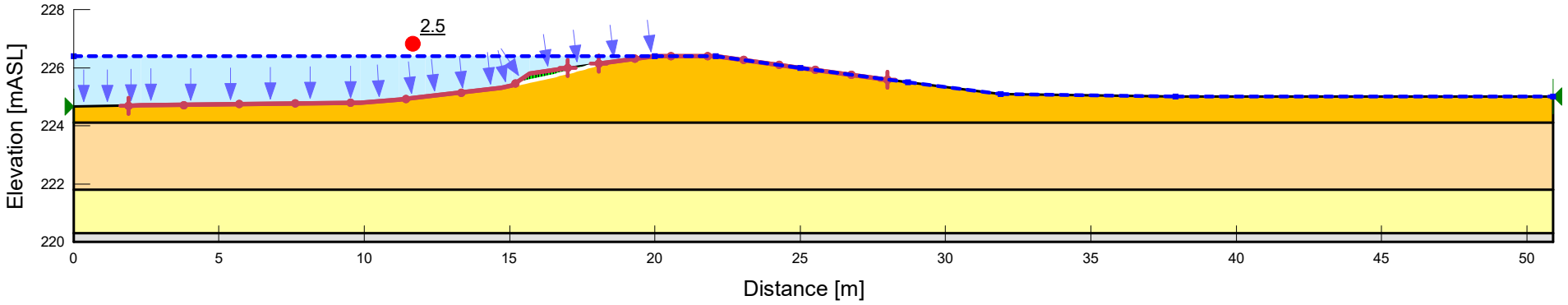
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



S1-West Embankment	
S1-W_LC2_Upstream.gsz	
2022-05-17	1:214

Section 1-1: West Embankment
LC3 - Inflow Design Flood
Upstream Embankment

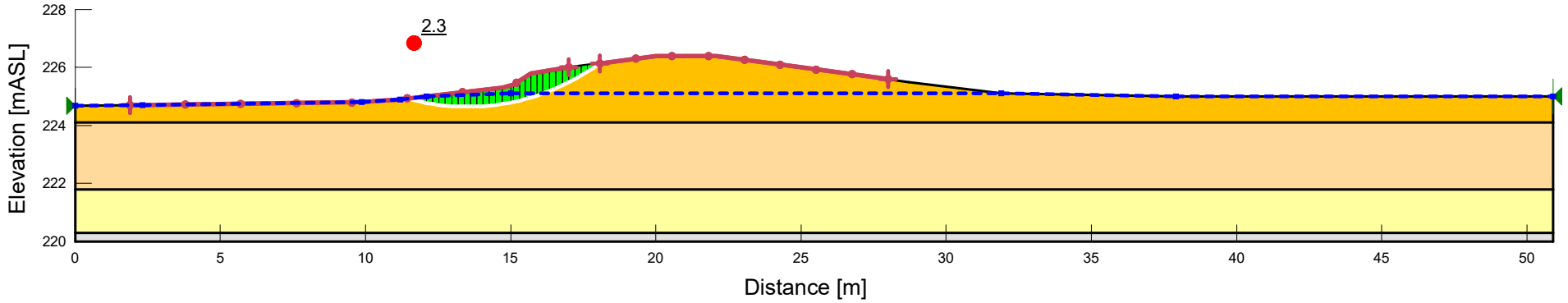
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



S1-West Embankment	
S1-W_LC3_Upstream.gsz	
2022-05-17	1:214

Section 1-1: West Embankment
LC4 - Rapid Drawdown
Upstream Embankment

Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



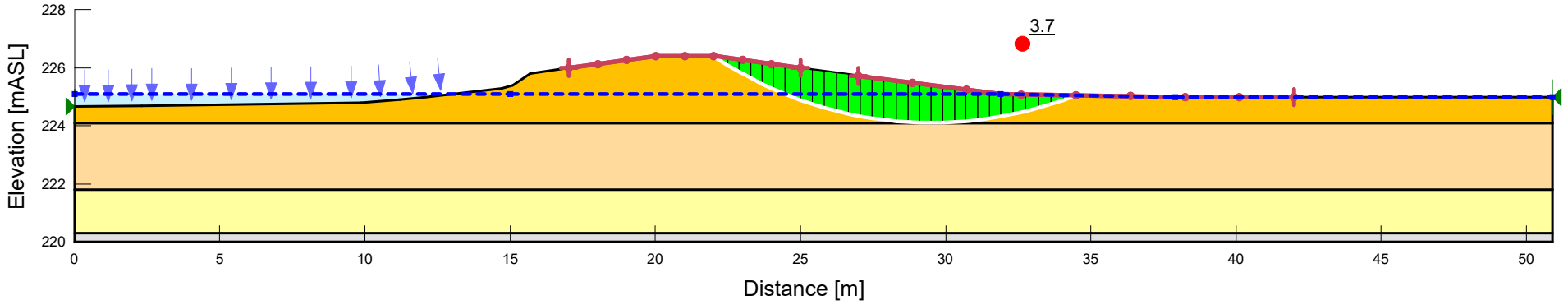
S1-West Embankment

S1-W_LC4_Upstream.gsz

2022-05-17 1:214

Section 1-1: West Embankment
LC1 - Normal Operating Conditions
Downstream Embankment

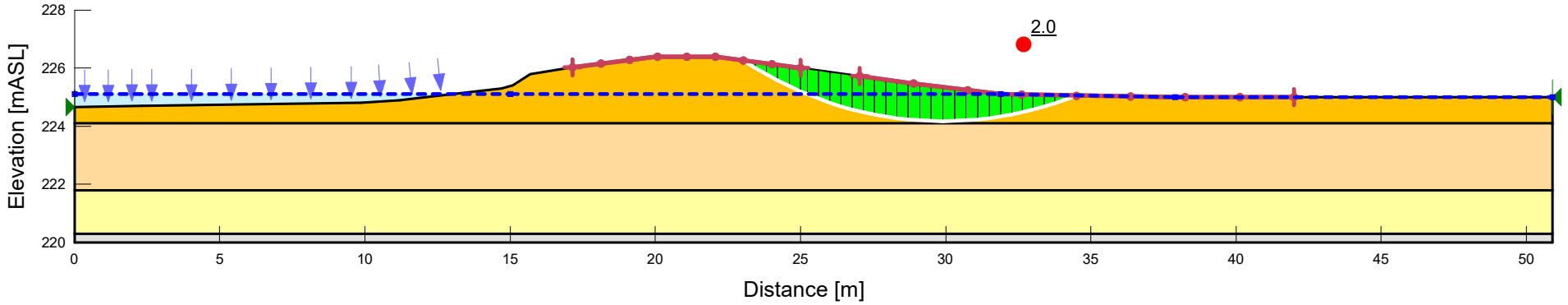
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



S1-West Embankment	
S1-W_LC1_Downstream.gsz	
2022-05-17	1:214

Section 1-1: West Embankment
LC2 - Pseudostatic Analysis
Downstream Embankment

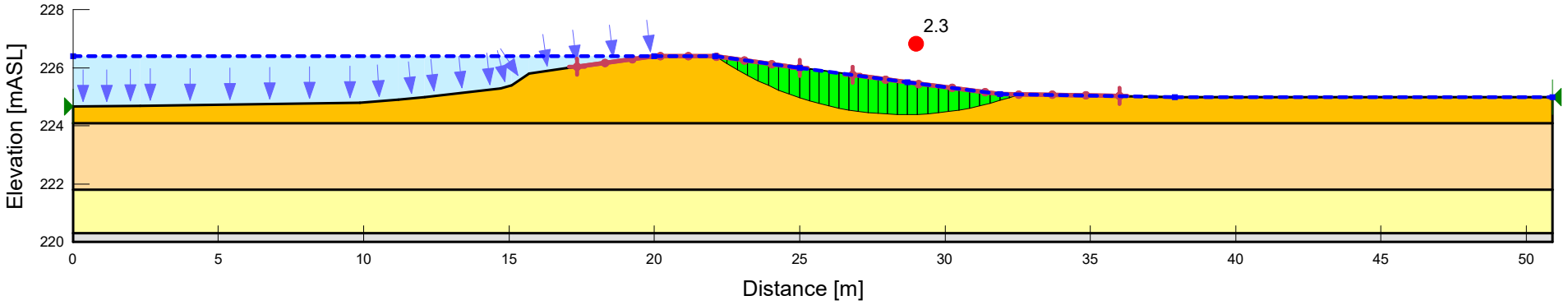
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	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



S1-West Embankment	
S1-W_LC2_Downstream.gsz	
2022-05-17	1:214

Section 1-1: West Embankment
LC3 - Inflow Design Flood
Downstream Embankment

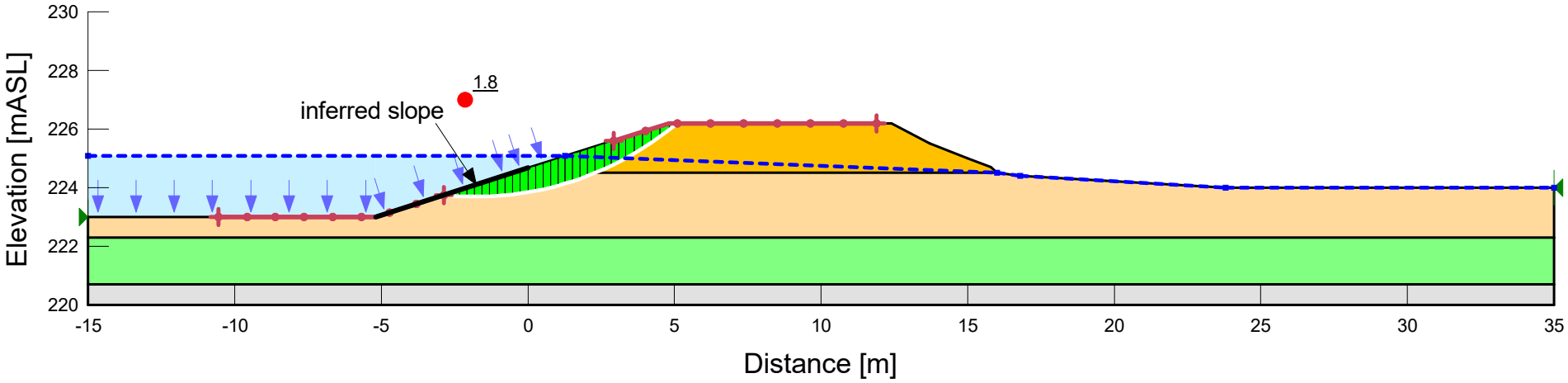
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	Bedrock	Mohr-Coulomb	24	200	25
	Fill	Mohr-Coulomb	19	0	30
	Sandy Gravel Till	Mohr-Coulomb	21	0	35
	Silt and Sand Till	Mohr-Coulomb	19.5	0	32



S1-West Embankment	
S1-W_LC3_Downstream.gsz	
2022-05-17	1:214

Section 2-2: East Embankment
LC1 - Normal Operating Conditions
Upstream Embankment

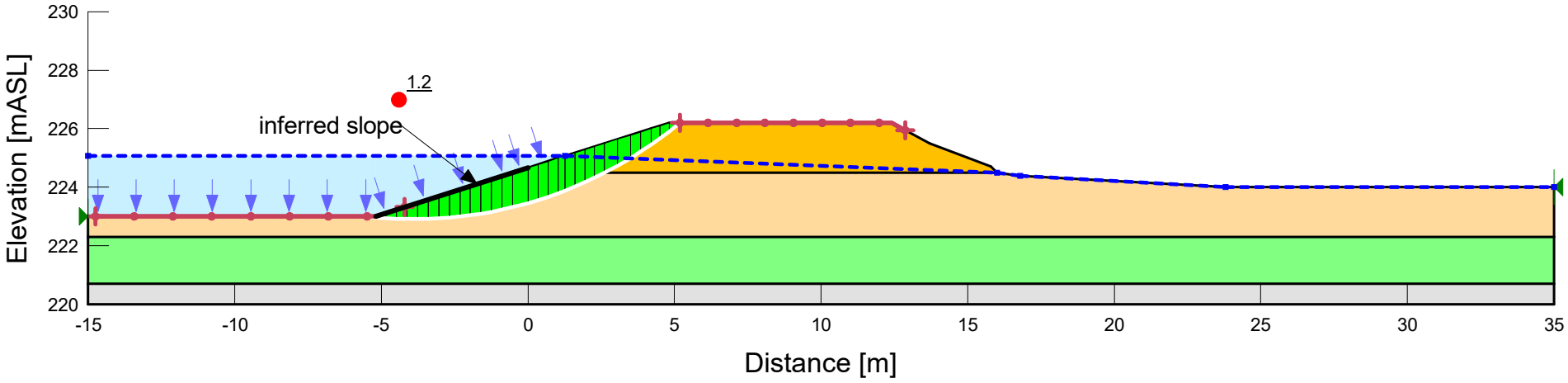
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC1_Upstream.gsz	
2022-05-17	1:213

Section 2-2: East Embankment
LC2 - Pseudostatic Analysis
Upstream Embankment

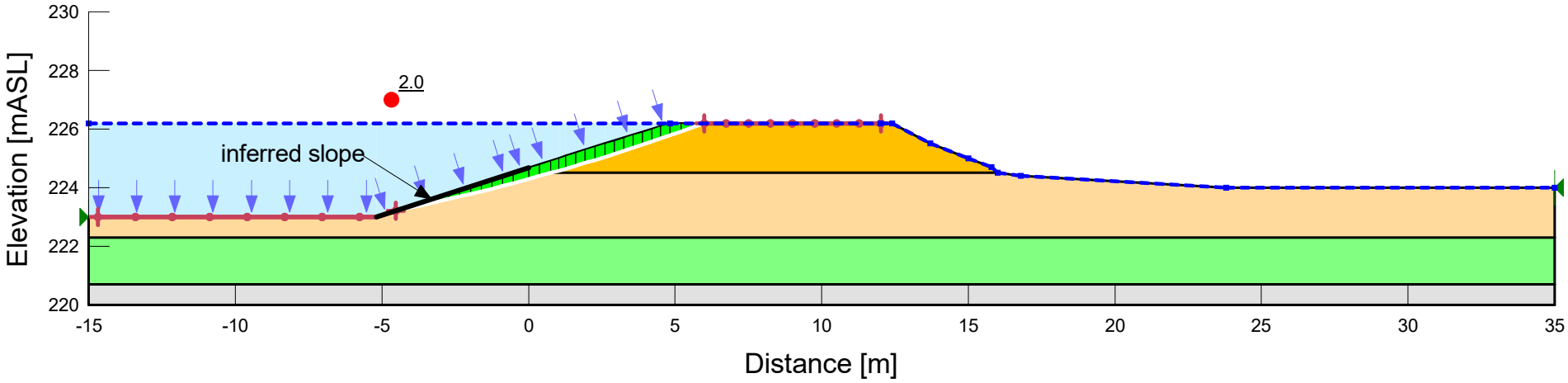
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	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC2_Upstream.gsz	
2022-05-17	1:213

Section 2-2: East Embankment
LC3 - Inflow Design Flood
Upstream Embankment

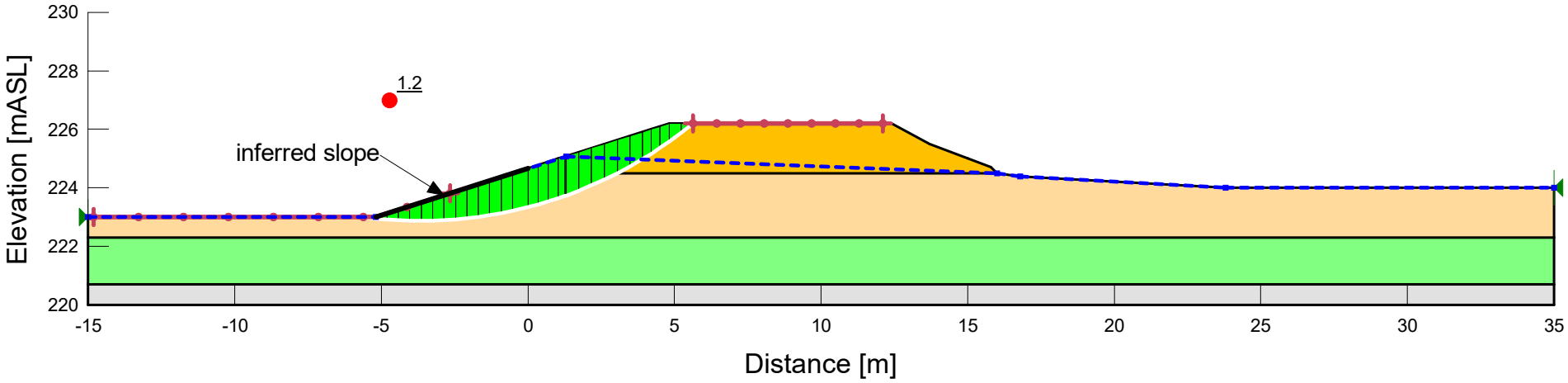
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC3_Upstream.gsz	
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Section 2-2: East Embankment
LC4 - Rapid Drawdown
Upstream Embankment

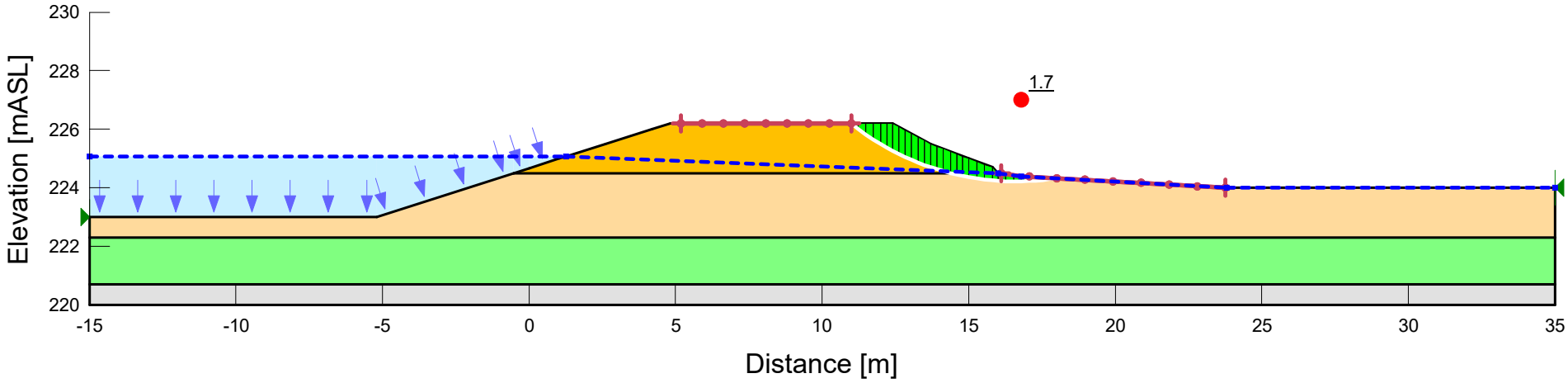
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC4_Upstream.gsz	
2022-05-16	1:213

Section 2-2: East Embankment
LC1 - Normal Operating Conditions
Downstream Embankment

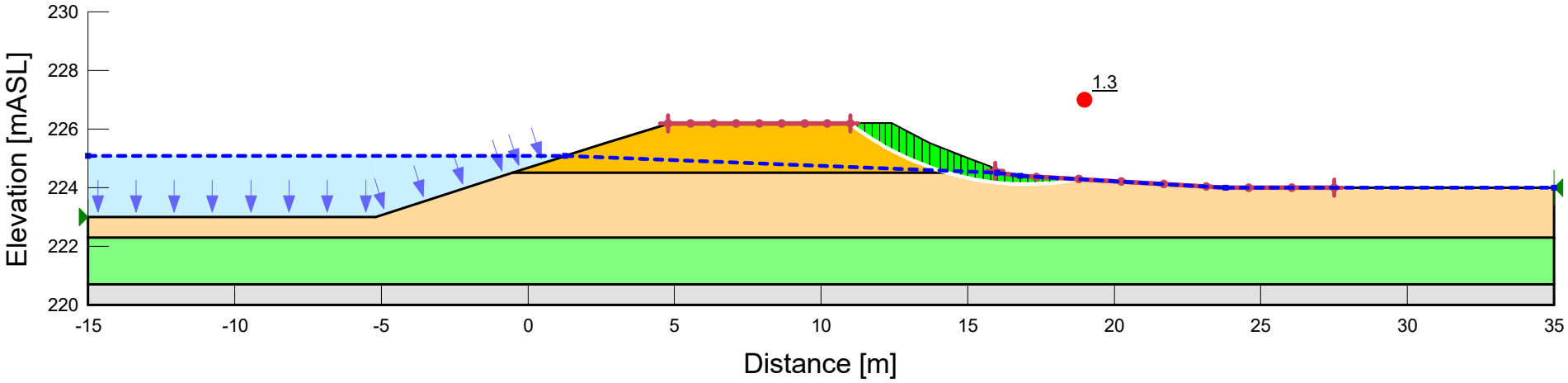
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC1_Downstream.gsz	
2022-05-16	1:213

Section 2-2: East Embankment
LC2 - Pseudostatic Analysis
Downstream Embankment

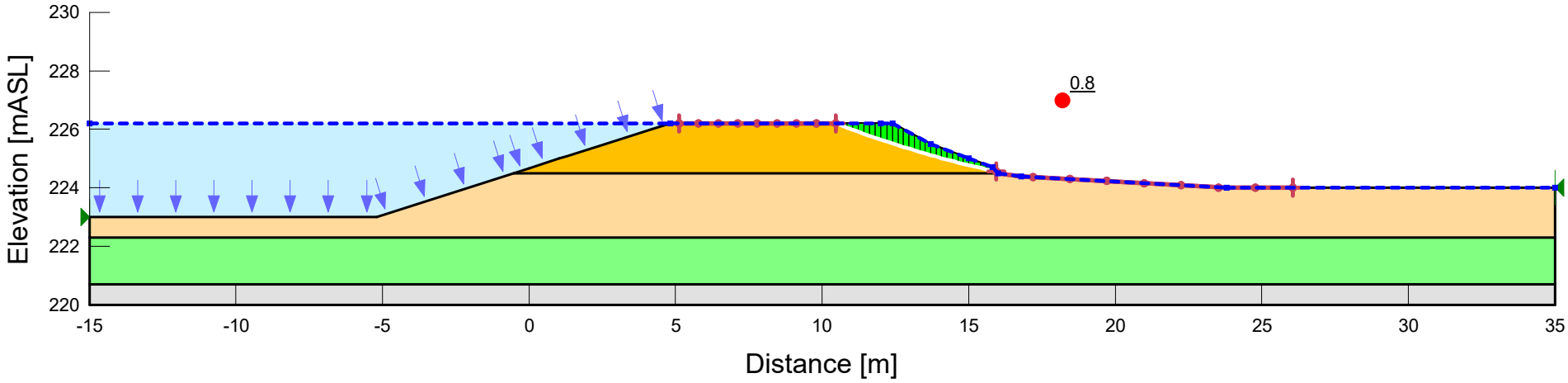
Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC2_Downstream.gsz	
2022-05-17	1:213

Section 2-2: East Embankment
LC3 - Inflow Design Flood
Downstream Embankment

Color	Name	Slope Stability Material Model	Unit Weight (kN/m³)	Effective Cohesion (kPa)	Effective Friction Angle (°)
	Bedrock	Mohr-Coulomb	24	200	25
	Clayey Silt Till	Mohr-Coulomb	19	10	28
	Fill	Mohr-Coulomb	19	0	30
	Sand and Silt Till	Mohr-Coulomb	19.5	0	32



S1-East Embankment	
S2-E_LC3_Downstream.gsz	
2022-05-16	1:213

Appendix F

Cost Estimates

Pefferlaw Dam - Rehabilitation Cost Estimate (June 2022)

Item No.	Description	Unit	Quantity	Unit Price ($CAD)	Extension ($CAD)
Project and Site Preparation					
A1	Mobilization and Demobilization	L.S.	1	$30,000.00	$30,000.00
A2	Temporary Traffic Control / Public Safety Signs	L.S.	1	$10,000.00	$10,000.00
A3	Environmental / Watercourse Protection	L.S.	1	$10,000.00	$10,000.00
A4	Material Sampling and Testing - Concrete	L.S.	1	$5,000.00	$5,000.00
Water Diversion and Dewatering					
A5	Dewatering and Flow Control	L.S.	1	$60,000.00	$60,000.00
Rehabilitation					
A6	Access to Work Area, Platforms and Scaffolding	L.S	1	$15,000.00	$15,000.00
A7	Concrete Removal - Partial Depth - Type A - West Apron	m^3	3.0	$6,000.00	$18,000.00
A8	Concrete Removal - Partial Depth - Type C - Weir Wall, Retaining Wall & Abutments	m^3	3.0	$9,000.00	$27,000.00
A9	Full Depth Concrete Removal - East Apron	L.S.	1	$30,000.00	$30,000.00
A10	Concrete in Structure - East Apron	m^3	25	$2,500.00	$62,500.00
A11	Concrete in Substructure	L.S.	1	$20,000.00	$20,000.00
A12	Concrete Patches, Formed Surface	m^3	3.0	$12,000.00	$36,000.00
A13	Concrete Patches, Unformed Surface	m^3	3.0	$5,000.00	$15,000.00
A14	Crack Repair - Concrete	m	2	$1,000.00	$2,000.00
A15	Abrasive Blast Cleaning of Concrete and Reinforcing Steel	m^2	45	$250.00	$11,250.00
A16	Reinforcing Steel	tonne	2.5	$7,000.00	$17,500.00
A17	Structural Steel Removal - Bridge Structure	L.S.	1	$30,000.00	$30,000.00
A18	Prefabricated Bridge	L.S.	1	$175,000.00	$175,000.00
A19	Dam Operator Safety Measures	L.S.	1	$15,000.00	$15,000.00
A20	Seepage Remediation	L.S.	1	$25,000.00	$25,000.00
A21	Soil/Rock Anchors in Overflow Weirs	EA	20	$2,000.00	$40,000.00
A22	Embankment Hardening	m^2	600	$150.00	$90,000.00
A23	Upstream Erosion Protection	m^2	200	$75.00	$15,000.00
Public Safety Measures					
A24	Large Public Safety Signs	EA	2	$1,800.00	$3,600.00
A25	Small Public Safety Signs	EA	2	$550.00	$1,100.00
A26	Private Hazard Buoys	EA	3	$4,500.00	$13,500.00

Pefferlaw Dam - Rehabilitation Cost Estimate (June 2022)

Item No.	Description	Unit	Quantity	Unit Price ($CAD)	Extension ($CAD)
Siteworks					
A27	Tree Removal	L.S.	1	$7,500.00	$7,500.00
A28	Erosion Remediation	L.S.	1	$5,000.00	$5,000.00
A29	Chain-Link Fence	L.S.	1	$2,500.00	$2,500.00
A30	Site Restoration	L.S.	1	$10,000.00	$10,000.00
Engineering and Contingency					
	Construction Cost Before Contingency				$802,450.00
	25% Engineering Fee				$200,600.00
	Total Cost Before Contingency				$1,003,050.00
	35% Contingency				$351,068.00
Total Cost (excluding applicable taxes)					**$1,354,118.00**

Note: This cost estimate represents Wills' best estimate of the pricing at the time of prepration (June 2022) and does not account for inflation, changes that may occur in the construction industry or other unknown factors (i.e. pandemics like COVID-19).