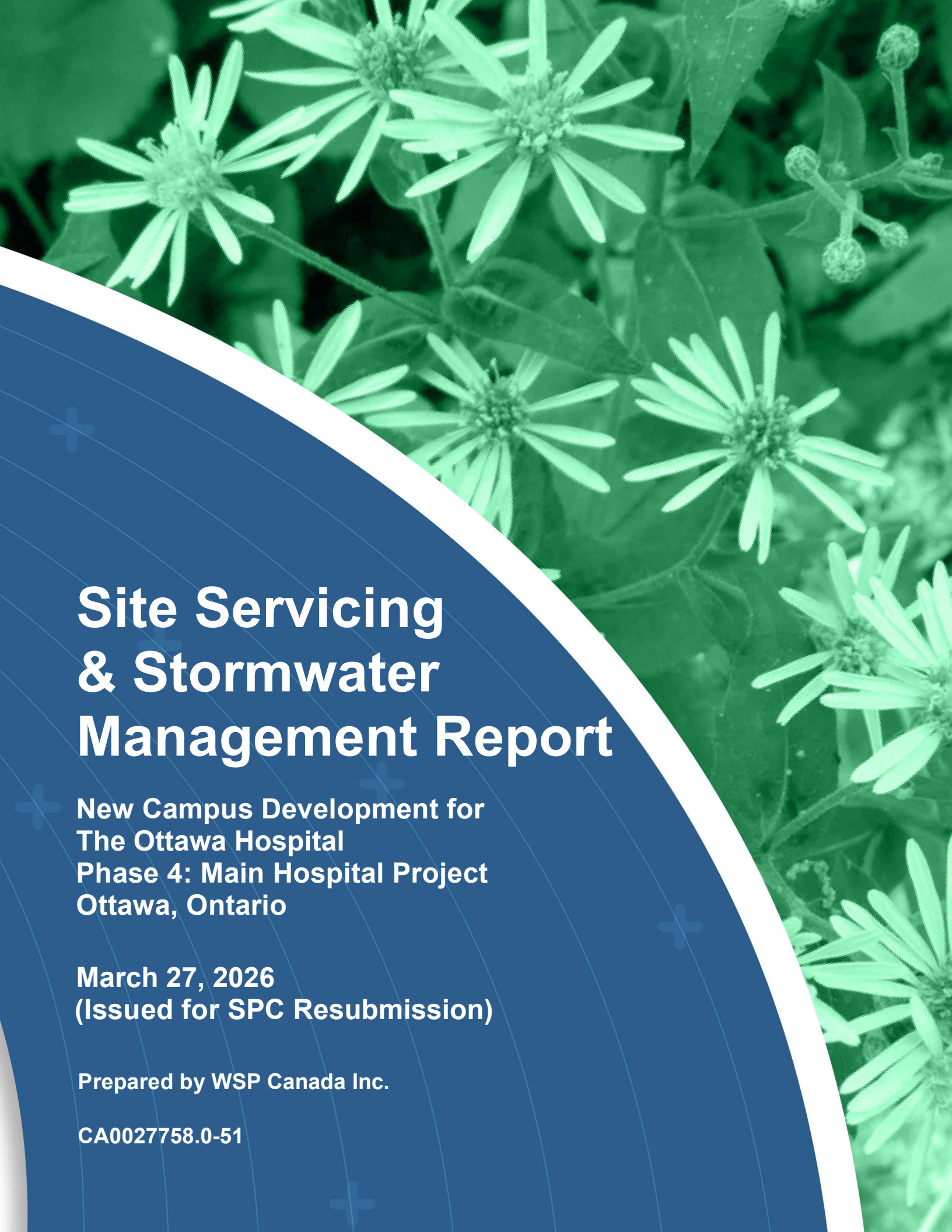

Site Servicing & Stormwater Management Report

New Campus Development for The Ottawa Hospital
Phase 4: Main Hospital Project
Ottawa, Ontario

March 27, 2026
(Issued for SPC Resubmission)

Prepared by WSP Canada Inc.

CA0027758.0-51

SITE SERVICING AND STORMWATER MANAGEMENT REPORT
New Campus Development for The Ottawa Hospital
Phase 4: Main Hospital

Version Number and Date

Version 01, 2024/11/22
Version 02, 2024/12/18
Version 03, 2025/03/24
Version 04, 2025/06/05
Version 05, 2025/09/19
Version 06, 2026/01/12
Version 07, 2026/01/12
Version 08, 2026/03/05
Version 09, 2026/03/27

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Signatures

Site Servicing

Prepared by

Liam Curley, P. Eng — 2026-03-26
Project Engineer
Land Development & Municipal Engineering

Approved[1] by *(must be reviewed for technical accuracy prior to approval)*

Colin Graham, P. Eng, PMP — 2026-03-26
Senior Project Engineer
Land Development & Municipal Engineering

Stormwater Management

Prepared by

Fiona Allen, P. Eng — 2026-03-26
Experienced Engineer
Water Resources, Land Development Ontario

Approved[2] by *(must be reviewed for technical accuracy prior to approval)*

Alyssa Mohino-Barrie, P. Eng — 2026-03-26
Manager
Water Resources, Land Development Ontario

[1] Approval of this document is an administrative function indicating readiness for release and does not impart legal liability on to the Approver for any technical content contained herein. Technical accuracy and fit-for-purpose of this content is obtained through the review process. The Approver shall ensure the applicable review process has occurred prior to signing the document.

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1.0 SITE INFORMATION

1.1 Site Location

The Ottawa Hospital has retained WSP Canada Inc. to provide Civil Engineering Services as part of a Joint Venture with PCL-ED in support of the development of a New Civic Campus development, located in Ottawa, Ontario, Canada. The New Civic Campus is a 20-hectare (ha) development located at 930 and 850 Carling Avenue, occurring at the intersection of Preston Street Carling Avenue, adjacent to Dow's Lake, in the heart of the National Capital Region. The new Civic Hospital is part of a multi-phased development that includes a multi-storey parking garage, a new research facility, a future University of Ottawa Heart Institute, a new Main Hospital Building, and a Central Utility Plant to power the site.

The site is bordered by federally owned land to the east, as well as Dow's Lake and the Rideau River, Carling Avenue to the north, federally owned land (Agri-Canada) to the west, and Prince of Wales drive to the South.

The location of the site is noted in Figure 1.1-1.

Figure 1.1-1: Proposed Development Site

1.2 Existing Conditions

1.2.1 Environmentally and Culturally Significant Areas

The proposed development site is located adjacent to Dow's Lake on the Rideau River, which is the upstream turning basin for the last leg of Rideau Canal locks, located within the City of Ottawa. The Rideau Canal also is home to the Rideau Canal Skateway during the winter months, owned and operated through Park's Canada and the National Capital Commission. As the Skateway is considered an iconic piece of local culture and heritage, there are a number of specific requirements relating to the Skateway that must be considered. The proposed development site utilizes the existing federally owned stormwater sewer outlet point into Dow's Lake for discharge of proposed works which is covered in Section 5.0 -

Stormwater Management. Erosion and sediment control mitigations must be provided and followed during construction to ensure that stormwater that discharges to the Dow's Lake outlet point is clean and within acceptable levels of turbidity.

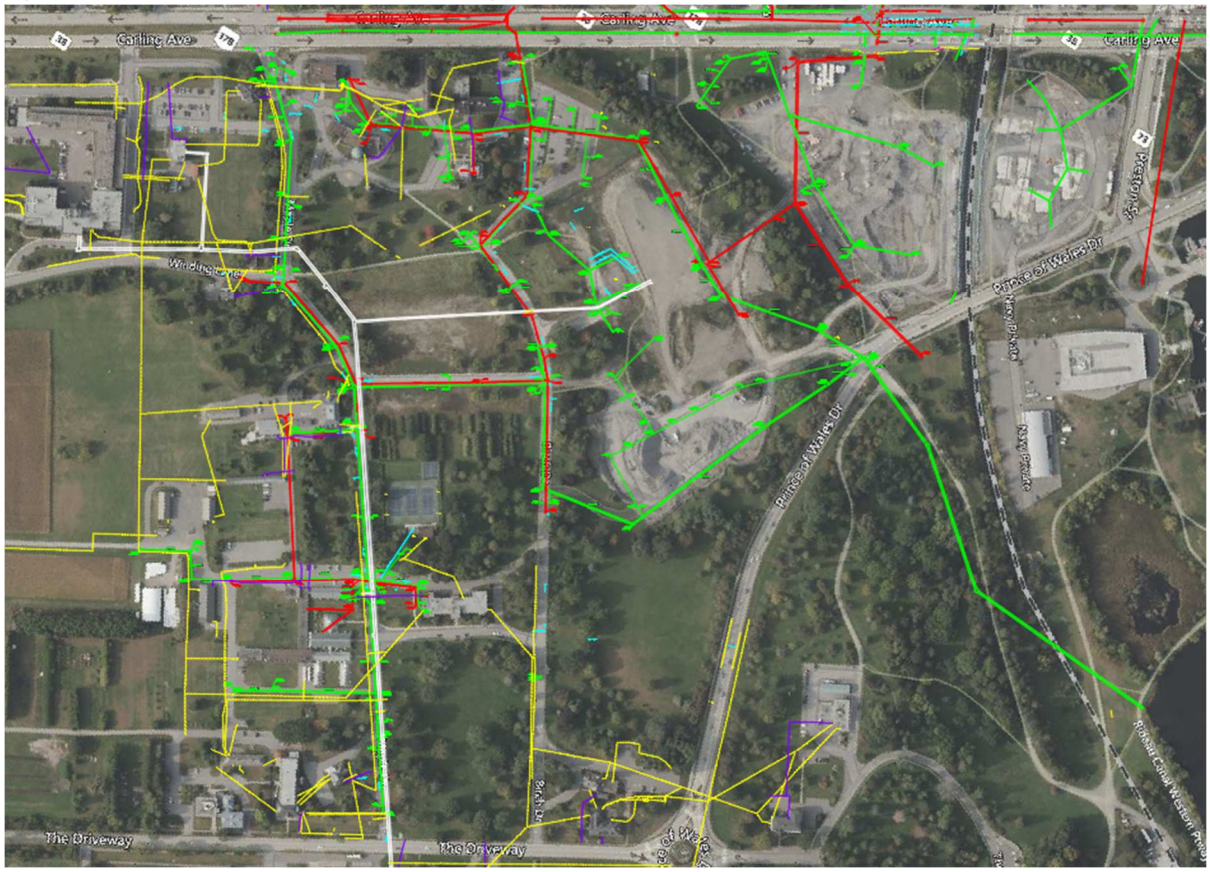
The CCME Canadian Water Quality Guidelines for Protection of Aquatic Life must be met. The discharge of water during construction should also be monitored for signs of scouring and ensure there is no suspension of contaminated settlement.

For further information relating to wildlife and the ecological significance of the proposed development site, please refer to the Wildlife Mitigation and Monitoring Plan (WSP, 2025) as well as the Environmental Effects Evaluation and Tree Conservation Report Memorandum Update (WSP, 2025).

1.2.2 Existing Utilities

There are a variety of private and publicly owned utilities located within the development site including several existing privately owned utilities which are owned and operated by Agri-Food Canada, Natural Resources Canada, as well as Public Works and Procurement Canada. These utilities include private watermains, storm and sanitary sewers, telecommunications duct banks, hydro duct banks and natural gas piping. Many of these utilities are being removed and/or rerouted as a part of the Advanced Works 1.0 Contract. See below figure 1.2.2-1 for a high-level overview of the existing utilities on site. For the removals occurring as part of Advanced Works please refer to drawings C205 through C213 from the *The Ottawa Hospital - Civic Campus Redevelopment (Parsons, September 2024)* drawing package. For the removals as part of the DPA contract please refer to the C0-300 series drawings from *The Ottawa Hospital New Campus Development, Civil Drawing Package (September, 2025).*

Figure 1.2.2-1: Proposed Development Site Existing Utilities



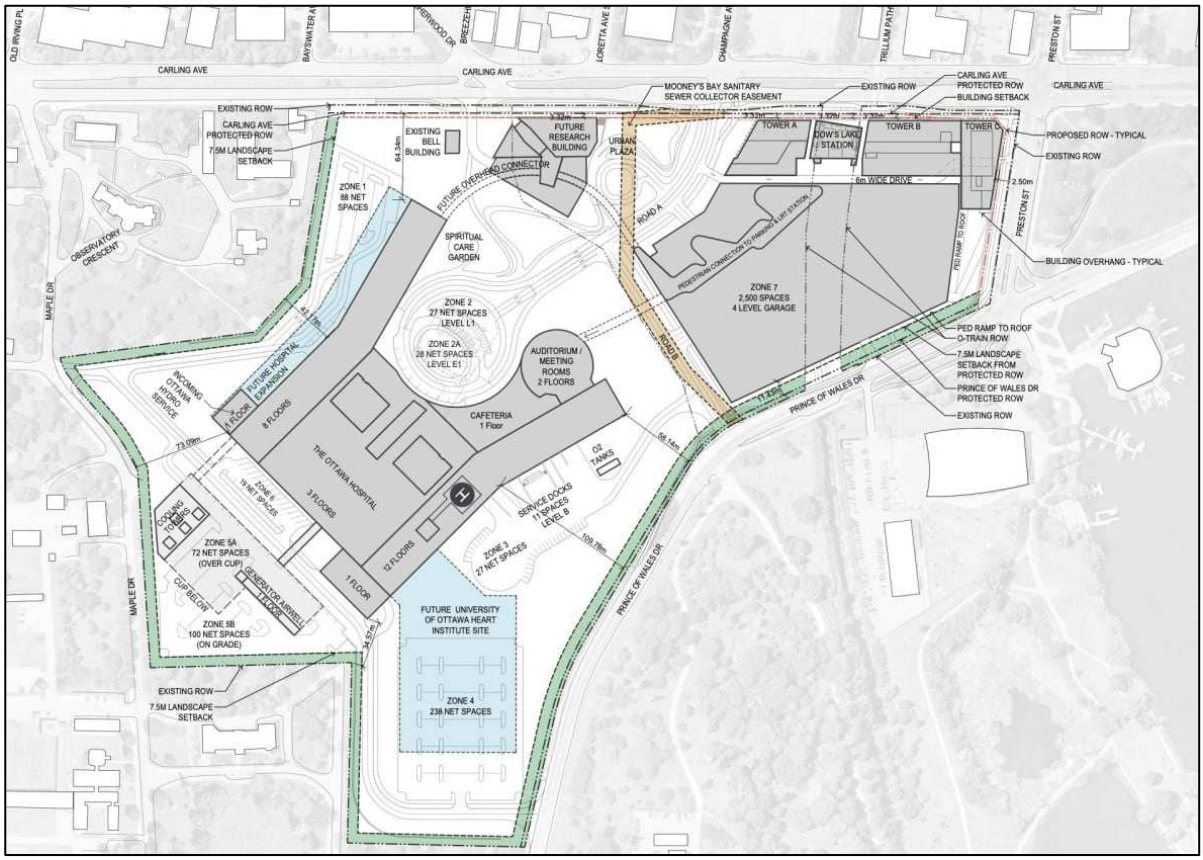
1.3 Proposed Development

1.3.1 Overview

When the new Hospital opens it will be one of the largest and most advanced hospitals in all of Canada, providing healthcare services for Eastern Ontario, Western Quebec, and portions of Nunavut. The facility will be state-of-the-art, feature Canada's most advanced trauma center, one of the most innovative neuroscience research programs in the world and will be a national leader in advanced healthcare digital technology.

The main hospital building, which includes inpatient and outpatient clinics as well as the Emergency Department, will sit on the natural escarpment across from Dow's Lake, the head of the Rideau Canal Skateway. Additional medical offices, clinical space, as well as research and education buildings, will all sit on the lower portion of the site, with direct access to the nearby LRT station. A key plan of the site can be seen in Figure 1.3-1. Note that this is the Indicative Schematic Design version of the site plan depicted by The Ottawa Hospital to demonstrate site phasing, and some alterations to the Main Hospital Building footprint have been undertaken.

Figure 1.3-1: ISD Proposed Development Site Plan



The New Civic Development will occur in various phases, as outlined in Figure 1.3-2. Phase 2 consists of the design and construction of the accompanying parking garage, Phase 3 is the Central Utility Plant, and Phase 4 is the Main Hospital Building and the surrounding roads and landscaped regions. As there are multiple developments proposed within the site, each occurring on different timelines, The Ottawa Hospital, in coordination with PCL-ED, a Joint venture, has developed an early works construction stage to allow for the design, development, and construction of the backbone utility infrastructure required on the site to handle proposed stormwater, sanitary, and watermain requirements from each of the different phases.

This early works package, herein referred to as Advanced Works (AW), encompasses the required utility relocations to facilitate development of the site. It also includes the mainline watermain, sanitary, and storm sewers that run in the ring road surrounding the main hospital building. The Parking Garage, Central Utility Plant, Advanced Works, and the Main Hospital Building site are delineated as separate contracts and are to be treated as separate projects. However, each of the four (4) projects interface with each other through utilities, primarily Stormwater and Watermain. The Advanced Works contract encompasses the mainline utilities that are utilized by the Main Hospital Building, Central Utility Plant, and Parking Garage.

The Ottawa Hospital, via Parsons Corporation, has completed utility and stormwater management design for the mainline utilities contained in the Advanced Works contract. The design capacities of these utilities consider the buildout of the Parking Garage, Central Utility Plant, and Main Hospital Building. However, since the Advanced Works project is on an accelerated timeline, approximations were used for the buildout of the Main Hospital Building, as the design of that contract had not yet been completed. The Civil design of the Main Hospital Building (Phase 4 of the overall Project) is the design responsibility of WSP. The purpose of this Site Servicing and Stormwater Management report is to validate the design assumptions used by Parsons in the Advanced Works design for the full design and final buildout of the Main Hospital Building and Site.

The design report *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* should be referenced, with this report being treated as an accompanying report covering the detailed design of the Main Hospital Building. The Parking Garage contract, also separate, has a designated site servicing and stormwater management report. Please refer to *Site Servicing and Stormwater Management Report, New Civic Development for The Ottawa Hospital Phase 2 Parking Garage Project, (May 2023)*, prepared by Parsons.

The design information contained within this Site Servicing Report, as well as the accompanying Engineering Servicing drawings, relates only to Phase 4 of the Development Phase and excludes the works associated with Advanced Works, Parking Garage, or Central Utility Plant. This design scope consists of the water, sanitary, and storm service connections, the overall site grade finished grading strategy, the main hospital building stormwater management strategy, and the erosion and sediment control required for Phase 4.

Refer to Figure 1.3-2 for and overview of the various New Civic Development phases.

Figure 1.3-2: Proposed Development Phases

1.3.2 Land Use and Development

The following land use approvals were granted in relation to the proposed site:

- June 2017: Federal Land Use and Transaction Approval (FLUDTA)
- May 2018: City of Ottawa Official Plan and Zoning By-Law Amendments
- May 2018: Preston-Carling District Secondary Plan

The updates to these land use planning policy documents were aimed at approving 20-ha of federal land for a new hospital development for The Ottawa Hospital by redesignating lands in the Central Experimental Farm. The Preston-Carling District Secondary Plan amendment was to allow for a new hospital area by way of a character area policy. Lastly, the City of Ottawa planning amendments rezoned the lands to Major Institutional Zone.

1.3.3 Application Codes, Regulations, and Standards

The following criteria, design standards, codes, specifications and best practice measures shall be used for the site servicing design:

- City of Ottawa Design Guidelines – Water Distribution 2010 and Technical Bulletins.
- City of Ottawa Design Guidelines – Sewer Design Guidelines 2012 and Technical Bulletins
- City of Ottawa Accessibility Design Standards
- City of Ottawa CADD Standards Manual
- City of Ottawa Slope Stability Guidelines for Development Applications
- City of Ottawa Standard Tender Documents for Unit Price Contracts, Volume 1, 2 and 3 City of Ottawa Stormwater Management
- Facility Design Guidelines
- Drainage Act, 1990 (Ontario)
- MOE Design Guidelines for Drinking-Water Systems Ontario Ministry of the Environment (MOE), 2008
- MOE Design Guidelines for Sewage Works
- MOE Stormwater Management Planning and Design Guidelines (MOE), 2003
- MTO Culvert Assessment Guide
- MTO Drainage Management Manual MTO, 1997
- MTO Gravity Pipe Design Guidelines for Circular Culverts and Storm Sewers, 2014
- MTO Guide for Preparing Hydrology Reports for Water Crossings
- MTO Highway Drainage Design Standards, 2008
- MTO Stormwater Management Ponds Inspection Report
- National Transportation Communications for ITS Protocol (NTCIP)
- National Building Code of Canada (NBC 2020)
- Occupational Health and Safety Act (OHSA)
- OC Transpo Transitway and Station Design Guidelines June 2013
- Ontario Fire Code (OFC)
- Ontario Provincial Standard for Roads and Public Works (OPS)
- Ontario Provincial Standard Drawings (OPSD)
- Ontario Provincial Standards Specifications
- Pinecrest/Centrepointe Stormwater Management Criteria Study
- TC E-10 Standards Respecting Pipeline
- Crossings Under Railway Transport Canada (TC), October 2002

1.3.4 Relevant Studies and Consultations

Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)

A previous Site Servicing and Stormwater Management report has been developed and distributed by Parsons that encompasses all the Advanced Works design. This report includes approximations and assumptions for upstream design such as service connections to account for that scope within the Advanced Work design elements. This document also covers all the proposed utility relocations required for the development. It does not include the Parking Garage, Central Utility Plant, or other future phases.

New Civic Development for The Ottawa Hospital – Master Servicing Plan (Parsons, July 2021)

Additionally, a Master Site Servicing Report for the entire phased development was prepared for The Ottawa Hospital by Parsons. This report extensively covers the site background as well as an overview of all the site servicing required for the various phases.

In addition, the following documents and studies, provided as background information by The Ottawa Hospital, are also relevant:

- Geotechnical Data Report (GDR) – New Ottawa Hospital Development, WSP Canada, August 2023
- Geotechnical and Hydrogeological Investigation – New Ottawa Hospital Development, Phase 1 – New Parkade Structure, Golder Associates Ltd., August 2021
- Phase Two Environmental Site Assessment, New Civic Development for the Ottawa Hospital, Golder Associates Ltd, October 2021
- Environmental Investigation of Subsurface Conditions, Proposed New Hospital Campus, Paterson Group Inc, September 2017
- New Campus Development, Hospital and Central Utility Plant, Environmental Effects Evaluation, Parsons, November 2022
- Transportation Impact Assessment and Mobility Study, Parsons, July 2021
- Preliminary Groundwater Inflow Estimate, Ottawa Hospital Expansion, WSP Canada, February 2023

In addition to this, the following mapping sources are referenced for context in the development of the report.

- GeoOttawa – City of Ottawa Water Distribution System Interactive Map, City of Ottawa Sanitary, Storm, and Combined System Interactive Map
- City of Ottawa 1:1000 Topography Mapping
- City of Ottawa Utility Coordinating Committee (UCC) Mapping
- Public Service and Procurement Canada Utility Mapping
- Annis, O'Sullivan, Vollebekk Limited Surveys of the New Ottawa Hospital Site Civic Campus

2.0 PROPOSED DESIGN

2.1 Objectives and Criteria

The overall objective is to provide Site Servicing, Stormwater Management, and Site Grading design in accordance with local, federal, and project specific requirements to allow for the development and construction of the New Civic Development of The Ottawa Hospital. This report should be read in conjunction with the provided 95% Detailed Design Civil Engineering Drawings covering Site Servicing, Site Grading, Erosion & Sediment Control, and Stormwater Management.

In addition to the City of Ottawa and Ministry of Environment, Conservation, and Parks requirements for Stormwater Sewers, Sanitary Sewers, Watermains, and Stormwater Management Facilities, the following project-specific requirements should be noted for compliance:

- Sanitary Sewers, Watermains, and Storm Sewers shall be designed for the ultimate buildout of the Hospital building including the future Heart Institute
- The designs of the Sanitary, Storm, and Watermain shall adhere to the capacity of the NCD site main sewer and watermains that will be completed under a separate contract.
- Sanitary and Storm sewers shall be designed and constructed to drain via gravity
- No trees shall be planted on top of storm, sanitary, and watermain service connections
- Sanitary and Storm manholes shall not be installed within pedestrian plazas or accessible pedestrian routes leading to building entrances and public areas
- Watermain valves shall not be installed in pedestrian plazas, accessible pedestrian routes leading to entrances, parking stalls, parking areas, and all loading dock bays

2.1.1 Impacts on Private and Nearby Infrastructure

The proposed infrastructure within the scope of this document is limited to the proposed service connections of the main hospital building and the future University of Ottawa Heart Institute. The connection of proposed utilities to any existing public infrastructure is within the scope of Advanced Works, as the mainline watermain, storm, and sanitary sewers that connect to existing public and private infrastructure is the scope of Advanced Works.

There are no impacts or implications to private or external public infrastructure because of the proposed utilities within these works.

2.2 Geotechnical Consideration

Please refer to the geotechnical report prepared by *Paterson Group – Geotechnical Report – The Ottawa Hospital, Civic Campus Redevelopment Project (September 19, 2025)* as part of the 95% Developed Design submission for detailed geotechnical considerations relating to the site.

Most pertinent is the information contained in Section 6.4 – Pipe Bedding and Backfill. A minimum of 150mm of OPSS Granular A will be used for pipe bedding for proposed watermains and sewers, in accordance with the most recent Material Specifications and Standard Detail Drawings from the Department of Public Works and Services, Infrastructure Services Branch of the City of Ottawa. The bedding should extend to the springline of the pipe and cover material should consist of OPSS Granular A or Granular B Type II, maximum size 25mm, extending to 300mm above the obvert of the pipe. All bedding should be compacted to 99% SPMDD.

In areas where service connections, watermains, and proposed sewers are in subgrade that consists of soil transitioning to bedrock, it is recommended in the Geotechnical report that the founding medium be inspected in the field to determine

how steeply the bedrock surface drops off. In these locations the bedrock should be excavated and a minimum 500mm thick layer of bedding be installed to provide a 3H:1V transition from bedrock to soil.

2.3 Advanced Works

Please refer to *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* for information regarding the mainline utilities on the site that are contained under the Advanced Works project.

The proposed works associated with Phase 4 of the Hospital building by DPA are being designed in conjunction with the constraints and limitations of the Advanced Works utilities. Both separate design teams are coordinating through The Ottawa Hospital and other project partners to minimize disruption, changes, and inefficiencies in the design.

- Roadway catchbasins have been designed and developed through the Advanced Works Scope. DPA has maintained the catchbasin design and overall grading approach on the roadways and parking lots. To suit the development of the main hospital building, various curb and road adjustments have taken place. The DPA team has worked to maintain catchbasin types and locations according to the Advanced Works but has noted minor grade changes and adjustments that will be required at each. It is assumed that these changes would likely be accommodated with minor adjustments to the riser sections of the catchbasins. A check of lead sizing and spacing has been completed and included as an appendix to this report.
- Sanitary, Storm, and Sanitary service connection adjustments from those originally depicted in the Advanced Works design have undergone iteration and coordination between Advanced Works and DPA to suit the current build out of the Main Hospital Building.
- Hydrant locations have been updated from the original Advanced Works design to suit the current roadway alignment and main hospital build-out by DPA.

2.4 Site Grading

In existing conditions, the approximate 20ha site adjacent to Dow's Lake has a wooded escarpment that runs north/south through the western half of the site. The southern edge of the proposed Main Hospital Building intersects the escarpment. The portion of site behind the escarpment, on the western edge, is relatively flat and is a continuation of the Ottawa Central Experimental Farm. The eastern half of the site, the lower side of the escarpment, is also relatively flat and slopes towards Dow's Lake, where the Phase 2 parking garage is located.

In the proposed site plan development, the eastern edge of the Main Hospital Building is home to the loading dock area. Due to internal building elevations, this loading dock area is significantly lower than the surrounding area. The result is the requirement of a retaining wall to hold back a sloped ridge that gains in elevation towards Prince of Wales Drive.

Similar sloping and a retaining wall are required at the north-west corner of the site, immediately north of the contemplative garden and to the west of Road A. In this region, a future research facility is planned for a later phase of the project. In current conditions of Phase 4, this area will slope back down towards a construction stormwater pond as part of Phase 2. This condition is intended to remain as-is until development of the future research building begins later.

The Main entryway features two lower ramps to the emergency access E1 level, with the entrance ramp lying on the west and the exit ramp on the east. The overall main entryway is a raised buried structure, with access drive aisles gently sloping up to the main entrance. The pedestrian walkways from Carling, along Road A, to the main entrance feature gentle switchbacks to allow for a gradual increase at 5% slope, with retaining walls occurring throughout to maintain the 3:1 side sloping limit.

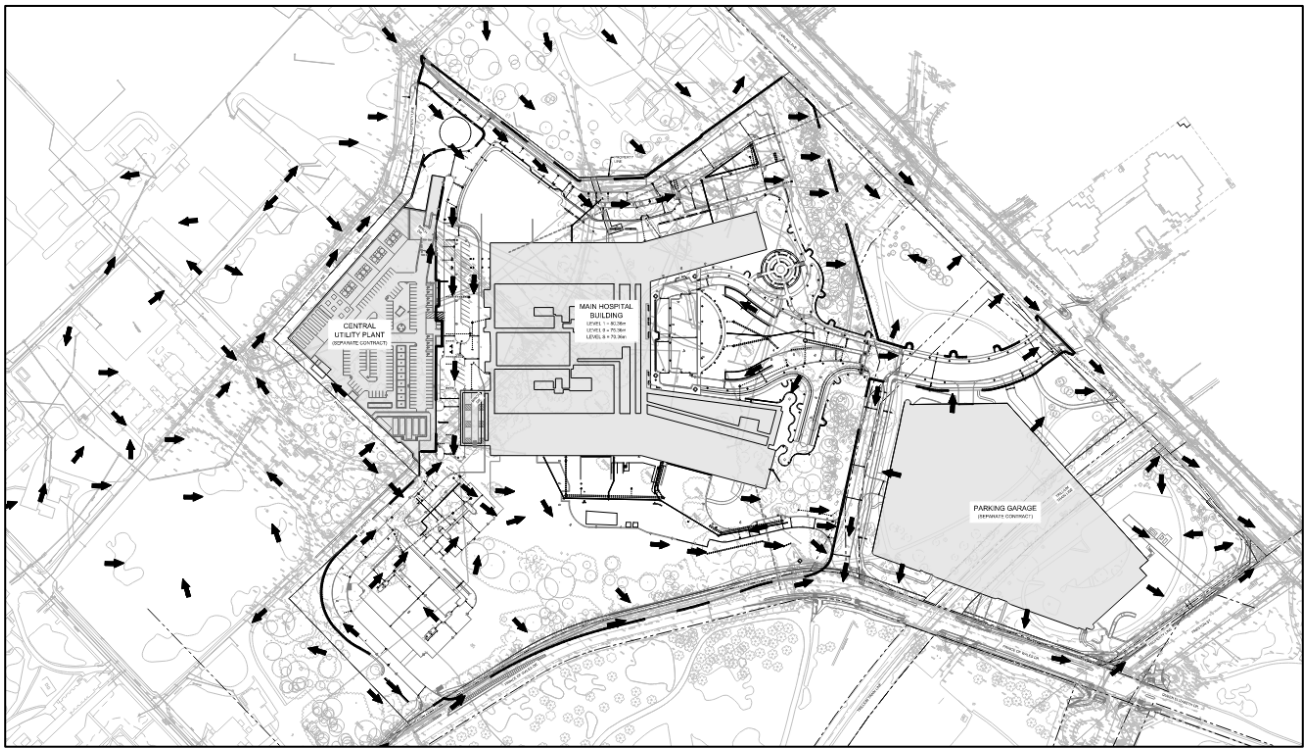
The accompanying site grading drawings, provided as part of the 95% Developed Design submittal, show critical grade elevations, proposed contours, overland flow, and other grading features.

Please note the following additional requirements and constraints of the site grading design:

- The maximum slope allowable on site is 3:1
- Grade shall slope away from all building entrances
- Surface drainage over and across adjacent sidewalks and accessible routes, multi-use pathways, and cycle tracks shall be minimized
- Road grades for OC Transpo designated roads shall not exceed 6% slope

Refer to Figure 2.4-1 for proposed overland flow routes.

Figure 2.4-1: Proposed Overland Flow Route



2.5 Composite Utility Plans

Composite utilities, such as civil, gas, electrical, communications, etc. currently exist within the development site. All proposed utilities will connect to existing and new infrastructure within the site. The available design information, including alignment and sizes, of on-site utilities have been shown on the site Composite Utility Plans. Please refer to the associated Engineering Drawings submitted as part of the 95% detailed design submittal.

Third Party Owned utilities including but not limited to Hydro Ottawa Limited and Enbridge Gas services for the proposed development are currently under coordination by The Ottawa Hospital, DPA, and the respective Third-Party Owners. The preliminary alignment of the Hydro Ottawa Limited ductbank is shown along Road E, with permanent and temporary ducts running from Prince of Wales Drive to Maple Drive. The preliminary alignment of the Enbridge Gas Service is under development and is intended to enter the CUP from Maple Drive. The design currently shows the gas service terminating at a proposed gas train at the southwest corner of the site with the connection to be designed by CUP.

3.0 WATERMAIN SERVICE DESIGN

3.1 Design Overview

3.1.1 Background and Site Constraints

The New Civic Development will be serviced by a 300mm watermain mainline loop that will connect to the existing 406mm public existing watermain at the intersection of Carling Avenue and future Road A, near Champagne Avenue South, as well as to the existing 406mm public existing watermain at Carling Avenue and Sherwood Drive. The proposed 300mm watermain mainline forms a loop around the Main Hospital Building, with a proposed extension up future Road A to form the connection to existing.

The proposed development site utilizes the existing 406mm distribution watermain as a connection location and shall not be connected to the existing 1067mm diameter backbone watermain, located between the eastbound and westbound lanes of Carling Avenue. This 1067mm backbone watermain is sourced from the Lemieux Island Water Purification Plant and is not available for any connection opportunities, as per the project specific output requirements.

Another constraint of the site is the elevation differences between the connections to the City of Ottawa main and the hydrants as well as the service connections. This difference in elevation could result in difficulty achieving adequate pressures and flows required as per the City of Ottawa Guidelines for Watermain Design, Tech Bulletin ISTB-2018-02 and the Fire Underwriter's Survey. This is shown to be an issue as mentioned in *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* as low pressure is noted in comments 1 through 6 below Table 12 of that report.

3.1.2 Advanced Works Scope Delineation

The design, pressures, parameters and responsibility of the 300mm watermain mainline loop are contained within the design scope of Advanced Works. Please refer to *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* for information regarding that design and the design of any of the relocated watermains that are required to facilitate Phase 3 of the New Civic Development works.

The proposed watermain service connections, the on-site hydrants and hydrant leads, the Central Utility Plant service connections, as well as the service connection for the future University of Ottawa Heart Institute are contained within the scope of this report. As these service connections and hydrants will connect and be sourced from the 300mm Advanced Works private watermain line, the hydraulic analysis, pressure parameters, and overall design details from the Parsons design will be used to finalize the hydraulic output and design of the service connections.

Given that the Advanced Works watermain scope is on an accelerated timeline from the rest of the Phase 3 works, the private 300mm watermain mainline loop that will be designed and constructed as part of the Advanced Works contract will be treated as a design constraint. The Advanced Works watermain mainline generally in alignment with the intent outlined in the *Master Servicing Plan – New Civic Development for The Ottawa Hospital (Parsons, July 2021).*

In addition, there are several existing privately owned watermains located within the development site that are owned and operated by Agri-Food Canada, Natural Resources Canada, as well as Public Works and Procurement Canada. The relocation and finalized design of these private watermains are contained within the Advanced Works scope.

Note that there are several design constraints on the overall watermain servicing design of the Main Hospital Building and the overall New Civic Development site as listed below in Table 3.1-1.

Table 3.1-1: Water System Pressure Criteria

Operating Conditions	kPa	psi
Average Daily Demand –Limits	276-552	40-80
Average Daily Demand – Desirable Range	350-480	50-70
Max Hourly Demand – Limits	276-552	40-80
Max Hourly Demand – Desirable Range	350-480	50-70
Maximum Daily Demand + Fire Flow – Limits	140	20

- The eastern parcel of the development site will need to be serviced from the 1W Pressure Zone
- If the demand of the Main Hospital Building and/or the Central Utility Plant are greater than 50m3/day, each building shall be serviced by 2 (two) service connections, separated by an isolation valve, to prevent the creation of a vulnerable service zone

3.1.3 Boundary Conditions

The New Civic Development occurs in the 1W pressure zone as defined by the City of Ottawa Water Distribution System Facilities & Feedermains Map.

Boundary conditions were provided by the City of Ottawa for the overall site development as part of the Phase 2 Parking Garage works. The Advanced Works watermain hydraulic design has been completed utilizing these available boundary conditions. However, please note that these boundary conditions are based on preliminary assumptions and estimations of domestic and fire flow, completed prior to the detailed design of the Central Utility Plant and the Main Hospital Building. These boundary conditions were then reconfirmed with the City of Ottawa in April 2025. See Appendix L for correspondence with the City regarding the boundary conditions.

The proposed watermain services scope associated with this Report connect into the Advanced Works mainline 300mm private watermain loop, and therefore the Advanced Works loop as well as the demands from the CUP and Parking Garage Contracts were included in the hydraulic modeling of the hospital services. It is not anticipated that there will be significant variation in the flow demands or the availably pressure in the existing main as the designs reach their final stages.

Boundary condition pressures are denoted in Table 3.1-2: Boundary Conditions Summary.

Table 3.1-2: Boundary Conditions Summary

	Minimum HGL			Maximum HGL			Maximum Day + Fire Flow		
	m	psi	KPa	m	psi	KPa	m	psi	KPa
406mm Watermain on Carling (Parking Garage)	107.1	60	414	114.6	71	487	107.8	61	421
406mm Watermain on Carling (Parking Garage and Hospital)	107.1	60	414	114.6	71	487	107.6	71	419

Note that the existing watermain on Carling Avenue occurs at an existing grade elevation of approximately 64.84m, which was used for the psi and KPa calculations.

The provided boundary conditions note an available pressure range from approximately 60psi to 70psi, which is within the normal operating window conditions for public watermains within the City of Ottawa. The boundary conditions occupy the greatest constraint on the proposed private system.

3.2 Proposed Development Demands

3.2.1 Domestic Demands

Domestic Water Demand for the Main Hospital Building, the Central Utility Plant, as well as the future University of Ottawa Heart Institute have been determined in accordance with Section 4.2.8 of the City of Ottawa Water Distribution Guidelines and the latest Technical Bulletins. The demand type has been defined as the following values for the three load locations:

- Main Hospital Building: Commercial Industrial – Hospital = 900L/(bed/d)
  - A meeting was held with the City of Ottawa on December 15th, 2025, to discuss the water demands for the New Civic Development. It was discussed in the meeting that Water In (water demand) will be less than Water Out (sanitary demand) based on the latest City of Ottawa Water Design Guidelines issued December 8th, 2025, which has 900L/Bed/Day for water demand but 1400L/Bed/Day for sanitary demand.
- Future University of Ottawa Heart Institute: Industrial, Heavy = 55000L/gross ha/d
- Central Utility Plant: Industrial, Heavy = 55000L/gross ha/d

Table 3.2-1: Site Statistics

Location	Bed Count	Gross Floor Area (ha)
Main Hospital Building Design Build-Out (1)	689	11.68
Main Hospital Building Ultimate Build-Out (1)	1147	14.28
Future University of Ottawa Heart Institute (2)	~250	9.29
Central Utility Plant (3)	N/A	0.84

(1) Bed Count and Gross Floor areas received from Parkin on 2025-12-04. Final campus build-out ~1400 beds.
(2) GFA value received from TOH for the Future University Heart Institute during T17 UGM R8
(3) Values received from Architectural on 2026-03-11, CUP design still underway and subject to change

Table 3.2-2 summarizes the proposed domestic demands in accordance with Section 4.2.8 of the City of Ottawa Water Distribution Guidelines using the above demand categorizations. Please refer to Appendix A for calculation details. It has been confirmed that 900 L/Bed/Day is the most up to date value to be used as per the December 2025 design release of the Ottawa Water Distribution Guidelines. As mentioned above this will make the calculated water demand flow less than the 1400 L/Bed/Day flow which is used for sanitary demand calculations.

The Future University of Ottawa Heart Institute and Central Utility Plants don't classify outright as a Hospital as per the City of Ottawa Water Distribution Guidelines and therefore should not be classified by number of beds. Instead, the demand was calculated using the value for heavy industrial from the City of Ottawa Water Distribution Guidelines of 55,000 L/gross ha/day. This value was used as it is the best approximation for the usage category within the design guidelines that the Future University of Ottawa Heart Institute and Central Utility Plant would fall under. Using the assumed future gross floor area received from TOH shown in Table 3.2-1, the demands were calculated and are summarized in Table 3.2-2 below.

Historical records from the existing The Ottawa Hospital – Civic Campus list a measured consumption at 2.0m3/m2/year, and an Amenity Space Flow of 5.0L/m2/d, as per the *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* . These values were also used to provide an approximation of demands of the Future Heart Institute however it was determined that the calculation as per the City of Ottawa guidelines provided a more conservative estimate, refer to Appendix A for the calculations. These values have not been used to calculate the demands of the new Main Hospital Building either, as previous water usage for an existing hospital is not reflective of the new state-of-the-art facility. The

more conservative flow rate direct from the City of Ottawa Water Distribution Guidelines for Hospitals will be used to ensure adequate pressure and requirement compliance.

Table 3.2-2: Proposed Domestic Demands

Location	Average Daily Demand (L/s)	Maximum Daily Demand (L/s)	Max Hourly Demand (L/s)
Main Hospital Building Design Build-Out	7.18	10.77	19.38
Main Hospital Building Ultimate Build-Out	11.95	17.92	32.26
Central Utility Plant	1.11	1.67	3.00
Future University of Ottawa Heart Institute	5.91	8.87	15.97
Parking Garage (1)	1.14	1.70	3.07

(1) The Parking Garage calculations are provided in *Site Servicing and Stormwater Management Report, New Civic Development for The Ottawa Hospital Phase 2 Parking Garage Project, (Parsons, May 2023)*

3.2.2 Fire Flow Demands

The Fire Flow Demand, based on the Fire Underwriters Survey, is calculated as per Section 4.2.8 of the City of Ottawa Water Distribution Guidelines (December 2025), as well as the Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (2020). These parameters, including combustion type, sprinkler configurations, etc., have been assumed based on the provided documentation. When assumptions have been made regarding these parameters, WSP has deferred to the most conservative approach.

Please refer to Table 3.2-3 and to Appendix B for calculation details.

Table 3.2-3: Fire Flow Demands

Location	Fire Flow Demand (L/min)	Fire Flow Demand (L/s)	Fire Flow Demand (US gpm)
Main Hospital Building	15 000	250	3 963
Pavilion	12 000	200	3 170
Central Utility Plant	6 000	100	1 585

Therefore, the Max Day + Fire Flow demand can be calculated using Table 3.2-2 and Table 3.2-3. The results are tabulated in Table 3.2-4. It is worth noting that the Max Day + Fire Flow for the Main Hospital Building includes both the Max Day demand for the Main Hospital as well as the demands for the Future University of Heart Institute. For full calculations please refer to Appendices A and B.

Table 3.2-4: Fire Flow Demand

Location	Max Day + Fire Flow (L/s)
Main Hospital Building + UOHI	276.79
Central Utility Plant	101.67

3.3 Proposed Design

3.3.1 Service Connection Locations

The City of Ottawa Watermain Distribution Guidelines require two service connections for any development or facility that has a demand greater than 50m3/day to not create a vulnerable service area. As such, both the Central Utility Plant and the Main Hospital Building require two or more service connections. Hydraulic analysis was undertaken by DPA to validate pressure modifications to ensure that modifications made through the design development of the Main Hospital Building do not negatively impact the Advanced Works watermain.

The Central Utility Plant will be serviced with two 200mm diameter PVC water service connections to the mainline Advanced Works 300mm watermain, located on Road E between the Central Utility Plant and the Main Hospital Building. The two service connections are separated by a valve, as per City of Ottawa Requirements. For more information on the Central Utility Plant watermain servicing, see sheet C1-201. Please refer to The Ottawa Hospital New Civic Development Central Utility Plant Site Servicing Plans (Cc1-201, Cc1-201) for final design information.

The Main Hospital Building will also be serviced by two 300mm diameter PVC water service connections to the mainline Advanced Works 300mm watermain, located further north on Road E between the Central Utility Plant and the Main Hospital Building. The connection locations remain at the southwest corner of the new hospital building in coordination with the Mechanical consultant for this design submission.

There are also two service connections within the front entryway of the hospital, one 300mm and one 150mm service, connecting the E1 level of the emergency underground parking to the mainline 300mm Advanced Works watermain to the immediate north, crossing perpendicular to Road A. These service connections allow for the two hydrants placed within the parking garage structure, open to grade at the main entrance level, can be looped to ensure no service pressure drops. As such, the Mechanical consultant will service the hydrants within the building structure, back to the two service connections.

The Parking Garage is serviced by a single 150mm watermain service connection connected to the Advanced Works main underneath Road B.

Additional proposed hydrants and hydrant leads are located around the site, sourced from the Advanced Works main.

3.3.2 Hydrant Placement

There are a total of 17 proposed hydrants for Phase 3 of the New Civic Development, providing fire hydrant coverage across the site and including the areas of the Main Hospital Building, the Central Utility Plant, and the future University of Ottawa Heart Institute.

These are categorized by the following:

- 7 hydrants on sidewalks or adjacent to roadways: H-4, H-4A, H-6, H-10, H-11, H-12, H-20
- 3 hydrants within parking areas: H-7, H-9, H-15
- 2 hydrants adjacent to the CUP: H-3, H-14
- 1 hydrant in the Main Entryway: H-18
- 2 hydrants in the Loading Dock area: H-8, H-13,
- 2 hydrants in the Main Parking structure: H-16, H-17

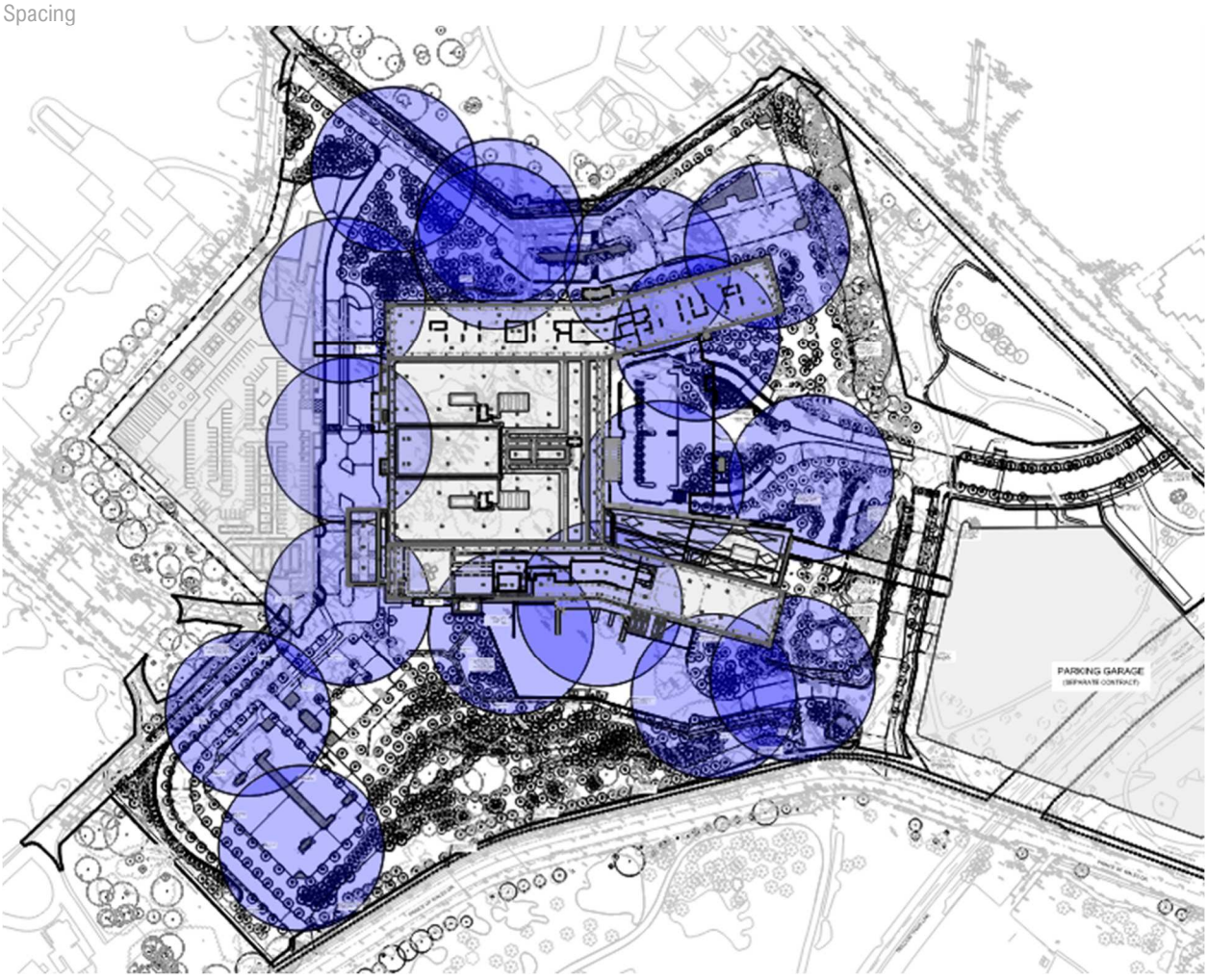
Table 3.3-1 denotes the contribution of each hydrant in terms of allowable capacity to the Central Utility Plan, Future Heart Institute, and Main Hospital Building.

Table 3.3-1: Fire Flow Contributions from Nearby Hydrants

Location	Full Flow (95 L/s)	Partial Contribution (63 L/s)
Tower A	H-3, H-4, H-4A, H-6, H-7, H-14, H-15, H-16	H-11, H-17, H-18
Tower B	H-13, H-3, H-8, H-11, H-12, H-17, H-18, H-20	H-10, H-14, H-16
Podium	H-3, H-11, H-14, H-16, H-17	H-6, H-10, H-18
Entry	H-16, H-17, H-18	H-7, H-12, H-20
Central Utility Plant	H-3, H-11, H-14	H-13, H-4, H-6, H-10
Future University of Ottawa Heart Institute	H-13, H-9, H-10, H-11	H-3, H-8
Pavilion	H-16, H-17, H-18	H-7, H-12, H-20

Table 4.9 – Fire Hydrant Spacing Guidelines from the City of Ottawa Watermain Distribution Guidelines denotes that hydrant spacing along roadways should not exceed 90m for classifications of institutional, commercial, industrial apartments and high-density areas, for which the hospital would be applicable. Figure 3.3-1 denotes the proposed hydrant spacing of the development, including existing hydrants, with circles of 45m radius to represent 90m intervals.

Figure 3.3-1: Proposed Hydrant Spacing



3.3.3 Fire Routes

The Project Specific Output Requirements dictate that Project Co. shall construct emergency access for fire trucks on-site as follows:

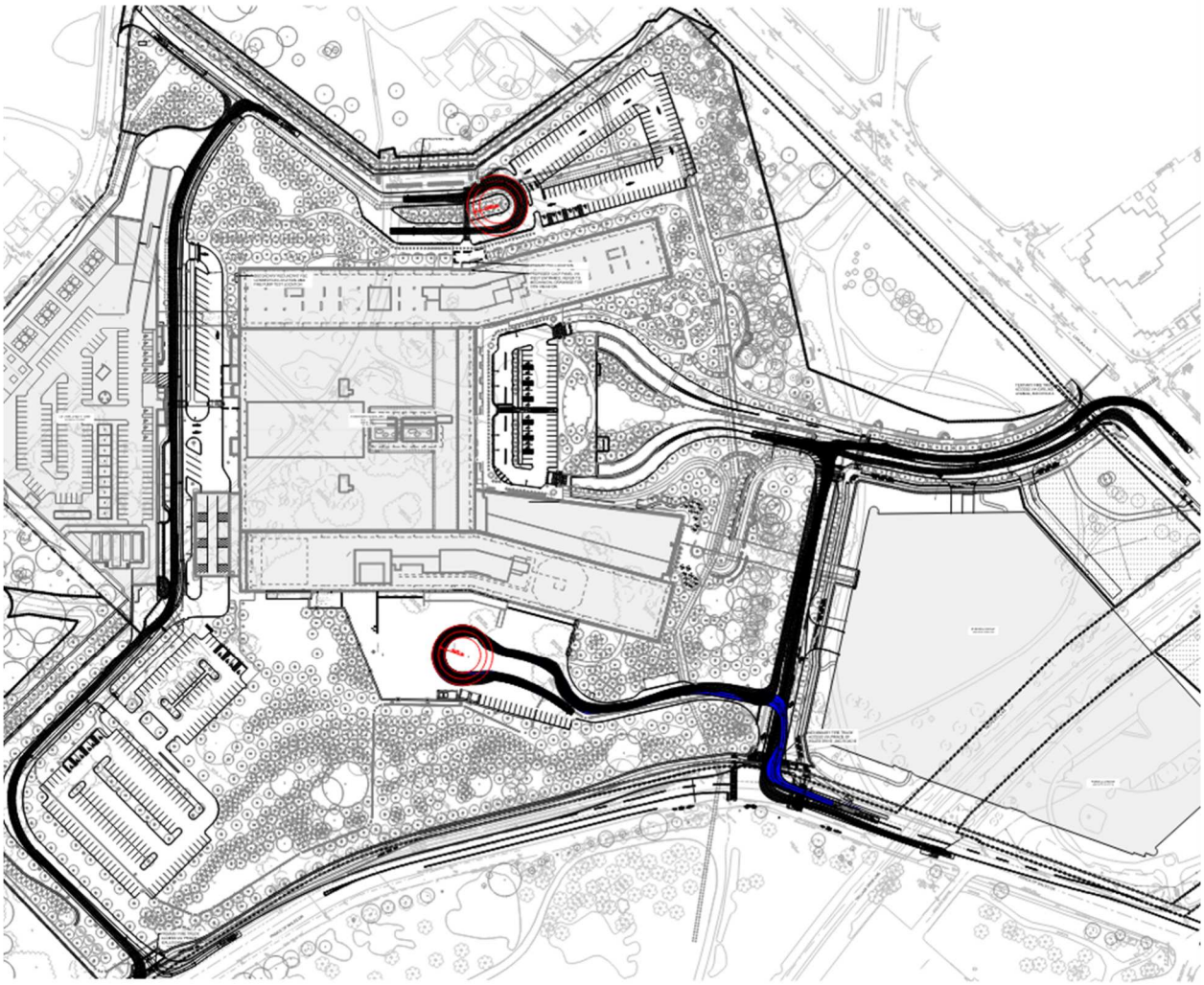
- The fire truck route shall provide primary fire access from Maple Drive and Prince of Wales Drive, via Roads D and E, to the CACF fire panel at the Facility's West Entrance on Level E1.
- The secondary fire access route shall be to the Facility's loading docks via new Roads B and L.
- The tertiary fire truck route to the north side of the Facility's pavilion shall be via Road A.

Article 3.2.5.16 of the Ontario Building Code notes that a fire department connection shall be located so that the distance from the connection to a hydrant is not more than 45m and is unobstructed. In addition, Article 3.2.5.5. of the Ontario Building Code notes that Access routes required by Article 3.2.5.4. shall be located so that the principal entrance and every access opening is required by Articles 3.2.5.1. and 3.2.5.2. are located not less than 3 m and not more than 15 m from the closest portion of the access route required for fire department use, measured horizontally from the face of the building. For a building provided with a fire department connection, a fire department pumper vehicle can be located adjacent to the hydrants. For a building not provided with a fire department connection, a fire department pumper vehicle can be located so that the length of the access route from a hydrant to the vehicle plus the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 90 m, and the unobstructed path of travel for the firefighter from the vehicle to the building is not more than 45 m.

As such, the main fire department connection is on the west side of Tower A, requiring a hydrant within 45m, this requirement is satisfied by H-15. This corresponds to the primary fire truck access route. For the secondary and tertiary fire truck access routes, there are no additional fire department connections and therefore a fire department pumper vehicle must be able to access a hydrant within 45m of parked location and have access to the building face not outside of 45m. Figure 3.3-2 denotes fire routes with the applicable turning movements by the fire truck design vehicle.

The project team and Ottawa Fire Services (OFS) conducted multiple meetings between 65DD and 95DD to confirm the acceptability of the proposed fire routes. OFS requested that a 12m turning radius circle with 6m clear width be provided in design and shown on the drawings. Use of the drop off spots with appropriate signage and a drop curb to the west of the primary access was deemed to be an acceptable solution by OFS and is being provided for 95DD. This was documented in the Building Code Services Meeting 12 Minutes for the meeting held August 12, 2025. See 95DD drawings T3-301 for more details and Figure 3.3-2 below for a schematic representation of the fire routes. Please refer to the Traffic Impact Assessment Report for additional information.

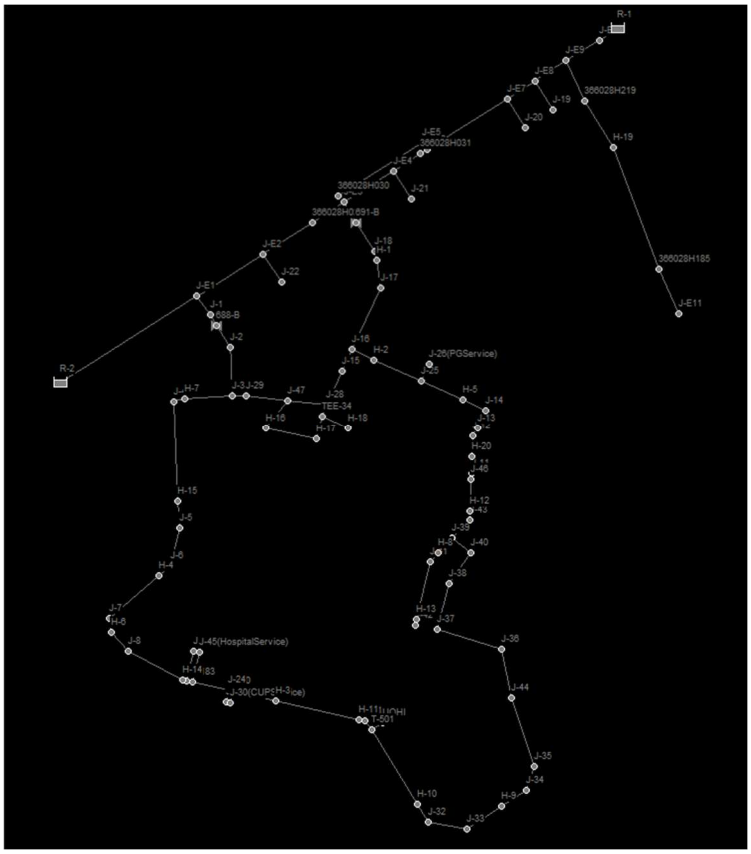
Figure 3.3-2: Fire Access Routes and Hydrants



3.3.4 Hydraulic Model and Outputs

Using a hydraulic model of the watermain, the domestic distribution demands and the fire flow demands have been analyzed using the provided boundary conditions from the City of Ottawa to evaluate hydraulic performance under various demand scenarios. Please refer to Appendix C for the complete hydraulic analysis for the proposed water pipe network ensuring compliance with Ottawa Water Distribution Design Guidelines section 4.4.2, along with a summary of the results and a figure identifying EPANET nodes. A schematic representation of the model is shown in Figure 3.3-3.

Figure 3.3-3: Watermain Distribution Model



There are three cases evaluated to determine compliance with City of Ottawa watermain distribution guidelines.

1. Maximum Day + Fire Flow: Checks the maximum daily distribution demand, plus the fire flow demand from hydrants, with the minimum HGL provided by the City during MD+FF demands. This is a check for low pressure in the system.
    a. Multiple scenarios in this demand are checked, assuming different fire flow contribution from different hydrants around the site.
2. Maximum Hour: Checks the maximum hourly demand from the site with the lowest available HGL from the City. This is a check for low pressure in the system.
3. Basic Day: Checks the lowest daily demand from the site with the highest available HGL from the City. This is a check for high pressure in the system.

The purpose of the first two evaluation cases is to determine if high or low pressure is found in the proposed watermain service connections, given the available boundary conditions that define the available pressure in the Advanced Works 300mm watermain. The cases that achieved pressures closest to the minimum and maximum limits are shown in Table 3.3-2. This is a simplification of the tables in Appendix D which shows the pressure at each node in each case for a more complete understanding of the pressure in the network. For the purposes of the modelling the Ultimate Build-Out demands were used solely as we wanted to ensure the system had adequate capacity for the final design build of the Hospital.

For the overall site hydraulic model, the Parking Garage demands are sourced from the *Site Servicing and Stormwater Management Report, New Civic Development The Ottawa Hospital Phase 2: Parking Garage Project (Parsons, May 2023).*

Table 3.3-2: EPANET Results Summary

Scenario	Sub-Scenario	Service - Main Hospital 1	Service - Main Hospital 2	Service - CUP 1	Service - CUP 2	Service - PG	Service - UOHI	System Low
Case 1 - Max Day + Fire Flow	Fire @ CUP	35.79	35.76	40.01	40.14	40.28	38.10	32.68
	Fire @ Front Entryway	39.64	39.66	44.34	44.51	44.68	42.69	31.86
	Fire @ Pavillion	47.74	47.74	44.61	44.78	44.95	44.49	29.03
	Fire @ Podium	39.19	39.17	36.03	36.18	36.35	36.64	27.05
	Fire @ Tower A	41.88	41.89	38.83	39.02	39.20	39.36	29.03
	Fire @ Tower B	44.88	44.83	41.63	41.79	41.96	41.28	28.41
	Fire @ UOHI	39.36	39.24	35.77	35.89	36.00	35.05	24.33
Case 2 - Peak Hour		42.32	42.33	47.03	47.20	51.68	45.20	38.05
Case 3 - Basic Day		53.50	53.50	58.20	58.37	62.52	56.52	49.10

(1) The pressure falls below 40psi (minimum City of Ottawa requirement) due to site constraints. All building services and hydrants still achieve minimum pressures as per City of Ottawa guidelines. Please refer to *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* Table 12-5, notes 1 through 6, for commentary on the pressure results.

Please refer to Appendix D for full summary of the pressures. Please refer to Attachment 1.1-1 Watermain Model.

3.3.5 Reliability Analysis

The proposed watermain installation consists of PVC SDR-35 pressure rated piping, which will connect to the existing 400mm unlined cast iron watermain on Carling Avenue which was installed in 1913. The existing cast iron pipe has exceeded its typical service life of 75-100 years and is likely subject to internal corrosion, tuberculation and reduced hydraulic capacity. Historical data for similar infrastructure in Ottawa suggests a higher risk of structural failure and water quality degradation due to iron leaching.

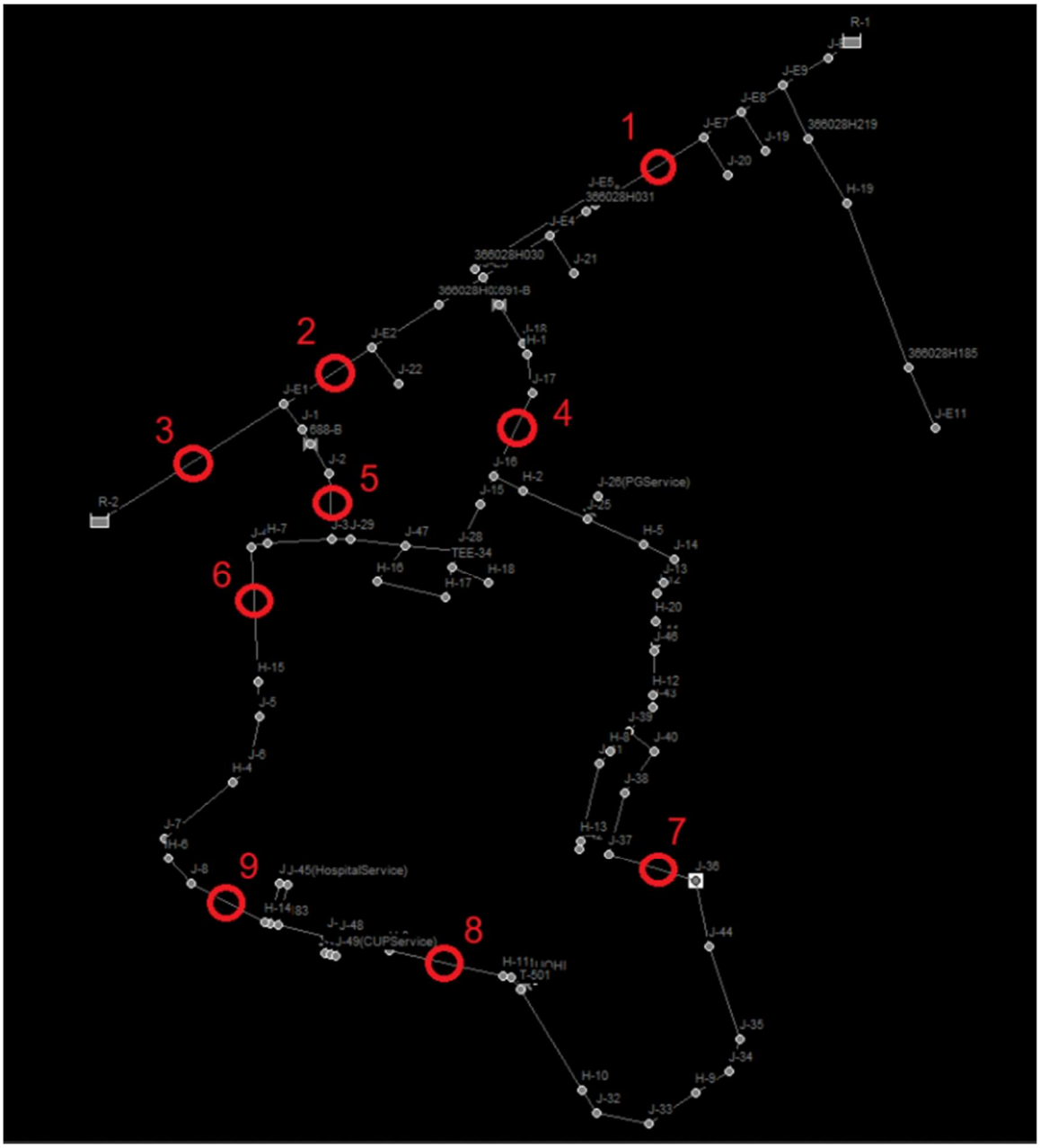
The proposed PVC SDR-35 pipe complies with CSA B182.2 and ASTM D3034 standards, offering high resistance to corrosion, chemical damage and biological growth. It is expected to provide a service life of 50-100 years under standard operating conditions. The pipe's flexibility and impact resistance make it suitable for Ottawa's freeze-thaw cycles and various soil conditions which may be present on site. The connection between PVC and cast iron should be achieved using the appropriate restraints and dielectric barriers to mitigate galvanic corrosion as a part of works completed by others (advance works). The interface should also be monitored for differential movement and joint integrity. Environmental factors such as soil type, groundwater levels and traffic loads have been considered in the design. The pipe's stiffness rating ensures adequate resistance to deformation under the burial conditions.

To further assess the reliability of the proposed network, a break analysis was conducted to simulate potential failure scenarios within the watermain system. This analysis models pipe breaks at critical locations to evaluate how the network

performs under these conditions. The break locations are illustrated in Figure 3.3-4, which maps the break locations, and the results are summarized in Table 3.3-3, which presents the pressure readings at the building connection under these simulated break conditions. These outputs help identify vulnerable areas and can help inform mitigation strategies such as valve placement and redundancy. Three breaks were analyzed on Carling Ave, and five break locations were analyzed within the site.

Overall, the proposed internal site infrastructure demonstrates high reliability, with significantly lower failure risk compared to the aging cast iron mainline. Mitigation measures, including robust jointing and corrosion protection will ensure long term performance and service continuity.

Figure 3.3-4: Watermain Break Analysis Locations



Scenario	Break Location	Service - Main Hospital 1	Service - Main Hospital 2	Service - CUP 1	Service - CUP 2	Service - UOHI	Service - PG
Case 3 - Basic Day (Break Analysis)	BREAK LOCATION 1	53.44	53.46	58.14	58.31	56.52	62.51
	BREAK LOCATION 2	53.44	53.46	58.14	58.31	56.50	62.51
	BREAK LOCATION 3	53.37	53.37	58.05	58.22	56.43	62.42
	BREAK LOCATION 4	53.37	53.39	58.07	58.24	56.43	62.42
	BREAK LOCATION 5	53.30	53.32	58.00	58.17	56.37	62.38
	BREAK LOCATION 6	52.95	52.96	57.64	57.81	56.08	62.46
	BREAK LOCATION 7	53.30	53.30	57.98	58.15	56.33	62.54
	BREAK LOCATION 8	53.32	53.32	58.00	58.17	56.62	62.54
	BREAK LOCATION 9	52.95	52.96	57.64	57.81	56.08	62.46

Table 3.3-3: EPANET Results at Break Locations

In summary, the internal site infrastructure provides a reliable network to support the planned and future buildings on site. The biggest risk to the system is the Carling watermain which has exceeded the intended service life of ductile iron. The network is only connected to the Carling watermain and as such a replacement or shutdown of that watermain will need to be coordinated to ensure that flows are maintained to the internal site infrastructure.

4.0 SANITARY SERVICE DESIGN

4.1 Design Overview

4.1.1 Background and Site Constraints

The New Civic development campus (Main Build, CUP and Future Buildings) will be serviced by a 300mm and 375mm mainline Sanitary Sewer that runs parallel to the Advanced Works mainline watermain, running in a loop through the site around the main hospital building. The proposed Advanced Works sanitary sewer will connect into the Mooney's Bay Collector at the proposed Road B and Road L intersection.

The Mooney's Bay Collector is an existing public 1050mm concrete sanitary sewer that runs through the western parcel of the site via an existing easement before eventually outletting into the West Nepean Collector. The *Master Servicing Plan – New Civic Development for The Ottawa Hospital (Parsons, July 2021)* notes that the existing Mooney's Bay Collector has no available capacity and is sufficiently surcharged during large rainfall events, with significant risk of flooding in the vicinity of the sewer during such events. At the time of the master servicing study it was anticipated that the peak sanitary demand for the main hospital building would be 34.24 L/s.

The approved Parsons advanced works site servicing report stated an estimated peak flow of 63.07 L/s from the full campus ultimate build-out, with a note to ask the city how much capacity there was in the Mooney's Bay Collector sewer, which the advanced works sewer connects into.

As per the meeting held on December 15th, 2025, with the City of Ottawa it was confirmed through preliminary review that the Mooney's Bay Collector may be able to take up to 140 L/s. This will be confirmed in the City modelling once finalized flows are received and reviewed.

As a part of the approved Advanced Works Scope of this project the three furthest downstream pipes at the time of this report are designed as 375mm with slopes of 0.32%, 1.00% and 1.00% respectively. At 0.32%, the 375mm pipe between AW MHSA 11 and AW MHSA 10 will limit the outgoing flow by gravity at 103 L/s. As-Builts from the installation of these pipes will be confirmed once provided to validate the installed slopes and resulting capacity of the pipes.

Furthermore, as per recommendations and findings from the site geotechnical report, as well as previous findings in the *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital (Parsons, October 2024)* report by Parsons, the project development site is subject to particularly high groundwater levels. High groundwater levels can influence extraneous flows into sanitary sewers, and additional considerations and allowances have been made to the DPA design of the sanitary services to account for this.

The Advanced Works Mainline sanitary sewer has input flows from two existing external sewer systems. The first occurs at MHSA 36, connecting the existing Central Experimental Farm outlet with a new proposed manhole and a run of 250mm sanitary sewer that flows west before connecting into the new proposed 300mm mainline sanitary sewer that is part of Advanced Works at MHSA 32. The second connection occurs at MHSA 40, further to the north-west where a relocated sanitary sewer intersects the proposed Advanced Works stormwater management tanks to connect into the Advanced Works mainline 300mm Sanitary Sewer at MHSA 27. Sanitary flows for both connections have been accounted for, sourced from the Central Experimental Farm Ottawa, Ontario Master Servicing Plan Volume 2: Sanitary and Storm Systems (2008).

4.1.2 Advanced Works Scope Delineation

The design and parameters of the 300mm/375mm sanitary sewer mainline are contained within the design scope of Advanced Works. Please refer to *Site Servicing and Stormwater Management Report – New Campus Development for The*

Ottawa Hospital (Parsons, October 2024) for information regarding that design and the design of any of the relocated sanitary sewers, public and private, that are required to facilitate Phases 3 and 4 of the New Civic Development works. The proposed sanitary service connections for the main hospital building, the central utility plant, and the future University of Ottawa Heart Institute are contained within the scope of this report. The design parameters of the Advanced Works Sanitary sewer that are available at the time of this report, including size, slope, location, invert, and material, will be utilized to generate sanitary sewer design sheets and will be treated as design constraint.

The internal building delineation, as well as approximations of buildings flows, that are provided in the *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* report will be updated to suit current Phase 3 and 4 design considerations internal and external to the building. The previous report classifies the flow from the main entryway and underground parking area at level E1 to be negligible; however, this flow has been included in the updated drainage area delineation. Flows from the fixtures within the building including the sanitary sump flows have been provided by the Mechanical Consultant.

The sanitary sewer design sheets also take into consideration the flow from the Parking Garage, as well as the Central Utility Plant. Please see Appendix E for Sanitary Flow calculations and Appendix F for the Sanitary Sewer Design Sheets.

4.2 Sanitary Flows

At the conceptual design stage of the Main Hospital Building, the projected sanitary flows were estimated according to Section 4.4.1 of the City of Ottawa Sewer Design Guidelines – September 2025, and the latest Technical Bulletins. And were therefore classified as Institutional to determine the correct peaking factor and subsequent peak design flows.

The City of Ottawa Sewer Design Guidelines indicate that the sanitary flow can be calculated by four different methods:

1. Gross floor area of the building multiplied by the usage of the building.
2. Bed counts can be used specifically for Hospitals.
3. Existing flows from similar buildings that can be used to approximate the flow.
4. The fourth and final option, completed by the mechanical team is to use the methodology in the Ontario Building Code which utilizes the fixture flows in order to determine the flow rate at each service connection, based on the fixtures attached to each service.

Given the size, complexity and duration of this project it is reasonable to expect that the calculated flows will vary over time based on the selected methodology used and design development over time.

In Section 4.4.1.2 of the City of Ottawa Sewer Design Guidelines, it is noted that the sewage flows from commercial and institutional establishments vary greatly with the conditions of the site, and that for individual institutional uses, the sewage flow rates commonly used for design at the site plan level can be found in Appendix 4-A. As such, the design flows for the sanitary sewer have been calculated using the provided demand for Hospitals – Including Laundry, at 1400L/day per bed. Predetermined inlet flows for the Central Utility Plant were sourced from the *Site Servicing and Stormwater Management Report, New Campus Development for The Ottawa Hospital, Parsons (October 2024)* report. Inlet flows for the future University of Ottawa Heart Institute have been estimated according to Section 4.4.1 of the City of Ottawa Sewer Design Guidelines and can be found in Appendix F. 1400 L/Bed/Day was used for the sanitary demands for the hospital whereas 900 L/Bed/Day is used for the water demands as previously discussed in this report.

The total number of hospital beds for the main building (689 for the design build-out and 1147 for the ultimate build-out) has been broken down by the governing sanitary service connection based on the connection's location within the hospital.

Additional peaking factors and infiltration flows have been added in accordance with the City of Ottawa Sewer Design Guidelines. The full sanitary sewer design sheet per MOE guidelines can be found in Appendix F.

The flows as calculated by mechanical using the Ontario Building Code were provided based on the delineation within the building. A breakdown of how these were calculated provided by the mechanical designer is included in Appendix P of this report. In most cases the flows from the Ontario Building Code provided a more conservative approach, so at each connection it was ensured that the service connection could account for the largest peak flow expected by either the City Guidelines or the Building Code. It was found in most cases that the flows generated by the Ontario Building Code for the fixtures on top of the peak flows expected from the sanitary sumps within the building resulted in higher flows and therefore the design for 65DD was adjusted with this in mind. Through coordination with mechanical and through review of the sanitary design sheet it was ensured that all of the upstream legs of the service connections have sufficient capacity to handle the maximum flows as calculated by the OBC as well as the other methods as described above. Review of overall flows and site conditions remain ongoing through conversations with the City initiated December 15th, 2025.

Allocations for infiltration by gross hectare have been included in the sanitary sewer design sheet, direct from the *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* report. Additional external flows from off-site were sourced from the relevant report and have also been included and noted.

In coordination with the Mechanical consultant, the sanitary delineation zones can be seen in Figure 4.2-1. Each of the delineation zones corresponds to a single service connection.

Table 4.2-1: Site Statistics – Main Hospital Building

Location	Bed Count	Gross Floor Area (ha)
Main Hospital Building Design Build-Out (1)	689	11.68
Main Hospital Building Ultimate Build-Out (1)	1147	14.28
Future University of Ottawa Heart Institute (2)	~250	9.29
Central Utility Plant	N/A	0.84

(1) Bed Count and Gross Floor areas received from Parkin on 2025-12-04. Final campus build-out ~1400 beds.
(2) GFA value received from TOH for the Future University Heart Institute during T17 UGM R8
(3) Values received from Architectural on 2026-03-11, CUP design still underway and subject to change

Figure 4.2-1: Sanitary Delineation Zones

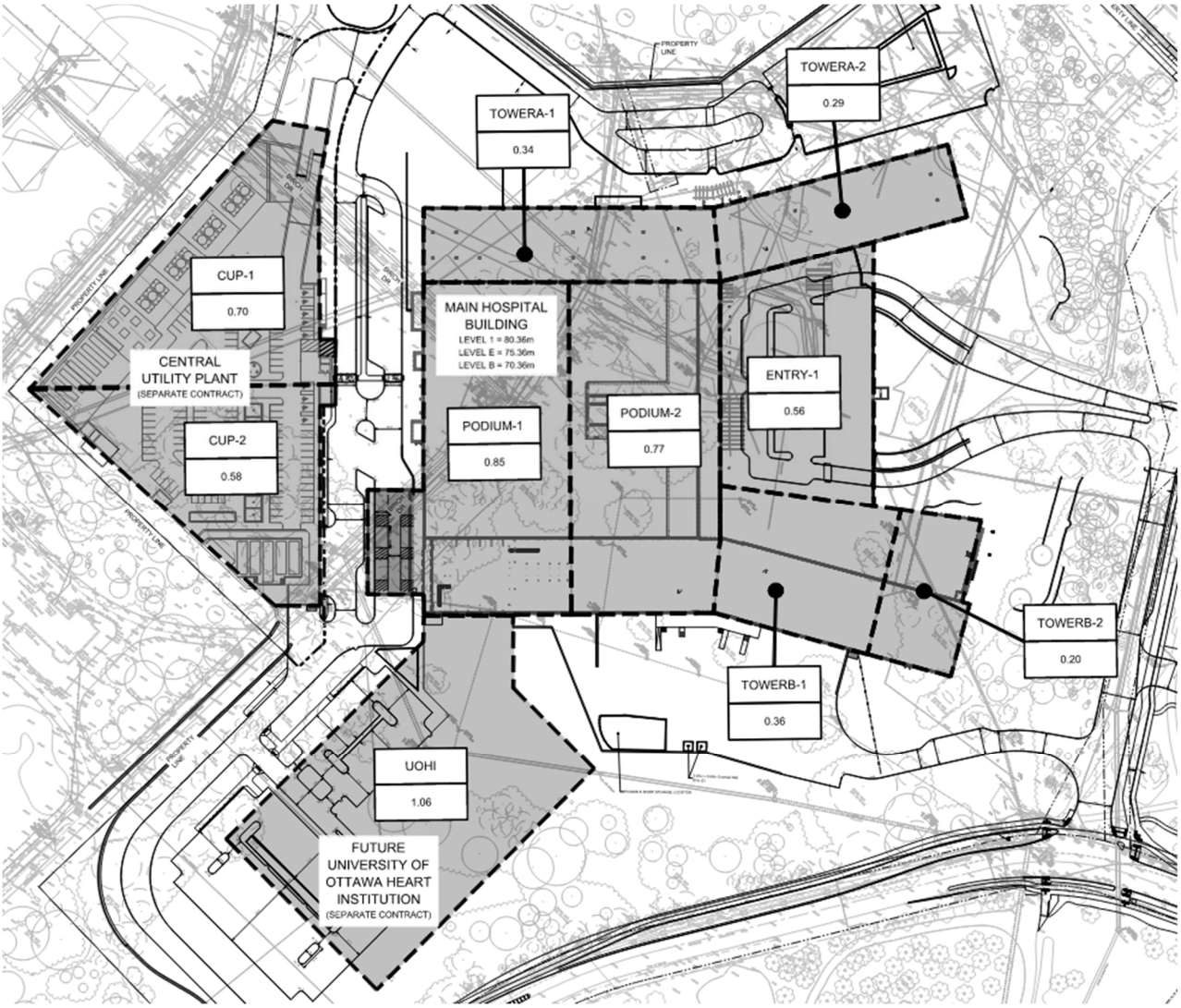


Table 4.2-2 summarizes the proposed sanitary sewer flows in accordance with Section 4.4.1 of the City of Ottawa Sewer Design Guidelines – 2012. The Central Utility Plant will have two proposed sanitary service connections as per the current design of the Central Utility Plant being completed under a separate contract by WSP, and the future University of Ottawa Heart Institute will have a single proposed service connection, made as provision for future works. The flows for these three service connections are denoted in Table 4.2-2, with full calculations available in Appendix E. The flows below are broken down into four sections, the Average Daily Flow is the flow leaving each service connection, the Peak Daily Flow shows those same flows but with the relevant peaking factor applied, the next column breaks down the Peak Extraneous Flow for each service connection resulting from infiltration and inflow. Lastly, the Total Peak Design Flow denotes the total accumulated flow including the estimated extraneous flow at the end of each service leg.

Table 4.2-2: Sanitary Design Flows - Main Hospital Building

Sanitary Delineation Zone ID	Average Daily Flow (L/s)	Peak Daily Flow (L/s)	Peak Extraneous Flow (L/s)	Total Peak Design Flow (L/s)
TOWER A-1	4.59	6.88	0.11	6.99
TOWER A-2	4.13	6.20	0.10	6.29
UOHI	3.01	4.52	0.35	4.87
MAIN ENTRY	0.18	0.27	0.18	0.46
CUP-1 (1)	0.67	1.00	0.62	1.61
CUP-2 (1)	0.67	1.00	0.62	1.61
TOWER B-1	5.14	7.70	0.12	7.82
TOWER B-2	3.42	5.13	0.07	5.19
PODIUM-1	0.73	1.10	0.28	1.38
PODIUM-2	0.81	1.22	0.25	1.47

(1) CUP values included were given added factor of 2.5 since design is undergoing and coordination with mechanical is underway

Therefore, based on comparing the total flow from the system including infiltration and inflow the resulting flow is estimated to be 39.13 L/s at the outlet of the advanced works sewer. This value was 51.35 L/s prior to WSP undertaking the Central Utility Plant contract and is still subject to change due to updates to the CUP design flows as that the design progresses.

4.3 Proposed Design

4.3.1 Service Connection Locations

The proposed sanitary delineation zones, as per constraints and allowable sanitary drainage within the Main Hospital Building, define the locations of the proposed service connections. Each delineation zone has a one service connection, resulting in 10 total sanitary services. The service connection locations can be summarized as follows:

Tower A
- Two connections, West face of the building (250mm, 300mm)

Tower B (Loading Dock)
- Three connections, East face of the building (300mm, 300mm, 300mm)
- One connection, North face of the building (250mm)

Main Entryway (Emergency Access)
- One connection, North face of the building (200mm)

Central Utility Plant
- Two connections, North face of the CUP, off the South face of the hospital (200mm, 200mm)

Future University of Ottawa Heart Institute
- One connection, South face of the Future University of Ottawa Heart Institute (150m)

Most of the podium area and pavilion drain to the east towards the Loading Dock Tower B connections. This is because of constraints in the interior of the building driven by raft slab elevations. The sanitary service connections in the Loading Dock are the lowest on the site. The sanitary service connections on the east side of the main hospital building are connected by a 300mm and 375mm sanitary sewer that runs to the north before connecting into the Advanced Works mainline sanitary sewer at MHSA11.

The flows captured within the underground parking garage structure at level E1 will be directed towards the sanitary connection provided at the main entryway, while the flows captured above it from the drains in the at-grade parking structure will be directed towards the storm service connections provided at the main entryway.

Full sanitary design sheets are available in Appendix F. There are no proposed sanitary pumping stations or forcemains present in the exterior of the building.

5.0 STORMWATER DESIGN

5.1 Design Overview

To align with the formatting of the other Site Servicing and Stormwater Management Reports prepared by Parsons for the other relevant projects that comprise the New Civic Development, at the 95% Detailed Design the stormwater management design had been incorporated into this report. This portion therefore covers the storm service connections and their interface with the overall stormwater management design principles of water quantity control, water quality control, and water balance criteria.

5.1.1 Background and Site Constraints

Phase 4 of the New Civic Development will be serviced by an oversized 1200 mm and 1500 mm concrete storm sewer that is part of the Advanced Works. This storm sewer will run in a similar orientation to the Advanced Works sanitary and watermain utilities, in a large loop around the main hospital building. The central utility plant and future University of Ottawa Heart Institute will connect into this mainline storm sewer, as will all road and parking drainage in the 17-ha site. The Advanced Works mainline storm sewer connects into an existing 1200 mm concrete storm sewer at the north-western corner of the development, underneath Prince of Wales Drives, where the water runs through federally owned (Public Service and Procurement Canada) storm sewer before its eventual outlet at Dow's Lake.

The Eastern portion of the development site is located within the most upstream point of the Nepean Bay Trunk drainage area. Runoff on the existing site is collected through sewers to Carling Avenue, which discharge into the public Champagne Avenue stormwater sewer. This sewer eventually outlets to the Nepean Bay Trunk, with an end terminal outlet point at the Ottawa River. In addition, there are numerous existing privately-owned sewers on the New Civic Development site that are being relocated as part of the Advanced Works package. For further storm servicing details, please review *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024).*

The *Master Servicing Plan – New Civic Development for The Ottawa Hospital (Parsons, July 2021)* notes that the existing Nepean Bay Trunk sewer is reported to be operating under extreme surcharge during large rainfall events, due to uncontrolled flow in the tributary area as well as significant accumulation of sediment throughout the sewer. However, all of the proposed design encompassed under the scope of this report outlets to the Dow's Lake outfall and not the existing Nepean Bay Trunk sewer, which is under the scope of the Advanced Works and any associated approvals.

The proposed storm service connections are significantly constrained by the previous Approvals achieved by the Advanced Works design. The proposed storm services must outlet water into the mainline Advanced Works storm sewer at the same release rates that were set in the previous approvals, defined by Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital (Parsons, November 2023) and the associated drawings.

Site conditions are not ideal for Low Impact Development (LID) implementation due to the high groundwater levels along the east side of the proposed main hospital building and the native soil with less than ideal expected infiltration capacities. LIDs and surface LIDs have been proposed where possible.

5.1.2 Advanced Works Delineation

The design and parameters of the 1200 mm/1500 mm storm sewer mainline are contained within the design scope of Advanced Works. Please refer to *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (Parsons, October 2024)* for further detail of the aforementioned design, and the design of any of the relocated storm sewers, public and private, that are required to facilitate Phase 3 of the New Civic Development works.

Also included in Advanced Works are the three (3) stormwater management detention tanks located at the south parking lot, the north parking lot, and the south-western corner of the site, respectively. These items are currently (August, 2025) indicated as Provisional Advanced Works Items and are not covered in the scope of this report. Please refer to the Parson's reporting for further details of the Advanced Works.

The proposed storm service connections for the main hospital building, the central utility plant, and the future University of Ottawa Heart Institute, the associated proposed stormwater management tanks on the service connections from the main hospital building, as well as a length of storm sewer within the loading dock area of the main hospital building, are contained within the scope of this deport. The design parameters of the Advanced Works storm sewer that are available at the time of print, including size, slope, location, invert, and material, will be utilized to generate storm sewer design sheets and may be revised under subsequent submissions of this report.

The at-grade drainage, including overland drainage swales, ditches, and ditch inlets are within the scope of this report.

5.1.3 Study Objectives

This stormwater management analysis examines the potential impacts on the water balance, water quality and water quantity control due to the proposed development and summarizes how each impact will be minimized in accordance with the current governing guidelines and regulations related to stormwater management.

5.1.4 Study Limitations

This report is provided at the 95% Design Development stage and thus is subject to updates stemming from the Ottawa Hospital review, any future updated data, and design revisions.

5.1.5 Reference to Higher Level Studies and Reports

The current report and study were prepared based on the following reports, drawings and data:

1. Advanced works drawing package dated 2024-09-17, by HDR and Parsons.
2. Site Servicing and Stormwater Management Report- New Campus Development for The Ottawa Hospital - Phase 3: Central Utility Plant Project -Phase 4: Main Hospital Project -Ottawa, Ontario –October 2024 (Issued for FLUDA Approval), Parsons.
3. Hydrogeological Report in Support of a Category 3 Permit to Take Water-The Ottawa Hospital Proposed Civic Campus Redevelopment Project-Ottawa, Ontario – July 2024, Paterson Group
4. Groundwater Contour Plan – Post Construction Conditions – Dwg. No.PG6982-3 – September 2025, Paterson Group
5. Preliminary Groundwater Inflow Estimate – Revision 1- Ottawa Hospital, February 2023, WSP
6. New Ottawa Civic Hospital – Climate Risk Assessment November 25, 2022, Stantec

5.2 Stormwater Management – Criteria

The development site is located in the City of Ottawa within the Federal Land regions. The stormwater runoff generated from the site discharges into Dow's Lake which is governed by the National Capital Commission stormwater regulations. As such, this report will follow the most stringent criteria as established by:

- National Capital Commission Stormwater Management Manual,
- City of Ottawa's Sewer Design Guideline,
- Ministry of Environment Conservation and Parks- Stormwater Management and Planning and Design, and

- Leadership in Energy and Environmental Design (LEED) Version v4.1- Rainwater Management- Sustainable Sites, by U.S. Green Building Council.

5.2.1 Water Quantity Control

According to the City of Ottawa Sewer Design Guideline, stormwater runoff to Dow's Lake in excess of the 5-year storm up to and including the 100-year storm event, must be detained on site. The 3-hour Chicago storm using the IDF parameters from the City of Ottawa Sewer Design Guidelines was used in the analysis. A 24-hour SCS storm was included as a sensitivity analysis to ensure that the proposed facilities can convey these larger storm events. Additionally, the 100-year design storms increased by 20% was included as a sensitivity analysis.

5.2.2 Water Balance-LEED

The LEED Version v4.1- Rainwater Management - Sustainable Sites includes two options to meet the LEED requirements. The first requires a site to 'retain stormwater on-site with a likelihood of 90th Percentile occurrence', to obtain the maximum 3 points assigned to the sustainable sites. For developments located within the City of Ottawa, retaining the 90th percentile rainfall will require the retention of up to a maximum 22 mm rainfall depth, following LEED rainfall analysis guidelines. The second is a post to pre-development water balance analysis to ensure that runoff from the site will not increase under the post-development condition.

5.2.3 Water Balance-

A post-to pre-development water balance analysis was completed to ensure that runoff from the site will not increase under the post-development condition.

5.2.4 Water Quality Control

The National Capital Commission Stormwater Management Manual requires the proponent to minimize or improve surface water and groundwater quality, to minimize sediment loading to surface water and groundwater, to maintain or enhance the quality of drinking water sources, and to maintain or enhance existing thermal watercourse regimes.

5.2.5 Design Storm

Table 5.2-1 presents the rainfall intensity (mm/hr) calculated from IDF parameters from the City of Ottawa's Sewer Design Guideline.

Rainfall Intensity, i (mm/hr) = A*(Tc+B)^D Equation (1)

Where, Tc: Time of concentration; and A, B and D are IDF curve coefficients.

Table 5.2-1: Rainfall Intensity (mm/hr) Calculated from the IDF Curve

	Return Period (Years)		
	2	5	100
IDF Curve Coefficients			
A	732.951	998.071	1735.688
B	6.199	6.053	6.014
D	-0.810	-0.814	-0.820
Rainfall Duration	**Rainfall Intensity (mm/hr)**		
10 min	76.8	104.2	178.6
15 min	61.8	83.6	142.9
30 min	40.0	53.9	91.9
1 hr	24.6	32.9	55.9

2 hr	14.6	19.5	32.9
6 hr	6.1	8.2	13.7
12 hr	3.5	4.7	7.8
24 hr	2.0	2.7	4.4

In addition to the 2-year to 100-year events, a 100-year event increased by 20% is included in the analysis. This 100-year + 20% is included as a sensitivity analysis to determine how the system may function under future conditions or extreme events. This sensitivity analysis is equivalent to projected precipitation for the 2080s, as per the New Ottawa Civic Hospital – Climate Risk Assessment.

5.2.6 Runoff Coefficient

The Rational Method computes peak discharges using established runoff coefficients (C) based on various land-use surfaces. The runoff coefficient for a 100-year storm event is increased by 25% in accordance with the City of Ottawa Sewer Design Guidelines to a maximum of 1.0.

The following C values were used within this study:

Table 5.2-2: Runoff Coefficients

Land Cover	Return Period (Year)	Runoff Coefficient, C
Asphalt/concrete/buildings	5	0.9
	100	1.0
Grass/Soft Landscaping	5	0.20
	100	0.25
Forest/Woodlot	5	0.40
	100	0.50
Green Roof	5	0.45
	100	0.56

5.3 Stormwater Management – Existing Conditions

5.3.1 Existing Stormwater Management Plan

Runoff from the site is conveyed through AAFC infrastructure from the existing federal lands (Central Experimental Farm) towards Prince of Wales Drive and eventually to Dow's Lake. The AAFC is responsible for the operation of the private servicing within the site. The existing condition of the site is shown in Figure 1.1-1.

5.3.2 External Drainage

Runoff from west, east and southern subcatchments are combined with the site runoff and discharge into the Dow's Lake. At the western limits, there are two sub-catchments. Sub-catchment 40 (Appendix A, Model Plan View) which is located south of Carling Avenue includes asphalt roadways and parking areas, buildings, and open grass areas with trees. Runoff originating from this area is conveyed through an on-site underground private storm sewer system that outlets to Dow's Lake. The major system drains towards Carling Avenue. The area is approximately 1.20 ha with a runoff coefficient estimated at 0.52. Additionally, Sub-catchment 41 (presented in Appendix A, Model Plan View) which is adjacent to Maple Drive is covered by asphalt roadways and parking areas, buildings, and open grass areas with trees. Runoff generated from this area is collected and conveyed through an on-site underground private storm sewer system, and outlets to Dow's Lake. The major system storm runoff drains to Carling Avenue. The area is approximately 1.54 ha with a runoff coefficient of 0.30.

The southern sub-catchment (D-S44) is covered by asphalt roadways and parking areas, buildings, and open grass areas with trees and the east and west sides of Maple Drive. The area drains through an on-site underground private storm sewer system that outlets to Dow's Lake. The major system drains to Carling Avenue. The area is approximately 12.77 ha with a runoff coefficient of 0.42. Moreover, drainage sub-catchment areas D-S62A and D-S62C (Appendix A, Model Plan View) are adjacent to Prince of Wales Drive and contains an open grass area with trees. These area sheet flows to Prince of Wales Drive. The area is approximately 1.46 ha and 1.13 ha with runoff coefficients estimated at 0.27 and 0.65, respectively.

5.3.3 Hydrogeological Characteristics

This information referenced within this subsection is based on the 2023 Preliminary Groundwater Inflow Estimate– Revision 1 Memorandum by WSP, which contains preliminary estimates of groundwater inflow to the excavations for the Ottawa Hospital Expansion. Based on the preliminary findings of this memorandum, the groundwater level at the southern end of the hospital building ranged between elevations of 75 m to 76 m. At the northern limit of the site, the groundwater elevation drops to a range of 72 m to 73 m.

The amount of steady-state dewatering inflow required for the excavation is estimated to range between 400,000 L/day to 900,000 L/day, with an initial inflow is 5-8 million L/day. The hydrogeological section shall be revised upon receiving updated hydrogeological data and its impact on the SWM plan shall be reassessed in the future submissions.

5.3.4 Allowable Release Rates

Peak flows were estimated according to the Rational Method, which is expressed as follows (Ministry of Transportation Ontario, 1997):

$$Q=0.0028CIA \qquad \text{Equation (2)}$$

Where:

Q = Peak runoff rate (m^3/s)
C = Weighted runoff coefficient
I = Rainfall intensity corresponding to duration equal to the time of concentration (mm/hr)
A = Drainage area (ha).

According to City of Ottawa Sewer Design Guideline, stormwater runoff to Dow's Lake in excess of the 5-year storm up to and including the 100-year storm event, must be detained on site; All runoff shall be controlled down to the 5-year pre-development flow rate of 2,345 L/s as per HDR-Parson's Site Servicing and Stormwater Management Report (October 2024). The 2-year to 100-year stormwater runoff which is directed to Dow's Lake is to be controlled to the 2-year predevelopment flow rate of 238.8 L/s, as per the HDR-Parson Site Servicing and Stormwater Management Report (October 2024). It is noted that the allowable release rate is subject to change and may be revised by WSP for future submissions.

5.4 Stormwater Management – Proposed Conditions

5.4.1 Water Quantity Control – Dow's Lake

When uncontrolled, the proposed development and external drainage areas generate 9,856 L/s of precipitation runoff. To reduce runoff to the maximum allowable release rate of 2,345 L/s, eight (8) SWM storage tanks and chambers were proposed, and storage capacity provided within existing grassed ditch was utilized. Of the proposed storage tanks, four (4) were placed at the periphery of the hospital building:

- Chamber 201, the east tank, retains runoff from Tower B and portions of the loading dock.
- Chamber 202, the northern tank, retains the runoff from the northern part of the podium and northern roofs.
- Chamber 203, the western tank, retains runoff from Tower A.
- Chamber 204, the southern tank, from the southern part of the podium.

These tanks collect and control runoff from the hospital building and discharge flows to the superpipe system. The remaining storage tanks are part of the Advanced Works package and control runoff from at-grade areas both internal and external to the site.

- Chamber 102, retains and controls runoff from the south-east parking lot
- Chamber 103, retains and controls runoff from a portion of the CUP and external areas
- Chambers 104A and 104B retains and controls remaining parking lots, rights-of-way, external areas, and superpipe.

The superpipe system is controlled by an orifice and weir located in manholes MHST145 and MHST142. Permanent dewatering will occur in MHST158 with an estimated flow rate of 4 L/s. This flow is included as a baseline inflow in the modeling. Please refer to the Geotechnical Report for further details on groundwater flows.

The total required storage volume for the buildings was estimated through collective modelling of the site and optimizing the combination of the proposed storages. Proposed chambers 201 through 204 were designed considering parameters such as the available tank footprint area, potential spatial conflicts with utilities and topographical constraints. Incorporating the 20% extra volume considered for climate change analysis, the total volume required is 1,431 m^3; Overall, 1,701 m^3 of storage is proposed to provide quantity control. An overview of the storage tanks for the hospital is presented in Table 6.2-1.

Note that required storage volume(s) for quantity control and water balance shell be reviewed and are subject to change pending on the evolving design of the green roof and irrigation system.

Overland flow from the eastern half of the site, including Sub-catchment 60A and Sub-catchment 60B, is directed to the swale located east of the hospital. Flow within the swale is controlled via an inlet control device (ICD) which creates surface ponding in the swale. Ponding in the swale will occur over DICB8 and once the ponding exceeds an elevation of 70.11 m the runoff will spill to the north and enters the Prince of Wales Drive ROW.

The overland flow from the west half of the site is directed to a depression within a landscaped feature above Chamber 104B. Runoff will pond on catchbasin CB98 located in the landscaped depression to collect the 100-year runoff and direct it to the minor system. One runoff over catchbasin ponds to an elevation greater than 74.22 m (0.42 m ponding depth) runoff is directed through a curb cut to CB65 located in catchment 47. Runoff then ponds on CB65 to an elevation of 73.70 m (0.16 m ponding depth) after which runoff is directed north towards Carling Avenue.

Runoff from catchments 54A-H and 55 A-I is directed to the minor system and is controlled by Chamber 202 and by an orifice and weir located in MHST142. Overland flow from these catchments is directed to Carling Avenue and the Nepean Bay trunk sewer

Before discharging to the outfall at Dow's Lake, runoff within the superpipe system is treated by the proposed water quality units. Post-development figures included in Appendix I outlines the post-development catchments and the drainage areas to each tank.

Furthermore, the high groundwater elevations observed across the site require that an analysis of the effects of hydrostatic uplift (buoyancy) forces on the proposed chambers shall be completed prior to design finalization and chamber selection, to ensure the specified chamber product/system can withstand the force both during construction/installation and day-to-day expected operations of the Hospital site, including anticipated vehicle loadings, cover depth, etc. This analysis shall be completed in coordination with the supplier of the chamber system.

Table 6.2-1: Proposed storage tanks for the hospital building

Storage Tank Name	Subcatchment Characteristics			Quantity Control		Water Balance			Total Storage Volume Provided (m^3)
	Sub- catchment Name/Nº	Outlet	Area (ha)	100-yr + 20% Storage Volume for Quantity Control (m^3)	Provided Active Storage (m^3)	Runoff (mm)	Runoff Volume (m^3)	Provided Sump Volume for Water Balance (m^3)	
Tower B (Eastern)/ Chamber 201	S-11	MH-SA52	0.4268	417	510	29.8	127	216	726
	S-10	MH-SA52	0.2975			30.0	89		
Dome (Northern) Chamber 202	S-7	MH-SA56-1	0.2899	480	625	25.0	72	240	865
	S-9 & 53	MH-SA56-2	0.3836			28.8	92		
	S-8, 54B, S11A&B	D-S56_2	0.3028			25.0	76		
Tower A (Western)/ Chamber-203	S-4	MH-SA49	0.2908	267	271	30.0	87	191	462
	S-3	MH-SA50	0.3456			30.0	104		
Podium (Southern)/ Chamber 204	S-6	MH- SA51-1	0.2932	267	295	22.3	67	151	446
	S-5	MH-SA51-2	0.2767			22.0	61		
	S-12	MH-SA51-1	0.0933			24.3	23		
Total			3.0066	1,431	1,701		798	798	2,499

Quantity Control-Advanced Works Tanks and Superpipe

Three (3) stormwater management detention tanks located at the south parking lot, the north parking lot, and the south-western corner have been proposed as part of the Advanced Works Provisional design. The tank located in the south parking lot, Chamber 102, retains runoff from the parking lot located in the south-east corner of the site. The tank located in the south-west corner of the site, Chamber 103, retains runoff from the external areas and a portion of the CUP. Runoff from Chambers 102 and 103 are controlled via combination of an orifice plate and weir before discharging to the superpipe.

Chambers 104A and 104B, located in the north parking lot, retain runoff from their adjacent parking lots and the overall superpipe system which encircles the hospital. The proposed superpipe controls runoff with a combination of a weir and orifice plate in two separate locations and a weir. The first superpipe control is located in manhole MHST145 and is comprised of a 750 mm orifice plate and a weir with a height of 1000 mm. The second superpipe control is located downstream within manhole MHST142 and is comprised of a 700 mm orifice plate and a weir with a height of 500 mm. This superpipe ultimately discharges to Dow's Lake. Please refer to the Parson reporting package for further details of the Advanced Works.

Table 6.2-2 demonstrates that the proposed storage tanks collect and store the runoff from all events up to and including the 100-year + 20% sensitivity analysis.

Table 6.2-2: Utilized Storage Summary 3-hour Chicago_ Dow's Lake

	2-year Utilized Active Volume (m^3)	5-year Utilized Active Volume (m^3)	100-year Utilized Active Volume (m^3)	100-year+ 20% Utilized Active Volume (m^3)
Chamber 201	115	163	301	417
Chamber 202	128	187	372	478
Chamber 203	78	108	197	267
Chamber 204	68	102	211	267
Advanced Works				
Chamber 102	96	149	239	269
Chamber 103	467	651	1,608	2,127
Chamber 104A	260	408	1,053	1,247
Chamber 104B	423	588	1,294	1,502

Table 6.2-3: Storage Summary 24-hour SCS_ Dow's Lake

	Total Provide Active Volume (m^3)	100-year Utilized Active Volume (m^3)	100-year Storage Utilization (%)	ICD	Peak Flow at ICD (m^3/s)
Chamber 201	510	347	68	0.35 m circular orifice at 67.95 m (ICD 201)	0.132
Chamber 202	625	396	63	0.245 m circular orifice at 70.84 m (ICD 202)	0.114
Chamber 203	271	207	77	0.225 m circular orifice at 71.42 m (ICD 203)	0.093
Chamber 204	295	227	77	0.19 m circular orifice at 73.03 m (ICD 204)	0.067

Advanced Works					
Chamber 102	473	252	53	0.1 m circular orifice at 71.93 m (ICD 102)	0.021
				0.5 m x 1.5 m rect. orifice at 73.0 m (Weir 102)	0.105
Chamber 103	2,126	1,935	91	0.675 m circular orifice at 74.06 m (ICD 103)	0.135
				1.0 m x 1.0 m rect. orifice at 76.45 m (Weir 103)	0.030
Chamber 104A	1,302	1,119	85	N/A	N/A
Chamber 104B	1,703	1,364	80	N/A	N/A
Superpipe MHST142[1]	335	334	100	0.7 m circular orifice at 69.32 m (ICD 105)	1.300
				Weir at 70.7 m (Weir 105)	0.775
Superpipe MHST145[1]	645	611	95	0.75 m x 0.75 m rect. orifice at 69.9 m (ICD 104)	1.218
				Weir at 71.64 m (Weir 104)	0.978
Swale S-60	206	19	4	0.4 m circular orifice at 68.11 m (ICD 111)	0.317

Table 6.2-4: Storage Summary _ Dow's Lake

ICD Name	ICD Type	Size (m)	Discharge Coefficient	Inlet Elev. (m)	Contributing Drainage Area (ha)	Contributing Imp. Area (ha)
ICD 102	Orifice Plate	0.1	0.62	71.93	1.920	1.344
Weir 102	Transverse	0.3 x 1.5	1.65	73.00	1.920	1.344
ICD 103	Orifice Plate	0.675	0.62	74.06	13.859	4.471
Weir 103	Transverse	1.0 x 1.0	1.65	76.45	13.859	4.471
ICD 104	Rectangular	0.75 x 0.75	0.62	69.90	22.770	9.153
Weir 104	Transverse	1.0 x 2.0	1.65	71.64	22.770	9.153
ICD 105	Orifice Plate	0.7	0.62	69.32	24.890	10.556
Weir 105	Transverse	0.5 x 1.4	1.65	70.70	24.890	10.556
ICD 110	HydroVex	200 VHV-2	-	78.20	1.097	0.387
ICD 111	Orifice Plate	0.4	0.62	68.11	2.810	1.381
ICD 112	Transverse	1.4 x 1.5	1.65	70.17	19.443	7.859
ICD 201	Orifice Plate	0.35	0.62	67.95	1.060	1.059
ICD 202	Orifice Plate	0.245	0.62	70.84	1.691	1.228
ICD 203	Orifice Plate	0.225	0.62	71.42	0.637	0.636
ICD 204	Orifice Plate	0.190	0.62	73.03	0.685	0.453

Table 6.2-5 demonstrates that the modelled peak flows from the proposed system for the 2-year to 100-year events are lower than the allowable release rate of 2,345 L/s.

Table 6.2-5: Post-Development Flows _ Dow's Lake

	Existing Flows to Dows Lake (L/s)[1]	Proposed Flows to Dows Lake (L/s)	Allowable Flow Rate to Dow's Lake (L/s)[1@]
2-year		712	2,345
5-year	2,345	1,061	
100-year	5,154	2,046	
100-year + 20%		2,855	

Further, a 24-hour SCS storm was also included in the analysis to ensure that the proposed system and storage is able to collect and convey larger runoff volumes. Table 6.2-6 outlines the utilized active storage for each tank during the 3-hour Chicago and the 24-hour SCS storms.

Table 6.2-6: Utilized Storage Summary 3-hour Chicago & 24-hour SCS_ Dow's Lake

Storage Element	2-year Chicago (m^3)	5-year Chicago (m^3)	100-year Chicago (m^3)	100-year+ 20% Chicago (m^3)	100-year SCS (m^3)	100-year+ 20% SCS (m^3)
Chamber 201	115	163	301	417	344	425
Chamber 202	128	187	372	478	396	508
Chamber 203	78	108	197	267	207	271
Chamber 204	68	102	211	265	225	278
Chamber 102	96	149	239	269	248	278
Chamber 103	467	651	1,608	2,127	1880	2127
Chamber 104A	260	408	1,053	1.247	1116	1299
Chamber 104B	423	588	1,294	1,502	1361	1556

5.4.2 Water Quantity Control – Nepean Bay Trunk

According to the Project specific requirements in conjunction with City of Ottawa Sewer Design Guidelines, stormwater runoff to the Nepean Bay Trunk sewer in excess of the 2-year storm up to and including the 100-year storm event, must be detained on site. The 2-year through 100-year stormwater runoff directed to the Nepean Bay Trunk sewer is to be controlled down to the 2-year predevelopment flow rate of 238.8 L/s. Parson's reporting identified a total drainage area of 5.40 ha is directed to the Nepean Bay Trunk sewer, with a contributing impervious area of 2.91 ha. Under proposed conditions, the total drainage area directed to the Nepean Bay Trunk sewer increases to 6.15 ha, with a with a contributing impervious area of 3.03 ha. Due to this increase in drainage area, several updates were made to the drainage area to offset the increased runoff produced by this additional drainage area. These changes are listed below:

- Minor flow from Catchment S-56A will be directed to the proposed storm sewer which discharges to the Dow's Lake outlet.
- The proposed outlets controlling runoff from the ditches in Catchments S-26B and S-26D will be reduced to smaller sizes.
  - The outlet for Catchment S-26B will be a 100VHV-1
  - The outlet for Catchment S-26D will be a 50VHV-1

These changes result in a 100-year release rate of 237.9 L/s to the Nepean Bay Trunk sewer. Updates to the proposed parking garage's stormwater management system and the swale which collects and conveys runoff from Catchment 57 are expected and may affect the flows to Nepean Bay Trunk Sewer. As per RFI# DPA-386, pumped flows from the parking garage are confirmed to be 60 L/s and are included in the modeling.

Table 6.2-7: Post-Development Flows _ Nepean Bay Trunk Sewer

	2-year	5-year	100-year	100-year +20%
Total Flow to Nepean Bay Trunk	145	178	238	317

5.4.3 Water Quantity Control – Carling Avenue & Preston Street

The Phase 3 and Phase 4 works associated with the New Civic Development impact two of the four stormwater outlet locations for the overall project site. As per Drawing C4-201 Post-Development Drainage Areas, only the Dow's Lake outlet and Nepean Bay Trunk outlet have modifications by the DPA works that would alter these drainage areas as they were previously delineated in the Parsons design report. The remaining two drainage outlets to Carling Avenue and Preston Street are not impacted by DPA works. The project site is controlling stormwater runoff to the Preston Trunk outlet to the 2-year storm event. Therefore, there are no stormwater modifications or design elements anticipated to impact these areas. Please refer to *Site Servicing and Stormwater Management Report – New Campus Development for The Ottawa Hospital Phase 3: Central Utility Plant Project, Phase 4: Main Hospital Project (October 2024)* for design information pertaining to those outlet points.

5.4.4 Water Balance

LEED Version v4.1- Rainwater Management- Sustainable Sites requires a site to 'retain stormwater on-site with a likelihood of 90th Percentile occurrence' or retain the runoff volume difference between the pre and post development conditions, to obtain the maximum 2 points assigned to the sustainable sites.

A site-wide annual water balance analysis was completed using the method developed by Thornthwaite and Mather in 1957 and following the example given in Section 3.2.2 in the 2003 MECP "Stormwater Management Planning and Design Manual". This method evaluates the precipitation, infiltration, evapotranspiration, and runoff on an annual basis to demonstrate that runoff from the site will not increase in under the post development (proposed) condition. This volume is to be reused across the site via irrigation or disposed of within the site limits though infiltration.

Due to site-specific constraints (discussed in detail below) full compliance with the LEED Version v4.1- Rainwater Management requirements cannot be met. A best-efforts approach has been developed to maximize on-site retention through infiltration with LIDs and rainwater harvesting reused as irrigation volume. The proposed design represents the maximum practicable level of water balance performance achievable without compromising on functional site use.

It is anticipated that overall site water balance performance will improve with the future implementation of the CUP, as additional pervious surface areas and a rear swale are proposed, which will further increase on-site infiltration and runoff attenuation.

In addressing the water balance requirements, the runoff control volume target hierarchy as outlined in the MECP 2022 Draft Low Impact Development Stormwater Management Guidance Manual shall be considered. The hierarchy emphasizes that retention is to be prioritized, and maximized to reduce runoff from the site. The NCD hospital achieves a significant portion of this target by harvesting rainwater volume for irrigation, and by directing runoff to LIDs for infiltration. Should sites be unable to retain the full runoff control volume depth, the second priority is filtration of captured runoff through LIDs. Where filtration cannot be achieved due to grading or servicing limits, the third priority in the control hierarchy is to apply conventional control and treatment practices. Filtration of the remaining control volume through LID cannot be achieved due to grading limitations; however, all runoff collected into the storm servicing will be treated through a series of manufactured treatment devices, and runoff is detained via the proposed underground tanks and superpipe will attenuate runoff, releasing to Dow's Lake at the 5-year pre-development level.

Detailed water balance calculations are included under Appendix J.

Water Balance - Hospital Building

A 30 mm retention depth for the proposed hospital building roof is proposed as a depth target necessary to manage the site overall post-development runoff volume target. It is assumed that the green roof will abstract the first 10 mm of rainfall, and the impervious roof will abstract no rainfall, resulting in a total retention volume of 798 m^3. The 30 mm runoff depth was selected as it approaches the 100th percentile rainfall depth, meaning that almost all rainfall events which occur are 30 mm or less. Therefore, sizing the reuse storage volume for capture beyond the 30 mm rainfall depth is not beneficial as the full reuse storage will rarely be utilized. The reuse storage volume sized for the hospital building was determined by assuming that the full 30 mm of rainfall runoff will leave the impervious roof surfaces (no initial abstraction/'wetting depth') and also considers the green roof abstracting the first 10 mm of rainfall depth that falls onto its surface, therefore 20 mm of rainfall runoff is accounted for from the green roof surfaces. Retention is provided under the outlets of chambers 201-204, to be reused on site for irrigation of green spaces in the vicinity of the building.

Table 6.2-1 shows the average roof runoff depth to each 200 Series tank and the resulting volume. Please note the sump volumes are not included in the modeling; this approach ensures that the proposed system can provide the required active storage to manage quantity control should the sumps be full at the onset of a rainfall event. The proposed LIDs are not included in the modeling to address saturated conditions. Subdrains shall be connected downstream of the 200 Series tanks where possible to avoid utilizing sump space leaving it empty for rain events.

Water Balance - Remaining Site

Infiltration is the proposed mechanism to meet the water balance requirement for area surrounding the hospital. Runoff will be infiltrated via LIDs across the site. LIDs use natural means, including vegetation and engineered soil, to treat stormwater by filtering out contaminants commonly found in runoff. The type and arrangement of LIDs to be utilized to infiltrate runoff are constrained by the infiltration rate of the underlying native soils, groundwater elevations, and bedrock elevations.

In-situ infiltration testing for the site is not currently planned as there will be significant removal of the surface and the grades will be reduced by as much as 10 m in some locations. To estimate the infiltration rate for design, an analysis of the underlying soils was completed. As detailed in the July 2024 hydrogeological report "Hydrogeological Report in Support of a Category 3 Permit to Take Water", prepared by Paterson Group, the underlying soil is comprised of sandy silt and silty clay. The hydrogeological report estimates that the hydraulic conductivity for sandy silt ranges between 1x10-4 to 1x10-6 m/s. The infiltration rate of site soil is estimated using Table C1 in Appendix C of the "Low Impact Development Stormwater Management Planning and Design Guide" developed by the Credit Valley Conservation (CVC) Authority and the Toronto and Region Conservation Authority (TRCA) (hereafter CVC and TRCA's LID SWMDG), to be ~46.3 mm/hr. Applying the minimum design safety factor of 2.5, as per Table C2 in Appendix C of the CVC and TRCA's LID SWMDG, the sandy silt has a design infiltration rate of 18.5 mm/hr. Additionally, the hydrogeological report estimates that the hydraulic conductivity for silty clay ranges from 1x10-7 to 1x10-9 m/s and results in an estimated design infiltration rate of 5.4 mm/hr. Detailed calculations are outlined in APPENDIX J. To avoid mounding impacts or the scenario where runoff is left standing in the LID within the bottom gravel layer of the LID for a prolonged time, the design volume should infiltrate within 48 hours. As a result, LIDs within areas with sandy silts include a gravel layer limited to a maximum depth of 0.89 m. LIDs within silty clays shall be limited to a maximum gravel depth of 0.26 m and will include an underdrain. The boreholes used to determine the soil type for each finalized LID are outlined below in Table 6.2-8.

As per the Post Condition Groundwater Contour Map Dwg. No. PG6982-3 the groundwater levels on site vary from 68 masl to 74 masl. Due to high groundwater table caused by the proximity of Dow's Lake and the site soil characteristics, the clearance of the groundwater to the surface varies from as little as 0.3 meters below ground surface (mbgs) to 5.3 mbgs. The groundwater clearance is lowest along the east side of the proposed hospital, meaning that infiltration-based LIDs are not wholly suitable within this area. The groundwater clearances for each drainage area are outlined in Appendix J. For areas which have low clearance between the groundwater table and the proposed bottom of infiltration for an LID (i.e. groundwater levels observed at or less than 1.5 mbgs), shallow LIDs such as enhanced swales/flat-bottomed swales are recommended. Areas which have high groundwater clearance (i.e., groundwater levels greater than 1.5 mbgs) deep-recharge LIDs which can infiltrate greater volumes of runoff such as bioretention are feasible and are recommended as a mechanism for retention.

Opportunities for LIDs within the site have proven limited due to high groundwater levels caused by the proximity of Dow's Lake. In areas with higher groundwater table, shallower LIDs units such as enhanced swales with clear stone to promote retention and infiltration are proposed. In areas with greater groundwater separation, deeper LIDs units such as bioretention cells are proposed. Due to the high groundwater table caused by the proximity to Dow's Lake and the need to maximize infiltration on site, the bottom of some proposed LIDs present less than 1 m clearance from the groundwater table. Despite the lesser groundwater clearance of the shallower LID units are considered feasible to reduce the post-development runoff volume to Dow's Lake as they will function so long as there is free-drainage occurring in the native soil media below the infiltration footprint area.

The exact LID locations and their drainage areas are included in Appendix J. As the alignment of the Advanced Works and Proposed utilities is finalized, as well as developing information of the proposed post-construction groundwater contours and infiltration rates, the location and configurations of the proposed infiltration features may be modified. These locations are under development with the Landscape Architect to ensure there are no design conflicts with plantings or site lighting fixtures. Figure 6.2-1 shows a cross section of bioswale 65D and Figure 6.2-2 shows the currently proposed Bioretention Cell, sourced from Detail T-850.061-3. This detail will be modified through the design development phase to suit the site and the City of Ottawa environment. Note that the significant benefit of this bioretention cell is that it allows for infiltration to occur via the filter media without impacting tree plantings, as plantings may occur within footprint of the cell. Adequate supply of runoff to the tree root system is critical to maintain the health of the trees within the canopy planting plan that is required on site. Details of the finalized LIDs are presented in Table 6.2-8 below.

Table 6.2-8: Summary of Proposed LID features

LID Feature	Contributing Drainage Area (CDA) (m^2)	Nearest Borehole Nº	LID Area (m^2)	Retention Volume (m^3)	Groundwater Separation (m)
42I-Bioswale	1,692	BH22-303	21.5	3	0.25
47-Bioretention	376	BH4A	46.8	32	1.30
47A-Bioretention	5,324	BH4A	265.0	152	1.04
47B-Bioretention	2,548	BH6	183.6	96	0.25
60-Bioswale	10,418	BH 22-112	186.1	22	0.24
60A-Bioretention	717	BH 22-112	36	33	0.40
65C-Bioswale	6,060	BH21-108	243.6	66	1.17
65D-Bioswale	1,224	BH21-108	103.5	12	0.30
67-Bioretention	2,437	22-306	236.7	284	0.25

Table 6.2-9: Summary of Proposed LID features

Catchment ID	Drainage area (ha)	LID Characteristics					
		LID Type	Ponding Depth (m)	Soil Depth (m)	Gravel Depth (m)	Total LID Depth (m)	Drawdown Time (hrs)
42I	0.17	Bioswale	0	0	0.30	0.30	16
47	0.04	Bioretention	0.16	1.20	0.26	1.62	48
47A	0.53	Bioretention	0.02	1.20	0.26	1.48	48
47B	0.25	Bioretention	0	1.20	0.26	1.46	48
60A	0.07	Bioretention	0.60	0.60	0.30	1.50	56
60	1.04	Bioswale	0	0	0.30	0.30	56
65D	0.12	Bioswale	0	0	0.30	0.30	16
67	0.24	Bioretention	0	1.20	0.35	1.55	24
65C	0.61	Bioswale	0	0	0.30	0.30	56

Figure 6.2-1: Bioswale 65 Cross Section

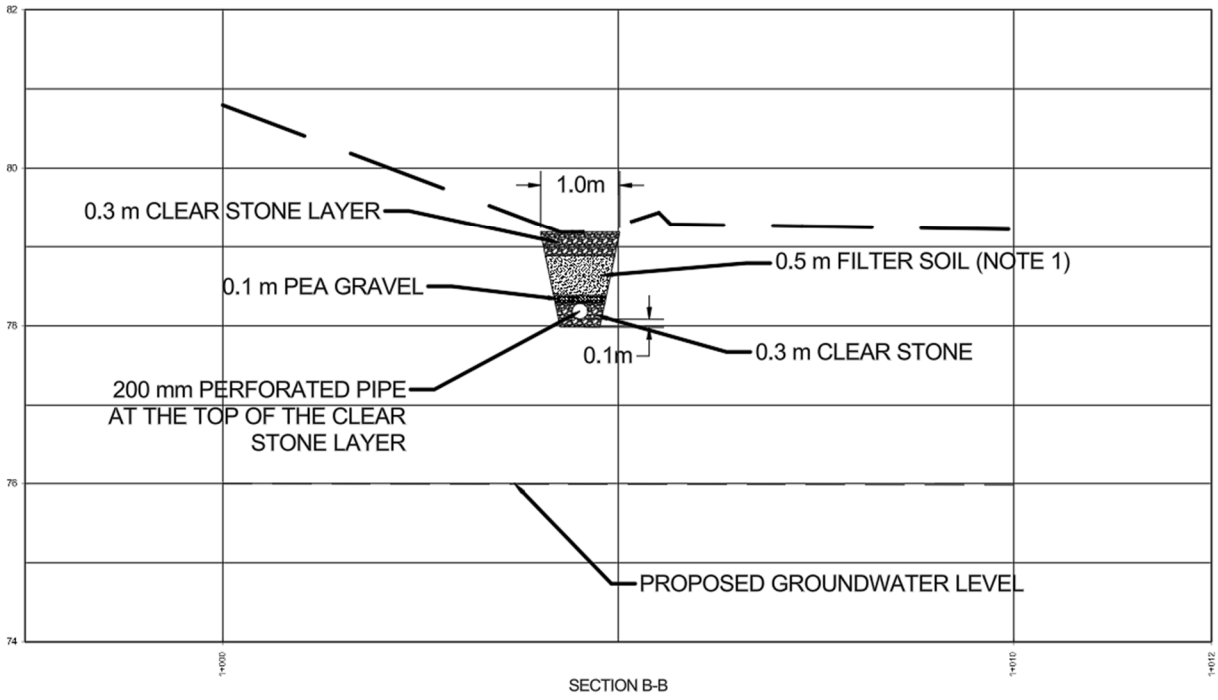
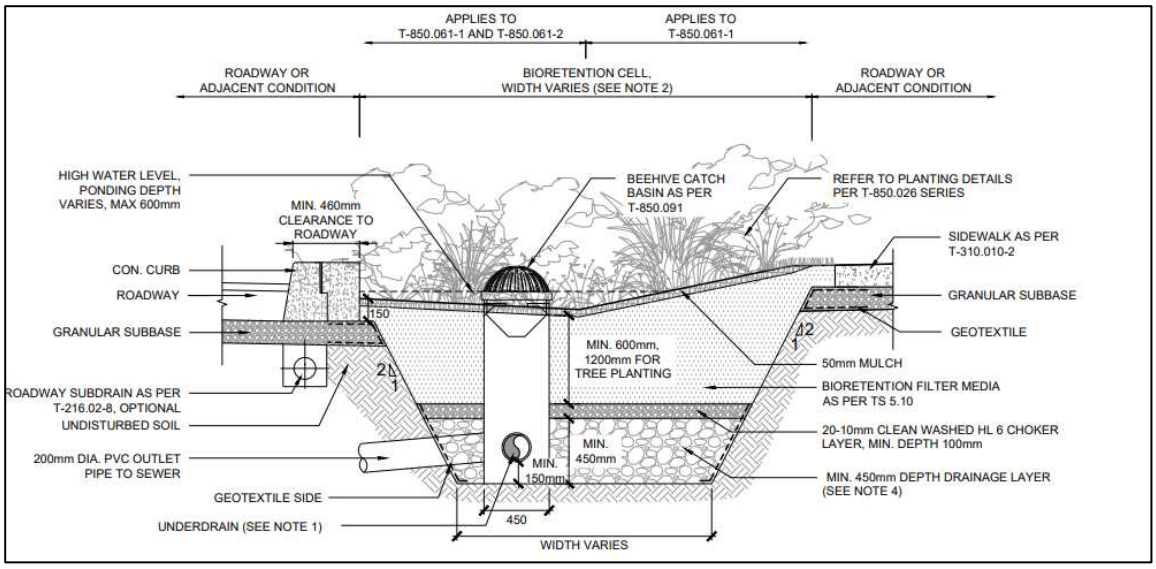


Figure 6.2-2: Proposed Bioretention Cell



5.4.5 Water Quality

According to the National Capital Commission Stormwater Management Manual requires the proponent to minimize or improve surface water and groundwater quality, to minimize sediment loading to surface water and groundwater, to maintain or enhance the quality of drinking water sources, and to maintain or enhance existing thermal watercourse regimes.

To improve runoff quality, runoff generated on site is proposed to be treated via a treatment train approach. LIDs will collect and filter runoff before being collected by the proposed storm sewers and through a water quality treatment unit. The proposed LIDs have been sized to accept 25 mm of runoff from impervious surfaces. The first 25 mm of runoff during a rainfall event is referred to as the first flush. The first flush is the initial runoff which contains higher concentration of pollutants. By capturing and filtering the first flush the TSS directed to the outlet from these subcatchments is minimal.

The drainage swales used primarily for conveyance will be enhanced swales, offering TSS removal through the linear run of water. Vegetation in the swale slows the water to allow sedimentation, filtration through the root zone and soil matrix, evapotranspiration, and infiltration into the underlying native soil. Simple grass channels or ditches are conventionally used for stormwater conveyance, particularly for roadway drainage. Enhanced swales incorporate design features, such as modified geometry, gentle slopes, check dams, flat bottoms, vegetation, etc., that improve the contaminant removal processes by reducing both runoff flow rate velocities and runoff volumes as compared to simple grass channel and roadside ditch designs. The locations of the enhanced swales are shown in the following locations and noted in Figure 6.2- 3:

- Behind the loading dock retaining wall, outletting north.
- In front of the Advanced Works retaining wall along the southern Road East
- On the north side of Road E, amongst the proposed southern parking lots in the future UOHI area
- On the north-west corner of the loading dock area

Please refer to Detail 1 on drawing C1-901 highlighting the typical cross-section of an enhanced swale. This same detail is shown in Figure 6.2-4. As the grading design is finalized moving into the 95% developed design phase, detailed cross-sections of the enhanced grassed swales at each location will be provided.

Figure 6.2-3: Swale Locations on Site

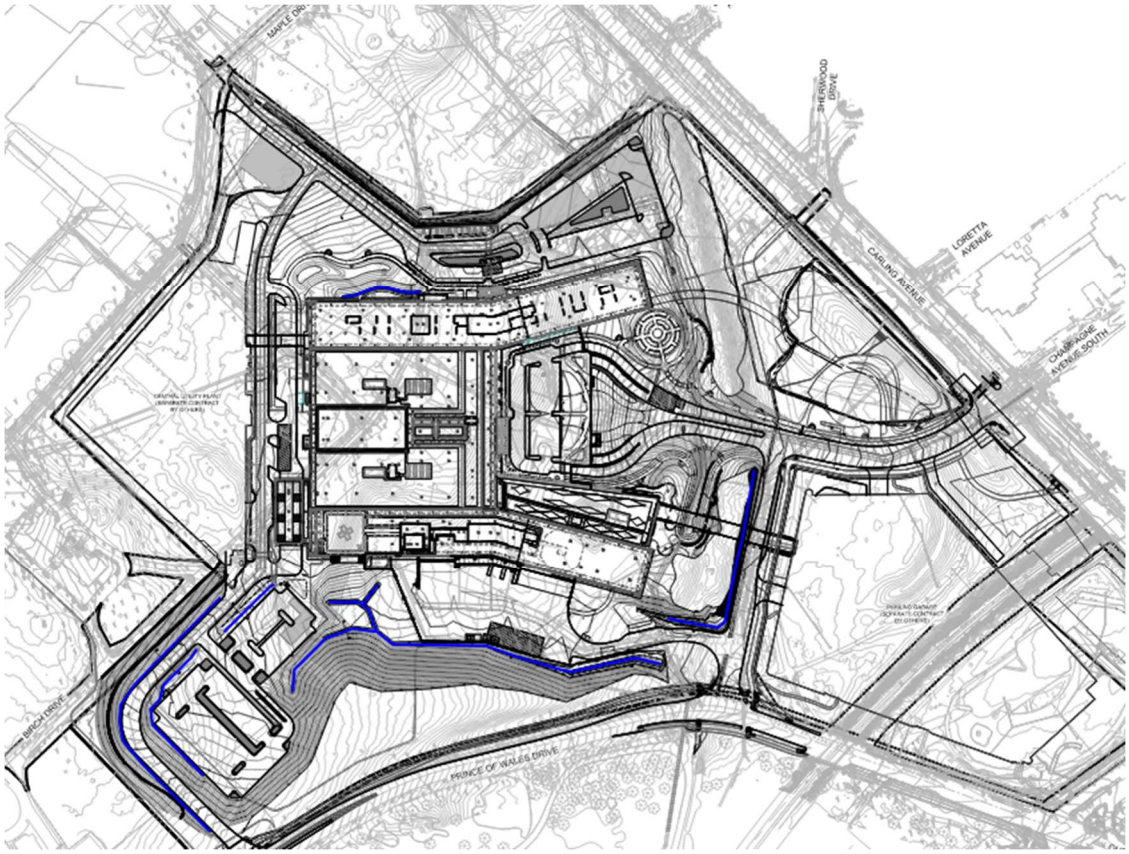
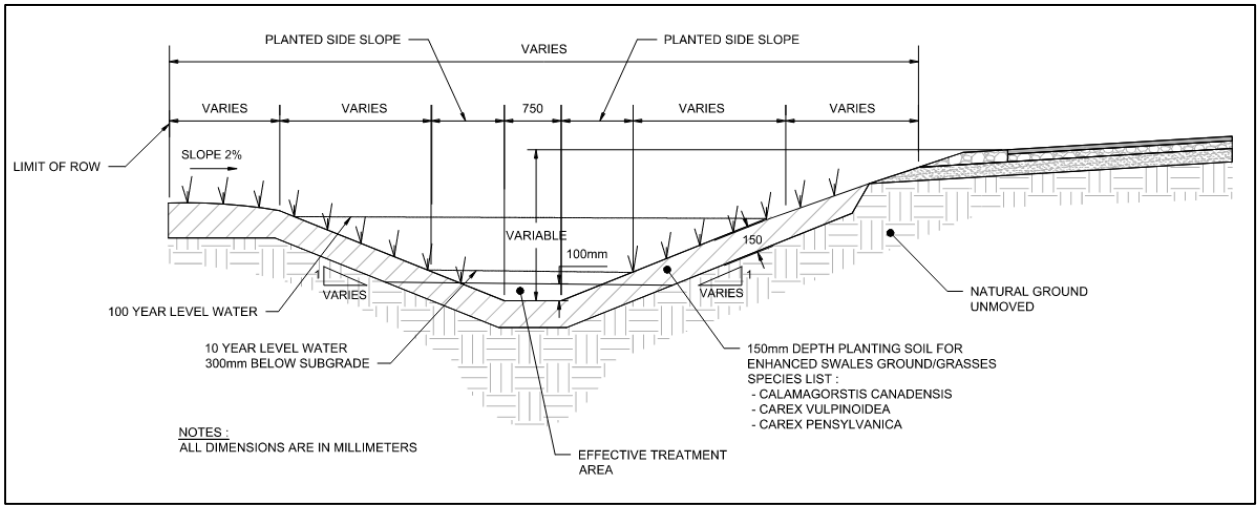


Figure 6.2-4: Enhanced Conveyance Swale Detail



Once runoff is collected by the proposed sewers, an Oil and Grit Separator (OGS) is proposed to treat runoff before entering Dow's Lake. Due to the large drainage area which is directed through the proposed sewer multiple OGS units in parallel are recommended to treat runoff. Three (3) Imbrium EFO 12 units in parallel are recommended to treat runoff.

For information regarding post-construction stormwater monitoring, in particular to the Dow's Lake outlet point, a stormwater monitoring program is under development, informed by feedback provided by Authorities Having Jurisdiction.

Please refer to the draft monitoring program *New Campus Development – Baseline, During, and Post-Construction Stormwater Monitoring Program, (Parsons, October 2024).*

5.4.6 Water Balance – Annual Volumetric Discharge

The relevant Authorities Having Jurisdiction (AHJ) for this project, including the National Capital Commission, Park's Canada, and Agri-Canada have noted that there is concern about the sensitivity of the receiving water body, Dow's Lake. The AHJ expectation is that there is no increase in annual flows to Dow's Lake because of the Civic Hospital development. To demonstrate the volumetric impacts to Dow's Lake, the same water balance approach from Section 6.2.4 was analyzed over an average year of precipitation. This annual analysis only includes stormwater flows because of the project development site and does not include groundwater, which would be interacting with the lake water underground in existing conditions regardless.

The Advanced Works storm sewer outlets into Dow's Lake through an existing headwall located on lands owned by Parks Canada. Refer to Figure 6.2-5 for the location of the outlet in summer months and Figure 6.2-6 for the location of the outlet in winter months, in comparison to the Rideau Canal Skateway skating surface. Note that the outlet is approximately 250 m from the skating surface.

Figure 6.2-5: Location of Existing Dow's Lake Outlet

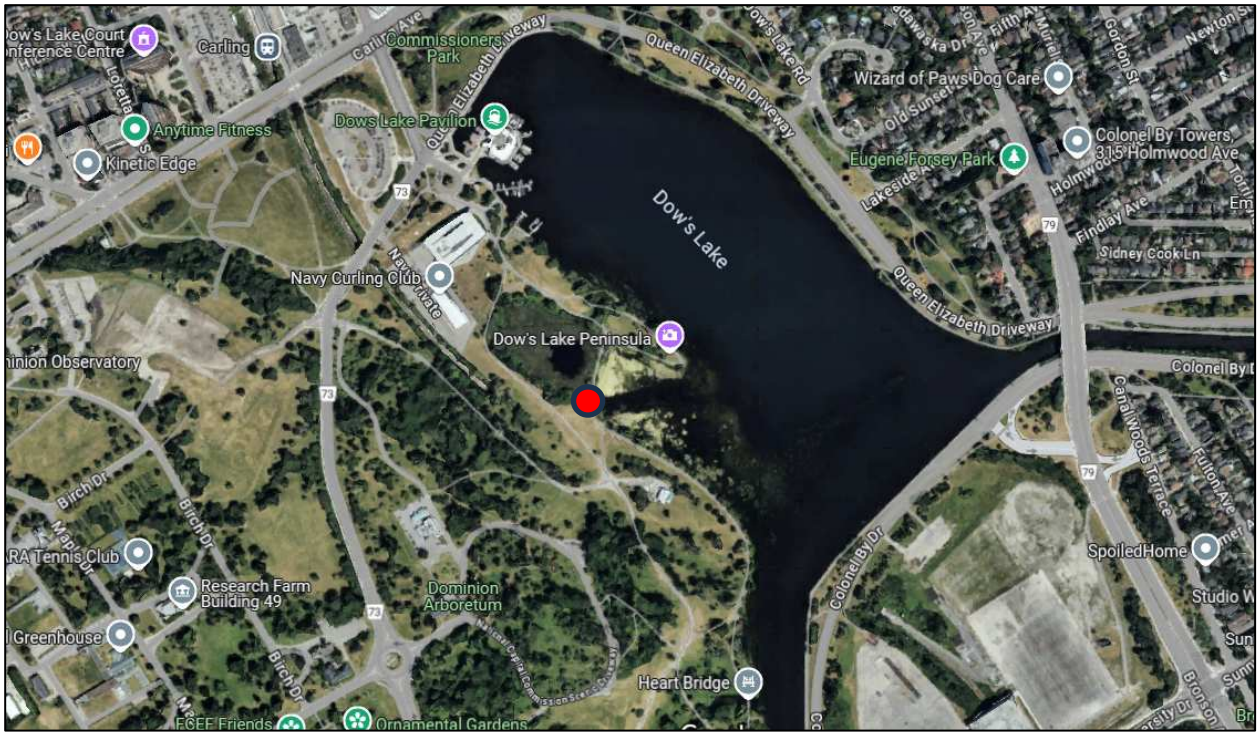


Figure 6.2-5: Location of Existing Dow's Lake Outlet

The existing ground conditions on site, detailed in Drawing C4-200 Pre-Development Drainage Area Plan, ultimately release 29,881 m^3 of uncontrolled runoff into Dow's Lake on an annual basis. The proposed development condition of the hospital, detailed in Drawing C4-201 Post-Development Drainage Area Plan, releases 65,545 m^3 of uncontrolled runoff into Dow's Lake. The volume difference from pre-development to post-development stems from the significant increase in impervious land use on site.

The net difference is the target for reuse, approximately 35,664 m^3 on an annual basis. As discussed in Section 6.2.4, this amount of reuse is aimed to be met through infiltration and irrigation. The infiltration on the site is constrained by the elevation of the groundwater table in post-development conditions, as 1.0m clearance is recommended between the bottom of any infiltration gallery and the groundwater table, and the infiltration rate of the soils on site. Irrigation will be supplied by the four stormwater retention tanks, one located on each side of the hospital, to serve the various soft landscape and landscape zones required on the project.

An annual water balance analysis for the site has been completed using the method developed by Thornthwaite and Mather in 1957. The annual analysis which demonstrates that the site is not capable of meeting pre-development runoff volumes, the post development vs predevelopment water balance is presented below in Table 6.2-9. Overall, on an annual basis, the runoff volume will increase by 8,747 m^3, a 9% increase in runoff over existing conditions.

Table 6.2-9: Post vs Pre Annual Water Balance

Hydrologic Cycle Components	Pre-Development Conditions		Post-Dev. Conditions with Mitigation Measures		Difference	
	%	m^3	%	m^3	%	m^3
Infiltration	17.0%	16,597	21.2%	20,673	4,076	24.6%
Evapotranspiration	54.0%	51,107	39.2%	38,284	-12,823	-25.1%
Runoff	30.6%	29,881	39.6%	38,628	8,747	29.3%
Precipitation	100%	97,585	100%	97,585	0	0.0%

Refer to Appendix J for Water Balance calculations.

A Salt Management Plan has been prepared for the proposed site. The Salt Management Plan will provide context on the design choices made by the Dev Co team to help reduce the salt burden on the project site and will also provide recommendations on salt maintenance to further reduce salt impacts. The Salt Management Plan shall be updated and further informed by the owner's operation and practices. Please see Appendix K for the draft report.

5.4.7 Erosion and Sediment

Preliminary outlet protection calculations for the outlet to Dow's Lake are available in Appendix J of Parson's SWM Report, dated October 2024. The calculations outline a riprap apron which will spread the flow from the outlet before entering Dow's Lake. Park's Canada has indicated during the AHJ Stormwater Presentations that they will review the requirement for rip-rap following completion of detailed design of Phase 4.

5.4.8 Hydrologic and Hydraulic Modelling Software

The modelling software deemed most suitable for this type of analysis is the dynamic hydrology-hydraulic water quality simulation model PCSWMM by Computational Hydraulics International (CHI). This software package acts as a graphical front-end interface for the US Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) engine. It is capable of dual-drainage (major/minor system) modelling and design, including dynamic interaction of dual systems. The software version used for the analysis was PCSWMM 2020, version 7.7.3895.

Hydraulic Parameters

The parameters used in the PCSWMM model are outlined in the following tables.

Table 6.2-2: Model Parameters – Rainfall

Parameter	Value
IDF	City of Ottawa
Design Storm Distributions	City of Ottawa 24-hour & 3-hour Chicago
Return Periods	2-year, 5-year, 100-year & 100yr+20%

Table 6.2-3: Model Parameters – Sub-catchment

Parameter	Value	Units
Flow Length	Manually Measured	m
Impervious	Percentage imperviousness values have been measured	%
N_{IMPERV}	0.016	-
N_{PERV}	0.15	-
D_{STOR} Imperv	1	mm
D_{STOR} Perv	5	mm

Table 6.2-4: Model Parameters - Infiltration

Parameter	Value	Units
Infiltration Model	Horton	-
Max Infiltration Rate	76.2	mm/hr
Min Infiltration Rate	13.2	mm/hr
Decay	4.14	-
Routing Method	Dynamic	-

Minor System

The minor system was defined based on the Parson's model "Partial Green Roof_ November-2023.pcz". The model included the "Advance works" minor system as well as the proposed minor system discharging into three outlets including Nepean Bay trunk, Preston Street Sewer, and Dow's Lake. The minor system has been updated as per Parson's Advanced Works drawing package dated September 2024 and SWM report dated October 2024.

Major System

The major system was defined based on the cross sections and the proposed re-grading elevations shown within the Parson's model. In this model, the junction nodes used to define the slopes of the road-conduits and have been set to provide a constant fall from high points to catchbasin locations at low points. The minor system has been updated as per Parson's Advanced works drawing package dated September 2024 and SWM report dated October 2024.

Drainage to Major/Minor System

Catchments that were determined to have controls that restrict major flow were drained into the minor system, e.g. buildings tank outlets. Roadways were drained to the major system.

Modelling Connection

At each major system junction, an outlet was defined to represent the catchbasins, or the flow split between the major and minor system. Ideally each outlet should represent a single or double catchbasin in the model. However, for design simplification, a modular approach has been used, meaning that each outlet could represent a range catch basins, e.g. on outlet denoted by 3 represents 3 catchbasins in the model. This approach allowed for representing several catchbasins in the area through defining one outlet in the model. Rating curves were developed from the "Catch Basin Rating Curves – Guidance Document" prepared by the National research Council of Canada, dated March 3, 2023.

Modelling Assumptions

The subcatchments outlets, delineation, and runoff coefficients for areas beyond the main hospital site were sourced from the Advanced Works package and the Post-Development Drainage Area Plan found in drawing C4-201. Some subcatchments in the PCSWMM model will not match the catchments found in drawing C4-201, this is because multiple in the PCSWMM model multiple catchments are grouped together if their runoff is directed to the same outlet. This drawing has been included in Appendix J.

All outfalls to Dow's Lake were defined as a free outfall (i.e., under free-flow conditions), the assumption was that in designing the minor system, the receiving lake's water surface level has been lower than the invert of the pipes discharging into the lake. Therefore, the minor system will discharge into the lake without being submerged by a high lake water level. This condition is assumed to be a reasonable condition as the normal operating condition of the CSOs are generally not submerged. However, this assumption should be confirmed via records of observed lake levels.

Boundary Conditions: Outfalls were modelled as free flow to ensure the allowable peak flow is met regardless of downstream conditions. For Dow's Lake, this is likely an accurate assumption during normal conditions as the outfall is to a controlled waterway and is not submerged. If the maximum operating level of the canal during navigation season at Dow's Lake is provided, a check can be run in PCSWMM to ensure the system functions as intended. Similarly for the Nepean trunk sewer, the model can be checked with boundary conditions.

For all future design submissions, this modeling arrangement may be refined via new finalized/revised site plans, green roof arrangements, and updated data. The modeling approach is considered acceptable as it will slightly overestimate the amount of flow reaching each low point and is, therefore, more conservative.

5.5 Proposed Storm Servicing Design

5.5.1 Storm Service Connections

The proposed storm delineation zones, as per constraints and allowable storm drainage within the main hospital building, define the locations of the proposed service connections. Each delineation zone has a single service connection. The drainage boundaries shown in Figure 6.3-1 are consistent with the overall site post-development drainage plan, depicted in the C4-400 drawing. The service connection locations can be summarized as follows:

Tower A

- Two west connections into a stormwater management detention tank

Tower B (Loading Dock)

- Two east connections into a stormwater management detention tank

Main Entryway (Emergency Access)

- Two connections into a stormwater management detention tank

Podium Roof

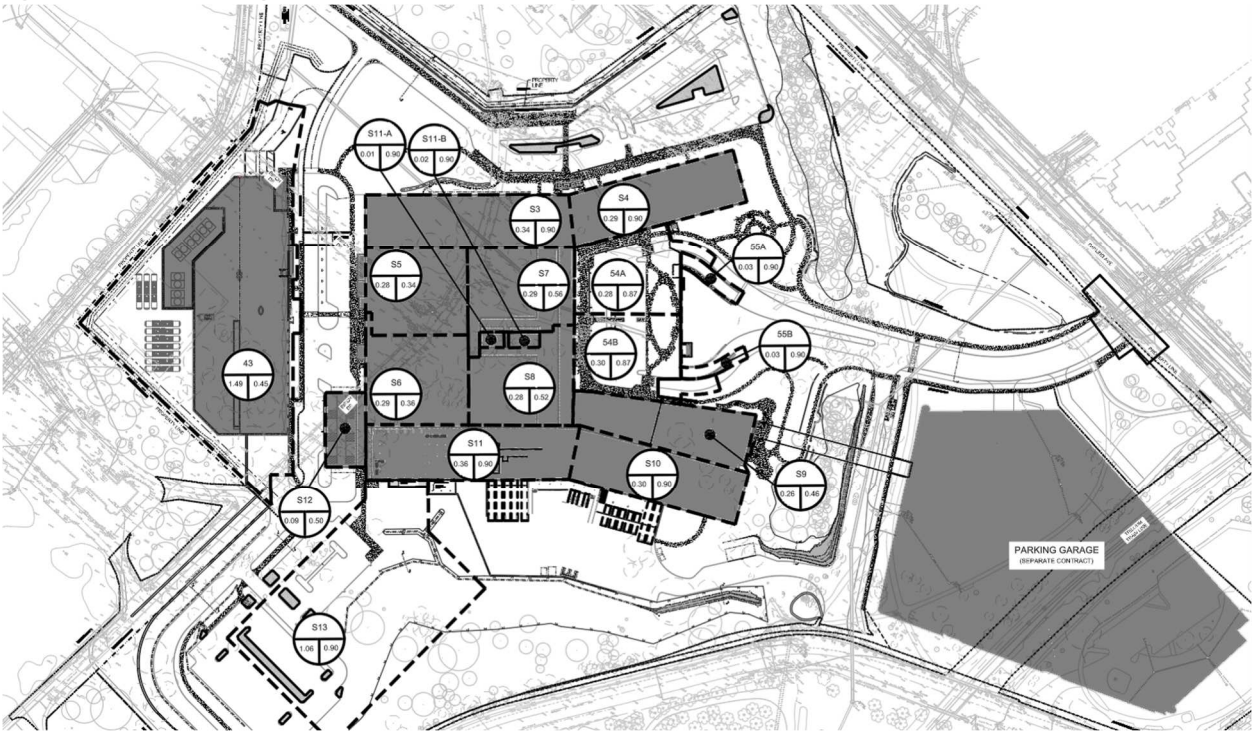
- Two south connections into a stormwater management detention tank

Ambulance Garage

- One west connection into the Podium Roof stormwater management detention tank

A post-development drainage area plan is available in the accompanying Engineering Drawings; however, the post-development drainage area plan aligns with the storm sewer to be able to assign drainage areas to each run of storm sewer to determine capacity. Some of the roof areas may drain to the same leg of NCD mainline storm sewer, so the catchment area would cover multiple service connections. To accurately determine the flow to each service connection, a more refined stormwater drainage catchment plan can be seen in Figure 6.3-1.

Figure 6.3-1: Storm Drainage Areas – Main Hospital Building



There are no proposed water detention devices on the roof of the main hospital building, which has portions of green roof. Runoff that is collected by roof drains on the proposed podium, pavilion, and tower roofs outlets through the internal building storm downspout system to various storm service connections on each side of the hospital. These storm service connections outlet into four stormwater detention tanks, one on each side of the building located underneath drive or parking surfaces and away from proposed plantings or at-grade structures. The tanks serve to provide water quantity control and water balance (retention) volume. The four tanks outlet into the mainline Advanced Works storm sewer, restricting the outlet rate to the allowable release rates of the overall system, as defined by the Advanced Works approvals.

The target design flows, as defined by the City of Ottawa Sewer Design Guidelines, are calculated using the Rational Method. This calculation is separate and unrelated to the internal building Mechanical Consultant flow calculations, which are to be completed as defined by the Ontario Building Code. As noted by the City of Ottawa Sewer Design Guidelines, Section 8.3.12 - Climate Change, the drainage system shall be stress tested using design storms calculated based on a 20% increase of the City's IDF curve rainfall values. This is in coordination with project requirements to design and construct storm sewers to capture the 100-year storm event if the overland flow route could be obstructed by future expansions within the site. As such, storm sewers proposed within the scope of Phase 3 and Phase 4 have been sized to accommodate the 100-year + 20% storm event.

To ensure proper pipe sizing, both flows have been listed in Table 6.3-1, the City of Ottawa Rational Method flow and the Ontario Building Code Mechanical consultant flow. The Rational Method flow calculation has been used for overall sewer flow capacity and allowable release rate calculations, as defined in the Stormwater Management Report, but the Ontario Building Code flow calculations is provided, with associated capacity, for context and continuity. Storm sewer design sheets can be viewed in Appendix G.

Table 6.3-1: Storm Service Flows

Storm Service Connection ID	5-Year Rate (L/s)	100-Year Rate + 20% (L/s)
S3 (TOWER A SOUTH)	88.63	227.84
S4 (TOWER A NORTH)	75.60	161.95
S5 (HOSPITAL SOUTHWEST)	28.39	60.81
S6 (HOSPITAL SOUTHEAST)	31.57	67.63
S7 (MIDDLE HOSPITAL)	171.48	367.33
S8 (MIDDLE HOSPITAL)	42.58	91.21
S9 (TOWER B WEST)	35.34	75.70
S10 (TOWER B EAST)	78.21	167.53
S11 (TOWER B SOUTH)	101.67	217.79
S12 (AMBULANCE GARAGE)	13.32	28.54

As per the Central Utility Plant current design, two stormwater service connections are present to service the facility. The flows from these two connections are listed per the drainage region breakdown and are denoted in Table 6.3-2.

Table 6.3-2: CUP and UOHI Storm Services Flows

Storm Service Connection ID	5-Year Rate (L/s)	100-Year Rate + 20% (L/s)
S1 (CUP NORTH)	162.08	269.53
S2 (CUP SOUTH)	116.55	158.29
S13 (UOHI)	276.33	591.95

5.5.2 Loading Dock Trench Drains

On the eastern side of the main hospital building, along the limits of Tower B, is the hospital loading dock area. This area contains multiple loading bays for various design vehicles to access the main hospital building. To accommodate the bays with the elevation of the interior floors, a number of the loading bay docks are sloped down toward the hospital, meaning that any overland flow in this region would flow backwards against the building. To remedy this, trench drains have been proposed at the bottom of each of the loading bays as well as at the end of the hearse parking area.

As the elevation of these loading bays is too low to accommodate gravity drainage back to the storm sewers located further east, the trench drains are to be drained locally via gravity to a small pumping station, where the trench drain flows will be lifted before discharging again by gravity to the storm sewer to the east. Refer to Drawing C3-400 in the Site Servicing package for details of the design and layout.

Figure 6.3-2: Trench Drain Design – Tower B South

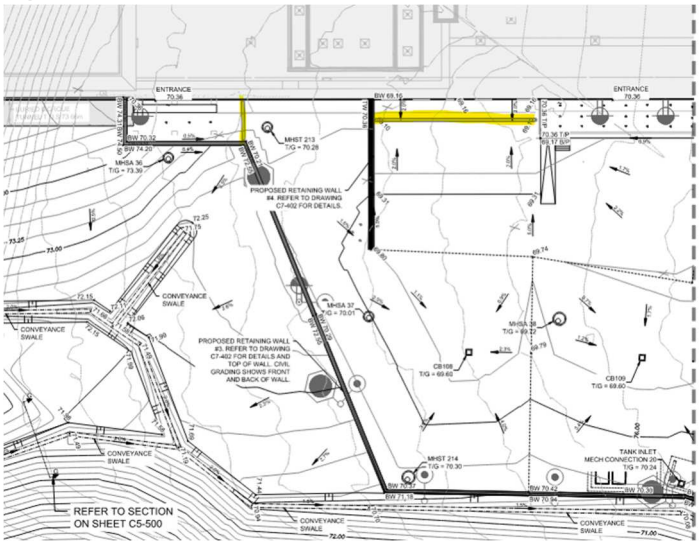
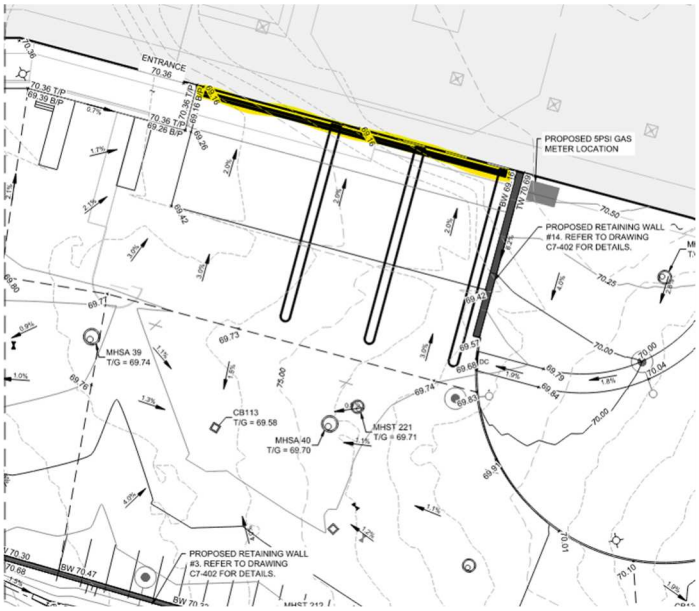


Figure 6.3-3: Trench Drain Design – Tower B East



5.6 Catch Basins and Drains

5.6.1 Catch Basin Spacing

WSP has updated the catch basin spacing and inflow calculations to suit the design at 95% Design Development. Please see Appendix N for detailed design calculations.

5.6.2 Area Drains

There are six area drains provided in the at the Main Entryway to drain the at-grade parking structure. The flows from these drains will be directed by mechanical to the two service connections provided at the Main Entryway. Please see the mechanical report and drawing set for more information.

There are also three (3) area drains in the pavilion dining area. The area drains capture flows and direct them towards the advanced works storm sewer to Dow's Lake. See the dynamic inlet capacity charts provided by the supplier in Appendix O for reference.

5.7 Vertical Lift Stations

There is a single pump station required in the loading dock. The remainder of the external flows shall drain by gravity.

The pump station will be a packaged sewer lift - wet well type. See specification 33 32 13.13 for details on the lift station as well as drawing C1-202 for details.

5.8 Erosion and Sediment Control

Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction. Silt fences will be installed around the perimeter of the site and will be cleaned and maintained throughout construction. Silt fences will remain in place until the working areas have been stabilized or re-vegetated. Catchbasins will have filter fabric installed under the grate during construction to protect from silt entering the storm sewer system. Mud mats are to be installed at the construction access point(s) to prevent mud tracking onto adjacent roads.

Erosion and sediment controls must be in place during construction. The contractor shall implement best management practices, to provide for protection of the area drainage system and the receiving watercourse, during construction activities. The contractor acknowledges that failure to implement appropriate erosion and sediment control measures may be subject to penalties imposed by any applicable regulatory agency. The following recommendations to the contractor will be included in the erosion and sediment control plan:

- Limit extent of exposed soils at any given time;
- Re-vegetate exposed areas as soon as possible;
- Minimize area to be cleared and grubbed;
- Install silt fence to prevent sediment from entering existing conveyance systems;
- No refueling or cleaning of equipment near the receiving ditch;
- Installation of filter cloth between frame and cover of catchbasins;
- Provide sediment traps and/or basins during dewatering;
- Establish material stockpiles away from watercourses; and
- Plan construction at proper times to avoid flooding.

The following practices should be followed after every rainfall to guarantee proper performance:

- Verify that water is not flowing under silt fences;
- Built-up material should be removed when it reaches a depth equal to half the height of the fence;
- A visual inspection shall be completed daily on sediment control barriers and any damage repaired immediately, and in some cases barriers may be removed temporarily to accommodate the construction operations; affected barriers will be reinstated at night when construction is completed;

If the environmental inspectors believe that additional prevention methods are required to control erosion and sedimentation, construction staff will install additional silt fences or other methods as required; and Construction and maintenance requirements for erosion and sediment controls to comply with Ontario Provincial Standard Specification OPSS 577, and City of Ottawa specifications

5.9 Monitoring and Mitigating Thermal Impacts on Dow's Lake

DevCO has provided six presentations to the NCC and Parks Canada to help aid the discussion and review of Stormwater and Groundwater:

1. Stormwater and Groundwater Presentation 01: 2024-06-17
2. Stormwater and Groundwater Presentation 02: 2024-08-22
3. Stormwater and Groundwater Presentation 03: 2024-11-13
4. Stormwater and Groundwater Presentation 04: 2025-06-09
5. Stormwater and Groundwater Presentation 05: 2025-07-08
6. Stormwater and Groundwater Presentation 06: 2025-07-23

The intent of these meetings was to discuss the stormwater management strategy and outstanding comments from the AHJs. The critical comment to be resolved was in relation to the impacts of groundwater to both flows, volumes and temperature on Dow's Lake. This resulted in the delivery of a Stormwater Management Memorandum dated July 29, 2025, which was provided to the NCC in support of the NCC board submission materials. The memorandum served as an intermediary submission between 65DD and 95DD which is now retired with the issuance of 95DD. The findings and recommendations found within the memorandum have been included in this report.

The memorandum and presentations relied upon the findings of the 65DD geotechnical report prepared by Paterson for post-construction groundwater contours and flows. The findings and solutions of this section rely upon the estimated groundwater flow and subdrain designs as provided by others. For the most current information relating to groundwater for this site, please refer to the 95DD Geotechnical and Hydrogeological report dated September 19, 2025.

5.9.1 Estimated Groundwater Flows

The current estimates are provided for 95DD and as presented at the July 23rd NCC Meeting are as follows:

- Current Main Building Groundwater Estimate: Based on the existing information, it is expected that the long-term volumes that the exterior perimeter drainage system would handle would vary between 200 000 L/day (2.3 L/s) to 350 000 L/day (4.1 L/s) should this option be selected. The volume would consist of surface water generated from snowmelt, heavy rainfall and spring thaw of subsoils
- Current Full Campus (including all sub-projects): Long-term groundwater control - Systems should be designed to handle up to 400,000 L/day (4.6 L/s) or 750,000 L/day (8.7 L/s)

Therefore, for the mitigation strategies, a conservative estimate of 850,000 L/Day (9.83 L/s) for design.

5.9.2 Thermal Impacts of Groundwater and Stormwater

Groundwater measurements and studies are ongoing with the project. Parson's is currently completing a stormwater monitoring program which has been provided to the NCC previously.

Please note that currently, groundwater flows to Dow's Lake via the project parcel and no at-grade storage of groundwater is planned. Therefore, the temperature of the discharge should match the current temperatures within reason. It is recommended to continue monitoring throughout the construction and post-construction phase(s) to confirm the proposed mitigation strategies are working as intended or need adjustment.

Stormwater storage on site will be managed underground. This limits thermal impacts and maintains cooler stormwater temperatures in the summer, as opposed to traditional stormwater management strategies such as wet ponds or surface detention over impervious surfaces (i.e. parking lot detention, temporary roof detention). Parson's is currently completing

a stormwater monitoring program which involves tracking the temperature of Dow's Lake at the outlet from the site. For more information on temperature tracking, please refer to the Parson's stormwater monitoring report.

5.9.3 Mitigation and Monitoring Options Analysis

At this stage of the project, it is understood that passive drainage will be utilized throughout the site with a combination of subdrains collecting groundwater as well as the flows from various sump pits across the site. The site is not intended to be actively dewatered in permanent conditions as it is during construction. The current estimate for the full campus steady state groundwater discharge in the permanent condition is between 400,000 L/day and 750,000 L/day (4.5 – 8.7 L/s), and 200,000L/day and 450,000 L/day for just the main building (65DD Paterson Geotechnical Report).

It may not be possible to confirm the exact volumes of groundwater entering directly from the parcel monthly to a degree of confidence that will satisfy that no thermal impacts will occur. Therefore, it is a suggested mitigation measure to install a diversion and monitoring system to redirect groundwater flows in the winter months.

There are two methods of diversion that were proposed to the AHJ: Option 01 – Dedicated Groundwater and Option 02 – Storm Sewer diversion. Please note that both options were presented and described in the July 23rd meeting with the NCC. While the two options have their own pros and cons, there are numerous similarities:

1. A diversion mitigation allows for the removal of a portion of the captured groundwater flows in the winter months which mitigates some of the risk of groundwater from the site increasing the temperature of Dow's Lake
2. Both options will utilize an orifice plate set to 10 L/s which limits the amount of flow going to the City, but is expected to allow enough flow within the estimates as currently available
3. Both options have the flexibility to increase or decrease from 10 L/s down the line with approval of all parties by modifying the orifice plate if continuous monitoring identifies an issue.
4. Both options are proposed to have a quality treatment unit (currently proposing a JF4 jellyfish unit) for treatment prior to discharge to the City sewer
5. Both options would utilize sluice gates to allow for flow diversion only within certain months
6. Both options should include continuous flow monitoring at both the final storm manhole prior to exiting site to Dow's Lake as well as at the connection to the Road A Storm Sewer to measure flows to the City. Refer to Parson's stormwater monitoring program for additional information on the current monitoring taking place
7. Both options can be installed utilizing construction techniques (such as a doghouse manhole) which allow the diversion to be installed even after the advanced work storm sewer is in place
8. Both options require approval from the City of Ottawa which has not yet been obtained.

Option 01 – Dedicated Groundwater Diversion

The intention is to provide a connection for the main hospital subdrain to drain into a separating manhole upstream of the sewer connection. This allows for two connections to be provided: one to the advanced works storm sewer (to Dow's) and one to a new pipe carrying flows down Road A (to the Nepean Bay Trunk Sewer). The separating manhole will contain two sluice gate which allow flows to travel to either the City system or Dow's Lake. Given the periods of ice formation for the NCC Skateway the sluice gate to the City is proposed to be open between December 1st and March 15th. This ensures that groundwater collected by the main building is collected and distributed to the City Sewer. The benefits and disbenefits of this solution are as follows:

Benefits

1. Only groundwater will be diverted to the City storm sewer (dedicated system)

Disbenefits

1. There are numerous other subdrains on site (loading dock, roadway subdrains, landscaping subdrains, CUP and Retaining Walls) that would not be captured by this method. Based on the current Hydrogeological estimates as provided by Paterson it appears that only 25-50% of the groundwater is anticipated to be captured by this system; 50-75% of the groundwater on site would likely bypass the diversion.
2. Requires more piping and an additional sluice gate

Option 02 – Storm Sewer Diversion

Option 02 follows many of the same principles as Option 01. The primary difference is to intercept and divert groundwater flows from the advanced works storm sewer system as opposed to collecting them from the perimeter subdrain. The benefits and disbenefits of this solution are as follows

Benefits

1. More likely to hit 10 L/s of diverted flow as a greater percentage of the site subdrains will be captured. It will not be possible to divert all subdrains, but far more connections are intercepted by Option 02 than Option 01.
2. Less piping than Option 01 and only one sluice gate

Disbenefits

1. Unable to guarantee that the water will be entirely groundwater (i.e., there may be snow melt in the winter months during periods of warmer weather) but the quantity will be limited to 10 L/s, and quality treatment will be provided.

After review of the options, it was determined that Option 02 is the preferred option. Since the submission on July 29th, 2025, Option 02 has been modelled and can be found on design drawing C1-202 of the 95DD drawings.

Operational Considerations

NCC and DevCO had a productive conversation on July 23rd outlining how the mitigation system would operate. The sluice gate has awheel which allows for opening and closing. This is proposed to be carried out twice yearly, but may be modified should the continuous monitoring yield results requiring a change (in approval with TOH, City and NCC):

1. Open Sluice Gate to send up to 10 L/s to City – Nov 30
2. Close Sluice Gate returning flows to Dow's Lake – Mar 15

The NCC raised a valid concern in the July 23rd meeting inquiring if operation of the sluice gate would close the existing lane from the main entry. The intent is for the access lid to be within the roadway to ensure that it is accessible during the winter months. Placement of the entry lid to the diversion manhole will be set through design to ideally allow a partial closure of the lane with a detour, to allow traffic to continue to flow. It is anticipated that the closure would last less than two hours and could be completed in off-peak hours.

Continuous monitoring data should be tracked by the hospital's facility management team and distributed for review to both the City and the NCC at agreed upon intervals.

5.9.4 Next Steps

The mitigation strategy will need to be reviewed and accepted by the City. It is understood that the next opportunity for review and discussion will occur following the Site Plan Control Resubmission milestone for the project. Given that the mitigation measure can remain closed until approved, it is recommended that it be constructed and that the data collected from the continuous monitoring of the system be utilized to evaluate the effectiveness of the solution and help determine any modifications that need to be made (I.E. alteration of orifice plate sizing for flow release, changing of timing of sluice gate operation etc.).

6.0 APPROVALS

6.1 Permits and Approvals

The following approvals and permits are anticipated to be required for the proposed development. Note that due to the split scope between Phase 4 and Phase 3: Advanced Works, some or all of the below permits may be required under the Advanced Works scope.

1. City of Ottawa Site Plan Agreement
2. City of Ottawa Commence Work Order
3. City of Ottawa Water Permit
4. City of Ottawa Water Data Card
5. City of Ottawa Flow Control Roof Drainage Declaration
6. Ministry of the Environment, Conservation and Parks Environmental Compliance Approval
7. Ministry of the Environment, Conservation and Parks Permit to Take Water
8. National Capital Commission Federal Land Use and Design Approval

Note that the governing Conservation Authority, the Rideau Valley Conservation Authority, does not have an outright permit or approval required, but they do enforce an 80% Total Suspended Solids Removal. Similar to the National Capital Commission, the Rideau Valley Conservation Authority requires best management practices for water treatment and promotes the usage of Low-Impact Development.

7.0 CONCLUSION

In summary, stormwater, sanitary, and watermain site servicing connections are proposed to accommodate the Phase 3 design of the New Civic Development for The Ottawa Hospital. The service connections accommodate the future buildout of the Main Hospital Building, the Central Utility Plant, and the future University of Ottawa Heart Institute. The servicing connections have been designed in compliance with federal, local, and project governing criteria.

The site grading and stormwater management design has been completed for the 95% Developed Design level. The accompanying engineering drawings and stormwater management report depict the overall design of the scope and discuss the relevant stormwater management parameters.

Future iterations of this report, for subsequent and upcoming design submission milestones, will include a comment matrix in an Appendix for all open and provided comments by various review agencies and stakeholders. Project and WSP responses will accompany all previous comments.

WSP Canada Inc trusts that the above information and design is complete and satisfactory. If you have any questions, comments, or concerns, please do not hesitate to contact the undersigned.

Colin Graham, P. Eng, PMP
Senior Project Engineer
Municipal Engineering & Land Development
WSP Canada Inc.
Ottawa, Ontario

APPENDIX A: CIVIL DOMESTIC WATER DEMANDS

WATER DISTRIBUTION - DISTRIBUTION DEMANDS

PROJECT: NEW CIVIC DEVELOPMENT FOR THE OTTAWA HOSPITAL
PROJECT NUMBER: CA0021243.8764
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Site Information

Address:	New Civic Development - The Ottawa Hospital	
Area	82429	m^2
Area	8.24	ha

Distribution Demands

Consumption Rates via Table 4.2

Residential =	350	L/c/d
Industrial - Light =	35000	L/gross ha/d
Industrial - Heavy =	55000	L/gross ha/d
Com.Indu - Shopping Centre =	2500	L/(1000m2/d)
Com.Indu - Hospital =	900	L/(bed/d)
Com.Indu - School =	70	L/(student/d)
Com.Indu - Trailer Park =	340	L/space/d)
Com.Indu - Trailer Park (w HU) =	800	L/space/d)
Com.Indu - Campground =	225	L/(campsite/d)
Com.Indu - Mobile Home =	1000	L/(Space/d)
Com.Indu - Motels =	150	L/(bed-spce/d)
Com.Indu - Hotels =	225	L/(bed-spce/d)
Commercial - Tourist =	28000	L/gross ha/d
Commercial - Other =	28000	L/gross ha/d

Unit Populations	Persons/Unit
Single Famil =	3.4
Semi-Detacl =	2.7
Duplex =	2.3
Townhouse =	2.7
Bachelor =	1.4
1 Bedroom =	1.4
2 Bedroom =	2.1
3 Bedroom =	3.1
Average Apt =	1.8

Maximum Daily Demand:

Residential =	2.5	x	average day	L/c/d
Industrial =	1.5	x	average day	L/gross ha/d
Commercial =	1.5	x	average day	L/gross ha/d
Institutional =	1.5	x	average day	L/gross ha/d

Maximum Hour Demand:

Residential =	2.2	x	maximum day	L/c/d
Industrial =	1.8	x	maximum day	L/gross ha/d
Commercial =	1.8	x	maximum day	L/gross ha/d
Institutional =	1.8	x	maximum day	L/gross ha/d

Distribution Demands	**Calculations Design Build-Out**		**Calculations Ultimate Build-Out**		**Justifications**
Residential? =	No		No		Not a residential site.
If Yes, Unit Population =	0	Persons	0	Persons	
If No, Demand Type =	Com.Indu - Hospital		Com.Indu - Hospital		Per Ottawa Design Guidelines - Water Distribution Table 4.2 - Other - Commercial
Average Day Demand =	900	L/bed/day	900	L/bed/day	Per Ottawa Design Guidelines - Water Distribution Table 4.2 - the Average Day Demand of a Commercial - Industrial Hospital is 900L/bed/day
Beds =	**689.00**	**Beds**	**1,147.00**	**Beds**	Approximately 689 Inpatient Beds in NCD as per PSOS. Final Bed count for the total build out is 1147.
A. Average Daily Flow					
Average Daily Flow =	900 x 689		900 x 1147		
=	620,100	L/day	1,032,300	L/day	
=	**7.18**	**L/s**	**11.95**	**L/s**	
B. Maximum Daily Demand					
Daily Demand Type =	Industrial		Industrial		Commercial and Industrial have the same maximum daily factor coefficient.
Max. Daily Factor =	1.5		1.5		
Maximum Daily Demand =	1.5 x	average day	1.5 x	average day	
=	1.5 x	620,100	1.5 x	1,032,300	
=	930,150	L/day	1,548,450	L/day	
=	**10.77**	**L/s**	**17.92**	**L/s**	
C. Maximum Hour Demand					
Hour Demand Type =	Industrial		Industrial		Commercial and Industrial have the same maximum daily factor coefficient.
Max. Hour Factor =	1.8		1.8		
Maximum Hour Demand =	1.8 x	maximum day	1.8 x	maximum day	
=	1.8 x	930,150	1.8 x	1,548,450	
=	1,674,270	L/day	2,787,210	L/day	
=	**19.38**	**L/s**	**32.26**	**L/s**	

TOTAL MAIN HOSPITAL BUILDING	**Design Build-Out Demands**		**Ultimate Build-Out Demands**	
Average Daily =	7.18	L/s	11.95	L/s
Max Daily =	10.77	L/s	17.92	L/s
Max Hourly =	19.38	L/s	32.26	L/s

WATER DISTRIBUTION - DISTRIBUTION DEMANDS

PROJECT: NEW CIVIC DEVELOPMENT FOR THE OTTAWA HOSPITAL
PROJECT NUMBER: CA0021243.8764
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Site Information

Address:	New Civic Development - The Ottawa Hospital	
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Area	8.24	ha

Distribution Demands

Consumption Rates via Table 4.2

Residential =	350	L/c/d
Industrial - Light =	35000	L/gross ha/d
Industrial - Heavy =	55000	L/gross ha/d
Com.Indu - Shopping Centre =	2500	L/(1000m2/d)
Com.Indu - Hospital =	900	L/(bed/d)
Com.Indu - School =	70	L/(student/d)
Com.Indu - Trailer Park =	340	L/space/d)
Com.Indu - Trailer Park (w HU) =	800	L/space/d)
Com.Indu - Campground =	225	L/(campsite/d)
Com.Indu - Mobile Home =	1000	L/(Space/d)
Com.Indu - Motels =	150	L/(bed-spce/d)
Com.Indu - Hotels =	225	L/(bed-spce/d)
Commercial - Tourist =	28000	L/gross ha/d
Commercial - Other =	28000	L/gross ha/d

Unit Populations

		Persons/Unit
Single Family	=	3.4
Semi-Detached	=	2.7
Duplex	=	2.3
Townhouse (Row)	=	2.7
Bachelor	=	1.4
1 Bedroom	=	1.4
2 Bedroom	=	2.1
3 Bedroom	=	3.1
Average Apt	=	1.8

Maximum Daily Demand:

Residential =	2.5	x	average day	L/c/d
Industrial =	1.5	x	average day	L/gross ha/d
Commercial =	1.5	x	average day	L/gross ha/d
Institutional =	1.5	x	average day	L/gross ha/d

Maximum Hour Demand:

Residential =	2.2	x	maximum day	L/c/d
Industrial =	1.8	x	maximum day	L/gross ha/d
Commercial =	1.8	x	maximum day	L/gross ha/d
Institutional =	1.8	x	maximum day	L/gross ha/d

Distribution Demands	**Calculations**			**Justifications**
Residential? =	No			Not a residential site.
If Yes, Unit Population =	0		Persons	
If No, Demand Type =	Industrial - Heavy			Per Ottawa Design Guidelines - Water Distribution Table 4.2 - Other - Commercial
				Industiral Heavy flows used to simulate the water demands for the Future University of Ottawa Heart Institute.
Average Day Demand =	55,000		L/ha/day	
				The approximate gross floor area for the build-out of the Future University of Ottawa Heart Institute is 9.29 ha.
Site Area =	**9.29**		**ha**	
A. Average Daily Flow				
Average Daily Flow =	55,000	x	9.29	
=	510,950		L/day	
=	**5.91**		**L/s**	
B. Maximum Daily Demand				
Daily Demand Type =	Industrial			Commercial and Industrial have the same maximum daily factor coefficient.
Max. Daily Factor =	1.5			
Maximum Daily Demand =	1.5	x	average day	
=	1.5	x	510,950	
=	766,425		L/day	
=	**8.87**		**L/s**	
C. Maximum Hour Demand				
Hour Demand Type =	Industrial			Commercial and Industrial have the same maximum daily factor coefficient.
Max. Hour Factor =	1.8			
Maximum Hour Demand =	1.8	x	maximum day	
=	1.8	x	766,425	
=	1,379,565		L/day	
=	**15.97**		**L/s**	

TOTAL	**FUTURE UNIVERSITY OF OTTAWA HEART INSTITUTE**	
Average Daily =	5.91	L/s
Max Daily =	8.87	L/s
Max Hourly =	15.97	L/s

WATER DISTRIBUTION - DISTRIBUTION DEMANDS

PROJECT: NEW CIVIC DEVELOPMENT FOR THE OTTAWA HOSPITAL
PROJECT NUMBER: CA0021243.8764
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION R
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Site Information

Address:	New Civic Development - The Ottawa Hospital	
Area	24000	m^2
Area	2.40	ha

Distribution Demands

Consumption Rates via Table 4.2

			Unit Populations		Persons/Unit
Residential =	350	L/c/d	Single Family	=	3.4
Industrial - Light =	35000	L/gross ha/d	Semi-Detached	=	2.7
Industrial - Heavy =	55000	L/gross ha/d	Duplex	=	2.3
Com.Indu - Shopping Centre =	2500	L/(1000m2/d)	Townhouse (Row)	=	2.7
Com.Indu - Hospital =	900	L/(bed/d)	Bachelor	=	1.4
Com.Indu - School =	70	L/(student/d)	1 Bedroom	=	1.4
Com.Indu - Trailer Park =	340	L/space/d)	2 Bedroom	=	2.1
Com.Indu - Trailer Park (w HU) =	800	L/space/d)	3 Bedroom	=	3.1
Com.Indu - Campground =	225	L/(campsite/d)	Average Apt	=	1.8
Com.Indu - Mobile Home =	1000	L/(Space/d)			
Com.Indu - Motels =	150	L/(bed-spce/d)			
Com.Indu - Hotels =	225	L/(bed-spce/d)			
Commercial - Tourist =	28000	L/gross ha/d			
Commercial - Other =	28000	L/gross ha/d			

Maximum Daily Demand:

Residential =	2.5	x	average day	L/c/d
Industrial =	1.5	x	average day	L/gross ha/d
Commercial =	1.5	x	average day	L/gross ha/d
Institutional =	1.5	x	average day	L/gross ha/d

Maximum Hour Demand:

Residential =	2.2	x	maximum day	L/c/d
Industrial =	1.8	x	maximum day	L/gross ha/d
Commercial =	1.8	x	maximum day	L/gross ha/d
Institutional =	1.8	x	maximum day	L/gross ha/d

Distribution Demands	**Calculations**			**Justifications**
Residential? =	No			Not a residential site.
If Yes, Unit Population =	0		Persons	
If No, Demand Type =	Industrial - Heavy			Per Ottawa Design Guidelines - Water Distribution Table 4.2 - Other - Commercial
				Per Ottawa Design Guidelines - Water Distribution Table 4.2 - the Average Day Demand of a Commercial - Other is 55,000L/s
Average Day Demand =	55,000		L/ha/day	
				As per the CAD the approximate area of the CUP site is 1.75ha.
Site Area =	**1.75**		**ha**	
A. Average Daily Flow				
Average Daily Flow =	55,000	x	1.75	
=	96,096		L/day	
=	**1.11**		**L/s**	
B. Maximum Daily Demand				
Daily Demand Type =	Industrial			Commercial and Industrial have the same maximum daily factor coefficient.
Max. Daily Factor =	1.5			
Maximum Daily Demand =	1.5	x	average day	
=	1.5	x	96,096	
=	144,145		L/day	
=	**1.67**		**L/s**	
C. Maximum Hour Demand				
Hour Demand Type =	Industrial			Commercial and Industrial have the same maximum daily factor coefficient.
Max. Hour Factor =	1.8			
Maximum Hour Demand =	1.8	x	maximum day	
=	1.8	x	144,145	
=	259,460		L/day	
=	**3.00**		**L/s**	

TOTAL	**CENTRAL UTILITY PLANT**	**PARSONS FLOWS**
Average Daily =	1.11 L/s	**15.19 L/s**
Max Daily =	1.67 L/s	**22.78 L/s**
Max Hourly =	3.00 L/s	**41.00 L/s**

CUP DESIGN STILL UNDERWAY
INCLUDED FOR REFERENCE

APPENDIX B: FIRE FLOW

WATER DISTRIBUTION - THEORETICAL FIRE FLOW DEMANDS

PROJECT: NEW CIVIC DEVELOPMENT FOR THE OTTAWA HOSPITAL
PROJECT NUMBER: CA0021243.8764
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

F = 220 C √ A

Main Hospital Building

Type of Construction Coefficient:		Comments
Type V Wood Frame	1.5	When structural elements, walls, arches, floors, and roofs are constructed or entirely or partially of wood or other material.
Type IV-A Mass Timber	0.8	Encapsulated - When structural elements, walls, arches, and floors have a minimum 2-hour fire reisstance rating and the roof has a minimum 1 hour fire resistance rating.
Type IV-B Mass Timber	0.9	Rated - When all building assemblies include mass timber construction elements and all structural elements, exterior walls, interior bearing walls, and roof have a minimum 1-hour fire resistance rating.
Type IV-C Mass Timber	1.0	Ordinary - When exterior walls are of Mass Timber construction with a minimum 1-hour fire resistance rating. Other structural elements, interior bearing walls, and the roof may not have a fire resistance rating.
Type IV-D Mass Timber	1.5	Un-rated - When exterior walls do not have a minimum 1-hour fire resistance rating, regardless of the fire resistance rating of other structural elements, interior bearing walls, and the roof.
Type III Ordinary	1.0	When exterior walls are of masonry construction with minimum 1-hour fire resistance rating, but where other elements such as interior walls/arches, floors/roofs do not have mimimum 1 hour fire resistance rating.
Type II Noncombustible Construction	0.8	When all structural elements, walls, arches, floors, and roofs are constructed with a minimum 1-hour fire resistance rating and are constructed with noncombustible materials.
Type 1 Fire Resistive Construction	0.6	When all structural elements, walls, arches, floors, and roofs are constructed with a minimum 2-hour fire resistance rating, and all materials used in str. Elmnts, walls/arches/floors/roofs are noncombustible materials.

Total Effective Area	
Construction Coefficient 1.0 to 1.5	100% of all Floor Area
Construction Coefficient Below 1.0	
Unprotected	If any vertical openings are unprotected, consider two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of 8
Protected	If all vertical openings and exterior vertical communications are properly protected in accordance with the NBC, consider only single largest floor area plus 25% of each of the two immediately adjoining floors

Combustibility:		
Non-Combustible	-25%	Refer to *Water Supply for Public Fire Protection (2020)* Table 3, which provides example major occupancies from the NBC. Values can be modified by up to 10% positively or negatively depending on the extent of unusual fire
Limited Combustible	-15%	loading. Buildings with multiple should use the most restrictive occupancy.
Combustible	0%	
Free Burning	15%	
Rapid Burning	25%	

Sprinkler Protection:		
Automatic Sprinkler Protection (NFPA 13)	-30%	Note that if only partial building coverage, the credit is percentage of total floor area serviced by the sprinkler system
Water supply is standard for both system+dire department hoses	-10%	
Fully Supervised System	-10%	
Community Level	-25%	
None	0%	

Exposure Adjustments	
0m to 3m	25% Exposed Risk = Adjacent Feature
3.1m to 10m	20%
10.1m to 20m	15%
20.1m to 30m	10%
Greater than 30m	0%

A. Type of Construction Coefficient				**Justifications**
Building Category	Type 1 Fire Resistive Construction		→	The structure consists of a steel roof deck, a steel floor deck supporting concrete, structural steel framing, and concrete foundations. These elements make up a non-combustible structure. structural elements including walls, arches, floors, and roofs are constructed with a minimum 2-hour fire resistance rating and are constructed with noncombustible materials. As such, a Type I Fire Resistive Construction coefficient will be used.
Coefficient		0.6		

B. Total Effective Area				**Justifications**
If Construction Coefficient 1.0 to 1.5	NO			As per the Fire Underwriter's Survey (2020), for a building with a construction coefficient below 1.0: If all vertical openings and exterior vertical communications are properly protected in accordance with the National Building Code, consider only the single largest floor area plus 25% of each of the two immediately adjoining floors.
Floor Areas	N/A			
If Construction Coefficient below 1.0	YES			
Vertical Openings	Protected	L/min	→	The total effective floor area for the Main Hospital Building was calculated to be 61,518m2 (this includes the largest floor and additional two (2) adjoining floors at 25%). The largest floor is Level 01 at 42,266m2 (30,266m2 for the Main Hospital Building + 12,000m2 assumed for the future Heart Institute). The adjoining floor below is Emergency at 41,737m2 (29,737m2 for the Main Hospital Building + 12,000m2 assumed for the future Heart Institute). The adjoining floor above is Level 02 at 36,860m2 (24,860m2 for the Main Hospital Building + 12,000m2 assumed for the future Heart Institute).
Floor Area Methodology	SINGLE LARGEST +25% OF TWO ADJOINING			
Total Effective Area		73,349 m^2		

C. Base Required Fire Flow				**Justifications**
RFF		35,750 L/min	→	F = 220 C √ A
Round to Nearest 1,000LPM		36,000 L/min		

D. Occupancy Contents Adjustment Factor				**Justifications**
Modification 1: Occupancy Combustibility	Limited Combustible		→	As per *Technical Bulletin ISTB-2018-02, Page 37 of 47, NRC Guidelines,* the New Campus Development Main Hospital Building classifies as Type C-2, Limited Combustible (railroad terminal). The Occupancy and Contents classification is considered "Limited to Combustible" with an Adjustment Factor of -15% to 0%.
		-15%		
Occupancy Credit		-5,362 L/min		
F(mod1) = F(round) + Occupancy Credit		30,387 L/min		

E. Automatic Sprinkler Protection				**Justifications**
Automatic Sprinkler Protection (NFPA 13)	YES		→	A total reduction factor of 50% (automatic sprinklers NFPA standards, standard water supply, and full supervision) was selected for the proposed Main Hospital Building.
Credit		-30%		
Water supply is standard for both system+fire department hoses	YES			
Credit		-10%		
Fully Supervised System	YES			
Credit		-10%		
Additional Reductions	NO			
Credit		0%		
Total Credit Percentage		-50%		
Sprinkler Credit		-15,194 L/min		

F. Exposure Adjustment Charge				**Justifications**
NORTH SIDE				*NORTH SIDE*
Exposure Distance		100.00 m	→	There are no buildings within 30m on the North side of the Main Hospital Building.
Exposure Distance Category	Greater than 30m			
Length of Exposed		- m		
Story of Exposed		- Story		
Length/Height Value		0 m		
Exposed Building Construction Type	Type III or IV (Unprotected Openings)			
Table 6 Exposure Change		0%		
Exposure Sprinkler Type		Not Applicable		
Sprinkler Credit		100%		
Final Exposure Change		0%		
SOUTH SIDE				*SOUTH SIDE*
Exposure Distance		20.00 m	→	The Central Utility Plant (CUP) is within 30m of the South Side of the Main Hospital Building
Exposure Distance Category	10.1m to 20m			
Limit of Exposure (hidden)		20.00		
Length of Exposed		188.00 m		
Story of Exposed		2.00 Story		
Length/Height Value		376		
Exposed Building Construction Type	Type I or II (Protected Openings)			
Table 6 Exposure Change		8%		
Exposure Sprinkler Type	Exposed & Subject: Fully Protected, Automatic Sprinkler			
Sprinkler Credit		0%		
Final Exposure Change		0%		
EAST SIDE				*EAST SIDE*
Exposure Distance		100.00 m	→	There are no buildings within 30m on the East side of the Main Hospital Building.
Exposure Distance Category	Greater than 30m			
Length of Exposed		- m		
Story of Exposed		- Story		
Length/Height Value		0 m		
Exposed Building Construction Type	Type I or II (Unprotected Openings)			
Table 6 Exposure Change		0%		
Exposure Sprinkler Type		Not Applicable		
Sprinkler Credit		100%		
Final Exposure Change		0%		
WEST SIDE				*WEST SIDE*
Exposure Distance		1.00 m	→	The Pavillion is located adjacent to the Main Hospital Building
Exposure Distance Category	0m to 3m			
Length of Exposed		95.00 m		
Story of Exposed		- Story		
Length/Height Value		0 m		
Exposed Building Construction Type	Type III or IV (Protected Openings)			
Table 6 Exposure Change		15%		
Exposure Sprinkler Type	Exposed & Subject: Fully Protected, Automatic Sprinkler			
Sprinkler Credit		0%		
Final Exposure Change		0%		
Final Exposure Change Sum of All Sides		0%		
Total Exposure Change		-	L/min	

G. Final Flow Calculation		
F(mod2) = F(mod1) - Sprinkler + Exposure Change	15,194	L/min
F(final) = F(mod2) rounded to nearest 1,000L/min	**15,000**	**L/min**
F	**250**	**L/s**
F(final)	**3,963**	**US gpm**

WATER DISTRIBUTION - THEORETICAL FIRE FLOW DEMANDS

PROJECT: NEW CIVIC DEVELOPMENT FOR THE OTTAWA HOSPITAL
PROJECT NUMBER: CA0021243.8764
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION R2
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

CUP DESIGN STILL UNDERWAY
INCLUDED FOR REFERENCE

F = 220 C √ A

CENTRAL UTILITY PLANT

Type of Construction Coefficient:		Comments
Type V Wood Frame	1.5	When structural elements, walls, arches, floors, and roofs are constructed or entirely or partially of wood or other material.
Type IV-A Mass Timber	0.8	Encapsulated - When structural elements, walls, arches, and floors have a minimum 2-hour fire reisstance rating and the roof has a minimum 1 hour fire resistance rating.
Type IV-B Mass Timber	0.9	Rated - When all building assemblies include mass timber construction elements and all structural elements, exterior walls, interior bearing walls, and roof have a minimum 1-hour fire resistance rating.
Type IV-C Mass Timber	1.0	Ordinary - When exterior walls are of Mass Timber construction with a minimum 1-hour fire resistance rating. Other structural elements, interior bearing walls, and the roof may not have a fire resistance rating.
Type IV-D Mass Timber	1.5	Un-rated - When exterior walls do not have a minimum 1-hour fire resistance rating, regardless of the fire resistance rating of other structural elements, interior bearing walls, and the roof.
Type III Ordinary	1.0	When exterior walls are of masonry construction with minimum 1-hour fire resistance rating, but where other elements such as interior walls/arches, floors/roofs do not have mimimum 1 hour fire resistance rating.
Type II Noncombustible Construction	0.8	When all structural elements, walls, arches, floors, and roofs are constructed with a minimum 1-hour fire resistance rating and are constructed with noncombustible materials.
Type 1 Fire Resistive Construction	0.6	When all structural elements, walls, arches, floors, and roofs are constructed with a minimum 2-hour fire resistance rating, and all materials used in str. Elmnts, walls/arches/floors/roofs are noncombustible materials.

Total Effective Area	
Construction Coefficient 1.0 to 1.5	100% of all Floor Area
Construction Coefficient Below 1.0	
Unprotected	If any vertical openings are unprotected, consider two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of 8
Protected	If all vertical openings and exterior vertical communications are properly protected in accordance with the NBC, consider only single largest floor area plus 25% of each of the two immediately adjoining floors

Combustibility:		
Non-Combustible	-25%	Refer to *Water Supply for Public Fire Protection (2020)* Table 3, which provides example major occupancies from the NBC. Values can be modified by up to 10% positively or negatively depending on the extent of unusual fire
Limited Combustible	-15%	loading. Buildings with multiple should use the most restrictive occupancy.
Combustible	0%	
Free Burning	15%	
Rapid Burning	25%	

Sprinkler Protection:		
Automatic Sprinkler Protection (NFPA 13)	-30%	Note that if only partial building coverage, the credit is percentage of total floor area serviced by the sprinkler system
Water supply is standard for both system+dire department hoses	-10%	
Fully Supervised System	-10%	
Community Level	-25%	
None	0%	

Exposure Adjustments		
0m to 3m	25%	Exposed Risk = Adjacent Feature
3.1m to 10m	20%	
10.1m to 20m	15%	
20.1m to 30m	10%	
Greater than 30m	0%	

A. Type of Construction Coefficient				**Justifications**
Building Category	Type 1 Fire Resistive Construction		→	The structure consists of a steel roof deck, a steel floor deck supporting concrete, structural steel framing, and concrete foundations. These elements make up a non-combustible structure. structural elements including walls, arches, floors, and roofs are constructed with a minimum 2-hour fire resistance rating and are constructed with noncombustible materials. As such, a Type I Fire Resistive Construction coefficient will be used.
Coefficient	0.6			

B. Total Effective Area				**Justifications**
If Construction Coefficient 1.0 to 1.5	NO			As per the Fire Underwriter's Survey (2020), for a building with a construction coefficient below 1.0: If all vertical openings and exterior vertical communications are properly protected in accordance with the National Building Code, consider only the single largest floor area plus 25% of each of the two immediately adjoining floors.
Floor Areas	N/A			
If Construction Coefficient below 1.0	YES			
Vertical Openings	Protected	L/min	→	The total effective floor area for the central utility plant was assumed to be 24,000m2 (this is approximately two (2) times the floor area).
Floor Area Metodology	SINGLE LARGEST +25% OF TWO ADJOINING			The total effective floor area for the central utility plant will need to be calculated and adjusted accordingly based on the interior architectural floor plans.
Total Effective Area	7,512	m^2		

C. Base Required Fire Flow				**Justifications**
RFF	11,440	L/min	→	F = 220 C √ A
Round to Nearest 1,000LPM	11,000	L/min		

D. Occupancy Contents Adjustment Factor				**Justifications**
Modification 1: Occupancy Combustibility	Combustible			As per *Technical Bulletin ISTB-2018-02, Page 37 of 47, NRC Guidelines,* the New Campus Development Central Utility Plant station classifies as Type C-2, Combustible. The Occupancy and Contents classification is considered "Combustible" with an Adjustment Factor of 0%.
	0%		→	
Occupancy Credit	0	L/min		
F(mod1) = F(round) + Occupancy Credit	11,440	L/min		

E. Automatic Sprinkler Protection				**Justifications**
Automatic Sprinkler Protection (NFPA 13)	YES			A total reduction factor of 50% (automatic sprinklers NFPA standards, standard water supply, and full supervision) was selected for the proposed Central Utility Plant.
Credit	-30%			
Water supply is standard for both system+fire department hoses	YES			
Credit	-10%			
Fully Supervised System	YES			
Credit	-10%			
Additional Reductions	NO			
Credit	0%		→	
Total Credit Percentage	-50%			
Sprinkler Credit	-5,720	L/min		

F. Exposure Adjustment Charge				**Justifications**
NORTH SIDE				*NORTH SIDE*
Exposure Distance	20.00	m		
Exposure Distance Category	10.1m to 20m			
Length of Exposed	-	m		
Height of Exposed	-	m		
Length/Height Value	0	m	→	The closest point of the Main Hospital Building is 20m away from the CUP.
Exposed Building Construction Type	Type I or II (Unprotected Openings)			
Table 6 Exposure Change	0%			
Exposure Sprinkler Type	Exposed: Fully Protected, Automatic Sprinkler			
Sprinkler Credit	50%			
Final Exposure Change	0%			
SOUTH SIDE				*SOUTH SIDE*
Exposure Distance	100.00	m		
Exposure Distance Category	Greater than 30m			
Length of Exposed	-	m		
Height of Exposed	-	m		
Length/Height Value	0	m	→	There are no buildings within 30m on the South side of the Central Utility Plant.
Exposed Building Construction Type	Type I or II (Unprotected Openings)			
Table 6 Exposure Change	0%			
Exposure Sprinkler Type	Not Applicable			
Sprinkler Credit	100%			
Final Exposure Change	0%			
EAST SIDE				*EAST SIDE*
Exposure Distance	100.00	m		
Exposure Distance Category	Greater than 30m			
Length of Exposed	-	m		
Height of Exposed	-	m		
Length/Height Value	0	m	→	There are no buildings within 30m on the East side of the Central Utility Plant.
Exposed Building Construction Type	Type I or II (Unprotected Openings)			
Table 6 Exposure Change	0%			
Exposure Sprinkler Type	Not Applicable			
Sprinkler Credit	100%			
Final Exposure Change	0%			
WEST SIDE				*WEST SIDE*
Exposure Distance	100.00	m		
Exposure Distance Category	Greater than 30m			
Length of Exposed	-	m		
Height of Exposed	-	m		
Length/Height Value	0	m	→	There are no buildings within 30m on the West side of the Central Utility Plant.
Exposed Building Construction Type	Type I or II (Unprotected Openings)			
Table 6 Exposure Change	0%			
Exposure Sprinkler Type	Exposed & Subject: Fully Protected, Automatic Sprinkler			
Sprinkler Credit	0%			
Final Exposure Change	0%			
Final Exposure Change Sum of All Sides	0%			
Total Exposure Change	-	L/min		

G. Final Flow Calculation		
F(mod2) = F(mod1) - Sprinkler + Exposure Change	5,720	L/min
F(final) = F(mod2) rounded to nearest 1,000L/min	**6,000**	**L/min**
F	**100**	**L/s**
F(final)	**1,585**	**US gpm**

APPENDIX C: EPANET OUTPUT

```
*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************

Input File: NCD-Case 1 CENTRAL UTILITY PLANT.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
---------------------------------------------------------------------
Link            Start          End                Length  Diameter
ID              Node           Node                    m        mm
---------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3            44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13                8.10       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2               72.06       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7           30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1                20.64       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                14.21       300
36-PropWM300mmRdDH-4           J-7                59.70       300
28-PropWM300mmRdBH-2           J-25               47.92       300
30-PropWM300mmRdBJ-25          H-5                42.00       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5                22.94       300
25-PropWM300mmRdAJ-17          J-16               62.29       300
40-PropWM300mmHospitalJ-4            H-15               91.57       300
39-PropWM300mmHospitalH-15           J-5                24.29       300
```

42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	19.39	1000	
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-24	J-27(CUPService)	11.58	200	
27-PropWM300mmRdBJ-16	H-2	21.58	300	
26-PropWM300mmRdAJ-16	J-15	21.35	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.67	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-10	J-30(CUPService)	11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.59	300	
69-PropWM300mmHospitalJ-40	J-39	22.02	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.74	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	
44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	

34-PropWM300mmRdE(2)	J-183	J-24	34.93	300
76-PropWM300mmHospitalService	J-183	J-45(HospitalService)	28.02	300
79-PropWM300mmHospitalService	J-9	J-23(HospitalService)	28.03	300
1	T-501	UOHI	11.80	150
2	J-31	T-501	10.52	300
3	T-501	H-10	79.65	300
6	J-28	TEE-34	11.16	300
7	TEE-34	H-17	21.77	150
8	TEE-34	H-18	26.77	150
9	J-8	H-14	56.95	300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
10	H-14	J-9	3.82	300	
11	J-9	J-183	5.50	300	
12	J-48	J-49(CUPService)	11.60	200	
13	J-24	J-10	4.00	300	
14	J-10	J-48	4.00	300	
15	J-48	H-3	34.80	300	
16	H-3	H-11	78.65	300	
5	H-20	J-12	19.09	300	
17	J-43	H-12	7.75	300	
18	H-12	J-46	29.78	300	
19	J-46	J-11	5.05	300	
20	J-11	H-20	15.82	300	
FIRESERVICEMETER2688-A	688-B	#N/A	300	Valve	
FIRESERVICEMETER1691-A	691-B	#N/A	300	Valve	

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	107.67	41.57	0.00
J-21	0.00	107.54	41.97	0.00
J-20	0.00	107.59	42.25	0.00
J-19	0.00	107.60	43.47	0.00
J-8	0.00	102.77	26.17	0.00
J-7	0.00	103.18	26.29	0.00
J-6	0.00	104.02	30.78	0.00
J-5	0.00	104.42	28.85	0.00
J-4	0.00	105.73	34.26	0.00
J-3	0.00	106.35	34.89	0.00

J-2	0.00	106.86	42.74	0.00
J-1	0.00	107.56	43.60	0.00
J-12	0.00	105.33	38.20	0.00
J-13	0.00	105.38	38.45	0.00
J-14	0.00	105.49	38.84	0.00
J-15	0.00	106.35	37.01	0.00
J-16	0.00	106.35	37.95	0.00
J-17	0.00	106.76	41.17	0.00
J-18	0.00	106.98	43.30	0.00
J-11	0.00	105.11	37.67	0.00
J-10	0.00	101.70	28.17	0.00
J-9	0.00	102.08	27.52	0.00
J-23(HospitalService)	8.96	102.08	25.17	0.00
J-E1	0.00	107.79	43.87	0.00
J-E2	0.00	107.67	42.08	0.00
J-E3	0.00	107.52	45.24	0.00
J-E4	0.00	107.54	42.45	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-E7	0.00	107.59	44.00	0.00
J-E8	0.00	107.60	44.51	0.00
J-24	0.00	101.73	28.06	0.00
J-25	0.00	105.90	38.39	0.00
J-26(PGService)	1.70	105.90	35.29	0.00
J-E6	0.00	107.55	42.92	0.00
J-E5	0.00	107.55	42.97	0.00
J-E9	0.00	107.60	44.85	0.00
J-E10	0.00	107.60	44.91	0.00
J-E11	0.00	107.60	41.52	0.00
J-27(CUPService)	7.59	101.73	28.12	0.00
J-28	0.00	106.35	35.41	0.00
J-29	0.00	106.35	34.85	0.00
J-30(CUPService)	7.59	101.70	28.21	0.00
J-31	0.00	101.53	29.27	0.00
J-32	0.00	102.20	26.62	0.00
J-33	0.00	102.43	27.66	0.00
J-34	0.00	102.84	26.56	0.00
J-35	0.00	102.98	22.97	0.00
J-36	0.00	103.68	26.97	0.00
J-37	0.00	104.06	35.92	0.00
J-38	0.00	104.34	36.89	0.00
J-39	0.00	104.69	37.33	0.00
J-40	0.00	104.56	37.67	0.00
J-41	0.00	104.69	34.79	0.00

J-42	0.00	104.69	34.98	0.00
J-43	0.00	104.84	37.77	0.00
J-45(HospitalService)	8.96	102.03	25.13	0.00
J-46	0.00	105.08	37.99	0.00
J-44	0.00	103.40	25.36	0.00
J-47	0.00	106.35	34.86	0.00
J-183	0.00	102.03	27.62	0.00
H-1	0.00	106.93	39.58	0.00
H-2	0.00	106.21	35.30	0.00
H-3	95.00	101.49	25.99	0.00
H-4	0.00	103.86	27.11	0.00
H-5	0.00	105.64	35.77	0.00
H-6	0.00	103.03	23.00	0.00
366028H031	0.00	107.55	42.82	0.00
366028H029	0.00	107.58	42.39	0.00
366028H030	0.00	107.55	42.47	0.00
366028H185	0.00	107.60	41.22	0.00
366028H219	0.00	107.60	44.51	0.00
H-12	0.00	104.89	34.65	0.00
H-13	0.00	104.69	34.61	0.00
H-14	0.00	102.13	24.69	0.00
H-15	0.00	104.70	29.50	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-7	0.00	105.86	30.51	0.00	
H-8	0.00	104.69	34.17	0.00	
H-9	0.00	102.67	24.56	0.00	
H-10	0.00	102.08	25.22	0.00	
H-11	72.00	101.50	26.55	0.00	
H-16	0.00	106.35	26.94	0.00	
H-18	0.00	106.35	29.54	0.00	
H-17	0.00	106.35	26.40	0.00	
H-19	0.00	107.60	43.80	0.00	
688-A	0.00	107.42	43.47	0.00	
688-B	0.00	107.13	40.05	0.00	
691-A	0.00	107.38	45.86	0.00	
691-B	0.00	107.19	40.60	0.00	
UOHI	8.87	101.54	26.78	0.00	
T-501	0.00	101.58	29.48	0.00	
TEE-34	0.00	106.35	34.62	0.00	
J-48	0.00	101.68	28.29	0.00	
J-49(CUPService)	7.59	101.67	28.31	0.00	
H-20	0.00	105.21	37.37	0.00	
R-1	-29.11	107.60	0.00	0.00	Reservoir

R-2 -189.15 107.80 0.00 0.00 Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	125.32	1.77	11.32	Open
32-PropWM300mmRdL	-91.23	1.29	6.29	Open
21-ExWM400mmCarlingAve	189.15	0.24	0.06	Open
20-ExWM400mmCarlingAve	63.83	0.51	1.69	Open
16-ExWM400mmCarlingAve	29.11	0.23	0.40	Open
8-ExWM400mmCarlingAve	29.11	0.23	0.40	Open
45-PropWM300mmHospital	125.32	1.77	11.32	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	92.94	1.31	6.51	Open
24-PropWM300mmRdA	92.94	1.31	6.51	Open
37-PropWM300mmRdD	125.33	1.77	11.32	Open
36-PropWM300mmRdD	125.33	1.77	11.32	Open
28-PropWM300mmRdB	92.93	1.31	6.51	Open
30-PropWM300mmRdB	91.23	1.29	6.29	Open
29-PropWM150mmPGService	1.70	0.10	0.16	Open
14-ExWM400mmCarlingAve	29.11	0.23	0.40	Open
17-ExWM400mmCarlingAve	63.83	0.51	1.69	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
18-ExWM400mmCarlingAve	63.83	0.51	1.69	Open
10-ExWM400mmCarlingAve	29.11	0.23	0.40	Open
13-ExWM400mmCarlingAve	29.11	0.23	0.39	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	29.11	0.23	0.39	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-91.23	1.29	6.29	Open
25-PropWM300mmRdA	92.94	1.31	6.51	Open
40-PropWM300mmHospital	125.33	1.77	11.32	Open
39-PropWM300mmHospital	125.33	1.77	11.32	Open
42-PropWM300mmHospital	125.33	1.77	11.32	Open
41-PropWM300mmHospital	125.33	1.77	11.32	Open
38-PropWM300mmHospital	125.33	1.77	11.32	Open
1-ExWM400mmCarlingAve	29.11	0.04	0.00	Open

3-ExWM400mmCarlingAve	29.11	0.23	0.40	Open
5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	7.59	0.24	0.53	Open
27-PropWM300mmRdB	92.93	1.31	6.51	Open
26-PropWM300mmRdA	0.00	0.00	0.00	Open
47-PropWM300mmHospital	0.00	0.00	0.00	Open
49-PropWM300mmRdA	0.00	0.00	0.00	Open
50-PropWM300mmRdE	125.33	1.77	11.32	Open
51-PropWM300mmRdE	125.33	1.77	11.32	Open
56-PropWM300mmRdE	-82.36	1.17	5.20	Open
57-PropWM200mmCUPService	7.59	0.24	0.53	Open
59-PropWM300mmRdE	-91.23	1.29	6.29	Open
60-PropWM300mmRdE	-91.23	1.29	6.29	Open
61-PropWM300mmRdE	-91.23	1.29	6.29	Open
62-PropWM300mmRdE	-91.23	1.29	6.29	Open
63-PropWM300mmRdE	-91.23	1.29	6.29	Open
64-PropWM300mmHospital	-91.23	1.29	6.29	Open
65-PropWM300mmHospital	-91.23	1.29	6.29	Open
66-PropWM300mmHospital	-91.23	1.29	6.29	Open
67-PropWM300mmHospital	-91.23	1.29	6.29	Open
68-PropWM300mmHospital	-91.23	1.29	6.29	Open
69-PropWM300mmHospital	-91.23	1.29	6.29	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
72-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
73-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
74-PropWM300mmLoadingDock	-91.23	1.29	6.29	Open
80-PropWM300mmRdL	-91.23	1.29	6.29	Open
48-PropWM300mmHospital	0.00	0.00	0.00	Open
48B-PropWM300mmHospital	-0.08	0.00	0.00	Open
83-PropWM300mm	0.07	0.00	0.00	Open
84-PropWM150mm	0.07	0.00	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	125.32	1.77	11.32	Open
44-PropWM300mmHospital(2)	125.32	1.77	11.32	Open
22-PropWM300mmRdA	92.94	1.31	6.51	Open
22-PropWM300mmRdA(2)	92.94	1.31	6.51	Open
34-PropWM300mmRdE(2)	107.41	1.52	8.51	Open
76-PropWM300mmHospitalService	8.96	0.13	0.09	Open
79-PropWM300mmHospitalService	8.96	0.13	0.09	Open
1	8.87	0.50	3.44	Open

2	-82.36	1.17	5.20	Open
3	-91.23	1.29	6.29	Open
6	-0.07	0.00	0.00	Open
7	-0.07	0.00	0.00	Open
8	0.00	0.00	0.00	Open
9	125.33	1.77	11.32	Open
10	125.33	1.77	11.32	Open
11	116.37	1.65	9.87	Open
12	7.59	0.24	0.53	Open
13	99.82	1.41	7.43	Open
14	92.23	1.30	6.42	Open
15	84.64	1.20	5.47	Open
16	-10.36	0.15	0.11	Open
5	-91.23	1.29	6.29	Open
17	-91.23	1.29	6.29	Open
18	-91.23	1.29	6.29	Open
19	-91.23	1.29	6.29	Open
20	-91.23	1.29	6.29	Open
FIRESERVICEMETER2	125.32	1.77	0.30	Open Valve
FIRESERVICEMETER1	92.94	1.31	0.19	Open Valve

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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************

Input File: NCD-Case 1 FRONT ENTRY.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
---------------------------------------------------------------------
Link            Start          End                 Length  Diameter
ID              Node           Node                     m        mm
---------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3            44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13                  8.10       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2               72.06       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7           30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1                20.64       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                 14.21       300
36-PropWM300mmRdDH-4           J-7                 59.70       300
28-PropWM300mmRdBH-2           J-25                47.92       300
30-PropWM300mmRdBJ-25          H-5                 42.00       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5                 22.94       300
25-PropWM300mmRdAJ-17          J-16                62.29       300
40-PropWM300mmHospitalJ-4            H-15                91.57       300
39-PropWM300mmHospitalH-15           J-5                 24.29       300
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42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	19.39	1000	
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)J-24		11.58	200	
27-PropWM300mmRdBJ-16	H-2	21.58	300	
26-PropWM300mmRdAJ-16	J-15	21.35	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.67	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)J-10		11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.59	300	
69-PropWM300mmHospitalJ-40	J-39	22.02	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.74	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	
44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	

34-PropWM300mmRdE(2)	J-183	J-24	34.93	300
76-PropWM300mmHospitalService	J-45(HospitalService)	J-183	28.02	300
79-PropWM300mmHospitalService	J-23(HospitalService)	J-9	28.03	300
1	UOHI	T-501	11.80	150
2	J-31	T-501	10.52	300
3	T-501	H-10	79.65	300
6	J-28	TEE-34	11.16	300
7	TEE-34	H-17	21.77	150
8	TEE-34	H-18	26.77	150
9	J-8	H-14	56.95	300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
10	H-14	J-9	3.82	300	
11	J-9	J-183	5.50	300	
12	J-48	J-49(CUPService)	11.60	200	
13	J-24	J-10	4.00	300	
14	J-10	J-48	4.00	300	
15	J-48	H-3	34.80	300	
16	H-3	H-11	78.65	300	
5	H-20	J-12	19.09	300	
17	J-43	H-12	7.75	300	
18	H-12	J-46	29.78	300	
19	J-46	J-11	5.05	300	
20	J-11	H-20	15.82	300	
FIRESERVICEMETER2688-A	688-B	#N/A	300	Valve	
FIRESERVICEMETER1691-A	691-B	#N/A	300	Valve	

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	107.65	41.54	0.00
J-21	0.00	107.56	41.99	0.00
J-20	0.00	107.75	42.42	0.00
J-19	0.00	107.80	43.67	0.00
J-8	0.00	104.80	28.20	0.00
J-7	0.00	104.82	27.93	0.00
J-6	0.00	104.85	31.62	0.00
J-5	0.00	104.87	29.30	0.00
J-4	0.00	104.92	33.45	0.00
J-3	0.00	105.16	33.70	0.00

J-2	0.00	106.05	41.94	0.00
J-1	0.00	107.37	43.41	0.00
J-12	0.00	105.22	38.09	0.00
J-13	0.00	105.22	38.29	0.00
J-14	0.00	105.23	38.58	0.00
J-15	0.00	105.17	35.83	0.00
J-16	0.00	105.33	36.93	0.00
J-17	0.00	106.08	40.50	0.00
J-18	0.00	106.50	42.83	0.00
J-11	0.00	105.19	37.75	0.00
J-10	0.00	104.77	31.23	0.00
J-9	0.00	104.77	30.21	0.00
J-23(HospitalService)	8.96	104.77	27.86	0.00
J-E1	0.00	107.79	43.86	0.00
J-E2	0.00	107.65	42.06	0.00
J-E3	0.00	107.47	45.19	0.00
J-E4	0.00	107.56	42.47	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-E7	0.00	107.75	44.16	0.00
J-E8	0.00	107.80	44.71	0.00
J-24	0.00	104.77	31.10	0.00
J-25	0.00	105.28	37.76	0.00
J-26(PGService)	1.70	105.27	34.67	0.00
J-E6	0.00	107.62	42.98	0.00
J-E5	0.00	107.62	43.03	0.00
J-E9	0.00	107.80	45.05	0.00
J-E10	0.00	107.80	45.11	0.00
J-E11	0.00	107.80	41.72	0.00
J-27(CUPService)	7.59	104.77	31.16	0.00
J-28	0.00	104.90	33.96	0.00
J-29	0.00	105.08	33.58	0.00
J-30(CUPService)	7.59	104.77	31.28	0.00
J-31	0.00	104.81	32.55	0.00
J-32	0.00	104.88	29.30	0.00
J-33	0.00	104.91	30.13	0.00
J-34	0.00	104.95	28.67	0.00
J-35	0.00	104.96	24.95	0.00
J-36	0.00	105.04	28.33	0.00
J-37	0.00	105.08	36.94	0.00
J-38	0.00	105.11	37.66	0.00
J-39	0.00	105.15	37.78	0.00
J-40	0.00	105.13	38.25	0.00
J-41	0.00	105.15	35.24	0.00

J-42	0.00	105.15	35.44	0.00
J-43	0.00	105.16	38.09	0.00
J-45(HospitalService)	8.96	104.77	27.87	0.00
J-46	0.00	105.19	38.10	0.00
J-44	0.00	105.01	26.97	0.00
J-47	0.00	104.85	33.36	0.00
J-183	0.00	104.77	30.35	0.00
H-1	0.00	106.40	39.05	0.00
H-2	0.00	105.31	34.40	0.00
H-3	0.00	104.78	29.28	0.00
H-4	0.00	104.85	28.10	0.00
H-5	0.00	105.25	35.38	0.00
H-6	0.00	104.81	24.78	0.00
366028H031	0.00	107.60	42.88	0.00
366028H029	0.00	107.54	42.36	0.00
366028H030	0.00	107.62	42.53	0.00
366028H185	0.00	107.80	41.42	0.00
366028H219	0.00	107.80	44.71	0.00
H-12	0.00	105.17	34.93	0.00
H-13	0.00	105.15	35.06	0.00
H-14	0.00	104.78	27.34	0.00
H-15	0.00	104.88	29.68	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-7	60.00	104.93	29.59	0.00	
H-8	0.00	105.15	34.62	0.00	
H-9	0.00	104.93	26.81	0.00	
H-10	0.00	104.87	28.00	0.00	
H-11	0.00	104.81	29.86	0.00	
H-16	95.00	104.46	25.05	0.00	
H-18	0.00	104.87	28.06	0.00	
H-17	95.00	102.33	22.39	0.00	
H-19	0.00	107.80	44.00	0.00	
688-A	0.00	107.13	43.18	0.00	
688-B	0.00	106.53	39.45	0.00	
691-A	0.00	107.21	45.69	0.00	
691-B	0.00	106.88	40.30	0.00	
UOHI	8.87	104.77	30.00	0.00	
T-501	0.00	104.82	32.71	0.00	
TEE-34	0.00	104.87	33.15	0.00	
J-48	0.00	104.77	31.38	0.00	
J-49(CUPService)	7.59	104.77	31.40	0.00	
H-20	0.00	105.20	37.37	0.00	
R-1	-61.30	107.80	0.00	0.00	Reservoir

R-2 -239.96 107.80 0.00 0.00 Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	171.23	2.42	20.18	Open
32-PropWM300mmRdL	-27.28	0.39	0.67	Open
21-ExWM400mmCarlingAve	239.96	0.31	0.09	Open
20-ExWM400mmCarlingAve	68.74	0.55	1.94	Open
16-ExWM400mmCarlingAve	61.30	0.49	1.57	Open
8-ExWM400mmCarlingAve	61.30	0.49	1.57	Open
45-PropWM300mmHospital	171.23	2.42	20.18	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	130.03	1.84	12.12	Open
24-PropWM300mmRdA	130.03	1.84	12.12	Open
37-PropWM300mmRdD	22.28	0.32	0.46	Open
36-PropWM300mmRdD	22.28	0.32	0.46	Open
28-PropWM300mmRdB	28.98	0.41	0.75	Open
30-PropWM300mmRdB	27.28	0.39	0.67	Open
29-PropWM150mmPGService	1.70	0.10	0.16	Open
14-ExWM400mmCarlingAve	61.30	0.49	1.57	Open
17-ExWM400mmCarlingAve	68.74	0.55	1.94	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
18-ExWM400mmCarlingAve	68.74	0.55	1.94	Open
10-ExWM400mmCarlingAve	61.30	0.49	1.57	Open
13-ExWM400mmCarlingAve	61.30	0.49	1.57	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	61.30	0.49	1.58	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-27.28	0.39	0.67	Open
25-PropWM300mmRdA	130.03	1.84	12.12	Open
40-PropWM300mmHospital	22.28	0.32	0.46	Open
39-PropWM300mmHospital	22.28	0.32	0.46	Open
42-PropWM300mmHospital	82.28	1.16	5.19	Open
41-PropWM300mmHospital	22.28	0.32	0.46	Open
38-PropWM300mmHospital	22.28	0.32	0.46	Open
1-ExWM400mmCarlingAve	61.30	0.08	0.01	Open

3-ExWM400mmCarlingAve	61.30	0.49	1.56	Open
5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-7.59	0.24	0.53	Open
27-PropWM300mmRdB	28.98	0.41	0.75	Open
26-PropWM300mmRdA	101.05	1.43	7.60	Open
47-PropWM300mmHospital	88.95	1.26	6.00	Open
49-PropWM300mmRdA	-101.05	1.43	7.60	Open
50-PropWM300mmRdE	22.28	0.32	0.46	Open
51-PropWM300mmRdE	22.28	0.32	0.46	Open
56-PropWM300mmRdE	-18.41	0.26	0.32	Open
57-PropWM200mmCUPService	-7.59	0.24	0.53	Open
59-PropWM300mmRdE	-27.28	0.39	0.67	Open
60-PropWM300mmRdE	-27.28	0.39	0.67	Open
61-PropWM300mmRdE	-27.28	0.39	0.67	Open
62-PropWM300mmRdE	-27.28	0.39	0.67	Open
63-PropWM300mmRdE	-27.28	0.39	0.67	Open
64-PropWM300mmHospital	-27.28	0.39	0.67	Open
65-PropWM300mmHospital	-27.28	0.39	0.67	Open
66-PropWM300mmHospital	-27.28	0.39	0.67	Open
67-PropWM300mmHospital	-27.28	0.39	0.67	Open
68-PropWM300mmHospital	-27.28	0.39	0.67	Open
69-PropWM300mmHospital	-27.28	0.39	0.67	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
72-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
73-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
74-PropWM300mmLoadingDock	-27.28	0.39	0.67	Open
80-PropWM300mmRdL	-27.28	0.39	0.67	Open
48-PropWM300mmHospital	88.95	1.26	6.00	Open
48B-PropWM300mmHospital	-41.59	0.59	1.47	Open
83-PropWM300mm	130.54	1.85	12.21	Open
84-PropWM150mm	35.54	2.01	44.99	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	171.23	2.42	20.18	Open
44-PropWM300mmHospital(2)	171.23	2.42	20.18	Open
22-PropWM300mmRdA	130.03	1.84	12.12	Open
22-PropWM300mmRdA(2)	130.03	1.84	12.12	Open
34-PropWM300mmRdE(2)	4.36	0.06	0.02	Open
76-PropWM300mmHospitalService	-8.96	0.13	0.09	Open
79-PropWM300mmHospitalService	-8.96	0.13	0.09	Open
1	-8.87	0.50	3.44	Open

2	-18.41	0.26	0.32	Open
3	-27.28	0.39	0.67	Open
6	59.46	0.84	2.85	Open
7	59.46	3.36	116.73	Open
8	0.00	0.00	0.00	Open
9	22.28	0.32	0.46	Open
10	22.28	0.32	0.46	Open
11	13.32	0.19	0.18	Open
12	7.59	0.24	0.53	Open
13	-3.23	0.05	0.01	Open
14	-10.82	0.15	0.12	Open
15	-18.41	0.26	0.32	Open
16	-18.41	0.26	0.32	Open
5	-27.28	0.39	0.67	Open
17	-27.28	0.39	0.67	Open
18	-27.28	0.39	0.67	Open
19	-27.28	0.39	0.67	Open
20	-27.28	0.39	0.67	Open
FIRESERVICEMETER2	171.23	2.42	0.60	Open Valve
FIRESERVICEMETER1	130.03	1.84	0.33	Open Valve

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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************

Input File: NCD-Case 1 PAVILLION.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
---------------------------------------------------------------------
Link            Start          End                Length  Diameter
ID              Node           Node                    m        mm
---------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3           44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13          8.10173833723436       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2           72.0604746626472       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7          30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1            20.6394832517881       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                 14.21       300
36-PropWM300mmRdDH-4           J-7                 59.70       300
28-PropWM300mmRdBH-2           J-25           47.9195248882866       300
30-PropWM300mmRdBJ-25          H-5            42.0036195237461       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5            22.941571844959       300
25-PropWM300mmRdAJ-17          J-16           62.2851182626027       300
33-PropWM300mmRdLH-12          J-12           28.8853068075771       300
40-PropWM300mmHospitalJ-4            H-15                91.57       300
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39-PropWM300mmHospitalH-15	J-5	24.29	300	
42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	0.217566858316817	1000	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)	J-24	11.58	200	
27-PropWM300mmRdBJ-16	H-2	21.5808707602312	300	
26-PropWM300mmRdAJ-16	J-15	21.3543962701595	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.6655277241037	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)	J-10	11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.5857153250994	300	
69-PropWM300mmHospitalJ-40	J-39	22.0228385256111	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
75-PropWM300mmRdLJ-43	J-46	37.5282521890565	300	
77-PropWM300mmRdLJ-46	J-11	5.05366092600287	300	
78-PropWM300mmRdLJ-11	H-12	6.0260271211011	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.7449782977257	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	

44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	
34-PropWM300mmRdE(2)J-183	J-24	23.44	300	
76-PropWM300mmHospitalServiceJ-45(HospitalService)J-183		28.02	300	
79-PropWM300mmHospitalServiceJ-23(HospitalService)J-9		28.03	300	
1	UOHI	T-501	11.80	150
2	J-31	T-501	10.52	300
3	T-501	H-10	79.65	300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
6	J-28	TEE-34	11.16	300	
7	TEE-34	H-17	21.77	150	
8	TEE-34	H-18	26.77	150	
9	J-8	H-14	56.95	300	
10	H-14	J-9	14.32	300	
11	J-9	J-183	6.50	300	
12	J-48	J-49(CUPService)	11.60	200	
13	J-24	J-10	4.00	300	
14	J-10	J-48	4.00	300	
15	J-48	H-3	34.80	300	
16	H-3	H-11	78.65	300	
FIRESERVICEMETER2688-A	688-B	#N/A	300	Valve	
FIRESERVICEMETER1691-A	691-B	#N/A	300	Valve	

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	106.98	40.88	0.00
J-21	0.00	106.91	41.35	0.00
J-20	0.00	107.06	41.73	0.00
J-19	0.00	107.10	42.97	0.00
J-8	0.00	105.04	25.73	0.00
J-7	0.00	105.08	25.21	0.00
J-6	0.00	105.15	29.19	0.00
J-5	0.00	105.18	29.89	0.00
J-4	0.00	105.29	31.09	0.00
J-3	0.00	105.34	31.27	0.00
J-2	0.00	105.94	38.70	0.00

J-1	0.00	106.81	40.20	0.00
J-12	0.00	105.15	35.33	0.00
J-13	0.00	105.15	35.52	0.00
J-14	0.00	105.15	35.81	0.00
J-15	0.00	105.05	33.04	0.00
J-16	0.00	105.20	34.02	0.00
J-17	0.00	105.78	37.49	0.00
J-18	0.00	106.10	39.73	0.00
J-11	0.00	105.14	34.96	0.00
J-10	0.00	104.97	31.40	0.00
J-9	0.00	104.98	26.88	0.00
J-23(HospitalService)	8.96	104.98	33.55	0.00
J-E1	0.00	107.09	40.62	0.00
J-E2	0.00	106.98	41.40	0.00
J-E3	0.00	106.85	41.87	0.00
J-E4	0.00	106.91	41.83	0.00
J-E7	0.00	107.06	43.48	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-E8	0.00	107.10	44.01	0.00
J-24	0.00	104.97	31.40	0.00
J-25	0.00	105.17	34.94	0.00
J-26(PGService)	1.70	105.17	34.56	0.00
J-E6	0.00	106.96	42.32	0.00
J-E5	0.00	106.96	42.37	0.00
J-E9	0.00	107.10	44.35	0.00
J-E10	0.00	107.10	44.41	0.00
J-E11	0.00	107.10	41.02	0.00
J-27(CUPService)	7.59	104.96	31.35	0.00
J-28	0.00	104.82	31.14	0.00
J-29	0.00	105.23	31.00	0.00
J-30(CUPService)	7.59	104.96	31.47	0.00
J-31	0.00	104.98	30.28	0.00
J-32	0.00	105.01	26.72	0.00
J-33	0.00	105.02	27.49	0.00
J-34	0.00	105.04	26.09	0.00
J-35	0.00	105.04	23.10	0.00
J-36	0.00	105.07	25.44	0.00
J-37	0.00	105.09	33.69	0.00
J-38	0.00	105.10	35.01	0.00
J-39	0.00	105.12	35.27	0.00
J-40	0.00	105.11	33.91	0.00
J-41	0.00	105.12	35.21	0.00
J-42	0.00	105.12	35.41	0.00

J-43	0.00	105.13	35.37	0.00
J-45(HospitalService)	8.96	104.97	33.55	0.00
J-46	0.00	105.14	35.00	0.00
J-44	0.00	105.06	24.37	0.00
J-47	0.00	104.92	30.73	0.00
J-183	0.00	104.97	27.91	0.00
H-1	0.00	106.02	38.84	0.00
H-2	0.00	105.19	33.97	0.00
H-3	0.00	104.97	29.47	0.00
H-4	0.00	105.13	28.38	0.00
H-5	0.00	105.16	35.29	0.00
H-6	0.00	105.07	25.04	0.00
366028H031	0.00	106.95	42.22	0.00
366028H029	0.00	106.90	41.72	0.00
366028H030	0.00	106.96	41.87	0.00
366028H185	0.00	107.10	40.72	0.00
366028H219	0.00	107.10	44.01	0.00
H-12	0.00	105.14	34.71	0.00
H-13	0.00	105.12	35.03	0.00
H-14	0.00	104.99	27.57	0.00
H-15	0.00	105.20	29.90	0.00
H-7	0.00	105.30	29.95	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-8	0.00	105.12	34.59	0.00	
H-9	0.00	105.03	26.91	0.00	
H-10	0.00	105.00	28.13	0.00	
H-11	0.00	104.98	30.02	0.00	
H-16	10.00	104.85	25.44	0.00	
H-18	95.00	97.20	20.40	0.00	
H-17	95.00	102.35	22.41	0.00	
H-19	0.00	107.10	43.30	0.00	
688-A	0.00	106.65	39.57	0.00	
688-B	0.00	106.27	39.19	0.00	
691-A	0.00	106.64	40.06	0.00	
691-B	0.00	106.39	39.81	0.00	
UOHI	8.87	104.94	31.27	0.00	
T-501	0.00	104.98	32.87	0.00	
TEE-34	0.00	104.64	32.92	0.00	
J-48	0.00	104.97	31.37	0.00	
J-49(CUPService)	7.59	104.96	31.59	0.00	
R-1	-53.14	107.10	0.00	0.00	Reservoir
R-2	-198.12	107.10	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	138.42	1.96	13.61	Open
32-PropWM300mmRdL	-17.05	0.24	0.28	Open
21-ExWM400mmCarlingAve	198.12	0.25	0.06	Open
20-ExWM400mmCarlingAve	59.70	0.48	1.50	Open
16-ExWM400mmCarlingAve	53.14	0.42	1.21	Open
8-ExWM400mmCarlingAve	53.14	0.42	1.21	Open
45-PropWM300mmHospital	138.42	1.96	13.61	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	112.84	1.60	9.32	Open
24-PropWM300mmRdA	112.84	1.60	9.32	Open
37-PropWM300mmRdD	32.51	0.46	0.93	Open
36-PropWM300mmRdD	32.51	0.46	0.93	Open
28-PropWM300mmRdB	18.75	0.27	0.34	Open
30-PropWM300mmRdB	17.05	0.24	0.28	Open
29-PropWM150mmPGService	1.70	0.10	0.16	Open
14-ExWM400mmCarlingAve	53.14	0.42	1.21	Open
17-ExWM400mmCarlingAve	59.70	0.48	1.50	Open
18-ExWM400mmCarlingAve	59.70	0.48	1.50	Open
10-ExWM400mmCarlingAve	53.14	0.42	1.21	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
13-ExWM400mmCarlingAve	53.14	0.42	1.21	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	53.14	0.42	1.21	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-17.05	0.24	0.28	Open
25-PropWM300mmRdA	112.84	1.60	9.32	Open
33-PropWM300mmRdL	-17.05	0.24	0.28	Open
40-PropWM300mmHospital	32.51	0.46	0.93	Open
39-PropWM300mmHospital	32.51	0.46	0.93	Open
42-PropWM300mmHospital	32.51	0.46	0.93	Open
41-PropWM300mmHospital	32.51	0.46	0.93	Open
38-PropWM300mmHospital	32.51	0.46	0.93	Open
1-ExWM400mmCarlingAve	53.14	0.07	0.00	Open
3-ExWM400mmCarlingAve	53.14	0.42	1.21	Open

5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-7.59	0.24	0.53	Open
27-PropWM300mmRdB	18.75	0.27	0.34	Open
26-PropWM300mmRdA	94.09	1.33	6.66	Open
47-PropWM300mmHospital	105.91	1.50	8.29	Open
49-PropWM300mmRdA	-94.09	1.33	6.66	Open
50-PropWM300mmRdE	32.51	0.46	0.93	Open
51-PropWM300mmRdE	32.51	0.46	0.93	Open
56-PropWM300mmRdE	-8.18	0.12	0.07	Open
57-PropWM200mmCUPService	-7.59	0.24	0.53	Open
59-PropWM300mmRdE	-17.05	0.24	0.28	Open
60-PropWM300mmRdE	-17.05	0.24	0.28	Open
61-PropWM300mmRdE	-17.05	0.24	0.28	Open
62-PropWM300mmRdE	-17.05	0.24	0.28	Open
63-PropWM300mmRdE	-17.05	0.24	0.28	Open
64-PropWM300mmHospital	-17.05	0.24	0.28	Open
65-PropWM300mmHospital	-17.05	0.24	0.28	Open
66-PropWM300mmHospital	-17.05	0.24	0.28	Open
67-PropWM300mmHospital	-17.05	0.24	0.28	Open
68-PropWM300mmHospital	-17.05	0.24	0.28	Open
69-PropWM300mmHospital	-17.05	0.24	0.28	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
72-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
73-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
74-PropWM300mmLoadingDock	-17.05	0.24	0.28	Open
75-PropWM300mmRdL	-17.05	0.24	0.28	Open
77-PropWM300mmRdL	-17.05	0.24	0.28	Open
78-PropWM300mmRdL	-17.05	0.24	0.28	Open
80-PropWM300mmRdL	-17.05	0.24	0.28	Open
48-PropWM300mmHospital	105.91	1.50	8.29	Open
48B-PropWM300mmHospital	57.16	0.81	2.64	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
83-PropWM300mm	48.76	0.69	1.97	Open
84-PropWM150mm	38.76	2.19	52.83	Open
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	138.42	1.96	13.61	Open
44-PropWM300mmHospital(2)	138.42	1.96	13.61	Open
22-PropWM300mmRdA	112.84	1.60	9.32	Open
22-PropWM300mmRdA(2)	112.84	1.60	9.32	Open
34-PropWM300mmRdE(2)	14.59	0.21	0.21	Open
76-PropWM300mmHospitalService	-8.96	0.13	0.09	Open

79-PropWM300mmHospitalService	-8.96	0.13	0.09	Open
1	-8.87	0.50	3.44	Open
2	-8.18	0.12	0.07	Open
3	-17.05	0.24	0.28	Open
6	151.24	2.14	16.04	Open
7	56.24	3.18	105.30	Open
8	95.00	5.38	277.99	Open
9	32.51	0.46	0.93	Open
10	32.51	0.46	0.93	Open
11	23.55	0.33	0.51	Open
12	7.59	0.24	0.53	Open
13	7.00	0.10	0.05	Open
14	-0.59	0.01	0.00	Open
15	-8.18	0.12	0.07	Open
16	-8.18	0.12	0.07	Open
FIRESERVICEMETER2	138.42	1.96	0.38	Open Valve
FIRESERVICEMETER1	112.84	1.60	0.26	Open Valve

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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************

Input File: NCD-Case 1 TOWER A.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
---------------------------------------------------------------------
Link            Start          End                 Length  Diameter
ID              Node           Node                     m        mm
---------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3            44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13          8.10173833723436       300
21-ExWM400mmCarlingAveR-2            J-E1               148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2           72.0604746626472       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7           30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1            20.6394832517881       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                 14.21       300
36-PropWM300mmRdDH-4           J-7                 59.70       300
28-PropWM300mmRdBH-2           J-25           47.9195248882866       300
30-PropWM300mmRdBJ-25          H-5            42.0036195237461       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5            22.941571844959       300
25-PropWM300mmRdAJ-17          J-16           62.2851182626027       300
33-PropWM300mmRdLH-12          J-12           28.8853068075771       300
40-PropWM300mmHospitalJ-4            H-15                91.57       300
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39-PropWM300mmHospitalH-15	J-5	24.29	300	
42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	0.217566858316817	1000	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)	J-24	11.58	200	
27-PropWM300mmRdBJ-16	H-2	21.5808707602312	300	
26-PropWM300mmRdAJ-16	J-15	21.3543962701595	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.6655277241037	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)	J-10	11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.5857153250994	300	
69-PropWM300mmHospitalJ-40	J-39	22.0228385256111	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
75-PropWM300mmRdLJ-43	J-46	37.5282521890565	300	
77-PropWM300mmRdLJ-46	J-11	5.05366092600287	300	
78-PropWM300mmRdLJ-11	H-12	6.0260271211011	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.7449782977257	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	

44-PropWM300mmHospitalJ-1		688-A		11.7604930134715	300
44-PropWM300mmHospital(2)688-B		J-2		23.8506572610621	300
22-PropWM300mmRdAJ-E3		691-A		21.8758265595292	300
22-PropWM300mmRdA(2)691-B		J-18		31.0182402514265	300
34-PropWM300mmRdE(2)J-183		J-24		23.44	300
76-PropWM300mmHospitalServiceJ-45(HospitalService)J-183				28.02	300
79-PropWM300mmHospitalServiceJ-23(HospitalService)J-9				28.03	300
1	UOHI	T-501	11.80	150	
2	J-31	T-501	10.52	300	
3	T-501	H-10	79.65	300	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
6	J-28	TEE-34	11.16	300	
7	TEE-34	H-17	21.77	150	
8	TEE-34	H-18	26.77	150	
9	J-8	H-14	56.95	300	
10	H-14	J-9	14.32	300	
11	J-9	J-183	6.50	300	
12	J-48	J-49(CUPService)	11.60	200	
13	J-24	J-10	4.00	300	
14	J-10	J-48	4.00	300	
15	J-48	H-3	34.80	300	
16	H-3	H-11	78.65	300	
FIRESERVICEMETER2688-A		688-B	#N/A	300	Valve
FIRESERVICEMETER1691-A		691-B	#N/A	300	Valve

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	106.95	40.85	0.00
J-21	0.00	106.86	41.30	0.00
J-20	0.00	107.05	41.72	0.00
J-19	0.00	107.10	42.97	0.00
J-8	0.00	101.06	21.76	0.00
J-7	0.00	101.20	21.34	0.00
J-6	0.00	101.48	25.53	0.00
J-5	0.00	101.62	26.33	0.00
J-4	0.00	102.81	28.61	0.00
J-3	0.00	104.40	30.33	0.00
J-2	0.00	105.32	38.08	0.00

J-1	0.00	106.66	40.05	0.00
J-12	0.00	103.98	34.16	0.00
J-13	0.00	104.02	34.39	0.00
J-14	0.00	104.10	34.76	0.00
J-15	0.00	104.65	32.64	0.00
J-16	0.00	104.70	33.52	0.00
J-17	0.00	105.43	37.15	0.00
J-18	0.00	105.84	39.47	0.00
J-11	0.00	103.83	33.65	0.00
J-10	0.00	100.91	27.35	0.00
J-9	0.00	100.86	22.77	0.00
J-23(HospitalService)	8.96	100.85	29.43	0.00
J-E1	0.00	107.09	40.61	0.00
J-E2	0.00	106.95	41.37	0.00
J-E3	0.00	106.78	41.81	0.00
J-E4	0.00	106.86	41.78	0.00
J-E7	0.00	107.05	43.47	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-E8	0.00	107.10	44.01	0.00
J-24	0.00	100.90	27.34	0.00
J-25	0.00	104.38	34.15	0.00
J-26(PGService)	1.70	104.38	33.77	0.00
J-E6	0.00	106.92	42.29	0.00
J-E5	0.00	106.92	42.34	0.00
J-E9	0.00	107.10	44.35	0.00
J-E10	0.00	107.10	44.41	0.00
J-E11	0.00	107.10	41.02	0.00
J-27(CUPService)	7.59	100.89	27.29	0.00
J-28	0.00	104.58	30.90	0.00
J-29	0.00	104.43	30.20	0.00
J-30(CUPService)	7.59	100.90	27.42	0.00
J-31	0.00	101.33	26.64	0.00
J-32	0.00	101.80	23.53	0.00
J-33	0.00	101.96	24.44	0.00
J-34	0.00	102.24	23.31	0.00
J-35	0.00	102.34	20.40	0.00
J-36	0.00	102.83	23.21	0.00
J-37	0.00	103.10	31.71	0.00
J-38	0.00	103.29	33.21	0.00
J-39	0.00	103.54	33.69	0.00
J-40	0.00	103.44	32.25	0.00
J-41	0.00	103.54	33.63	0.00
J-42	0.00	103.54	33.83	0.00

J-43	0.00	103.64	33.90	0.00
J-45(HospitalService)	8.96	100.86	29.44	0.00
J-46	0.00	103.81	33.67	0.00
J-44	0.00	102.63	21.95	0.00
J-47	0.00	104.51	30.32	0.00
J-183	0.00	100.86	23.80	0.00
H-1	0.00	105.74	38.57	0.00
H-2	0.00	104.60	33.38	0.00
H-3	0.00	101.04	25.55	0.00
H-4	0.00	101.43	24.68	0.00
H-5	0.00	104.20	34.33	0.00
H-6	0.00	101.15	21.13	0.00
366028H031	0.00	106.91	42.18	0.00
366028H029	0.00	106.85	41.66	0.00
366028H030	0.00	106.92	41.84	0.00
366028H185	0.00	107.10	40.72	0.00
366028H219	0.00	107.10	44.01	0.00
H-12	0.00	103.86	33.43	0.00
H-13	0.00	103.54	33.46	0.00
H-14	95.00	100.85	23.44	0.00
H-15	60.00	101.71	26.41	0.00
H-7	95.00	102.94	27.60	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-8	0.00	103.54	33.01	0.00	
H-9	0.00	102.13	24.02	0.00	
H-10	0.00	101.72	24.86	0.00	
H-11	0.00	101.31	26.37	0.00	
H-16	0.00	104.51	25.10	0.00	
H-18	0.00	104.58	27.76	0.00	
H-17	0.00	104.56	24.61	0.00	
H-19	0.00	107.10	43.30	0.00	
688-A	0.00	106.42	39.34	0.00	
688-B	0.00	105.81	38.73	0.00	
691-A	0.00	106.52	39.94	0.00	
691-B	0.00	106.21	39.63	0.00	
UOHI	8.87	101.33	27.66	0.00	
T-501	0.00	101.37	29.27	0.00	
TEE-34	0.00	104.58	32.85	0.00	
J-48	0.00	100.92	27.32	0.00	
J-49(CUPService)	7.59	100.91	27.55	0.00	
R-1	-60.44	107.10	0.00	0.00	Reservoir
R-2	-240.82	107.10	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	173.12	2.45	20.59	Open
32-PropWM300mmRdL	-75.09	1.06	4.38	Open
21-ExWM400mmCarlingAve	240.82	0.31	0.09	Open
20-ExWM400mmCarlingAve	67.70	0.54	1.89	Open
16-ExWM400mmCarlingAve	60.44	0.48	1.53	Open
8-ExWM400mmCarlingAve	60.44	0.48	1.53	Open
45-PropWM300mmHospital	173.12	2.45	20.59	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	128.14	1.81	11.80	Open
24-PropWM300mmRdA	128.14	1.81	11.80	Open
37-PropWM300mmRdD	69.47	0.98	3.80	Open
36-PropWM300mmRdD	69.47	0.98	3.80	Open
28-PropWM300mmRdB	76.79	1.09	4.57	Open
30-PropWM300mmRdB	75.09	1.06	4.38	Open
29-PropWM150mmPGService	1.70	0.10	0.16	Open
14-ExWM400mmCarlingAve	60.44	0.48	1.53	Open
17-ExWM400mmCarlingAve	67.70	0.54	1.89	Open
18-ExWM400mmCarlingAve	67.70	0.54	1.89	Open
10-ExWM400mmCarlingAve	60.44	0.48	1.53	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
13-ExWM400mmCarlingAve	60.44	0.48	1.53	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	60.44	0.48	1.53	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-75.09	1.06	4.38	Open
25-PropWM300mmRdA	128.14	1.81	11.80	Open
33-PropWM300mmRdL	-75.09	1.06	4.38	Open
40-PropWM300mmHospital	129.47	1.83	12.03	Open
39-PropWM300mmHospital	69.47	0.98	3.80	Open
42-PropWM300mmHospital	224.47	3.18	33.32	Open
41-PropWM300mmHospital	129.47	1.83	12.03	Open
38-PropWM300mmHospital	69.47	0.98	3.80	Open
1-ExWM400mmCarlingAve	60.44	0.08	0.00	Open
3-ExWM400mmCarlingAve	60.44	0.48	1.54	Open

5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-7.59	0.24	0.53	Open
27-PropWM300mmRdB	76.79	1.09	4.57	Open
26-PropWM300mmRdA	51.36	0.73	2.17	Open
47-PropWM300mmHospital	-51.36	0.73	2.17	Open
49-PropWM300mmRdA	-51.36	0.73	2.17	Open
50-PropWM300mmRdE	69.47	0.98	3.80	Open
51-PropWM300mmRdE	69.47	0.98	3.80	Open
56-PropWM300mmRdE	-66.22	0.94	3.47	Open
57-PropWM200mmCUPService	-7.59	0.24	0.53	Open
59-PropWM300mmRdE	-75.09	1.06	4.38	Open
60-PropWM300mmRdE	-75.09	1.06	4.38	Open
61-PropWM300mmRdE	-75.09	1.06	4.38	Open
62-PropWM300mmRdE	-75.09	1.06	4.38	Open
63-PropWM300mmRdE	-75.09	1.06	4.38	Open
64-PropWM300mmHospital	-75.09	1.06	4.38	Open
65-PropWM300mmHospital	-75.09	1.06	4.38	Open
66-PropWM300mmHospital	-75.09	1.06	4.38	Open
67-PropWM300mmHospital	-75.09	1.06	4.38	Open
68-PropWM300mmHospital	-75.09	1.06	4.38	Open
69-PropWM300mmHospital	-75.09	1.06	4.38	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
72-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
73-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
74-PropWM300mmLoadingDock	-75.09	1.06	4.38	Open
75-PropWM300mmRdL	-75.09	1.06	4.38	Open
77-PropWM300mmRdL	-75.09	1.06	4.38	Open
78-PropWM300mmRdL	-75.09	1.06	4.38	Open
80-PropWM300mmRdL	-75.09	1.06	4.38	Open
48-PropWM300mmHospital	-51.36	0.73	2.17	Open
48B-PropWM300mmHospital	-46.95	0.66	1.84	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
83-PropWM300mm	-4.41	0.06	0.02	Open
84-PropWM150mm	-4.41	0.25	0.94	Open
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	173.12	2.45	20.59	Open
44-PropWM300mmHospital(2)	173.12	2.45	20.59	Open
22-PropWM300mmRdA	128.14	1.81	11.80	Open
22-PropWM300mmRdA(2)	128.14	1.81	11.80	Open
34-PropWM300mmRdE(2)	-43.45	0.61	1.59	Open
76-PropWM300mmHospitalService	-8.96	0.13	0.09	Open

79-PropWM300mmHospitalService	-8.96	0.13	0.09	Open
1	-8.87	0.50	3.44	Open
2	-66.22	0.94	3.47	Open
3	-75.09	1.06	4.38	Open
6	4.41	0.06	0.02	Open
7	4.41	0.25	0.94	Open
8	0.00	0.00	0.00	Open
9	69.47	0.98	3.80	Open
10	-25.53	0.36	0.59	Open
11	-34.49	0.49	1.04	Open
12	7.59	0.24	0.53	Open
13	-51.04	0.72	2.14	Open
14	-58.63	0.83	2.77	Open
15	-66.22	0.94	3.47	Open
16	-66.22	0.94	3.47	Open
FIRESERVICEMETER2	173.12	2.45	0.61	Open Valve
FIRESERVICEMETER1	128.14	1.81	0.31	Open Valve

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**********************************************************************
*                            E P A N E T                             *
*                     Hydraulic and Water Quality                    *
*                     Analysis for Pipe Networks                     *
*                          Version 2.2                               *
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Input File: NCD-Case 1 TOWER B.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
----------------------------------------------------------------------
Link            Start          End                Length  Diameter
ID              Node           Node                    m        mm
----------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3            44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13          8.10173833723436       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2           72.0604746626472       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7           30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1            20.6394832517881       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                 14.21       300
36-PropWM300mmRdDH-4           J-7                 59.70       300
28-PropWM300mmRdBH-2           J-25           47.9195248882866       300
30-PropWM300mmRdBJ-25          H-5            42.0036195237461       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5            22.941571844959       300
25-PropWM300mmRdAJ-17          J-16           62.2851182626027       300
33-PropWM300mmRdLH-12          J-12           28.8853068075771       300
40-PropWM300mmHospitalJ-4            H-15                91.57       300
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39-PropWM300mmHospitalH-15	J-5	24.29	300	
42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	0.217566858316817	1000	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)	J-24	11.58	200	
27-PropWM300mmRdBJ-16	H-2	21.5808707602312	300	
26-PropWM300mmRdAJ-16	J-15	21.3543962701595	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.6655277241037	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)	J-10	11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.5857153250994	300	
69-PropWM300mmHospitalJ-40	J-39	22.0228385256111	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
75-PropWM300mmRdLJ-43	J-46	37.5282521890565	300	
77-PropWM300mmRdLJ-46	J-11	5.05366092600287	300	
78-PropWM300mmRdLJ-11	H-12	6.0260271211011	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.7449782977257	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	

44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	
34-PropWM300mmRdE(2)J-183	J-24	23.44	300	
76-PropWM300mmHospitalServiceJ-45(HospitalService)J-183		28.02	300	
79-PropWM300mmHospitalServiceJ-23(HospitalService)J-9		28.03	300	
1	UOHI	T-501	11.80	150
2	J-31	T-501	10.52	300
3	T-501	H-10	79.65	300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
6	J-28	TEE-34	11.16	300	
7	TEE-34	H-17	21.77	150	
8	TEE-34	H-18	26.77	150	
9	J-8	H-14	56.95	300	
10	H-14	J-9	14.32	300	
11	J-9	J-183	6.50	300	
12	J-48	J-49(CUPService)	11.60	200	
13	J-24	J-10	4.00	300	
14	J-10	J-48	4.00	300	
15	J-48	H-3	34.80	300	
16	H-3	H-11	78.65	300	
FIRESERVICEMETER2688-A	688-B	#N/A	300	Valve	
FIRESERVICEMETER1691-A	691-B	#N/A	300	Valve	

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	106.93	40.83	0.00
J-21	0.00	106.82	41.26	0.00
J-20	0.00	107.04	41.71	0.00
J-19	0.00	107.10	42.97	0.00
J-8	0.00	103.29	23.98	0.00
J-7	0.00	103.45	23.58	0.00
J-6	0.00	103.78	27.83	0.00
J-5	0.00	103.95	28.66	0.00
J-4	0.00	104.47	30.27	0.00
J-3	0.00	104.72	30.65	0.00
J-2	0.00	105.53	38.29	0.00

J-1	0.00	106.71	40.10	0.00
J-12	0.00	102.76	32.95	0.00
J-13	0.00	102.79	33.16	0.00
J-14	0.00	102.86	33.52	0.00
J-15	0.00	104.27	32.26	0.00
J-16	0.00	104.28	33.10	0.00
J-17	0.00	105.13	36.85	0.00
J-18	0.00	105.61	39.24	0.00
J-11	0.00	102.63	32.46	0.00
J-10	0.00	102.87	29.30	0.00
J-9	0.00	102.96	24.87	0.00
J-23(HospitalService)	8.96	102.96	31.54	0.00
J-E1	0.00	107.09	40.62	0.00
J-E2	0.00	106.93	41.34	0.00
J-E3	0.00	106.73	41.76	0.00
J-E4	0.00	106.82	41.74	0.00
J-E7	0.00	107.04	43.46	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-E8	0.00	107.10	44.01	0.00
J-24	0.00	102.87	29.31	0.00
J-25	0.00	103.44	33.21	0.00
J-26(PGService)	1.70	103.43	32.83	0.00
J-E6	0.00	106.89	42.26	0.00
J-E5	0.00	106.89	42.31	0.00
J-E9	0.00	107.10	44.35	0.00
J-E10	0.00	107.10	44.41	0.00
J-E11	0.00	107.10	41.02	0.00
J-27(CUPService)	7.59	102.87	29.26	0.00
J-28	0.00	104.27	30.59	0.00
J-29	0.00	104.65	30.42	0.00
J-30(CUPService)	7.59	102.86	29.37	0.00
J-31	0.00	102.73	28.03	0.00
J-32	0.00	102.65	24.37	0.00
J-33	0.00	102.63	25.11	0.00
J-34	0.00	102.59	23.65	0.00
J-35	0.00	102.57	20.63	0.00
J-36	0.00	102.50	22.87	0.00
J-37	0.00	102.46	31.07	0.00
J-38	0.00	102.43	32.34	0.00
J-39	0.00	102.39	32.55	0.00
J-40	0.00	102.41	31.21	0.00
J-41	0.00	102.19	32.29	0.00
J-42	0.00	101.82	32.12	0.00

J-43	0.00	102.48	32.73	0.00
J-45(HospitalService)	8.96	102.94	31.51	0.00
J-46	0.00	102.62	32.48	0.00
J-44	0.00	102.53	21.84	0.00
J-47	0.00	104.44	30.24	0.00
J-183	0.00	102.94	25.88	0.00
H-1	0.00	105.50	38.32	0.00
H-2	0.00	104.02	32.80	0.00
H-3	0.00	102.82	27.32	0.00
H-4	0.00	103.72	26.97	0.00
H-5	60.00	102.94	33.07	0.00
H-6	0.00	103.39	23.36	0.00
366028H031	0.00	106.88	42.15	0.00
366028H029	0.00	106.81	41.62	0.00
366028H030	0.00	106.89	41.81	0.00
366028H185	0.00	107.10	40.72	0.00
366028H219	0.00	107.10	44.01	0.00
H-12	0.00	102.66	32.23	0.00
H-13	95.00	101.82	31.74	0.00
H-14	0.00	103.03	25.61	0.00
H-15	0.00	104.06	28.75	0.00
H-7	0.00	104.52	29.18	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-8	0.00	102.26	31.74	0.00	
H-9	0.00	102.60	24.49	0.00	
H-10	0.00	102.66	25.80	0.00	
H-11	0.00	102.73	27.78	0.00	
H-16	0.00	104.43	25.02	0.00	
H-18	95.00	96.77	19.97	0.00	
H-17	0.00	104.28	24.33	0.00	
H-19	0.00	107.10	43.30	0.00	
688-A	0.00	106.50	39.42	0.00	
688-B	0.00	105.96	38.88	0.00	
691-A	0.00	106.43	39.85	0.00	
691-B	0.00	106.04	39.46	0.00	
UOHI	8.87	102.68	29.01	0.00	
T-501	0.00	102.72	30.61	0.00	
TEE-34	0.00	104.21	32.48	0.00	
J-48	0.00	102.86	29.26	0.00	
J-49(CUPService)	7.59	102.85	29.49	0.00	
R-1	-65.57	107.10	0.00	0.00	Reservoir
R-2	-235.69	107.10	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	161.91	2.29	18.19	Open
32-PropWM300mmRdL	-68.13	0.96	3.66	Open
21-ExWM400mmCarlingAve	235.69	0.30	0.09	Open
20-ExWM400mmCarlingAve	73.77	0.59	2.21	Open
16-ExWM400mmCarlingAve	65.57	0.52	1.78	Open
8-ExWM400mmCarlingAve	65.57	0.52	1.78	Open
45-PropWM300mmHospital	161.91	2.29	18.19	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	139.35	1.97	13.78	Open
24-PropWM300mmRdA	139.35	1.97	13.78	Open
37-PropWM300mmRdD	76.43	1.08	4.53	Open
36-PropWM300mmRdD	76.43	1.08	4.53	Open
28-PropWM300mmRdB	129.83	1.84	12.09	Open
30-PropWM300mmRdB	128.13	1.81	11.80	Open
29-PropWM150mmPGService	1.70	0.10	0.16	Open
14-ExWM400mmCarlingAve	65.57	0.52	1.78	Open
17-ExWM400mmCarlingAve	73.77	0.59	2.21	Open
18-ExWM400mmCarlingAve	73.77	0.59	2.21	Open
10-ExWM400mmCarlingAve	65.57	0.52	1.78	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
13-ExWM400mmCarlingAve	65.57	0.52	1.78	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	65.57	0.52	1.77	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-68.13	0.96	3.66	Open
25-PropWM300mmRdA	139.35	1.97	13.78	Open
33-PropWM300mmRdL	-68.13	0.96	3.66	Open
40-PropWM300mmHospital	76.43	1.08	4.53	Open
39-PropWM300mmHospital	76.43	1.08	4.53	Open
42-PropWM300mmHospital	76.43	1.08	4.53	Open
41-PropWM300mmHospital	76.43	1.08	4.53	Open
38-PropWM300mmHospital	76.43	1.08	4.53	Open
1-ExWM400mmCarlingAve	65.57	0.08	0.00	Open
3-ExWM400mmCarlingAve	65.57	0.52	1.79	Open

5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-7.59	0.24	0.53	Open
27-PropWM300mmRdB	129.83	1.84	12.09	Open
26-PropWM300mmRdA	9.51	0.13	0.10	Open
47-PropWM300mmHospital	85.49	1.21	5.57	Open
49-PropWM300mmRdA	-9.51	0.13	0.10	Open
50-PropWM300mmRdE	76.43	1.08	4.53	Open
51-PropWM300mmRdE	76.43	1.08	4.53	Open
56-PropWM300mmRdE	35.74	0.51	1.11	Open
57-PropWM200mmCUPService	-7.59	0.24	0.53	Open
59-PropWM300mmRdE	26.87	0.38	0.65	Open
60-PropWM300mmRdE	26.87	0.38	0.65	Open
61-PropWM300mmRdE	26.87	0.38	0.65	Open
62-PropWM300mmRdE	26.87	0.38	0.65	Open
63-PropWM300mmRdE	26.87	0.38	0.65	Open
64-PropWM300mmHospital	26.87	0.38	0.65	Open
65-PropWM300mmHospital	26.87	0.38	0.65	Open
66-PropWM300mmHospital	26.87	0.38	0.65	Open
67-PropWM300mmHospital	26.87	0.38	0.65	Open
68-PropWM300mmHospital	26.87	0.38	0.65	Open
69-PropWM300mmHospital	26.87	0.38	0.65	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	-95.00	1.34	6.78	Open
72-PropWM300mmLoadingDock	-95.00	1.34	6.78	Open
73-PropWM300mmLoadingDock	-95.00	1.34	6.78	Open
74-PropWM300mmLoadingDock	-68.13	0.96	3.66	Open
75-PropWM300mmRdL	-68.13	0.96	3.66	Open
77-PropWM300mmRdL	-68.13	0.96	3.66	Open
78-PropWM300mmRdL	-68.13	0.96	3.66	Open
80-PropWM300mmRdL	-68.13	0.96	3.66	Open
48-PropWM300mmHospital	85.49	1.21	5.57	Open
48B-PropWM300mmHospital	76.89	1.09	4.58	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
83-PropWM300mm	8.60	0.12	0.08	Open
84-PropWM150mm	8.60	0.49	3.25	Open
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	161.91	2.29	18.19	Open
44-PropWM300mmHospital(2)	161.91	2.29	18.19	Open
22-PropWM300mmRdA	139.35	1.97	13.78	Open
22-PropWM300mmRdA(2)	139.35	1.97	13.78	Open
34-PropWM300mmRdE(2)	58.51	0.83	2.76	Open
76-PropWM300mmHospitalService	-8.96	0.13	0.09	Open

79-PropWM300mmHospitalService	-8.96	0.13	0.09	Open
1	-8.87	0.50	3.44	Open
2	35.74	0.51	1.11	Open
3	26.87	0.38	0.65	Open
6	86.40	1.22	5.69	Open
7	-8.60	0.49	3.25	Open
8	95.00	5.38	277.99	Open
9	76.43	1.08	4.53	Open
10	76.43	1.08	4.53	Open
11	67.47	0.95	3.59	Open
12	7.59	0.24	0.53	Open
13	50.92	0.72	2.13	Open
14	43.33	0.61	1.58	Open
15	35.74	0.51	1.11	Open
16	35.74	0.51	1.11	Open
FIRESERVICEMETER2	161.91	2.29	0.54	Open Valve
FIRESERVICEMETER1	139.35	1.97	0.39	Open Valve

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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************

Input File: NCD-Case 1 UOHI.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
---------------------------------------------------------------------
Link           Start          End                Length  Diameter
ID             Node           Node                    m        mm
---------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3           44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13          8.10173833723436       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2           72.0604746626472       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7          30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1            20.6394832517881       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1           8.34306529014965       300
24-PropWM300mmRdAH-1           J-17          26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                14.21       300
36-PropWM300mmRdDH-4           J-7                59.70       300
28-PropWM300mmRdBH-2           J-25          47.9195248882866       300
30-PropWM300mmRdBJ-25          H-5           42.0036195237461       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8          0.382945097269914       400
4-ExWM150mmPrestonStJ-E9          366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5           22.941571844959       300
25-PropWM300mmRdAJ-17          J-16          62.2851182626027       300
33-PropWM300mmRdLH-12          J-12          28.8853068075771       300
40-PropWM300mmHospitalJ-4            H-15               91.57       300
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39-PropWM300mmHospitalH-15	J-5	24.29	300	
42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	0.217566858316817	1000	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)	J-24	11.58	200	
27-PropWM300mmRdBJ-16	H-2	21.5808707602312	300	
26-PropWM300mmRdAJ-16	J-15	21.3543962701595	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.6655277241037	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)	J-10	11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.5857153250994	300	
69-PropWM300mmHospitalJ-40	J-39	22.0228385256111	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
75-PropWM300mmRdLJ-43	J-46	37.5282521890565	300	
77-PropWM300mmRdLJ-46	J-11	5.05366092600287	300	
78-PropWM300mmRdLJ-11	H-12	6.0260271211011	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.7449782977257	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	

44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	
34-PropWM300mmRdE(2)J-183	J-24	23.44	300	
76-PropWM300mmHospitalServiceJ-45(HospitalService)J-183		28.02	300	
79-PropWM300mmHospitalServiceJ-23(HospitalService)J-9		28.03	300	
1	UOHI	T-501	11.80	150
2	J-31	T-501	10.52	300
3	T-501	H-10	79.65	300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
6	J-28	TEE-34	11.16	300	
7	TEE-34	H-17	21.77	150	
8	TEE-34	H-18	26.77	150	
9	J-8	H-14	56.95	300	
10	H-14	J-9	14.32	300	
11	J-9	J-183	6.50	300	
12	J-48	J-49(CUPService)	11.60	200	
13	J-24	J-10	4.00	300	
14	J-10	J-48	4.00	300	
15	J-48	H-3	34.80	300	
16	H-3	H-11	78.65	300	
FIRESERVICEMETER2688-A	688-B	#N/A	300	Valve	
FIRESERVICEMETER1691-A	691-B	#N/A	300	Valve	

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	106.94	40.84	0.00
J-21	0.00	106.84	41.28	0.00
J-20	0.00	107.05	41.71	0.00
J-19	0.00	107.10	42.97	0.00
J-8	0.00	100.09	20.79	0.00
J-7	0.00	100.60	20.74	0.00
J-6	0.00	101.65	25.69	0.00
J-5	0.00	102.15	26.87	0.00
J-4	0.00	103.79	29.59	0.00
J-3	0.00	104.57	30.50	0.00
J-2	0.00	105.42	38.19	0.00

J-1	0.00	106.69	40.08	0.00
J-12	0.00	101.66	31.85	0.00
J-13	0.00	101.81	32.18	0.00
J-14	0.00	102.12	32.78	0.00
J-15	0.00	104.50	32.48	0.00
J-16	0.00	104.48	33.31	0.00
J-17	0.00	105.28	37.00	0.00
J-18	0.00	105.72	39.36	0.00
J-11	0.00	101.06	30.88	0.00
J-10	0.00	98.70	25.14	0.00
J-9	0.00	99.08	21.00	0.00
J-23(HospitalService)	8.96	99.08	27.66	0.00
J-E1	0.00	107.09	40.62	0.00
J-E2	0.00	106.94	41.36	0.00
J-E3	0.00	106.75	41.78	0.00
J-E4	0.00	106.84	41.76	0.00
J-E7	0.00	107.05	43.46	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-E8	0.00	107.10	44.01	0.00
J-24	0.00	98.74	25.18	0.00
J-25	0.00	103.25	33.02	0.00
J-26(PGService)	1.70	103.25	32.64	0.00
J-E6	0.00	106.91	42.27	0.00
J-E5	0.00	106.91	42.32	0.00
J-E9	0.00	107.10	44.35	0.00
J-E10	0.00	107.10	44.41	0.00
J-E11	0.00	107.10	41.02	0.00
J-27(CUPService)	7.59	98.73	25.14	0.00
J-28	0.00	104.52	30.84	0.00
J-29	0.00	104.56	30.33	0.00
J-30(CUPService)	7.59	98.69	25.22	0.00
J-31	0.00	98.31	23.62	0.00
J-32	0.00	98.65	20.37	0.00
J-33	0.00	98.76	21.25	0.00
J-34	0.00	98.97	20.04	0.00
J-35	0.00	99.04	17.10	0.00
J-36	0.00	99.39	19.77	0.00
J-37	0.00	99.59	28.20	0.00
J-38	0.00	99.73	29.65	0.00
J-39	0.00	99.91	30.07	0.00
J-40	0.00	99.84	28.65	0.00
J-41	0.00	99.71	29.81	0.00
J-42	0.00	99.34	29.64	0.00

J-43	0.00	100.31	30.57	0.00
J-45(HospitalService)	8.96	99.00	27.58	0.00
J-46	0.00	100.97	30.84	0.00
J-44	0.00	99.25	18.57	0.00
J-47	0.00	104.54	30.35	0.00
J-183	0.00	99.00	21.94	0.00
H-1	0.00	105.62	38.44	0.00
H-2	0.00	104.10	32.88	0.00
H-3	60.00	98.40	22.92	0.00
H-4	0.00	101.44	24.70	0.00
H-5	0.00	102.52	32.65	0.00
H-6	0.00	100.41	20.39	0.00
366028H031	0.00	106.89	42.17	0.00
366028H029	0.00	106.83	41.64	0.00
366028H030	0.00	106.91	41.82	0.00
366028H185	0.00	107.10	40.72	0.00
366028H219	0.00	107.10	44.01	0.00
H-12	0.00	101.16	30.74	0.00
H-13	95.00	99.34	29.26	0.00
H-14	0.00	99.28	21.87	0.00
H-15	0.00	102.50	27.20	0.00
H-7	0.00	103.95	28.60	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-8	0.00	99.78	29.26	0.00	
H-9	0.00	98.88	20.78	0.00	
H-10	0.00	98.58	21.73	0.00	
H-11	95.00	98.29	23.35	0.00	
H-16	0.00	104.54	25.12	0.00	
H-18	0.00	104.52	27.70	0.00	
H-17	0.00	104.52	24.57	0.00	
H-19	0.00	107.10	43.30	0.00	
688-A	0.00	106.46	39.38	0.00	
688-B	0.00	105.89	38.81	0.00	
691-A	0.00	106.47	39.89	0.00	
691-B	0.00	106.12	39.54	0.00	
UOHI	8.87	98.29	24.63	0.00	
T-501	0.00	98.33	26.24	0.00	
TEE-34	0.00	104.52	32.79	0.00	
J-48	0.00	98.67	25.08	0.00	
J-49(CUPService)	7.59	98.66	25.30	0.00	
R-1	-63.10	107.10	0.00	0.00	Reservoir
R-2	-238.16	107.10	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	167.32	2.37	19.33	Open
32-PropWM300mmRdL	-158.15	2.24	17.42	Open
21-ExWM400mmCarlingAve	238.16	0.30	0.09	Open
20-ExWM400mmCarlingAve	70.85	0.56	2.05	Open
16-ExWM400mmCarlingAve	63.10	0.50	1.66	Open
8-ExWM400mmCarlingAve	63.10	0.50	1.66	Open
45-PropWM300mmHospital	167.32	2.37	19.33	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	133.94	1.89	12.80	Open
24-PropWM300mmRdA	133.94	1.89	12.80	Open
37-PropWM300mmRdD	141.41	2.00	14.16	Open
36-PropWM300mmRdD	141.41	2.00	14.16	Open
28-PropWM300mmRdB	159.85	2.26	17.77	Open
30-PropWM300mmRdB	158.15	2.24	17.42	Open
29-PropWM150mmPGService	1.70	0.10	0.16	Open
14-ExWM400mmCarlingAve	63.10	0.50	1.66	Open
17-ExWM400mmCarlingAve	70.85	0.56	2.05	Open
18-ExWM400mmCarlingAve	70.85	0.56	2.05	Open
10-ExWM400mmCarlingAve	63.10	0.50	1.66	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
13-ExWM400mmCarlingAve	63.10	0.50	1.66	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	63.10	0.50	1.65	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-158.15	2.24	17.42	Open
25-PropWM300mmRdA	133.94	1.89	12.80	Open
33-PropWM300mmRdL	-158.15	2.24	17.42	Open
40-PropWM300mmHospital	141.41	2.00	14.16	Open
39-PropWM300mmHospital	141.41	2.00	14.16	Open
42-PropWM300mmHospital	141.41	2.00	14.16	Open
41-PropWM300mmHospital	141.41	2.00	14.16	Open
38-PropWM300mmHospital	141.41	2.00	14.16	Open
1-ExWM400mmCarlingAve	63.10	0.08	0.00	Open
3-ExWM400mmCarlingAve	63.10	0.50	1.68	Open

5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-7.59	0.24	0.53	Open
27-PropWM300mmRdB	159.85	2.26	17.77	Open
26-PropWM300mmRdA	-25.90	0.37	0.61	Open
47-PropWM300mmHospital	25.90	0.37	0.61	Open
49-PropWM300mmRdA	25.90	0.37	0.61	Open
50-PropWM300mmRdE	141.41	2.00	14.16	Open
51-PropWM300mmRdE	141.41	2.00	14.16	Open
56-PropWM300mmRdE	-54.28	0.77	2.40	Open
57-PropWM200mmCUPService	-7.59	0.24	0.53	Open
59-PropWM300mmRdE	-63.15	0.89	3.18	Open
60-PropWM300mmRdE	-63.15	0.89	3.18	Open
61-PropWM300mmRdE	-63.15	0.89	3.18	Open
62-PropWM300mmRdE	-63.15	0.89	3.18	Open
63-PropWM300mmRdE	-63.15	0.89	3.18	Open
64-PropWM300mmHospital	-63.15	0.89	3.18	Open
65-PropWM300mmHospital	-63.15	0.89	3.18	Open
66-PropWM300mmHospital	-63.15	0.89	3.18	Open
67-PropWM300mmHospital	-63.15	0.89	3.18	Open
68-PropWM300mmHospital	-63.15	0.89	3.18	Open
69-PropWM300mmHospital	-63.15	0.89	3.18	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	-95.00	1.34	6.78	Open
72-PropWM300mmLoadingDock	-95.00	1.34	6.78	Open
73-PropWM300mmLoadingDock	-95.00	1.34	6.78	Open
74-PropWM300mmLoadingDock	-158.15	2.24	17.42	Open
75-PropWM300mmRdL	-158.15	2.24	17.42	Open
77-PropWM300mmRdL	-158.15	2.24	17.42	Open
78-PropWM300mmRdL	-158.15	2.24	17.42	Open
80-PropWM300mmRdL	-158.15	2.24	17.42	Open
48-PropWM300mmHospital	25.90	0.37	0.61	Open
48B-PropWM300mmHospital	23.69	0.34	0.52	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
83-PropWM300mm	2.21	0.03	0.01	Open
84-PropWM150mm	2.21	0.13	0.26	Open
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	167.32	2.37	19.33	Open
44-PropWM300mmHospital(2)	167.32	2.37	19.33	Open
22-PropWM300mmRdA	133.94	1.89	12.80	Open
22-PropWM300mmRdA(2)	133.94	1.89	12.81	Open
34-PropWM300mmRdE(2)	123.49	1.75	11.02	Open
76-PropWM300mmHospitalService	-8.96	0.13	0.09	Open

79-PropWM300mmHospitalService	-8.96	0.13	0.09	Open
1	-8.87	0.50	3.44	Open
2	-54.28	0.77	2.40	Open
3	-63.15	0.89	3.18	Open
6	-2.21	0.03	0.01	Open
7	-2.21	0.13	0.26	Open
8	0.00	0.00	0.00	Open
9	141.41	2.00	14.16	Open
10	141.41	2.00	14.16	Open
11	132.45	1.87	12.54	Open
12	7.59	0.24	0.53	Open
13	115.90	1.64	9.80	Open
14	108.31	1.53	8.64	Open
15	100.72	1.42	7.55	Open
16	40.72	0.58	1.41	Open
FIRESERVICEMETER2	167.32	2.37	0.57	Open Valve
FIRESERVICEMETER1	133.94	1.89	0.35	Open Valve

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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                          Version 2.2                              *
*********************************************************************

Input File: NCD-Case 2.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
---------------------------------------------------------------------
Link            Start          End                 Length  Diameter
ID              Node           Node                     m        mm
---------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3            44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13                  8.10       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2               72.06       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7           30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1                20.64       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                 14.21       300
36-PropWM300mmRdDH-4           J-7                 59.70       300
28-PropWM300mmRdBH-2           J-25                47.92       300
30-PropWM300mmRdBJ-25          H-5                 42.00       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5                 22.94       300
25-PropWM300mmRdAJ-17          J-16                62.29       300
40-PropWM300mmHospitalJ-4            H-15                91.57       300
39-PropWM300mmHospitalH-15           J-5                 24.29       300
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42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	0.217566858316817	1000	
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)J-24		10.71	200	
27-PropWM300mmRdBJ-16	H-2	21.58	300	
26-PropWM300mmRdAJ-16	J-15	21.35	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.67	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)J-10		10.71	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.59	300	
69-PropWM300mmHospitalJ-40	J-39	22.02	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.74	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	
44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	

34-PropWM300mmRdE(2) J-183 J-24 34.93 300
76-PropWM300mmHospitalService J-45(HospitalService) J-183 28.02 300
79-PropWM300mmHospitalService J-23(HospitalService) J-9 28.03 300
1 UOHI T-501 11.80 150
2 J-31 T-501 10.52 300
3 T-501 H-10 79.65 300
6 J-28 TEE-34 11.16 300
7 TEE-34 H-17 21.77 150
8 TEE-34 H-18 26.77 150
9 J-8 H-14 56.95 300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
10	H-14	J-9	3.82	300	
11	J-9	J-183	5.50	300	
13	J-24	J-10	4.00	300	
16	H-3	H-11	78.65	300	
5	H-20	J-12	19.09	300	
17	J-43	H-12	7.75	300	
18	H-12	J-46	29.78	300	
19	J-46	J-11	5.05	300	
20	J-11	H-20	15.82	300	
4	H-3	J-10	39.69	300	
FIRESERVICEMETER2688-A		688-B	#N/A	300	Valve
FIRESERVICEMETER1691-A		691-B	#N/A	300	Valve

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	107.09	40.99	0.00
J-21	0.00	107.09	41.53	0.00
J-20	0.00	107.10	41.76	0.00
J-19	0.00	107.10	42.97	0.00
J-8	0.00	106.73	30.12	0.00
J-7	0.00	106.76	29.86	0.00
J-6	0.00	106.82	33.58	0.00
J-5	0.00	106.84	31.27	0.00
J-4	0.00	106.94	35.46	0.00
J-3	0.00	106.98	35.52	0.00
J-2	0.00	107.02	42.90	0.00
J-1	0.00	107.08	43.13	0.00

J-12	0.00	106.91	39.78	0.00
J-13	0.00	106.91	39.98	0.00
J-14	0.00	106.92	40.26	0.00
J-15	0.00	106.98	37.64	0.00
J-16	0.00	106.98	38.57	0.00
J-17	0.00	107.01	41.42	0.00
J-18	0.00	107.03	43.35	0.00
J-11	0.00	106.90	39.45	0.00
J-10	0.00	106.68	33.14	0.00
J-9	0.00	106.68	32.11	0.00
J-23(HospitalService)	16.13	106.67	29.75	0.00
J-E1	0.00	107.10	43.18	0.00
J-E2	0.00	107.09	41.51	0.00
J-E3	0.00	107.09	44.81	0.00
J-E4	0.00	107.09	42.01	0.00
J-E7	0.00	107.10	43.51	0.00
J-E8	0.00	107.10	44.01	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-24	0.00	106.68	33.00	0.00
J-25	0.00	106.95	39.43	0.00
J-26(PGService)	3.07	106.94	36.33	0.00
J-E6	0.00	107.09	42.46	0.00
J-E5	0.00	107.09	42.51	0.00
J-E9	0.00	107.10	44.35	0.00
J-E10	0.00	107.10	44.41	0.00
J-E11	0.00	107.10	41.02	0.00
J-27(CUPService)	1.00	106.68	33.06	0.00
J-28	0.00	106.98	36.04	0.00
J-29	0.00	106.98	35.48	0.00
J-30(CUPService)	1.00	106.68	33.18	0.00
J-31	0.00	106.68	34.42	0.00
J-32	0.00	106.72	31.13	0.00
J-33	0.00	106.73	31.96	0.00
J-34	0.00	106.76	30.47	0.00
J-35	0.00	106.77	26.75	0.00
J-36	0.00	106.81	30.10	0.00
J-37	0.00	106.83	38.68	0.00
J-38	0.00	106.85	39.40	0.00
J-39	0.00	106.87	39.51	0.00
J-40	0.00	106.86	39.97	0.00
J-41	0.00	106.87	36.96	0.00
J-42	0.00	106.87	37.16	0.00
J-43	0.00	106.88	39.81	0.00

J-45(HospitalService)	16.13	106.67	29.76	0.00
J-46	0.00	106.90	39.80	0.00
J-44	0.00	106.79	28.75	0.00
J-47	0.00	106.98	35.49	0.00
J-183	0.00	106.68	32.25	0.00
H-1	0.00	107.03	39.68	0.00
H-2	0.00	106.97	36.06	0.00
H-3	0.00	106.68	31.17	0.00
H-4	0.00	106.80	30.05	0.00
H-5	0.00	106.93	37.06	0.00
H-6	0.00	106.75	26.71	0.00
366028H031	0.00	107.09	42.37	0.00
366028H029	0.00	107.09	41.90	0.00
366028H030	0.00	107.09	42.01	0.00
366028H185	0.00	107.10	40.72	0.00
366028H219	0.00	107.10	44.01	0.00
H-12	0.00	106.88	36.64	0.00
H-13	0.00	106.87	36.78	0.00
H-14	0.00	106.68	29.24	0.00
H-15	0.00	106.86	31.66	0.00
H-7	0.00	106.95	31.60	0.00
H-8	0.00	106.87	36.34	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-9	0.00	106.75	28.62	0.00	
H-10	0.00	106.71	29.84	0.00	
H-11	0.00	106.68	31.72	0.00	
H-16	0.00	106.98	27.56	0.00	
H-18	0.00	106.98	30.16	0.00	
H-17	0.00	106.98	27.03	0.00	
H-19	0.00	107.10	43.30	0.00	
688-A	0.00	107.07	43.12	0.00	
688-B	0.00	107.03	39.95	0.00	
691-A	0.00	107.07	45.56	0.00	
691-B	0.00	107.05	40.47	0.00	
UOHI	15.97	106.56	31.79	0.00	
T-501	0.00	106.68	34.57	0.00	
TEE-34	0.00	106.98	35.25	0.00	
H-20	0.00	106.90	39.06	0.00	
R-1	-11.19	107.10	0.00	0.00	Reservoir
R-2	-42.11	107.10	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	29.53	0.42	0.78	Open
32-PropWM300mmRdL	-20.23	0.29	0.39	Open
21-ExWM400mmCarlingAve	42.11	0.05	0.00	Open
20-ExWM400mmCarlingAve	12.57	0.10	0.08	Open
16-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
8-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
45-PropWM300mmHospital	29.53	0.42	0.78	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	23.77	0.34	0.52	Open
24-PropWM300mmRdA	23.77	0.34	0.52	Open
37-PropWM300mmRdD	30.00	0.42	0.80	Open
36-PropWM300mmRdD	30.00	0.42	0.80	Open
28-PropWM300mmRdB	23.30	0.33	0.50	Open
30-PropWM300mmRdB	20.23	0.29	0.39	Open
29-PropWM150mmPGService	3.07	0.17	0.48	Open
14-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
17-ExWM400mmCarlingAve	12.57	0.10	0.08	Open
18-ExWM400mmCarlingAve	12.57	0.10	0.08	Open
10-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
13-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-20.23	0.29	0.39	Open
25-PropWM300mmRdA	23.77	0.34	0.52	Open
40-PropWM300mmHospital	30.00	0.42	0.80	Open
39-PropWM300mmHospital	30.00	0.42	0.80	Open
42-PropWM300mmHospital	30.00	0.42	0.80	Open
41-PropWM300mmHospital	30.00	0.42	0.80	Open
38-PropWM300mmHospital	30.00	0.42	0.80	Open
1-ExWM400mmCarlingAve	11.19	0.01	0.00	Open
3-ExWM400mmCarlingAve	11.19	0.09	0.07	Open
5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-1.00	0.03	0.01	Open
27-PropWM300mmRdB	23.30	0.33	0.50	Open

26-PropWM300mmRdA	0.47	0.01	0.00	Open
47-PropWM300mmHospital	-0.47	0.01	0.00	Open
49-PropWM300mmRdA	-0.47	0.01	0.00	Open
50-PropWM300mmRdE	30.00	0.42	0.80	Open
51-PropWM300mmRdE	30.00	0.42	0.80	Open
56-PropWM300mmRdE	-4.26	0.06	0.02	Open
57-PropWM200mmCUPService	-1.00	0.03	0.01	Open
59-PropWM300mmRdE	-20.23	0.29	0.39	Open
60-PropWM300mmRdE	-20.23	0.29	0.39	Open
61-PropWM300mmRdE	-20.23	0.29	0.39	Open
62-PropWM300mmRdE	-20.23	0.29	0.39	Open
63-PropWM300mmRdE	-20.23	0.29	0.39	Open
64-PropWM300mmHospital	-20.23	0.29	0.39	Open
65-PropWM300mmHospital	-20.23	0.29	0.39	Open
66-PropWM300mmHospital	-20.23	0.29	0.39	Open
67-PropWM300mmHospital	-20.23	0.29	0.39	Open
68-PropWM300mmHospital	-20.23	0.29	0.39	Open
69-PropWM300mmHospital	-20.23	0.29	0.39	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
72-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
73-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
74-PropWM300mmLoadingDock	-20.23	0.29	0.39	Open
80-PropWM300mmRdL	-20.23	0.29	0.39	Open
48-PropWM300mmHospital	-0.47	0.01	0.00	Open
48B-PropWM300mmHospital	-0.58	0.01	0.00	Open
83-PropWM300mm	0.11	0.00	0.00	Open
84-PropWM150mm	0.11	0.01	0.00	Open
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	29.53	0.42	0.78	Open
44-PropWM300mmHospital(2)	29.53	0.42	0.78	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
22-PropWM300mmRdA	23.77	0.34	0.52	Open
22-PropWM300mmRdA(2)	23.77	0.34	0.52	Open
34-PropWM300mmRdE(2)	-2.26	0.03	0.01	Open
76-PropWM300mmHospitalService	-16.13	0.23	0.25	Open
79-PropWM300mmHospitalService	-16.13	0.23	0.25	Open
1	-15.97	0.90	10.23	Open
2	-4.26	0.06	0.02	Open
3	-20.23	0.29	0.39	Open
6	-0.11	0.00	0.00	Open
7	-0.11	0.01	0.00	Open

8	0.00	0.00	0.00	Open
9	30.00	0.42	0.80	Open
10	30.00	0.42	0.80	Open
11	13.87	0.20	0.19	Open
13	-3.26	0.05	0.01	Open
16	-4.26	0.06	0.02	Open
5	-20.23	0.29	0.39	Open
17	-20.23	0.29	0.39	Open
18	-20.23	0.29	0.39	Open
19	-20.23	0.29	0.39	Open
20	-20.23	0.29	0.39	Open
4	4.26	0.06	0.02	Open
FIRESERVICEMETER2	29.53	0.42	0.04	Open Valve
FIRESERVICEMETER1	23.77	0.34	0.03	Open Valve

```
**********************************************************************
*                            E P A N E T                             *
*                     Hydraulic and Water Quality                    *
*                     Analysis for Pipe Networks                     *
*                          Version 2.2                               *
**********************************************************************

Input File: NCD-Case 3.net

Scenario: with hospital loop
Date: 2024-07-19 11:25:02 AM

Link - Node Table:
----------------------------------------------------------------------
Link            Start          End                 Length  Diameter
ID              Node           Node                     m        mm
----------------------------------------------------------------------
43-PropWM300mmHospitalJ-2            J-3            44.3429614279853       300
32-PropWM300mmRdLJ-12          J-13                  8.10       300
21-ExWM400mmCarlingAveR-2            J-E1              148.67      1000
20-ExWM400mmCarlingAveJ-E1           J-E2               72.06       400
16-ExWM400mmCarlingAveJ-E4           J-E3           53.8905996515422       400
8-ExWM400mmCarlingAveJ-E8           J-E7           30.3005394242057       400
45-PropWM300mmHospitalJ-E1           J-1                20.64       300
19-PropWM150mmResearchBJ-E2           J-22           30.3462421119232       150
15-PropWM150mmCarlingV-T#3J-E4           J-21           30.9676844497797
150
9-PropWM150mmCarlingV-T#2J-E7           J-20           31.0736886830009       150
7-PropWM150mmCarlingV-T#1J-E8           J-19           31.2526179381906       150
23-PropWM300mmRdAJ-18          H-1            8.34306529014965       300
24-PropWM300mmRdAH-1           J-17           26.2370276682741       300
37-PropWM300mmRdDJ-6           H-4                 14.21       300
36-PropWM300mmRdDH-4           J-7                 59.70       300
28-PropWM300mmRdBH-2           J-25                47.92       300
30-PropWM300mmRdBJ-25          H-5                 42.00       300
29-PropWM150mmPGServiceJ-25           J-26(PGService)     16.98       150
14-ExWM400mmCarlingAve366028H031     J-E4           29.2340814798819       400
17-ExWM400mmCarlingAve366028H029     J-E3           35.0957871684793       400
18-ExWM400mmCarlingAveJ-E2           366028H029     54.4871678813318       400
10-ExWM400mmCarlingAveJ-E7           J-E6           86.5525765463542       400
13-ExWM400mmCarlingAveJ-E6           366028H031     7.73250133830889       400
11-ExWM150mmCarlingAveJ-E6           J-E5           7.45726728454382       150
12-ExWM150mmCarlingAveJ-E5           366028H030     90.9465713866359       150
6-ExWM400mmCarlingAveJ-E9           J-E8           0.382945097269914       400
4-ExWM150mmPrestonStJ-E9           366028H219     40.1973470697933       150
31-PropWM300mmRdBJ-14          H-5                 22.94       300
25-PropWM300mmRdAJ-17          J-16                62.29       300
40-PropWM300mmHospitalJ-4            H-15                91.57       300
39-PropWM300mmHospitalH-15           J-5                 24.29       300
```

42-PropWM300mmHospitalJ-3	H-7	43.89	300	
41-PropWM300mmHospitalH-7	J-4	10.80	300	
38-PropWM300mmHospitalJ-5	J-6	35.8431820756787	300	
1-ExWM400mmCarlingAveR-1	J-E10	19.39	1000	
3-ExWM400mmCarlingAveJ-E10	J-E9	0.399488044413268	400	

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
5A-ExWM150mmPrestonStJ-E11	366028H185	45.2635914858321	150	
46-PropWM200mmCUPServiceJ-27(CUPService)J-24		10.71	200	
27-PropWM300mmRdBJ-16	H-2	21.58	300	
26-PropWM300mmRdAJ-16	J-15	21.35	300	
47-PropWM300mmHospitalJ-3	J-29	12.8116327584704	300	
49-PropWM300mmRdAJ-28	J-15	34.67	300	
50-PropWM300mmRdEJ-7	H-6	13.31	300	
51-PropWM300mmRdEH-6	J-8	22.67	300	
56-PropWM300mmRdEH-11	J-31	5.74	300	
57-PropWM200mmCUPServiceJ-30(CUPService)J-10		11.59	200	
59-PropWM300mmRdEH-10	J-32	19.01	300	
60-PropWM300mmRdEJ-32	J-33	35.9527228433413	300	
61-PropWM300mmRdEJ-33	H-9	38.6955804752682	300	
62-PropWM300mmRdEH-9	J-34	26.326879710781	300	
63-PropWM300mmRdEJ-34	J-35	22.6847258729083	300	
64-PropWM300mmHospitalJ-35	J-44	66.2303194539337	300	
65-PropWM300mmHospitalJ-44	J-36	45.3820485822456	300	
66-PropWM300mmHospitalJ-36	J-37	61.1082602227364	300	
67-PropWM300mmHospitalJ-37	J-38	43.5544391693597	300	
68-PropWM300mmHospitalJ-38	J-40	34.59	300	
69-PropWM300mmHospitalJ-40	J-39	22.02	300	
70-PropWM300mmLoadingDockJ-42	H-13	4.94	300	
71-PropWM300mmLoadingDockH-13	J-41	54.59	300	
72-PropWM300mmLoadingDockJ-41	H-8	10.281839107194	300	
73-PropWM300mmLoadingDockH-8	J-39	18.8763427083242	300	
74-PropWM300mmLoadingDockJ-39	J-43	23.4020520143924	300	
80-PropWM300mmRdLJ-13	J-14	17.9428667770884	300	
48-PropWM300mmHospitalJ-29	J-47	37.9955088729321	300	
48B-PropWM300mmHospitalJ-47	J-28	35.74	300	
83-PropWM300mm J-47	H-16	31.85	300	
84-PropWM150mm H-16	H-17	47.38	150	
5B-ExWM150mmPrestonSt366028H185	H-19	118.755824075502	150	
5-ExWM150mmPrestonStH-19	366028H219	51.0338192356705	150	
44-PropWM300mmHospitalJ-1	688-A	11.7604930134715	300	
44-PropWM300mmHospital(2)688-B	J-2	23.8506572610621	300	
22-PropWM300mmRdAJ-E3	691-A	21.8758265595292	300	
22-PropWM300mmRdA(2)691-B	J-18	31.0182402514265	300	

34-PropWM300mmRdE(2) J-183 J-24 34.93 300
76-PropWM300mmHospitalService J-45(HospitalService) J-183 28.02 300
79-PropWM300mmHospitalService J-23(HospitalService) J-9 28.03 300
1 UOHI T-501 11.80 150
2 J-31 T-501 10.52 300
3 T-501 H-10 79.65 300
6 J-28 TEE-34 11.16 300
7 TEE-34 H-17 21.77 150
8 TEE-34 H-18 26.77 150
9 J-8 H-14 56.95 300

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm	
10	H-14	J-9	3.82	300	
11	J-9	J-183	5.50	300	
13	J-24	J-10	4.00	300	
16	H-3	H-11	78.65	300	
5	H-20	J-12	19.09	300	
17	J-43	H-12	7.75	300	
18	H-12	J-46	29.78	300	
19	J-46	J-11	5.05	300	
20	J-11	H-20	15.82	300	
4	H-3	J-10	39.69	300	
FIRESERVICEMETER2688-A	688-B		#N/A	300	Valve
FIRESERVICEMETER1691-A	691-B		#N/A	300	Valve

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality
J-22	0.00	114.60	48.48	0.00
J-21	0.00	114.60	49.02	0.00
J-20	0.00	114.60	49.25	0.00
J-19	0.00	114.60	50.46	0.00
J-8	0.00	114.54	37.92	0.00
J-7	0.00	114.54	37.63	0.00
J-6	0.00	114.55	41.30	0.00
J-5	0.00	114.56	38.96	0.00
J-4	0.00	114.57	43.08	0.00
J-3	0.00	114.58	43.10	0.00
J-2	0.00	114.59	50.45	0.00
J-1	0.00	114.60	50.63	0.00

J-12	0.00	114.57	47.42	0.00
J-13	0.00	114.57	47.62	0.00
J-14	0.00	114.57	47.90	0.00
J-15	0.00	114.58	45.22	0.00
J-16	0.00	114.58	46.16	0.00
J-17	0.00	114.59	48.98	0.00
J-18	0.00	114.59	50.89	0.00
J-11	0.00	114.57	47.11	0.00
J-10	0.00	114.53	40.97	0.00
J-9	0.00	114.53	39.94	0.00
J-23(HospitalService)	5.98	114.53	37.60	0.00
J-E1	0.00	114.60	50.66	0.00
J-E2	0.00	114.60	49.00	0.00
J-E3	0.00	114.60	52.30	0.00
J-E4	0.00	114.60	49.50	0.00
J-E7	0.00	114.60	51.00	0.00
J-E8	0.00	114.60	51.50	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality
J-24	0.00	114.53	40.83	0.00
J-25	0.00	114.57	47.04	0.00
J-26(PGService)	1.14	114.57	43.94	0.00
J-E6	0.00	114.60	49.95	0.00
J-E5	0.00	114.60	50.00	0.00
J-E9	0.00	114.60	51.84	0.00
J-E10	0.00	114.60	51.90	0.00
J-E11	0.00	114.60	48.50	0.00
J-27(CUPService)	0.56	114.53	40.90	0.00
J-28	0.00	114.58	43.62	0.00
J-29	0.00	114.58	43.06	0.00
J-30(CUPService)	0.56	114.53	41.02	0.00
J-31	0.00	114.53	42.25	0.00
J-32	0.00	114.54	38.93	0.00
J-33	0.00	114.54	39.75	0.00
J-34	0.00	114.54	38.24	0.00
J-35	0.00	114.54	34.51	0.00
J-36	0.00	114.55	37.82	0.00
J-37	0.00	114.56	46.39	0.00
J-38	0.00	114.56	47.09	0.00
J-39	0.00	114.56	47.18	0.00
J-40	0.00	114.56	47.66	0.00
J-41	0.00	114.56	44.63	0.00
J-42	0.00	114.56	44.83	0.00
J-43	0.00	114.56	47.48	0.00

J-45(HospitalService)	5.98	114.53	37.60	0.00
J-46	0.00	114.57	47.46	0.00
J-44	0.00	114.55	36.49	0.00
J-47	0.00	114.58	43.07	0.00
J-183	0.00	114.53	40.09	0.00
H-1	0.00	114.59	47.22	0.00
H-2	0.00	114.58	43.65	0.00
H-3	0.00	114.53	39.00	0.00
H-4	0.00	114.55	37.78	0.00
H-5	0.00	114.57	44.68	0.00
H-6	0.00	114.54	34.49	0.00
366028H031	0.00	114.60	49.86	0.00
366028H029	0.00	114.60	49.40	0.00
366028H030	0.00	114.60	49.50	0.00
366028H185	0.00	114.60	48.20	0.00
366028H219	0.00	114.60	51.50	0.00
H-12	0.00	114.56	44.31	0.00
H-13	0.00	114.56	44.45	0.00
H-14	0.00	114.53	37.07	0.00
H-15	0.00	114.56	39.34	0.00
H-7	0.00	114.57	39.21	0.00
H-8	0.00	114.56	44.01	0.00

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
H-9	0.00	114.54	36.40	0.00	
H-10	0.00	114.54	37.65	0.00	
H-11	0.00	114.53	39.56	0.00	
H-16	0.00	114.58	35.15	0.00	
H-18	0.00	114.58	37.75	0.00	
H-17	0.00	114.58	34.61	0.00	
H-19	0.00	114.60	50.79	0.00	
688-A	0.00	114.60	50.63	0.00	
688-B	0.00	114.59	47.49	0.00	
691-A	0.00	114.60	53.07	0.00	
691-B	0.00	114.59	48.00	0.00	
UOHI	5.91	114.51	39.72	0.00	
T-501	0.00	114.53	42.40	0.00	
TEE-34	0.00	114.58	42.83	0.00	
H-20	0.00	114.57	46.71	0.00	
R-1	-4.28	114.60	0.00	0.00	Reservoir
R-2	-15.85	114.60	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
43-PropWM300mmHospital	11.03	0.16	0.13	Open
32-PropWM300mmRdL	-7.65	0.11	0.06	Open
21-ExWM400mmCarlingAve	15.85	0.02	0.00	Open
20-ExWM400mmCarlingAve	4.82	0.04	0.01	Open
16-ExWM400mmCarlingAve	4.28	0.03	0.01	Open
8-ExWM400mmCarlingAve	4.28	0.03	0.01	Open
45-PropWM300mmHospital	11.03	0.16	0.13	Open
19-PropWM150mmResearchB	0.00	0.00	0.00	Closed
15-PropWM150mmCarlingV-T#3	0.00	0.00	0.00	Closed
9-PropWM150mmCarlingV-T#2	0.00	0.00	0.00	Closed
7-PropWM150mmCarlingV-T#1	0.00	0.00	0.00	Closed
23-PropWM300mmRdA	9.10	0.13	0.09	Open
24-PropWM300mmRdA	9.10	0.13	0.09	Open
37-PropWM300mmRdD	11.34	0.16	0.13	Open
36-PropWM300mmRdD	11.34	0.16	0.13	Open
28-PropWM300mmRdB	8.79	0.12	0.08	Open
30-PropWM300mmRdB	7.65	0.11	0.06	Open
29-PropWM150mmPGService	1.14	0.06	0.08	Open
14-ExWM400mmCarlingAve	4.28	0.03	0.01	Open
17-ExWM400mmCarlingAve	4.82	0.04	0.01	Open
18-ExWM400mmCarlingAve	4.82	0.04	0.01	Open
10-ExWM400mmCarlingAve	4.28	0.03	0.01	Open
13-ExWM400mmCarlingAve	4.28	0.03	0.01	Open
11-ExWM150mmCarlingAve	0.00	0.00	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
12-ExWM150mmCarlingAve	0.00	0.00	0.00	Open
6-ExWM400mmCarlingAve	4.28	0.03	0.00	Open
4-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
31-PropWM300mmRdB	-7.65	0.11	0.06	Open
25-PropWM300mmRdA	9.10	0.13	0.09	Open
40-PropWM300mmHospital	11.34	0.16	0.13	Open
39-PropWM300mmHospital	11.34	0.16	0.13	Open
42-PropWM300mmHospital	11.34	0.16	0.13	Open
41-PropWM300mmHospital	11.34	0.16	0.13	Open
38-PropWM300mmHospital	11.34	0.16	0.13	Open
1-ExWM400mmCarlingAve	4.28	0.01	0.00	Open
3-ExWM400mmCarlingAve	4.28	0.03	0.02	Open
5A-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
46-PropWM200mmCUPService	-0.56	0.02	0.00	Open
27-PropWM300mmRdB	8.79	0.12	0.08	Open

26-PropWM300mmRdA	0.32	0.00	0.00	Open
47-PropWM300mmHospital	-0.32	0.00	0.00	Open
49-PropWM300mmRdA	-0.32	0.00	0.00	Open
50-PropWM300mmRdE	11.34	0.16	0.13	Open
51-PropWM300mmRdE	11.34	0.16	0.13	Open
56-PropWM300mmRdE	-1.74	0.02	0.00	Open
57-PropWM200mmCUPService	-0.56	0.02	0.00	Open
59-PropWM300mmRdE	-7.65	0.11	0.06	Open
60-PropWM300mmRdE	-7.65	0.11	0.06	Open
61-PropWM300mmRdE	-7.65	0.11	0.06	Open
62-PropWM300mmRdE	-7.65	0.11	0.06	Open
63-PropWM300mmRdE	-7.65	0.11	0.06	Open
64-PropWM300mmHospital	-7.65	0.11	0.06	Open
65-PropWM300mmHospital	-7.65	0.11	0.06	Open
66-PropWM300mmHospital	-7.65	0.11	0.06	Open
67-PropWM300mmHospital	-7.65	0.11	0.06	Open
68-PropWM300mmHospital	-7.65	0.11	0.06	Open
69-PropWM300mmHospital	-7.65	0.11	0.06	Open
70-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
71-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
72-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
73-PropWM300mmLoadingDock	0.00	0.00	0.00	Open
74-PropWM300mmLoadingDock	-7.65	0.11	0.06	Open
80-PropWM300mmRdL	-7.65	0.11	0.06	Open
48-PropWM300mmHospital	-0.32	0.00	0.00	Open
48B-PropWM300mmHospital	-0.37	0.01	0.00	Open
83-PropWM300mm	0.05	0.00	0.00	Open
84-PropWM150mm	0.05	0.00	0.00	Open
5B-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
5-ExWM150mmPrestonSt	0.00	0.00	0.00	Open
44-PropWM300mmHospital	11.03	0.16	0.13	Open
44-PropWM300mmHospital(2)	11.03	0.16	0.13	Open

Link Results: (continued)

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
22-PropWM300mmRdA	9.10	0.13	0.09	Open
22-PropWM300mmRdA(2)	9.10	0.13	0.09	Open
34-PropWM300mmRdE(2)	-0.62	0.01	0.00	Open
76-PropWM300mmHospitalService	-5.98	0.08	0.04	Open
79-PropWM300mmHospitalService	-5.98	0.08	0.04	Open
1	-5.91	0.33	1.62	Open
2	-1.74	0.02	0.00	Open
3	-7.65	0.11	0.06	Open
6	-0.05	0.00	0.00	Open
7	-0.05	0.00	0.00	Open

8	0.00	0.00	0.00	Open
9	11.34	0.16	0.13	Open
10	11.34	0.16	0.13	Open
11	5.36	0.08	0.03	Open
13	-1.18	0.02	0.00	Open
16	-1.74	0.02	0.00	Open
5	-7.65	0.11	0.06	Open
17	-7.65	0.11	0.06	Open
18	-7.65	0.11	0.06	Open
19	-7.65	0.11	0.06	Open
20	-7.65	0.11	0.06	Open
4	1.74	0.02	0.00	Open
FIRESERVICEMETER2	11.03	0.16	0.01	Open Valve
FIRESERVICEMETER1	9.10	0.13	0.00	Open Valve

APPENDIX D: EPANET SUMMARY

WATER DISTRIBUTION - DISTRIBUTION DEMANDS

PROJECT: THE OTTAWA HOSPITAL NEW CIVIC DEVELOPMENT
PROJECT NUMBER: CA0021243.8764
DATE: 2026-03-26

SUBMISISON: SPC Resubmission R2
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM
APPROVED:

Hydraulic Inputs

		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	Parking Garage (Separate Contract)	UOHI	Notes
Minimum HGL	m	107.1	107.1	N/A	N/A	N/A	N/A	From City Boundary Conditions
Maximum HGL	m	114.6	114.6	N/A	N/A	N/A	N/A	From City Boundary Conditions
MaxDay+FF	m	107.8	107.6	N/A	N/A	N/A	N/A	From City Boundary Conditions
Civil Average Daily	LPS	5.98	5.98	0.56	0.56	0	5.91	From Civil Calculations or Relevant Report
Civil Max Daily	LPS	8.96	8.96	0.84	0.84	0	8.87	From Civil Calculations or Relevant Report
Civil Max Hourly	LPS	16.13	16.13	1.50	1.50	1.14	15.97	From Civil Calculations or Relevant Report
Civil Fire Flow	LPS	250			167		N/A*	From Civil Calculations or Relevant Report

HYDRAULIC RESULTS FROM MODEL

CASE 1 (Max Day + Fire Flow)

Fire @ CUP		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	25.17	25.13	28.12	28.21	28.31	26.78	22.97
Converted Results (PSI)	***Building***	***35.79***	***35.76***	***40.01***	***40.14***	***40.28***	***38.10***	***32.68***
Fire @ Front Entryway		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	27.86	27.87	31.16	31.28	31.40	30.00	22.39
Converted Results (PSI)	***Building***	***39.64***	***39.66***	***44.34***	***44.51***	***44.68***	***42.69***	***31.86***
Fire @ Pavillion		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	33.55	33.55	31.35	31.47	31.59	31.27	20.40
Converted Results (PSI)	***Building***	***47.74***	***47.74***	***44.61***	***44.78***	***44.95***	***44.49***	***29.03***
Fire @ Podium		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	27.54	27.53	25.32	25.43	25.55	25.75	19.01
Converted Results (PSI)	***Building***	***39.19***	***39.17***	***36.03***	***36.18***	***36.35***	***36.64***	***27.05***
Fire @ Tower A		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	29.43	29.44	27.29	27.42	27.55	27.66	20.40
Converted Results (PSI)	***Building***	***41.88***	***41.89***	***38.83***	***39.02***	***39.20***	***39.36***	***29.03***
Fire @ Tower B		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	31.54	31.51	29.26	29.37	29.49	29.01	19.97
Converted Results (PSI)	***Building***	***44.88***	***44.83***	***41.63***	***41.79***	***41.96***	***41.28***	***28.41***
Fire @ UOHI		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Building	8.96	8.96	0.84	0.84	0.00	8.87	N/A
	Reservoir	107.80	107.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	27.66	27.58	25.14	25.22	25.30	24.63	17.10
Converted Results (PSI)	***Building***	***39.36***	***39.24***	***35.77***	***35.89***	***36.00***	***35.05***	***24.33***

Required Pressures (per City Guidelines):
System = 20 PSI min.

Note that multiple fire scenarios have been evaluated:
1. Fire at CUP
2. Fire at Front Entryway
3. Fire at Pavilion
4. Fire at Podium
5. Fire at Tower A
6. Fire at Tower B
7. Fire at UOHI

Full EPANET summaries are available for the other fires.

Also note that "SYSTEM LOW" denotes the lowest pressure in the entire system.

Main Hospital Service Connection 1: J-23
Main Hopsital Service Connection 2: J-45

Central Utility Plant Connection 1: J-27
Central Utility Plant Connection 2: J-30
Central Utility Plant Connection 3: J-49

***University of Ottawa Heart Institute Fire Flows included in the Main Hospital Building Calculations**

CASE 2 (Peak Hour)

CASE 2		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Hydrant	0.00	0.00	0.00	0.00	0.00	0.00	N/A
	Building	16.13	16.13	1.50	1.50	1.14	15.97	N/A
	Reservoir	107.10	107.10	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Building	29.74	29.75	33.05	33.17	36.32	31.77	26.74
Converted Results (PSI)	***Building***	**42.32**	**42.33**	**47.03**	**47.20**	**51.68**	**45.20**	**38.05**

Required Pressures (per City Guidelines):
Building = 40 to 80 PSI

CASE 3 (Basic Day)

CASE 3		Main Hospital 1	Main Hospital 2	CUP 1	CUP 2	PG	UOHI	SYSTEM LOW
Input Values	Hydrant	0.00	0.00	0.00	0.00	0.00	0.00	N/A
	Building	5.98	5.98	0.56	0.56	0.00	5.91	N/A
	Reservoir	114.60	114.60	N/A	N/A	N/A	N/A	N/A
EPANET Results (m)	Max Pressure	37.60	37.60	40.90	41.02	43.94	39.72	34.51
Converted Results (PSI)	***Max Pressure***	**53.50**	**53.50**	**58.20**	**58.37**	**62.52**	**56.52**	**49.10**

Required Pressures (per City Guidelines):
80 PSI max. in Network

Pr essure Reducing Valves required at all Building Connections.
See Mechanical for details.

APPENDIX E: SANITARY DESIGN FLOWS

CUP DESIGN STILL UNDERWAY
INCLUDED FOR REFERENCE

SANITARY FLOW CALCULATIONS - CUP

PROJECT: NEW CIVIC DEVELOPMENT - THE OTTAWA HOSPITAL
PROJECT NUMBER: CA0027758.0-51
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION R2
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Site Information

Address: New Civic Development - The Ottawa Hospital

Average Wastewater Flows

Residential	=	280	L/c/d
Commercial	=	28,000	L/gross ha/d
Institutional	=	28,000	L/gross ha/d
Light Industrial	=	35,000	L/gross ha/d
Heavy Industrial	=	55,000	L/gross ha/d

Peaking Factors:

Residential = Harmon Equation

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000}^{\frac{1}{2}}\right)}\right) * K$$

where P = population
K = correction factor = 0.8

Commercial	=	1.5	(if Commercial contribution >20%, otherwise use 1.0)
Institutional	=	1.5	(if Institutional contribution >20%, otherwise use 1.0)
Industrial	=	Per figure in Appendix 4-B	

Peak Extraneous Flows:

Infiltration Allowance	=	0.33	L/s/effective gross ha (for all areas)
Less than 10 ha:			
Foundation Drain Allowance	=	5.0	L/s/gross ha (if necessary for ex. partially separated and combined areas only)
10 ha - 100 ha:			
Foundation Drain Allowance	=	3.0	L/s/gross ha (if necessary for ex. partially separated and combined areas only)
Greater than 100 ha:			
Foundation Drain Allowance	=	2.0	L/s/gross ha (if necessary for ex. partially separated and combined areas only)

SERVICE CONNECTION	**Central Utility Plant**			
Demand Type =	Heavy Industrial			
Average Day Demand =	55,000			L/gross ha/day
Site Area =	**0.84**			**ha**
Average Daily Flow =	55,000	x	0.84	
=	46,041			L/day
=	**0.53**			**L/s**
Peaking Factor Type =	Institutional			
Peaking Factor =	1.5			
Population =	N/A			
Peak Daily Flow =	1.5	x	Average day	
=	1.5	x	46,041	
=	69,061.58			L/day
=	**0.80**			**L/s**
Infiltration Allowance =	0.33			
Peak Extraneous Flow =	0.33	x	lot area	
=	0.33	x	1.49	
=	**0.49**			**L/s**
Total Peak Design Flow =	Peak Daily Flow	+	Extraneous Flow	
=	0.80	+	0.49	
=	**1.29**			**L/s**

Final Desing Flows with Factor for Design Change

Average Daily Flow	x	2.5	=	1.33	**L/s**
Peak Daily Flow	x	2.5	=	2.00	**L/s**
Peak Extraneous Flow	x	2.5	=	1.23	**L/s**
Total Peak Design Flow	x	2.5	=	3.23	**L/s**

SANITARY FLOW CALCULATIONS - UOHI

PROJECT: NEW CIVIC DEVELOPMENT - THE OTTAWA HOSPITAL
PROJECT NUMBER:
DATE: 2026-03-26
SUBMISISON: SPC RESUBMISSION R2
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Site Information

Address: New Civic Development - The Ottawa Hospital

Average Wastewater Flows

Residential	=	280	L/c/d
Commercial	=	28,000	L/gross ha/d
Institutional	=	28,000	L/gross ha/d
Light Industrial	=	35,000	L/gross ha/d
Heavy Industrial	=	55,000	L/gross ha/d

Peaking Factors:

Residential = Harmon Equation

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000}^{\frac{1}{2}}\right)}\right) * K$$

where P = population
K = correction factor = 0.8

Commercial	=	1.5	(if Commercial contribution >20%, otherwise use 1.0)
Institutional	=	1.5	(if Institutional contribution >20%, otherwise use 1.0)
Industrial	=	Per figure in Appendix 4-B	

Peak Extraneous Flows:

Infiltration Allowance	=	0.33	L/s/effective gross ha (for all areas)
Less than 10 ha:			
Foundation Drain Allowance	=	5.0	L/s/gross ha (if necessary for ex. partially separated and combined areas only)
10 ha - 100 ha:			
Foundation Drain Allowance	=	3.0	L/s/gross ha (if necessary for ex. partially separated and combined areas only)
Greater than 100 ha:			
Foundation Drain Allowance	=	2.0	L/s/gross ha (if necessary for ex. partially separated and combined areas only)

SERVICE CONNECTION		**UOHI**		
Demand Type	=	Institutional		
Average Day Demand	=	28,000		L/gross ha/day
Site Area	**=**	**9.29**		**ha**
Average Daily Flow	=	28,000	x	9.29
	=	260,120		L/day
	=	**3.01**		**L/s**
Peaking Factor Type	=	Institutional		
Peaking Factor	=	1.5		
Population	=	N/A		
Peak Daily Flow	=	1.5	x	Average day
	=	1.5	x	260,120
	=	390,180.00		L/day
	=	**4.52**		**L/s**
Infiltration Allowance	=	0.33		
Peak Extraneous Flow	=	0.33	x	lot area
	=	0.33	x	1.06
	=	**0.35**		**L/s**
Total Peak Design Flow	=	Peak Daily Flow	+	Extraneous Flow
	=	4.52	+	0.35
	=	**4.87**		**L/s**

APPENDIX F: SANITARY SEWER DESIGN SHEET

SANITARY SEWER DESIGN SHEET

PROJECT: NEW CIVIC DEVELOPMENT - THE OTTAWA HOSPITAL
NUMBER:
DATE: 2026-03-26
SUBMISSION: SPC RESUBMISSION R2
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Location			Inverts		Incoming Flows																	Sewer Data									
																							Diameter		Slope	Length	Cap.	Vel.	Time		
Street Name or Description	From	To	Start	End	Effective Gross Area (ha)	Design Gross Floor Area (ha)	Ultimate Gross Floor Area (ha)	Sewer Type	Design Build-out Beds	Ultimate Build-out Beds	Flow (L/s) - Design Beds	Flow (L/s) - Ultimate Beds	Design Build-out GFA (L/s)	Ultimate Build out GFA (L/s)	Design Max Flow (L/s)	Ultimate Max Flow (L/s)	Peak Factor	Design Peak Flow (L/s)	Ultimate Peak Flow (L/s)	Infiltration Allowance (L/s)	Design Accum. Total Flow (L/s)	Ultimate Accum. Total Flow (L/s)	Material	Nom.	Actual					of Flow	Design Capacity (Q/Qfull)	Ultimate Capacity (Q/Qfull)
																									%	m	L/s	m/s	min		
Future UOHI	**BUILDING**	**AW MHSA 58**	**74.13**	**73.66**	**1.06**	**9.29**	**9.29**	**SERVICE**	**N/A**	**N/A**	**N/A**	**N/A**	**3.01**	**3.01**	**3.01**	**3.01**	**1.50**	**4.52**	**4.52**	**0.35**	**4.87**	**4.87**	**PVC**	**150**	**162**	**2.00**	**23.3**	**22**	**1.23**	**0.32**	**22.12%**	**22.12%**
	AW MHSA 58	*AW MHSA 59*	*74.47*	*72.98*	*0.07*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.02*	*4.89*	*4.89*	*PVC*	*300*	*305*	*2.00*	*74.5*	*143*	*1.96*	*0.63*	*3.42%*	*3.42%*
	AW MHSA 59	*AW MHSA 57*	*72.95*	*72.83*	*0.01*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*4.89*	*4.89*	*PVC*	*300*	*305*	*2.00*	*6.5*	*143*	*1.95*	*0.06*	*3.42%*	*3.42%*
	AW MHSA 57	*AW MHSA 55*	*72.76*	*72.55*	*0.07*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.02*	*4.91*	*4.91*	*PVC*	*300*	*305*	*0.32*	*65.5*	*57*	*0.78*	*1.40*	*8.62%*	*8.62%*
CUP-2	**BUILDING**	**AW MHSA 55**	**70.90**	**70.73**	**0.42**	**0.42**	**0.42**	**SERVICE**	**N/A**	**N/A**	**N/A**	**N/A**	**0.67**	**0.67**	**0.67**	**0.67**	**1.50**	**1.00**	**1.00**	**0.35**	**1.35**	**1.35**	**PVC**	**200**	**203**	**2.00**	**8.4**	**48**	**1.49**	**0.09**	**2.81%**	**2.81%**
	AW MHSA 55	*AW MHSA 54*	*70.36*	*70.14*	*0.07*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.02*	*6.29*	*6.29*	*PVC*	*300*	*305*	*0.32*	*67.7*	*57*	*0.78*	*1.45*	*11.03%*	*11.03%*
CUP-1	**BUILDING**	**AW MHSA 54**	**70.39**	**70.24**	**0.42**	**0.42**	**0.42**	**SERVICE**	**N/A**	**N/A**	**N/A**	**N/A**	**0.67**	**0.67**	**0.67**	**0.67**	**1.50**	**1.00**	**1.00**	**0.35**	**1.35**	**1.35**	**PVC**	**200**	**203**	**2.00**	**7.9**	**48**	**1.49**	**0.09**	**2.81%**	**2.81%**
	AW MHSA 54	*AW MHSA 52*	*70.11*	*69.94*	*0.05*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.02*	*7.65*	*7.65*	*PVC*	*300*	*305*	*0.32*	*52.5*	*57*	*0.78*	*1.12*	*13.42%*	*13.42%*
	AW MHSA 52	*AW MHSA 51*	*69.909*	*69.86*	*0.02*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*7.66*	*7.66*	*PVC*	*300*	*305*	*0.32*	*15.5*	*57*	*0.78*	*0.33*	*13.43%*	*13.43%*
	AW MHSA 51	*AW MHSA 50*	*69.83*	*69.74*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*7.67*	*7.67*	*PVC*	*300*	*305*	*0.32*	*28.6*	*57*	*0.78*	*0.61*	*13.45%*	*13.45%*
	AW MHSA 50	*AW MHSA 32*	*69.71*	*69.47*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*7.68*	*7.68*	*PVC*	*300*	*305*	*0.74*	*32.4*	*87*	*1.19*	*0.45*	*8.82%*	*8.82%*
	AW MHSA 36	*AW MHSA 35*	*77.77*	*77.73*	*0.01*	*0.00*	*0.00*	*EXTERNAL*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*1.20*	*1.20*	*0.00*	*1.20*	*1.20*	*PVC*	*250*	*254*	*0.35*	*11.5*	*37*	*0.72*	*0.27*	*3.25%*	*3.25%*
	AW MHSA 35	*AW MHSA 34*	*77.67*	*77.54*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*1.22*	*1.22*	*PVC*	*250*	*254*	*0.31*	*41.6*	*35*	*0.68*	*1.02*	*3.48%*	*3.48%*
	AW MHSA 34	*AW MHSA 33*	*77.48*	*77.35*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*1.23*	*1.23*	*PVC*	*250*	*254*	*0.32*	*40.1*	*35*	*0.70*	*0.95*	*3.52%*	*3.52%*
	AW MHSA 33	*AW MHSA 32*	*77.29*	*77.16*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*1.24*	*1.24*	*PVC*	*300*	*305*	*0.32*	*41.3*	*57*	*0.78*	*0.88*	*2.18%*	*2.18%*
	AW MHSA 32	*AW MHSA 31*	*69.41*	*69.14*	*0.08*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.03*	*8.95*	*8.95*	*PVC*	*300*	*305*	*0.32*	*83.6*	*57*	*0.79*	*1.76*	*15.70%*	*15.70%*
	AW MHSA 31	***MHSA 43***	*69.11*	*69.10*	*0.00*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*8.95*	*8.95*	*PVC*	*300*	*305*	*0.32*	*3.3*	*57*	*0.78*	*0.07*	*15.70%*	*15.70%*
Tower A-1 - TA-SAN-2	**BUILDING**	**MHSA 30**	**69.36**	**69.27**	**0.34**	**0.66**	**2.02**	**SERVICE**	**42**	**283**	**0.68**	**4.59**	**0.21**	**0.66**	**0.68**	**4.59**	**1.50**	**1.02**	**6.88**	**0.11**	**1.13**	**6.99**	**PVC**	**300**	**305**	**1.00**	**8.7**	**101**	**1.38**	**0.11**	**1.12%**	**6.92%**
	MHSA 30	**MHSA 43**	**69.24**	**69.12**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**0**	**0**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**1.14**	**7.00**	**PVC**	**300**	**305**	**0.50**	**25.6**	**71**	**0.98**	**0.44**	**1.61%**	**9.86%**
	MHSA 43	*AW MHSA 30*	*69.10*	*69.06*	*0.01*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*10.10*	*15.95*	*PVC*	*300*	*305*	*0.35*	*11.3*	*60*	*0.82*	*0.23*	*16.83%*	*26.59%*
	AW MHSA 30	*AW MHSA 29*	*69.06*	*68.99*	*0.02*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*10.10*	*15.96*	*PVC*	*300*	*305*	*0.29*	*24.1*	*54*	*0.74*	*0.54*	*18.71%*	*29.56%*
	AW MHSA 29	*AW MHSA 28*	*68.93*	*68.92*	*0.00*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*10.10*	*15.96*	*PVC*	*300*	*305*	*0.22*	*4.5*	*48*	*0.65*	*0.12*	*21.05%*	*33.26%*
	AW MHSA 28	**MHSA 31**	*68.92*	*68.76*	*0.05*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.02*	*10.12*	*15.98*	*PVC*	*300*	*305*	*0.32*	*48.8*	*57*	*0.78*	*1.04*	*17.76%*	*28.03%*
Tower A-2 - TA-SAN-1	**BUILDING**	**MHSA 31**	**69.36**	**69.04**	**0.29**	**0.59**	**1.82**	**SERVICE**	**38**	**255**	**0.62**	**4.13**	**0.19**	**0.59**	**0.62**	**4.13**	**1.50**	**0.92**	**6.20**	**0.10**	**1.02**	**6.29**	**PVC**	**300**	**305**	**1.00**	**32.3**	**101**	**1.38**	**0.39**	**1.01%**	**6.23%**
	MHSA 31	*AW MHSA 27*	*68.76*	*68.67*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*11.15*	*22.28*	*PVC*	*300*	*305*	*0.33*	*27.2*	*58*	*0.80*	*0.57*	*19.22%*	*38.42%*
	AW MHSA 40	*AW MHSA 27*	*70.38*	*69.89*	*0.03*	*0.00*	*0.00*	*EXTERNAL*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.30*	*0.30*	*0.01*	*0.31*	*0.31*	*PVC*	*250*	*254*	*1.50*	*32.7*	*76*	*1.50*	*0.36*	*0.41%*	*0.41%*
	AW MHSA 27	*AW MHSA 26*	*68.61*	*68.50*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*11.47*	*22.60*	*PVC*	*300*	*305*	*0.33*	*33.5*	*58*	*0.79*	*0.71*	*19.78%*	*38.97%*
	AW MHSA 26	*AW MHSA 25*	*68.44*	*68.31*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*11.48*	*22.62*	*PVC*	*375*	*381*	*0.33*	*39.1*	*105*	*0.93*	*0.70*	*10.94%*	*21.54%*
	AW MHSA 25	*AW MHSA 24*	*68.28*	*68.17*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*11.50*	*22.63*	*PVC*	*375*	*381*	*0.32*	*34.7*	*103*	*0.91*	*0.64*	*11.16%*	*21.97%*
	AW MHSA 24	*AW MHSA 23A*	*68.14*	*68.03*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*11.51*	*22.64*	*PVC*	*375*	*381*	*0.32*	*34.1*	*104*	*0.91*	*0.62*	*11.06%*	*21.77%*
	AW MHSA 23A	***MHSA 34***	*68.00*	*67.88*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*11.52*	*22.65*	*PVC*	*375*	*381*	*0.32*	*36.1*	*103*	*0.91*	*0.66*	*11.18%*	*21.99%*
MAIN ENTRY - PG-SAN-1	**BUILDING**	**MHSA 32**	**72.87**	**72.24**	**0.56**	**0.56**	**0.56**	**SERVICE**	**N/A**	**N/A**	**N/A**	**N/A**	**0.18**	**0.18**	**0.18**	**0.18**	**1.50**	**0.27**	**0.27**	**0.18**	**0.46**	**0.46**	**PVC**	**200**	**203**	**5.24**	**12.1**	**78**	**2.41**	**0.08**	**0.59%**	**0.59%**
	MHSA 32	**MHSA 33**	**72.24**	**72.11**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**0.47**	**0.47**	**PVC**	**200**	**203**	**0.37**	**34.9**	**21**	**0.64**	**0.91**	**2.23%**	**2.23%**
	MHSA 33	**MHSA 34**	**71.79**	**71.57**	**0.02**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**0.48**	**0.48**	**PVC**	**200**	**203**	**1.03**	**21.0**	**35**	**1.07**	**0.33**	**1.36%**	**1.36%**
	MHSA 34	*AW MHSA 16*	*67.88*	*67.83*	*0.01*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*12.00*	*23.13*	*PVC*	*375*	*381*	*0.32*	*14.9*	*103*	*0.91*	*0.27*	*11.65%*	*22.46%*
	AW MHSA 16	*AW MHSA 22*	*67.83*	*67.81*	*0.01*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*12.00*	*23.13*	*PVC*	*375*	*381*	*0.32*	*9.0*	*104*	*0.91*	*0.17*	*11.54%*	*22.24%*
	AW MHSA 22	*AW MHSA 21*	*67.78*	*67.65*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*12.02*	*23.15*	*PVC*	*375*	*381*	*0.32*	*42.2*	*103*	*0.91*	*0.77*	*11.67%*	*22.47%*
	AW MHSA 21	*AW MHSA 20*	*67.58*	*67.45*	*0.04*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*12.03*	*23.16*	*PVC*	*375*	*381*	*0.32*	*41.1*	*104*	*0.91*	*0.75*	*11.57%*	*22.27%*
TOWER B-2 - TB-SAN-4	**BUILDING**	**MHSA 35**	**68.00**	**67.99**	**0.20**	**2.04**	**2.04**	**SERVICE**	**211**	**211**	**3.42**	**3.42**	**0.66**	**0.66**	**3.42**	**3.42**	**1.50**	**5.13**	**5.13**	**0.07**	**5.19**	**5.19**	**PVC**	**250**	**254**	**0.33**	**3.9**	**36**	**0.71**	**0.09**	**14.43%**	**14.43%**
	MHSA 35	**AW MHSA 20**	**67.91**	**67.71**	**0.01**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.00**	**5.20**	**5.20**	**PVC**	**250**	**254**	**2.53**	**7.9**	**99**	**1.95**	**0.07**	**5.25%**	**5.25%**
	AW MHSA 20	*AW MHSA 11*	*66.60*	*66.29*	*0.03*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*17.24*	*28.37*	*PVC*	*375*	*381*	*1.00*	*31.3*	*183*	*1.60*	*0.33*	*9.42%*	*15.50%*
TOWER B-1 - TB-SAN-1	**BUILDING**	**MHSA 42**	**68.05**	**67.97**	**0.36**	**3.06**	**3.06**	**SERVICE**	**317**	**317**	**5.14**	**5.14**	**0.99**	**0.99**	**5.14**	**5.14**	**1.50**	**7.70**	**7.70**	**0.12**	**7.82**	**7.82**	**PVC**	**300**	**305**	**2.00**	**4.1**	**143**	**1.96**	**0.04**	**5.47%**	**5.47%**
	MHSA 42	**MHSA 37**	**67.44**	**67.31**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**7.83**	**7.83**	**PVC**	**300**	**305**	**0.50**	**26.4**	**71**	**0.98**	**0.45**	**11.03%**	**11.03%**
	MHSA 37	**MHSA 38**	**67.28**	**67.12**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**7.84**	**7.84**	**PVC**	**300**	**305**	**0.50**	**31.0**	**71**	**0.98**	**0.53**	**11.05%**	**11.05%**
PODIUM 1 - TB-SAN-2	**BUILDING**	**MHSA 38**	**68.00**	**67.68**	**0.86**	**2.27**	**2.27**	**SERVICE**	**38**	**38**	**0.62**	**0.62**	**0.73**	**0.73**	**0.73**	**0.73**	**1.50**	**1.10**	**1.10**	**0.28**	**1.38**	**1.38**	**PVC**	**300**	**305**	**1.08**	**29.6**	**105**	**1.44**	**0.34**	**1.32%**	**1.32%**
	MHSA 38	**MHSA 39**	**67.12**	**66.98**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**9.23**	**9.23**	**PVC**	**375**	**381**	**0.50**	**27.8**	**129**	**1.13**	**0.41**	**7.16%**	**7.16%**
PODIUM 2 - TB-SAN-3	**BUILDING**	**MHSA 39**	**68.00**	**67.72**	**0.77**	**2.50**	**2.50**	**SERVICE**	**43**	**43**	**0.70**	**0.70**	**0.81**	**0.81**	**0.81**	**0.81**	**1.50**	**1.22**	**1.22**	**0.25**	**1.47**	**1.47**	**PVC**	**300**	**305**	**1.05**	**26.7**	**103**	**1.42**	**0.31**	**1.43%**	**1.43%**
	MHSA 39	**MHSA 40**	**66.98**	**66.81**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**10.71**	**10.71**	**PVC**	**375**	**381**	**0.65**	**26.8**	**147**	**1.29**	**0.35**	**7.29%**	**7.29%**
	MHSA 40	**MHSA 41**	**66.81**	**66.60**	**0.03**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.01**	**10.72**	**10.72**	**PVC**	**375**	**381**	**0.65**	**32.6**	**147**	**1.29**	**0.42**	**7.30%**	**7.30%**
	MHSA 41	**AW MHSA 11**	**66.57**	**66.23**	**0.05**	**N/A**	**N/A**	**MAINLINE**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.00**	**0.00**	**0.02**	**10.74**	**10.74**	**PVC**	**375**	**381**	**0.65**	**51.8**	**147**	**1.29**	**0.67**	**7.31%**	**7.31%**
	AW MHSA 11	*AW MHSA 10*	*66.23*	*66.16*	*0.02*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.01*	*27.99*	*39.12*	*PVC*	*375*	*381*	*0.32*	*21.9*	*103*	*0.91*	*0.40*	*27.17%*	*37.98%*
	AW MHSA 10	*PG MHSA 5*	*66.10*	*65.96*	*0.01*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*27.99*	*39.12*	*PVC*	*375*	*381*	*1.00*	*13.6*	*183*	*1.61*	*0.14*	*15.30%*	*21.38%*
	PG MHSA 5	*PG MHSA 2*	*65.90*	*65.76*	*0.01*	*0.00*	*0.00*	*MAINLINE*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*0.00*	*0.00*	*0.00*	*28.00*	*39.13*	*PVC*	*375*	*381*	*1.00*	*14.0*	*183*	*1.61*	*0.14*	*15.30%*	*21.38%*
						(4)	(4)		(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)		(4)	(4)		(4)	(4)										

Design Notes

GENERAL

Max spacing of maintenance holes = 120m
Roughness Coefficient (n) = 0.013
See City of Ottawa Sewer Guidelines for min slopes
See Proposed Sanitary Sewer Flows from Report for Peak Flow Calculations
Mechanical inlet flow not yet available at time of print.

(2) = External Peak 1.20L/s inlet flow from Central Experimental Farm Master Servicing Plan (2008)
(3) = External Peak 0.30L/s inlet flow from Central Experimental Farm Master Servicing Plan (2008)

		(Design Build Out Bed Count)		(Ultimate Build Out Bed Count)
Total Design Beds =	689		1147	

Mechanical Flows as provided by HHA/Crossey based on Ontario Building Code Part 7.
(4) Design Build-Out is the Day 1 Build-Out while the Ultimate Build-Out is the Day 2 final Design Build-Out

AVERAGE DAILY DEMANDS

Average Daily Demands from Appendix 4-A of City of Ottawa Sewer Design Guidelines (September 2025)
INSTITUTIONS
Hospitals - Including Laundry = 1400 L/bed/d
Hospitals - Excluding Laundry = 550 L/bed/d

INFILTRATION

Infiltration Allowance - Dry 0.05 L/s/ha
Infiltration Allowance - Wet 0.28 L/s/ha
Cumulative Infiltration Allowance 0.330 L/s/ha
NOTE: Assumed 5m either side of pipe

APPENDIX G: STORM SEWER DESIGN SHEET

STORM SEWER DESIGN SHEET

PROJECT: NEW CIVIC DEVELOPMENT - THE OTTAWA HOSPITAL
NUMBER: CA0027758.0-51
DATE: 2026-03-26
SUBMISISON: SPC Resubmission R2
BY: LIAM CURLEY
CHECKED: COLIN GRAHAM

Standard Design Calculation Sheet (Rational Method)

IDF equation
I = a/(Td+c)^b

5-Year	a= 998.071	b= 0.814	c= 6.053
10-Year	a= 1174.184	b= 0.816	c= 6.014
25-Year	a= 1402.884	b= 0.819	c= 6.018
50-Year	a= 1569.580	b= 0.820	c= 6.014
100-Year	a= 1735.688	b= 0.820	c= 6.014

Location			Drainage Areas			Inlet	Accum.	Minor Storm																
			Runoff Coefficients					Rational Method Runoff						Sewer Data										
Street Name or Description	From	To	0.20	0.70	0.90	Inlet Flow	Accum. Inlet	Storm Event	Individual AC	Accum. AC	Time of Duration Td	Rainfall Intensity i	Q	Type of Pipe	Diameter Nom.	Diameter Actual	Inverts From	Inverts To	Slope	Length	Cap.	Vel.	Time of Flow	Ratio Q/Qfull
			ha	ha	ha	L/s	L/S				min	mm/h	L/s		mm				%	m	L/s	m/s	min	
Tower A South S3	Mechanical Connection 8	SWM TANK 203	0.00	0.00	0.34	0.00	0.00	5-Year	0.31	0.31	10.00	104.2	88.63	PVC	375	381	73.97	73.71	1.60	16.2	231	2.03	0.13	38.37%
West Side (Tower A North) S4	Mechanical Connection 7	SWM TANK 203	0.00	0.00	0.29	0.00	0.00	5-Year	0.26	0.26	10.00	104.2	75.60	PVC	375	381	73.97	73.80	1.00	17.0	183	1.60	0.18	41.31%
	SWM TANK 203	AW MHST 146	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.57	10.18	103.3	62.00	PVC	300	305	71.42	71.40	0.72	4.2	86	1.17	0.06	72.09%
Middle Hospital S7, 54A, 54B	Mechanical Connection 14	MHST 203	0.26	0.00	0.60	0.00	0.00	5-Year	0.59	0.59	10.00	104.2	171.48	PVC	525	533	73.24	73.19	1.00	5.0	447	2.01	0.04	38.36%
	MHST 203	MHST 205	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.59	10.04	104.0	171.13	CONC	675	686	73.11	73.09	0.25	8.4	438	1.19	0.12	39.07%
Middle Hospital S8	Mechanical Connection 15	MHST 204	0.15	0.00	0.13	0.00	0.00	5-Year	0.15	0.15	10.00	104.2	42.58	PVC	525	533	73.24	73.19	1.00	5.0	447	2.01	0.04	9.53%
	MHST 204	MHST 205	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.15	10.04	104.0	42.49	CONC	525	533	73.11	73.09	0.24	8.4	218	0.98	0.14	19.49%
	MHST 205	MHST 206	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.74	10.18	103.3	212.12	CONC	675	686	72.98	72.88	0.35	29.0	518	1.40	0.34	40.95%
Tower B (Front of Hospital) S9	Mechanical Connection 16	CBMH 208	0.16	0.00	0.10	0.00	0.00	5-Year	0.12	0.12	10.00	104.2	35.34	PVC	375	381	73.80	73.44	4.00	8.9	366	3.21	0.05	9.66%
	CBMH 208	CBMH 209	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.12	10.05	103.9	35.25	PVC	375	381	73.41	73.35	0.31	19.5	102	0.90	0.36	34.56%
	CBMH 209	MHST 206	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.12	10.41	102.1	34.62	PVC	375	381	73.32	73.21	0.40	28.9	116	1.02	0.47	29.84%
	MHST 206	SWM TANK 202	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.86	10.88	99.8	238.79	CONC	675	686	72.91	72.88	0.36	9.0	523	1.42	0.11	45.66%
	SWM TANK 202	AW MHST 144	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.86	10.99	99.2	194.00	PVC	450	457	70.85	70.80	0.83	5.2	271	1.65	0.05	71.59%
CUP North S1	CUP Mechanical Connection 1	MHST 227	0.00	0.00	0.36	68.00	68.00	5-Year	0.32	0.32	10.00	104.2	162.08	PVC	375	381	74.30	74.23	2.50	3.3	289	2.54	0.02	56.08%
	TD 03	AW MHST 150	0.00	0.00	0.11	0.00	0.00	5-Year	0.10	0.10	10.00	104.2	28.99	PVC	200	203	74.00	73.92	3.50	2.4	64	1.97	0.02	45.30%
	MHST 227	AW MHST 150	0.00	0.00	0.70	0.00	68.00	5-Year	0.63	0.95	10.00	104.2	344.56	PVC	450	457	73.78	72.65	4.97	22.6	662	4.04	0.09	52.05%
CUP South S2	CUP Mechanical Connection 2	AW MHST 158	0.00	0.00	0.14	80.00	80.00	5-Year	0.13	0.13	10.00	104.2	116.55	PVC	375	381	73.50	73.39	2.00	5.5	258	2.27	0.04	45.17%
Hospital South West S5	Mechanical Connection 12	MHST 218	0.22	0.00	0.06	0.00	0.00	5-Year	0.10	0.10	10.00	104.2	28.39	PVC	450	457	74.11	73.98	1.00	13.0	297	1.81	0.12	9.56%
	MHST 218	SWM TANK 204	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.10	10.12	103.6	28.21	PVC	450	457	73.95	73.91	0.22	18.2	139	0.85	0.36	20.30%
Ambulance Garage S12	Mechanical Connection 9	SWM TANK 204	0.05	0.00	0.04	0.00	0.00	5-Year	0.05	0.05	10.00	104.2	13.32	PVC	300	305	73.88	73.85	1.00	3.8	101	1.38	0.05	13.19%
South (Hospital South East, Road E) S6	Mechanical Connection 10	SWM TANK 204	0.23	0.00	0.07	0.00	0.00	5-Year	0.11	0.11	10.00	104.2	31.57	PVC	450	457	73.91	73.77	1.00	14.1	297	1.81	0.13	10.63%
	SWM TANK 204	AW MHST 141	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.25	10.00	104.2	62.00	PVC	375	381	73.03	72.98	0.44	13.5	121	1.06	0.21	51.24%
59A	Trench Drain 1	MHST 221	0.00	0.00	0.05	0.00	0.00	5-Year	0.05	0.05	10.00	104.2	13.03	PVC	200	203	67.42	66.62	1.00	79.8	34	1.05	1.27	38.34%
59C	Trench Drain 2	MHST 221	0.00	0.00	0.09	0.00	0.00	5-Year	0.08	0.08	10.00	104.2	23.46	PVC	300	305	67.87	67.60	1.00	27.5	101	1.38	0.33	23.23%
	MHST 221	Pumping Station	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.13	11.27	97.9	34.30	PVC	300	305	66.63	66.42	0.77	26.8	88	1.21	0.37	38.98%
	Pumping Station	MHST 212	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.13	11.64	98.3	33.72	PVC	300	305	68.41	68.38	1.11	3.2	107	1.46	0.04	31.51%
Loading Dock (Tower B South) S11, S11A, S11B	Mechanical Connection 22	MHST 213	0.00	0.00	0.39	0.00	0.00	5-Year	0.35	0.35	10.00	104.2	101.67	PVC	450	457	68.74	68.61	3.98	3.1	592	3.61	0.01	17.17%
	MHST 213	MHST 214	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.35	10.01	104.1	101.62	CONC	525	533	68.54	68.41	0.24	51.8	220	0.99	0.87	46.19%
	MHST 214	SWM TANK 201	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.35	10.88	99.8	97.35	CONC	750	762	68.19	68.15	0.11	37.5	379	0.83	0.75	25.69%
	SWM TANK 201	MHST 212	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.62	11.63	98.3	161.00	CONC	825	838	68.54	68.46	0.15	53.8	588	1.07	0.84	27.38%
	MHST 212	AW MHST 130	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.75	12.47	92.7	192.58	CONC	825	838	68.54	68.46	0.15	54.8	582	1.06	0.86	33.09%
S10 - Tower B East	Mechanical Connection 24	MHST 211	0.00	0.00	0.30	0.00	0.00	5-Year	0.27	0.27	10.00	104.2	78.21	PVC	375	381	68.51	68.46	0.99	5.5	182	1.59	0.06	42.97%
	MHST 211	SWM TANK 201	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.27	10.06	103.9	77.97	CONC	525	533	68.31	68.24	0.16	44.0	179	0.80	0.92	43.56%
	CB111	AW MHST 150	0.04	0.00	0.03	0.00	0.00	5-Year	0.04	0.04	10.00	104.2	11.30	PVC	200	203	72.38	71.90	1.00	47.6	34	1.05	0.76	33.23%
	CB110	AW MHST 151	0.00	0.00	0.03	0.00	0.00	5-Year	0.03	0.03	10.00	104.2	7.82	PVC	200	203	72.21	71.92	0.99	29.6	34	1.05	0.47	23.00%
	CB112	Pumping Station 3	0.00	0.00	0.01	0.00	0.00	5-Year	0.01	0.01	10.00	104.2	2.09	PVC	200	203	68.66	68.50	1.00	15.8	34	1.06	0.25	6.13%
	Pumping Station 3	AW MHST 147	0.00	0.00	0.00	0.00	0.00	5-Year	0.00	0.01	10.25	102.9	2.06	PVC	200	203	71.64	71.54	1.00	9.7	34	1.06	0.15	6.06%
UOHI S13	CAP 001	MHST 220	0.00	0.00	1.06	0.00	0.00	5-Year	0.95	0.95	10.00	104.2	276.33	PVC	450	457	73.94	72.69	5.04	24.8	666	4.07	0.10	41.49%

Major Storm																								
Rational Method Runoff						Sewer Data																		
Storm Event	Individual AC	Accum. AC	Time of Duration Td	Rainfall Intensity I +20%	Q	Type of Pipe	Diameter Nom.	Diameter Actual	Inverts From	Inverts To	Slope	Length	Cap.	Vel.	Time of Flow	Ratio Q/Qfull								
			min	mm/h	L/s		mm				%	m	L/s	m/s	min									
100-Year	0.38	0.38	10.00	214.3	227.84	PVC	375	381	73.97	73.71	1.6	16.2	231	2.03	0.13	98.63%								
100-Year	0.33	0.33	10.00	178.6	161.95	PVC	375	381	73.97	73.80	1.00	17.0	183	1.60	0.18	88.50%								
100-Year	0.00	0.71	10.18	176.9	86.00	PVC	300	305	71.42	71.40	0.72	4.2	86	1.17	0.06	100.00%								
100-Year	0.74	0.74	10.00	178.6	367.33	PVC	525	533	73.24	73.19	1.00	5.0	447	2.01	0.04	82.18%								
100-Year	0.00	0.74	10.04	178.2	366.58	CONC	675	686	73.11	73.09	0.25	8.4	438	1.19	0.12	83.69%								
100-Year	0.18	0.18	10.00	178.6	91.21	PVC	525	533	73.24	73.19	1.00	5.0	447	2.01	0.04	20.41%								
100-Year	0.00	0.18	10.04	178.2	91.03	CONC	525	533	73.11	73.09	0.24	8.4	218	0.98	0.14	41.76%								
100-Year	0.00	0.92	10.18	176.9	454.36	CONC	675	686	72.98	72.88	0.35	29.0	518	1.40	0.34	87.71%								
100-Year	0.15	0.15	10.00	178.6	75.70	PVC	375	381	73.80	73.44	4.00	8.9	366	3.21	0.05	20.68%								
100-Year	0.00	0.15	10.05	178.1	75.51	PVC	375	381	73.41	73.35	0.31	19.5	102	0.90	0.36	74.03%								
100-Year	0.00	0.15	10.41	174.9	74.15	PVC	375	381	73.32	73.21	0.40	28.9	116	1.02	0.47	63.92%								
100-Year	0.00	1.08	10.88	170.9	511.32	CONC	675	686	72.91	72.88	0.36	9.0	523	1.42	0.11	97.77%								
100-Year	0.00	1.08	10.99	170.0	271.00	PVC	450	457	70.85	70.80	0.83	5.2	271	1.65	0.05	100.00%								
100-Year	0.41	0.41	10.00	178.6	269.53	PVC	375	381	74.30	74.23	2.50	3.3	289	2.54	0.02	93.26%								
100-Year	0.13	0.13	10.00	178.6	62.10	PVC	200	203	74.00	73.92	3.50	2.4	64	1.97	0.02	97.03%								
100-Year	0.79	1.19	10.00	178.6	660.44	PVC	450	457	73.78	72.65	4.97	22.6	662	4.04	0.09	99.76%								
100-Year	0.16	0.16	10.00	178.6	158.29	PVC	375	381	73.50	73.39	2.00	5.5	258	2.27	0.04	61.35%								
100-Year	0.12	0.12	10.00	178.6	60.81	PVC	450	457	74.11	73.98	1.00	13.0	297	1.81	0.12	20.47%								
100-Year	0.00	0.12	10.12	177.5	60.44	PVC	450	457	73.95	73.91	0.22	18.2	139	0.85	0.36	43.48%								
100-Year	0.06	0.06	10.00	178.6	28.54	PVC	300	305	73.88	73.85	1.00	3.8	101	1.38	0.05	28.26%								
100-Year	0.14	0.14	10.00	178.6	67.63	PVC	450	457	73.91	73.77	1.00	14.1	297	1.81	0.13	22.77%								
100-Year	0.00	0.32	10.48	174.3	86.00	PVC	375	381	73.03	72.98	0.44	13.5	121	1.06	0.21	71.07%								
100-Year	0.06	0.06	10.00	178.6	27.92	PVC	200	203	67.42	66.62	1.00	79.8	34	1.05	1.27	82.12%								
					0.00																			
100-Year	0.10	0.10	10.00	178.6	50.26	PVC	300	305	67.87	67.60	1.00	27.5	101	1.38	0.33	49.76%								
100-Year	0.00	0.16	11.27	167.7	73.44	PVC	300	305	66.63	66.42	0.77	26.8	88	1.21	0.37	83.45%								
100-Year	0.00	0.16	11.64	164.8	72.17	PVC	300	305	68.41	68.38	1.11	3.2	107	1.46	0.04	67.45%								
100-Year	0.44	0.44	10.00	178.6	217.79	PVC	450	457	68.74	68.61	3.98	3.1	592	3.61	0.01	36.79%								
100-Year	0.00	0.44	10.01	178.5	217.68	CONC	525	533	68.54	68.41	0.24	51.8	220	0.99	0.87	98.95%								
100-Year	0.00	0.44	10.88	170.9	208.45	CONC	750	762	68.19	68.15	0.11	37.5	379	0.83	0.75	55.00%								
100-Year	0.00	0.78	11.63	164.9	266.00	CONC	825	838	68.54	68.46	0.15	53.8	588	1.07	0.84	45.24%								
100-Year	0.00	0.93	12.47	158.7	412.07	CONC	825	838	68.54	68.46	0.15	54.8	582	1.06	0.86	70.80%								
100-Year	0.34	0.34	10.00	178.6	167.53	PVC	375	381	68.51	68.46	0.99	5.5	182	1.59	0.06	92.05%								
100-Year	0.00	0.34	10.06	178.0	167.02	CONC	525	533	68.31	68.24	0.16	44.0	179	0.80	0.92	93.31%								
100-Year	0.05	0.05	10.00	178.6	24.20	PVC	200	203	72.38	71.90	1.00	47.6	34	1.05	0.76	71.17%								
100-Year	0.03	0.03	10.00	178.6	16.75	PVC	200	203	72.21	71.92	0.99	29.6	34	1.05	0.47	49.27%								
100-Year	0.01	0.01	10.00	178.6	4.47	PVC	200	203	68.66	68.50	1.00	15.8	34	1.06	0.25	13.14%								
100-Year	0.00	0.01	10.25	176.3	4.41	PVC	200	203	71.64	71.54	1.00	9.7	34	1.06	0.15	12.97%								
100-Year	1.19	1.19	10.00	178.6	591.95	PVC	450	457	73.94	72.69	5.04	24.8	666	4.07	0.10	88.88%								

Note 1: Outlet flow from Stormwater Management Tanks to be restrained by orifice plate. Refer to Stormwater Management Report for plate sizing.
Note 2: Outlet flow rate into the 250mm pipe will be restricted by a 160mm orifice plate.
Note 3: Inlet flow from Mechanical Engineer will be added in a subsequent design table to confirm Ontario Building Code method of flow determination for the design pipe sizes
This information will be available at 65DD submission
Note 4: Pumping station flow rates for trench drain and depressed areas will be confirmed at next design submission. Flow rate will be aligned with pipe capacity.

Additional Notes: Min velocity = 0.80 m/s, Velocity > 3.0 m/s requires protection measures, Max velocity = 6.0 m
For Runoff Coefficient (C), grassed area = 0.2, ballast = 0.013
Also for C, add 10% for 25-year storm event, 20% for 50-year storm event and 25% for 100-year storm event (update this in appropriate drainage ce
A minimum time of concentration of 10min shall be usec
Municipal Roadway = 5-year storm event
Municipal Freeway = 10-year storm event
Guideway = 10-year storm event
Roughness Coefficient (n) = 0.013
See City of Ottawa Sewer Guidelines for min slopes

APPENDIX H: SWALE FLOW CALCULATIONS

SWALE SIZING DESIGN SHEET - 100-YEAR +20%

PROJECT: NEW CIVIC DEVELOPMENT - THE OTTAWA HOSPITAL
NUMBER:
DATE: 2025-09-12
SUBMISISON: 95DD
BY: DEVANG MARATHA
CHECKED: COLIN GRAHAM
APPROVED:

Standard Design Calculation Sheet (Rational Method)

	IDF equation I = a/(Td+c)^b		
5-Year	a= 998.071	b= 0.814	c= 6.053
10-Year	a= 1174.184	b= 0.816	c= 6.014
25-Year	a= 1402.884	b= 0.819	c= 6.018
50-Year	a= 1569.580	b= 0.820	c= 6.014
100-Year	a= 1735.688	b= 0.820	c= 6.014

Location			Drainage Areas			Rational Method Runoff						Swale Data											Comment
Street Name or Description	From	To	Runoff Coefficients 0.20 ha	0.70 ha	0.90 ha	Storm Event	Individual AC	Accum. AC	Time of Duration Td min	Rainfall Intensity i mm/h	Q L/s	Side Slope x:1	Bottom Width m	Depth m	Slope %	Length m	Cap. L/s	Vel. m/s	Time of Flow min	Upstream Invert	Downstream Invert	Min Depth of Ditch Bottom	
S_01	1+000	1+88.03	0.34		0.18	100-Year	0.23	0.23	10.00	178.6	136	3.0	0.5	0.5	2.0	88.0	1827	1.83	0.80	72.70	70.94	0.80	
	1+88.03	1+202.65	0.72		0.03	100-Year	0.17	0.40	10.80	171.6	230	3.0	0.5	0.6	1.5	114.6	2611	1.89	1.01	70.94	69.22	0.90	
	1+202.65	1+261.50 (DICB8)				100-Year	0.00	0.40	11.81	163.5	219	3.0	0.5	1.0	0.3	58.9	4934	1.41	0.70	69.22	69.04	1.30	
S_02	2+000	2+204.07	0.45		0.02	100-Year	0.11	0.11	10.00	178.6	67	3.0	0.5	0.2	3.6	204.1	109	0.76	4.45	82.36	74.98	0.45	
S_03	3+000	3+103.43 (DICB 6)	0.13			100-Year	0.03	0.03	10.00	178.6	16	3.0	0.5	0.4	1.8	103.4	945	1.39	1.24	77.94	76.09	0.70	
S_04	4+000	4+43.26 (DICB 9)	0.04		0.07	100-Year	0.07	0.07	10.00	178.6	45	3.0	0.5	0.4	2.4	43.3	764	1.41	0.51	75.31	74.28	0.65	
S_05	5+000	5+26.20	0.26			100-Year	0.05	0.05	10.00	178.6	31	3.0	0.5	0.5	2.0	26.2	1820	1.82	0.24	69.38	68.86	0.80	
	5+26.20	5+56.71 (DICB 2)				100-Year	0.00	0.05	10.24	176.4	31	3.0	0.5	1.0	0.3	30.5	4847	1.38	0.37	68.86	68.77	1.30	
S_06	6+000	6+121.08	0.12			100-Year	0.02	0.02	10.00	178.6	14	3.0	0.5	0.5	2.0	121.1	1827	1.83	1.10	82.26	79.84	0.80	
	6+121.08	6+170.79				100-Year	0.00	0.02	11.10	169.1	13	3.0	0.5	0.5	3.2	49.7	2311	2.31	0.36	79.84	78.25	0.80	
	6+170.79	6+281.76 (DICB 7)				100-Year	0.00	0.02	11.46	166.2	13	3.0	0.5	0.5	2.6	111.0	2103	2.10	0.88	78.25	75.31	0.80	
S_07	7+000	7+131.74	0.06			100-Year	0.01	0.01	10.00	178.6	7	3.0	0.3	0.5	0.3	131.7	611	0.70	3.14	81.97	81.68	0.80	
S_08	8+000	8+112.12 (DICB 4)	0.07			100-Year	0.01	0.01	10.00	178.6	9	3.0	0.3	0.8	0.3	112.1	2367	1.12	1.67	81.97	81.63	1.10	
	8+112.12 (DICB 4)	8+127.80				100-Year	0.00	0.01	10.00	178.6	9	3.0	0.3	0.8	5.0	15.7	9648	4.55	0.06	82.42	81.63	1.10	
S_09	9+000	9+71.42	0.14			100-Year	0.03	0.03	10.00	178.6	17	3.0	0.3	0.8	4.3	71.4	8868	4.18	0.28	82.42	79.38	1.10	
	9+71.42	9+99.40				100-Year	0.00	0.03	10.00	178.6	17	3.0	0.3	0.8	2.1	28.0	6237	2.94	0.16	79.97	79.38	1.10	

Notes:
The slope of open channels will depend on various factors including roadway longitudinal grade and natural topography;
The minimum allowable ditch/swale slope is 0.5% (1% is desirable);
For Runoff Coefficient (C), grassed area = 0.2, ballast = 0.7, paved area = 0.9
Also for C, add 10% for 25-year storm event, 20% for 50-year storm event and 25% for 100-year storm event (update this in appropriate drainage cell)
A minimum time of concentration of 10min shall be used
Where designed to accommodate the 100-year storm +20%, the free board (0.3m) as measured from the top of the bank, and the maximum possible water elevation in the ditch;
Surface water elevation must be set below the road structure for the 5-year storm + freeboard (0.3m).
Channel protection in the form of sodding, gabion, armour stone, riprap, asphalt, and concrete lining may be required depending on design flow and velocities; and
Roughness Coefficient (n) = 0.035
Permissible velocities for channels lined with grass are included in Appendix 6-C of the Ottawa Sewer Design Guidelines.

APPENDIX I: PCSWMM MODEL OUTPUT

CHAMBER 203
ACTIVE STORAGE: 271 cu.m.
SUMP STORAGE: 191 cu.m.
TOTAL STORAGE: 461 cu.m.
MINOR DRAINAGE AREA: 0.64 ha
MAJOR DRAINAGE AREA: 0.64 ha

TOTAL DRAINAGE AREA TO CHAMBER 203

CHAMBER 202
ACTIVE STORAGE: 625 cu.m.
SUMP STORAGE: 284 cu.m.
TOTAL STORAGE: 909 cu.m.
MINOR DRAINAGE AREA: 1.68 ha
MAJOR DRAINAGE AREA: 1.68 ha

CHAMBER 204
ACTIVE STORAGE: 295 cu.m.
SUMP STORAGE: 149 cu.m.
TOTAL STORAGE: 444 cu.m.
MINOR DRAINAGE AREA: 0.66 ha
MAJOR DRAINAGE AREA: 0.66 ha

MAJOR DRAINAGE AREA TO CHAMBER 102

60C MINOR AND MAJOR DRAINAGE AREA TO CHAMBER 102

CHAMBER 102
ACTIVE STORAGE: 301 cu.m.
SUMP STORAGE: 0 cu.m.
TOTAL STORAGE: 251 cu.m.
MINOR DRAINAGE AREA: 0.89 ha
MAJOR DRAINAGE AREA: 2.55 ha

TOTAL DRAINAGE AREA TO CHAMBER 204

TOTAL DRAINAGE AREA TO CHAMBER 201

CHAMBER 201
ACTIVE STORAGE: 510 cu.m.
SUMP STORAGE: 216 cu.m.
TOTAL STORAGE: 726 cu.m.
MINOR DRAINAGE AREA: 1.07 ha
MAJOR DRAINAGE AREA: 1.07 ha

TOTAL DRAINAGE AREA TO CHAMBER 202

PROPERTY LINE
PRINCE OF WALES DR.
TRILLIUM TRAIN LINE
LIMIT OF WORK LINE AT THE WEST EDGE OF THE SIDEWALK
INSTALL ICD 102 WEIR 102
INSTALL ICD 105 WEIR 105
INSTALL ICD 201
INSTALL ICD 203
INSTALL ICD 204
BIRCH DR.

PROJECT
THE OTTAWA HOSPITAL NEW CAMPUS DEVELOPMENT - PHASE 4 MAIN HOSPITAL BUILDING
900 CARLING AVE, OTTAWA, ONTARIO

CLIENT
The Ottawa Hospital | L'Hôpital d'Ottawa
Infrastructure Ontario
PCL CONSTRUCTION | EllisDon

CLIENT PROJECT NO.
1070002

KEY PLAN
TRUE NORTH | PROJECT NORTH

08	SPC RESUBMISSION R2	2026-03-26
07	95% DD SUBMISSION	2025-09-15
06	NCC SWM MEMO	2025-07-15
05	SITE PLAN CONTROL RESUBMISSION	2025-06-05
04	65% DD SUBMISSION	2025-06-05
03	35% DD SUBMISSION	2025-01-28
02	ISSUED FOR ACPDR READINESS	2025-01-08
01	80% SD SUBMISSION	2024-08-15

REVISIONS

DRAWING STATUS
NOT FOR CONSTRUCTION

DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ARCHITECT BEFORE PROCEEDING.
ONLY FIGURED DIMENSIONS ARE TO BE USED. CONTRACTORS MUST VERIFY ALL DIMENSIONS ON SITE. THIS DRAWING IS PROTECTED BY COPYRIGHT.

ALL DIMENSIONS ARE SHOWN IN METRIC.

AUTHOR
wsp

PROJECT TEAM

DESIGN-BUILDER	PCL/ED, A JOINT VENTURE
ARCHITECTURAL	PARKIN ARCHITECTS LIMITED JODOIN LAMARRE PRATTE ARCHITECTES ADAMSON ASSOCIATES ARCHITECTS bbb ARCHITECTS OTTAWA INC.
STRUCTURAL	SALAS O'BRIEN CANADA INC. BOUTHILLETTE PARIZEAU INC.
MECHANICAL	HH ANGUS & ASSOCIATES LTD. SALAS O'BRIEN CANADA INC.
ELECTRICAL	MULVEY & BANANI INTERNATIONAL INC.
CIVIL	WSP CANADA INC.
LANDSCAPE	VERTICHS DESIGN INC. PWP LANDSCAPE ARCHITECTURE
BUILDING CODE	LMDG BUILDING CODE CONSULTANTS LTD.

AUTHOR PROJECT NO.
CA0027758.0-51

STAMP | STAMP

DRAWING TITLE
POST DEVELOPMENT DRAINAGE PLAN 1 OF 4

DRAWN: L.OURLEY/F.ALLEN	CHECKED: C.GRAHAAM
SCALE AT 40" x 60": NTS	DATE: 2026-03-26
GRAPHIC SCALE	

DRAWING NO.: **C4-201A**
REV NO.: **08**

007-12-26-0008
#19424

PLOT DATE:
SIZE: 1676 x 1981 mm (ISO CUSTOM SHEET SIZE)

SIZE: ANSI D (24" x 36") USER: [USER]

TOTAL DRAINAGE AREA TO CHAMBER 103

CHAMBER 103
ACTIVE STORAGE: 2124 cu.m.
SUMP STORAGE: 0 cu.m.
TOTAL STORAGE: 2124 cu.m.
MINOR DRAINAGE AREA: 14.01 ha
MAJOR DRAINAGE AREA: 14.01 ha

DOW'S LAKE OUTLET
NEPEAN BAY TRUNK
CARLING AVENUE
PRESTON STREET

AREA No.
WEIGHTED RUNOFF COEFFICIENT
AREA (HECTARES)

PROJECT RIGHT OF WAY (TYP.)
PROPERTY LINE
MAPLE DR.
CARLING AVE.
PRESTON ST.
PRINCE OF WALES DR.
TRILLIUM TRAIN LINE
QUEEN ELIZABETH DR.
EXISTING R.O.W.
LIMIT OF WORK LINE AT THE BACK EDGE OF THE SIDEWALK
CENTRAL UTILITY PLANT (SEPARATE CONTRACT)
PARKING GARAGE (SEPARATE CONTRACT)
HOSPITAL

PLOT DATE: 2026-03-26

PROJECT
THE OTTAWA HOSPITAL NEW CAMPUS DEVELOPMENT - PHASE 4 MAIN HOSPITAL BUILDING

900 CARLING AVE, OTTAWA, ONTARIO

CLIENT
The Ottawa Hospital | L'Hôpital d'Ottawa
Infrastructure Ontario
PCL CONSTRUCTION | EllisDon

CLIENT PROJECT NO.
1070002

KEY PLAN
TRUE NORTH | PROJECT NORTH

08	SPC RESUBMISSION R2	2026-03-26
07	95% DD SUBMISSION	2025-09-15
06	NCC SWM MEMO	2025-07-15
05	SITE PLAN CONTROL RESUBMISSION	2025-06-05
04	65% DD SUBMISSION	2025-06-05
03	35% DD SUBMISSION	2025-01-28
02	ISSUED FOR ACPOR READINESS	2025-01-08
01	80% SD SUBMISSION	2024-08-15
NO.	ISSUE/REVISION	DATE

REVISIONS

DRAWING STATUS
NOT FOR CONSTRUCTION

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AUTHOR
wsp

PROJECT TEAM

DESIGN-BUILDER PCL/ED, A JOINT VENTURE

ARCHITECTURAL PARKIN ARCHITECTS LIMITED
JODOIN LAMARRE PRATTE ARCHITECTES
ADAMSON ASSOCIATES ARCHITECTS
SSG ARCHITECTS OTTAWA INC.

STRUCTURAL SALAS O'BRIEN CANADA INC.
BOUTHILLETTE PARIZEAU INC.

MECHANICAL HH ANGUS & ASSOCIATES LTD.
SALAS O'BRIEN CANADA INC.

ELECTRICAL MULVEY & BANANI INTERNATIONAL INC.

CIVIL WSP CANADA INC.

LANDSCAPE VERTECHE DESIGN INC.
PWP LANDSCAPE ARCHITECTURE

BUILDING CODE LMDG BUILDING CODE CONSULTANTS LTD.

AUTHOR PROJECT NO.
CA0027758.0-51

STAMP | STAMP

DRAWING TITLE
POST DEVELOPMENT DRAINAGE PLAN 2 OF 4

DRAWN: L.OURLEY/F.ALLEN	CHECKED: C.GRAHAAM
SCALE AT 40" x 60": NTS	DATE: 2026-03-26
GRAPHIC SCALE	

DRAWING NO.: **C4-201B** | REV NO.: **08**

007-12-26-0008

#19424

PROJECT

THE OTTAWA HOSPITAL NEW CAMPUS DEVELOPMENT - PHASE 4 MAIN HOSPITAL BUILDING

900 CARLING AVE, OTTAWA, ONTARIO

CLIENT

The Ottawa Hospital | L'Hôpital d'Ottawa

Infrastructure Ontario

PCL CONSTRUCTION | EllisDon

CLIENT PROJECT NO.

1070002

KEY PLAN

TRUE NORTH | PROJECT NORTH

08	SPC RESUBMISSION R2	2026-03-26
07	95% DD SUBMISSION	2025-09-15
06	NCC SWM MEMO	2025-07-15
05	SITE PLAN CONTROL RESUBMISSION	2025-06-05
04	65% DD SUBMISSION	2025-04-05
03	35% DD SUBMISSION	2025-01-28
02	ISSUED FOR ACPOR READINESS	2025-01-08
01	80% SD SUBMISSION	2024-08-15
NO.	ISSUED	DATE

REVISIONS

DRAWING STATUS

NOT FOR CONSTRUCTION

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ALL DIMENSIONS ARE SHOWN IN METRIC.

AUTHOR

wsp

PROJECT TEAM

DESIGN-BUILDER	PCL/ED, A JOINT VENTURE
ARCHITECTURAL	PARKIN ARCHITECTS LIMITED JODOIN LAMARRE PRATTE ARCHITECTES ADAMSON ASSOCIATES ARCHITECTS 600 ARCHITECTS OTTAWA INC.
STRUCTURAL	SALAS O'BRIEN CANADA INC. BOUTHILLETTE PARIZEAU INC.
MECHANICAL	HH ANGUS & ASSOCIATES LTD. SALAS O'BRIEN CANADA INC.
ELECTRICAL	MULVEY & BANANI INTERNATIONAL INC.
CIVIL	WSP CANADA INC.
LANDSCAPE	VERTICHS DESIGN INC. PWP LANDSCAPE ARCHITECTURE
BUILDING CODE	LMDG BUILDING CODE CONSULTANTS LTD.

AUTHOR PROJECT NO.

CA0027758.0-51

STAMP | STAMP

DRAWING TITLE

POST DEVELOPMENT DRAINAGE PLAN 3 OF 4

DRAWN: L.CURLEY/F.ALLEN	CHECKED: C.GRAHAAM
SCALE AT 40" x 65": NTS	DATE: 2026-03-26

GRAPHIC SCALE

DRAWING NO.: **C4-201C** | REV NO.: **08**

PLOT DATE: D07-12-26-0008

#19424

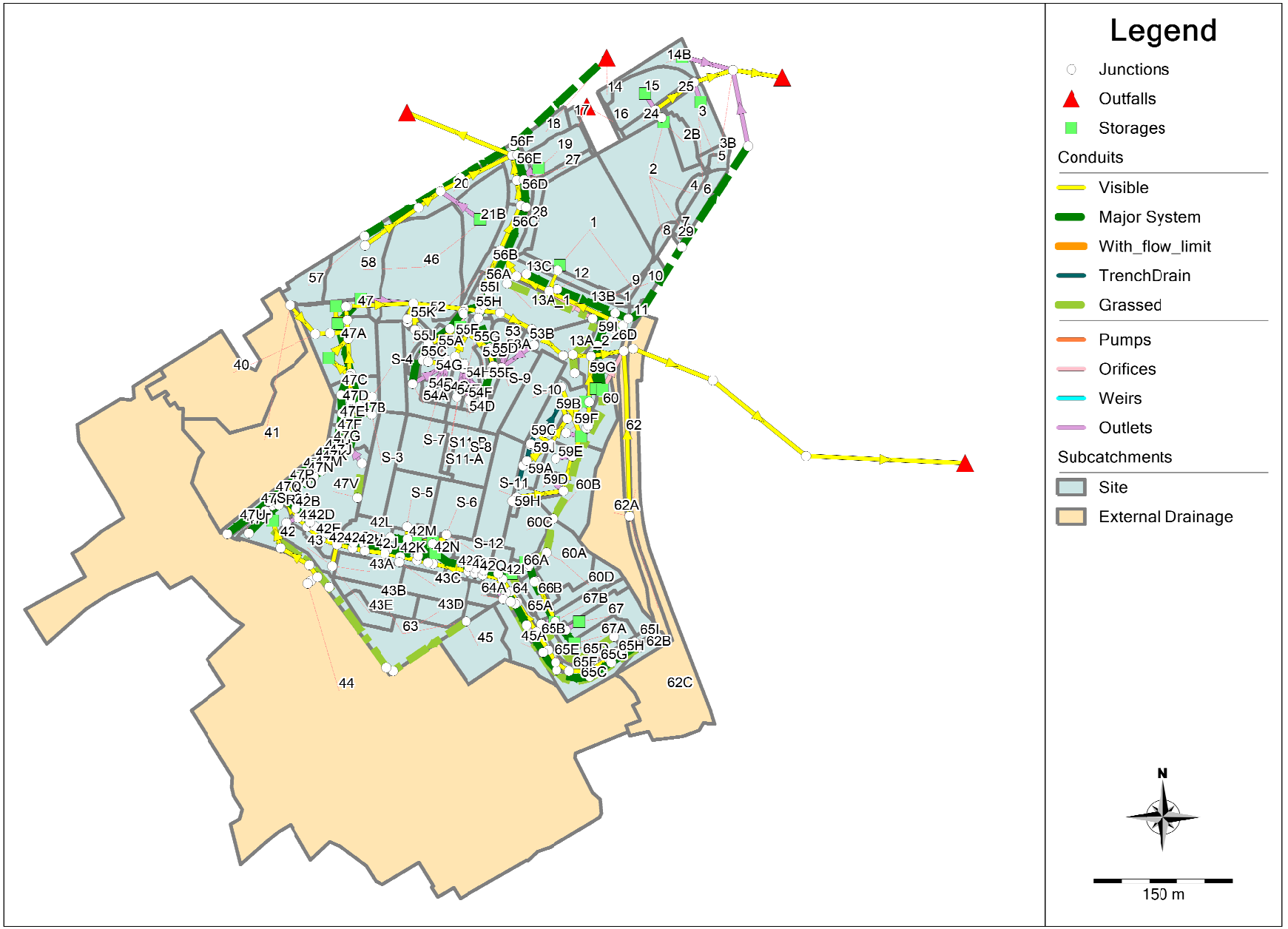
1016 (ARC) x 1651 (ISO) CUSTOM SHEET SIZE

DOW'S LAKE OUTLET
NEPEAN BAY TRUNK
CARLING AVENUE
PRESTON STREET

AREA No.
WEIGHTED RUNOFF COEFFICIENT
AREA (HECTARES)

PROJECT RIGHT OF WAY (TYP.)
PROPERTY LINE
MAPLE DR.
CARLING AVE.
PRESTON ST.
PRINCE OF WALES DR.
TRILLIUM TRAIL
QUEEN ELIZABETH DR.
EXISTING R.O.W.
LIMIT OF WORK LINE AT THE WEST EDGE OF THE SIDEWALK
MINOR DRAINAGE AREA TO ICD 105
PARKING GARAGE (SEPARATE CONTRACT)
LEGEND UTILITY PLAN (SEPARATE CONTRACT)
HOSPITAL
LEVEL 0.00 = 100.00m
LEVEL S = 101.50m
ICD 105 (4.7 L/s)
ICD 106 (4.7 L/s)
ICD 107 (4.7 L/s)
ICD 108 (4.7 L/s)
ICD 109 (4.7 L/s)
ICD 110 (4.7 L/s)
ICD 111 (4.7 L/s)
ICD 112 (4.7 L/s)
ICD 113 (4.7 L/s)
ICD 114 (4.7 L/s)
ICD

PCSWMM OUTPUT
3-HOUR CHICAGO -2-YEAR STORM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TrenchDrain
Grassed
Pumps
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External Drainage
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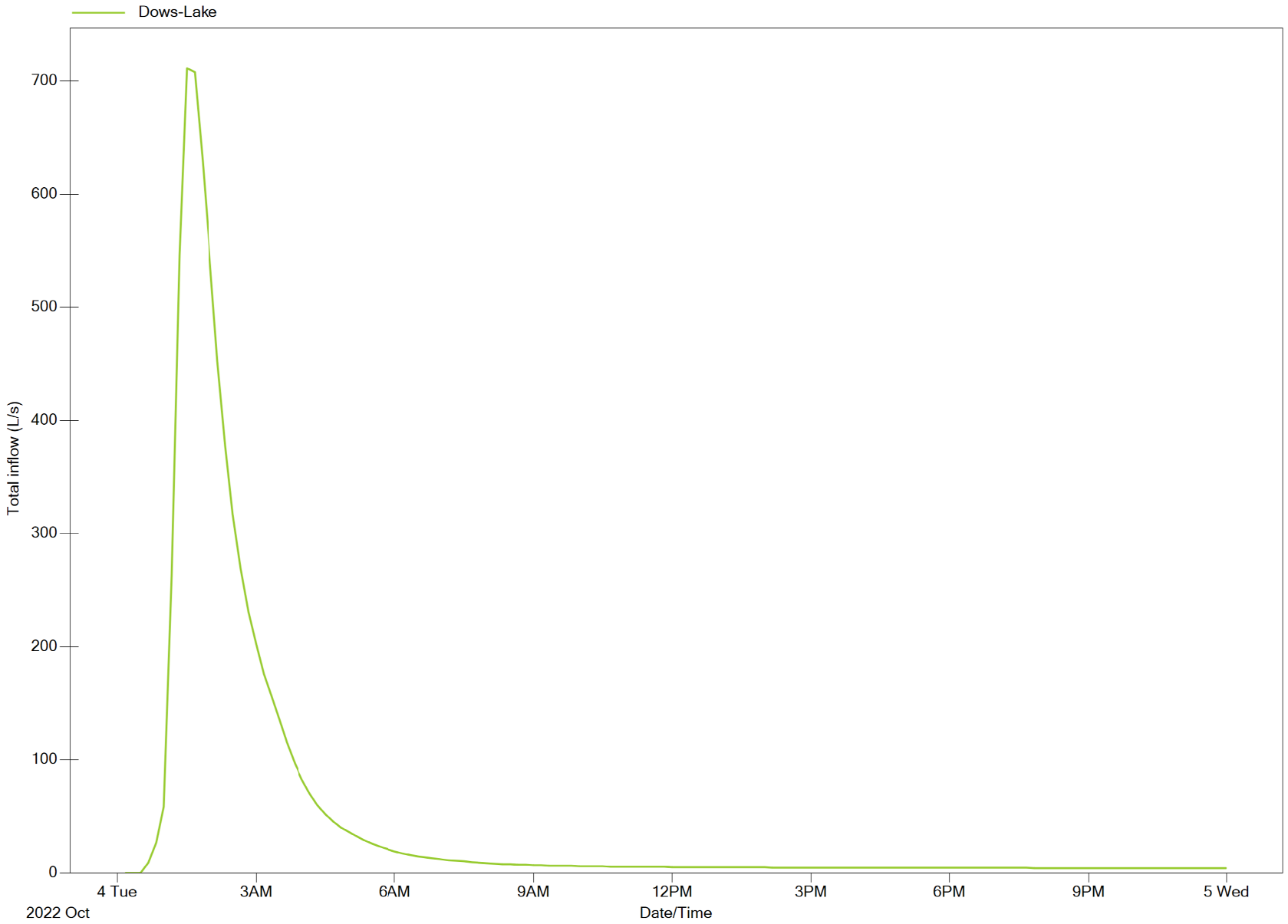
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600
500
400
300
200
100
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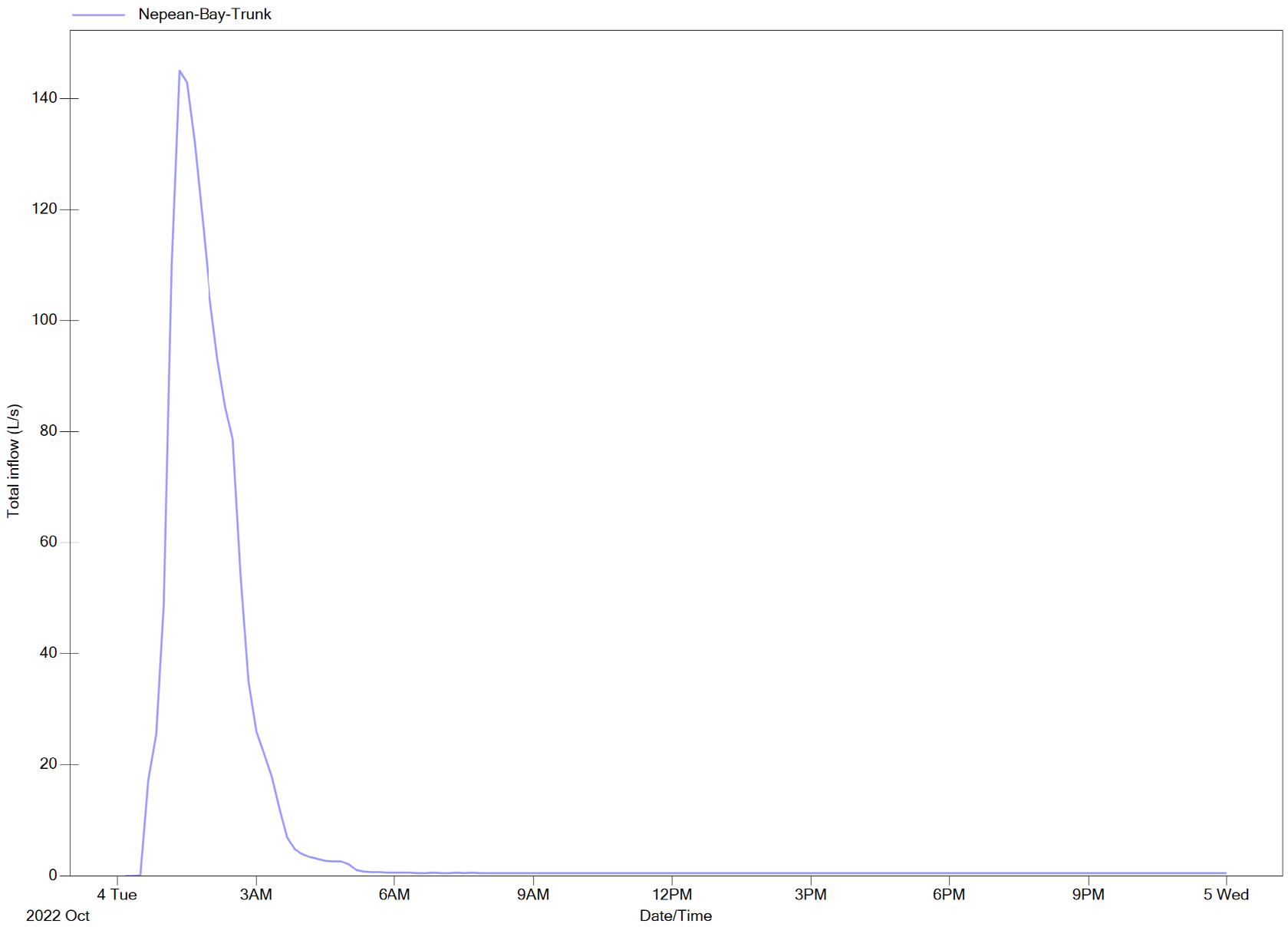
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time


Nepean-Bay-Trunk
140
120
100
80
60
40
20
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time

SUBCATCHMENTS 1/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
1		2yr_3hr_Chicago	SA-1	1.2161	3.0	100.0	250.0	1.02
10		2yr_3hr_Chicago	13B_1	0.0822	3.0	8.1	1.6	0.08
11		2yr_3hr_Chicago	MHST-105-S	0.0302	3.0	89.3	5.9	0.90
12		2yr_3hr_Chicago	BI-SA1-S	0.1276	5.0	56.5	15.8	0.57
13A_1		2yr_3hr_Chicago	DICB2_SWWS	0.4122	10.0	19.2	17.3	0.19
13A_2		2yr_3hr_Chicago	DICB2_SWE2S	0.2478	10.0	3.6	2.1	0.04
13B_1		2yr_3hr_Chicago	BI-SA1-S	0.1938	5.0	87.8	36.3	0.89
13C		2yr_3hr_Chicago	MHST-104-S	0.1184	5.0	78.7	19.9	0.79
14		2yr_3hr_Chicago	Carling_OLF	0.0580	3.0	60.3	7.5	0.61
14B		2yr_3hr_Chicago	S-14B	0.1272	3.0	0.0	0.4	0.01
15		2yr_3hr_Chicago	S-15	0.3643	3.0	3.6	3.1	0.04
16		2yr_3hr_Chicago	LRT-Corridor	0.0229	3.0	0.0	0.2	0.01
17		2yr_3hr_Chicago	LRT-Corridor	0.0361	3.0	0.0	0.2	0.01
18		2yr_3hr_Chicago	Carling_OLF	0.1189	3.0	3.4	1.0	0.04
19		2yr_3hr_Chicago	S-19	0.2056	3.0	7.1	3.3	0.07
2		2yr_3hr_Chicago	SA-2	0.7114	3.0	100.0	152.3	1.01
20		2yr_3hr_Chicago	Carling_OLFN1	0.2434	8.0	0.0	0.6	0.01
21B		2yr_3hr_Chicago	S-21B	0.4325	10.0	9.2	18.4	0.18
24		2yr_3hr_Chicago	MHST-107	0.0348	3.0	55.8	4.2	0.56
25		2yr_3hr_Chicago	OGS1	0.0465	3.0	80.6	8.0	0.81
26D		2yr_3hr_Chicago	S-26D	0.0748	2.0	0.0	0.1	0.00
27		2yr_3hr_Chicago	MHST-101-S	0.0531	3.0	84.5	9.8	0.85
28		2yr_3hr_Chicago	MHST-102-S	0.0844	5.0	62.6	11.5	0.63
29		2yr_3hr_Chicago	7	0.0113	3.0	0.0	0.0	0.00
2B		2yr_3hr_Chicago	SA-2	0.0908	3.0	100.0	19.4	1.00
3		2yr_3hr_Chicago	S-3Store	0.2154	3.0	31.8	16.6	0.36
3B		2yr_3hr_Chicago	3	0.0393	3.0	100.0	8.4	1.00
4		2yr_3hr_Chicago	2	0.0196	3.0	100.0	4.2	1.00
40	External	2yr_3hr_Chicago	MHST-156	1.1965	6.8	46.2	117.8	0.47
41	External	2yr_3hr_Chicago	MHST-132	1.5372	3.0	14.6	48.1	0.15
42		2yr_3hr_Chicago	DICB10	0.2213	3.0	0.0	0.1	0.00
42A		2yr_3hr_Chicago	MHST-135-S	0.0106	3.5	84.6	1.9	0.85
42B		2yr_3hr_Chicago	CB75	0.0107	3.5	99.4	2.3	1.00
42C		2yr_3hr_Chicago	CB77	0.0243	3.5	100.0	5.2	1.01
42D		2yr_3hr_Chicago	CB69	0.0062	3.5	95.3	1.3	0.96
42E		2yr_3hr_Chicago	MHST-149-S	0.0345	3.5	40.1	3.0	0.40
42F		2yr_3hr_Chicago	CB79	0.0354	3.5	44.0	3.4	0.44
42G		2yr_3hr_Chicago	CB83	0.0415	2.8	83.3	7.4	0.84
42H		2yr_3hr_Chicago	CB82	0.0225	2.8	74.7	3.6	0.75
42I		2yr_3hr_Chicago	SW_42I	0.1692	2.0	75.1	25.5	0.76
42J		2yr_3hr_Chicago	CBMH89	0.0485	2.8	72.0	7.5	0.72
42K		2yr_3hr_Chicago	CB92	0.0466	3.0	78.1	7.8	0.79

SUBCATCHMENTS 2/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	mperv. (%	eak Runoff (L/	Runoff Coefficient
42L		2yr_3hr_Chicago	CB87	0.1098	5.0	95.5	22.4	0.96
42M		2yr_3hr_Chicago	CB91	0.0808	4.5	86.5	15.0	0.87
42N		2yr_3hr_Chicago	CB94	0.1467	1.5	80.7	25.2	0.82
42O		2yr_3hr_Chicago	CB93	0.0494	2.0	77.0	8.2	0.77
42P		2yr_3hr_Chicago	CB107	0.0173	2.2	83.7	3.1	0.84
42Q		2yr_3hr_Chicago	CB100	0.0167	2.2	77.9	2.8	0.78
43		2yr_3hr_Chicago	MHST-126	0.1112	9.0	98.6	23.4	0.99
43A		2yr_3hr_Chicago	MHST-126	0.1990	2.0	55.0	23.3	0.56
43B		2yr_3hr_Chicago	63	0.1919	1.5	55.0	22.6	0.55
43C		2yr_3hr_Chicago	CUP-SS1	0.2011	2.0	45.0	19.3	0.45
43D		2yr_3hr_Chicago	63	0.1257	3.0	55.0	14.9	0.55
43E		2yr_3hr_Chicago	MHST-126	0.1010	0.5	99.0	19.9	1.01
44	External	2yr_3hr_Chicago	MHST-62534	12.7620	1.0	32.0	856.7	0.32
45		2yr_3hr_Chicago	55	0.3614	4.0	58.8	45.4	0.59
45A		2yr_3hr_Chicago	65C	0.1911	4.0	9.2	4.0	0.10
46		2yr_3hr_Chicago	21B	0.8929	10.0	15.6	31.2	0.16
47		2yr_3hr_Chicago	CB65	0.0376	2.5	87.9	7.1	0.88
47A		2yr_3hr_Chicago	MHST-157-S	0.5324	1.5	88.0	95.6	0.89
47B		2yr_3hr_Chicago	CBMH57	0.2548	2.0	69.7	38.0	0.70
47C		2yr_3hr_Chicago	CB114	0.0276	2.0	65.7	3.9	0.66
47D		2yr_3hr_Chicago	CB59	0.0337	2.0	91.8	6.6	0.92
47E		2yr_3hr_Chicago	CB104	0.0244	2.0	100.0	5.2	1.00
47F		2yr_3hr_Chicago	CB58	0.0250	2.0	99.9	5.3	1.00
47G		2yr_3hr_Chicago	CB56	0.0145	2.0	99.5	3.1	1.00
47H		2yr_3hr_Chicago	CB54	0.0132	5.0	83.1	2.4	0.84
47I		2yr_3hr_Chicago	CB52	0.0133	5.0	82.3	2.4	0.83
47J		2yr_3hr_Chicago	CB55	0.0043	5.0	25.0	0.3	0.26
47K		2yr_3hr_Chicago	CB53	0.0041	5.0	99.9	0.9	1.00
47L		2yr_3hr_Chicago	CB50	0.0195	5.0	82.2	3.5	0.83
47M		2yr_3hr_Chicago	CB51	0.0040	5.0	99.6	0.9	1.00
47N		2yr_3hr_Chicago	CB49	0.0043	5.0	100.0	0.9	1.00
47O		2yr_3hr_Chicago	CB47	0.0183	5.0	99.9	3.9	1.00
47P		2yr_3hr_Chicago	CB48	0.0195	5.0	82.2	3.5	0.83
47Q		2yr_3hr_Chicago	CB46	0.0195	5.0	82.0	3.4	0.83
47R		2yr_3hr_Chicago	CB44	0.0092	5.0	96.4	1.9	0.97
47S		2yr_3hr_Chicago	CB45	0.0229	5.0	40.0	2.0	0.40
47T		2yr_3hr_Chicago	D-MHST-161-S	0.0180	5.0	97.6	3.8	0.98
47U		2yr_3hr_Chicago	UP-CB43	0.0418	5.0	72.2	6.5	0.73
47V		2yr_3hr_Chicago	CB111_SW	0.4849	5.0	8.3	9.0	0.09
5		2yr_3hr_Chicago	preston	0.0120	3.0	100.0	2.6	1.00
52		2yr_3hr_Chicago	56B	0.0873	2.0	44.7	8.4	0.45
53		2yr_3hr_Chicago	AD08	0.0903	20.0	32.1	6.4	0.33
53A		2yr_3hr_Chicago	AD09	0.0070	1.5	72.4	1.1	0.73
53B		2yr_3hr_Chicago	AD07	0.0264	1.0	80.2	4.5	0.81
54A		2yr_3hr_Chicago	AD06	0.1118	1.5	98.3	22.8	1.00
54B		2yr_3hr_Chicago	AD05	0.0337	2.0	87.4	6.3	0.88
54C		2yr_3hr_Chicago	AD04	0.0362	1.5	89.1	6.9	0.90
54D		2yr_3hr_Chicago	AD01	0.1027	2.0	99.6	21.3	1.01
54E		2yr_3hr_Chicago	AD03	0.0304	1.5	89.0	5.8	0.90
54F		2yr_3hr_Chicago	AD02	0.0316	2.0	86.1	5.8	0.87
54G		2yr_3hr_Chicago	55F	0.0675	2.0	30.5	4.5	0.31
54H		2yr_3hr_Chicago	55G	0.0634	2.0	38.0	5.2	0.38
55A		2yr_3hr_Chicago	TD05_1	0.0307	4.0	98.6	6.5	0.99
55B		2yr_3hr_Chicago	TD04_01	0.0231	4.5	93.9	4.7	0.95
55C		2yr_3hr_Chicago	CB255-S	0.0259	5.0	99.3	5.5	1.00
55D		2yr_3hr_Chicago	CB209	0.0240	5.0	53.2	2.8	0.54
55E		2yr_3hr_Chicago	CBMHST208-S	0.0483	5.0	60.1	6.2	0.60
55F		2yr_3hr_Chicago	CB26	0.1485	5.0	43.6	14.6	0.45
55G		2yr_3hr_Chicago	MHST-120-S	0.1658	5.0	24.9	9.6	0.27
55H		2yr_3hr_Chicago	CBMHST66,67	0.0408	5.0	51.6	4.6	0.52
55I		2yr_3hr_Chicago	CB68,40	0.0241	5.0	81.8	4.3	0.82
55J		2yr_3hr_Chicago	TDS_1	0.0804	3.0	28.7	5.0	0.29

SUBCATCHMENTS 3/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
55K		2yr_3hr_Chicago	TDW_1	0.0168	2.1	76.0	2.8	0.77
56A		2yr_3hr_Chicago	MHST-106-S	0.0236	5.0	80.8	4.1	0.81
56B		2yr_3hr_Chicago	MHST-106-S	0.0562	5.0	86.0	12.9	0.91
56C		2yr_3hr_Chicago	MSHT-103-S	0.1354	5.0	82.0	23.8	0.83
56D		2yr_3hr_Chicago	MHST-102-S	0.0761	5.0	84.7	13.8	0.85
56E		2yr_3hr_Chicago	MHST-101-S	0.0805	5.0	77.3	13.4	0.78
56F		2yr_3hr_Chicago	Carling_OLFN3	0.0180	5.0	77.4	3.1	0.78
57		2yr_3hr_Chicago	Carling_OLF1	0.1534	15.0	6.9	3.0	0.08
58		2yr_3hr_Chicago	46	0.4475	16.0	10.2	10.0	0.10
59A		2yr_3hr_Chicago	TD02_01	0.0527	2.0	100.0	11.2	1.00
59B		2yr_3hr_Chicago	TD03_1	0.1995	4.0	61.6	26.3	0.62
59C		2yr_3hr_Chicago	TD07_1	0.0071	0.5	100.0	1.5	1.00
59D		2yr_3hr_Chicago	CB108	0.1168	3.0	99.9	24.9	1.01
59E		2yr_3hr_Chicago	CB109	0.0937	2.0	100.0	19.9	1.01
59F		2yr_3hr_Chicago	CB113	0.1387	2.0	99.8	29.3	1.01
59G		2yr_3hr_Chicago	CB130	0.0920	2.2	71.1	14.0	0.72
59H		2yr_3hr_Chicago	TD01_1	0.0121	1.0	99.0	2.6	1.00
59I		2yr_3hr_Chicago	CB72_89	0.0233	2.4	99.8	5.0	1.00
59J		2yr_3hr_Chicago	TD06_1	0.0521	2.8	100.0	11.1	1.00
6		2yr_3hr_Chicago	3	0.1396	3.0	2.1	0.8	0.02
60		2yr_3hr_Chicago	DICB8	0.2109	25.0	0.0	0.2	0.00
60A		2yr_3hr_Chicago	ST-60-S-B	0.3586	2.5	23.9	19.2	0.25
60B		2yr_3hr_Chicago	ST-60-S-C	0.3168	25.0	1.8	1.9	0.02
60C		2yr_3hr_Chicago	ST-60-S-C	0.2273	2.5	7.4	3.7	0.08
60D		2yr_3hr_Chicago	60A	0.1424	3.8	39.0	11.8	0.39
62	External	2yr_3hr_Chicago	POW_D1	0.2744	5.0	61.7	32.0	0.63
62A	External	2yr_3hr_Chicago	POW_D1	0.6276	6.0	25.0	33.6	0.25
62B		2yr_3hr_Chicago	MHST-136-S	0.0674	3.0	0.0	0.0	0.00
62C	External	2yr_3hr_Chicago	POW_D1	1.1137	5.0	61.8	109.3	0.63
63		2yr_3hr_Chicago	55	0.4180	1.5	0.0	3.0	0.04
64		2yr_3hr_Chicago	CB105	0.0174	1.8	99.2	3.7	1.00
64A		2yr_3hr_Chicago	CB60	0.0677	1.0	100.0	14.3	1.01
65A		2yr_3hr_Chicago	CB106,103	0.0260	3.8	100.0	5.5	1.01
65B		2yr_3hr_Chicago	MHST-153-S	0.0257	3.8	100.0	5.5	1.01
65C		2yr_3hr_Chicago	34	0.2345	3.0	4.7	2.5	0.05
65D		2yr_3hr_Chicago	SW_65D	0.1224	2.0	0.0	0.0	0.00
65E		2yr_3hr_Chicago	CB97	0.0176	3.9	100.0	3.8	1.00
65F		2yr_3hr_Chicago	CB96	0.0332	3.8	100.0	7.1	1.00
65G		2yr_3hr_Chicago	CB88	0.0271	3.8	99.9	5.8	1.01
65H		2yr_3hr_Chicago	CB90	0.0102	3.7	100.0	2.2	1.00
65I		2yr_3hr_Chicago	MHST-136-S	0.0347	3.6	100.0	7.4	1.01
66A		2yr_3hr_Chicago	CBMHST-103-S	0.0414	1.5	65.2	5.8	0.66
66B		2yr_3hr_Chicago	CBMHST105-S	0.0914	2.0	79.1	15.4	0.80
67		2yr_3hr_Chicago	CB95	0.2437	4.0	52.1	27.3	0.52
67A		2yr_3hr_Chicago	CB99	0.1464	2.0	79.5	24.4	0.81
67B		2yr_3hr_Chicago	CBMHST101-S	0.1445	1.5	84.6	25.2	0.86
7		2yr_3hr_Chicago	2	0.0165	3.0	100.0	3.5	1.00
8		2yr_3hr_Chicago	2	0.0188	3.0	100.0	4.0	1.00
9		2yr_3hr_Chicago	1	0.0192	3.0	100.0	4.1	1.00
S-10		2yr_3hr_Chicago	MHST-211	0.2975	2.0	100.0	60.1	1.02
S-11		2yr_3hr_Chicago	MHST-213	0.4008	2.0	100.0	77.7	1.02
S11-A		2yr_3hr_Chicago	MH-SA56-2	0.0107	2.0	100.0	2.3	1.00
S11-B		2yr_3hr_Chicago	MH-SA56-2	0.0153	2.0	69.2	2.3	0.70
S-12		2yr_3hr_Chicago	MH-SA51-1	0.0943	2.0	74.5	15.1	0.75
S-3		2yr_3hr_Chicago	MH-SA50	0.3456	2.0	99.9	68.5	1.02
S-4		2yr_3hr_Chicago	MH-SA49	0.2910	2.0	99.8	58.8	1.01
S-5		2yr_3hr_Chicago	MH-SA51-2	0.2908	2.0	64.2	39.9	0.65
S-6		2yr_3hr_Chicago	MH-SA51-1	0.2996	2.0	65.3	41.7	0.66
S-7		2yr_3hr_Chicago	MH-SA56-1	0.2899	2.0	77.2	47.5	0.78
S-8		2yr_3hr_Chicago	MH-SA56-2	0.2768	2.0	75.4	44.5	0.76
S-9		2yr_3hr_Chicago	MH-SA56-3	0.2599	2.0	71.4	39.1	0.72

CONDUITS 1/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
10	CBMHST105	CBMHST103		17.6	72.40	72.13	CIRCULAR	0.38		0.01534	72.8
11	AD06	CB255-S	Major_System	46.6	79.72	77.71	IRREGULAR	0.00	Road-A_spilt	0.04314	0.0
12_1	AD01	CBMHST208-S	major_system	37.5	79.53	78.00	IRREGULAR	0.00	Road-A_spilt	0.04083	21.0
12_2	CBMHST208-S	CB209	major_system	19.8	78.00	77.64	IRREGULAR	0.00	Road-A_spilt	0.01817	22.1
13	CB64	CBMHST66,67	major_system	24.4	74.57	73.54	IRREGULAR	0.00	Road-A_spilt	0.04228	13.2
15	SW_42I	DICB9	swale	2.7	74.96	74.88	TRAPEZOIDAL	1.00		0.02964	25.4
16	MH207	Chamber-204		27.2	73.98	73.88	CIRCULAR	0.38		0.00367	39.3
17	D-Chamber-204	MHST-141		21.1	73.03	72.98	CIRCULAR	0.30		0.00237	29.7
19	DICB9	CBMHST-103-S	major_system	21.2	74.88	74.60	TRAPEZOIDAL	0.50		0.01319	0.0
2	MHST-105-S	Wales-OLF-N03	Major_System	17.0	68.69	68.20	IRREGULAR	0.00	Road-B	0.02884	1.3
21	MHST-157-S	CB65	Major_System	36.2	74.22	73.54	IRREGULAR	0.00	Road-D	0.01881	0.0
22	CUP-SS1	30		5.8	73.50	73.39	CIRCULAR	0.37		0.01887	19.3
23	CBMHST-103-S	ST-60-S-B	swale	22.5	74.60	74.11	TRAPEZOIDAL	0.50		0.02180	14.8
25	CB91	CB94	major_system	25.2	75.10	75.02	RECT_OPEN	0.15		0.00317	32.2
27	TD07_2	MH150		20.0	67.40	67.20	CIRCULAR	0.20		0.01001	1.5
27_1	TD02_03	MH150		38.0	67.42	66.97	CIRCULAR	0.20		0.01178	11.0
27_2	MH150	MHST-221		32.7	66.97	66.62	CIRCULAR	0.20		0.01078	23.1
28	MHST-221	PS		26.8	66.63	66.42	CIRCULAR	0.30		0.00765	48.6
3	Preston	Preston_Street		10.0	61.03	60.90	CIRCULAR	0.30		0.01300	39.4
30	TD_B	MHST-221		18.1	67.88	67.60	CIRCULAR	0.30		0.01526	25.6
32	CB255-S	CB26	Major_System	28.5	77.71	75.96	IRREGULAR	0.00	Road-A_spilt	0.06143	5.1
33	TD06_2	MH150		22.5	67.40	67.00	CIRCULAR	0.20		0.01776	11.0
34	CB26	CB64	Major_System	22.6	75.96	74.57	IRREGULAR	0.00	Road-A_spilt	0.06184	13.3
35	TD05_1	TD05_2	TrenchDrain	5.6	74.50	74.40	RECT_OPEN	0.25		0.01788	6.4
36	TD01_3	MHST-213		6.9	68.60	68.57	CIRCULAR	0.20		0.00434	2.6
38	TD04_02	MH-SA56-2		19.4	74.00	73.24	CIRCULAR	0.25		0.03921	4.6
39	TD05_2	MH-SA56-1		20.2	74.00	73.24	CIRCULAR	0.20		0.03759	6.4
4	OGS-3	MHST62528		10.0	67.62	67.60	CIRCULAR	1.20		0.00200	733.1
40	51	CB72_89	major_system	24.5	70.11	69.49	IRREGULAR	0.00	Road-L	0.02534	0.0
41	CB209	MHST-120-S	Major_System	34.7	77.64	74.46	IRREGULAR	0.00	Road-A_spilt	0.09199	23.2
42	CB130	51	major_system	1.0	70.11	70.10	IRREGULAR	0.00	Road-L	0.01000	0.0
43	CB72_89	54	major_system	15.8	69.49	68.92	IRREGULAR	0.00	Road-L	0.03613	4.4
49	Chamber202-S	45		5.2	70.84	70.80	CIRCULAR	0.45		0.00765	55.6
49_1	MHST-144	45		55.0	69.68	69.56	CIRCULAR	1.35		0.00213	559.9
49_2	45	56		17.2	69.56	69.53	CIRCULAR	1.35		0.00215	612.3
5	MHST62528	MHST62545		91.8	67.56	66.71	CIRCULAR	1.20		0.00929	730.0
50	DICB8	51	major_system	1.0	70.11	70.10	RECT_OPEN	0.30		0.01000	0.0
54	CB114	74	major_system	9.3	74.92	75.07	IRREGULAR	0.00	Road-D_W	-0.01554	1.3
6	MHST62545	MHST62547		129.6	66.69	64.45	CIRCULAR	1.20		0.01726	727.6
64	CB99	CBMHST101-S	major_system	32.2	76.90	76.52	RECT_OPEN	0.15		0.01181	12.1
65C_SW	34	DICB11	swale	194.0	82.41	75.45	TRAPEZOIDAL	0.30		0.03590	2.0
66	CBMHST101-S	CBMHST105-S	major_system	48.6	76.50	74.70	RECT_OPEN	0.15		0.03706	0.0
67	CBMHST105-S	CBMHST-103-S	major_system	18.9	74.82	74.60	RECT_OPEN	0.70		0.01162	14.5
68	CB87	CB91	major_system	27.5	75.50	75.10	RECT_OPEN	0.15		0.01452	21.8
7	MHST62547	Dows-Lake		171.0	64.17	63.75	CIRCULAR	1.20		0.00249	724.5
70	MHST-126	MHST-150		23.5	74.17	71.67	CIRCULAR	450.00		0.10691	525.8
71	S-26B	54	major_system	24.8	69.52	68.92	RECT_OPEN	0.30		0.02425	0.0
8	POW_D1	OGS-3		180.0	78.70	69.70	TRAPEZOIDAL	0.55		0.05006	159.7
8_1	CHAMBER-103	D-MHST-155		3.1	74.08	74.06	CIRCULAR	0.90		0.00645	433.9
8_1-S	CHAMBER-103	MHST-155	Major_System	14.7	79.00	78.70	RECT_OPEN	0.30		0.02037	0.0
9	CBMHST103	CHAMBER-102		2.6	72.10	72.07	CIRCULAR	0.38		0.01154	106.3
CA-OLF_2	Carling_OLF1	Carling_OLFN1	Major_System	120.4	66.50	65.41	IRREGULAR	0.00	CarlingAve	0.00907	2.6
CA-OLF_3	Carling_OLFN3	Carling_OLF	Major_System	66.5	64.80	64.60	IRREGULAR	0.00	CarlingAve	0.00301	10.8
CA-OLF_4	Carling_OLFN1	Carling_OLFN3	Major_System	67.1	65.41	64.80	IRREGULAR	0.00	CarlingAve	0.00906	2.5
CA-STM	IN119607	D-MHST-100		86.0	63.10	62.80	CIRCULAR	0.30		0.00349	5.3
CB104-S	CB104	CB59	major_system	20.0	75.37	74.99	IRREGULAR	0.00	Road-D_W	0.01905	9.1

CONDUITS 2/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
CB111_SWA	CB111_SW	CB111	swale	37.3	75.17	75.04	TRAPEZOIDAL	0.30		0.00349	8.3
CB43-S	CB43	CB45	major_system	19.8	81.69	80.69	CIRCULAR	1.00		0.05068	1.9
CB45-S	CB45	CB46	major_system	20.1	80.69	79.69	IRREGULAR	0.00	Road-D_W	0.04970	2.7
CB46-S	CB46	CB48	major_system	20.0	79.69	78.85	IRREGULAR	0.00	Road-D_W	0.04199	3.7
CB48-S	CB48	CB50	major_system	19.9	78.85	77.85	IRREGULAR	0.00	Road-D_W	0.05039	6.2
CB50-S	CB50	CB52	major_system	13.6	77.85	77.14	IRREGULAR	0.00	Road-D_W	0.05223	8.4
CB52-S	CB52	CB54	major_system	13.6	77.14	76.44	IRREGULAR	0.00	Road-D_W	0.05141	9.5
CB54-S	CB54	CB56	major_system	12.5	76.44	75.98	IRREGULAR	0.00	Road-D_W	0.03689	10.3
CB56-S	CB56	CB58	major_system	14.6	75.98	75.64	IRREGULAR	0.00	Road-D_W	0.02331	11.4
CB58-S	CB58	CB104	major_system	14.3	75.64	75.37	IRREGULAR	0.00	Road-D_W	0.01893	14.0
CB59-S	CB59	CB114	major_system	16.0	74.99	74.92	IRREGULAR	0.00	Road-D_W	0.00436	4.7
CUP_SW1	55	77	swale	94.6	82.30	82.15	TRAPEZOIDAL	0.30		0.00159	42.4
CUP_SW2	77	78	swale	8.3	82.15	82.14	TRAPEZOIDAL	0.30		0.00121	36.5
CUP_SW3	78	S-63	swale	106.6	82.14	82.00	TRAPEZOIDAL	0.30		0.00131	24.5
DICB10_SW	S-63	DICB10	swale	104.1	82.00	79.27	TRAPEZOIDAL	1.00		0.02623	0.0
DICB2_SWE1	81DICB2_SWE1S	S-26B	swale	69.0	69.36	68.77	TRAPEZOIDAL	0.50		0.00855	1.2
DICB2_SWE2	DICB2_SWE2S	81DICB2_SWE1S	swale	20.0	69.58	69.36	TRAPEZOIDAL	0.60		0.01099	2.1
DICB2_SWW	DICB2_SWWS	S-26B	Swale	96.0	69.50	68.77	TRAPEZOIDAL	0.50		0.00760	13.5
ST-100_2	D-MHST-100	Nepean-Bay-Trunk		6.0	63.06	63.04	CIRCULAR	0.90		0.00333	146.3
ST-100-S	MHST-100-S	Carling_OLFN3	Major_System	11.0	65.42	64.80	IRREGULAR	0.00	Road-A	0.05645	9.5
ST-101I	MHST-101	MHST-100		27.4	63.12	63.09	CIRCULAR	0.90		0.00109	144.0
ST-101I-S	MHST-101-S	MHST-100-S	Major_System	27.4	66.07	65.42	IRREGULAR	0.00	Road-A	0.02371	9.7
ST-102	CBMHST-101	CBMHST105		47.9	73.63	72.43	CIRCULAR	0.38		0.02505	72.9
ST-102I	MHST-102	MHST-101		27.2	63.15	63.12	CIRCULAR	1.50		0.00110	139.0
ST-102I-S	MHST-102-S	MHST-101-S	Major_System	27.2	66.28	66.07	IRREGULAR	0.00	Road-A	0.00773	5.0
ST-103I	MSHT-103	MHST-102		52.9	63.20	63.15	CIRCULAR	1.50		0.00100	148.1
ST-103I-S	MSHT-103-S	MHST-102-S	Major_System	52.9	66.13	66.28	IRREGULAR	0.00	Road-A	-0.00283	3.0
ST-104	CBMHST-104	CBMHST-101		15.1	74.14	73.84	CIRCULAR	0.38		0.01983	37.5
ST-104_1	BI-SA1	MHST-104		38.3	63.67	63.63	CIRCULAR	1.20		0.00102	134.2
ST-104_3	MHST-105	39		12.0	63.79	63.78	CIRCULAR	1.20		0.00100	30.2
ST-104_4	39	BI-SA1		75.9	63.78	63.70	CIRCULAR	1.20		0.00100	30.6
ST-104I	MHST-104	MSHT-103		32.8	63.53	63.50	CIRCULAR	1.20		0.00101	143.9
ST-105I_1-S_1	BI-SA1-S	54	Major_System	66.9	70.15	68.92	IRREGULAR	0.00	Road-B	0.01841	25.2
ST-105I_1-S_2	54	MHST-105-S	major_system	15.2	68.92	68.64	IRREGULAR	0.00	Road-B	0.01839	26.4
ST-105I_2-S	MHST-104-S	BI-SA1-S	Major_System	37.7	70.80	70.15	IRREGULAR	0.00	Road-B	0.01723	8.4
ST-106I	MHST-106	MSHT-103		44.7	63.23	63.20	CIRCULAR	1.50		0.00067	10.8
ST-106I-S	MHST-106-S	MSHT-103-S	Major_System	29.6	71.87	66.13	IRREGULAR	0.00	Road-A	0.19783	28.2
ST-107	D-MHST-170	MHST-158		13.3	71.93	71.80	CIRCULAR	0.30		0.00977	14.8
ST-120-S_1	MHST-120-S	CBMHST66,67	Major_System	14.7	74.46	73.54	IRREGULAR	0.00	Road-A_spilt	0.06272	31.0
ST-120-S_2	CB68,40	MHST-106-S	Major_System	14.9	72.63	71.87	IRREGULAR	0.00	Road-A_spilt	0.05108	20.1
ST-120-S_3	CBMHST66,67	CB68,40	Major_System	15.3	73.54	72.63	IRREGULAR	0.00	Road-A_spilt	0.05963	39.2
ST-130	MHST-130	OGS-3		35.6	67.69	67.62	CIRCULAR	1.00		0.00197	673.4
ST-131_1	MHST-212	13		25.4	67.95	67.93	CIRCULAR	0.83		0.00094	62.9
ST-131_2	13	MHST-130		49.1	67.93	67.88	CIRCULAR	0.83		0.00096	75.0
ST-132	MHST-132	MHST-156		41.9	73.25	72.62	CIRCULAR	0.45		0.01505	47.6
ST-133	Chamber201S	MHST-212		2.9	67.95	67.95	CIRCULAR	0.83		-0.00034	54.0
ST-134	MHST-134	MHST-138		17.5	76.62	76.18	CIRCULAR	0.38		0.02515	11.4
ST-135	MHST-135	MHST-148		28.3	70.62	70.60	CIRCULAR	1.35		0.00071	250.4
ST-136_1	MHST-136	76		17.8	78.65	78.23	CIRCULAR	0.30		0.02336	0.0
ST-136_3	76	21		15.1	78.23	77.88	CIRCULAR	0.30		0.02339	1.4

CONDUITS 3/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-136_4	21	MHST-137		24.9	77.88	77.30	CIRCULAR	0.30		0.02337	5.1
ST-136-S_2	CB90	CB88	Major_System	27.3	80.75	79.79	IRREGULAR	0.00	Road-E_S	0.03515	4.2
ST-136-S_3	MHST-136-S	CB84,85	Major_System	17.9	81.70	81.32	IRREGULAR	0.00	Road-E_C	0.02121	7.3
ST-136-S_4	CB84,85	CB90	Major_System	14.4	81.32	80.75	IRREGULAR	0.00	Road-E_C	0.03949	5.8
ST-137	MHST-137	MHST-134		22.4	77.24	76.68	CIRCULAR	0.38		0.02501	11.4
ST-137-S_1	CB88	CB96	Major_System	38.1	79.79	78.66	IRREGULAR	0.00	Road-E_N	0.02965	3.4
ST-137-S_3	CB96	CB97	Major_System	24.4	78.66	77.90	IRREGULAR	0.00	Road-E_N	0.03115	3.1
ST-137-S_4	CB97	MHST-153-S	Major_System	33.9	77.90	76.52	IRREGULAR	0.00	Road-E_C	0.04070	5.8
ST-138_1	MHST-138	22		15.9	75.17	74.77	CIRCULAR	0.38		0.02499	18.4
ST-138_2	22	MHST-153		23.0	74.77	74.20	CIRCULAR	0.38		0.02494	19.3
ST-141_1	MHST-141	37		11.9	71.42	71.39	CIRCULAR	0.90		0.00253	144.1
ST-141_3	37	30		18.2	71.39	71.34	CIRCULAR	0.90		0.00258	157.7
ST-141_4	30	MHST-160		17.0	71.34	71.30	CIRCULAR	0.90		0.00253	173.2
ST-141-S_1	CB82	CBMH89	Major_System	26.5	77.15	76.26	IRREGULAR	0.00	Road-E_S	0.03363	12.8
ST-141-S_3	CBMH89	CB92	Major_System	33.3	76.26	75.27	IRREGULAR	0.00	Road-E_S	0.02973	13.2
ST-141-S_4	CB92	CB94	Major_System	19.6	75.27	75.02	IRREGULAR	0.00	Road-E_S	0.01277	5.4
ST-142	D-MHST-142	MHST-130		29.3	67.74	67.69	CIRCULAR	1.20		0.00171	620.1
ST-143	MHST-143	MHST-159		38.2	69.45	69.41	CIRCULAR	1.35		0.00105	616.7
ST-144B_2	56	MHST-143		21.6	69.53	69.48	CIRCULAR	1.35		0.00213	617.3
ST-145_1	D-MHST-145	MHST-144		71.4	69.90	69.83	CIRCULAR	1.20		0.00098	558.0
ST-146_1-S	MHST-146-S	BI-SA49-S	Major_System	5.7	75.38	75.35	IRREGULAR	0.00	Road-D_W	0.00509	12.7
ST-146_2-S_1	BI-SA49-S	74	Major_System	36.1	75.35	75.07	IRREGULAR	0.00	Road-D_W	0.00793	2.5
ST-146_2-S_2	74	MHST-157-S	Major_System	55.0	75.07	74.63	IRREGULAR	0.00	Road-D	0.00791	1.0
ST-146_3	D-MHST-146_1	73		12.1	70.17	70.15	CIRCULAR	1.50		0.00141	745.1
ST-146_4	73	MHST-200		17.9	70.15	70.13	CIRCULAR	1.50		0.00129	751.2
ST-147_1	MHST-147	50		6.0	70.25	70.24	CIRCULAR	1.50		0.00117	679.0
ST-147_2	71	72		14.2	70.23	70.21	CIRCULAR	1.50		0.00127	681.6
ST-147_3	50	71		14.6	70.24	70.23	CIRCULAR	1.50		0.00123	680.2
ST-147_5	72	MHST-146		6.0	70.21	70.20	CIRCULAR	1.50		0.00117	687.0
ST-147-S	CBMH57	MHST-146-S	Major_System	44.0	76.01	75.38	IRREGULAR	0.00	Road-D_W	0.01431	20.4
ST-148_1	MHST-148	64		7.2	70.45	70.44	CIRCULAR	1.50		0.00196	652.6
ST-148_10	49	MHST-147		12.7	70.31	70.28	CIRCULAR	1.50		0.00197	661.4
ST-148_2	65	66		5.0	70.40	70.39	CIRCULAR	1.50		0.00199	654.2
ST-148_3	64	65		20.1	70.44	70.40	CIRCULAR	1.50		0.00199	653.7
ST-148_4	66	68		9.9	70.39	70.37	CIRCULAR	1.50		0.00193	654.7
ST-148_5	68	69		5.0	70.37	70.36	CIRCULAR	1.50		0.00200	656.0
ST-148_6	69	70		5.1	70.36	70.35	CIRCULAR	1.50		0.00197	656.7
ST-148_7	70	48		9.2	70.35	70.33	CIRCULAR	1.50		0.00195	657.3
ST-148_8	48	49		12.2	70.33	70.31	CIRCULAR	1.50		0.00197	659.3
ST-148-S_1	CB44	CB47	Major_System	39.1	80.37	78.63	IRREGULAR	0.00	Road-D_W	0.04460	2.4
ST-148-S_2	CB49	CB51	Major_System	10.0	78.19	77.75	IRREGULAR	0.00	Road-D_W	0.04364	4.5
ST-148-S_3	CB47	CB49	Major_System	10.0	78.63	78.19	IRREGULAR	0.00	Road-D_W	0.04362	5.3
ST-148-S_4	CB51	CB53	Major_System	9.8	77.75	77.08	IRREGULAR	0.00	Road-D_W	0.06865	4.6
ST-148-S_5	CB53	CB55	Major_System	10.0	77.08	76.58	IRREGULAR	0.00	Road-D_W	0.05025	4.2
ST-148-S_7	CB55	CBMH57	Major_System	17.0	76.58	76.01	IRREGULAR	0.00	Road-D_W	0.03354	3.0
ST-149_1	MHST-149	36		19.8	70.69	70.67	CIRCULAR	1.35		0.00116	251.5
ST-149_2	36	MHST-135		14.2	70.67	70.65	CIRCULAR	1.35		0.00120	252.7
ST-149-S_1	CB75	CB77	Major_System	8.7	79.25	78.83	IRREGULAR	0.00	Road-E_C	0.04854	3.7
ST-149-S_2	MHST-135-S	CB71	Major_System	12.7	79.98	79.68	IRREGULAR	0.00	Road-E_C	0.02357	1.9
ST-149-S_4	CB69	MHST-149-S	Major_System	15.0	78.72	77.93	IRREGULAR	0.00	Road-E_NW	0.05292	6.0

CONDUITS 4/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-149-S_5	CB71	CB75	Major_System	12.9	79.68	79.25	IRREGULAR	0.00	Road-E_C	0.03342	1.9
ST-149-S_6	CB77	CB69	Major_System	6.3	78.83	78.72	IRREGULAR	0.00	Road-E_C	0.01747	6.4
ST-150	MHST-150	MHST-149		18.1	70.76	70.72	CIRCULAR	1.35		0.00220	251.7
ST-150-S_1	MHST-149-S	CB79	Major_System	13.1	77.93	77.57	IRREGULAR	0.00	Road-E_NW	0.02743	6.0
ST-150-S_2	CB79	CB83	Major_System	17.9	77.57	77.24	IRREGULAR	0.00	Road-E_C	0.01848	6.8
ST-151_1	MHST-151	35		13.3	71.23	71.22	CIRCULAR	0.90		0.00068	179.8
ST-151_2	35	MHST-150		17.0	71.22	71.21	CIRCULAR	0.90		0.00065	183.1
ST-151-S	CB83	CB82	Major_System	11.2	77.24	77.15	IRREGULAR	0.00	Road-E_S	0.00801	10.2
ST-153_1	MHST-153	23		38.0	72.86	72.48	CIRCULAR	0.38		0.00994	22.3
ST-153_2	23	26		13.6	72.48	72.35	CIRCULAR	0.38		0.00994	32.9
ST-153_4	26	MHST-158		15.7	72.35	72.19	CIRCULAR	0.38		0.00997	35.2
ST-153-S_1	MHST-153-S	CB106,103	Major_System	26.1	76.52	75.51	IRREGULAR	0.00	Road-E_C	0.03879	8.0
ST-153-S_3	CB106,103	CB105	Major_System	15.4	75.51	75.14	IRREGULAR	0.00	Road-E_N	0.02407	2.5
ST-153-S_4	CB105	DICB9	Major_System	17.3	75.14	74.88	IRREGULAR	0.00	Road-E_N	0.01507	3.8
ST-154	MHST-154	CHAMBER-103		16.0	75.80	75.72	CIRCULAR	0.90		0.00500	866.4
ST-154A	MHST-154A	MHST-154B		15.5	76.18	76.10	CIRCULAR	0.90		0.00516	865.2
ST-154B	MHST-154B	MHST-154		35.9	76.04	75.86	CIRCULAR	0.90		0.00501	864.5
ST-155_1	MHST-155	60		9.7	74.03	73.94	CIRCULAR	0.90		0.00932	435.8
ST-155_3	60	61		6.5	73.94	73.88	CIRCULAR	0.90		0.00930	436.0
ST-155_4	61	MHST-148		6.3	73.88	73.82	CIRCULAR	0.90		0.00945	436.7
ST-156	MHST-156	MHST_156B		16.0	70.13	70.12	CIRCULAR	1.50		0.00062	163.6
ST-156B	MHST_156B	MHST-157		18.787	70.09	70.08	CIRCULAR	1.5		0.00053	160.83
ST-157_1	MHST-157	D-MHST-157B		13.532	70.02	70	CIRCULAR	1.5		0.00148	821.52
ST-157_2	D-MHST-157B	MHST-145		14.706	69.97	69.96	CIRCULAR	1.5		0.00068	331.86
ST-157_3	D-MHST-157B	CHAMBER-104B		9.4	69.97	69.91	CIRCULAR	0.9		0.00638	493.65
ST-158_2	75	MHST-141		5.552	71.581	71.57	CIRCULAR	0.75		0.00198	119.15
ST-158_3	MHST-158	33		21.587	71.74	71.695	CIRCULAR	0.75		0.00208	50.46
ST-158_4	31	75		38.574	71.661	71.581	CIRCULAR	0.75		0.00207	59.94
ST-158_5	32	31		8.439	71.678	71.661	CIRCULAR	0.75		0.00201	58.26
ST-158_6	33	32		8.4	71.70	71.68	CIRCULAR	0.75		0.00203	55.6
ST-158-S	CB94	CB93	Major_System	39.3	75.10	75.17	IRREGULAR	0.00	Road-E_S_Amb	-0.00178	1.2
ST-158-S_2	CB93	CB107	Major_System	8.4	75.17	75.12	IRREGULAR	0.00	Road-E_S_Amb	0.00593	4.6
ST-158-S_4	CB107	CB100	Major_System	8.9	75.12	75.08	IRREGULAR	0.00	Road-E_S_Amb	0.00450	4.6
ST-158-S_6	CB100	MHST-158-S	Major_System	15.6	75.08	74.99	IRREGULAR	0.00	Road-E_S	0.00576	1.8
ST-159	MHST-159	MHST-142		44.6	69.41	69.32	CIRCULAR	1.35		0.00202	616.2
ST-160	MHST-160	MHST-151		22.3	71.27	71.23	CIRCULAR	0.90		0.00179	179.4
ST-161_2-S_1	D-MHST-161-S	CB42	Major_System	23.3	83.25	81.44	IRREGULAR	0.00	Road-D_W	0.07781	3.7
ST-161_2-S_2	CB42	CB44	Major_System	20.7	81.44	80.37	IRREGULAR	0.00	Road-D_W	0.05168	2.6
ST-162	CBMHST-162	MHST-154A		5.4	76.27	76.24	CIRCULAR	0.90		0.00561	856.8
ST-200_1	MHST-200	MHST-201		40.7	70.11	70.05	CIRCULAR	1.50		0.00148	492.4
ST-200_2	MHST-200	CHAMBER-104-A		29.5	70.17	70.13	CIRCULAR	0.90		0.00135	261.3
ST-201	MHST-201	MHST-157		6.5	70.07	70.05	CIRCULAR	1.50		0.00308	713.2
ST-203	MHST-203	MHST-205		8.6	73.11	73.09	CIRCULAR	0.68		0.00232	76.7
ST-204	MHST-204	MHST-205		12.7	73.11	73.09	CIRCULAR	0.53		0.00158	53.5
ST-205	MHST-205	MHST-206		28.9	72.94	72.91	CIRCULAR	0.68		0.00104	129.9
ST-206	MHST-206	Chamber202		10.3	72.91	72.88	CIRCULAR	0.68		0.00341	174.2
ST-208	MHST-208	MHST-209		19.4	73.41	73.35	CIRCULAR	0.38		0.00309	43.7
ST-209	MHST-209	MHST-206		28.6	73.32	73.21	CIRCULAR	0.38		0.00385	44.6
ST-211	MHST-211	Chamber201		57.4	68.31	68.24	CIRCULAR	0.53		0.00122	57.9
ST-214	MHST-214	MHST-215		38.3	68.23	68.27	CIRCULAR	0.75		-0.00104	78.1

CONDUITS 5/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-215	MHST-215	Chamber201		1.7	68.27	68.27	CIRCULAR	0.75		0.00000	77.9
ST-225	CB255	Chamber202		29.0	73.46	73.17	CIRCULAR	0.20		0.00997	0.3
ST-301	MHST301	MHST-158		8.8	72.60	72.42	CIRCULAR	0.20		0.01989	0.0
ST-42I	MHST-158-S	DICB9	major_system	6.0	74.99	74.88	IRREGULAR	0.00	Road-E_S	0.01834	1.8
ST-60-S_2	ST-60-S-B	ST-60-S-C	swale	37.6	74.11	73.25	TRAPEZOIDAL	1.00		0.02280	32.5
ST-60-S_3	ST-60-S-C	DICB8	swale	125.0	73.25	69.82	TRAPEZOIDAL	1.00		0.02748	34.5
ST-62534	MHST-62534	CBMHST-162		7.2	76.90	76.27	CIRCULAR	0.90		0.08833	856.5
ST-62538_1	MHST-161	59		3.0	78.96	78.90	CIRCULAR	0.53		0.01959	0.0
ST-62538_3	59	38		5.2	78.90	78.80	CIRCULAR	0.53		0.01939	4.5
ST-62538_4	38	MHST-155		5.3	78.80	78.70	CIRCULAR	0.53		0.01943	5.5
St-C104	CHAMBER-104-A	MHST-201		13.1	70.13	70.07	CIRCULAR	0.90		0.00458	234.1
ST-C203	D-Chamber-203	MHST-146		15.9	71.42	71.38	CIRCULAR	0.30		0.00251	50.5
ST-CB6-S	SW_65D	DICB6	swale	104.0	77.94	76.09	TRAPEZOIDAL	0.50		0.01779	0.0
ST-G107	MHST-107	OGS1		52.5	62.03	61.24	CIRCULAR	0.30		0.01505	13.8
ST-OGS1_2	OGS1	Preston		10.0	61.21	61.06	CIRCULAR	0.30		0.01500	36.9
ST-P3	DICB3	IN119608		71.1	64.23	63.80	CIRCULAR	0.20		0.00605	0.0
ST-P46	IN119608	IN119607		30.0	63.50	63.20	CIRCULAR	0.20		0.01000	0.0
ST-SA1	MH-SA1	BI-SA1		24.7	69.45	69.08	CIRCULAR	0.30		0.01501	60.3
ST-SA49	MH-SA49	Chamber-203		17.9	74.02	73.80	CIRCULAR	0.38		0.01228	58.7
ST-SA50	MH-SA50	Chamber-203		13.2	74.07	73.67	CIRCULAR	0.38		0.03032	68.4
ST-SA51-1	MH-SA51-1	Chamber-204		14.7	73.91	73.76	CIRCULAR	0.45		0.01021	56.7
ST-SA51-2	MH-SA51-2	MH207		13.2	74.11	73.98	CIRCULAR	0.38		0.00982	39.8
ST-SA52_1	MHST-213	MHST-214		51.4	68.54	68.45	CIRCULAR	0.53		0.00175	78.2
ST-SA56-1	MH-SA56-1	MHST-203		5.0	73.24	73.19	CIRCULAR	0.53		0.00994	76.6
ST-SA56-2	MH-SA56-2	MHST-204		4.9	73.24	73.19	CIRCULAR	0.45		0.01028	53.5
ST-SA56-3	MH-SA56-3	MHST-208		8.9	73.80	73.44	CIRCULAR	0.38		0.04046	39.0
ST-UGS6B	CHAMBER-102	MHST-170		16.6	72.03	71.96	CIRCULAR	0.38		0.00421	14.8
ST-UGS-Z1	CHAMBER-104B	MHST-145		8.4	69.91	69.90	CIRCULAR	0.90		0.00119	348.2
ST-xx	MH-SAxx	MHST-107		10.7	62.45	62.15	CIRCULAR	0.20		0.02805	7.0
TD01	TD01_1	TD01_3	TrenchDrain	7.9	70.21	70.10	PARABOLIC	0.15		0.01393	2.5
TD02	TD02_01	TD02_03	TrenchDrain	21.8	68.90	68.75	RECT_OPEN	0.35		0.00689	11.1
TD03	TD03_1	TD_B	TrenchDrain	36.4	68.80	68.65	RECT_OPEN	0.35		0.00412	25.6
TD04	TD04_01	TD04_02	TrenchDrain	5.6	74.62	74.57	PARABOLIC	0.13		0.00891	4.6
TD06	TD06_1	TD06_2	TrenchDrain	17.3	69.15	69.04	RECT_OPEN	0.35		0.00634	11.0
TD07	TD07_1	TD07_2	TrenchDrain	12.2	69.10	69.04	RECT_OPEN	0.35		0.00491	1.5
TDS	TDS_1	TDS_2	TrenchDrain	2.5	76.43	76.40	PARABOLIC	0.15		0.01188	4.9
TDS_O	TDS_2	MHST-144		28.5	70.50	69.68	CIRCULAR	0.20		0.02882	4.9
TDW	TDW_1	TDW_2	TrenchDrain	2.5	76.49	76.47	PARABOLIC	0.15		0.00800	2.7
TDW_O	TDW_2	MHST-144		17.8	70.50	69.68	CIRCULAR	0.20		0.04623	2.7
UP-CB43-S	UP-CB43	CB43	major_system	36.8	83.46	81.69	IRREGULAR	0.00	Road-D_W	0.04815	6.4
WD-OLF_3	Wales-OLF-N03	Wales-OLF-N04	Major_System	81.2	68.20	66.75	IRREGULAR	0.00	P_Wales_Dr	0.01786	0.9
WD-OLF_4	Wales-OLF-N04	Wales-OLF-N05	Major_System	95.0	66.75	65.50	IRREGULAR	0.00	P_Wales_Dr	0.01316	0.3

Junctions 1/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
13		NO	67.93	70.22	2.29	0.33	68.25	10/04/2022 01:33 AM
21		NO	77.88	80.84	2.96	0.04	77.92	10/04/2022 01:11 AM
22		NO	74.77	77.92	3.15	0.07	74.84	10/04/2022 01:11 AM
23		NO	72.48	75.76	3.28	0.11	72.59	10/04/2022 01:11 AM
26		NO	72.35	75.31	2.97	0.11	72.46	10/04/2022 01:11 AM
30		NO	71.34	76.21	4.86	0.27	71.61	10/04/2022 01:12 AM
31		NO	71.66	74.97	3.31	0.18	71.84	10/04/2022 01:12 AM
32		NO	71.68	74.93	3.26	0.17	71.85	10/04/2022 01:12 AM
33		NO	71.70	74.90	3.20	0.17	71.87	10/04/2022 01:12 AM
34		NO	82.41	82.56	0.15	0.01	82.42	10/04/2022 01:13 AM
35		NO	71.22	77.20	5.98	0.28	71.51	10/04/2022 01:13 AM
36		NO	70.67	78.89	8.22	0.32	70.98	10/04/2022 01:14 AM
37		NO	71.39	75.58	4.19	0.26	71.65	10/04/2022 01:12 AM
38		NO	78.80	81.48	2.68	0.04	78.84	10/04/2022 01:10 AM
39		NO	63.78	69.31	5.54	0.15	63.93	10/04/2022 01:12 AM
45		NO	69.56	74.33	4.76	0.52	70.08	10/04/2022 01:33 AM
48		NO	70.33	77.13	6.80	0.53	70.85	10/04/2022 01:17 AM
49		NO	70.31	76.54	6.23	0.54	70.84	10/04/2022 01:16 AM
50		NO	70.24	75.84	5.60	0.59	70.83	10/04/2022 01:17 AM
51		NO	70.10	70.31	0.21	0.00	70.10	10/04/2022 00:00 AM
54		NO	68.92	69.07	0.15	0.04	68.96	10/04/2022 01:12 AM
55		NO	82.30	82.60	0.30	0.13	82.43	10/04/2022 01:11 AM
56		NO	69.53	74.02	4.49	0.54	70.07	10/04/2022 01:33 AM
59		NO	78.90	81.73	2.83	0.03	78.93	10/04/2022 01:10 AM
60		NO	73.94	80.75	6.81	0.31	74.25	10/04/2022 01:18 AM
61		NO	73.88	80.44	6.56	0.31	74.19	10/04/2022 01:18 AM
64		NO	70.44	79.78	9.35	0.49	70.92	10/04/2022 01:16 AM
65		NO	70.40	78.80	8.40	0.50	70.89	10/04/2022 01:16 AM
66		NO	70.39	78.55	8.17	0.50	70.89	10/04/2022 01:16 AM
68		NO	70.37	78.07	7.71	0.51	70.88	10/04/2022 01:17 AM
69		NO	70.36	77.83	7.47	0.51	70.87	10/04/2022 01:17 AM
70		NO	70.35	77.58	7.24	0.52	70.86	10/04/2022 01:17 AM
71		NO	70.23	75.65	5.43	0.59	70.82	10/04/2022 01:17 AM
72		NO	70.21	75.47	5.26	0.60	70.81	10/04/2022 01:17 AM
73		NO	70.15	75.14	4.99	0.47	70.62	10/04/2022 01:29 AM
74		NO	75.07	75.07	0.00	0.01	75.08	10/04/2022 01:13 AM
75		NO	71.58	75.15	3.56	0.22	71.80	10/04/2022 01:12 AM
76		NO	78.23	81.34	3.11	0.02	78.25	10/04/2022 01:10 AM
77		NO	82.15	82.45	0.30	0.12	82.27	10/04/2022 01:19 AM
78		NO	82.14	82.45	0.31	0.12	82.26	10/04/2022 01:20 AM
81DICB2_SWE1S		NO	69.36	70.00	0.64	0.01	69.37	10/04/2022 01:16 AM
AD01		NO	79.51	79.70	0.19	0.04	79.55	10/04/2022 01:10 AM
AD02		NO	79.67	79.73	0.06	0.00	79.67	10/04/2022 00:10 AM
AD03		NO	79.82	79.85	0.03	0.00	79.82	10/04/2022 00:10 AM
AD04		NO	79.80	79.85	0.05	0.00	79.80	10/04/2022 00:10 AM
AD05		NO	79.70	79.80	0.10	0.00	79.70	10/04/2022 00:10 AM
AD06		NO	79.67	79.85	0.18	0.04	79.71	10/04/2022 01:10 AM
AD07		NO	74.25	74.30	0.05	0.00	74.25	10/04/2022 00:10 AM
AD08		NO	74.25	74.35	0.10	0.00	74.25	10/04/2022 00:10 AM
AD09		NO	74.25	74.29	0.04	0.00	74.25	10/04/2022 00:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
BI-SA1		NO	63.50	70.48	6.98	0.41	63.91	10/04/2022 01:13 AM
BI-SA1-S	Major_System	NO	70.15	70.30	0.15	0.04	70.19	10/04/2022 01:10 AM
BI-SA49-S	Major_System	NO	75.35	75.51	0.16	0.02	75.37	10/04/2022 01:10 AM
Carling_OLF1		NO	66.50	66.70	0.20	0.02	66.52	10/04/2022 01:11 AM
Carling_OLFN1		NO	65.41	65.61	0.20	0.02	65.43	10/04/2022 01:15 AM
Carling_OLFN3		NO	64.80	65.00	0.20	0.05	64.85	10/04/2022 01:14 AM
CB100		NO	75.08	75.23	0.15	0.02	75.10	10/04/2022 01:10 AM
CB104		NO	75.37	75.52	0.15	0.02	75.39	10/04/2022 01:10 AM
CB105		NO	75.14	75.29	0.15	0.03	75.17	10/04/2022 01:10 AM
CB106,103		NO	75.51	75.66	0.15	0.02	75.53	10/04/2022 01:10 AM
CB107		NO	75.12	75.27	0.15	0.02	75.14	10/04/2022 01:10 AM
CB108		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB109		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB111		NO	75.04	75.40	0.36	0.02	75.06	10/04/2022 01:11 AM
CB111_SW		NO	75.17	75.45	0.28	0.05	75.22	10/04/2022 01:11 AM
CB113		NO	69.58	69.78	0.20	0.00	69.58	10/04/2022 00:10 AM
CB114		NO	74.92	75.07	0.15	0.02	74.94	10/04/2022 01:10 AM
CB209		NO	77.64	77.79	0.15	0.02	77.66	10/04/2022 01:10 AM
CB255		NO	73.46	77.72	4.26	0.01	73.47	10/04/2022 01:11 AM
CB255-S		NO	77.71	77.86	0.15	0.01	77.72	10/04/2022 01:10 AM
CB26		NO	75.96	76.11	0.15	0.02	75.98	10/04/2022 01:10 AM
CB42		NO	81.44	81.59	0.15	0.01	81.45	10/04/2022 01:10 AM
CB43		NO	81.69	81.84	0.15	0.02	81.71	10/04/2022 01:10 AM
CB44	Major_System	NO	80.37	80.52	0.15	0.01	80.38	10/04/2022 01:10 AM
CB45		NO	80.69	80.84	0.15	0.01	80.70	10/04/2022 01:10 AM
CB46		NO	79.69	79.84	0.15	0.01	79.70	10/04/2022 01:10 AM
CB47		NO	78.63	78.80	0.18	0.02	78.64	10/04/2022 01:10 AM
CB48		NO	78.85	79.00	0.15	0.02	78.87	10/04/2022 01:10 AM
CB49		NO	78.19	78.37	0.18	0.02	78.21	10/04/2022 01:10 AM
CB50		NO	77.85	78.00	0.15	0.02	77.87	10/04/2022 01:10 AM
CB51		NO	77.75	77.94	0.18	0.01	77.77	10/04/2022 01:10 AM
CB52		NO	77.14	77.29	0.15	0.02	77.16	10/04/2022 01:10 AM
CB53		NO	77.08	77.23	0.15	0.01	77.09	10/04/2022 01:10 AM
CB54		NO	76.44	76.59	0.15	0.02	76.46	10/04/2022 01:10 AM
CB55		NO	76.58	76.73	0.15	0.01	76.59	10/04/2022 01:10 AM
CB56		NO	75.98	76.13	0.15	0.02	76.00	10/04/2022 01:10 AM
CB58		NO	75.64	75.79	0.15	0.03	75.67	10/04/2022 01:10 AM
CB59		NO	74.99	75.14	0.15	0.02	75.01	10/04/2022 01:10 AM
CB60		NO	75.39	75.55	0.16	0.00	75.39	10/04/2022 00:10 AM
CB64		NO	74.57	74.72	0.15	0.02	74.59	10/04/2022 01:10 AM
CB68,40		NO	72.63	72.79	0.16	0.02	72.65	10/04/2022 01:10 AM
CB69		NO	78.72	78.87	0.15	0.02	78.74	10/04/2022 01:10 AM
CB71		NO	79.68	79.83	0.15	0.01	79.69	10/04/2022 01:10 AM
CB72_89		NO	69.49	69.64	0.15	0.01	69.50	10/04/2022 01:10 AM
CB75		NO	79.25	79.40	0.15	0.01	79.26	10/04/2022 01:10 AM
CB77		NO	78.83	78.98	0.15	0.02	78.85	10/04/2022 01:10 AM
CB79		NO	77.57	77.72	0.15	0.02	77.59	10/04/2022 01:10 AM
CB82	Major_System	NO	77.15	77.30	0.15	0.03	77.18	10/04/2022 01:10 AM
CB83	Major_System	NO	77.24	77.39	0.15	0.03	77.27	10/04/2022 01:10 AM
CB84,85		NO	81.32	81.47	0.15	0.02	81.34	10/04/2022 01:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
CB87		NO	75.50	75.65	0.15	0.01	75.51	10/04/2022 01:10 AM
CB88		NO	79.79	80.09	0.30	0.02	79.81	10/04/2022 01:10 AM
CB90		NO	80.75	80.90	0.15	0.02	80.77	10/04/2022 01:10 AM
CB92		NO	75.27	75.42	0.15	0.02	75.29	10/04/2022 01:10 AM
CB93		NO	75.17	75.32	0.15	0.02	75.19	10/04/2022 01:10 AM
CB96		NO	78.66	78.81	0.15	0.02	78.68	10/04/2022 01:10 AM
CB97		NO	77.90	78.05	0.15	0.02	77.92	10/04/2022 01:10 AM
CBMH57	Major_System	NO	76.01	76.16	0.15	0.03	76.04	10/04/2022 01:10 AM
CBMH89		NO	76.26	76.41	0.15	0.03	76.29	10/04/2022 01:10 AM
CBMHST-101		NO	73.63	76.41	2.78	0.13	73.76	10/04/2022 01:11 AM
CBMHST103		NO	72.10	74.28	2.18	0.38	72.48	10/04/2022 01:39 AM
CBMHST-103-S		NO	74.60	74.75	0.15	0.03	74.63	10/04/2022 01:12 AM
CBMHST-104		NO	74.14	76.59	2.45	0.10	74.24	10/04/2022 01:10 AM
CBMHST105		NO	72.40	74.73	2.33	0.15	72.55	10/04/2022 01:11 AM
CBMHST105-S		NO	74.82	74.97	0.15	0.01	74.83	10/04/2022 01:10 AM
CBMHST-162		NO	76.10	82.72	6.62	0.69	76.79	10/04/2022 01:10 AM
CBMHST208-S		NO	78.00	78.20	0.20	0.02	78.02	10/04/2022 01:10 AM
CBMHST66,67		NO	73.54	73.70	0.16	0.02	73.56	10/04/2022 01:10 AM
Chamber201S		NO	67.95	68.95	1.00	0.28	68.23	10/04/2022 01:34 AM
Chamber202-S		NO	70.84	73.59	2.75	0.14	70.98	10/04/2022 01:22 AM
CUP-SS1		NO	73.50	74.00	0.50	0.07	73.57	10/04/2022 01:10 AM
D-Chamber-203		NO	71.42	75.05	3.63	0.21	71.63	10/04/2022 01:20 AM
D-Chamber-204		NO	73.03	74.63	1.60	0.16	73.19	10/04/2022 01:21 AM
DICB10		NO	79.27	79.50	0.23	0.00	79.27	10/04/2022 05:40 AM
DICB11		NO	75.45	75.60	0.15	0.02	75.47	10/04/2022 01:15 AM
DICB2_SWE2S		NO	69.58	69.75	0.17	0.01	69.59	10/04/2022 01:10 AM
DICB2_SWWS		NO	69.50	70.00	0.50	0.05	69.55	10/04/2022 01:13 AM
DICB3		NO	64.00	66.43	2.43	0.00	64.00	10/04/2022 00:00 AM
DICB6		NO	74.70	76.59	1.89	0.00	74.70	10/04/2022 03:58 AM
D-MHST-100		NO	62.60	65.42	2.82	0.68	63.28	10/04/2022 01:21 AM
D-MHST-142		NO	67.80	72.58	4.78	0.46	68.26	10/04/2022 01:34 AM
D-MHST-145		NO	69.90	74.34	4.44	0.50	70.40	10/04/2022 01:31 AM
D-MHST-146_1		NO	70.17	75.39	5.22	0.48	70.65	10/04/2022 01:17 AM
D-MHST-155		NO	74.03	81.22	7.19	0.65	74.68	10/04/2022 01:18 AM
D-MHST-157B		NO	69.97	74.44	4.47	0.61	70.58	10/04/2022 01:31 AM
D-MHST-161-S	Major_System	NO	83.25	83.40	0.15	0.01	83.26	10/04/2022 01:10 AM
D-MHST-170		NO	71.93	74.51	2.58	0.08	72.01	10/04/2022 01:38 AM
IN119607		NO	63.00	65.62	2.62	0.28	63.28	10/04/2022 01:23 AM
IN119608		NO	63.50	66.14	2.64	0.00	63.50	10/04/2022 00:00 AM
MH150		NO	66.97	69.72	2.75	0.12	67.09	10/04/2022 01:10 AM
MH207		NO	73.95	75.43	1.48	0.19	74.14	10/04/2022 01:10 AM
MH-SA1		NO	69.45	70.55	1.10	0.15	69.60	10/04/2022 01:03 AM
MH-SA49		NO	73.97	75.45	1.48	0.19	74.16	10/04/2022 01:10 AM
MH-SA50		NO	74.07	75.83	1.76	0.12	74.19	10/04/2022 01:10 AM
MH-SA51-1		NO	74.08	76.53	2.45	0.11	74.19	10/04/2022 01:10 AM
MH-SA51-2		NO	74.84	76.50	1.66	0.08	74.92	10/04/2022 01:10 AM
MH-SA56-1		NO	73.24	74.54	1.30	0.15	73.39	10/04/2022 01:10 AM
MH-SA56-2		NO	73.24	74.54	1.30	0.13	73.37	10/04/2022 01:10 AM
MH-SA56-3		NO	73.80	75.80	2.00	0.08	73.88	10/04/2022 01:10 AM
MH-SAxx		NO	62.00	64.50	2.50	0.50	62.50	10/04/2022 00:31 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST_156B		NO	70.09	74.24	4.15	0.50	70.59	10/04/2022 01:31 AM
MHST-100		NO	62.60	65.42	2.82	1.22	63.82	10/04/2022 01:22 AM
MHST-100-S	Major_System	NO	65.42	65.72	0.30	0.02	65.44	10/04/2022 01:11 AM
MHST-101		NO	63.00	66.07	3.07	0.82	63.82	10/04/2022 01:22 AM
MHST-101-S	Major_System	NO	66.07	66.23	0.16	0.02	66.09	10/04/2022 01:10 AM
MHST-102		NO	63.00	66.28	3.28	0.82	63.82	10/04/2022 01:22 AM
MHST-102-S	Major_System	NO	66.28	66.44	0.16	0.02	66.30	10/04/2022 01:10 AM
MHST-104		NO	63.30	70.80	7.50	0.53	63.83	10/04/2022 01:23 AM
MHST-104-S	Major_System	NO	70.80	70.95	0.15	0.03	70.83	10/04/2022 01:10 AM
MHST-105		NO	63.60	69.13	5.53	0.33	63.93	10/04/2022 01:12 AM
MHST-105-S	Major_System	NO	68.64	68.79	0.15	0.06	68.70	10/04/2022 01:12 AM
MHST-106		NO	63.00	71.87	8.87	0.82	63.82	10/04/2022 01:23 AM
MHST-106-S	Major_System	NO	71.87	72.03	0.16	0.02	71.89	10/04/2022 01:10 AM
MHST-107		NO	62.00	64.32	2.32	0.10	62.10	10/04/2022 01:10 AM
MHST-120-S	Major_System	NO	74.46	74.62	0.16	0.02	74.48	10/04/2022 01:10 AM
MHST-126		NO	74.23	75.36	1.13	0.02	74.26	10/04/2022 01:10 AM
MHST-130		NO	67.69	70.21	2.52	0.52	68.21	10/04/2022 01:34 AM
MHST-132		NO	73.25	75.96	2.71	0.11	73.36	10/04/2022 01:10 AM
MHST-134		NO	76.62	79.19	2.57	0.05	76.67	10/04/2022 01:11 AM
MHST-135		NO	70.62	79.31	8.69	0.34	70.96	10/04/2022 01:14 AM
MHST-135-S	Major_System	NO	79.98	80.13	0.15	0.01	79.99	10/04/2022 01:10 AM
MHST-136		NO	78.65	81.94	3.29	0.00	78.65	10/04/2022 00:00 AM
MHST-136-S		NO	81.70	82.00	0.30	0.02	81.72	10/04/2022 01:10 AM
MHST-137		NO	77.24	80.00	2.76	0.05	77.29	10/04/2022 01:10 AM
MHST-138		NO	75.17	78.56	3.39	0.07	75.24	10/04/2022 01:10 AM
MHST-141		NO	71.42	75.17	3.75	0.25	71.67	10/04/2022 01:12 AM
MHST-142		NO	67.80	72.58	4.78	2.21	70.01	10/04/2022 01:34 AM
MHST-143		NO	69.45	74.02	4.57	0.60	70.05	10/04/2022 01:34 AM
MHST-144		NO	69.68	75.30	5.62	0.46	70.14	10/04/2022 01:33 AM
MHST-145		NO	69.90	73.97	4.07	0.68	70.58	10/04/2022 01:31 AM
MHST-146		NO	70.17	75.39	5.22	0.63	70.80	10/04/2022 01:17 AM
MHST-146-S	Major_System	NO	75.38	75.58	0.20	0.03	75.41	10/04/2022 01:10 AM
MHST-147		NO	70.25	75.92	5.67	0.58	70.83	10/04/2022 01:17 AM
MHST-148		NO	70.45	80.13	9.68	0.48	70.93	10/04/2022 01:16 AM
MHST-149		NO	70.69	78.30	7.61	0.32	71.01	10/04/2022 01:14 AM
MHST-149-S	Major_System	NO	77.93	78.08	0.15	0.02	77.95	10/04/2022 01:10 AM
MHST-150		NO	70.76	77.32	6.56	0.29	71.05	10/04/2022 01:12 AM
MHST-151		NO	71.23	77.10	5.87	0.30	71.53	10/04/2022 01:13 AM
MHST-153		NO	72.86	77.00	4.14	0.09	72.95	10/04/2022 01:11 AM
MHST-153-S	TGCB102	NO	76.52	76.82	0.30	0.02	76.54	10/04/2022 01:10 AM
MHST-154		NO	75.60	81.92	6.32	0.74	76.34	10/04/2022 01:10 AM
MHST-154A		NO	76.00	82.52	6.52	0.72	76.72	10/04/2022 01:10 AM
MHST-154B		NO	75.90	81.89	5.99	0.68	76.58	10/04/2022 01:10 AM
MHST-155		NO	74.03	81.22	7.19	0.31	74.34	10/04/2022 01:18 AM
MHST-156		NO	70.13	74.49	4.36	0.46	70.59	10/04/2022 01:31 AM
MHST-157		NO	70.02	74.65	4.63	0.57	70.59	10/04/2022 01:30 AM
MHST-158		YES	71.74	74.80	3.06	0.16	71.90	10/04/2022 01:11 AM
MHST-158-S	Major_System	NO	74.99	75.14	0.15	0.01	75.00	10/04/2022 01:11 AM
MHST-159		NO	69.38	74.96	5.58	0.65	70.03	10/04/2022 01:34 AM
MHST-160		NO	71.27	76.79	5.52	0.30	71.57	10/04/2022 01:13 AM
MHST-161		NO	78.96	81.88	2.92	0.00	78.96	10/04/2022 00:00 AM
MHST-170		NO	71.93	74.51	2.58	0.55	72.48	10/04/2022 01:38 AM
MHST-200		NO	70.10	74.81	4.71	0.49	70.59	10/04/2022 01:30 AM
MHST-201		NO	69.96	74.74	4.78	0.63	70.59	10/04/2022 01:30 AM
MHST-203		NO	73.11	78.83	5.72	0.18	73.29	10/04/2022 01:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST-204		NO	73.11	78.79	5.68	0.18	73.29	10/04/2022 01:10 AM
MHST-205		NO	72.94	78.20	5.26	0.30	73.24	10/04/2022 01:10 AM
MHST-206		NO	72.91	75.77	2.86	0.27	73.18	10/04/2022 01:10 AM
MHST-208		NO	73.41	77.80	4.39	0.17	73.58	10/04/2022 01:10 AM
MHST-209		NO	73.35	75.76	2.41	0.16	73.51	10/04/2022 01:10 AM
MHST-211		NO	68.31	70.38	2.07	0.22	68.53	10/04/2022 01:10 AM
MHST-212		NO	67.95	70.22	2.27	0.28	68.23	10/04/2022 01:34 AM
MHST-213		NO	68.54	70.24	1.70	0.24	68.78	10/04/2022 01:10 AM
MHST-214		NO	68.23	70.31	2.08	0.29	68.52	10/04/2022 01:11 AM
MHST-215		NO	68.27	70.25	1.98	0.17	68.44	10/04/2022 01:11 AM
MHST-221		NO	66.62	69.70	3.08	0.17	66.79	10/04/2022 01:11 AM
MHST301		NO	72.60	75.11	2.52	0.00	72.59	10/04/2022 00:00 AM
MHST62528		NO	67.34	70.08	2.74	0.58	67.92	10/04/2022 01:32 AM
MHST-62534		NO	76.90	82.80	5.90	0.24	77.14	10/04/2022 01:10 AM
MHST62545		NO	66.53	69.90	3.37	0.47	66.99	10/04/2022 01:32 AM
MHST62547		NO	64.00	71.80	7.80	0.68	64.68	10/04/2022 01:33 AM
MSHT-103		NO	63.00	66.13	3.13	0.82	63.82	10/04/2022 01:22 AM
MSHT-103-S	Major_System	NO	66.13	66.29	0.16	0.04	66.17	10/04/2022 01:11 AM
OGS1		NO	61.00	63.82	2.82	0.32	61.32	10/04/2022 01:10 AM
OGS-3		NO	67.62	70.34	2.72	0.47	68.09	10/04/2022 01:31 AM
POW_D1		NO	78.70	79.30	0.60	0.09	78.79	10/04/2022 01:11 AM
Preston		NO	61.00	63.00	2.00	0.15	61.15	10/04/2022 01:10 AM
S-26B		NO	67.58	69.60	2.02	0.54	68.12	10/04/2022 01:14 AM
S-63		NO	79.80	84.02	4.22	0.77	80.57	10/04/2022 01:20 AM
ST-60-S-B		NO	74.11	74.41	0.30	0.04	74.15	10/04/2022 01:11 AM
ST-60-S-C		NO	73.25	73.50	0.24	0.04	73.30	10/04/2022 01:13 AM
SW_42I		NO	74.96	75.15	0.19	0.04	75.00	10/04/2022 01:10 AM
SW_65D		NO	77.94	78.44	0.50	0.00	77.94	10/04/2022 01:19 AM
TD_B		NO	67.88	69.06	1.19	0.09	67.97	10/04/2022 01:10 AM
TD01_1		NO	70.21	70.34	0.13	0.06	70.27	10/04/2022 01:10 AM
TD01_3		NO	68.60	70.29	1.69	0.18	68.78	10/04/2022 01:10 AM
TD02_01		NO	68.90	69.10	0.20	0.07	68.97	10/04/2022 01:10 AM
TD02_03		NO	67.42	69.10	1.68	0.08	67.50	10/04/2022 01:10 AM
TD03_1		NO	68.80	69.10	0.30	0.17	68.97	10/04/2022 01:10 AM
TD04_01		NO	74.57	74.72	0.15	0.13	74.70	10/04/2022 01:10 AM
TD04_02		NO	74.00	74.72	0.72	0.03	74.03	10/04/2022 01:10 AM
TD05_1		NO	74.50	74.75	0.25	0.07	74.57	10/04/2022 01:10 AM
TD05_2		NO	74.00	74.72	0.72	0.04	74.04	10/04/2022 01:10 AM
TD06_1		NO	69.15	69.39	0.24	0.07	69.22	10/04/2022 01:10 AM
TD06_2		NO	67.40	69.39	1.99	0.07	67.47	10/04/2022 01:10 AM
TD07_1		NO	69.10	69.39	0.29	0.02	69.12	10/04/2022 01:10 AM
TD07_2		NO	67.40	69.39	1.99	0.03	67.43	10/04/2022 01:10 AM
TDS_1		NO	76.43	76.58	0.15	0.08	76.51	10/04/2022 01:10 AM
TDS_2		NO	70.50	76.58	6.08	0.04	70.54	10/04/2022 01:10 AM
TDW_1		NO	76.49	76.64	0.15	0.07	76.56	10/04/2022 01:10 AM
TDW_2		NO	70.50	76.64	6.14	0.03	70.53	10/04/2022 01:10 AM
UP-CB43		NO	83.46	83.61	0.15	0.02	83.48	10/04/2022 01:10 AM
Wales-OLF-N03		NO	68.20	68.40	0.20	0.01	68.21	10/04/2022 01:15 AM
Wales-OLF-N04		NO	66.75	66.95	0.20	0.01	66.76	10/04/2022 01:19 AM
Wales-OLF-N05		NO	65.50	65.70	0.20	0.00	65.50	10/04/2022 01:20 AM

Storage 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Storage Curve	Curve Name	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Volume (1000 m³)	Max. Percent Full (%)	Contributing Area (ha)
CB130	69.84	70.11	0.27	TABULAR	CB(600x600)	0.01	0.03	69.87	0	11	0.0920
CB65	72.16	73.70	1.54	TABULAR	CB65	0.02	0.03	72.19	0	0	1.1620
CB91	75.00	75.20	0.20	TABULAR	CB91	0.10	0.12	75.12	0.006	27	0.1910
CB94	75.02	75.32	0.30	TABULAR	CB94	0.01	0.05	75.07	0.001	4	0.6180
CB95	75.52	75.82	0.30	TABULAR	CB95-ponding	0.01	0.04	75.56	0.001	2	0.2440
CB99	76.90	76.95	0.05	TABULAR	CB99	0.00	0.02	76.92	0	21	0.1460
CBMHST101-S	76.42	76.57	0.15	TABULAR	CBMH101	0.01	0.06	76.48	0.001	19	0.2910
CHAMBER-102	72.03	74.24	2.21	TABULAR	Chamber102	0.13	0.45	72.48	0.096	20	1.9200
CHAMBER-103	74.08	76.78	2.70	TABULAR	Chamber103	0.11	0.60	74.68	0.47	22	13.86
CHAMBER-104-A	70.13	72.43	2.30	TABULAR	Chamber104A	0.10	0.46	70.59	0.26	20	19.50
CHAMBER-104B	69.91	72.61	2.70	TABULAR	Chamber104B	0.20	0.67	70.58	0.42	25	22.77
Chamber201	67.95	69.19	1.24	TABULAR	Chamber201	0.08	0.28	68.23	0.12	23	1.06
Chamber202	70.84	72.43	1.59	TABULAR	Chamber202	0.08	0.33	71.17	0.13	21	1.69
Chamber-203	71.42	72.90	1.48	TABULAR	Chamber203	0.08	0.43	71.85	0.08	29	0.64
Chamber-204	73.03	74.36	1.33	TABULAR	Chamber204	0.07	0.31	73.34	0.07	23	0.69
DICB8	68.11	70.10	1.99	TABULAR	swale	0.02	0.15	68.26	0.00	0	2.81
DICB9	74.60	74.88	0.28	TABULAR	DICB9	0.02	0.06	74.66	0.00	2	1.13
MHST-157-S	73.80	74.23	0.43	TABULAR	CB98-ponding	0.03	0.13	73.93	0.00	5	1.12
PS	64.92	70.03	5.11	CYLINDRICAL	*	0.83	1.01	65.93	0.00	20	0.31
S-14B	61.65	63.30	1.65	TABULAR	S-14B	0.18	0.20	61.85	0.00	1	0.13
S-15	62.10	63.90	1.80	TABULAR	S-15	0.02	0.35	62.45	0.00	0	0.36
S-19	64.00	66.00	2.00	TABULAR	S-19	0.03	0.58	64.58	0.00	0	0.21
S-21B	63.54	65.70	2.16	TABULAR	S-21B	0.45	1.58	65.12	0.02	1	1.77
S-26D	67.19	69.25	2.06	TABULAR	DICB1	0.00	0.00	67.19	0	0	0.0750
S-3Store	62.20	64.24	2.04	TABULAR	S-3	0.11	0.68	62.88	0.001	1	0.3940
SA-1	69.50	72.50	3.00	TABULAR	S-1	0.11	0.68	70.18	0.149	23	1.2350
SA-2	62.60	65.60	3.00	TABULAR	S-2	0.30	0.67	63.27	0.202	23	0.8680

Outlets 1/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
1	DICB6	CBMHST-101	74.70	TABULAR/DEPTH	2CB	NO	0.00	0.12
12	CBMHST208-S	MHST-208	78.00	TABULAR/DEPTH	S28_SL2_5	NO	4.82	0.15
14	CB95	CBMHST-104	75.52	TABULAR/DEPTH	S19_LP	NO	25.78	0.24
18	CB94	75	75.02	TABULAR/DEPTH	2CB	NO	59.27	0.62
20	CB65	MHST-144	72.16	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	7.08	1.16
24	CBMHST-103-S	CBMHST103	74.60	TABULAR/DEPTH	S28_SL4_0.5	NO	3.86	1.55
26	CB91	37	75.14	TABULAR/DEPTH	S19_SL2_5x2	NO	0.00	0.19
31	CB26	Chamber202	75.96	TABULAR/DEPTH	S19_SL2_5x2	NO	6.15	0.35
37	CB113	Chamber201	69.58	TABULAR/DEPTH	CB	NO	0.00	0.14
44	AD05	MH-SA56-1	79.70	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
45	AD03	MH-SA56-2	79.82	TABULAR/HEAD	AreaDrain	NO	0.00	0.03
46	CB72_89	39	69.49	TABULAR/DEPTH	S19_SL2_1	NO	0.45	2.93
47	CBMHST66,67	56	73.54	TABULAR/DEPTH	S28_SL2_5x2	NO	9.17	0.80
48	DICB11	26	75.45	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	1.91	0.43
51	CB46	64	79.69	TABULAR/DEPTH	S19_SL2_5	NO	2.32	0.08
52	CB54	49	76.44	TABULAR/DEPTH	S22_SL2_5	NO	1.47	0.15
53	CB58	71	75.64	TABULAR/DEPTH	S22_SL2_5	NO	2.57	0.19
55	CB71	MHST-135	79.68	TABULAR/DEPTH	S19_SL2_2.5	NO	0.03	0.01
56	CB75	MHST-135	79.25	TABULAR/DEPTH	S22_SL2_2.5	NO	0.40	0.02
57	CB87	MHST-160	75.50	TABULAR/DEPTH	S19_LP	NO	0.00	0.11
58	CB107	32	75.12	TABULAR/DEPTH	S19_SL2_1x2	NO	2.92	0.69
59	CB100	33	75.08	TABULAR/DEPTH	S19_SL2_1x2	NO	5.50	0.70
60	CB84,85	76	81.32	TABULAR/DEPTH	S19_SL2_2.5x2	NO	1.46	0.10
61	CB90	21	80.75	TABULAR/DEPTH	S19_SL2_2.5x2	NO	3.67	0.11
62	CB96	MHST-138	78.66	TABULAR/DEPTH	S19_SL2_2.5	NO	7.28	0.17
63	CB97	22	77.90	TABULAR/DEPTH	S22_SL2_2.5	NO	0.89	0.19
65	CBMHST105-S	CBMHST105	74.82	TABULAR/DEPTH	S28_SL4_0.5	NO	0.00	0.38
69	DICB10	MHST-135	79.27	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	0.00	1.32
AD01_O	AD01	MH-SA56-2	79.67	TABULAR/DEPTH	3CB	NO	0.00	0.10
AD02_O	AD02	MH-SA56-2	79.67	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD04_O	AD04	MH-SA56-1	79.80	TABULAR/DEPTH	AreaDrain	NO	0.00	0.04
AD06_O	AD06	MH-SA56-1	79.65	TABULAR/DEPTH	AreaDrain	NO	22.78	0.11
AD07_O	AD07	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD08_O	AD08	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.09
AD09_O	AD09	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.01
BI-SA1-IC	BI-SA1-S	BI-SA1	70.15	TABULAR/DEPTH	6@R-B@S=1.5%	NO	33.42	0.52
BI-SA49-IC	BI-SA49-S	D-MHST-146_1	75.35	TABULAR/DEPTH	S19_SL2_1x4	NO	10.16	0.32
CB101_103_105	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S22_SL2_2.5	NO	1.39	0.22
CB102_106_DIC	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S19_SL2_2.5	NO	1.73	0.22
CB103_O	CB106,103	23	75.51	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.24
CB104_O	CB104	72	75.37	TABULAR/DEPTH	S19_SL2_5	NO	9.90	0.21
CB105_O	CB105	26	75.14	TABULAR/DEPTH	S22_SL2_2.5	NO	2.34	0.26
CB106_O	CB106,103	23	75.51	TABULAR/DEPTH	S19_SL2_2.5x2	NO	8.84	0.24
CB108_O	CB108	MHST-214	69.60	TABULAR/DEPTH	CB	NO	0.00	0.12
CB109_O	CB109	MHST-215	69.60	TABULAR/DEPTH	CB	NO	0.00	0.09
CB111_O	CB111	MHST-147	75.04	TABULAR/DEPTH	S19_LP	NO	8.30	0.49
CB114_O	CB114	MHST-200	74.92	TABULAR/DEPTH	S19_SL2_5	NO	9.58	0.28
CB130_O	CB130	MHST-130	69.84	TABULAR/DEPTH	S19_SL2_1	NO	13.98	0.09
CB255-O	CB255-S	CB255	77.71	TABULAR/DEPTH	S19_SL2_5	NO	0.33	0.14
CB40,66-68	CB68,40	56	72.63	TABULAR/DEPTH	S19_SL2_5x4	NO	23.12	0.82
OL_CB_54A	CB_54A	MH-SA56-1	79.65	TABULAR/DEPTH	3CB	NO	40.43	0.19
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	0.13	0.40

Outlets 2/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
CB42_O	CB42	38	81.44	TABULAR/DEPTH	S19_SL2_5	NO	1.09	0.02
CB43_O	CB43	59	81.69	TABULAR/DEPTH	S19_SL2_5	NO	4.45	0.04
CB44_O	CB44	61	80.37	TABULAR/DEPTH	S19_SL2_5x2	NO	2.08	0.03
CB45_O	CB45	60	80.69	TABULAR/DEPTH	S19_SL2_5	NO	1.18	0.07
CB47_O	CB47	66	78.63	TABULAR/DEPTH	S22_SL2_5	NO	0.92	0.05
CB48_O	CB48	65	78.85	TABULAR/DEPTH	S22_SL2_5	NO	0.95	0.10
CB49_O	CB49	68	78.19	TABULAR/DEPTH	S22_SL2_5x2	NO	1.68	0.05
CB50_O	CB50	69	77.85	TABULAR/DEPTH	S22_SL2_5	NO	1.14	0.12
CB51_O	CB51	70	77.75	TABULAR/DEPTH	S22_SL2_5	NO	0.76	0.05
CB52_O	CB52	48	77.14	TABULAR/DEPTH	S22_SL2_5	NO	1.23	0.14
CB53_O	CB53	48	77.08	FUNCTIONAL/DEPTH	*	NO	1.21	0.06
CB55_O	CB55	49	76.58	TABULAR/DEPTH	S22_SL2_5x2	NO	1.48	0.06
CB56_58	MHST-146-S	MHST-146	75.38	TABULAR/DEPTH	S22_SL2_1x2	NO	7.33	0.32
CB56_O	CB56	50	75.98	TABULAR/DEPTH	S22_SL2_5	NO	1.87	0.16
CB59_O	CB59	73	74.99	TABULAR/DEPTH	S19_SL2_5	NO	10.78	0.25
CB60_O	CB60	MHST301	75.39	TABULAR/DEPTH	S19_SL2_1	NO	0.00	0.07
CB63	MHST-120-S	56	74.46	TABULAR/DEPTH	S22_SL2_5	NO	1.44	0.40
CB69_75	MHST-149-S	MHST-149	77.93	TABULAR/DEPTH	S22_SL2_5x2	NO	2.90	0.09
CB69_O	CB69	36	78.72	TABULAR/DEPTH	S22_SL2_2.5	NO	1.59	0.05
CB77_O	CB77	36	78.83	TABULAR/DEPTH	S19_SL2_2.5	NO	2.37	0.05
CB79_O	CB79	MHST-150	77.57	TABULAR/DEPTH	S19_SL2_2.5	NO	2.45	0.12
CB82_O	CB82	MHST-151	77.15	TABULAR/DEPTH	DB_S22_SL2_5	NO	0.79	0.19
CB83_O	CB83	35	77.24	TABULAR/DEPTH	S22_SL2_5	NO	3.64	0.16
CB88_96	CB88	MHST-137	79.79	TABULAR/DEPTH	S19_SL2_2.5	NO	6.51	0.14
CB92_O	CB92	37	75.27	TABULAR/DEPTH	S19_SL2_2.5x2	NO	15.30	0.28
CB93_O	CB93	31	75.17	TABULAR/DEPTH	S19_SL2_1x2	NO	1.92	0.67
CB99_O	CB99	CBMHST-104	76.90	TABULAR/DEPTH	S19_LP	NO	11.85	0.15
CBMH57_O	CBMH57	MHST-147	76.00	TABULAR/DEPTH	S19_SL2_5	NO	19.82	0.32
CBMH89_O	CBMH89	MHST-160	76.26	TABULAR/DEPTH	S28_SL2_5	NO	6.61	0.23
CBMHST101_O	CBMHST101-S	CBMHST-101	76.42	TABULAR/DEPTH	S28_LP	NO	35.48	0.29
DICB9_OL	DICB9	CBMHST103	74.28	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	30.74	1.13
MHST-100-IC	MHST-100-S	MHST-100	66.30	TABULAR/DEPTH	1@R-A@S=5.0%	NO	0.00	1.42
MHST-101-IC	MHST-101-S	MHST-101	66.07	TABULAR/DEPTH	4@R-A@S=5.0%	NO	17.69	1.42
MHST-102-IC	MHST-102-S	MHST-102	66.28	TABULAR/DEPTH	4@R-A@S=5.0%	NO	16.37	1.29
MHST-104-IC	MHST-104-S	MHST-104	70.80	TABULAR/DEPTH	3@R-B@S=1.5%	NO	11.13	0.12
MHST-105-IC	MHST-105-S	MHST-105	68.64	TABULAR/DEPTH	3@R-B@S=1.5%	NO	30.18	4.14
MHST-106-IC	MHST-106-S	MHST-106	71.87	TABULAR/DEPTH	2@R-E@S=5.0%	NO	8.54	0.99
MHST-157-IC	MHST-157-S	MHST-157	73.80	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	95.37	1.12
MSHT-103-IC	MSHT-103-S	MSHT-103	66.13	TABULAR/DEPTH	7@R-A@S=5.0%	NO	51.54	1.13
O-1	SA-1	MH-SA1	69.50	TABULAR/HEAD	O-1	NO	60.00	1.24
O-15	S-15	MHST-107	62.10	TABULAR/DEPTH	O-15	NO	2.79	0.36
O-19	S-19	MHST-101	64.00	TABULAR/DEPTH	50VHV-1	NO	2.24	0.21
O-2	SA-2	MH-SAxx	62.60	TABULAR/HEAD	O-2	NO	7.00	0.87
O-21B	S-21B	IN119607	63.54	TABULAR/DEPTH	50VHV-1	NO	3.69	1.77
O-26D	S-26D	MHST-105	67.19	TABULAR/DEPTH	50VHV-1	NO	0.35	0.08
O-3	S-3Store	OGS1	62.20	TABULAR/HEAD	125VHV-2	NO	15.48	0.39
O-4	S-14B	Preston	62.15	TABULAR/HEAD	125VHV-2	NO	0.00	0.13
O-63	S-63	MHST-154A	78.20	TABULAR/DEPTH	O-63	NO	24.47	1.10
O-CB209	CB209	MHST-209	77.64	TABULAR/DEPTH	S28_SL2_5	NO	1.41	0.18
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	0.28	4.14

Orifices 1/1

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Width (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (L/s)
DICB2	S-26B	BI-SA1	SIDE	CIRCULAR	0.095	0	67.58	0.65	14.3
ICD-100-1	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.3	0	63.06	0.62	142.65
ICD-100-2	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.1	0	63.85	0.62	0
ICD102	MHST-170	D-MHST-170	SIDE	CIRCULAR	0.1	0	71.93	0.62	14.76
ICD103	D-MHST-155	MHST-155	SIDE	CIRCULAR	0.675	0	74.06	0.62	433.87
ICD104	MHST-145	D-MHST-145	SIDE	RECT_CLOSED	0.75	0.75	69.9	0.62	558.06
ICD-105	MHST-142	D-MHST-142	SIDE	CIRCULAR	0.7	0	69.32	0.62	616.12
ICD111	DICB8	OGS-3	SIDE	CIRCULAR	0.4	0	68.11	0.62	34.57
ICD201	Chamber201	Chamber201S	SIDE	CIRCULAR	0.35	0	67.95	0.62	48.24
ICD202	Chamber202	Chamber202-S	SIDE	CIRCULAR	0.245	0	70.84	0.62	55.61
ICD203	Chamber-203	D-Chamber-203	SIDE	CIRCULAR	0.225	0	71.42	0.62	50.5
ICD204	Chamber-204	D-Chamber-204	SIDE	CIRCULAR	0.19	0	73.03	0.62	29.68

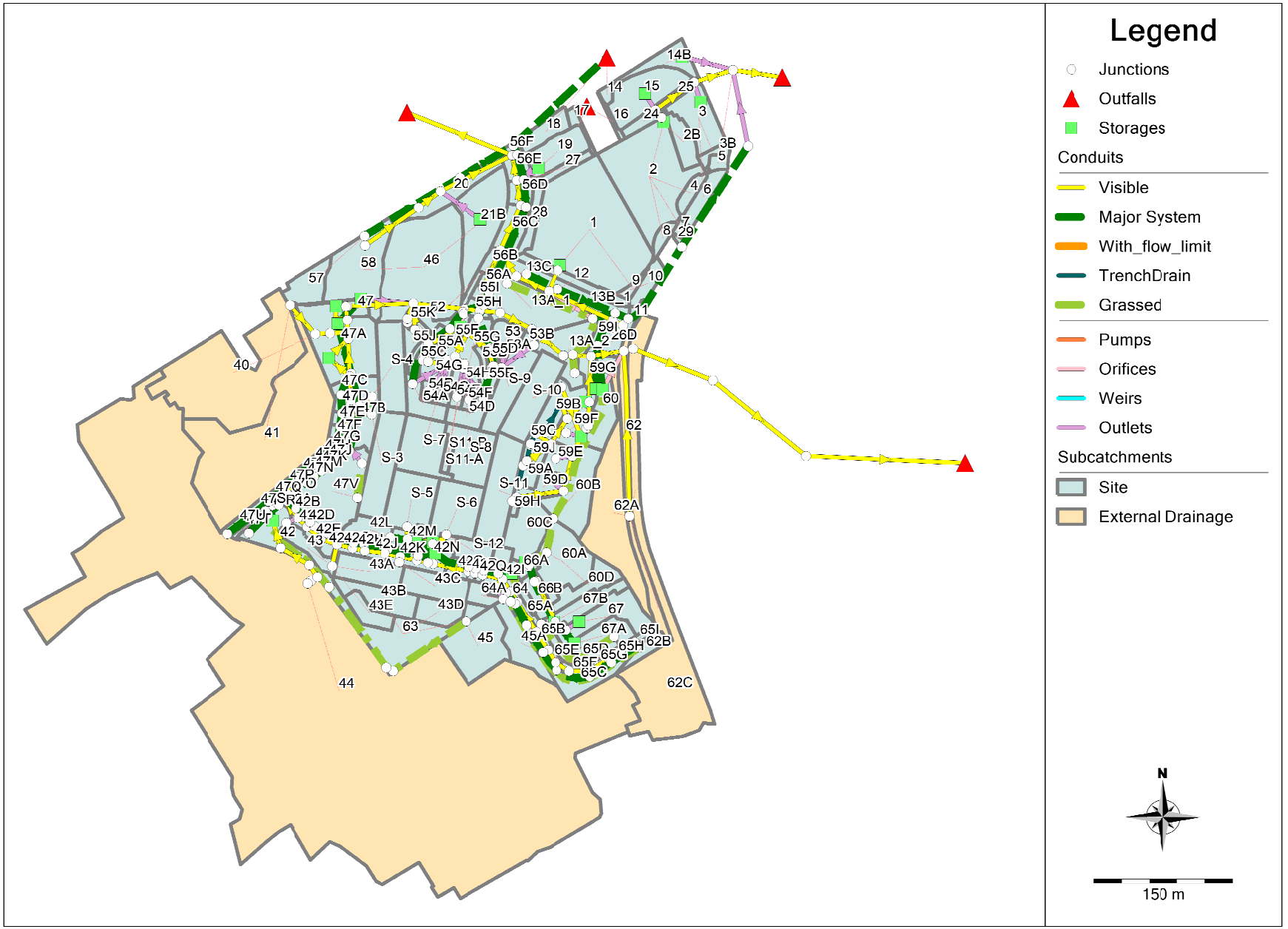
Weirs 1/1

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Inlet Elev. (m)	Max. |Flow| (L/s)	Time Max. Flow (M/D/Y)	Max/Full Depth	Contributing Area (ha)
Weir102	MHST-170	D-MHST-170	TRANSVERSE	0.3	1.5	73	0	10/04/2022 00:00 AM	0	1.92
Weir103	D-MHST-155	MHST-155	TRANSVERSE	1	1	76.45	0	10/04/2022 00:00 AM	0	13.859
Weir104	MHST-145	D-MHST-145	TRANSVERSE	1	2	71.64	0	10/04/2022 00:00 AM	0	22.77
Weir-105	MHST-142	D-MHST-142	TRANSVERSE	0.5	1.4	70.7	0	10/04/2022 00:00 AM	0	24.89
Weir112	MHST-146	D-MHST-146_1	SIDEFLOW	1.4	1.5	70.17	740.53	10/04/2022 01:17 AM	0.45	19.443

Outfalls 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Type	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)	Max. Flow (L/s)	Total Flow (ML)	Contributing Area (ha)
Carling_OLF	64.6	64.8	FREE	0.04	64.64	10/04/2022 01:14 AM	17.14	0.027	2.011
Dows-Lake	63.745	66.5	FREE	0.46	64.2	10/04/2022 01:33 AM	724.47	4.313	29.624
LRT-Corridor	56	57	FREE	0	56	10/04/2022 00:00 AM	0.33	0	0.059
Nepean-Bay-Trunk	62.8	65.21	NORMAL	0	62.8	10/04/2022 00:00 AM	146.31	0.815	8.845
Preston_Street	60.9	63.76	NORMAL	0.12	61.02	10/04/2022 01:10 AM	39.42	0.35	5.985

PCSWMM OUTPUT
3-HOUR CHICAGO -5-YEAR STORM


Legend
Junctions
Outfalls
Storages
Conduits
Visible
Major System
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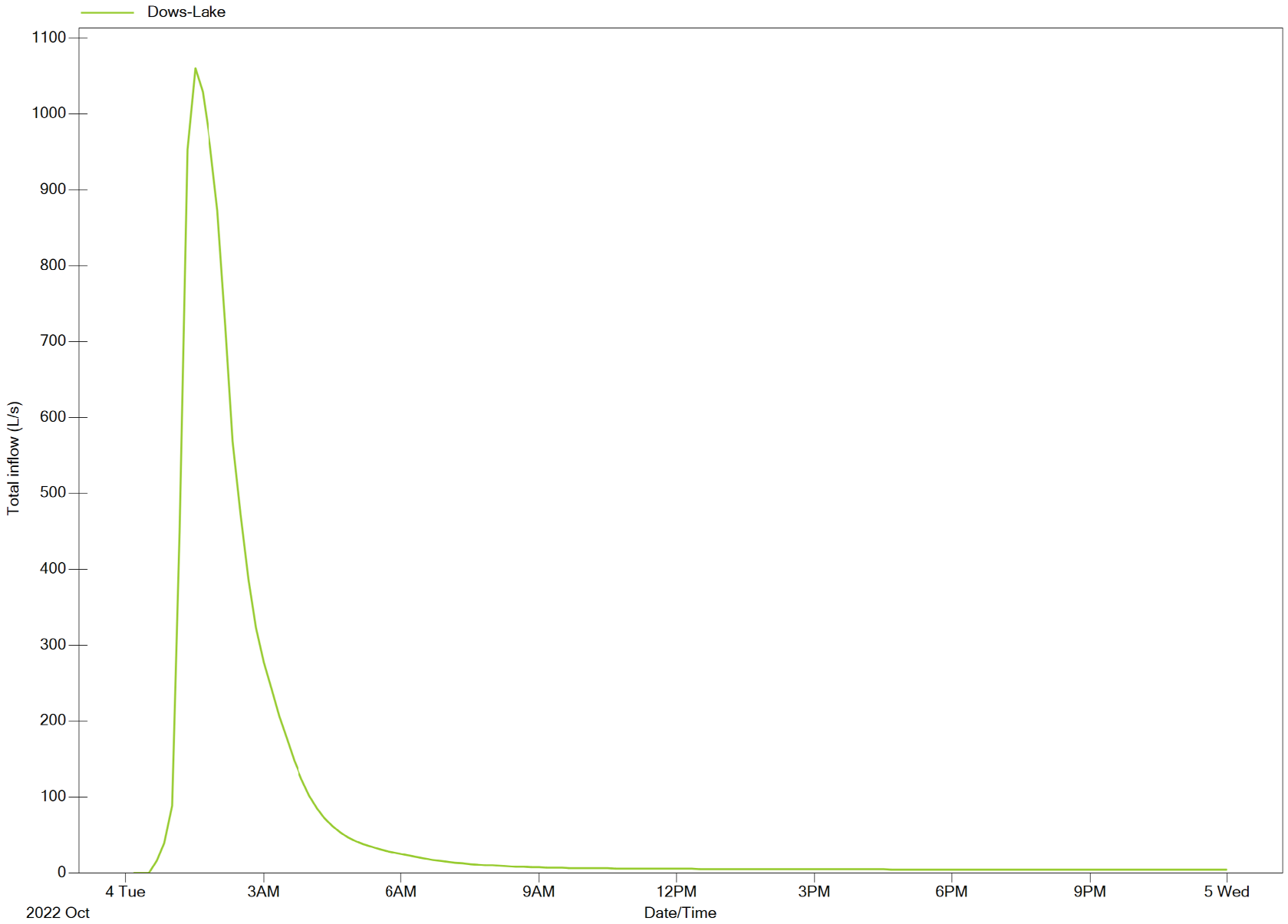
TrenchDrain
Grassed
Pumps
Orifices
Weirs
Outlets
Subcatchments
Site
External Drainage
N
150 m


Dows-Lake
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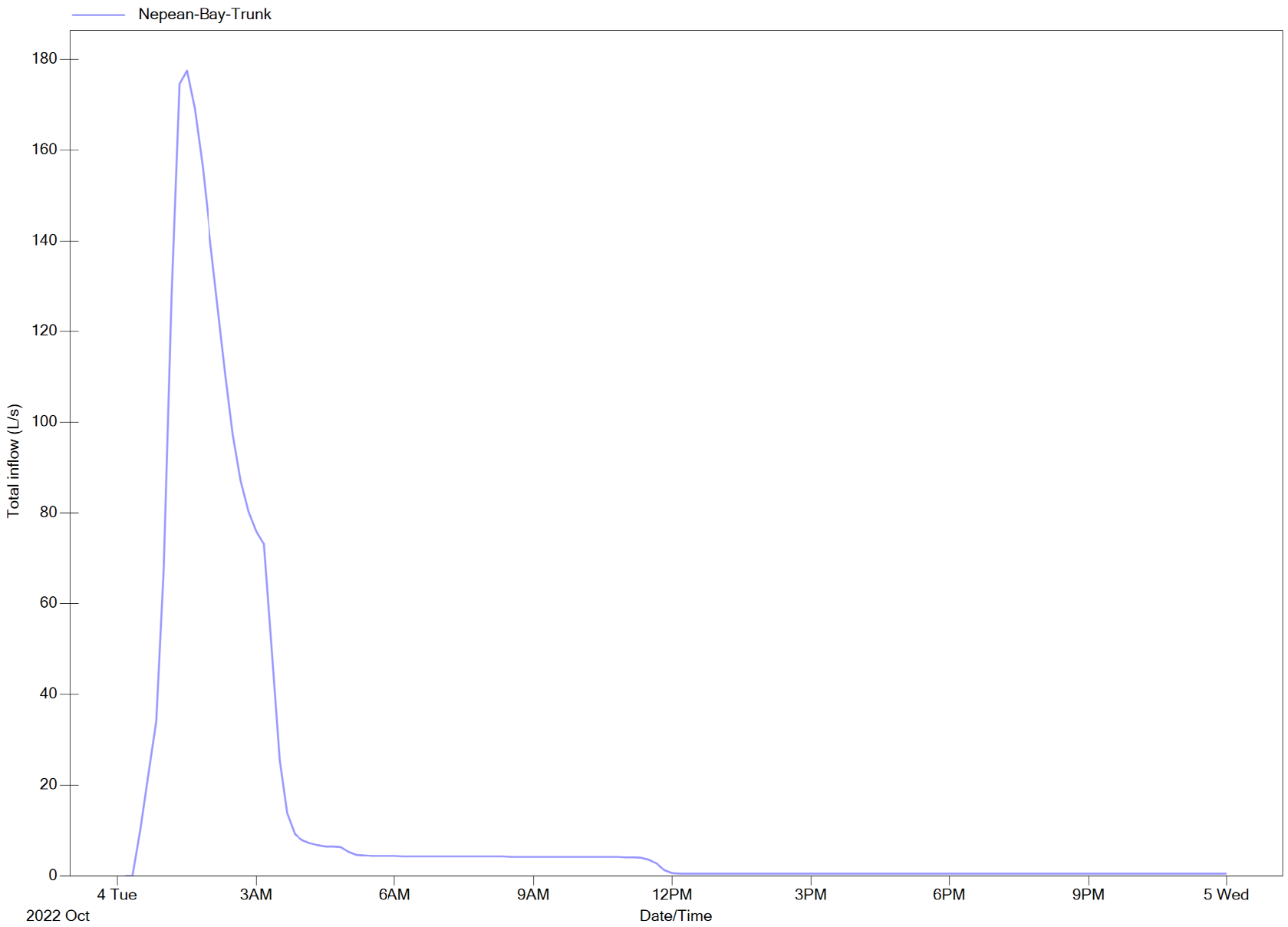
1000
900
800
700
600
500
400
300
200
100
0
Total inflow (L/s)
4 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
2022 Oct
Date/Time


Nepean-Bay-Trunk
180
160
140
120
100
80
60
40
20
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time

SUBCATCHMENTS 1/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
1		5yr_3hr_Chicago	SA-1	1.2161	3.0	344.2	1.0	100.00
10		5yr_3hr_Chicago	13B_1	0.0822	3.0	9.2	0.3	8.07
11		5yr_3hr_Chicago	MHST-105-S	0.0302	3.0	8.4	0.9	89.30
12		5yr_3hr_Chicago	BI-SA1-S	0.1276	5.0	30.1	0.7	56.48
13A_1		5yr_3hr_Chicago	DICB2_SWWS	0.4122	10.0	44.9	0.3	19.20
13A_2		5yr_3hr_Chicago	DICB2_SWE2S	0.2478	10.0	12.5	0.2	3.60
13B_1		5yr_3hr_Chicago	BI-SA1-S	0.1938	5.0	52.3	0.9	87.80
13C		5yr_3hr_Chicago	MHST-104-S	0.1184	5.0	29.9	0.8	78.70
14		5yr_3hr_Chicago	Carling_OLF	0.0580	3.0	11.7	0.7	60.27
14B		5yr_3hr_Chicago	S-14B	0.1272	3.0	15.2	0.2	0.00
15		5yr_3hr_Chicago	S-15	0.3643	3.0	19.0	0.2	3.61
16		5yr_3hr_Chicago	LRT-Corridor	0.0229	3.0	3.7	0.3	0.00
17		5yr_3hr_Chicago	LRT-Corridor	0.0361	3.0	5.0	0.2	0.00
18		5yr_3hr_Chicago	Carling_OLF	0.1189	3.0	9.2	0.2	3.43
19		5yr_3hr_Chicago	S-19	0.2056	3.0	15.8	0.2	7.10
2		5yr_3hr_Chicago	SA-2	0.7114	3.0	207.9	1.0	100.00
20		5yr_3hr_Chicago	Carling_OLFN1	0.2434	8.0	26.5	0.2	0.00
21B		5yr_3hr_Chicago	S-21B	0.4325	10.0	74.0	0.5	9.20
24		5yr_3hr_Chicago	MHST-107	0.0348	3.0	7.2	0.6	55.80
25		5yr_3hr_Chicago	OGS1	0.0465	3.0	11.8	0.8	80.56
26D		5yr_3hr_Chicago	S-26D	0.0748	2.0	3.1	0.1	0.00
27		5yr_3hr_Chicago	MHST-101-S	0.0531	3.0	14.5	0.9	84.50
28		5yr_3hr_Chicago	MHST-102-S	0.0844	5.0	20.4	0.7	62.60
29		5yr_3hr_Chicago	7	0.0113	3.0	0.8	0.2	0.00
2B		5yr_3hr_Chicago	SA-2	0.0908	3.0	26.3	1.0	100.00
3		5yr_3hr_Chicago	S-3Store	0.2154	3.0	35.9	0.5	31.75
3B		5yr_3hr_Chicago	3	0.0393	3.0	11.4	1.0	100.00
4		5yr_3hr_Chicago	2	0.0196	3.0	5.7	1.0	100.00
40	External	5yr_3hr_Chicago	MHST-156	1.1965	6.8	182.0	0.5	46.20
41	External	5yr_3hr_Chicago	MHST-132	1.5372	3.0	82.2	0.2	14.60
42		5yr_3hr_Chicago	DICB10	0.2213	3.0	4.9	0.1	0.01
42A		5yr_3hr_Chicago	MHST-135-S	0.0106	3.5	2.9	0.9	84.62
42B		5yr_3hr_Chicago	CB75	0.0107	3.5	3.1	1.0	99.40
42C		5yr_3hr_Chicago	CB77	0.0243	3.5	7.0	1.0	100.00
42D		5yr_3hr_Chicago	CB69	0.0062	3.5	1.8	1.0	95.34
42E		5yr_3hr_Chicago	MHST-149-S	0.0345	3.5	5.6	0.5	40.14
42F		5yr_3hr_Chicago	CB79	0.0354	3.5	6.1	0.5	44.00
42G		5yr_3hr_Chicago	CB83	0.0415	2.8	11.1	0.9	83.29
42H		5yr_3hr_Chicago	CB82	0.0225	2.8	5.7	0.8	74.75
42I		5yr_3hr_Chicago	SW_42I	0.1692	2.0	37.0	0.8	75.05
42J		5yr_3hr_Chicago	CBMH89	0.0485	2.8	12.1	0.8	71.99
42K		5yr_3hr_Chicago	CB92	0.0466	3.0	11.7	0.8	78.08

SUBCATCHMENTS 2/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
42L		5yr_3hr_Chicago	CB87	0.1098	5.0	31.2	1.0	95.54
42M		5yr_3hr_Chicago	CB91	0.0808	4.5	21.9	0.9	86.55
42N		5yr_3hr_Chicago	CB94	0.1467	1.5	37.1	0.9	80.74
42O		5yr_3hr_Chicago	CB93	0.0494	2.0	12.6	0.8	76.95
42P		5yr_3hr_Chicago	CB107	0.0173	2.2	4.6	0.9	83.72
42Q		5yr_3hr_Chicago	CB100	0.0167	2.2	4.3	0.8	77.86
43		5yr_3hr_Chicago	MHST-126	0.1112	9.0	32.0	1.0	98.59
43A		5yr_3hr_Chicago	MHST-126	0.1990	2.0	35.3	0.6	55.00
43B		5yr_3hr_Chicago	63	0.1919	1.5	36.2	0.6	55.00
43C		5yr_3hr_Chicago	CUP-SS1	0.2011	2.0	30.0	0.5	45.00
43D		5yr_3hr_Chicago	63	0.1257	3.0	25.4	0.6	55.00
43E		5yr_3hr_Chicago	MHST-126	0.1010	0.5	27.8	1.0	99.00
44	External	5yr_3hr_Chicago	MHST-62534	12.7620	1.0	1278.3	0.4	32.00
45		5yr_3hr_Chicago	55	0.3614	4.0	70.8	0.7	58.75
45A		5yr_3hr_Chicago	65C	0.1911	4.0	18.3	0.2	9.20
46		5yr_3hr_Chicago	21B	0.8929	10.0	77.1	0.3	15.60
47		5yr_3hr_Chicago	CB65	0.0376	2.5	10.4	0.9	87.89
47A		5yr_3hr_Chicago	MHST-157-S	0.5324	1.5	137.5	0.9	88.00
47B		5yr_3hr_Chicago	CBMH57	0.2548	2.0	58.9	0.8	69.70
47C		5yr_3hr_Chicago	CB114	0.0276	2.0	6.4	0.7	65.65
47D		5yr_3hr_Chicago	CB59	0.0337	2.0	9.4	0.9	91.76
47E		5yr_3hr_Chicago	CB104	0.0244	2.0	7.1	1.0	100.00
47F		5yr_3hr_Chicago	CB58	0.0250	2.0	7.2	1.0	99.94
47G		5yr_3hr_Chicago	CB56	0.0145	2.0	4.2	1.0	99.54
47H		5yr_3hr_Chicago	CB54	0.0132	5.0	3.6	0.9	83.09
47I		5yr_3hr_Chicago	CB52	0.0133	5.0	3.6	0.9	82.33
47J		5yr_3hr_Chicago	CB55	0.0043	5.0	0.8	0.4	25.00
47K		5yr_3hr_Chicago	CB53	0.0041	5.0	1.2	1.0	99.90
47L		5yr_3hr_Chicago	CB50	0.0195	5.0	5.2	0.9	82.25
47M		5yr_3hr_Chicago	CB51	0.0040	5.0	1.2	1.0	99.65
47N		5yr_3hr_Chicago	CB49	0.0043	5.0	1.2	1.0	100.00
47O		5yr_3hr_Chicago	CB47	0.0183	5.0	5.3	1.0	99.90
47P		5yr_3hr_Chicago	CB48	0.0195	5.0	5.2	0.9	82.15
47Q		5yr_3hr_Chicago	CB46	0.0195	5.0	5.2	0.9	81.97
47R		5yr_3hr_Chicago	CB44	0.0092	5.0	2.6	1.0	96.40
47S		5yr_3hr_Chicago	CB45	0.0229	5.0	4.3	0.5	39.96
47T		5yr_3hr_Chicago	D-MHST-161-S	0.0180	5.0	5.2	1.0	97.57
47U		5yr_3hr_Chicago	UP-CB43	0.0418	5.0	10.2	0.8	72.19
47V		5yr_3hr_Chicago	CB111_SW	0.4849	5.0	34.1	0.2	8.35
5		5yr_3hr_Chicago	preston	0.0120	3.0	3.5	1.0	100.00
52		5yr_3hr_Chicago	56B	0.0873	2.0	13.0	0.5	44.70
53		5yr_3hr_Chicago	AD08	0.0903	20.0	15.4	0.5	32.10
53A		5yr_3hr_Chicago	AD09	0.0070	1.5	1.7	0.8	72.42
53B		5yr_3hr_Chicago	AD07	0.0264	1.0	6.8	0.9	80.25
54A		5yr_3hr_Chicago	AD06	0.1118	1.5	31.6	1.0	98.30
54B		5yr_3hr_Chicago	AD05	0.0337	2.0	9.2	0.9	87.44
54C		5yr_3hr_Chicago	AD04	0.0362	1.5	10.0	0.9	89.15
54D		5yr_3hr_Chicago	AD01	0.1027	2.0	29.3	1.0	99.60
54E		5yr_3hr_Chicago	AD03	0.0304	1.5	8.4	0.9	89.00
54F		5yr_3hr_Chicago	AD02	0.0316	2.0	8.6	0.9	86.13
54G		5yr_3hr_Chicago	55F	0.0675	2.0	9.8	0.4	30.50
54H		5yr_3hr_Chicago	55G	0.0634	2.0	10.5	0.5	38.04
55A		5yr_3hr_Chicago	TD05_1	0.0307	4.0	8.8	1.0	98.63
55B		5yr_3hr_Chicago	TD04_01	0.0231	4.5	6.5	1.0	93.90
55C		5yr_3hr_Chicago	CB255-S	0.0259	5.0	7.5	1.0	99.27
55D		5yr_3hr_Chicago	CB209	0.0240	5.0	5.2	0.6	53.18
55E		5yr_3hr_Chicago	CBMHST208-S	0.0483	5.0	10.6	0.7	60.10
55F		5yr_3hr_Chicago	CB26	0.1485	5.0	24.2	0.6	43.64
55G		5yr_3hr_Chicago	MHST-120-S	0.1658	5.0	20.4	0.4	24.94
55H		5yr_3hr_Chicago	CBMHST66,67	0.0408	5.0	8.7	0.6	51.58
55I		5yr_3hr_Chicago	CB68,40	0.0241	5.0	6.5	0.9	81.84
55J		5yr_3hr_Chicago	TDS_1	0.0804	3.0	9.2	0.4	28.65

SUBCATCHMENTS 3/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
55K		5yr_3hr_Chicago	TDW_1	0.0168	2.1	4.4	0.8	75.97
56A		5yr_3hr_Chicago	MHST-106-S	0.0236	5.0	6.3	0.9	80.84
56B		5yr_3hr_Chicago	MHST-106-S	0.0562	5.0	18.1	0.9	86.00
56C		5yr_3hr_Chicago	MSHT-103-S	0.1354	5.0	35.4	0.9	82.00
56D		5yr_3hr_Chicago	MHST-102-S	0.0761	5.0	20.6	0.9	84.70
56E		5yr_3hr_Chicago	MHST-101-S	0.0805	5.0	20.7	0.8	77.30
56F		5yr_3hr_Chicago	Carling_OLFN3	0.0180	5.0	4.8	0.8	77.40
57		5yr_3hr_Chicago	Carling_OLF1	0.1534	15.0	24.1	0.3	6.90
58		5yr_3hr_Chicago	46	0.4475	16.0	31.6	0.2	10.20
59A		5yr_3hr_Chicago	TD02_01	0.0527	2.0	15.3	1.0	100.00
59B		5yr_3hr_Chicago	TD03_1	0.1995	4.0	42.4	0.7	61.55
59C		5yr_3hr_Chicago	TD07_1	0.0071	0.5	2.1	1.0	100.00
59D		5yr_3hr_Chicago	CB108	0.1168	3.0	33.8	1.0	99.94
59E		5yr_3hr_Chicago	CB109	0.0937	2.0	27.1	1.0	100.00
59F		5yr_3hr_Chicago	CB113	0.1387	2.0	39.9	1.0	99.81
59G		5yr_3hr_Chicago	CB130	0.0920	2.2	21.3	0.8	71.12
59H		5yr_3hr_Chicago	TD01_1	0.0121	1.0	3.5	1.0	99.00
59I		5yr_3hr_Chicago	CB72_89	0.0233	2.4	6.7	1.0	99.81
59J		5yr_3hr_Chicago	TD06_1	0.0521	2.8	15.1	1.0	100.00
6		5yr_3hr_Chicago	3	0.1396	3.0	11.1	0.2	2.06
60		5yr_3hr_Chicago	DICB8	0.2109	25.0	11.7	0.1	0.00
60A		5yr_3hr_Chicago	ST-60-S-B	0.3586	2.5	31.3	0.3	23.90
60B		5yr_3hr_Chicago	ST-60-S-C	0.3168	25.0	17.6	0.1	1.81
60C		5yr_3hr_Chicago	ST-60-S-C	0.2273	2.5	10.8	0.2	7.40
60D		5yr_3hr_Chicago	60A	0.1424	3.8	18.2	0.4	39.00
62	External	5yr_3hr_Chicago	POW_D1	0.2744	5.0	46.7	0.7	61.70
62A	External	5yr_3hr_Chicago	POW_D1	0.6276	6.0	55.1	0.3	25.00
62B		5yr_3hr_Chicago	MHST-136-S	0.0674	3.0	1.9	0.1	0.00
62C	External	5yr_3hr_Chicago	POW_D1	1.1137	5.0	162.0	0.6	61.80
63		5yr_3hr_Chicago	55	0.4180	1.5	14.0	0.2	0.00
64		5yr_3hr_Chicago	CB105	0.0174	1.8	5.0	1.0	99.23
64A		5yr_3hr_Chicago	CB60	0.0677	1.0	19.5	1.0	99.96
65A		5yr_3hr_Chicago	CB106,103	0.0260	3.8	7.5	1.0	100.00
65B		5yr_3hr_Chicago	MHST-153-S	0.0257	3.8	7.4	1.0	100.00
65C		5yr_3hr_Chicago	34	0.2345	3.0	7.2	0.2	4.68
65D		5yr_3hr_Chicago	SW_65D	0.1224	2.0	1.8	0.1	0.00
65E		5yr_3hr_Chicago	CB97	0.0176	3.9	5.1	1.0	100.00
65F		5yr_3hr_Chicago	CB96	0.0332	3.8	9.6	1.0	99.96
65G		5yr_3hr_Chicago	CB88	0.0271	3.8	7.8	1.0	99.91
65H		5yr_3hr_Chicago	CB90	0.0102	3.7	3.0	1.0	100.00
65I		5yr_3hr_Chicago	MHST-136-S	0.0347	3.6	10.0	1.0	100.00
66A		5yr_3hr_Chicago	CBMHST-103-S	0.0414	1.5	9.2	0.7	65.20
66B		5yr_3hr_Chicago	CBMHST105-S	0.0914	2.0	22.6	0.8	79.10
67		5yr_3hr_Chicago	CB95	0.2437	4.0	47.3	0.6	52.07
67A		5yr_3hr_Chicago	CB99	0.1464	2.0	35.5	0.8	79.54
67B		5yr_3hr_Chicago	CBMHST101-S	0.1445	1.5	36.3	0.9	84.60
7		5yr_3hr_Chicago	2	0.0165	3.0	4.8	1.0	100.00
8		5yr_3hr_Chicago	2	0.0188	3.0	5.5	1.0	100.00
9		5yr_3hr_Chicago	1	0.0192	3.0	5.6	1.0	100.00
S-10		5yr_3hr_Chicago	MHST-211	0.2975	2.0	83.1	1.0	100.00
S-11		5yr_3hr_Chicago	MHST-213	0.4008	2.0	108.5	1.0	100.00
S11-A		5yr_3hr_Chicago	MH-SA56-2	0.0107	2.0	3.1	1.0	100.00
S11-B		5yr_3hr_Chicago	MH-SA56-2	0.0153	2.0	3.8	0.8	69.20
S-12		5yr_3hr_Chicago	MH-SA51-1	0.0943	2.0	23.6	0.8	74.54
S-3		5yr_3hr_Chicago	MH-SA50	0.3456	2.0	95.1	1.0	99.90
S-4		5yr_3hr_Chicago	MH-SA49	0.2910	2.0	81.3	1.0	99.80
S-5		5yr_3hr_Chicago	MH-SA51-2	0.2908	2.0	61.1	0.7	64.20
S-6		5yr_3hr_Chicago	MH-SA51-1	0.2996	2.0	63.7	0.7	65.30
S-7		5yr_3hr_Chicago	MH-SA56-1	0.2899	2.0	70.1	0.8	77.20
S-8		5yr_3hr_Chicago	MH-SA56-2	0.2768	2.0	66.5	0.8	75.40
S-9		5yr_3hr_Chicago	MH-SA56-3	0.2599	2.0	57.6	0.8	71.40

CONDUITS 1/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
10	CBMHST105	CBMHST103		17.6	72.40	72.13	CIRCULAR	0.38		0.01534	108.6
11	AD06	CB255-S	Major_System	46.6	79.72	77.71	IRREGULAR	0.00	Road-A_spilt	0.04314	0.0
12_1	AD01	CBMHST208-S	major_system	37.5	79.53	78.00	IRREGULAR	0.00	Road-A_spilt	0.04083	28.9
12_2	CBMHST208-S	CB209	major_system	19.8	78.00	77.64	IRREGULAR	0.00	Road-A_spilt	0.01817	32.4
13	CB64	CBMHST66,67	major_system	24.4	74.57	73.54	IRREGULAR	0.00	Road-A_spilt	0.04228	19.9
15	SW_42I	DICB9	swale	2.7	74.96	74.88	TRAPEZOIDAL	1.00		0.02964	37.0
16	MH207	Chamber-204		27.2	73.98	73.88	CIRCULAR	0.38		0.00367	60.3
17	D-Chamber-204	MHST-141		21.1	73.03	72.98	CIRCULAR	0.30		0.00237	40.6
19	DICB9	CBMHST-103-S	major_system	21.2	74.88	74.60	TRAPEZOIDAL	0.50		0.01319	0.0
2	MHST-105-S	Wales-OLF-N03	Major_System	17.0	68.69	68.20	IRREGULAR	0.00	Road-B	0.02884	6.7
21	MHST-157-S	CB65	Major_System	36.2	74.22	73.54	IRREGULAR	0.00	Road-D	0.01881	0.0
22	CUP-SS1	30		5.8	73.50	73.39	CIRCULAR	0.37		0.01887	30.0
23	CBMHST-103-S	ST-60-S-B	swale	22.5	74.60	74.11	TRAPEZOIDAL	0.50		0.02180	22.3
25	CB91	CB94	major_system	25.2	75.10	75.02	RECT_OPEN	0.15		0.00317	46.6
27	TD07_2	MH150		20.0	67.40	67.20	CIRCULAR	0.20		0.01001	2.0
27_1	TD02_03	MH150		38.0	67.42	66.97	CIRCULAR	0.20		0.01178	15.0
27_2	MH150	MHST-221		32.7	66.97	66.62	CIRCULAR	0.20		0.01078	31.3
28	MHST-221	PS		26.8	66.63	66.42	CIRCULAR	0.30		0.00765	72.4
3	Preston	Preston_Street		10.0	61.03	60.90	CIRCULAR	0.30		0.01300	73.2
30	TD_B	MHST-221		18.1	67.88	67.60	CIRCULAR	0.30		0.01526	41.4
32	CB255-S	CB26	Major_System	28.5	77.71	75.96	IRREGULAR	0.00	Road-A_spilt	0.06143	6.4
33	TD06_2	MH150		22.5	67.40	67.00	CIRCULAR	0.20		0.01776	14.9
34	CB26	CB64	Major_System	22.6	75.96	74.57	IRREGULAR	0.00	Road-A_spilt	0.06184	20.0
35	TD05_1	TD05_2	TrenchDrain	5.6	74.50	74.40	RECT_OPEN	0.25		0.01788	8.8
36	TD01_3	MHST-213		6.9	68.60	68.57	CIRCULAR	0.20		0.00434	3.5
38	TD04_02	MH-SA56-2		19.4	74.00	73.24	CIRCULAR	0.25		0.03921	6.5
39	TD05_2	MH-SA56-1		20.2	74.00	73.24	CIRCULAR	0.20		0.03759	8.8
4	OGS-3	MHST62528		10.0	67.62	67.60	CIRCULAR	1.20		0.00200	1071.3
40	51	CB72_89	major_system	24.5	70.11	69.49	IRREGULAR	0.00	Road-L	0.02534	0.0
41	CB209	MHST-120-S	Major_System	34.7	77.64	74.46	IRREGULAR	0.00	Road-A_spilt	0.09199	35.0
42	CB130	51	major_system	1.0	70.11	70.10	IRREGULAR	0.00	Road-L	0.01000	0.0
43	CB72_89	54	major_system	15.8	69.49	68.92	IRREGULAR	0.00	Road-L	0.03613	6.0
49	Chamber202-S	45		5.2	70.84	70.80	CIRCULAR	0.45		0.00765	72.8
49_1	MHST-144	45		55.0	69.68	69.56	CIRCULAR	1.35		0.00213	829.6
49_2	45	56		17.2	69.56	69.53	CIRCULAR	1.35		0.00215	895.9
5	MHST62528	MHST62545		91.8	67.56	66.71	CIRCULAR	1.20		0.00929	1066.5
50	DICB8	51	major_system	1.0	70.11	70.10	RECT_OPEN	0.30		0.01000	0.0
54	CB114	74	major_system	9.3	74.92	75.07	IRREGULAR	0.00	Road-D_W	-0.01554	2.1
6	MHST62545	MHST62547		129.6	66.69	64.45	CIRCULAR	1.20		0.01726	1063.9
64	CB99	CBMHST101-S	major_system	32.2	76.90	76.52	RECT_OPEN	0.15		0.01181	17.4
65C_SW	34	DICB11	swale	194.0	82.41	75.45	TRAPEZOIDAL	0.30		0.03590	7.0
66	CBMHST101-S	CBMHST105-S	major_system	48.6	76.50	74.70	RECT_OPEN	0.15		0.03706	1.7
67	CBMHST105-S	CBMHST-103-S	major_system	18.9	74.82	74.60	RECT_OPEN	0.70		0.01162	22.4
68	CB87	CB91	major_system	27.5	75.50	75.10	RECT_OPEN	0.15		0.01452	30.4
7	MHST62547	Dows-Lake		171.0	64.17	63.75	CIRCULAR	1.20		0.00249	1061.6
70	MHST-126	MHST-150		23.5	74.17	71.67	CIRCULAR	450.00		0.10691	924.0
71	S-26B	54	major_system	24.8	69.52	68.92	RECT_OPEN	0.30		0.02425	0.0
8	POW_D1	OGS-3		180.0	78.70	69.70	TRAPEZOIDAL	0.55		0.05006	243.4
8_1	CHAMBER-103	D-MHST-155		3.1	74.08	74.06	CIRCULAR	0.90		0.00645	685.4
8_1-S	CHAMBER-103	MHST-155	Major_System	14.7	79.00	78.70	RECT_OPEN	0.30		0.02037	0.0
9	CBMHST103	CHAMBER-102		2.6	72.10	72.07	CIRCULAR	0.38		0.01154	155.8
CA-OLF_2	Carling_OLF1	Carling_OLFN1	Major_System	120.4	66.50	65.41	IRREGULAR	0.00	CarlingAve	0.00907	21.6
CA-OLF_3	Carling_OLFN3	Carling_OLF	Major_System	66.5	64.80	64.60	IRREGULAR	0.00	CarlingAve	0.00301	57.9
CA-OLF_4	Carling_OLFN1	Carling_OLFN3	Major_System	67.1	65.41	64.80	IRREGULAR	0.00	CarlingAve	0.00906	42.0
CA-STM	IN119607	D-MHST-100		86.0	63.10	62.80	CIRCULAR	0.30		0.00349	4.8
CB104-S	CB104	CB59	major_system	20.0	75.37	74.99	IRREGULAR	0.00	Road-D_W	0.01905	13.9

CONDUITS 2/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
CB111_SWA	CB111_SW	CB111	swale	37.3	75.17	75.04	TRAPEZOIDAL	0.30		0.00349	33.1
CB43-S	CB43	CB45	major_system	19.8	81.69	80.69	CIRCULAR	1.00		0.05068	2.7
CB45-S	CB45	CB46	major_system	20.1	80.69	79.69	IRREGULAR	0.00	Road-D_W	0.04970	4.4
CB46-S	CB46	CB48	major_system	20.0	79.69	78.85	IRREGULAR	0.00	Road-D_W	0.04199	5.5
CB48-S	CB48	CB50	major_system	19.9	78.85	77.85	IRREGULAR	0.00	Road-D_W	0.05039	9.4
CB50-S	CB50	CB52	major_system	13.6	77.85	77.14	IRREGULAR	0.00	Road-D_W	0.05223	13.0
CB52-S	CB52	CB54	major_system	13.6	77.14	76.44	IRREGULAR	0.00	Road-D_W	0.05141	14.8
CB54-S	CB54	CB56	major_system	12.5	76.44	75.98	IRREGULAR	0.00	Road-D_W	0.03689	16.2
CB56-S	CB56	CB58	major_system	14.6	75.98	75.64	IRREGULAR	0.00	Road-D_W	0.02331	17.6
CB58-S	CB58	CB104	major_system	14.3	75.64	75.37	IRREGULAR	0.00	Road-D_W	0.01893	21.1
CB59-S	CB59	CB114	major_system	16.0	74.99	74.92	IRREGULAR	0.00	Road-D_W	0.00436	7.7
CUP_SW1	55	77	swale	94.6	82.30	82.15	TRAPEZOIDAL	0.30		0.00159	70.7
CUP_SW2	77	78	swale	8.3	82.15	82.14	TRAPEZOIDAL	0.30		0.00121	60.2
CUP_SW3	78	S-63	swale	106.6	82.14	82.00	TRAPEZOIDAL	0.30		0.00131	45.3
DICB10_SW	S-63	DICB10	swale	104.1	82.00	79.27	TRAPEZOIDAL	1.00		0.02623	0.0
DICB2_SWE1	81DICB2_SWE1S	S-26B	swale	69.0	69.36	68.77	TRAPEZOIDAL	0.50		0.00855	11.5
DICB2_SWE2	DICB2_SWE2S	81DICB2_SWE1S	swale	20.0	69.58	69.36	TRAPEZOIDAL	0.60		0.01099	12.5
DICB2_SWW	DICB2_SWWS	S-26B	Swale	96.0	69.50	68.77	TRAPEZOIDAL	0.50		0.00760	49.4
ST-100_2	D-MHST-100	Nepean-Bay-Trunk		6.0	63.06	63.04	CIRCULAR	0.90		0.00333	178.5
ST-100-S	MHST-100-S	Carling_OLFN3	Major_System	11.0	65.42	64.80	IRREGULAR	0.00	Road-A	0.05645	20.9
ST-101I	MHST-101	MHST-100		27.4	63.12	63.09	CIRCULAR	0.90		0.00109	174.8
ST-101I-S	MHST-101-S	MHST-100-S	Major_System	27.4	66.07	65.42	IRREGULAR	0.00	Road-A	0.02371	21.1
ST-102	CBMHST-101	CBMHST105		47.9	73.63	72.43	CIRCULAR	0.38		0.02505	108.8
ST-102I	MHST-102	MHST-101		27.2	63.15	63.12	CIRCULAR	1.50		0.00110	167.2
ST-102I-S	MHST-102-S	MHST-101-S	Major_System	27.2	66.28	66.07	IRREGULAR	0.00	Road-A	0.00773	10.8
ST-103I	MSHT-103	MHST-102		52.9	63.20	63.15	CIRCULAR	1.50		0.00100	183.1
ST-103I-S	MSHT-103-S	MHST-102-S	Major_System	52.9	66.13	66.28	IRREGULAR	0.00	Road-A	-0.00283	6.5
ST-104	CBMHST-104	CBMHST-101		15.1	74.14	73.84	CIRCULAR	0.38		0.01983	60.4
ST-104_1	BI-SA1	MHST-104		38.3	63.67	63.63	CIRCULAR	1.20		0.00102	178.6
ST-104_3	MHST-105	39		12.0	63.79	63.78	CIRCULAR	1.20		0.00100	55.7
ST-104_4	39	BI-SA1		75.9	63.78	63.70	CIRCULAR	1.20		0.00100	56.2
ST-104I	MHST-104	MSHT-103		32.8	63.53	63.50	CIRCULAR	1.20		0.00101	186.5
ST-105I_1-S_1	BI-SA1-S	54	Major_System	66.9	70.15	68.92	IRREGULAR	0.00	Road-B	0.01841	51.4
ST-105I_1-S_2	54	MHST-105-S	major_system	15.2	68.92	68.64	IRREGULAR	0.00	Road-B	0.01839	53.3
ST-105I_2-S	MHST-104-S	BI-SA1-S	Major_System	37.7	70.80	70.15	IRREGULAR	0.00	Road-B	0.01723	15.3
ST-106I	MHST-106	MSHT-103		44.7	63.23	63.20	CIRCULAR	1.50		0.00067	24.4
ST-106I-S	MHST-106-S	MSHT-103-S	Major_System	29.6	71.87	66.13	IRREGULAR	0.00	Road-A	0.19783	47.7
ST-107	D-MHST-170	MHST-158		13.3	71.93	71.80	CIRCULAR	0.30		0.00977	18.1
ST-120-S_1	MHST-120-S	CBMHST66,67	Major_System	14.7	74.46	73.54	IRREGULAR	0.00	Road-A_spilt	0.06272	52.8
ST-120-S_2	CB68,40	MHST-106-S	Major_System	14.9	72.63	71.87	IRREGULAR	0.00	Road-A_spilt	0.05108	34.3
ST-120-S_3	CBMHST66,67	CB68,40	Major_System	15.3	73.54	72.63	IRREGULAR	0.00	Road-A_spilt	0.05963	67.0
ST-130	MHST-130	OGS-3		35.6	67.69	67.62	CIRCULAR	1.00		0.00197	972.4
ST-131_1	MHST-212	13		25.4	67.95	67.93	CIRCULAR	0.83		0.00094	66.6
ST-131_2	13	MHST-130		49.1	67.93	67.88	CIRCULAR	0.83		0.00096	101.6
ST-132	MHST-132	MHST-156		41.9	73.25	72.62	CIRCULAR	0.45		0.01505	81.5
ST-133	Chamber201S	MHST-212		2.9	67.95	67.95	CIRCULAR	0.83		-0.00034	58.1
ST-134	MHST-134	MHST-138		17.5	76.62	76.18	CIRCULAR	0.38		0.02515	17.9
ST-135	MHST-135	MHST-148		28.3	70.62	70.60	CIRCULAR	1.35		0.00071	417.5
ST-136_1	MHST-136	76		17.8	78.65	78.23	CIRCULAR	0.30		0.02336	0.0
ST-136_3	76	21		15.1	78.23	77.88	CIRCULAR	0.30		0.02339	3.5

CONDUITS 3/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-136_4	21	MHST-137		24.9	77.88	77.30	CIRCULAR	0.30		0.02337	9.0
ST-136-S_2	CB90	CB88	Major_System	27.3	80.75	79.79	IRREGULAR	0.00	Road-E_S	0.03515	5.5
ST-136-S_3	MHST-136-S	CB84,85	Major_System	17.9	81.70	81.32	IRREGULAR	0.00	Road-E_C	0.02121	11.8
ST-136-S_4	CB84,85	CB90	Major_System	14.4	81.32	80.75	IRREGULAR	0.00	Road-E_C	0.03949	8.2
ST-137	MHST-137	MHST-134		22.4	77.24	76.68	CIRCULAR	0.38		0.02501	17.9
ST-137-S_1	CB88	CB96	Major_System	38.1	79.79	78.66	IRREGULAR	0.00	Road-E_N	0.02965	4.1
ST-137-S_3	CB96	CB97	Major_System	24.4	78.66	77.90	IRREGULAR	0.00	Road-E_N	0.03115	3.8
ST-137-S_4	CB97	MHST-153-S	Major_System	33.9	77.90	76.52	IRREGULAR	0.00	Road-E_C	0.04070	7.5
ST-138_1	MHST-138	22		15.9	75.17	74.77	CIRCULAR	0.38		0.02499	27.4
ST-138_2	22	MHST-153		23.0	74.77	74.20	CIRCULAR	0.38		0.02494	28.6
ST-141_1	MHST-141	37		11.9	71.42	71.39	CIRCULAR	0.90		0.00253	204.2
ST-141_3	37	30		18.2	71.39	71.34	CIRCULAR	0.90		0.00258	225.8
ST-141_4	30	MHST-160		17.0	71.34	71.30	CIRCULAR	0.90		0.00253	250.6
ST-141-S_1	CB82	CBMH89	Major_System	26.5	77.15	76.26	IRREGULAR	0.00	Road-E_S	0.03363	18.2
ST-141-S_3	CBMH89	CB92	Major_System	33.3	76.26	75.27	IRREGULAR	0.00	Road-E_S	0.02973	20.9
ST-141-S_4	CB92	CB94	Major_System	19.6	75.27	75.02	IRREGULAR	0.00	Road-E_S	0.01277	7.6
ST-142	D-MHST-142	MHST-130		29.3	67.74	67.69	CIRCULAR	1.20		0.00171	906.9
ST-143	MHST-143	MHST-159		38.2	69.45	69.41	CIRCULAR	1.35		0.00105	902.6
ST-144B_2	56	MHST-143		21.6	69.53	69.48	CIRCULAR	1.35		0.00213	905.1
ST-145_1	D-MHST-145	MHST-144		71.4	69.90	69.83	CIRCULAR	1.20		0.00098	832.3
ST-146_1-S	MHST-146-S	BI-SA49-S	Major_System	5.7	75.38	75.35	IRREGULAR	0.00	Road-D_W	0.00509	24.5
ST-146_2-S_1	BI-SA49-S	74	Major_System	36.1	75.35	75.07	IRREGULAR	0.00	Road-D_W	0.00793	4.1
ST-146_2-S_2	74	MHST-157-S	Major_System	55.0	75.07	74.63	IRREGULAR	0.00	Road-D	0.00791	1.6
ST-146_3	D-MHST-146_1	73		12.1	70.17	70.15	CIRCULAR	1.50		0.00141	1217.4
ST-146_4	73	MHST-200		17.9	70.15	70.13	CIRCULAR	1.50		0.00129	1232.3
ST-147_1	MHST-147	50		6.0	70.25	70.24	CIRCULAR	1.50		0.00117	1134.3
ST-147_2	71	72		14.2	70.23	70.21	CIRCULAR	1.50		0.00127	1129.4
ST-147_3	50	71		14.6	70.24	70.23	CIRCULAR	1.50		0.00123	1132.4
ST-147_5	72	MHST-146		6.0	70.21	70.20	CIRCULAR	1.50		0.00117	1136.8
ST-147-S	CBMH57	MHST-146-S	Major_System	44.0	76.01	75.38	IRREGULAR	0.00	Road-D_W	0.01431	36.2
ST-148_1	MHST-148	64		7.2	70.45	70.44	CIRCULAR	1.50		0.00196	1076.5
ST-148_10	49	MHST-147		12.7	70.31	70.28	CIRCULAR	1.50		0.00197	1088.8
ST-148_2	65	66		5.0	70.40	70.39	CIRCULAR	1.50		0.00199	1077.6
ST-148_3	64	65		20.1	70.44	70.40	CIRCULAR	1.50		0.00199	1078.5
ST-148_4	66	68		9.9	70.39	70.37	CIRCULAR	1.50		0.00193	1078.2
ST-148_5	68	69		5.0	70.37	70.36	CIRCULAR	1.50		0.00200	1080.6
ST-148_6	69	70		5.1	70.36	70.35	CIRCULAR	1.50		0.00197	1082.1
ST-148_7	70	48		9.2	70.35	70.33	CIRCULAR	1.50		0.00195	1082.9
ST-148_8	48	49		12.2	70.33	70.31	CIRCULAR	1.50		0.00197	1086.6
ST-148-S_1	CB44	CB47	Major_System	39.1	80.37	78.63	IRREGULAR	0.00	Road-D_W	0.04460	2.9
ST-148-S_2	CB49	CB51	Major_System	10.0	78.19	77.75	IRREGULAR	0.00	Road-D_W	0.04364	6.2
ST-148-S_3	CB47	CB49	Major_System	10.0	78.63	78.19	IRREGULAR	0.00	Road-D_W	0.04362	7.0
ST-148-S_4	CB51	CB53	Major_System	9.8	77.75	77.08	IRREGULAR	0.00	Road-D_W	0.06865	6.4
ST-148-S_5	CB53	CB55	Major_System	10.0	77.08	76.58	IRREGULAR	0.00	Road-D_W	0.05025	6.3
ST-148-S_7	CB55	CBMH57	Major_System	17.0	76.58	76.01	IRREGULAR	0.00	Road-D_W	0.03354	5.1
ST-149_1	MHST-149	36		19.8	70.69	70.67	CIRCULAR	1.35		0.00116	423.5
ST-149_2	36	MHST-135		14.2	70.67	70.65	CIRCULAR	1.35		0.00120	416.5
ST-149-S_1	CB75	CB77	Major_System	8.7	79.25	78.83	IRREGULAR	0.00	Road-E_C	0.04854	5.0
ST-149-S_2	MHST-135-S	CB71	Major_System	12.7	79.98	79.68	IRREGULAR	0.00	Road-E_C	0.02357	2.8
ST-149-S_4	CB69	MHST-149-S	Major_System	15.0	78.72	77.93	IRREGULAR	0.00	Road-E_NW	0.05292	7.9

CONDUITS 4/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-149-S_5	CB71	CB75	Major_System	12.9	79.68	79.25	IRREGULAR	0.00	Road-E_C	0.03342	2.6
ST-149-S_6	CB77	CB69	Major_System	6.3	78.83	78.72	IRREGULAR	0.00	Road-E_C	0.01747	8.2
ST-150	MHST-150	MHST-149		18.1	70.76	70.72	CIRCULAR	1.35		0.00220	423.9
ST-150-S_1	MHST-149-S	CB79	Major_System	13.1	77.93	77.57	IRREGULAR	0.00	Road-E_NW	0.02743	9.3
ST-150-S_2	CB79	CB83	Major_System	17.9	77.57	77.24	IRREGULAR	0.00	Road-E_C	0.01848	9.8
ST-151_1	MHST-151	35		13.3	71.23	71.22	CIRCULAR	0.90		0.00068	260.8
ST-151_2	35	MHST-150		17.0	71.22	71.21	CIRCULAR	0.90		0.00065	265.6
ST-151-S	CB83	CB82	Major_System	11.2	77.24	77.15	IRREGULAR	0.00	Road-E_S	0.00801	15.1
ST-153_1	MHST-153	23		38.0	72.86	72.48	CIRCULAR	0.38		0.00994	32.9
ST-153_2	23	26		13.6	72.48	72.35	CIRCULAR	0.38		0.00994	47.1
ST-153_4	26	MHST-158		15.7	72.35	72.19	CIRCULAR	0.38		0.00997	54.0
ST-153-S_1	MHST-153-S	CB106,103	Major_System	26.1	76.52	75.51	IRREGULAR	0.00	Road-E_C	0.03879	10.2
ST-153-S_3	CB106,103	CB105	Major_System	15.4	75.51	75.14	IRREGULAR	0.00	Road-E_N	0.02407	3.0
ST-153-S_4	CB105	DICB9	Major_System	17.3	75.14	74.88	IRREGULAR	0.00	Road-E_N	0.01507	4.9
ST-154	MHST-154	CHAMBER-103		16.0	75.80	75.72	CIRCULAR	0.90		0.00500	1302.4
ST-154A	MHST-154A	MHST-154B		15.5	76.18	76.10	CIRCULAR	0.90		0.00516	1298.7
ST-154B	MHST-154B	MHST-154		35.9	76.04	75.86	CIRCULAR	0.90		0.00501	1298.8
ST-155_1	MHST-155	60		9.7	74.03	73.94	CIRCULAR	0.90		0.00932	688.7
ST-155_3	60	61		6.5	73.94	73.88	CIRCULAR	0.90		0.00930	689.5
ST-155_4	61	MHST-148		6.3	73.88	73.82	CIRCULAR	0.90		0.00945	690.6
ST-156	MHST-156	MHST_156B		16.0	70.13	70.12	CIRCULAR	1.50		0.00062	259.9
ST-156B	MHST_156B	MHST-157		18.787	70.09	70.08	CIRCULAR	1.5		0.00053	257.75
ST-157_1	MHST-157	D-MHST-157B		13.532	70.02	70	CIRCULAR	1.5		0.00148	1318.12
ST-157_2	D-MHST-157B	MHST-145		14.706	69.97	69.96	CIRCULAR	1.5		0.00068	628.59
ST-157_3	D-MHST-157B	CHAMBER-104B		9.4	69.97	69.91	CIRCULAR	0.9		0.00638	726.68
ST-158_2	75	MHST-141		5.552	71.581	71.57	CIRCULAR	0.75		0.00198	170.26
ST-158_3	MHST-158	33		21.587	71.74	71.695	CIRCULAR	0.75		0.00208	71.3
ST-158_4	31	75		38.574	71.661	71.581	CIRCULAR	0.75		0.00207	86.56
ST-158_5	32	31		8.439	71.678	71.661	CIRCULAR	0.75		0.00201	82.91
ST-158_6	33	32		8.4	71.70	71.68	CIRCULAR	0.75		0.00203	78.6
ST-158-S	CB94	CB93	Major_System	39.3	75.10	75.17	IRREGULAR	0.00	Road-E_S_Amb	-0.00178	1.7
ST-158-S_2	CB93	CB107	Major_System	8.4	75.17	75.12	IRREGULAR	0.00	Road-E_S_Amb	0.00593	6.3
ST-158-S_4	CB107	CB100	Major_System	8.9	75.12	75.08	IRREGULAR	0.00	Road-E_S_Amb	0.00450	6.1
ST-158-S_6	CB100	MHST-158-S	Major_System	15.6	75.08	74.99	IRREGULAR	0.00	Road-E_S	0.00576	2.3
ST-159	MHST-159	MHST-142		44.6	69.41	69.32	CIRCULAR	1.35		0.00202	900.7
ST-160	MHST-160	MHST-151		22.3	71.27	71.23	CIRCULAR	0.90		0.00179	258.9
ST-161_2-S_1	D-MHST-161-S	CB42	Major_System	23.3	83.25	81.44	IRREGULAR	0.00	Road-D_W	0.07781	5.1
ST-161_2-S_2	CB42	CB44	Major_System	20.7	81.44	80.37	IRREGULAR	0.00	Road-D_W	0.05168	3.4
ST-162	CBMHST-162	MHST-154A		5.4	76.27	76.24	CIRCULAR	0.90		0.00561	1280.6
ST-200_1	MHST-200	MHST-201		40.7	70.11	70.05	CIRCULAR	1.50		0.00148	810.4
ST-200_2	MHST-200	CHAMBER-104-A		29.5	70.17	70.13	CIRCULAR	0.90		0.00135	437.7
ST-201	MHST-201	MHST-157		6.5	70.07	70.05	CIRCULAR	1.50		0.00308	1080.4
ST-203	MHST-203	MHST-205		8.6	73.11	73.09	CIRCULAR	0.68		0.00232	110.4
ST-204	MHST-204	MHST-205		12.7	73.11	73.09	CIRCULAR	0.53		0.00158	79.7
ST-205	MHST-205	MHST-206		28.9	72.94	72.91	CIRCULAR	0.68		0.00104	188.8
ST-206	MHST-206	Chamber202		10.3	72.91	72.88	CIRCULAR	0.68		0.00341	253.7
ST-208	MHST-208	MHST-209		19.4	73.41	73.35	CIRCULAR	0.38		0.00309	63.7
ST-209	MHST-209	MHST-206		28.6	73.32	73.21	CIRCULAR	0.38		0.00385	65.4
ST-211	MHST-211	Chamber201		57.4	68.31	68.24	CIRCULAR	0.53		0.00122	80.4
ST-214	MHST-214	MHST-215		38.3	68.23	68.27	CIRCULAR	0.75		-0.00104	109.4

CONDUITS 5/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-215	MHST-215	Chamber201		1.7	68.27	68.27	CIRCULAR	0.75		0.00000	109.1
ST-225	CB255	Chamber202		29.0	73.46	73.17	CIRCULAR	0.20		0.00997	0.9
ST-301	MHST301	MHST-158		8.8	72.60	72.42	CIRCULAR	0.20		0.01989	0.0
ST-42I	MHST-158-S	DICB9	major_system	6.0	74.99	74.88	IRREGULAR	0.00	Road-E_S	0.01834	2.3
ST-60-S_2	ST-60-S-B	ST-60-S-C	swale	37.6	74.11	73.25	TRAPEZOIDAL	1.00		0.02280	51.7
ST-60-S_3	ST-60-S-C	DICB8	swale	125.0	73.25	69.82	TRAPEZOIDAL	1.00		0.02748	74.1
ST-62534	MHST-62534	CBMHST-162		7.2	76.90	76.27	CIRCULAR	0.90		0.08833	1279.7
ST-62538_1	MHST-161	59		3.0	78.96	78.90	CIRCULAR	0.53		0.01959	0.0
ST-62538_3	59	38		5.2	78.90	78.80	CIRCULAR	0.53		0.01939	7.3
ST-62538_4	38	MHST-155		5.3	78.80	78.70	CIRCULAR	0.53		0.01943	9.0
St-C104	CHAMBER-104-A	MHST-201		13.1	70.13	70.07	CIRCULAR	0.90		0.00458	286.5
ST-C203	D-Chamber-203	MHST-146		15.9	71.42	71.38	CIRCULAR	0.30		0.00251	63.9
ST-CB6-S	SW_65D	DICB6	swale	104.0	77.94	76.09	TRAPEZOIDAL	0.50		0.01779	1.5
ST-G107	MHST-107	OGS1		52.5	62.03	61.24	CIRCULAR	0.30		0.01505	20.7
ST-OGS1_2	OGS1	Preston		10.0	61.21	61.06	CIRCULAR	0.30		0.01500	54.9
ST-P3	DICB3	IN119608		71.1	64.23	63.80	CIRCULAR	0.20		0.00605	0.0
ST-P46	IN119608	IN119607		30.0	63.50	63.20	CIRCULAR	0.20		0.01000	0.0
ST-SA1	MH-SA1	BI-SA1		24.7	69.45	69.08	CIRCULAR	0.30		0.01501	60.2
ST-SA49	MH-SA49	Chamber-203		17.9	74.02	73.80	CIRCULAR	0.38		0.01228	81.2
ST-SA50	MH-SA50	Chamber-203		13.2	74.07	73.67	CIRCULAR	0.38		0.03032	95.1
ST-SA51-1	MH-SA51-1	Chamber-204		14.7	73.91	73.76	CIRCULAR	0.45		0.01021	87.2
ST-SA51-2	MH-SA51-2	MH207		13.2	74.11	73.98	CIRCULAR	0.38		0.00982	61.0
ST-SA52_1	MHST-213	MHST-214		51.4	68.54	68.45	CIRCULAR	0.53		0.00175	109.4
ST-SA56-1	MH-SA56-1	MHST-203		5.0	73.24	73.19	CIRCULAR	0.53		0.00994	110.4
ST-SA56-2	MH-SA56-2	MHST-204		4.9	73.24	73.19	CIRCULAR	0.45		0.01028	79.8
ST-SA56-3	MH-SA56-3	MHST-208		8.9	73.80	73.44	CIRCULAR	0.38		0.04046	57.5
ST-UGS6B	CHAMBER-102	MHST-170		16.6	72.03	71.96	CIRCULAR	0.38		0.00421	18.1
ST-UGS-Z1	CHAMBER-104B	MHST-145		8.4	69.91	69.90	CIRCULAR	0.90		0.00119	305.7
ST-xx	MH-SAxx	MHST-107		10.7	62.45	62.15	CIRCULAR	0.20		0.02805	7.0
TD01	TD01_1	TD01_3	TrenchDrain	7.9	70.21	70.10	PARABOLIC	0.15		0.01393	3.5
TD02	TD02_01	TD02_03	TrenchDrain	21.8	68.90	68.75	RECT_OPEN	0.35		0.00689	15.1
TD03	TD03_1	TD_B	TrenchDrain	36.4	68.80	68.65	RECT_OPEN	0.35		0.00412	41.3
TD04	TD04_01	TD04_02	TrenchDrain	5.6	74.62	74.57	PARABOLIC	0.13		0.00891	6.5
TD06	TD06_1	TD06_2	TrenchDrain	17.3	69.15	69.04	RECT_OPEN	0.35		0.00634	14.9
TD07	TD07_1	TD07_2	TrenchDrain	12.2	69.10	69.04	RECT_OPEN	0.35		0.00491	2.0
TDS	TDS_1	TDS_2	TrenchDrain	2.5	76.43	76.40	PARABOLIC	0.15		0.01188	9.1
TDS_O	TDS_2	MHST-144		28.5	70.50	69.68	CIRCULAR	0.20		0.02882	9.1
TDW	TDW_1	TDW_2	TrenchDrain	2.5	76.49	76.47	PARABOLIC	0.15		0.00800	4.3
TDW_O	TDW_2	MHST-144		17.8	70.50	69.68	CIRCULAR	0.20		0.04623	4.3
UP-CB43-S	UP-CB43	CB43	major_system	36.8	83.46	81.69	IRREGULAR	0.00	Road-D_W	0.04815	10.1
WD-OLF_3	Wales-OLF-N03	Wales-OLF-N04	Major_System	81.2	68.20	66.75	IRREGULAR	0.00	P_Wales_Dr	0.01786	6.4
WD-OLF_4	Wales-OLF-N04	Wales-OLF-N05	Major_System	95.0	66.75	65.50	IRREGULAR	0.00	P_Wales_Dr	0.01316	4.5

Junctions 1/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
13		NO	67.93	70.22	2.29	0.44	68.37	10/04/2022 01:34 AM
21		NO	77.88	80.84	2.96	0.05	77.93	10/04/2022 01:10 AM
22		NO	74.77	77.92	3.15	0.08	74.86	10/04/2022 01:11 AM
23		NO	72.48	75.76	3.28	0.13	72.62	10/04/2022 01:11 AM
26		NO	72.35	75.31	2.97	0.14	72.49	10/04/2022 01:11 AM
30		NO	71.34	76.21	4.86	0.33	71.67	10/04/2022 01:12 AM
31		NO	71.66	74.97	3.31	0.22	71.88	10/04/2022 01:12 AM
32		NO	71.68	74.93	3.26	0.21	71.89	10/04/2022 01:12 AM
33		NO	71.70	74.90	3.20	0.21	71.90	10/04/2022 01:12 AM
34		NO	82.41	82.56	0.15	0.02	82.43	10/04/2022 01:22 AM
35		NO	71.22	77.20	5.98	0.34	71.56	10/04/2022 01:13 AM
36		NO	70.67	78.89	8.22	0.47	71.13	10/04/2022 01:14 AM
37		NO	71.39	75.58	4.19	0.32	71.71	10/04/2022 01:12 AM
38		NO	78.80	81.48	2.68	0.04	78.85	10/04/2022 01:10 AM
39		NO	63.78	69.31	5.54	0.28	64.05	10/04/2022 01:25 AM
45		NO	69.56	74.33	4.76	0.86	70.43	10/04/2022 01:35 AM
48		NO	70.33	77.13	6.80	0.72	71.05	10/04/2022 01:14 AM
49		NO	70.31	76.54	6.23	0.73	71.04	10/04/2022 01:15 AM
50		NO	70.24	75.84	5.60	0.78	71.03	10/04/2022 01:15 AM
51		NO	70.10	70.31	0.21	0.00	70.10	10/04/2022 00:00 AM
54		NO	68.92	69.07	0.15	0.05	68.97	10/04/2022 01:11 AM
55		NO	82.30	82.60	0.30	0.16	82.46	10/04/2022 01:11 AM
56		NO	69.53	74.02	4.49	0.90	70.42	10/04/2022 01:35 AM
59		NO	78.90	81.73	2.83	0.04	78.94	10/04/2022 01:10 AM
60		NO	73.94	80.75	6.81	0.39	74.33	10/04/2022 01:18 AM
61		NO	73.88	80.44	6.56	0.39	74.27	10/04/2022 01:18 AM
64		NO	70.44	79.78	9.35	0.66	71.10	10/04/2022 01:14 AM
65		NO	70.40	78.80	8.40	0.68	71.08	10/04/2022 01:14 AM
66		NO	70.39	78.55	8.17	0.69	71.07	10/04/2022 01:14 AM
68		NO	70.37	78.07	7.71	0.70	71.06	10/04/2022 01:14 AM
69		NO	70.36	77.83	7.47	0.70	71.06	10/04/2022 01:14 AM
70		NO	70.35	77.58	7.24	0.71	71.05	10/04/2022 01:14 AM
71		NO	70.23	75.65	5.43	0.79	71.02	10/04/2022 01:15 AM
72		NO	70.21	75.47	5.26	0.80	71.01	10/04/2022 01:15 AM
73		NO	70.15	75.14	4.99	0.71	70.86	10/04/2022 01:33 AM
74		NO	75.07	75.07	0.00	0.01	75.08	10/04/2022 01:12 AM
75		NO	71.58	75.15	3.56	0.26	71.84	10/04/2022 01:12 AM
76		NO	78.23	81.34	3.11	0.03	78.27	10/04/2022 01:10 AM
77		NO	82.15	82.45	0.30	0.16	82.31	10/04/2022 01:19 AM
78		NO	82.14	82.45	0.31	0.17	82.31	10/04/2022 01:20 AM
81DICB2_SWE1S		NO	69.36	70.00	0.64	0.03	69.39	10/04/2022 01:12 AM
AD01		NO	79.51	79.70	0.19	0.04	79.55	10/04/2022 01:10 AM
AD02		NO	79.67	79.73	0.06	0.00	79.67	10/04/2022 00:10 AM
AD03		NO	79.82	79.85	0.03	0.00	79.82	10/04/2022 00:10 AM
AD04		NO	79.80	79.85	0.05	0.00	79.80	10/04/2022 00:10 AM
AD05		NO	79.70	79.80	0.10	0.00	79.70	10/04/2022 00:10 AM
AD06		NO	79.67	79.85	0.18	0.05	79.72	10/04/2022 01:10 AM
AD07		NO	74.25	74.30	0.05	0.00	74.25	10/04/2022 00:10 AM
AD08		NO	74.25	74.35	0.10	0.00	74.25	10/04/2022 00:10 AM
AD09		NO	74.25	74.29	0.04	0.00	74.25	10/04/2022 00:10 AM

Junctions 2/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
BI-SA1		NO	63.50	70.48	6.98	0.55	64.05	10/04/2022 01:26 AM
BI-SA1-S	Major_System	NO	70.15	70.30	0.15	0.05	70.20	10/04/2022 01:10 AM
BI-SA49-S	Major_System	NO	75.35	75.51	0.16	0.02	75.37	10/04/2022 01:10 AM
Carling_OLF1		NO	66.50	66.70	0.20	0.05	66.55	10/04/2022 01:11 AM
Carling_OLFN1		NO	65.41	65.61	0.20	0.06	65.47	10/04/2022 01:12 AM
Carling_OLFN3		NO	64.80	65.00	0.20	0.10	64.90	10/04/2022 01:14 AM
CB100		NO	75.08	75.23	0.15	0.02	75.10	10/04/2022 01:10 AM
CB104		NO	75.37	75.52	0.15	0.03	75.40	10/04/2022 01:10 AM
CB105		NO	75.14	75.29	0.15	0.03	75.17	10/04/2022 01:10 AM
CB106,103		NO	75.51	75.66	0.15	0.02	75.53	10/04/2022 01:10 AM
CB107		NO	75.12	75.27	0.15	0.02	75.14	10/04/2022 01:10 AM
CB108		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB109		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB111		NO	75.04	75.40	0.36	0.04	75.08	10/04/2022 01:11 AM
CB111_SW		NO	75.17	75.45	0.28	0.11	75.28	10/04/2022 01:10 AM
CB113		NO	69.58	69.78	0.20	0.00	69.58	10/04/2022 00:10 AM
CB114		NO	74.92	75.07	0.15	0.03	74.95	10/04/2022 01:10 AM
CB209		NO	77.64	77.79	0.15	0.02	77.66	10/04/2022 01:10 AM
CB255		NO	73.46	77.72	4.26	0.02	73.48	10/04/2022 01:11 AM
CB255-S		NO	77.71	77.86	0.15	0.01	77.72	10/04/2022 01:10 AM
CB26		NO	75.96	76.11	0.15	0.02	75.98	10/04/2022 01:10 AM
CB42		NO	81.44	81.59	0.15	0.01	81.45	10/04/2022 01:10 AM
CB43		NO	81.69	81.84	0.15	0.02	81.71	10/04/2022 01:10 AM
CB44	Major_System	NO	80.37	80.52	0.15	0.01	80.38	10/04/2022 01:10 AM
CB45		NO	80.69	80.84	0.15	0.01	80.70	10/04/2022 01:10 AM
CB46		NO	79.69	79.84	0.15	0.02	79.71	10/04/2022 01:10 AM
CB47		NO	78.63	78.80	0.18	0.02	78.64	10/04/2022 01:10 AM
CB48		NO	78.85	79.00	0.15	0.02	78.87	10/04/2022 01:10 AM
CB49		NO	78.19	78.37	0.18	0.02	78.21	10/04/2022 01:10 AM
CB50		NO	77.85	78.00	0.15	0.02	77.87	10/04/2022 01:10 AM
CB51		NO	77.75	77.94	0.18	0.02	77.77	10/04/2022 01:10 AM
CB52		NO	77.14	77.29	0.15	0.02	77.16	10/04/2022 01:10 AM
CB53		NO	77.08	77.23	0.15	0.02	77.10	10/04/2022 01:10 AM
CB54		NO	76.44	76.59	0.15	0.03	76.47	10/04/2022 01:10 AM
CB55		NO	76.58	76.73	0.15	0.02	76.60	10/04/2022 01:10 AM
CB56		NO	75.98	76.13	0.15	0.03	76.01	10/04/2022 01:10 AM
CB58		NO	75.64	75.79	0.15	0.03	75.67	10/04/2022 01:10 AM
CB59		NO	74.99	75.14	0.15	0.03	75.02	10/04/2022 01:10 AM
CB60		NO	75.39	75.55	0.16	0.00	75.39	10/04/2022 00:10 AM
CB64		NO	74.57	74.72	0.15	0.02	74.59	10/04/2022 01:10 AM
CB68,40		NO	72.63	72.79	0.16	0.02	72.65	10/04/2022 01:10 AM
CB69		NO	78.72	78.87	0.15	0.02	78.74	10/04/2022 01:10 AM
CB71		NO	79.68	79.83	0.15	0.01	79.69	10/04/2022 01:10 AM
CB72_89		NO	69.49	69.64	0.15	0.01	69.50	10/04/2022 01:10 AM
CB75		NO	79.25	79.40	0.15	0.01	79.26	10/04/2022 01:10 AM
CB77		NO	78.83	78.98	0.15	0.02	78.85	10/04/2022 01:10 AM
CB79		NO	77.57	77.72	0.15	0.02	77.59	10/04/2022 01:10 AM
CB82	Major_System	NO	77.15	77.30	0.15	0.03	77.18	10/04/2022 01:10 AM
CB83	Major_System	NO	77.24	77.39	0.15	0.04	77.28	10/04/2022 01:10 AM
CB84,85		NO	81.32	81.47	0.15	0.02	81.34	10/04/2022 01:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
CB87		NO	75.50	75.65	0.15	0.01	75.51	10/04/2022 01:10 AM
CB88		NO	79.79	80.09	0.30	0.02	79.81	10/04/2022 01:10 AM
CB90		NO	80.75	80.90	0.15	0.02	80.77	10/04/2022 01:10 AM
CB92		NO	75.27	75.42	0.15	0.03	75.30	10/04/2022 01:10 AM
CB93		NO	75.17	75.32	0.15	0.02	75.19	10/04/2022 01:10 AM
CB96		NO	78.66	78.81	0.15	0.02	78.68	10/04/2022 01:10 AM
CB97		NO	77.90	78.05	0.15	0.02	77.92	10/04/2022 01:10 AM
CBMH57	Major_System	NO	76.01	76.16	0.15	0.04	76.05	10/04/2022 01:10 AM
CBMH89		NO	76.26	76.41	0.15	0.03	76.29	10/04/2022 01:10 AM
CBMHST-101		NO	73.63	76.41	2.78	0.16	73.79	10/04/2022 01:11 AM
CBMHST103		NO	72.10	74.28	2.18	0.63	72.73	10/04/2022 01:41 AM
CBMHST-103-S		NO	74.60	74.75	0.15	0.03	74.63	10/04/2022 01:12 AM
CBMHST-104		NO	74.14	76.59	2.45	0.13	74.27	10/04/2022 01:10 AM
CBMHST105		NO	72.40	74.73	2.33	0.33	72.73	10/04/2022 01:41 AM
CBMHST105-S		NO	74.82	74.97	0.15	0.01	74.83	10/04/2022 01:11 AM
CBMHST-162		NO	76.10	82.72	6.62	0.84	76.94	10/04/2022 01:10 AM
CBMHST208-S		NO	78.00	78.20	0.20	0.03	78.03	10/04/2022 01:10 AM
CBMHST66,67		NO	73.54	73.70	0.16	0.03	73.57	10/04/2022 01:10 AM
Chamber201S		NO	67.95	68.95	1.00	0.40	68.35	10/04/2022 01:34 AM
Chamber202-S		NO	70.84	73.59	2.75	0.17	71.01	10/04/2022 01:24 AM
CUP-SS1		NO	73.50	74.00	0.50	0.09	73.59	10/04/2022 01:10 AM
D-Chamber-203		NO	71.42	75.05	3.63	0.25	71.67	10/04/2022 01:20 AM
D-Chamber-204		NO	73.03	74.63	1.60	0.19	73.22	10/04/2022 01:23 AM
DICB10		NO	79.27	79.50	0.23	0.02	79.29	10/04/2022 01:13 AM
DICB11		NO	75.45	75.60	0.15	0.03	75.48	10/04/2022 01:23 AM
DICB2_SWE2S		NO	69.58	69.75	0.17	0.03	69.61	10/04/2022 01:10 AM
DICB2_SWWS		NO	69.50	70.00	0.50	0.08	69.58	10/04/2022 01:10 AM
DICB3		NO	64.00	66.43	2.43	0.00	64.00	10/04/2022 00:00 AM
DICB6		NO	74.70	76.59	1.89	0.01	74.71	10/04/2022 01:25 AM
D-MHST-100		NO	62.60	65.42	2.82	0.70	63.30	10/04/2022 01:24 AM
D-MHST-142		NO	67.80	72.58	4.78	0.57	68.37	10/04/2022 01:34 AM
D-MHST-145		NO	69.90	74.34	4.44	0.66	70.56	10/04/2022 01:34 AM
D-MHST-146_1		NO	70.17	75.39	5.22	0.70	70.87	10/04/2022 01:31 AM
D-MHST-155		NO	74.03	81.22	7.19	0.88	74.91	10/04/2022 01:18 AM
D-MHST-157B		NO	69.97	74.44	4.47	0.88	70.85	10/04/2022 01:32 AM
D-MHST-161-S	Major_System	NO	83.25	83.40	0.15	0.01	83.26	10/04/2022 01:10 AM
D-MHST-170		NO	71.93	74.51	2.58	0.09	72.02	10/04/2022 01:41 AM
IN119607		NO	63.00	65.62	2.62	0.30	63.30	10/04/2022 01:25 AM
IN119608		NO	63.50	66.14	2.64	0.00	63.50	10/04/2022 00:00 AM
MH150		NO	66.97	69.72	2.75	0.15	67.12	10/04/2022 01:10 AM
MH207		NO	73.95	75.43	1.48	0.23	74.18	10/04/2022 01:10 AM
MH-SA1		NO	69.45	70.55	1.10	0.15	69.60	10/04/2022 01:01 AM
MH-SA49		NO	73.97	75.45	1.48	0.22	74.19	10/04/2022 01:10 AM
MH-SA50		NO	74.07	75.83	1.76	0.14	74.21	10/04/2022 01:10 AM
MH-SA51-1		NO	74.08	76.53	2.45	0.14	74.22	10/04/2022 01:10 AM
MH-SA51-2		NO	74.84	76.50	1.66	0.09	74.93	10/04/2022 01:10 AM
MH-SA56-1		NO	73.24	74.54	1.30	0.18	73.42	10/04/2022 01:10 AM
MH-SA56-2		NO	73.24	74.54	1.30	0.16	73.40	10/04/2022 01:10 AM
MH-SA56-3		NO	73.80	75.80	2.00	0.10	73.90	10/04/2022 01:10 AM
MH-SAxx		NO	62.00	64.50	2.50	0.50	62.50	10/04/2022 00:25 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST_156B		NO	70.09	74.24	4.15	0.76	70.85	10/04/2022 01:33 AM
MHST-100		NO	62.60	65.42	2.82	1.44	64.04	10/04/2022 01:24 AM
MHST-100-S	Major_System	NO	65.42	65.72	0.30	0.02	65.44	10/04/2022 01:10 AM
MHST-101		NO	63.00	66.07	3.07	1.04	64.04	10/04/2022 01:24 AM
MHST-101-S	Major_System	NO	66.07	66.23	0.16	0.03	66.10	10/04/2022 01:10 AM
MHST-102		NO	63.00	66.28	3.28	1.04	64.04	10/04/2022 01:26 AM
MHST-102-S	Major_System	NO	66.28	66.44	0.16	0.03	66.31	10/04/2022 01:10 AM
MHST-104		NO	63.30	70.80	7.50	0.75	64.05	10/04/2022 01:26 AM
MHST-104-S	Major_System	NO	70.80	70.95	0.15	0.03	70.83	10/04/2022 01:10 AM
MHST-105		NO	63.60	69.13	5.53	0.45	64.05	10/04/2022 01:25 AM
MHST-105-S	Major_System	NO	68.64	68.79	0.15	0.07	68.71	10/04/2022 01:12 AM
MHST-106		NO	63.00	71.87	8.87	1.04	64.04	10/04/2022 01:25 AM
MHST-106-S	Major_System	NO	71.87	72.03	0.16	0.03	71.90	10/04/2022 01:10 AM
MHST-107		NO	62.00	64.32	2.32	0.11	62.11	10/04/2022 01:10 AM
MHST-120-S	Major_System	NO	74.46	74.62	0.16	0.03	74.49	10/04/2022 01:10 AM
MHST-126		NO	74.23	75.36	1.13	0.03	74.26	10/04/2022 01:08 AM
MHST-130		NO	67.69	70.21	2.52	0.64	68.33	10/04/2022 01:34 AM
MHST-132		NO	73.25	75.96	2.71	0.15	73.40	10/04/2022 01:10 AM
MHST-134		NO	76.62	79.19	2.57	0.06	76.68	10/04/2022 01:11 AM
MHST-135		NO	70.62	79.31	8.69	0.51	71.13	10/04/2022 01:14 AM
MHST-135-S	Major_System	NO	79.98	80.13	0.15	0.01	79.99	10/04/2022 01:10 AM
MHST-136		NO	78.65	81.94	3.29	0.00	78.65	10/04/2022 00:00 AM
MHST-136-S		NO	81.70	82.00	0.30	0.02	81.72	10/04/2022 01:10 AM
MHST-137		NO	77.24	80.00	2.76	0.06	77.30	10/04/2022 01:10 AM
MHST-138		NO	75.17	78.56	3.39	0.08	75.25	10/04/2022 01:10 AM
MHST-141		NO	71.42	75.17	3.75	0.31	71.73	10/04/2022 01:12 AM
MHST-142		NO	67.80	72.58	4.78	2.60	70.40	10/04/2022 01:35 AM
MHST-143		NO	69.45	74.02	4.57	0.97	70.42	10/04/2022 01:35 AM
MHST-144		NO	69.68	75.30	5.62	0.76	70.44	10/04/2022 01:35 AM
MHST-145		NO	69.90	73.97	4.07	0.95	70.85	10/04/2022 01:32 AM
MHST-146		NO	70.17	75.39	5.22	0.84	71.01	10/04/2022 01:15 AM
MHST-146-S	Major_System	NO	75.38	75.58	0.20	0.04	75.42	10/04/2022 01:10 AM
MHST-147		NO	70.25	75.92	5.67	0.78	71.03	10/04/2022 01:15 AM
MHST-148		NO	70.45	80.13	9.68	0.66	71.11	10/04/2022 01:14 AM
MHST-149		NO	70.69	78.30	7.61	0.46	71.15	10/04/2022 01:13 AM
MHST-149-S	Major_System	NO	77.93	78.08	0.15	0.03	77.96	10/04/2022 01:10 AM
MHST-150		NO	70.76	77.32	6.56	0.43	71.19	10/04/2022 01:14 AM
MHST-151		NO	71.23	77.10	5.87	0.36	71.59	10/04/2022 01:13 AM
MHST-153		NO	72.86	77.00	4.14	0.11	72.97	10/04/2022 01:11 AM
MHST-153-S	TGCB102	NO	76.52	76.82	0.30	0.02	76.54	10/04/2022 01:10 AM
MHST-154		NO	75.60	81.92	6.32	0.89	76.49	10/04/2022 01:10 AM
MHST-154A		NO	76.00	82.52	6.52	0.87	76.87	10/04/2022 01:10 AM
MHST-154B		NO	75.90	81.89	5.99	0.85	76.75	10/04/2022 01:10 AM
MHST-155		NO	74.03	81.22	7.19	0.39	74.42	10/04/2022 01:18 AM
MHST-156		NO	70.13	74.49	4.36	0.72	70.85	10/04/2022 01:33 AM
MHST-157		NO	70.02	74.65	4.63	0.83	70.85	10/04/2022 01:32 AM
MHST-158		YES	71.74	74.80	3.06	0.20	71.94	10/04/2022 01:11 AM
MHST-158-S	Major_System	NO	74.99	75.14	0.15	0.02	75.01	10/04/2022 01:11 AM
MHST-159		NO	69.38	74.96	5.58	1.03	70.41	10/04/2022 01:35 AM
MHST-160		NO	71.27	76.79	5.52	0.36	71.63	10/04/2022 01:12 AM
MHST-161		NO	78.96	81.88	2.92	0.00	78.96	10/04/2022 00:00 AM
MHST-170		NO	71.93	74.51	2.58	0.79	72.72	10/04/2022 01:41 AM
MHST-200		NO	70.10	74.81	4.71	0.76	70.86	10/04/2022 01:33 AM
MHST-201		NO	69.96	74.74	4.78	0.89	70.85	10/04/2022 01:32 AM
MHST-203		NO	73.11	78.83	5.72	0.22	73.33	10/04/2022 01:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST-204		NO	73.11	78.79	5.68	0.23	73.34	10/04/2022 01:10 AM
MHST-205		NO	72.94	78.20	5.26	0.36	73.30	10/04/2022 01:10 AM
MHST-206		NO	72.91	75.77	2.86	0.32	73.23	10/04/2022 01:10 AM
MHST-208		NO	73.41	77.80	4.39	0.21	73.62	10/04/2022 01:10 AM
MHST-209		NO	73.35	75.76	2.41	0.19	73.54	10/04/2022 01:10 AM
MHST-211		NO	68.31	70.38	2.07	0.26	68.57	10/04/2022 01:10 AM
MHST-212		NO	67.95	70.22	2.27	0.40	68.35	10/04/2022 01:34 AM
MHST-213		NO	68.54	70.24	1.70	0.28	68.82	10/04/2022 01:10 AM
MHST-214		NO	68.23	70.31	2.08	0.33	68.56	10/04/2022 01:10 AM
MHST-215		NO	68.27	70.25	1.98	0.20	68.47	10/04/2022 01:11 AM
MHST-221		NO	66.62	69.70	3.08	0.22	66.84	10/04/2022 01:10 AM
MHST301		NO	72.60	75.11	2.52	0.00	72.59	10/04/2022 00:00 AM
MHST62528		NO	67.34	70.08	2.74	0.66	68.00	10/04/2022 01:30 AM
MHST-62534		NO	76.90	82.80	5.90	0.32	77.22	10/04/2022 01:10 AM
MHST62545		NO	66.53	69.90	3.37	0.53	67.06	10/04/2022 01:29 AM
MHST62547		NO	64.00	71.80	7.80	0.80	64.80	10/04/2022 01:30 AM
MSHT-103		NO	63.00	66.13	3.13	1.04	64.04	10/04/2022 01:25 AM
MSHT-103-S	Major_System	NO	66.13	66.29	0.16	0.06	66.19	10/04/2022 01:12 AM
OGS1		NO	61.00	63.82	2.82	0.35	61.35	10/04/2022 01:10 AM
OGS-3		NO	67.62	70.34	2.72	0.58	68.20	10/04/2022 01:28 AM
POW_D1		NO	78.70	79.30	0.60	0.12	78.82	10/04/2022 01:11 AM
Preston		NO	61.00	63.00	2.00	0.21	61.21	10/04/2022 01:10 AM
S-26B		NO	67.58	69.60	2.02	1.36	68.94	10/04/2022 01:23 AM
S-63		NO	79.80	84.02	4.22	0.97	80.77	10/04/2022 01:20 AM
ST-60-S-B		NO	74.11	74.41	0.30	0.06	74.17	10/04/2022 01:11 AM
ST-60-S-C		NO	73.25	73.50	0.24	0.07	73.32	10/04/2022 01:13 AM
SW_42I		NO	74.96	75.15	0.19	0.05	75.01	10/04/2022 01:10 AM
SW_65D		NO	77.94	78.44	0.50	0.01	77.95	10/04/2022 01:25 AM
TD_B		NO	67.88	69.06	1.19	0.12	68.00	10/04/2022 01:10 AM
TD01_1		NO	70.21	70.34	0.13	0.07	70.28	10/04/2022 01:10 AM
TD01_3		NO	68.60	70.29	1.69	0.22	68.82	10/04/2022 01:10 AM
TD02_01		NO	68.90	69.10	0.20	0.09	68.99	10/04/2022 01:10 AM
TD02_03		NO	67.42	69.10	1.68	0.09	67.51	10/04/2022 01:10 AM
TD03_1		NO	68.80	69.10	0.30	0.24	69.04	10/04/2022 01:10 AM
TD04_01		NO	74.57	74.72	0.15	0.15	74.72	10/04/2022 01:10 AM
TD04_02		NO	74.00	74.72	0.72	0.04	74.04	10/04/2022 01:10 AM
TD05_1		NO	74.50	74.75	0.25	0.09	74.59	10/04/2022 01:10 AM
TD05_2		NO	74.00	74.72	0.72	0.05	74.05	10/04/2022 01:10 AM
TD06_1		NO	69.15	69.39	0.24	0.09	69.24	10/04/2022 01:10 AM
TD06_2		NO	67.40	69.39	1.99	0.08	67.48	10/04/2022 01:10 AM
TD07_1		NO	69.10	69.39	0.29	0.03	69.13	10/04/2022 01:10 AM
TD07_2		NO	67.40	69.39	1.99	0.03	67.43	10/04/2022 01:10 AM
TDS_1		NO	76.43	76.58	0.15	0.11	76.54	10/04/2022 01:10 AM
TDS_2		NO	70.50	76.58	6.08	0.05	70.55	10/04/2022 01:10 AM
TDW_1		NO	76.49	76.64	0.15	0.08	76.57	10/04/2022 01:10 AM
TDW_2		NO	70.50	76.64	6.14	0.03	70.53	10/04/2022 01:10 AM
UP-CB43		NO	83.46	83.61	0.15	0.02	83.48	10/04/2022 01:10 AM
Wales-OLF-N03		NO	68.20	68.40	0.20	0.03	68.23	10/04/2022 01:13 AM
Wales-OLF-N04		NO	66.75	66.95	0.20	0.03	66.78	10/04/2022 01:16 AM
Wales-OLF-N05		NO	65.50	65.70	0.20	0.02	65.52	10/04/2022 01:18 AM

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Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Storage Curve	Curve Name	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Volume (1000 m³)	Max. Percent Full (%)	Contributing Area (ha)
CB130	69.84	70.11	0.27	TABULAR	CB(600x600)	0.01	0.04	69.88	0	13	0.0920
CB65	72.16	73.70	1.54	TABULAR	CB65	0.02	0.03	72.19	0	0	1.1620
CB91	75.00	75.20	0.20	TABULAR	CB91	0.10	0.12	75.12	0.006	30	0.1910
CB94	75.02	75.32	0.30	TABULAR	CB94	0.01	0.06	75.08	0.002	7	0.6180
CB95	75.52	75.82	0.30	TABULAR	CB95-ponding	0.01	0.05	75.57	0.003	3	0.2440
CB99	76.90	76.95	0.05	TABULAR	CB99	0.00	0.03	76.93	0	33	0.1460
CBMHST101-S	76.42	76.57	0.15	TABULAR	CBMH101	0.01	0.08	76.50	0.002	35	0.2910
CHAMBER-102	72.03	74.24	2.21	TABULAR	Chamber102	0.21	0.70	72.73	0.149	32	1.9200
CHAMBER-103	74.08	76.78	2.70	TABULAR	Chamber103	0.14	0.83	74.91	0.66	31	13.86
CHAMBER-104-A	70.13	72.43	2.30	TABULAR	Chamber104A	0.14	0.72	70.85	0.41	32	19.50
CHAMBER-104B	69.91	72.61	2.70	TABULAR	Chamber104B	0.24	0.94	70.85	0.59	35	22.77
Chamber201	67.95	69.19	1.24	TABULAR	Chamber201	0.10	0.40	68.35	0.16	32	1.06
Chamber202	70.84	72.43	1.59	TABULAR	Chamber202	0.10	0.48	71.32	0.19	30	1.69
Chamber-203	71.42	72.90	1.48	TABULAR	Chamber203	0.11	0.59	72.01	0.11	40	0.64
Chamber-204	73.03	74.36	1.33	TABULAR	Chamber204	0.10	0.47	73.50	0.10	35	0.69
DICB8	68.11	70.10	1.99	TABULAR	swale	0.03	0.27	68.38	0.00	0	2.81
DICB9	74.60	74.88	0.28	TABULAR	DICB9	0.02	0.08	74.68	0.00	3	1.13
MHST-157-S	73.80	74.23	0.43	TABULAR	CB98-ponding	0.03	0.15	73.95	0.00	7	1.12
PS	64.92	70.03	5.11	CYLINDRICAL	*	0.66	1.01	65.93	0.00	20	0.31
S-14B	61.65	63.30	1.65	TABULAR	S-14B	0.50	1.13	62.78	0.00	3	0.13
S-15	62.10	63.90	1.80	TABULAR	S-15	0.20	1.40	63.50	0.01	8	0.36
S-19	64.00	66.00	2.00	TABULAR	S-19	0.27	1.51	65.51	0.01	3	0.21
S-21B	63.54	65.70	2.16	TABULAR	S-21B	1.00	1.67	65.21	0.12	10	1.77
S-26D	67.19	69.25	2.06	TABULAR	DICB1	0.05	0.61	67.80	0	1	0.0750
S-3Store	62.20	64.24	2.04	TABULAR	S-3	0.23	1.60	63.80	0.011	13	0.3940
SA-1	69.50	72.50	3.00	TABULAR	S-1	0.20	1.07	70.57	0.236	36	1.2350
SA-2	62.60	65.60	3.00	TABULAR	S-2	0.48	0.97	63.57	0.292	32	0.8680

Outlets 1/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Area (ha)
1	DICB6	CBMHST-101	74.70	TABULAR/DEPTH	2CB	NO	1.45	0.12
12	CBMHST208-S	MHST-208	78.00	TABULAR/DEPTH	S28_SL2_5	NO	6.40	0.15
14	CB95	CBMHST-104	75.52	TABULAR/DEPTH	S19_LP	NO	43.36	0.24
18	CB94	75	75.02	TABULAR/DEPTH	2CB	NO	83.90	0.62
20	CB65	MHST-144	72.16	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	10.31	1.16
24	CBMHST-103-S	CBMHST103	74.60	TABULAR/DEPTH	S28_SL4_0.5	NO	6.86	1.55
26	CB91	37	75.14	TABULAR/DEPTH	S19_SL2_5x2	NO	0.00	0.19
31	CB26	Chamber202	75.96	TABULAR/DEPTH	S19_SL2_5x2	NO	10.40	0.35
37	CB113	Chamber201	69.58	TABULAR/DEPTH	CB	NO	0.00	0.14
44	AD05	MH-SA56-1	79.70	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
45	AD03	MH-SA56-2	79.82	TABULAR/HEAD	AreaDrain	NO	0.00	0.03
46	CB72_89	39	69.49	TABULAR/DEPTH	S19_SL2_1	NO	0.49	2.93
47	CBMHST66,67	56	73.54	TABULAR/DEPTH	S28_SL2_5x2	NO	13.76	0.80
48	DICB11	26	75.45	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	6.94	0.43
51	CB46	64	79.69	TABULAR/DEPTH	S19_SL2_5	NO	3.97	0.08
52	CB54	49	76.44	TABULAR/DEPTH	S22_SL2_5	NO	2.03	0.15
53	CB58	71	75.64	TABULAR/DEPTH	S22_SL2_5	NO	3.49	0.19
55	CB71	MHST-135	79.68	TABULAR/DEPTH	S19_SL2_2.5	NO	0.18	0.01
56	CB75	MHST-135	79.25	TABULAR/DEPTH	S22_SL2_2.5	NO	0.64	0.02
57	CB87	MHST-160	75.50	TABULAR/DEPTH	S19_LP	NO	0.00	0.11
58	CB107	32	75.12	TABULAR/DEPTH	S19_SL2_1x2	NO	4.66	0.69
59	CB100	33	75.08	TABULAR/DEPTH	S19_SL2_1x2	NO	7.96	0.70
60	CB84,85	76	81.32	TABULAR/DEPTH	S19_SL2_2.5x2	NO	3.56	0.10
61	CB90	21	80.75	TABULAR/DEPTH	S19_SL2_2.5x2	NO	5.48	0.11
62	CB96	MHST-138	78.66	TABULAR/DEPTH	S19_SL2_2.5	NO	9.81	0.17
63	CB97	22	77.90	TABULAR/DEPTH	S22_SL2_2.5	NO	1.25	0.19
65	CBMHST105-S	CBMHST105	74.82	TABULAR/DEPTH	S28_SL4_0.5	NO	0.00	0.38
69	DICB10	MHST-135	79.27	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	4.74	1.32
AD01_O	AD01	MH-SA56-2	79.67	TABULAR/DEPTH	3CB	NO	0.00	0.10
AD02_O	AD02	MH-SA56-2	79.67	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD04_O	AD04	MH-SA56-1	79.80	TABULAR/DEPTH	AreaDrain	NO	0.00	0.04
AD06_O	AD06	MH-SA56-1	79.65	TABULAR/DEPTH	AreaDrain	NO	31.55	0.11
AD07_O	AD07	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD08_O	AD08	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.09
AD09_O	AD09	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.01
BI-SA1-IC	BI-SA1-S	BI-SA1	70.15	TABULAR/DEPTH	6@R-B@S=1.5%	NO	43.56	0.52
BI-SA49-IC	BI-SA49-S	D-MHST-146_1	75.35	TABULAR/DEPTH	S19_SL2_1x4	NO	20.43	0.32
CB101_103_105	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S22_SL2_2.5	NO	1.81	0.22
CB102_106_DIC	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S19_SL2_2.5	NO	2.60	0.22
CB103_O	CB106,103	23	75.51	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.24
CB104_O	CB104	72	75.37	TABULAR/DEPTH	S19_SL2_5	NO	13.94	0.21
CB105_O	CB105	26	75.14	TABULAR/DEPTH	S22_SL2_2.5	NO	2.90	0.26
CB106_O	CB106,103	23	75.51	TABULAR/DEPTH	S19_SL2_2.5x2	NO	12.53	0.24
CB108_O	CB108	MHST-214	69.60	TABULAR/DEPTH	CB	NO	0.00	0.12
CB109_O	CB109	MHST-215	69.60	TABULAR/DEPTH	CB	NO	0.00	0.09
CB111_O	CB111	MHST-147	75.04	TABULAR/DEPTH	S19_LP	NO	32.84	0.49
CB114_O	CB114	MHST-200	74.92	TABULAR/DEPTH	S19_SL2_5	NO	15.53	0.28
CB130_O	CB130	MHST-130	69.84	TABULAR/DEPTH	S19_SL2_1	NO	21.29	0.09
CB255-O	CB255-S	CB255	77.71	TABULAR/DEPTH	S19_SL2_5	NO	0.93	0.14
CB40,66-68	CB68,40	56	72.63	TABULAR/DEPTH	S19_SL2_5x4	NO	38.77	0.82

Outlets 2/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
CB42_O	CB42	38	81.44	TABULAR/DEPTH	S19_SL2_5	NO	1.75	0.02
CB43_O	CB43	59	81.69	TABULAR/DEPTH	S19_SL2_5	NO	7.30	0.04
CB44_O	CB44	61	80.37	TABULAR/DEPTH	S19_SL2_5x2	NO	3.02	0.03
CB45_O	CB45	60	80.69	TABULAR/DEPTH	S19_SL2_5	NO	2.54	0.07
CB47_O	CB47	66	78.63	TABULAR/DEPTH	S22_SL2_5	NO	1.09	0.05
CB48_O	CB48	65	78.85	TABULAR/DEPTH	S22_SL2_5	NO	1.23	0.10
CB49_O	CB49	68	78.19	TABULAR/DEPTH	S22_SL2_5x2	NO	2.04	0.05
CB50_O	CB50	69	77.85	TABULAR/DEPTH	S22_SL2_5	NO	1.54	0.12
CB51_O	CB51	70	77.75	TABULAR/DEPTH	S22_SL2_5	NO	0.88	0.05
CB52_O	CB52	48	77.14	TABULAR/DEPTH	S22_SL2_5	NO	1.70	0.14
CB53_O	CB53	48	77.08	FUNCTIONAL/DEPTH	*	NO	1.29	0.06
CB55_O	CB55	49	76.58	TABULAR/DEPTH	S22_SL2_5x2	NO	1.91	0.06
CB56_58	MHST-146-S	MHST-146	75.38	TABULAR/DEPTH	S22_SL2_1x2	NO	11.06	0.32
CB56_O	CB56	50	75.98	TABULAR/DEPTH	S22_SL2_5	NO	2.66	0.16
CB59_O	CB59	73	74.99	TABULAR/DEPTH	S19_SL2_5	NO	15.36	0.25
CB60_O	CB60	MHST301	75.39	TABULAR/DEPTH	S19_SL2_1	NO	0.00	0.07
CB63	MHST-120-S	56	74.46	TABULAR/DEPTH	S22_SL2_5	NO	2.14	0.40
CB69_75	MHST-149-S	MHST-149	77.93	TABULAR/DEPTH	S22_SL2_5x2	NO	4.01	0.09
CB69_O	CB69	36	78.72	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.05
CB77_O	CB77	36	78.83	TABULAR/DEPTH	S19_SL2_2.5	NO	3.75	0.05
CB79_O	CB79	MHST-150	77.57	TABULAR/DEPTH	S19_SL2_2.5	NO	5.44	0.12
CB82_O	CB82	MHST-151	77.15	TABULAR/DEPTH	DB_S22_SL2_5	NO	2.33	0.19
CB83_O	CB83	35	77.24	TABULAR/DEPTH	S22_SL2_5	NO	5.40	0.16
CB88_96	CB88	MHST-137	79.79	TABULAR/DEPTH	S19_SL2_2.5	NO	9.02	0.14
CB92_O	CB92	37	75.27	TABULAR/DEPTH	S19_SL2_2.5x2	NO	24.47	0.28
CB93_O	CB93	31	75.17	TABULAR/DEPTH	S19_SL2_1x2	NO	3.95	0.67
CB99_O	CB99	CBMHST-104	76.90	TABULAR/DEPTH	S19_LP	NO	17.53	0.15
CBMH57_O	CBMH57	MHST-147	76.00	TABULAR/DEPTH	S19_SL2_5	NO	26.65	0.32
CBMH89_O	CBMH89	MHST-160	76.26	TABULAR/DEPTH	S28_SL2_5	NO	8.88	0.23
CBMHST101_O	CBMHST101-S	CBMHST-101	76.42	TABULAR/DEPTH	S28_LP	NO	48.05	0.29
DICB9_OL	DICB9	CBMHST103	74.28	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	43.76	1.13
MHST-100-IC	MHST-100-S	MHST-100	66.30	TABULAR/DEPTH	1@R-A@S=5.0%	NO	0.00	1.42
MHST-101-IC	MHST-101-S	MHST-101	66.07	TABULAR/DEPTH	4@R-A@S=5.0%	NO	23.68	1.42
MHST-102-IC	MHST-102-S	MHST-102	66.28	TABULAR/DEPTH	4@R-A@S=5.0%	NO	21.91	1.29
MHST-104-IC	MHST-104-S	MHST-104	70.80	TABULAR/DEPTH	3@R-B@S=1.5%	NO	13.96	0.12
MHST-105-IC	MHST-105-S	MHST-105	68.64	TABULAR/DEPTH	3@R-B@S=1.5%	NO	53.79	4.14
MHST-106-IC	MHST-106-S	MHST-106	71.87	TABULAR/DEPTH	2@R-E@S=5.0%	NO	10.42	0.99
MHST-157-IC	MHST-157-S	MHST-157	73.80	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	137.57	1.12
MSHT-103-IC	MSHT-103-S	MSHT-103	66.13	TABULAR/DEPTH	7@R-A@S=5.0%	NO	81.06	1.13
O-1	SA-1	MH-SA1	69.50	TABULAR/HEAD	O-1	NO	60.00	1.24
O-15	S-15	MHST-107	62.10	TABULAR/DEPTH	O-15	NO	6.95	0.36
O-19	S-19	MHST-101	64.00	TABULAR/DEPTH	50VHV-1	NO	3.62	0.21
O-2	SA-2	MH-SAxx	62.60	TABULAR/HEAD	O-2	NO	7.00	0.87
O-21B	S-21B	IN119607	63.54	TABULAR/DEPTH	50VHV-1	NO	3.80	1.77
O-26D	S-26D	MHST-105	67.19	TABULAR/DEPTH	50VHV-1	NO	2.27	0.08
O-3	S-3Store	OGS1	62.20	TABULAR/HEAD	125VHV-2	NO	23.43	0.39
O-4	S-14B	Preston	62.15	TABULAR/HEAD	125VHV-2	NO	14.90	0.13
O-63	S-63	MHST-154A	78.20	TABULAR/DEPTH	O-63	NO	45.32	1.10
O-CB209	CB209	MHST-209	77.64	TABULAR/DEPTH	S28_SL2_5	NO	2.30	0.18
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	4.04	4.14

Orifices 1/1

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Width (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (L/s)
DICB2	S-26B	BI-SA1	SIDE	CIRCULAR	0.095	0	67.58	0.65	23.35
ICD-100-1	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.3	0	63.06	0.62	166.68
ICD-100-2	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.1	0	63.85	0.62	8.09
ICD102	MHST-170	D-MHST-170	SIDE	CIRCULAR	0.1	0	71.93	0.62	18.11
ICD103	D-MHST-155	MHST-155	SIDE	CIRCULAR	0.675	0	74.06	0.62	685.36
ICD104	MHST-145	D-MHST-145	SIDE	RECT_CLOSED	0.75	0.75	69.9	0.62	834.87
ICD-105	MHST-142	D-MHST-142	SIDE	CIRCULAR	0.7	0	69.32	0.62	900.43
ICD111	DICB8	OGS-3	SIDE	CIRCULAR	0.4	0	68.11	0.62	84.04
ICD201	Chamber201	Chamber201S	SIDE	CIRCULAR	0.35	0	67.95	0.62	56.84
ICD202	Chamber202	Chamber202-S	SIDE	CIRCULAR	0.245	0	70.84	0.62	72.77
ICD203	Chamber-203	D-Chamber-203	SIDE	CIRCULAR	0.225	0	71.42	0.62	63.94
ICD204	Chamber-204	D-Chamber-204	SIDE	CIRCULAR	0.19	0	73.03	0.62	40.57

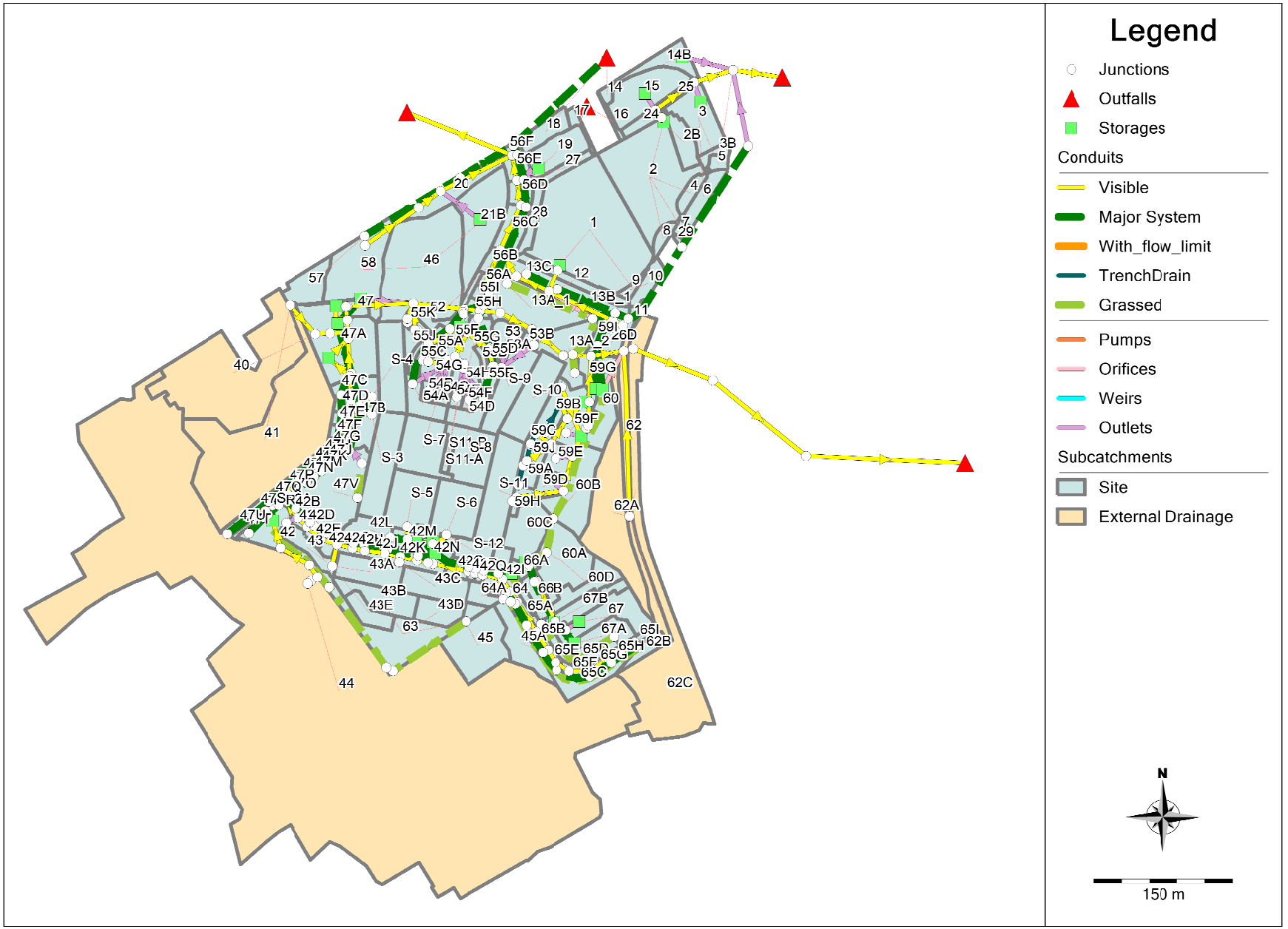
Weirs 1/1

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Inlet Elev. (m)	Max. |Flow| (L/s)	Time Max. Flow (M/D/Y)	Max/Full Depth	Contributing Area (ha)
Weir102	MHST-170	D-MHST-170	TRANSVERSE	0.3	1.5	73	0	10/04/2022 00:00 AM	0	1.92
Weir103	D-MHST-155	MHST-155	TRANSVERSE	1	1	76.45	0	10/04/2022 00:00 AM	0	13.859
Weir104	MHST-145	D-MHST-145	TRANSVERSE	1	2	71.64	0	10/04/2022 00:00 AM	0	22.77
Weir-105	MHST-142	D-MHST-142	TRANSVERSE	0.5	1.4	70.7	0	10/04/2022 00:00 AM	0	24.89
Weir112	MHST-146	D-MHST-146_1	SIDEFLOW	1.4	1.5	70.17	1204.97	10/04/2022 01:15 AM	0.6	19.443

Outfalls 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Type	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)	Max. Flow (L/s)	Total Flow (ML)	Contributing Area (ha)
Carling_OLF	64.6	64.8	FREE	0.08	64.68	10/04/2022 01:14 AM	73.51	0.085	2.011
Dows-Lake	63.745	66.5	FREE	0.56	64.3	10/04/2022 01:30 AM	1061.61	6.242	29.624
LRT-Corridor	56	57	FREE	0	56	10/04/2022 00:00 AM	8.73	0.006	0.059
Nepean-Bay-Trunk	62.8	65.21	NORMAL	0	62.8	10/04/2022 00:00 AM	178.51	1.246	8.845
Preston_Street	60.9	63.76	NORMAL	0.18	61.08	10/04/2022 01:10 AM	73.19	0.518	5.985

PCSWMM OUTPUT
3-HOUR CHICAGO -100-YEAR STORM


Legend
Junctions
Outfalls
Storages
Conduits
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TrenchDrain
Grassed
Pumps
Orifices
Weirs
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External Drainage
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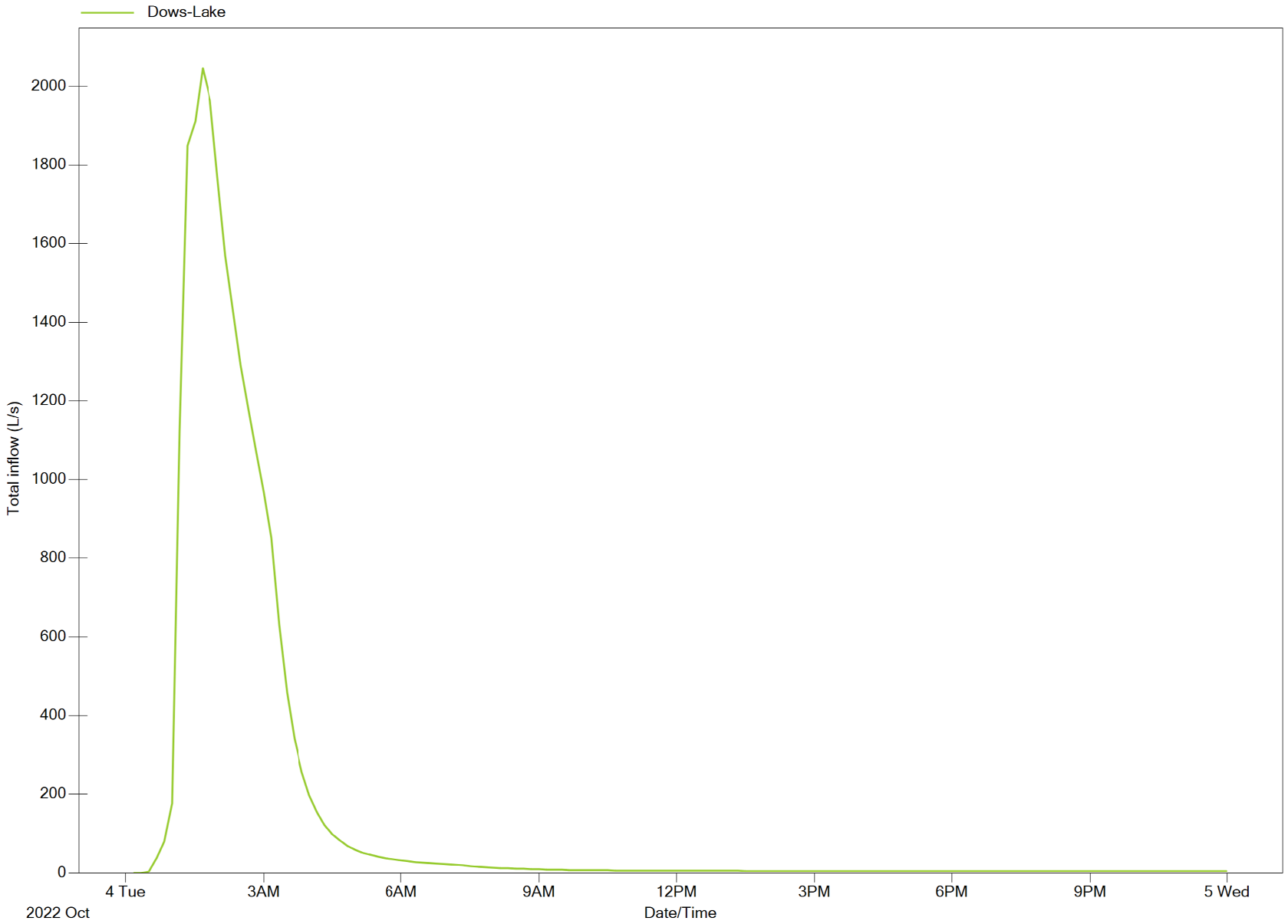
Dows-Lake
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1800
1600
1400
1200
1000
800
600
400
200
0
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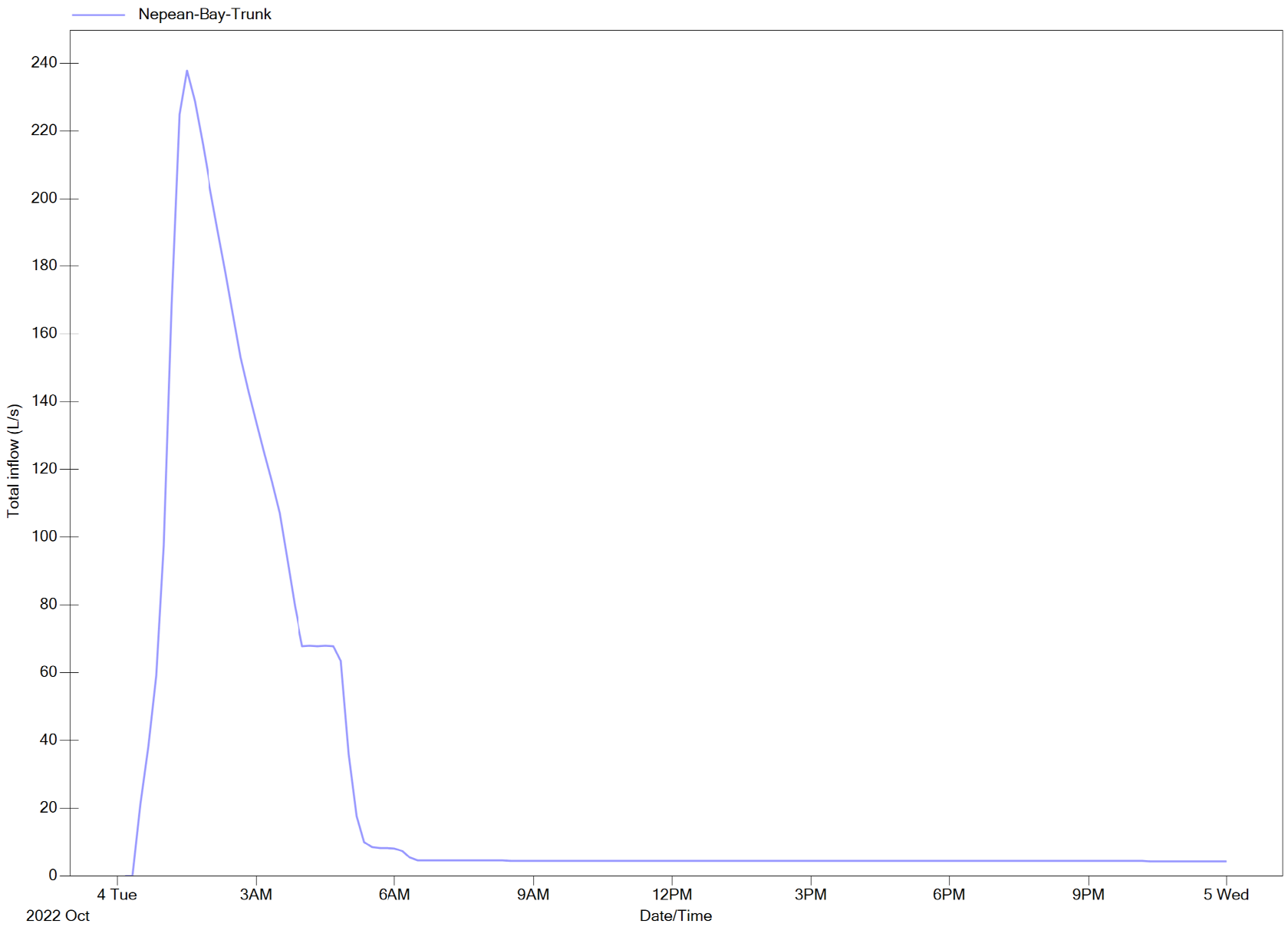
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time


Nepean-Bay-Trunk
240
220
200
180
160
140
120
100
80
60
40
20
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time

SUBCATCHMENTS 1/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
1		100yr_3hr_Chicago	SA-1	1.2161	3.0	599.4	1.0	100.00
10		100yr_3hr_Chicago	13B_1	0.0822	3.0	31.4	0.5	8.07
11		100yr_3hr_Chicago	MHST-105-S	0.0302	3.0	14.7	0.9	89.30
12		100yr_3hr_Chicago	BI-SA1-S	0.1276	5.0	58.8	0.8	56.48
13A_1		100yr_3hr_Chicago	DICB2_SWWS	0.4122	10.0	144.3	0.5	19.20
13A_2		100yr_3hr_Chicago	DICB2_SWE2S	0.2478	10.0	61.1	0.4	3.60
13B_1		100yr_3hr_Chicago	BI-SA1-S	0.1938	5.0	94.4	0.9	87.80
13C		100yr_3hr_Chicago	MHST-104-S	0.1184	5.0	56.2	0.9	78.70
14		100yr_3hr_Chicago	Carling_OLF	0.0580	3.0	24.8	0.8	60.27
14B		100yr_3hr_Chicago	S-14B	0.1272	3.0	50.5	0.5	0.00
15		100yr_3hr_Chicago	S-15	0.3643	3.0	92.5	0.4	3.61
16		100yr_3hr_Chicago	LRT-Corridor	0.0229	3.0	9.5	0.5	0.00
17		100yr_3hr_Chicago	LRT-Corridor	0.0361	3.0	14.7	0.5	0.00
18		100yr_3hr_Chicago	Carling_OLF	0.1189	3.0	39.3	0.5	3.43
19		100yr_3hr_Chicago	S-19	0.2056	3.0	64.7	0.5	7.10
2		100yr_3hr_Chicago	SA-2	0.7114	3.0	358.2	1.0	100.00
20		100yr_3hr_Chicago	Carling_OLFN1	0.2434	8.0	94.3	0.5	0.00
21B		100yr_3hr_Chicago	S-21B	0.4325	10.0	291.9	0.8	9.20
24		100yr_3hr_Chicago	MHST-107	0.0348	3.0	15.5	0.8	55.80
25		100yr_3hr_Chicago	OGS1	0.0465	3.0	22.1	0.9	80.56
26D		100yr_3hr_Chicago	S-26D	0.0748	2.0	17.8	0.4	0.00
27		100yr_3hr_Chicago	MHST-101-S	0.0531	3.0	25.7	0.9	84.50
28		100yr_3hr_Chicago	MHST-102-S	0.0844	5.0	39.3	0.8	62.60
29		100yr_3hr_Chicago	7	0.0113	3.0	3.7	0.4	0.00
2B		100yr_3hr_Chicago	SA-2	0.0908	3.0	45.0	1.0	100.00
3		100yr_3hr_Chicago	S-3Store	0.2154	3.0	91.9	0.7	31.75
3B		100yr_3hr_Chicago	3	0.0393	3.0	19.5	1.0	100.00
4		100yr_3hr_Chicago	2	0.0196	3.0	9.7	1.0	100.00
40	External	100yr_3hr_Chicago	MHST-156	1.1965	6.8	408.9	0.7	46.20
41	External	100yr_3hr_Chicago	MHST-132	1.5372	3.0	234.8	0.4	14.60
42		100yr_3hr_Chicago	DICB10	0.2213	3.0	32.6	0.4	0.01
42A		100yr_3hr_Chicago	MHST-135-S	0.0106	3.5	5.1	0.9	84.62
42B		100yr_3hr_Chicago	CB75	0.0107	3.5	5.3	1.0	99.40
42C		100yr_3hr_Chicago	CB77	0.0243	3.5	12.1	1.0	100.00
42D		100yr_3hr_Chicago	CB69	0.0062	3.5	3.1	1.0	95.34
42E		100yr_3hr_Chicago	MHST-149-S	0.0345	3.5	14.0	0.7	40.14
42F		100yr_3hr_Chicago	CB79	0.0354	3.5	14.6	0.7	44.00
42G		100yr_3hr_Chicago	CB83	0.0415	2.8	20.0	0.9	83.29
42H		100yr_3hr_Chicago	CB82	0.0225	2.8	10.7	0.9	74.75
42I		100yr_3hr_Chicago	SW_42I	0.1692	2.0	72.0	0.9	75.05
42J		100yr_3hr_Chicago	CBMH89	0.0485	2.8	22.9	0.9	71.99
42K		100yr_3hr_Chicago	CB92	0.0466	3.0	22.1	0.9	78.08

SUBCATCHMENTS 2/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
42L		100yr_3hr_Chicago	CB87	0.1098	5.0	54.1	1.0	95.54
42M		100yr_3hr_Chicago	CB91	0.0808	4.5	39.2	0.9	86.55
42N		100yr_3hr_Chicago	CB94	0.1467	1.5	69.5	0.9	80.74
42O		100yr_3hr_Chicago	CB93	0.0494	2.0	23.5	0.9	76.95
42P		100yr_3hr_Chicago	CB107	0.0173	2.2	8.4	0.9	83.72
42Q		100yr_3hr_Chicago	CB100	0.0167	2.2	8.0	0.9	77.86
43		100yr_3hr_Chicago	MHST-126	0.1112	9.0	55.0	1.0	98.59
43A		100yr_3hr_Chicago	MHST-126	0.1990	2.0	75.4	0.7	55.00
43B		100yr_3hr_Chicago	63	0.1919	1.5	79.5	0.7	55.00
43C		100yr_3hr_Chicago	CUP-SS1	0.2011	2.0	67.9	0.7	45.00
43D		100yr_3hr_Chicago	63	0.1257	3.0	55.3	0.8	55.00
43E		100yr_3hr_Chicago	MHST-126	0.1010	0.5	49.0	1.0	99.00
44	External	100yr_3hr_Chicago	MHST-62534	12.7620	1.0	2804.0	0.5	32.00
45		100yr_3hr_Chicago	55	0.3614	4.0	151.2	0.8	58.75
45A		100yr_3hr_Chicago	65C	0.1911	4.0	67.4	0.5	9.20
46		100yr_3hr_Chicago	21B	0.8929	10.0	264.0	0.6	15.60
47		100yr_3hr_Chicago	CB65	0.0376	2.5	18.3	0.9	87.89
47A		100yr_3hr_Chicago	MHST-157-S	0.5324	1.5	253.0	0.9	88.00
47B		100yr_3hr_Chicago	CBMH57	0.2548	2.0	117.0	0.8	69.70
47C		100yr_3hr_Chicago	CB114	0.0276	2.0	12.8	0.8	65.65
47D		100yr_3hr_Chicago	CB59	0.0337	2.0	16.5	1.0	91.76
47E		100yr_3hr_Chicago	CB104	0.0244	2.0	12.1	1.0	100.00
47F		100yr_3hr_Chicago	CB58	0.0250	2.0	12.4	1.0	99.94
47G		100yr_3hr_Chicago	CB56	0.0145	2.0	7.2	1.0	99.54
47H		100yr_3hr_Chicago	CB54	0.0132	5.0	6.4	0.9	83.09
47I		100yr_3hr_Chicago	CB52	0.0133	5.0	6.4	0.9	82.33
47J		100yr_3hr_Chicago	CB55	0.0043	5.0	1.9	0.6	25.00
47K		100yr_3hr_Chicago	CB53	0.0041	5.0	2.0	1.0	99.90
47L		100yr_3hr_Chicago	CB50	0.0195	5.0	9.4	0.9	82.25
47M		100yr_3hr_Chicago	CB51	0.0040	5.0	2.0	1.0	99.65
47N		100yr_3hr_Chicago	CB49	0.0043	5.0	2.1	1.0	100.00
47O		100yr_3hr_Chicago	CB47	0.0183	5.0	9.1	1.0	99.90
47P		100yr_3hr_Chicago	CB48	0.0195	5.0	9.4	0.9	82.15
47Q		100yr_3hr_Chicago	CB46	0.0195	5.0	9.4	0.9	81.97
47R		100yr_3hr_Chicago	CB44	0.0092	5.0	4.5	1.0	96.40
47S		100yr_3hr_Chicago	CB45	0.0229	5.0	10.0	0.7	39.96
47T		100yr_3hr_Chicago	D-MHST-161-S	0.0180	5.0	8.9	1.0	97.57
47U		100yr_3hr_Chicago	UP-CB43	0.0418	5.0	19.6	0.9	72.19
47V		100yr_3hr_Chicago	CB111_SW	0.4849	5.0	140.0	0.5	8.35
5		100yr_3hr_Chicago	preston	0.0120	3.0	6.0	1.0	100.00
52		100yr_3hr_Chicago	56B	0.0873	2.0	29.3	0.7	44.70
53		100yr_3hr_Chicago	AD08	0.0903	20.0	38.4	0.6	32.10
53A		100yr_3hr_Chicago	AD09	0.0070	1.5	3.3	0.9	72.42
53B		100yr_3hr_Chicago	AD07	0.0264	1.0	12.6	0.9	80.25
54A		100yr_3hr_Chicago	AD06	0.1118	1.5	55.0	1.0	98.30
54B		100yr_3hr_Chicago	AD05	0.0337	2.0	16.4	0.9	87.44
54C		100yr_3hr_Chicago	AD04	0.0362	1.5	17.6	0.9	89.15
54D		100yr_3hr_Chicago	AD01	0.1027	2.0	50.7	1.0	99.60
54E		100yr_3hr_Chicago	AD03	0.0304	1.5	14.8	0.9	89.00
54F		100yr_3hr_Chicago	AD02	0.0316	2.0	15.3	0.9	86.13
54G		100yr_3hr_Chicago	55F	0.0675	2.0	26.6	0.6	30.50
54H		100yr_3hr_Chicago	55G	0.0634	2.0	26.1	0.7	38.04
55A		100yr_3hr_Chicago	TD05_1	0.0307	4.0	15.2	1.0	98.63
55B		100yr_3hr_Chicago	TD04_01	0.0231	4.5	11.3	1.0	93.90
55C		100yr_3hr_Chicago	CB255-S	0.0259	5.0	12.8	1.0	99.27
55D		100yr_3hr_Chicago	CB209	0.0240	5.0	10.9	0.8	53.18
55E		100yr_3hr_Chicago	CBMHST208-S	0.0483	5.0	21.9	0.8	60.10
55F		100yr_3hr_Chicago	CB26	0.1485	5.0	57.0	0.7	43.64
55G		100yr_3hr_Chicago	MHST-120-S	0.1658	5.0	58.8	0.6	24.94
55H		100yr_3hr_Chicago	CBMHST66,67	0.0408	5.0	18.4	0.7	51.58
55I		100yr_3hr_Chicago	CB68,40	0.0241	5.0	11.6	0.9	81.84
55J		100yr_3hr_Chicago	TDS_1	0.0804	3.0	25.5	0.6	28.65

SUBCATCHMENTS 3/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
55K		100yr_3hr_Chicago	TDW_1	0.0168	2.1	8.0	0.9	75.97
56A		100yr_3hr_Chicago	MHST-106-S	0.0236	5.0	11.3	0.9	80.84
56B		100yr_3hr_Chicago	MHST-106-S	0.0562	5.0	37.3	1.0	86.00
56C		100yr_3hr_Chicago	MSHT-103-S	0.1354	5.0	65.0	0.9	82.00
56D		100yr_3hr_Chicago	MHST-102-S	0.0761	5.0	36.8	0.9	84.70
56E		100yr_3hr_Chicago	MHST-101-S	0.0805	5.0	38.4	0.9	77.30
56F		100yr_3hr_Chicago	Carling_OLFN3	0.0180	5.0	8.6	0.9	77.40
57		100yr_3hr_Chicago	Carling_OLF1	0.1534	15.0	64.0	0.5	6.90
58		100yr_3hr_Chicago	46	0.4475	16.0	124.7	0.5	10.20
59A		100yr_3hr_Chicago	TD02_01	0.0527	2.0	26.1	1.0	100.00
59B		100yr_3hr_Chicago	TD03_1	0.1995	4.0	88.7	0.8	61.55
59C		100yr_3hr_Chicago	TD07_1	0.0071	0.5	3.5	1.0	100.00
59D		100yr_3hr_Chicago	CB108	0.1168	3.0	57.9	1.0	99.94
59E		100yr_3hr_Chicago	CB109	0.0937	2.0	46.5	1.0	100.00
59F		100yr_3hr_Chicago	CB113	0.1387	2.0	68.7	1.0	99.81
59G		100yr_3hr_Chicago	CB130	0.0920	2.2	42.1	0.8	71.12
59H		100yr_3hr_Chicago	TD01_1	0.0121	1.0	6.0	1.0	99.00
59I		100yr_3hr_Chicago	CB72_89	0.0233	2.4	11.6	1.0	99.81
59J		100yr_3hr_Chicago	TD06_1	0.0521	2.8	25.8	1.0	100.00
6		100yr_3hr_Chicago	3	0.1396	3.0	47.4	0.5	2.06
60		100yr_3hr_Chicago	DICB8	0.2109	25.0	60.4	0.4	0.00
60A		100yr_3hr_Chicago	ST-60-S-B	0.3586	2.5	79.3	0.6	23.90
60B		100yr_3hr_Chicago	ST-60-S-C	0.3168	25.0	86.2	0.4	1.81
60C		100yr_3hr_Chicago	ST-60-S-C	0.2273	2.5	46.0	0.4	7.40
60D		100yr_3hr_Chicago	60A	0.1424	3.8	41.7	0.6	39.00
62	External	100yr_3hr_Chicago	POW_D1	0.2744	5.0	92.9	0.8	61.70
62A	External	100yr_3hr_Chicago	POW_D1	0.6276	6.0	143.5	0.5	25.00
62B		100yr_3hr_Chicago	MHST-136-S	0.0674	3.0	12.1	0.4	0.00
62C	External	100yr_3hr_Chicago	POW_D1	1.1137	5.0	326.4	0.7	61.80
63		100yr_3hr_Chicago	55	0.4180	1.5	63.0	0.5	0.00
64		100yr_3hr_Chicago	CB105	0.0174	1.8	8.6	1.0	99.23
64A		100yr_3hr_Chicago	CB60	0.0677	1.0	33.5	1.0	99.96
65A		100yr_3hr_Chicago	CB106,103	0.0260	3.8	12.9	1.0	100.00
65B		100yr_3hr_Chicago	MHST-153-S	0.0257	3.8	12.8	1.0	100.00
65C		100yr_3hr_Chicago	34	0.2345	3.0	43.8	0.5	4.68
65D		100yr_3hr_Chicago	SW_65D	0.1224	2.0	12.3	0.3	0.00
65E		100yr_3hr_Chicago	CB97	0.0176	3.9	8.7	1.0	100.00
65F		100yr_3hr_Chicago	CB96	0.0332	3.8	16.5	1.0	99.96
65G		100yr_3hr_Chicago	CB88	0.0271	3.8	13.4	1.0	99.91
65H		100yr_3hr_Chicago	CB90	0.0102	3.7	5.1	1.0	100.00
65I		100yr_3hr_Chicago	MHST-136-S	0.0347	3.6	17.2	1.0	100.00
66A		100yr_3hr_Chicago	CBMHST-103-S	0.0414	1.5	18.8	0.8	65.20
66B		100yr_3hr_Chicago	CBMHST105-S	0.0914	2.0	42.9	0.9	79.10
67		100yr_3hr_Chicago	CB95	0.2437	4.0	105.4	0.7	52.07
67A		100yr_3hr_Chicago	CB99	0.1464	2.0	67.6	0.9	79.54
67B		100yr_3hr_Chicago	CBMHST101-S	0.1445	1.5	67.8	0.9	84.60
7		100yr_3hr_Chicago	2	0.0165	3.0	8.2	1.0	100.00
8		100yr_3hr_Chicago	2	0.0188	3.0	9.3	1.0	100.00
9		100yr_3hr_Chicago	1	0.0192	3.0	9.5	1.0	100.00
S-10		100yr_3hr_Chicago	MHST-211	0.2975	2.0	145.4	1.0	100.00
S-11		100yr_3hr_Chicago	MHST-213	0.4008	2.0	192.6	1.0	100.00
S11-A		100yr_3hr_Chicago	MH-SA56-2	0.0107	2.0	5.3	1.0	100.00
S11-B		100yr_3hr_Chicago	MH-SA56-2	0.0153	2.0	7.2	0.8	69.20
S-12		100yr_3hr_Chicago	MH-SA51-1	0.0943	2.0	44.6	0.9	74.54
S-3		100yr_3hr_Chicago	MH-SA50	0.3456	2.0	167.7	1.0	99.90
S-4		100yr_3hr_Chicago	MH-SA49	0.2910	2.0	142.3	1.0	99.80
S-5		100yr_3hr_Chicago	MH-SA51-2	0.2908	2.0	126.0	0.8	64.20
S-6		100yr_3hr_Chicago	MH-SA51-1	0.2996	2.0	130.4	0.8	65.30
S-7		100yr_3hr_Chicago	MH-SA56-1	0.2899	2.0	134.4	0.9	77.20
S-8		100yr_3hr_Chicago	MH-SA56-2	0.2768	2.0	128.4	0.9	75.40
S-9		100yr_3hr_Chicago	MH-SA56-3	0.2599	2.0	113.8	0.8	71.40

CONDUITS 1/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
10	CBMHST105	CBMHST103		17.6	72.40	72.13	CIRCULAR	0.38		0.01534	183.0
11	AD06	CB255-S	Major_System	46.6	79.72	77.71	IRREGULAR	0.00	Road-A_spilt	0.04314	6.8
12_1	AD01	CBMHST208-S	major_system	37.5	79.53	78.00	IRREGULAR	0.00	Road-A_spilt	0.04083	50.1
12_2	CBMHST208-S	CB209	major_system	19.8	78.00	77.64	IRREGULAR	0.00	Road-A_spilt	0.01817	61.5
13	CB64	CBMHST66,67	major_system	24.4	74.57	73.54	IRREGULAR	0.00	Road-A_spilt	0.04228	47.7
15	SW_42I	DICB9	swale	2.7	74.96	74.88	TRAPEZOIDAL	1.00		0.02964	71.9
16	MH207	Chamber-204		27.2	73.98	73.88	CIRCULAR	0.38		0.00367	124.2
17	D-Chamber-204	MHST-141		21.1	73.03	72.98	CIRCULAR	0.30		0.00237	64.9
19	DICB9	CBMHST-103-S	major_system	21.2	74.88	74.60	TRAPEZOIDAL	0.50		0.01319	0.0
2	MHST-105-S	Wales-OLF-N03	Major_System	17.0	68.69	68.20	IRREGULAR	0.00	Road-B	0.02884	24.8
21	MHST-157-S	CB65	Major_System	36.2	74.22	73.54	IRREGULAR	0.00	Road-D	0.01881	0.0
22	CUP-SS1	30		5.8	73.50	73.39	CIRCULAR	0.37		0.01887	67.9
23	CBMHST-103-S	ST-60-S-B	swale	22.5	74.60	74.11	TRAPEZOIDAL	0.50		0.02180	76.0
25	CB91	CB94	major_system	25.2	75.10	75.02	RECT_OPEN	0.15		0.00317	81.6
27	TD07_2	MH150		20.0	67.40	67.20	CIRCULAR	0.20		0.01001	5.2
27_1	TD02_03	MH150		38.0	67.42	66.97	CIRCULAR	0.20		0.01178	22.6
27_2	MH150	MHST-221		32.7	66.97	66.62	CIRCULAR	0.20		0.01078	47.7
28	MHST-221	PS		26.8	66.63	66.42	CIRCULAR	0.30		0.00765	114.5
3	Preston	Preston_Street		10.0	61.03	60.90	CIRCULAR	0.30		0.01300	104.9
30	TD_B	MHST-221		18.1	67.88	67.60	CIRCULAR	0.30		0.01526	67.0
32	CB255-S	CB26	Major_System	28.5	77.71	75.96	IRREGULAR	0.00	Road-A_spilt	0.06143	15.2
33	TD06_2	MH150		22.5	67.40	67.00	CIRCULAR	0.20		0.01776	22.8
34	CB26	CB64	Major_System	22.6	75.96	74.57	IRREGULAR	0.00	Road-A_spilt	0.06184	48.0
35	TD05_1	TD05_2	TrenchDrain	5.6	74.50	74.40	RECT_OPEN	0.25		0.01788	15.1
36	TD01_3	MHST-213		6.9	68.60	68.57	CIRCULAR	0.20		0.00434	6.0
38	TD04_02	MH-SA56-2		19.4	74.00	73.24	CIRCULAR	0.25		0.03921	11.3
39	TD05_2	MH-SA56-1		20.2	74.00	73.24	CIRCULAR	0.20		0.03759	15.1
4	OGS-3	MHST62528		10.0	67.62	67.60	CIRCULAR	1.20		0.00200	2064.5
40	51	CB72_89	major_system	24.5	70.11	69.49	IRREGULAR	0.00	Road-L	0.02534	0.0
41	CB209	MHST-120-S	Major_System	34.7	77.64	74.46	IRREGULAR	0.00	Road-A_spilt	0.09199	66.4
42	CB130	51	major_system	1.0	70.11	70.10	IRREGULAR	0.00	Road-L	0.01000	0.0
43	CB72_89	54	major_system	15.8	69.49	68.92	IRREGULAR	0.00	Road-L	0.03613	9.7
49	Chamber202-S	45		5.2	70.84	70.80	CIRCULAR	0.45		0.00765	111.2
49_1	MHST-144	45		55.0	69.68	69.56	CIRCULAR	1.35		0.00213	1712.3
49_2	45	56		17.2	69.56	69.53	CIRCULAR	1.35		0.00215	1804.8
5	MHST62528	MHST62545		91.8	67.56	66.71	CIRCULAR	1.20		0.00929	2053.7
50	DICB8	51	major_system	1.0	70.11	70.10	RECT_OPEN	0.30		0.01000	0.0
54	CB114	74	major_system	9.3	74.92	75.07	IRREGULAR	0.00	Road-D_W	-0.01554	4.8
6	MHST62545	MHST62547		129.6	66.69	64.45	CIRCULAR	1.20		0.01726	2052.2
64	CB99	CBMHST101-S	major_system	32.2	76.90	76.52	RECT_OPEN	0.15		0.01181	34.3
65C_SW	34	DICB11	swale	194.0	82.41	75.45	TRAPEZOIDAL	0.30		0.03590	42.6
66	CBMHST101-S	CBMHST105-S	major_system	48.6	76.50	74.70	RECT_OPEN	0.15		0.03706	44.5
67	CBMHST105-S	CBMHST-103-S	major_system	18.9	74.82	74.60	RECT_OPEN	0.70		0.01162	84.2
68	CB87	CB91	major_system	27.5	75.50	75.10	RECT_OPEN	0.15		0.01452	52.5
7	MHST62547	Dows-Lake		171.0	64.17	63.75	CIRCULAR	1.20		0.00249	2047.2
70	MHST-126	MHST-150		23.5	74.17	71.67	CIRCULAR	450.00		0.10691	1315.6
71	S-26B	54	major_system	24.8	69.52	68.92	RECT_OPEN	0.30		0.02425	0.0
8	POW_D1	OGS-3		180.0	78.70	69.70	TRAPEZOIDAL	0.55		0.05006	527.7
8_1	CHAMBER-103	D-MHST-155		3.1	74.08	74.06	CIRCULAR	0.90		0.00645	1225.6
8_1-S	CHAMBER-103	MHST-155	Major_System	14.7	79.00	78.70	RECT_OPEN	0.30		0.02037	0.0
9	CBMHST103	CHAMBER-102		2.6	72.10	72.07	CIRCULAR	0.38		0.01154	282.6
CA-OLF_2	Carling_OLF1	Carling_OLFN1	Major_System	120.4	66.50	65.41	IRREGULAR	0.00	CarlingAve	0.00907	58.7
CA-OLF_3	Carling_OLFN3	Carling_OLF	Major_System	66.5	64.80	64.60	IRREGULAR	0.00	CarlingAve	0.00301	185.1
CA-OLF_4	Carling_OLFN1	Carling_OLFN3	Major_System	67.1	65.41	64.80	IRREGULAR	0.00	CarlingAve	0.00906	139.1
CA-STM	IN119607	D-MHST-100		86.0	63.10	62.80	CIRCULAR	0.30		0.00349	5.0
CB104-S	CB104	CB59	major_system	20.0	75.37	74.99	IRREGULAR	0.00	Road-D_W	0.01905	28.5

CONDUITS 2/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
CB111_SWA	CB111_SW	CB111	swale	37.3	75.17	75.04	TRAPEZOIDAL	0.30		0.00349	141.8
CB43-S	CB43	CB45	major_system	19.8	81.69	80.69	CIRCULAR	1.00		0.05068	5.1
CB45-S	CB45	CB46	major_system	20.1	80.69	79.69	IRREGULAR	0.00	Road-D_W	0.04970	8.8
CB46-S	CB46	CB48	major_system	20.0	79.69	78.85	IRREGULAR	0.00	Road-D_W	0.04199	10.3
CB48-S	CB48	CB50	major_system	19.9	78.85	77.85	IRREGULAR	0.00	Road-D_W	0.05039	17.6
CB50-S	CB50	CB52	major_system	13.6	77.85	77.14	IRREGULAR	0.00	Road-D_W	0.05223	24.3
CB52-S	CB52	CB54	major_system	13.6	77.14	76.44	IRREGULAR	0.00	Road-D_W	0.05141	27.7
CB54-S	CB54	CB56	major_system	12.5	76.44	75.98	IRREGULAR	0.00	Road-D_W	0.03689	30.5
CB56-S	CB56	CB58	major_system	14.6	75.98	75.64	IRREGULAR	0.00	Road-D_W	0.02331	33.1
CB58-S	CB58	CB104	major_system	14.3	75.64	75.37	IRREGULAR	0.00	Road-D_W	0.01893	39.0
CB59-S	CB59	CB114	major_system	16.0	74.99	74.92	IRREGULAR	0.00	Road-D_W	0.00436	18.6
CUP_SW1	55	77	swale	94.6	82.30	82.15	TRAPEZOIDAL	0.30		0.00159	169.7
CUP_SW2	77	78	swale	8.3	82.15	82.14	TRAPEZOIDAL	0.30		0.00121	145.8
CUP_SW3	78	S-63	swale	106.6	82.14	82.00	TRAPEZOIDAL	0.30		0.00131	126.7
DICB10_SW	S-63	DICB10	swale	104.1	82.00	79.27	TRAPEZOIDAL	1.00		0.02623	54.1
DICB2_SWE1	81DICB2_SWE1S	S-26B	swale	69.0	69.36	68.77	TRAPEZOIDAL	0.50		0.00855	57.4
DICB2_SWE2	DICB2_SWE2S	81DICB2_SWE1S	swale	20.0	69.58	69.36	TRAPEZOIDAL	0.60		0.01099	60.6
DICB2_SWW	DICB2_SWWS	S-26B	Swale	96.0	69.50	68.77	TRAPEZOIDAL	0.50		0.00760	136.4
ST-100_2	D-MHST-100	Nepean-Bay-Trunk		6.0	63.06	63.04	CIRCULAR	0.90		0.00333	238.2
ST-100-S	MHST-100-S	Carling_OLFN3	Major_System	11.0	65.42	64.80	IRREGULAR	0.00	Road-A	0.05645	54.2
ST-101I	MHST-101	MHST-100		27.4	63.12	63.09	CIRCULAR	0.90		0.00109	234.4
ST-101I-S	MHST-101-S	MHST-100-S	Major_System	27.4	66.07	65.42	IRREGULAR	0.00	Road-A	0.02371	54.6
ST-102	CBMHST-101	CBMHST105		47.9	73.63	72.43	CIRCULAR	0.38		0.02505	182.9
ST-102I	MHST-102	MHST-101		27.2	63.15	63.12	CIRCULAR	1.50		0.00110	230.7
ST-102I-S	MHST-102-S	MHST-101-S	Major_System	27.2	66.28	66.07	IRREGULAR	0.00	Road-A	0.00773	26.4
ST-103I	MSHT-103	MHST-102		52.9	63.20	63.15	CIRCULAR	1.50		0.00100	244.4
ST-103I-S	MSHT-103-S	MHST-102-S	Major_System	52.9	66.13	66.28	IRREGULAR	0.00	Road-A	-0.00283	16.0
ST-104	CBMHST-104	CBMHST-101		15.1	74.14	73.84	CIRCULAR	0.38		0.01983	119.6
ST-104_1	BI-SA1	MHST-104		38.3	63.67	63.63	CIRCULAR	1.20		0.00102	222.1
ST-104_3	MHST-105	39		12.0	63.79	63.78	CIRCULAR	1.20		0.00100	98.7
ST-104_4	39	BI-SA1		75.9	63.78	63.70	CIRCULAR	1.20		0.00100	84.2
ST-104I	MHST-104	MSHT-103		32.8	63.53	63.50	CIRCULAR	1.20		0.00101	208.4
ST-105I_1-S_1	BI-SA1-S	54	Major_System	66.9	70.15	68.92	IRREGULAR	0.00	Road-B	0.01841	103.4
ST-105I_1-S_2	54	MHST-105-S	major_system	15.2	68.92	68.64	IRREGULAR	0.00	Road-B	0.01839	109.2
ST-105I_2-S	MHST-104-S	BI-SA1-S	Major_System	37.7	70.80	70.15	IRREGULAR	0.00	Road-B	0.01723	35.9
ST-106I	MHST-106	MSHT-103		44.7	63.23	63.20	CIRCULAR	1.50		0.00067	48.2
ST-106I-S	MHST-106-S	MSHT-103-S	Major_System	29.6	71.87	66.13	IRREGULAR	0.00	Road-A	0.19783	121.2
ST-107	D-MHST-170	MHST-158		13.3	71.93	71.80	CIRCULAR	0.30		0.00977	107.7
ST-120-S_1	MHST-120-S	CBMHST66,67	Major_System	14.7	74.46	73.54	IRREGULAR	0.00	Road-A_spilt	0.06272	120.2
ST-120-S_2	CB68,40	MHST-106-S	Major_System	14.9	72.63	71.87	IRREGULAR	0.00	Road-A_spilt	0.05108	93.3
ST-120-S_3	CBMHST66,67	CB68,40	Major_System	15.3	73.54	72.63	IRREGULAR	0.00	Road-A_spilt	0.05963	162.8
ST-130	MHST-130	OGS-3		35.6	67.69	67.62	CIRCULAR	1.00		0.00197	1879.7
ST-131_1	MHST-212	13		25.4	67.95	67.93	CIRCULAR	0.83		0.00094	158.1
ST-131_2	13	MHST-130		49.1	67.93	67.88	CIRCULAR	0.83		0.00096	165.6
ST-132	MHST-132	MHST-156		41.9	73.25	72.62	CIRCULAR	0.45		0.01505	234.1
ST-133	Chamber201S	MHST-212		2.9	67.95	67.95	CIRCULAR	0.83		-0.00034	97.7
ST-134	MHST-134	MHST-138		17.5	76.62	76.18	CIRCULAR	0.38		0.02515	40.5
ST-135	MHST-135	MHST-148		28.3	70.62	70.60	CIRCULAR	1.35		0.00071	746.0
ST-136_1	MHST-136	76		17.8	78.65	78.23	CIRCULAR	0.30		0.02336	0.0
ST-136_3	76	21		15.1	78.23	77.88	CIRCULAR	0.30		0.02339	13.2

CONDUITS 3/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-136_4	21	MHST-137		24.9	77.88	77.30	CIRCULAR	0.30		0.02337	25.8
ST-136-S_2	CB90	CB88	Major_System	27.3	80.75	79.79	IRREGULAR	0.00	Road-E_S	0.03515	8.0
ST-136-S_3	MHST-136-S	CB84,85	Major_System	17.9	81.70	81.32	IRREGULAR	0.00	Road-E_C	0.02121	29.0
ST-136-S_4	CB84,85	CB90	Major_System	14.4	81.32	80.75	IRREGULAR	0.00	Road-E_C	0.03949	15.8
ST-137	MHST-137	MHST-134		22.4	77.24	76.68	CIRCULAR	0.38		0.02501	40.5
ST-137-S_1	CB88	CB96	Major_System	38.1	79.79	78.66	IRREGULAR	0.00	Road-E_N	0.02965	6.3
ST-137-S_3	CB96	CB97	Major_System	24.4	78.66	77.90	IRREGULAR	0.00	Road-E_N	0.03115	6.1
ST-137-S_4	CB97	MHST-153-S	Major_System	33.9	77.90	76.52	IRREGULAR	0.00	Road-E_C	0.04070	12.5
ST-138_1	MHST-138	22		15.9	75.17	74.77	CIRCULAR	0.38		0.02499	56.5
ST-138_2	22	MHST-153		23.0	74.77	74.20	CIRCULAR	0.38		0.02494	58.5
ST-141_1	MHST-141	37		11.9	71.42	71.39	CIRCULAR	0.90		0.00253	355.2
ST-141_3	37	30		18.2	71.39	71.34	CIRCULAR	0.90		0.00258	367.1
ST-141_4	30	MHST-160		17.0	71.34	71.30	CIRCULAR	0.90		0.00253	416.9
ST-141-S_1	CB82	CBMH89	Major_System	26.5	77.15	76.26	IRREGULAR	0.00	Road-E_S	0.03363	34.9
ST-141-S_3	CBMH89	CB92	Major_System	33.3	76.26	75.27	IRREGULAR	0.00	Road-E_S	0.02973	44.5
ST-141-S_4	CB92	CB94	Major_System	19.6	75.27	75.02	IRREGULAR	0.00	Road-E_S	0.01277	18.4
ST-142	D-MHST-142	MHST-130		29.3	67.74	67.69	CIRCULAR	1.20		0.00171	1848.9
ST-143	MHST-143	MHST-159		38.2	69.45	69.41	CIRCULAR	1.35		0.00105	1821.3
ST-144B_2	56	MHST-143		21.6	69.53	69.48	CIRCULAR	1.35		0.00213	1821.3
ST-145_1	D-MHST-145	MHST-144		71.4	69.90	69.83	CIRCULAR	1.20		0.00098	1707.0
ST-146_1-S	MHST-146-S	BI-SA49-S	Major_System	5.7	75.38	75.35	IRREGULAR	0.00	Road-D_W	0.00509	66.7
ST-146_2-S_1	BI-SA49-S	74	Major_System	36.1	75.35	75.07	IRREGULAR	0.00	Road-D_W	0.00793	9.6
ST-146_2-S_2	74	MHST-157-S	Major_System	55.0	75.07	74.63	IRREGULAR	0.00	Road-D	0.00791	4.0
ST-146_3	D-MHST-146_1	73		12.1	70.17	70.15	CIRCULAR	1.50		0.00141	2044.1
ST-146_4	73	MHST-200		17.9	70.15	70.13	CIRCULAR	1.50		0.00129	2056.7
ST-147_1	MHST-147	50		6.0	70.25	70.24	CIRCULAR	1.50		0.00117	1908.6
ST-147_2	71	72		14.2	70.23	70.21	CIRCULAR	1.50		0.00127	1900.3
ST-147_3	50	71		14.6	70.24	70.23	CIRCULAR	1.50		0.00123	1905.5
ST-147_5	72	MHST-146		6.0	70.21	70.20	CIRCULAR	1.50		0.00117	1911.7
ST-147-S	CBMH57	MHST-146-S	Major_System	44.0	76.01	75.38	IRREGULAR	0.00	Road-D_W	0.01431	86.5
ST-148_1	MHST-148	64		7.2	70.45	70.44	CIRCULAR	1.50		0.00196	1839.7
ST-148_10	49	MHST-147		12.7	70.31	70.28	CIRCULAR	1.50		0.00197	1806.8
ST-148_2	65	66		5.0	70.40	70.39	CIRCULAR	1.50		0.00199	1826.4
ST-148_3	64	65		20.1	70.44	70.40	CIRCULAR	1.50		0.00199	1839.6
ST-148_4	66	68		9.9	70.39	70.37	CIRCULAR	1.50		0.00193	1821.9
ST-148_5	68	69		5.0	70.37	70.36	CIRCULAR	1.50		0.00200	1816.9
ST-148_6	69	70		5.1	70.36	70.35	CIRCULAR	1.50		0.00197	1813.6
ST-148_7	70	48		9.2	70.35	70.33	CIRCULAR	1.50		0.00195	1808.8
ST-148_8	48	49		12.2	70.33	70.31	CIRCULAR	1.50		0.00197	1805.5
ST-148-S_1	CB44	CB47	Major_System	39.1	80.37	78.63	IRREGULAR	0.00	Road-D_W	0.04460	4.4
ST-148-S_2	CB49	CB51	Major_System	10.0	78.19	77.75	IRREGULAR	0.00	Road-D_W	0.04364	10.9
ST-148-S_3	CB47	CB49	Major_System	10.0	78.63	78.19	IRREGULAR	0.00	Road-D_W	0.04362	11.7
ST-148-S_4	CB51	CB53	Major_System	9.8	77.75	77.08	IRREGULAR	0.00	Road-D_W	0.06865	11.5
ST-148-S_5	CB53	CB55	Major_System	10.0	77.08	76.58	IRREGULAR	0.00	Road-D_W	0.05025	12.0
ST-148-S_7	CB55	CBMH57	Major_System	17.0	76.58	76.01	IRREGULAR	0.00	Road-D_W	0.03354	10.7
ST-149_1	MHST-149	36		19.8	70.69	70.67	CIRCULAR	1.35		0.00116	736.8
ST-149_2	36	MHST-135		14.2	70.67	70.65	CIRCULAR	1.35		0.00120	733.6
ST-149-S_1	CB75	CB77	Major_System	8.7	79.25	78.83	IRREGULAR	0.00	Road-E_C	0.04854	8.4
ST-149-S_2	MHST-135-S	CB71	Major_System	12.7	79.98	79.68	IRREGULAR	0.00	Road-E_C	0.02357	5.1
ST-149-S_4	CB69	MHST-149-S	Major_System	15.0	78.72	77.93	IRREGULAR	0.00	Road-E_NW	0.05292	13.0

CONDUITS 4/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-149-S_5	CB71	CB75	Major_System	12.9	79.68	79.25	IRREGULAR	0.00	Road-E_C	0.03342	4.6
ST-149-S_6	CB77	CB69	Major_System	6.3	78.83	78.72	IRREGULAR	0.00	Road-E_C	0.01747	12.1
ST-150	MHST-150	MHST-149		18.1	70.76	70.72	CIRCULAR	1.35		0.00220	747.1
ST-150-S_1	MHST-149-S	CB79	Major_System	13.1	77.93	77.57	IRREGULAR	0.00	Road-E_NW	0.02743	19.5
ST-150-S_2	CB79	CB83	Major_System	17.9	77.57	77.24	IRREGULAR	0.00	Road-E_C	0.01848	19.4
ST-151_1	MHST-151	35		13.3	71.23	71.22	CIRCULAR	0.90		0.00068	434.1
ST-151_2	35	MHST-150		17.0	71.22	71.21	CIRCULAR	0.90		0.00065	441.8
ST-151-S	CB83	CB82	Major_System	11.2	77.24	77.15	IRREGULAR	0.00	Road-E_S	0.00801	30.5
ST-153_1	MHST-153	23		38.0	72.86	72.48	CIRCULAR	0.38		0.00994	67.1
ST-153_2	23	26		13.6	72.48	72.35	CIRCULAR	0.38		0.00994	90.7
ST-153_4	26	MHST-158		15.7	72.35	72.19	CIRCULAR	0.38		0.00997	111.7
ST-153-S_1	MHST-153-S	CB106,103	Major_System	26.1	76.52	75.51	IRREGULAR	0.00	Road-E_C	0.03879	16.0
ST-153-S_3	CB106,103	CB105	Major_System	15.4	75.51	75.14	IRREGULAR	0.00	Road-E_N	0.02407	4.3
ST-153-S_4	CB105	DICB9	Major_System	17.3	75.14	74.88	IRREGULAR	0.00	Road-E_N	0.01507	8.5
ST-154	MHST-154	CHAMBER-103		16.0	75.80	75.72	CIRCULAR	0.90		0.00500	2857.2
ST-154A	MHST-154A	MHST-154B		15.5	76.18	76.10	CIRCULAR	0.90		0.00516	2856.4
ST-154B	MHST-154B	MHST-154		35.9	76.04	75.86	CIRCULAR	0.90		0.00501	2856.8
ST-155_1	MHST-155	60		9.7	74.03	73.94	CIRCULAR	0.90		0.00932	1228.6
ST-155_3	60	61		6.5	73.94	73.88	CIRCULAR	0.90		0.00930	1229.6
ST-155_4	61	MHST-148		6.3	73.88	73.82	CIRCULAR	0.90		0.00945	1230.5
ST-156	MHST-156	MHST_156B		16.0	70.13	70.12	CIRCULAR	1.50		0.00062	627.6
ST-156B	MHST_156B	MHST-157		18.787	70.09	70.08	CIRCULAR	1.5		0.00053	606.56
ST-157_1	MHST-157	D-MHST-157B		13.532	70.02	70	CIRCULAR	1.5		0.00148	2147.85
ST-157_2	D-MHST-157B	MHST-145		14.706	69.97	69.96	CIRCULAR	1.5		0.00068	1398.29
ST-157_3	D-MHST-157B	CHAMBER-104B		9.4	69.97	69.91	CIRCULAR	0.9		0.00638	1272.64
ST-158_2	75	MHST-141		5.552	71.581	71.57	CIRCULAR	0.75		0.00198	291.7
ST-158_3	MHST-158	33		21.587	71.74	71.695	CIRCULAR	0.75		0.00208	184.78
ST-158_4	31	75		38.574	71.661	71.581	CIRCULAR	0.75		0.00207	193.06
ST-158_5	32	31		8.439	71.678	71.661	CIRCULAR	0.75		0.00201	190.72
ST-158_6	33	32		8.4	71.70	71.68	CIRCULAR	0.75		0.00203	189.1
ST-158-S	CB94	CB93	Major_System	39.3	75.10	75.17	IRREGULAR	0.00	Road-E_S_Amb	-0.00178	5.5
ST-158-S_2	CB93	CB107	Major_System	8.4	75.17	75.12	IRREGULAR	0.00	Road-E_S_Amb	0.00593	10.1
ST-158-S_4	CB107	CB100	Major_System	8.9	75.12	75.08	IRREGULAR	0.00	Road-E_S_Amb	0.00450	9.2
ST-158-S_6	CB100	MHST-158-S	Major_System	15.6	75.08	74.99	IRREGULAR	0.00	Road-E_S	0.00576	3.5
ST-159	MHST-159	MHST-142		44.6	69.41	69.32	CIRCULAR	1.35		0.00202	1821.3
ST-160	MHST-160	MHST-151		22.3	71.27	71.23	CIRCULAR	0.90		0.00179	428.9
ST-161_2-S_1	D-MHST-161-S	CB42	Major_System	23.3	83.25	81.44	IRREGULAR	0.00	Road-D_W	0.07781	8.8
ST-161_2-S_2	CB42	CB44	Major_System	20.7	81.44	80.37	IRREGULAR	0.00	Road-D_W	0.05168	5.4
ST-162	CBMHST-162	MHST-154A		5.4	76.27	76.24	CIRCULAR	0.90		0.00561	2804.7
ST-200_1	MHST-200	MHST-201		40.7	70.11	70.05	CIRCULAR	1.50		0.00148	1552.2
ST-200_2	MHST-200	CHAMBER-104-A		29.5	70.17	70.13	CIRCULAR	0.90		0.00135	677.9
ST-201	MHST-201	MHST-157		6.5	70.07	70.05	CIRCULAR	1.50		0.00308	1570.7
ST-203	MHST-203	MHST-205		8.6	73.11	73.09	CIRCULAR	0.68		0.00232	195.9
ST-204	MHST-204	MHST-205		12.7	73.11	73.09	CIRCULAR	0.53		0.00158	150.9
ST-205	MHST-205	MHST-206		28.9	72.94	72.91	CIRCULAR	0.68		0.00104	345.5
ST-206	MHST-206	Chamber202		10.3	72.91	72.88	CIRCULAR	0.68		0.00341	472.0
ST-208	MHST-208	MHST-209		19.4	73.41	73.35	CIRCULAR	0.38		0.00309	122.5
ST-209	MHST-209	MHST-206		28.6	73.32	73.21	CIRCULAR	0.38		0.00385	126.7
ST-211	MHST-211	Chamber201		57.4	68.31	68.24	CIRCULAR	0.53		0.00122	141.5
ST-214	MHST-214	MHST-215		38.3	68.23	68.27	CIRCULAR	0.75		-0.00104	194.7

CONDUITS 5/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-215	MHST-215	Chamber201		1.7	68.27	68.27	CIRCULAR	0.75		0.00000	194.3
ST-225	CB255	Chamber202		29.0	73.46	73.17	CIRCULAR	0.20		0.00997	3.7
ST-301	MHST301	MHST-158		8.8	72.60	72.42	CIRCULAR	0.20		0.01989	0.0
ST-42I	MHST-158-S	DICB9	major_system	6.0	74.99	74.88	IRREGULAR	0.00	Road-E_S	0.01834	3.5
ST-60-S_2	ST-60-S-B	ST-60-S-C	swale	37.6	74.11	73.25	TRAPEZOIDAL	1.00		0.02280	153.1
ST-60-S_3	ST-60-S-C	DICB8	swale	125.0	73.25	69.82	TRAPEZOIDAL	1.00		0.02748	265.7
ST-62534	MHST-62534	CBMHST-162		7.2	76.90	76.27	CIRCULAR	0.90		0.08833	2803.6
ST-62538_1	MHST-161	59		3.0	78.96	78.90	CIRCULAR	0.53		0.01959	0.0
ST-62538_3	59	38		5.2	78.90	78.80	CIRCULAR	0.53		0.01939	14.2
ST-62538_4	38	MHST-155		5.3	78.80	78.70	CIRCULAR	0.53		0.01943	17.6
St-C104	CHAMBER-104-A	MHST-201		13.1	70.13	70.07	CIRCULAR	0.90		0.00458	327.1
ST-C203	D-Chamber-203	MHST-146		15.9	71.42	71.38	CIRCULAR	0.30		0.00251	93.1
ST-CB6-S	SW_65D	DICB6	swale	104.0	77.94	76.09	TRAPEZOIDAL	0.50		0.01779	11.8
ST-G107	MHST-107	OGS1		52.5	62.03	61.24	CIRCULAR	0.30		0.01505	29.5
ST-OGS1_2	OGS1	Preston		10.0	61.21	61.06	CIRCULAR	0.30		0.01500	75.1
ST-P3	DICB3	IN119608		71.1	64.23	63.80	CIRCULAR	0.20		0.00605	0.0
ST-P46	IN119608	IN119607		30.0	63.50	63.20	CIRCULAR	0.20		0.01000	0.0
ST-SA1	MH-SA1	BI-SA1		24.7	69.45	69.08	CIRCULAR	0.30		0.01501	60.2
ST-SA49	MH-SA49	Chamber-203		17.9	74.02	73.80	CIRCULAR	0.38		0.01228	142.0
ST-SA50	MH-SA50	Chamber-203		13.2	74.07	73.67	CIRCULAR	0.38		0.03032	167.6
ST-SA51-1	MH-SA51-1	Chamber-204		14.7	73.91	73.76	CIRCULAR	0.45		0.01021	175.0
ST-SA51-2	MH-SA51-2	MH207		13.2	74.11	73.98	CIRCULAR	0.38		0.00982	125.9
ST-SA52_1	MHST-213	MHST-214		51.4	68.54	68.45	CIRCULAR	0.53		0.00175	194.4
ST-SA56-1	MH-SA56-1	MHST-203		5.0	73.24	73.19	CIRCULAR	0.53		0.00994	196.5
ST-SA56-2	MH-SA56-2	MHST-204		4.9	73.24	73.19	CIRCULAR	0.45		0.01028	151.6
ST-SA56-3	MH-SA56-3	MHST-208		8.9	73.80	73.44	CIRCULAR	0.38		0.04046	113.8
ST-UGS6B	CHAMBER-102	MHST-170		16.6	72.03	71.96	CIRCULAR	0.38		0.00421	107.7
ST-UGS-Z1	CHAMBER-104B	MHST-145		8.4	69.91	69.90	CIRCULAR	0.90		0.00119	339.0
ST-xx	MH-SAxx	MHST-107		10.7	62.45	62.15	CIRCULAR	0.20		0.02805	7.0
TD01	TD01_1	TD01_3	TrenchDrain	7.9	70.21	70.10	PARABOLIC	0.15		0.01393	6.0
TD02	TD02_01	TD02_03	TrenchDrain	21.8	68.90	68.75	RECT_OPEN	0.35		0.00689	25.9
TD03	TD03_1	TD_B	TrenchDrain	36.4	68.80	68.65	RECT_OPEN	0.35		0.00412	67.0
TD04	TD04_01	TD04_02	TrenchDrain	5.6	74.62	74.57	PARABOLIC	0.13		0.00891	11.3
TD06	TD06_1	TD06_2	TrenchDrain	17.3	69.15	69.04	RECT_OPEN	0.35		0.00634	25.6
TD07	TD07_1	TD07_2	TrenchDrain	12.2	69.10	69.04	RECT_OPEN	0.35		0.00491	3.5
TDS	TDS_1	TDS_2	TrenchDrain	2.5	76.43	76.40	PARABOLIC	0.15		0.01188	15.5
TDS_O	TDS_2	MHST-144		28.5	70.50	69.68	CIRCULAR	0.20		0.02882	15.5
TDW	TDW_1	TDW_2	TrenchDrain	2.5	76.49	76.47	PARABOLIC	0.15		0.00800	8.0
TDW_O	TDW_2	MHST-144		17.8	70.50	69.68	CIRCULAR	0.20		0.04623	8.0
UP-CB43-S	UP-CB43	CB43	major_system	36.8	83.46	81.69	IRREGULAR	0.00	Road-D_W	0.04815	19.4
WD-OLF_3	Wales-OLF-N03	Wales-OLF-N04	Major_System	81.2	68.20	66.75	IRREGULAR	0.00	P_Wales_Dr	0.01786	24.7
WD-OLF_4	Wales-OLF-N04	Wales-OLF-N05	Major_System	95.0	66.75	65.50	IRREGULAR	0.00	P_Wales_Dr	0.01316	23.8

Junctions 1/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
13		NO	67.93	70.22	2.29	0.91	68.84	10/04/2022 01:40 AM
21		NO	77.88	80.84	2.96	0.08	77.97	10/04/2022 01:10 AM
22		NO	74.77	77.92	3.15	0.12	74.89	10/04/2022 01:10 AM
23		NO	72.48	75.76	3.28	0.20	72.68	10/04/2022 01:11 AM
26		NO	72.35	75.31	2.97	0.22	72.56	10/04/2022 01:11 AM
30		NO	71.34	76.21	4.86	0.83	72.17	10/04/2022 01:35 AM
31		NO	71.66	74.97	3.31	0.52	72.18	10/04/2022 01:36 AM
32		NO	71.68	74.93	3.26	0.50	72.18	10/04/2022 01:35 AM
33		NO	71.70	74.90	3.20	0.49	72.18	10/04/2022 01:35 AM
34		NO	82.41	82.56	0.15	0.07	82.48	10/04/2022 01:21 AM
35		NO	71.22	77.20	5.98	0.94	72.17	10/04/2022 01:36 AM
36		NO	70.67	78.89	8.22	1.49	72.16	10/04/2022 01:36 AM
37		NO	71.39	75.58	4.19	0.78	72.17	10/04/2022 01:36 AM
38		NO	78.80	81.48	2.68	0.06	78.86	10/04/2022 01:10 AM
39		NO	63.78	69.31	5.54	0.82	64.59	10/04/2022 01:29 AM
45		NO	69.56	74.33	4.76	1.67	71.23	10/04/2022 01:39 AM
48		NO	70.33	77.13	6.80	1.80	72.13	10/04/2022 01:36 AM
49		NO	70.31	76.54	6.23	1.82	72.13	10/04/2022 01:36 AM
50		NO	70.24	75.84	5.60	1.88	72.12	10/04/2022 01:37 AM
51		NO	70.10	70.31	0.21	0.00	70.10	10/04/2022 00:00 AM
54		NO	68.92	69.07	0.15	0.07	68.99	10/04/2022 01:11 AM
55		NO	82.30	82.60	0.30	0.25	82.55	10/04/2022 01:11 AM
56		NO	69.53	74.02	4.49	1.69	71.21	10/04/2022 01:40 AM
59		NO	78.90	81.73	2.83	0.06	78.96	10/04/2022 01:10 AM
60		NO	73.94	80.75	6.81	0.56	74.50	10/04/2022 01:25 AM
61		NO	73.88	80.44	6.56	0.55	74.43	10/04/2022 01:25 AM
64		NO	70.44	79.78	9.35	1.72	72.16	10/04/2022 01:36 AM
65		NO	70.40	78.80	8.40	1.75	72.15	10/04/2022 01:36 AM
66		NO	70.39	78.55	8.17	1.76	72.15	10/04/2022 01:36 AM
68		NO	70.37	78.07	7.71	1.77	72.14	10/04/2022 01:36 AM
69		NO	70.36	77.83	7.47	1.78	72.14	10/04/2022 01:36 AM
70		NO	70.35	77.58	7.24	1.79	72.14	10/04/2022 01:36 AM
71		NO	70.23	75.65	5.43	1.89	72.11	10/04/2022 01:37 AM
72		NO	70.21	75.47	5.26	1.90	72.11	10/04/2022 01:37 AM
73		NO	70.15	75.14	4.99	1.84	71.99	10/04/2022 01:39 AM
74		NO	75.07	75.07	0.00	0.02	75.08	10/04/2022 01:12 AM
75		NO	71.58	75.15	3.56	0.60	72.18	10/04/2022 01:36 AM
76		NO	78.23	81.34	3.11	0.06	78.29	10/04/2022 01:10 AM
77		NO	82.15	82.45	0.30	0.26	82.41	10/04/2022 01:19 AM
78		NO	82.14	82.45	0.31	0.26	82.40	10/04/2022 01:19 AM
81DICB2_SWE1S		NO	69.36	70.00	0.64	0.09	69.45	10/04/2022 01:36 AM
AD01		NO	79.51	79.70	0.19	0.05	79.56	10/04/2022 01:10 AM
AD02		NO	79.67	79.73	0.06	0.00	79.67	10/04/2022 00:10 AM
AD03		NO	79.82	79.85	0.03	0.00	79.82	10/04/2022 00:10 AM
AD04		NO	79.80	79.85	0.05	0.00	79.80	10/04/2022 00:10 AM
AD05		NO	79.70	79.80	0.10	0.00	79.70	10/04/2022 00:10 AM
AD06		NO	79.67	79.85	0.18	0.06	79.73	10/04/2022 01:10 AM
AD07		NO	74.25	74.30	0.05	0.00	74.25	10/04/2022 00:10 AM
AD08		NO	74.25	74.35	0.10	0.00	74.25	10/04/2022 00:10 AM
AD09		NO	74.25	74.29	0.04	0.00	74.25	10/04/2022 00:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
BI-SA1		NO	63.50	70.48	6.98	1.09	64.59	10/04/2022 01:29 AM
BI-SA1-S	Major_System	NO	70.15	70.30	0.15	0.07	70.22	10/04/2022 01:10 AM
BI-SA49-S	Major_System	NO	75.35	75.51	0.16	0.03	75.38	10/04/2022 01:10 AM
Carling_OLF1		NO	66.50	66.70	0.20	0.07	66.57	10/04/2022 01:11 AM
Carling_OLFN1		NO	65.41	65.61	0.20	0.10	65.51	10/04/2022 01:11 AM
Carling_OLFN3		NO	64.80	65.00	0.20	0.14	64.94	10/04/2022 01:13 AM
CB100		NO	75.08	75.23	0.15	0.02	75.10	10/04/2022 01:10 AM
CB104		NO	75.37	75.52	0.15	0.04	75.41	10/04/2022 01:10 AM
CB105		NO	75.14	75.29	0.15	0.04	75.18	10/04/2022 01:10 AM
CB106,103		NO	75.51	75.66	0.15	0.03	75.54	10/04/2022 01:10 AM
CB107		NO	75.12	75.27	0.15	0.02	75.14	10/04/2022 01:10 AM
CB108		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB109		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB111		NO	75.04	75.40	0.36	0.17	75.21	10/04/2022 01:11 AM
CB111_SW		NO	75.17	75.45	0.28	0.19	75.36	10/04/2022 01:10 AM
CB113		NO	69.58	69.78	0.20	0.00	69.58	10/04/2022 00:10 AM
CB114		NO	74.92	75.07	0.15	0.05	74.97	10/04/2022 01:11 AM
CB209		NO	77.64	77.79	0.15	0.03	77.67	10/04/2022 01:10 AM
CB255		NO	73.46	77.72	4.26	0.05	73.50	10/04/2022 01:10 AM
CB255-S		NO	77.71	77.86	0.15	0.02	77.73	10/04/2022 01:10 AM
CB26		NO	75.96	76.11	0.15	0.02	75.99	10/04/2022 01:10 AM
CB42		NO	81.44	81.59	0.15	0.02	81.46	10/04/2022 01:10 AM
CB43		NO	81.69	81.84	0.15	0.03	81.72	10/04/2022 01:10 AM
CB44	Major_System	NO	80.37	80.52	0.15	0.01	80.38	10/04/2022 01:10 AM
CB45		NO	80.69	80.84	0.15	0.02	80.71	10/04/2022 01:10 AM
CB46		NO	79.69	79.84	0.15	0.02	79.71	10/04/2022 01:10 AM
CB47		NO	78.63	78.80	0.18	0.02	78.65	10/04/2022 01:10 AM
CB48		NO	78.85	79.00	0.15	0.02	78.87	10/04/2022 01:10 AM
CB49		NO	78.19	78.37	0.18	0.02	78.21	10/04/2022 01:10 AM
CB50		NO	77.85	78.00	0.15	0.03	77.88	10/04/2022 01:10 AM
CB51		NO	77.75	77.94	0.18	0.02	77.77	10/04/2022 01:10 AM
CB52		NO	77.14	77.29	0.15	0.03	77.17	10/04/2022 01:10 AM
CB53		NO	77.08	77.23	0.15	0.02	77.10	10/04/2022 01:10 AM
CB54		NO	76.44	76.59	0.15	0.03	76.47	10/04/2022 01:10 AM
CB55		NO	76.58	76.73	0.15	0.02	76.60	10/04/2022 01:10 AM
CB56		NO	75.98	76.13	0.15	0.04	76.02	10/04/2022 01:10 AM
CB58		NO	75.64	75.79	0.15	0.04	75.68	10/04/2022 01:10 AM
CB59		NO	74.99	75.14	0.15	0.04	75.03	10/04/2022 01:10 AM
CB60		NO	75.39	75.55	0.16	0.00	75.39	10/04/2022 00:10 AM
CB64		NO	74.57	74.72	0.15	0.03	74.60	10/04/2022 01:10 AM
CB68,40		NO	72.63	72.79	0.16	0.03	72.66	10/04/2022 01:10 AM
CB69		NO	78.72	78.87	0.15	0.02	78.74	10/04/2022 01:10 AM
CB71		NO	79.68	79.83	0.15	0.01	79.69	10/04/2022 01:10 AM
CB72_89		NO	69.49	69.64	0.15	0.02	69.51	10/04/2022 01:10 AM
CB75		NO	79.25	79.40	0.15	0.02	79.27	10/04/2022 01:10 AM
CB77		NO	78.83	78.98	0.15	0.02	78.85	10/04/2022 01:10 AM
CB79		NO	77.57	77.72	0.15	0.03	77.60	10/04/2022 01:10 AM
CB82	Major_System	NO	77.15	77.30	0.15	0.04	77.19	10/04/2022 01:10 AM
CB83	Major_System	NO	77.24	77.39	0.15	0.05	77.29	10/04/2022 01:10 AM
CB84,85		NO	81.32	81.47	0.15	0.02	81.34	10/04/2022 01:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
CB87		NO	75.50	75.65	0.15	0.01	75.51	10/04/2022 01:10 AM
CB88		NO	79.79	80.09	0.30	0.03	79.82	10/04/2022 01:10 AM
CB90		NO	80.75	80.90	0.15	0.02	80.77	10/04/2022 01:10 AM
CB92		NO	75.27	75.42	0.15	0.04	75.31	10/04/2022 01:11 AM
CB93		NO	75.17	75.32	0.15	0.02	75.19	10/04/2022 01:09 AM
CB96		NO	78.66	78.81	0.15	0.03	78.69	10/04/2022 01:10 AM
CB97		NO	77.90	78.05	0.15	0.02	77.92	10/04/2022 01:10 AM
CBMH57	Major_System	NO	76.01	76.16	0.15	0.06	76.07	10/04/2022 01:10 AM
CBMH89		NO	76.26	76.41	0.15	0.05	76.31	10/04/2022 01:10 AM
CBMHST-101		NO	73.63	76.41	2.78	0.23	73.86	10/04/2022 01:14 AM
CBMHST103		NO	72.10	74.28	2.18	1.08	73.18	10/04/2022 01:23 AM
CBMHST-103-S		NO	74.60	74.75	0.15	0.07	74.67	10/04/2022 01:11 AM
CBMHST-104		NO	74.14	76.59	2.45	0.18	74.32	10/04/2022 01:11 AM
CBMHST105		NO	72.40	74.73	2.33	1.19	73.59	10/04/2022 01:10 AM
CBMHST105-S		NO	74.82	74.97	0.15	0.02	74.84	10/04/2022 01:10 AM
CBMHST-162		NO	76.10	82.72	6.62	2.37	78.47	10/04/2022 01:10 AM
CBMHST208-S		NO	78.00	78.20	0.20	0.04	78.04	10/04/2022 01:10 AM
CBMHST66,67		NO	73.54	73.70	0.16	0.04	73.58	10/04/2022 01:10 AM
Chamber201S		NO	67.95	68.95	1.00	0.77	68.72	10/04/2022 01:38 AM
Chamber202-S		NO	70.84	73.59	2.75	0.39	71.23	10/04/2022 01:39 AM
CUP-SS1		NO	73.50	74.00	0.50	0.14	73.64	10/04/2022 01:10 AM
D-Chamber-203		NO	71.42	75.05	3.63	0.74	72.16	10/04/2022 01:36 AM
D-Chamber-204		NO	73.03	74.63	1.60	0.27	73.30	10/04/2022 01:26 AM
DICB10		NO	79.27	79.50	0.23	0.11	79.38	10/04/2022 01:21 AM
DICB11		NO	75.45	75.60	0.15	0.07	75.52	10/04/2022 01:24 AM
DICB2_SWE2S		NO	69.58	69.75	0.17	0.08	69.66	10/04/2022 01:10 AM
DICB2_SWWS		NO	69.50	70.00	0.50	0.14	69.64	10/04/2022 01:10 AM
DICB3		NO	64.00	66.43	2.43	0.00	64.00	10/04/2022 00:00 AM
DICB6		NO	74.70	76.59	1.89	0.02	74.72	10/04/2022 01:20 AM
D-MHST-100		NO	62.60	65.42	2.82	0.74	63.34	10/04/2022 01:27 AM
D-MHST-142		NO	67.80	72.58	4.78	0.95	68.75	10/04/2022 01:40 AM
D-MHST-145		NO	69.90	74.34	4.44	1.52	71.42	10/04/2022 01:39 AM
D-MHST-146_1		NO	70.17	75.39	5.22	1.83	72.00	10/04/2022 01:39 AM
D-MHST-155		NO	74.03	81.22	7.19	2.11	76.14	10/04/2022 01:25 AM
D-MHST-157B		NO	69.97	74.44	4.47	1.99	71.96	10/04/2022 01:40 AM
D-MHST-161-S	Major_System	NO	83.25	83.40	0.15	0.02	83.27	10/04/2022 01:10 AM
D-MHST-170		NO	71.93	74.51	2.58	0.34	72.27	10/04/2022 01:34 AM
IN119607		NO	63.00	65.62	2.62	0.34	63.34	10/04/2022 01:29 AM
IN119608		NO	63.50	66.14	2.64	0.00	63.50	10/04/2022 00:00 AM
MH150		NO	66.97	69.72	2.75	0.85	67.83	10/04/2022 01:09 AM
MH207		NO	73.95	75.43	1.48	0.35	74.30	10/04/2022 01:10 AM
MH-SA1		NO	69.45	70.55	1.10	0.15	69.60	10/04/2022 00:55 AM
MH-SA49		NO	73.97	75.45	1.48	0.29	74.26	10/04/2022 01:10 AM
MH-SA50		NO	74.07	75.83	1.76	0.20	74.27	10/04/2022 01:10 AM
MH-SA51-1		NO	74.08	76.53	2.45	0.20	74.28	10/04/2022 01:10 AM
MH-SA51-2		NO	74.84	76.50	1.66	0.14	74.98	10/04/2022 01:10 AM
MH-SA56-1		NO	73.24	74.54	1.30	0.26	73.50	10/04/2022 01:10 AM
MH-SA56-2		NO	73.24	74.54	1.30	0.26	73.50	10/04/2022 01:10 AM
MH-SA56-3		NO	73.80	75.80	2.00	0.15	73.95	10/04/2022 01:10 AM
MH-SAxx		NO	62.00	64.50	2.50	0.50	62.50	10/04/2022 00:18 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST_156B		NO	70.09	74.24	4.15	1.88	71.97	10/04/2022 01:40 AM
MHST-100		NO	62.60	65.42	2.82	1.99	64.59	10/04/2022 01:27 AM
MHST-100-S	Major_System	NO	65.42	65.72	0.30	0.03	65.45	10/04/2022 01:10 AM
MHST-101		NO	63.00	66.07	3.07	1.59	64.59	10/04/2022 01:27 AM
MHST-101-S	Major_System	NO	66.07	66.23	0.16	0.04	66.11	10/04/2022 01:10 AM
MHST-102		NO	63.00	66.28	3.28	1.59	64.59	10/04/2022 01:27 AM
MHST-102-S	Major_System	NO	66.28	66.44	0.16	0.04	66.32	10/04/2022 01:10 AM
MHST-104		NO	63.30	70.80	7.50	1.29	64.59	10/04/2022 01:27 AM
MHST-104-S	Major_System	NO	70.80	70.95	0.15	0.05	70.85	10/04/2022 01:10 AM
MHST-105		NO	63.60	69.13	5.53	0.99	64.59	10/04/2022 01:29 AM
MHST-105-S	Major_System	NO	68.64	68.79	0.15	0.09	68.73	10/04/2022 01:11 AM
MHST-106		NO	63.00	71.87	8.87	1.59	64.59	10/04/2022 01:28 AM
MHST-106-S	Major_System	NO	71.87	72.03	0.16	0.04	71.91	10/04/2022 01:11 AM
MHST-107		NO	62.00	64.32	2.32	0.13	62.13	10/04/2022 01:10 AM
MHST-120-S	Major_System	NO	74.46	74.62	0.16	0.04	74.50	10/04/2022 01:10 AM
MHST-126		NO	74.23	75.36	1.13	0.04	74.27	10/04/2022 01:17 AM
MHST-130		NO	67.69	70.21	2.52	1.00	68.69	10/04/2022 01:40 AM
MHST-132		NO	73.25	75.96	2.71	0.27	73.52	10/04/2022 01:10 AM
MHST-134		NO	76.62	79.19	2.57	0.10	76.72	10/04/2022 01:10 AM
MHST-135		NO	70.62	79.31	8.69	1.54	72.16	10/04/2022 01:36 AM
MHST-135-S	Major_System	NO	79.98	80.13	0.15	0.02	80.00	10/04/2022 01:10 AM
MHST-136		NO	78.65	81.94	3.29	0.00	78.65	10/04/2022 00:00 AM
MHST-136-S		NO	81.70	82.00	0.30	0.03	81.73	10/04/2022 01:10 AM
MHST-137		NO	77.24	80.00	2.76	0.10	77.34	10/04/2022 01:10 AM
MHST-138		NO	75.17	78.56	3.39	0.11	75.28	10/04/2022 01:10 AM
MHST-141		NO	71.42	75.17	3.75	0.76	72.18	10/04/2022 01:36 AM
MHST-142		NO	67.80	72.58	4.78	3.29	71.09	10/04/2022 01:40 AM
MHST-143		NO	69.45	74.02	4.57	1.74	71.19	10/04/2022 01:39 AM
MHST-144		NO	69.68	75.30	5.62	1.61	71.29	10/04/2022 01:39 AM
MHST-145		NO	69.90	73.97	4.07	2.05	71.95	10/04/2022 01:40 AM
MHST-146		NO	70.17	75.39	5.22	1.93	72.10	10/04/2022 01:37 AM
MHST-146-S	Major_System	NO	75.38	75.58	0.20	0.06	75.44	10/04/2022 01:10 AM
MHST-147		NO	70.25	75.92	5.67	1.87	72.12	10/04/2022 01:37 AM
MHST-148		NO	70.45	80.13	9.68	1.71	72.16	10/04/2022 01:36 AM
MHST-149		NO	70.69	78.30	7.61	1.47	72.16	10/04/2022 01:35 AM
MHST-149-S	Major_System	NO	77.93	78.08	0.15	0.03	77.96	10/04/2022 01:10 AM
MHST-150		NO	70.76	77.32	6.56	1.40	72.16	10/04/2022 01:35 AM
MHST-151		NO	71.23	77.10	5.87	0.94	72.17	10/04/2022 01:36 AM
MHST-153		NO	72.86	77.00	4.14	0.16	73.02	10/04/2022 01:11 AM
MHST-153-S	TGCB102	NO	76.52	76.82	0.30	0.02	76.54	10/04/2022 01:10 AM
MHST-154		NO	75.60	81.92	6.32	1.43	77.03	10/04/2022 01:10 AM
MHST-154A		NO	76.00	82.52	6.52	2.34	78.34	10/04/2022 01:10 AM
MHST-154B		NO	75.90	81.89	5.99	2.05	77.95	10/04/2022 01:10 AM
MHST-155		NO	74.03	81.22	7.19	0.56	74.59	10/04/2022 01:25 AM
MHST-156		NO	70.13	74.49	4.36	1.84	71.97	10/04/2022 01:40 AM
MHST-157		NO	70.02	74.65	4.63	1.95	71.97	10/04/2022 01:40 AM
MHST-158		YES	71.74	74.80	3.06	0.44	72.18	10/04/2022 01:35 AM
MHST-158-S	Major_System	NO	74.99	75.14	0.15	0.02	75.01	10/04/2022 01:10 AM
MHST-159		NO	69.38	74.96	5.58	1.76	71.14	10/04/2022 01:39 AM
MHST-160		NO	71.27	76.79	5.52	0.90	72.17	10/04/2022 01:36 AM
MHST-161		NO	78.96	81.88	2.92	0.00	78.96	10/04/2022 00:00 AM
MHST-170		NO	71.93	74.51	2.58	1.18	73.11	10/04/2022 01:24 AM
MHST-200		NO	70.10	74.81	4.71	1.88	71.98	10/04/2022 01:39 AM
MHST-201		NO	69.96	74.74	4.78	2.01	71.97	10/04/2022 01:39 AM
MHST-203		NO	73.11	78.83	5.72	0.35	73.46	10/04/2022 01:10 AM

Junctions 5/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST-204		NO	73.11	78.79	5.68	0.36	73.47	10/04/2022 01:10 AM
MHST-205		NO	72.94	78.20	5.26	0.51	73.45	10/04/2022 01:10 AM
MHST-206		NO	72.91	75.77	2.86	0.46	73.37	10/04/2022 01:10 AM
MHST-208		NO	73.41	77.80	4.39	0.34	73.75	10/04/2022 01:10 AM
MHST-209		NO	73.35	75.76	2.41	0.30	73.65	10/04/2022 01:10 AM
MHST-211		NO	68.31	70.38	2.07	0.38	68.69	10/04/2022 01:45 AM
MHST-212		NO	67.95	70.22	2.27	0.77	68.72	10/04/2022 01:38 AM
MHST-213		NO	68.54	70.24	1.70	0.39	68.93	10/04/2022 01:10 AM
MHST-214		NO	68.23	70.31	2.08	0.46	68.69	10/04/2022 01:45 AM
MHST-215		NO	68.27	70.25	1.98	0.42	68.69	10/04/2022 01:44 AM
MHST-221		NO	66.62	69.70	3.08	0.43	67.05	10/04/2022 01:12 AM
MHST301		NO	72.60	75.11	2.52	0.00	72.59	10/04/2022 00:00 AM
MHST62528		NO	67.34	70.08	2.74	0.85	68.19	10/04/2022 01:39 AM
MHST-62534		NO	76.90	82.80	5.90	1.75	78.65	10/04/2022 01:10 AM
MHST62545		NO	66.53	69.90	3.37	0.69	67.22	10/04/2022 01:39 AM
MHST62547		NO	64.00	71.80	7.80	1.14	65.14	10/04/2022 01:40 AM
MSHT-103		NO	63.00	66.13	3.13	1.59	64.59	10/04/2022 01:28 AM
MSHT-103-S	Major_System	NO	66.13	66.29	0.16	0.07	66.20	10/04/2022 01:11 AM
OGS1		NO	61.00	63.82	2.82	0.39	61.39	10/04/2022 01:10 AM
OGS-3		NO	67.62	70.34	2.72	0.82	68.44	10/04/2022 01:37 AM
POW_D1		NO	78.70	79.30	0.60	0.18	78.88	10/04/2022 01:11 AM
Preston		NO	61.00	63.00	2.00	0.26	61.26	10/04/2022 01:10 AM
S-26B		NO	67.58	69.60	2.02	1.87	69.45	10/04/2022 01:37 AM
S-63		NO	79.80	84.02	4.22	2.26	82.06	10/04/2022 01:20 AM
ST-60-S-B		NO	74.11	74.41	0.30	0.10	74.21	10/04/2022 01:12 AM
ST-60-S-C		NO	73.25	73.50	0.24	0.13	73.39	10/04/2022 01:12 AM
SW_42I		NO	74.96	75.15	0.19	0.07	75.03	10/04/2022 01:10 AM
SW_65D		NO	77.94	78.44	0.50	0.03	77.97	10/04/2022 01:20 AM
TD_B		NO	67.88	69.06	1.19	0.16	68.04	10/04/2022 01:07 AM
TD01_1		NO	70.21	70.34	0.13	0.09	70.30	10/04/2022 01:10 AM
TD01_3		NO	68.60	70.29	1.69	0.34	68.94	10/04/2022 01:10 AM
TD02_01		NO	68.90	69.10	0.20	0.14	69.04	10/04/2022 01:10 AM
TD02_03		NO	67.42	69.10	1.68	0.50	67.92	10/04/2022 01:12 AM
TD03_1		NO	68.80	69.10	0.30	0.35	69.15	10/04/2022 01:07 AM
TD04_01		NO	74.57	74.72	0.15	0.18	74.75	10/04/2022 01:10 AM
TD04_02		NO	74.00	74.72	0.72	0.05	74.05	10/04/2022 01:10 AM
TD05_1		NO	74.50	74.75	0.25	0.13	74.63	10/04/2022 01:10 AM
TD05_2		NO	74.00	74.72	0.72	0.07	74.07	10/04/2022 01:10 AM
TD06_1		NO	69.15	69.39	0.24	0.14	69.29	10/04/2022 01:10 AM
TD06_2		NO	67.40	69.39	1.99	0.44	67.84	10/04/2022 01:12 AM
TD07_1		NO	69.10	69.39	0.29	0.04	69.14	10/04/2022 01:10 AM
TD07_2		NO	67.40	69.39	1.99	0.34	67.74	10/04/2022 01:12 AM
TDS_1		NO	76.43	76.58	0.15	0.15	76.58	10/04/2022 01:05 AM
TDS_2		NO	70.50	76.58	6.08	0.79	71.29	10/04/2022 01:39 AM
TDW_1		NO	76.49	76.64	0.15	0.11	76.60	10/04/2022 01:10 AM
TDW_2		NO	70.50	76.64	6.14	0.79	71.29	10/04/2022 01:39 AM
UP-CB43		NO	83.46	83.61	0.15	0.03	83.49	10/04/2022 01:10 AM
Wales-OLF-N03		NO	68.20	68.40	0.20	0.05	68.25	10/04/2022 01:11 AM
Wales-OLF-N04		NO	66.75	66.95	0.20	0.05	66.80	10/04/2022 01:13 AM
Wales-OLF-N05		NO	65.50	65.70	0.20	0.06	65.56	10/04/2022 01:17 AM

Storage 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Storage Curve	Curve Name	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Volume (1000 m³)	Max. Percent Full (%)	Contributing Area (ha)
CB130	69.84	70.11	0.27	TABULAR	CB(600x600)	0.01	0.07	69.91	0	24	0.0920
CB65	72.16	73.70	1.54	TABULAR	CB65	0.02	0.04	72.20	0	0	1.1620
CB91	75.00	75.20	0.20	TABULAR	CB91	0.10	0.15	75.15	0.011	50	0.1910
CB94	75.02	75.32	0.30	TABULAR	CB94	0.01	0.13	75.15	0.009	33	0.6180
CB95	75.52	75.82	0.30	TABULAR	CB95-ponding	0.02	0.10	75.62	0.01	12	0.2440
CB99	76.90	76.95	0.05	TABULAR	CB99	0.01	0.04	76.94	0	75	0.1460
CBMHST101-S	76.42	76.57	0.15	TABULAR	CBMH101	0.01	0.09	76.51	0.003	46	0.2910
CHAMBER-102	72.03	74.24	2.21	TABULAR	Chamber102	0.34	1.14	73.17	0.244	52	1.9200
CHAMBER-103	74.08	76.78	2.70	TABULAR	Chamber103	0.32	2.08	76.16	1.64	77	13.86
CHAMBER-104-A	70.13	72.43	2.30	TABULAR	Chamber104A	0.39	1.84	71.97	1.05	80	19.50
CHAMBER-104B	69.91	72.61	2.70	TABULAR	Chamber104B	0.50	2.05	71.96	1.29	76	22.77
Chamber201	67.95	69.19	1.24	TABULAR	Chamber201	0.19	0.74	68.69	0.30	60	1.06
Chamber202	70.84	72.43	1.59	TABULAR	Chamber202	0.20	0.95	71.79	0.37	60	1.69
Chamber-203	71.42	72.90	1.48	TABULAR	Chamber203	0.21	1.08	72.50	0.20	73	0.64
Chamber-204	73.03	74.36	1.33	TABULAR	Chamber204	0.19	0.96	73.99	0.21	72	0.69
DICB8	68.11	70.10	1.99	TABULAR	swale	0.10	1.02	69.13	0.00	1	2.81
DICB9	74.60	74.88	0.28	TABULAR	DICB9	0.03	0.12	74.72	0.00	7	1.13
MHST-157-S	73.80	74.23	0.43	TABULAR	CB98-ponding	0.03	0.23	74.03	0.00	19	1.12
PS	64.92	70.03	5.11	CYLINDRICAL	*	0.74	1.02	65.94	0.00	20	0.31
S-14B	61.65	63.30	1.65	TABULAR	S-14B	0.57	1.65	63.30	0.01	100	0.13
S-15	62.10	63.90	1.80	TABULAR	S-15	0.65	1.74	63.84	0.09	76	0.36
S-19	64.00	66.00	2.00	TABULAR	S-19	0.68	1.64	65.64	0.06	21	0.21
S-21B	63.54	65.70	2.16	TABULAR	S-21B	1.70	1.87	65.41	0.56	44	1.77
S-26D	67.19	69.25	2.06	TABULAR	DICB1	0.40	1.91	69.10	0.01	27	0.0750
S-3Store	62.20	64.24	2.04	TABULAR	S-3	1.90	2.04	64.24	0.081	100	0.3940
SA-1	69.50	72.50	3.00	TABULAR	S-1	0.62	2.26	71.76	0.498	76	1.2350
SA-2	62.60	65.60	3.00	TABULAR	S-2	1.11	1.81	64.41	0.542	60	0.8680

Outlets 1/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
1	DICB6	CBMHST-101	74.70	TABULAR/DEPTH	2CB	NO	11.76	0.12
12	CBMHST208-S	MHST-208	78.00	TABULAR/DEPTH	S28_SL2_5	NO	9.48	0.15
14	CB95	CBMHST-104	75.52	TABULAR/DEPTH	S19_LP	NO	89.79	0.24
18	CB94	75	75.02	TABULAR/DEPTH	2CB	NO	100.00	0.62
20	CB65	MHST-144	72.16	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	18.19	1.16
24	CBMHST-103-S	CBMHST103	74.60	TABULAR/DEPTH	S28_SL4_0.5	NO	20.00	1.55
26	CB91	37	75.14	TABULAR/DEPTH	S19_SL2_5x2	NO	1.45	0.19
31	CB26	Chamber202	75.96	TABULAR/DEPTH	S19_SL2_5x2	NO	23.72	0.35
37	CB113	Chamber201	69.58	TABULAR/DEPTH	CB	NO	0.00	0.14
44	AD05	MH-SA56-1	79.70	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
45	AD03	MH-SA56-2	79.82	TABULAR/HEAD	AreaDrain	NO	0.00	0.03
46	CB72_89	39	69.49	TABULAR/DEPTH	S19_SL2_1	NO	1.56	2.93
47	CBMHST66,67	56	73.54	TABULAR/DEPTH	S28_SL2_5x2	NO	22.45	0.80
48	DICB11	26	75.45	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	41.69	0.43
51	CB46	64	79.69	TABULAR/DEPTH	S19_SL2_5	NO	7.74	0.08
52	CB54	49	76.44	TABULAR/DEPTH	S22_SL2_5	NO	3.38	0.15
53	CB58	71	75.64	TABULAR/DEPTH	S22_SL2_5	NO	6.11	0.19
55	CB71	MHST-135	79.68	TABULAR/DEPTH	S19_SL2_2.5	NO	0.45	0.01
56	CB75	MHST-135	79.25	TABULAR/DEPTH	S22_SL2_2.5	NO	1.30	0.02
57	CB87	MHST-160	75.50	TABULAR/DEPTH	S19_LP	NO	0.61	0.11
58	CB107	32	75.12	TABULAR/DEPTH	S19_SL2_1x2	NO	9.02	0.69
59	CB100	33	75.08	TABULAR/DEPTH	S19_SL2_1x2	NO	13.52	0.70
60	CB84,85	76	81.32	TABULAR/DEPTH	S19_SL2_2.5x2	NO	13.20	0.10
61	CB90	21	80.75	TABULAR/DEPTH	S19_SL2_2.5x2	NO	12.70	0.11
62	CB96	MHST-138	78.66	TABULAR/DEPTH	S19_SL2_2.5	NO	16.45	0.17
63	CB97	22	77.90	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.19
65	CBMHST105-S	CBMHST105	74.82	TABULAR/DEPTH	S28_SL4_0.5	NO	0.25	0.38
69	DICB10	MHST-135	79.27	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	78.25	1.32
AD01_O	AD01	MH-SA56-2	79.67	TABULAR/DEPTH	3CB	NO	0.00	0.10
AD02_O	AD02	MH-SA56-2	79.67	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD04_O	AD04	MH-SA56-1	79.80	TABULAR/DEPTH	AreaDrain	NO	0.00	0.04
AD06_O	AD06	MH-SA56-1	79.65	TABULAR/DEPTH	AreaDrain	NO	47.46	0.11
AD07_O	AD07	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD08_O	AD08	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.09
AD09_O	AD09	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.01
BI-SA1-IC	BI-SA1-S	BI-SA1	70.15	TABULAR/DEPTH	6@R-B@S=1.5%	NO	82.67	0.52
BI-SA49-IC	BI-SA49-S	D-MHST-146_1	75.35	TABULAR/DEPTH	S19_SL2_1x4	NO	57.04	0.32
CB101_103_105	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.22
CB102_106_DIC	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S19_SL2_2.5	NO	6.81	0.22
CB103_O	CB106,103	23	75.51	TABULAR/DEPTH	S22_SL2_2.5	NO	2.15	0.24
CB104_O	CB104	72	75.37	TABULAR/DEPTH	S19_SL2_5	NO	22.17	0.21
CB105_O	CB105	26	75.14	TABULAR/DEPTH	S22_SL2_2.5	NO	4.23	0.26
CB106_O	CB106,103	23	75.51	TABULAR/DEPTH	S19_SL2_2.5x2	NO	22.06	0.24
CB108_O	CB108	MHST-214	69.60	TABULAR/DEPTH	CB	NO	0.00	0.12
CB109_O	CB109	MHST-215	69.60	TABULAR/DEPTH	CB	NO	0.00	0.09
CB111_O	CB111	MHST-147	75.04	TABULAR/DEPTH	S19_LP	NO	132.33	0.49
CB114_O	CB114	MHST-200	74.92	TABULAR/DEPTH	S19_SL2_5	NO	34.30	0.28
CB130_O	CB130	MHST-130	69.84	TABULAR/DEPTH	S19_SL2_1	NO	42.05	0.09
CB255-O	CB255-S	CB255	77.71	TABULAR/DEPTH	S19_SL2_5	NO	3.80	0.14
CB40,66-68	CB68,40	56	72.63	TABULAR/DEPTH	S19_SL2_5x4	NO	80.37	0.82

Outlets 2/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
CB42_O	CB42	38	81.44	TABULAR/DEPTH	S19_SL2_5	NO	3.44	0.02
CB43_O	CB43	59	81.69	TABULAR/DEPTH	S19_SL2_5	NO	14.17	0.04
CB44_O	CB44	61	80.37	TABULAR/DEPTH	S19_SL2_5x2	NO	5.43	0.03
CB45_O	CB45	60	80.69	TABULAR/DEPTH	S19_SL2_5	NO	6.08	0.07
CB47_O	CB47	66	78.63	TABULAR/DEPTH	S22_SL2_5	NO	1.54	0.05
CB48_O	CB48	65	78.85	TABULAR/DEPTH	S22_SL2_5	NO	1.93	0.10
CB49_O	CB49	68	78.19	TABULAR/DEPTH	S22_SL2_5x2	NO	2.96	0.05
CB50_O	CB50	69	77.85	TABULAR/DEPTH	S22_SL2_5	NO	2.49	0.12
CB51_O	CB51	70	77.75	TABULAR/DEPTH	S22_SL2_5	NO	1.27	0.05
CB52_O	CB52	48	77.14	TABULAR/DEPTH	S22_SL2_5	NO	2.79	0.14
CB53_O	CB53	48	77.08	FUNCTIONAL/DEPTH	*	NO	1.46	0.06
CB55_O	CB55	49	76.58	TABULAR/DEPTH	S22_SL2_5x2	NO	3.13	0.06
CB56_58	MHST-146-S	MHST-146	75.38	TABULAR/DEPTH	S22_SL2_1x2	NO	18.83	0.32
CB56_O	CB56	50	75.98	TABULAR/DEPTH	S22_SL2_5	NO	4.36	0.16
CB59_O	CB59	73	74.99	TABULAR/DEPTH	S19_SL2_5	NO	25.65	0.25
CB60_O	CB60	MHST301	75.39	TABULAR/DEPTH	S19_SL2_1	NO	0.00	0.07
CB63	MHST-120-S	56	74.46	TABULAR/DEPTH	S22_SL2_5	NO	4.01	0.40
CB69_75	MHST-149-S	MHST-149	77.93	TABULAR/DEPTH	S22_SL2_5x2	NO	7.23	0.09
CB69_O	CB69	36	78.72	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.05
CB77_O	CB77	36	78.83	TABULAR/DEPTH	S19_SL2_2.5	NO	8.22	0.05
CB79_O	CB79	MHST-150	77.57	TABULAR/DEPTH	S19_SL2_2.5	NO	14.28	0.12
CB82_O	CB82	MHST-151	77.15	TABULAR/DEPTH	DB_S22_SL2_5	NO	5.73	0.19
CB83_O	CB83	35	77.24	TABULAR/DEPTH	S22_SL2_5	NO	8.00	0.16
CB88_96	CB88	MHST-137	79.79	TABULAR/DEPTH	S19_SL2_2.5	NO	14.85	0.14
CB92_O	CB92	37	75.27	TABULAR/DEPTH	S19_SL2_2.5x2	NO	46.51	0.28
CB93_O	CB93	31	75.17	TABULAR/DEPTH	S19_SL2_1x2	NO	8.37	0.67
CB99_O	CB99	CBMHST-104	76.90	TABULAR/DEPTH	S19_LP	NO	32.28	0.15
CBMH57_O	CBMH57	MHST-147	76.00	TABULAR/DEPTH	S19_SL2_5	NO	38.83	0.32
CBMH89_O	CBMH89	MHST-160	76.26	TABULAR/DEPTH	S28_SL2_5	NO	12.13	0.23
CBMHST101_O	CBMHST101-S	CBMHST-101	76.42	TABULAR/DEPTH	S28_LP	NO	55.00	0.29
DICB9_OL	DICB9	CBMHST103	74.28	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	82.53	1.13
MHST-100-IC	MHST-100-S	MHST-100	66.30	TABULAR/DEPTH	1@R-A@S=5.0%	NO	0.00	1.42
MHST-101-IC	MHST-101-S	MHST-101	66.07	TABULAR/DEPTH	4@R-A@S=5.0%	NO	33.77	1.42
MHST-102-IC	MHST-102-S	MHST-102	66.28	TABULAR/DEPTH	4@R-A@S=5.0%	NO	30.65	1.29
MHST-104-IC	MHST-104-S	MHST-104	70.80	TABULAR/DEPTH	3@R-B@S=1.5%	NO	19.21	0.12
MHST-105-IC	MHST-105-S	MHST-105	68.64	TABULAR/DEPTH	3@R-B@S=1.5%	NO	97.60	4.14
MHST-106-IC	MHST-106-S	MHST-106	71.87	TABULAR/DEPTH	2@R-E@S=5.0%	NO	14.77	0.99
MHST-157-IC	MHST-157-S	MHST-157	73.80	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	251.88	1.12
MSHT-103-IC	MSHT-103-S	MSHT-103	66.13	TABULAR/DEPTH	7@R-A@S=5.0%	NO	195.95	1.13
O-1	SA-1	MH-SA1	69.50	TABULAR/HEAD	O-1	NO	60.00	1.24
O-15	S-15	MHST-107	62.10	TABULAR/DEPTH	O-15	NO	7.73	0.36
O-19	S-19	MHST-101	64.00	TABULAR/DEPTH	50VHV-1	NO	3.77	0.21
O-2	SA-2	MH-SAxx	62.60	TABULAR/HEAD	O-2	NO	7.00	0.87
O-21B	S-21B	IN119607	63.54	TABULAR/DEPTH	50VHV-1	NO	4.05	1.77
O-26D	S-26D	MHST-105	67.19	TABULAR/DEPTH	50VHV-1	NO	4.09	0.08
O-3	S-3Store	OGS1	62.20	TABULAR/HEAD	125VHV-2	NO	26.69	0.39
O-4	S-14B	Preston	62.15	TABULAR/HEAD	125VHV-2	NO	20.15	0.13
O-63	S-63	MHST-154A	78.20	TABULAR/DEPTH	O-63	NO	72.17	1.10
O-CB209	CB209	MHST-209	77.64	TABULAR/DEPTH	S28_SL2_5	NO	5.42	0.18
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	20.26	4.14

Orifices 1/1

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Width (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (L/s)
DICB2	S-26B	BI-SA1	SIDE	CIRCULAR	0.095	0	67.58	0.65	27.57
ICD-100-1	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.3	0	63.06	0.62	216.54
ICD-100-2	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.1	0	63.85	0.62	17.87
ICD102	MHST-170	D-MHST-170	SIDE	CIRCULAR	0.1	0	71.93	0.62	21.37
ICD103	D-MHST-155	MHST-155	SIDE	CIRCULAR	0.675	0	74.06	0.62	1225.65
ICD104	MHST-145	D-MHST-145	SIDE	RECT_CLOSED	0.75	0.75	69.9	0.62	1224.4
ICD-105	MHST-142	D-MHST-142	SIDE	CIRCULAR	0.7	0	69.32	0.62	1259.54
ICD111	DICB8	OGS-3	SIDE	CIRCULAR	0.4	0	68.11	0.62	299.4
ICD201	Chamber201	Chamber201S	SIDE	CIRCULAR	0.35	0	67.95	0.62	95.96
ICD202	Chamber202	Chamber202-S	SIDE	CIRCULAR	0.245	0	70.84	0.62	111.24
ICD203	Chamber-203	D-Chamber-203	SIDE	CIRCULAR	0.225	0	71.42	0.62	93.12
ICD204	Chamber-204	D-Chamber-204	SIDE	CIRCULAR	0.19	0	73.03	0.62	64.94

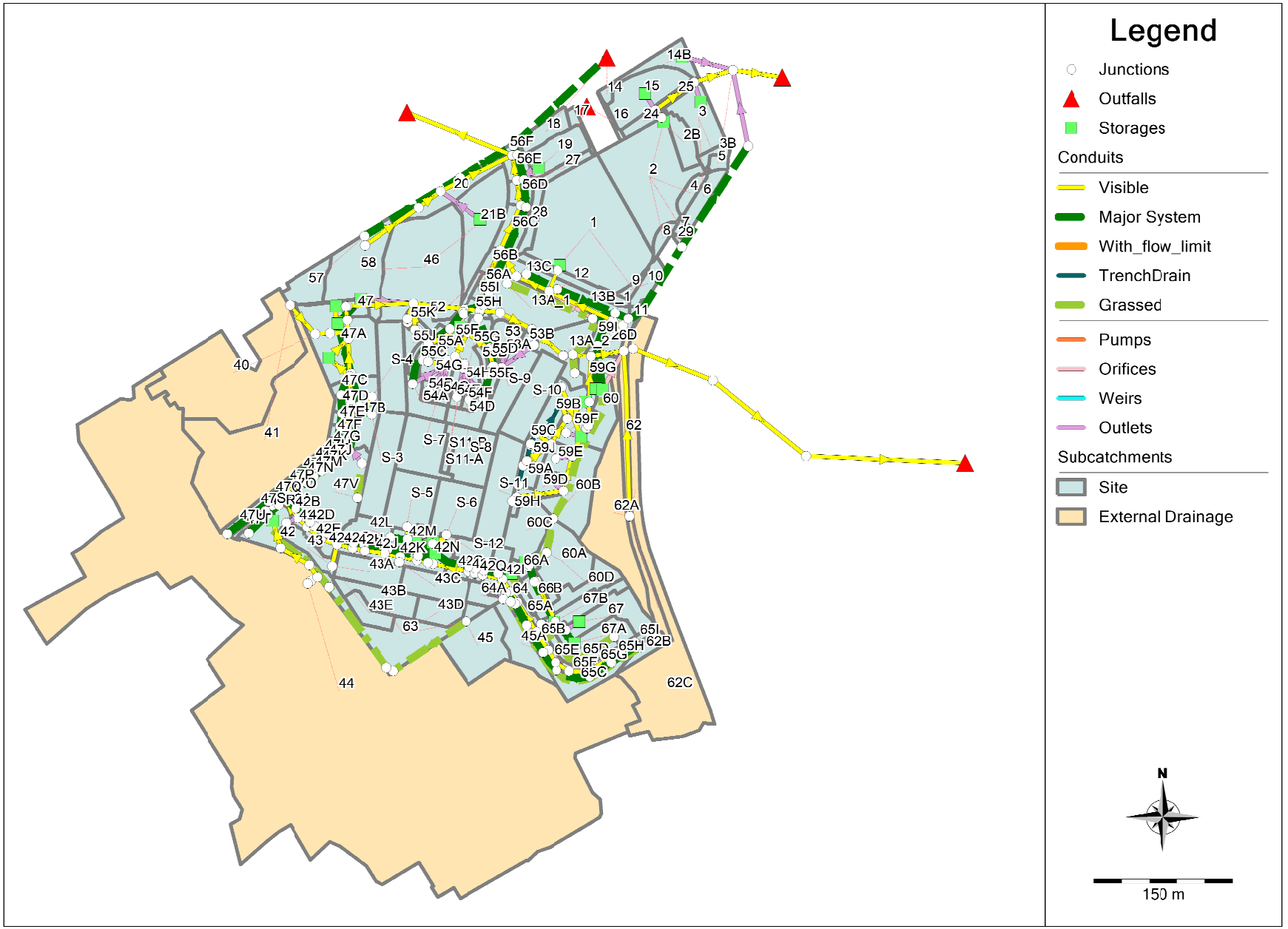
Weirs 1/1

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Inlet Elev. (m)	Max. |Flow| (L/s)	Time Max. Flow (M/D/Y)	Max/Full Depth	Contributing Area (ha)
Weir102	MHST-170	D-MHST-170	TRANSVERSE	0.3	1.5	73	87.26	10/04/2022 01:24 AM	0.36	1.92
Weir103	D-MHST-155	MHST-155	TRANSVERSE	1	1	76.45	0	10/04/2022 00:00 AM	0	13.859
Weir104	MHST-145	D-MHST-145	TRANSVERSE	1	2	71.64	581.65	10/04/2022 01:40 AM	0.31	22.77
Weir-105	MHST-142	D-MHST-142	TRANSVERSE	0.5	1.4	70.7	561.7	10/04/2022 01:40 AM	0.78	24.89
Weir112	MHST-146	D-MHST-146_1	SIDEFLOW	1.4	1.5	70.17	2009.26	10/04/2022 01:13 AM	1	19.443

Outfalls 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Type	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)	Max. Flow (L/s)	Total Flow (ML)	Contributing Area (ha)
Carling_OLF	64.6	64.8	FREE	0.12	64.72	10/04/2022 01:13 AM	236.24	0.257	2.011
Dows-Lake	63.745	66.5	FREE	0.79	64.53	10/04/2022 01:40 AM	2047.16	13.669	29.624
LRT-Corridor	56	57	FREE	0	56	10/04/2022 00:00 AM	24.23	0.02	0.059
Nepean-Bay-Trunk	62.8	65.21	NORMAL	0	62.8	10/04/2022 00:00 AM	238.15	2.375	8.845
Preston_Street	60.9	63.76	NORMAL	0.23	61.13	10/04/2022 01:10 AM	104.91	3.037	5.985

PCSWMM OUTPUT
3-HOUR CHICAGO -100-YEAR + 20% STORM


Legend
Junctions
Outfalls
Storages
Conduits
Visible
Major System
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TrenchDrain
Grassed
Pumps
Orifices
Weirs
Outlets
Subcatchments
Site
External Drainage
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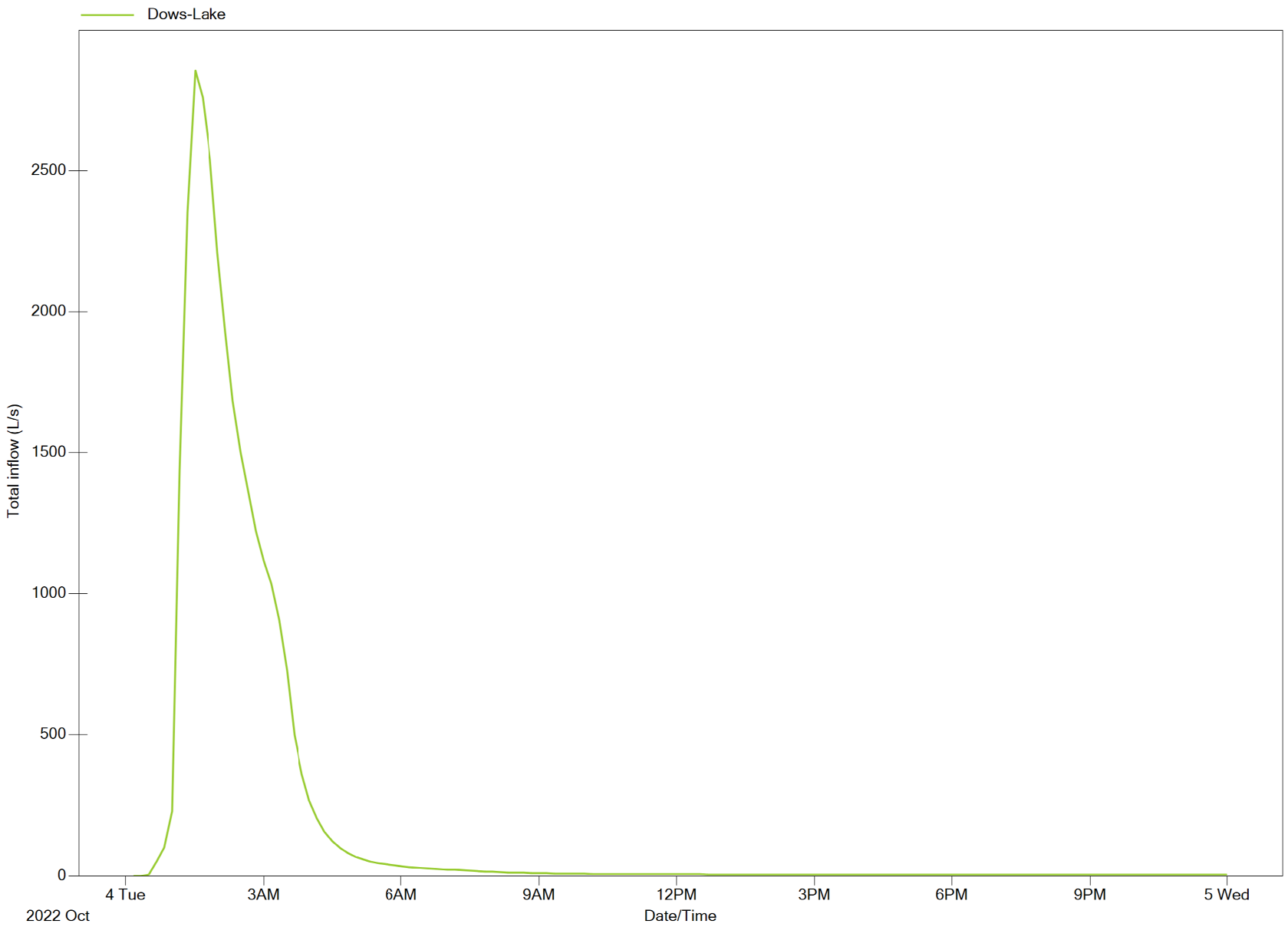
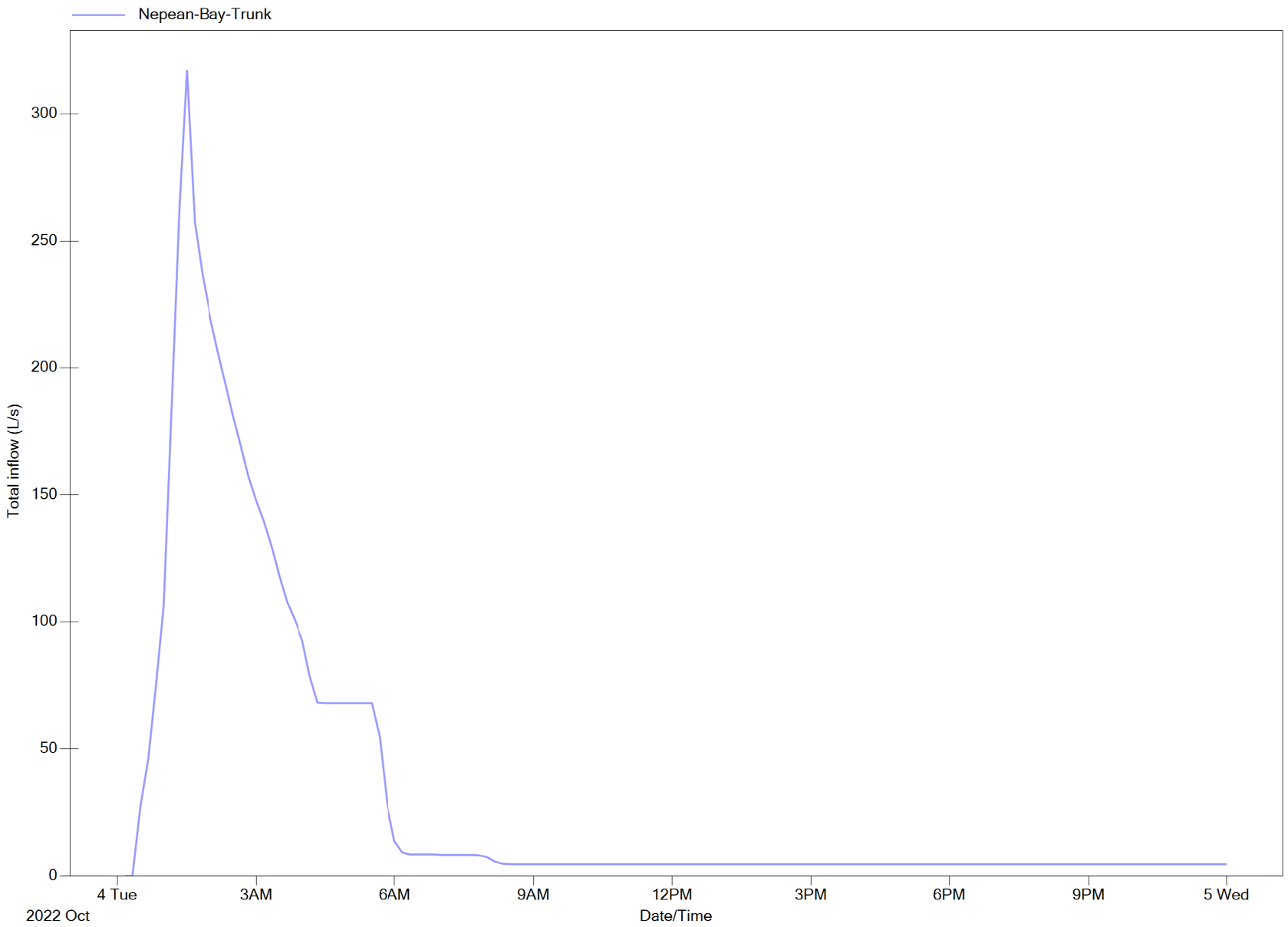
150 m


Dows-Lake
2500
2000
1500
1000
500
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time


Nepean-Bay-Trunk
300
250
200
150
100
50
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time

SUBCATCHMENTS 1/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
1		100yr_3hr_Chicago_Climate_Change	SA-1	1.2161	3.0	721.5	1.0	100.00
10		100yr_3hr_Chicago_Climate_Change	13B_1	0.0822	3.0	41.2	0.6	8.07
11		100yr_3hr_Chicago_Climate_Change	MHST-105-S	0.0302	3.0	17.7	0.9	89.30
12		100yr_3hr_Chicago_Climate_Change	BI-SA1-S	0.1276	5.0	71.9	0.8	56.48
13A_1		100yr_3hr_Chicago_Climate_Change	DICB2_SWWS	0.4122	10.0	193.8	0.6	19.20
13A_2		100yr_3hr_Chicago_Climate_Change	DICB2_SWE2S	0.2478	10.0	89.6	0.5	3.60
13B_1		100yr_3hr_Chicago_Climate_Change	BI-SA1-S	0.1938	5.0	114.2	1.0	87.80
13C		100yr_3hr_Chicago_Climate_Change	MHST-104-S	0.1184	5.0	68.3	0.9	78.70
14		100yr_3hr_Chicago_Climate_Change	Carling_OLF	0.0580	3.0	31.1	0.8	60.27
14B		100yr_3hr_Chicago_Climate_Change	S-14B	0.1272	3.0	65.0	0.5	0.00
15		100yr_3hr_Chicago_Climate_Change	S-15	0.3643	3.0	134.9	0.5	3.61
16		100yr_3hr_Chicago_Climate_Change	LRT-Corridor	0.0229	3.0	11.9	0.5	0.00
17		100yr_3hr_Chicago_Climate_Change	LRT-Corridor	0.0361	3.0	18.7	0.5	0.00
18		100yr_3hr_Chicago_Climate_Change	Carling_OLF	0.1189	3.0	54.1	0.5	3.43
19		100yr_3hr_Chicago_Climate_Change	S-19	0.2056	3.0	90.0	0.5	7.10
2		100yr_3hr_Chicago_Climate_Change	SA-2	0.7114	3.0	430.3	1.0	100.00
20		100yr_3hr_Chicago_Climate_Change	Carling_OLFN1	0.2434	8.0	122.8	0.5	0.00
21B		100yr_3hr_Chicago_Climate_Change	S-21B	0.4325	10.0	412.0	0.8	9.20
24		100yr_3hr_Chicago_Climate_Change	MHST-107	0.0348	3.0	19.2	0.8	55.80
25		100yr_3hr_Chicago_Climate_Change	OGS1	0.0465	3.0	26.8	0.9	80.56
26D		100yr_3hr_Chicago_Climate_Change	S-26D	0.0748	2.0	26.4	0.5	0.00
27		100yr_3hr_Chicago_Climate_Change	MHST-101-S	0.0531	3.0	31.0	0.9	84.50
28		100yr_3hr_Chicago_Climate_Change	MHST-102-S	0.0844	5.0	47.9	0.8	62.60
29		100yr_3hr_Chicago_Climate_Change	7	0.0113	3.0	5.1	0.5	0.00
2B		100yr_3hr_Chicago_Climate_Change	SA-2	0.0908	3.0	54.1	1.0	100.00
3		100yr_3hr_Chicago_Climate_Change	S-3Store	0.2154	3.0	118.9	0.8	31.75
3B		100yr_3hr_Chicago_Climate_Change	3	0.0393	3.0	23.4	1.0	100.00
4		100yr_3hr_Chicago_Climate_Change	2	0.0196	3.0	11.7	1.0	100.00
40	External	100yr_3hr_Chicago_Climate_Change	MHST-156	1.1965	6.8	533.5	0.7	46.20
41	External	100yr_3hr_Chicago_Climate_Change	MHST-132	1.5372	3.0	335.9	0.5	14.60
42		100yr_3hr_Chicago_Climate_Change	DICB10	0.2213	3.0	51.6	0.5	0.01
42A		100yr_3hr_Chicago_Climate_Change	MHST-135-S	0.0106	3.5	6.2	0.9	84.62
42B		100yr_3hr_Chicago_Climate_Change	CB75	0.0107	3.5	6.4	1.0	99.40
42C		100yr_3hr_Chicago_Climate_Change	CB77	0.0243	3.5	14.5	1.0	100.00
42D		100yr_3hr_Chicago_Climate_Change	CB69	0.0062	3.5	3.7	1.0	95.34
42E		100yr_3hr_Chicago_Climate_Change	MHST-149-S	0.0345	3.5	17.9	0.7	40.14
42F		100yr_3hr_Chicago_Climate_Change	CB79	0.0354	3.5	18.6	0.7	44.00
42G		100yr_3hr_Chicago_Climate_Change	CB83	0.0415	2.8	24.2	0.9	83.29
42H		100yr_3hr_Chicago_Climate_Change	CB82	0.0225	2.8	13.0	0.9	74.75
42I		100yr_3hr_Chicago_Climate_Change	SW_42I	0.1692	2.0	89.6	0.9	75.05
42J		100yr_3hr_Chicago_Climate_Change	CBMH89	0.0485	2.8	27.8	0.9	71.99
42K		100yr_3hr_Chicago_Climate_Change	CB92	0.0466	3.0	26.9	0.9	78.08

SUBCATCHMENTS 2/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
42L		100yr_3hr_Chicago_Climate_Change	CB87	0.1098	5.0	65.0	1.0	95.54
42M		100yr_3hr_Chicago_Climate_Change	CB91	0.0808	4.5	47.3	0.9	86.55
42N		100yr_3hr_Chicago_Climate_Change	CB94	0.1467	1.5	84.6	0.9	80.74
42O		100yr_3hr_Chicago_Climate_Change	CB93	0.0494	2.0	28.5	0.9	76.95
42P		100yr_3hr_Chicago_Climate_Change	CB107	0.0173	2.2	10.1	0.9	83.72
42Q		100yr_3hr_Chicago_Climate_Change	CB100	0.0167	2.2	9.7	0.9	77.86
43		100yr_3hr_Chicago_Climate_Change	MHST-126	0.1112	9.0	66.1	1.0	98.59
43A		100yr_3hr_Chicago_Climate_Change	MHST-126	0.1990	2.0	96.6	0.8	55.00
43B		100yr_3hr_Chicago_Climate_Change	63	0.1919	1.5	100.8	0.8	55.00
43C		100yr_3hr_Chicago_Climate_Change	CUP-SS1	0.2011	2.0	88.8	0.7	45.00
43D		100yr_3hr_Chicago_Climate_Change	63	0.1257	3.0	69.0	0.8	55.00
43E		100yr_3hr_Chicago_Climate_Change	MHST-126	0.1010	0.5	59.2	1.0	99.00
44	External	100yr_3hr_Chicago_Climate_Change	MHST-62534	12.7620	1.0	3714.5	0.6	32.00
45		100yr_3hr_Chicago_Climate_Change	55	0.3614	4.0	190.9	0.8	58.75
45A		100yr_3hr_Chicago_Climate_Change	65C	0.1911	4.0	90.8	0.6	9.20
46		100yr_3hr_Chicago_Climate_Change	21B	0.8929	10.0	369.2	0.7	15.60
47		100yr_3hr_Chicago_Climate_Change	CB65	0.0376	2.5	22.0	0.9	87.89
47A		100yr_3hr_Chicago_Climate_Change	MHST-157-S	0.5324	1.5	307.7	1.0	88.00
47B		100yr_3hr_Chicago_Climate_Change	CBMH57	0.2548	2.0	143.9	0.9	69.70
47C		100yr_3hr_Chicago_Climate_Change	CB114	0.0276	2.0	15.6	0.8	65.65
47D		100yr_3hr_Chicago_Climate_Change	CB59	0.0337	2.0	19.9	1.0	91.76
47E		100yr_3hr_Chicago_Climate_Change	CB104	0.0244	2.0	14.5	1.0	100.00
47F		100yr_3hr_Chicago_Climate_Change	CB58	0.0250	2.0	14.9	1.0	99.94
47G		100yr_3hr_Chicago_Climate_Change	CB56	0.0145	2.0	8.6	1.0	99.54
47H		100yr_3hr_Chicago_Climate_Change	CB54	0.0132	5.0	7.7	0.9	83.09
47I		100yr_3hr_Chicago_Climate_Change	CB52	0.0133	5.0	7.7	0.9	82.33
47J		100yr_3hr_Chicago_Climate_Change	CB55	0.0043	5.0	2.3	0.6	25.00
47K		100yr_3hr_Chicago_Climate_Change	CB53	0.0041	5.0	2.4	1.0	99.90
47L		100yr_3hr_Chicago_Climate_Change	CB50	0.0195	5.0	11.4	0.9	82.25
47M		100yr_3hr_Chicago_Climate_Change	CB51	0.0040	5.0	2.4	1.0	99.65
47N		100yr_3hr_Chicago_Climate_Change	CB49	0.0043	5.0	2.6	1.0	100.00
47O		100yr_3hr_Chicago_Climate_Change	CB47	0.0183	5.0	10.9	1.0	99.90
47P		100yr_3hr_Chicago_Climate_Change	CB48	0.0195	5.0	11.4	0.9	82.15
47Q		100yr_3hr_Chicago_Climate_Change	CB46	0.0195	5.0	11.4	0.9	81.97
47R		100yr_3hr_Chicago_Climate_Change	CB44	0.0092	5.0	5.5	1.0	96.40
47S		100yr_3hr_Chicago_Climate_Change	CB45	0.0229	5.0	12.5	0.7	39.96
47T		100yr_3hr_Chicago_Climate_Change	D-MHST-161-S	0.0180	5.0	10.7	1.0	97.57
47U		100yr_3hr_Chicago_Climate_Change	UP-CB43	0.0418	5.0	23.9	0.9	72.19
47V		100yr_3hr_Chicago_Climate_Change	CB111_SW	0.4849	5.0	198.0	0.5	8.35
5		100yr_3hr_Chicago_Climate_Change	preston	0.0120	3.0	7.2	1.0	100.00
52		100yr_3hr_Chicago_Climate_Change	56B	0.0873	2.0	38.3	0.7	44.70
53		100yr_3hr_Chicago_Climate_Change	AD08	0.0903	20.0	48.4	0.7	32.10
53A		100yr_3hr_Chicago_Climate_Change	AD09	0.0070	1.5	4.0	0.9	72.42
53B		100yr_3hr_Chicago_Climate_Change	AD07	0.0264	1.0	15.3	0.9	80.25
54A		100yr_3hr_Chicago_Climate_Change	AD06	0.1118	1.5	66.1	1.0	98.30
54B		100yr_3hr_Chicago_Climate_Change	AD05	0.0337	2.0	19.7	0.9	87.44
54C		100yr_3hr_Chicago_Climate_Change	AD04	0.0362	1.5	21.3	0.9	89.15
54D		100yr_3hr_Chicago_Climate_Change	AD01	0.1027	2.0	60.9	1.0	99.60
54E		100yr_3hr_Chicago_Climate_Change	AD03	0.0304	1.5	17.9	0.9	89.00
54F		100yr_3hr_Chicago_Climate_Change	AD02	0.0316	2.0	18.5	0.9	86.13
54G		100yr_3hr_Chicago_Climate_Change	55F	0.0675	2.0	34.5	0.7	30.50
54H		100yr_3hr_Chicago_Climate_Change	55G	0.0634	2.0	33.3	0.7	38.04
55A		100yr_3hr_Chicago_Climate_Change	TD05_1	0.0307	4.0	18.2	1.0	98.63
55B		100yr_3hr_Chicago_Climate_Change	TD04_01	0.0231	4.5	13.6	1.0	93.90
55C		100yr_3hr_Chicago_Climate_Change	CB255-S	0.0259	5.0	15.4	1.0	99.27
55D		100yr_3hr_Chicago_Climate_Change	CB209	0.0240	5.0	13.4	0.8	53.18
55E		100yr_3hr_Chicago_Climate_Change	CBMHST208-S	0.0483	5.0	27.0	0.8	60.10
55F		100yr_3hr_Chicago_Climate_Change	CB26	0.1485	5.0	74.2	0.8	43.64
55G		100yr_3hr_Chicago_Climate_Change	MHST-120-S	0.1658	5.0	79.0	0.7	24.94
55H		100yr_3hr_Chicago_Climate_Change	CBMHST66,67	0.0408	5.0	22.7	0.8	51.58
55I		100yr_3hr_Chicago_Climate_Change	CB68,40	0.0241	5.0	14.0	0.9	81.84
55J		100yr_3hr_Chicago_Climate_Change	TDS_1	0.0804	3.0	34.6	0.6	28.65

SUBCATCHMENTS 3/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
55K		100yr_3hr_Chicago_Climate_Change	TDW_1	0.0168	2.1	9.7	0.9	75.97
56A		100yr_3hr_Chicago_Climate_Change	MHST-106-S	0.0236	5.0	13.7	0.9	80.84
56B		100yr_3hr_Chicago_Climate_Change	MHST-106-S	0.0562	5.0	48.0	1.0	86.00
56C		100yr_3hr_Chicago_Climate_Change	MSHT-103-S	0.1354	5.0	78.7	0.9	82.00
56D		100yr_3hr_Chicago_Climate_Change	MHST-102-S	0.0761	5.0	44.4	0.9	84.70
56E		100yr_3hr_Chicago_Climate_Change	MHST-101-S	0.0805	5.0	46.5	0.9	77.30
56F		100yr_3hr_Chicago_Climate_Change	Carling_OLFN3	0.0180	5.0	10.4	0.9	77.40
57		100yr_3hr_Chicago_Climate_Change	Carling_OLF1	0.1534	15.0	80.5	0.5	6.90
58		100yr_3hr_Chicago_Climate_Change	46	0.4475	16.0	177.0	0.5	10.20
59A		100yr_3hr_Chicago_Climate_Change	TD02_01	0.0527	2.0	31.4	1.0	100.00
59B		100yr_3hr_Chicago_Climate_Change	TD03_1	0.1995	4.0	110.2	0.8	61.55
59C		100yr_3hr_Chicago_Climate_Change	TD07_1	0.0071	0.5	4.2	1.0	100.00
59D		100yr_3hr_Chicago_Climate_Change	CB108	0.1168	3.0	69.5	1.0	99.94
59E		100yr_3hr_Chicago_Climate_Change	CB109	0.0937	2.0	55.8	1.0	100.00
59F		100yr_3hr_Chicago_Climate_Change	CB113	0.1387	2.0	82.5	1.0	99.81
59G		100yr_3hr_Chicago_Climate_Change	CB130	0.0920	2.2	51.9	0.9	71.12
59H		100yr_3hr_Chicago_Climate_Change	TD01_1	0.0121	1.0	7.2	1.0	99.00
59I		100yr_3hr_Chicago_Climate_Change	CB72_89	0.0233	2.4	13.9	1.0	99.81
59J		100yr_3hr_Chicago_Climate_Change	TD06_1	0.0521	2.8	31.0	1.0	100.00
6		100yr_3hr_Chicago_Climate_Change	3	0.1396	3.0	64.7	0.5	2.06
60		100yr_3hr_Chicago_Climate_Change	DICB8	0.2109	25.0	86.5	0.5	0.00
60A		100yr_3hr_Chicago_Climate_Change	ST-60-S-B	0.3586	2.5	109.6	0.6	23.90
60B		100yr_3hr_Chicago_Climate_Change	ST-60-S-C	0.3168	25.0	124.4	0.5	1.81
60C		100yr_3hr_Chicago_Climate_Change	ST-60-S-C	0.2273	2.5	68.4	0.5	7.40
60D		100yr_3hr_Chicago_Climate_Change	60A	0.1424	3.8	55.3	0.7	39.00
62	External	100yr_3hr_Chicago_Climate_Change	POW_D1	0.2744	5.0	117.6	0.8	61.70
62A	External	100yr_3hr_Chicago_Climate_Change	POW_D1	0.6276	6.0	197.9	0.6	25.00
62B		100yr_3hr_Chicago_Climate_Change	MHST-136-S	0.0674	3.0	18.8	0.5	0.00
62C	External	100yr_3hr_Chicago_Climate_Change	POW_D1	1.1137	5.0	414.2	0.8	61.80
63		100yr_3hr_Chicago_Climate_Change	55	0.4180	1.5	94.6	0.5	0.00
64		100yr_3hr_Chicago_Climate_Change	CB105	0.0174	1.8	10.4	1.0	99.23
64A		100yr_3hr_Chicago_Climate_Change	CB60	0.0677	1.0	40.3	1.0	99.96
65A		100yr_3hr_Chicago_Climate_Change	CB106,103	0.0260	3.8	15.5	1.0	100.00
65B		100yr_3hr_Chicago_Climate_Change	MHST-153-S	0.0257	3.8	15.3	1.0	100.00
65C		100yr_3hr_Chicago_Climate_Change	34	0.2345	3.0	67.0	0.6	4.68
65D		100yr_3hr_Chicago_Climate_Change	SW_65D	0.1224	2.0	20.1	0.4	0.00
65E		100yr_3hr_Chicago_Climate_Change	CB97	0.0176	3.9	10.5	1.0	100.00
65F		100yr_3hr_Chicago_Climate_Change	CB96	0.0332	3.8	19.8	1.0	99.96
65G		100yr_3hr_Chicago_Climate_Change	CB88	0.0271	3.8	16.1	1.0	99.91
65H		100yr_3hr_Chicago_Climate_Change	CB90	0.0102	3.7	6.1	1.0	100.00
65I		100yr_3hr_Chicago_Climate_Change	MHST-136-S	0.0347	3.6	20.7	1.0	100.00
66A		100yr_3hr_Chicago_Climate_Change	CBMHST-103-S	0.0414	1.5	23.2	0.8	65.20
66B		100yr_3hr_Chicago_Climate_Change	CBMHST105-S	0.0914	2.0	52.4	0.9	79.10
67		100yr_3hr_Chicago_Climate_Change	CB95	0.2437	4.0	132.2	0.8	52.07
67A		100yr_3hr_Chicago_Climate_Change	CB99	0.1464	2.0	82.9	0.9	79.54
67B		100yr_3hr_Chicago_Climate_Change	CBMHST101-S	0.1445	1.5	82.8	0.9	84.60
7		100yr_3hr_Chicago_Climate_Change	2	0.0165	3.0	9.8	1.0	100.00
8		100yr_3hr_Chicago_Climate_Change	2	0.0188	3.0	11.2	1.0	100.00
9		100yr_3hr_Chicago_Climate_Change	1	0.0192	3.0	11.4	1.0	100.00
S-10		100yr_3hr_Chicago_Climate_Change	MHST-211	0.2975	2.0	175.2	1.0	100.00
S-11		100yr_3hr_Chicago_Climate_Change	MHST-213	0.4008	2.0	233.0	1.0	100.00
S11-A		100yr_3hr_Chicago_Climate_Change	MH-SA56-2	0.0107	2.0	6.4	1.0	100.00
S11-B		100yr_3hr_Chicago_Climate_Change	MH-SA56-2	0.0153	2.0	8.8	0.8	69.20
S-12		100yr_3hr_Chicago_Climate_Change	MH-SA51-1	0.0943	2.0	54.3	0.9	74.54
S-3		100yr_3hr_Chicago_Climate_Change	MH-SA50	0.3456	2.0	202.4	1.0	99.90
S-4		100yr_3hr_Chicago_Climate_Change	MH-SA49	0.2910	2.0	171.5	1.0	99.80
S-5		100yr_3hr_Chicago_Climate_Change	MH-SA51-2	0.2908	2.0	157.6	0.8	64.20
S-6		100yr_3hr_Chicago_Climate_Change	MH-SA51-1	0.2996	2.0	162.9	0.8	65.30
S-7		100yr_3hr_Chicago_Climate_Change	MH-SA56-1	0.2899	2.0	164.8	0.9	77.20
S-8		100yr_3hr_Chicago_Climate_Change	MH-SA56-2	0.2768	2.0	157.4	0.9	75.40
S-9		100yr_3hr_Chicago_Climate_Change	MH-SA56-3	0.2599	2.0	141.5	0.9	71.40

CONDUITS 1/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
10	CBMHST105	CBMHST103		17.6	72.40	72.13	CIRCULAR	0.38		0.01534	217.2
11	AD06	CB255-S	Major_System	46.6	79.72	77.71	IRREGULAR	0.00	Road-A_spilt	0.04314	13.7
12_1	AD01	CBMHST208-S	major_system	37.5	79.53	78.00	IRREGULAR	0.00	Road-A_spilt	0.04083	60.3
12_2	CBMHST208-S	CB209	major_system	19.8	78.00	77.64	IRREGULAR	0.00	Road-A_spilt	0.01817	75.6
13	CB64	CBMHST66,67	major_system	24.4	74.57	73.54	IRREGULAR	0.00	Road-A_spilt	0.04228	65.5
15	SW_42I	DICB9	swale	2.7	74.96	74.88	TRAPEZOIDAL	1.00		0.02964	89.6
16	MH207	Chamber-204		27.2	73.98	73.88	CIRCULAR	0.38		0.00367	157.7
17	D-Chamber-204	MHST-141		21.1	73.03	72.98	CIRCULAR	0.30		0.00237	73.8
19	DICB9	CBMHST-103-S	major_system	21.2	74.88	74.60	TRAPEZOIDAL	0.50		0.01319	0.0
2	MHST-105-S	Wales-OLF-N03	Major_System	17.0	68.69	68.20	IRREGULAR	0.00	Road-B	0.02884	33.9
21	MHST-157-S	CB65	Major_System	36.2	74.22	73.54	IRREGULAR	0.00	Road-D	0.01881	0.0
22	CUP-SS1	30		5.8	73.50	73.39	CIRCULAR	0.37		0.01887	88.9
23	CBMHST-103-S	ST-60-S-B	swale	22.5	74.60	74.11	TRAPEZOIDAL	0.50		0.02180	106.6
25	CB91	CB94	major_system	25.2	75.10	75.02	RECT_OPEN	0.15		0.00317	85.0
27	TD07_2	MH150		20.0	67.40	67.20	CIRCULAR	0.20		0.01001	6.1
27_1	TD02_03	MH150		38.0	67.42	66.97	CIRCULAR	0.20		0.01178	27.1
27_2	MH150	MHST-221		32.7	66.97	66.62	CIRCULAR	0.20		0.01078	57.2
28	MHST-221	PS		26.8	66.63	66.42	CIRCULAR	0.30		0.00765	124.0
3	Preston	Preston_Street		10.0	61.03	60.90	CIRCULAR	0.30		0.01300	123.8
30	TD_B	MHST-221		18.1	67.88	67.60	CIRCULAR	0.30		0.01526	67.0
32	CB255-S	CB26	Major_System	28.5	77.71	75.96	IRREGULAR	0.00	Road-A_spilt	0.06143	22.4
33	TD06_2	MH150		22.5	67.40	67.00	CIRCULAR	0.20		0.01776	27.2
34	CB26	CB64	Major_System	22.6	75.96	74.57	IRREGULAR	0.00	Road-A_spilt	0.06184	65.8
35	TD05_1	TD05_2	TrenchDrain	5.6	74.50	74.40	RECT_OPEN	0.25		0.01788	18.2
36	TD01_3	MHST-213		6.9	68.60	68.57	CIRCULAR	0.20		0.00434	7.2
38	TD04_02	MH-SA56-2		19.4	74.00	73.24	CIRCULAR	0.25		0.03921	11.5
39	TD05_2	MH-SA56-1		20.2	74.00	73.24	CIRCULAR	0.20		0.03759	18.1
4	OGS-3	MHST62528		10.0	67.62	67.60	CIRCULAR	1.20		0.00200	2896.6
40	51	CB72_89	major_system	24.5	70.11	69.49	IRREGULAR	0.00	Road-L	0.02534	0.0
41	CB209	MHST-120-S	Major_System	34.7	77.64	74.46	IRREGULAR	0.00	Road-A_spilt	0.09199	82.0
42	CB130	51	major_system	1.0	70.11	70.10	IRREGULAR	0.00	Road-L	0.01000	0.0
43	CB72_89	54	major_system	15.8	69.49	68.92	IRREGULAR	0.00	Road-L	0.03613	11.5
49	Chamber202-S	45		5.2	70.84	70.80	CIRCULAR	0.45		0.00765	121.1
49_1	MHST-144	45		55.0	69.68	69.56	CIRCULAR	1.35		0.00213	2348.4
49_2	45	56		17.2	69.56	69.53	CIRCULAR	1.35		0.00215	2432.0
5	MHST62528	MHST62545		91.8	67.56	66.71	CIRCULAR	1.20		0.00929	2867.3
50	DICB8	51	major_system	1.0	70.11	70.10	RECT_OPEN	0.30		0.01000	0.0
54	CB114	74	major_system	9.3	74.92	75.07	IRREGULAR	0.00	Road-D_W	-0.01554	6.3
6	MHST62545	MHST62547		129.6	66.69	64.45	CIRCULAR	1.20		0.01726	2865.1
64	CB99	CBMHST101-S	major_system	32.2	76.90	76.52	RECT_OPEN	0.15		0.01181	42.9
65C_SW	34	DICB11	swale	194.0	82.41	75.45	TRAPEZOIDAL	0.30		0.03590	64.9
66	CBMHST101-S	CBMHST105-S	major_system	48.6	76.50	74.70	RECT_OPEN	0.15		0.03706	65.4
67	CBMHST105-S	CBMHST-103-S	major_system	18.9	74.82	74.60	RECT_OPEN	0.70		0.01162	113.7
68	CB87	CB91	major_system	27.5	75.50	75.10	RECT_OPEN	0.15		0.01452	62.4
7	MHST62547	Dows-Lake		171.0	64.17	63.75	CIRCULAR	1.20		0.00249	2855.9
70	MHST-126	MHST-150		23.5	74.17	71.67	CIRCULAR	450.00		0.10691	1539.2
71	S-26B	54	major_system	24.8	69.52	68.92	RECT_OPEN	0.30		0.02425	64.7
8	POW_D1	OGS-3		180.0	78.70	69.70	TRAPEZOIDAL	0.55		0.05006	687.2
8_1	CHAMBER-103	D-MHST-155		3.1	74.08	74.06	CIRCULAR	0.90		0.00645	1671.7
8_1-S	CHAMBER-103	MHST-155	Major_System	14.7	79.00	78.70	RECT_OPEN	0.30		0.02037	0.0
9	CBMHST103	CHAMBER-102		2.6	72.10	72.07	CIRCULAR	0.38		0.01154	336.7
CA-OLF_2	Carling_OLF1	Carling_OLFN1	Major_System	120.4	66.50	65.41	IRREGULAR	0.00	CarlingAve	0.00907	74.2
CA-OLF_3	Carling_OLFN3	Carling_OLF	Major_System	66.5	64.80	64.60	IRREGULAR	0.00	CarlingAve	0.00301	241.7
CA-OLF_4	Carling_OLFN1	Carling_OLFN3	Major_System	67.1	65.41	64.80	IRREGULAR	0.00	CarlingAve	0.00906	180.3
CA-STM	IN119607	D-MHST-100		86.0	63.10	62.80	CIRCULAR	0.30		0.00349	5.1
CB104-S	CB104	CB59	major_system	20.0	75.37	74.99	IRREGULAR	0.00	Road-D_W	0.01905	37.0

CONDUITS 2/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
CB111_SWA	CB111_SW	CB111	swale	37.3	75.17	75.04	TRAPEZOIDAL	0.30		0.00349	193.5
CB43-S	CB43	CB45	major_system	19.8	81.69	80.69	CIRCULAR	1.00		0.05068	6.3
CB45-S	CB45	CB46	major_system	20.1	80.69	79.69	IRREGULAR	0.00	Road-D_W	0.04970	11.0
CB46-S	CB46	CB48	major_system	20.0	79.69	78.85	IRREGULAR	0.00	Road-D_W	0.04199	12.7
CB48-S	CB48	CB50	major_system	19.9	78.85	77.85	IRREGULAR	0.00	Road-D_W	0.05039	21.6
CB50-S	CB50	CB52	major_system	13.6	77.85	77.14	IRREGULAR	0.00	Road-D_W	0.05223	29.7
CB52-S	CB52	CB54	major_system	13.6	77.14	76.44	IRREGULAR	0.00	Road-D_W	0.05141	34.0
CB54-S	CB54	CB56	major_system	12.5	76.44	75.98	IRREGULAR	0.00	Road-D_W	0.03689	37.6
CB56-S	CB56	CB58	major_system	14.6	75.98	75.64	IRREGULAR	0.00	Road-D_W	0.02331	40.5
CB58-S	CB58	CB104	major_system	14.3	75.64	75.37	IRREGULAR	0.00	Road-D_W	0.01893	48.2
CB59-S	CB59	CB114	major_system	16.0	74.99	74.92	IRREGULAR	0.00	Road-D_W	0.00436	25.4
CUP_SW1	55	77	swale	94.6	82.30	82.15	TRAPEZOIDAL	0.30		0.00159	223.4
CUP_SW2	77	78	swale	8.3	82.15	82.14	TRAPEZOIDAL	0.30		0.00121	193.7
CUP_SW3	78	S-63	swale	106.6	82.14	82.00	TRAPEZOIDAL	0.30		0.00131	170.6
DICB10_SW	S-63	DICB10	swale	104.1	82.00	79.27	TRAPEZOIDAL	1.00		0.02623	97.8
DICB2_SWE1	81DICB2_SWE1S	S-26B	swale	69.0	69.36	68.77	TRAPEZOIDAL	0.50		0.00855	84.3
DICB2_SWE2	DICB2_SWE2S	81DICB2_SWE1S	swale	20.0	69.58	69.36	TRAPEZOIDAL	0.60		0.01099	88.8
DICB2_SWW	DICB2_SWWS	S-26B	Swale	96.0	69.50	68.77	TRAPEZOIDAL	0.50		0.00760	183.5
ST-100_2	D-MHST-100	Nepean-Bay-Trunk		6.0	63.06	63.04	CIRCULAR	0.90		0.00333	319.5
ST-100-S	MHST-100-S	Carling_OLFN3	Major_System	11.0	65.42	64.80	IRREGULAR	0.00	Road-A	0.05645	71.4
ST-101I	MHST-101	MHST-100		27.4	63.12	63.09	CIRCULAR	0.90		0.00109	419.1
ST-101I-S	MHST-101-S	MHST-100-S	Major_System	27.4	66.07	65.42	IRREGULAR	0.00	Road-A	0.02371	71.9
ST-102	CBMHST-101	CBMHST105		47.9	73.63	72.43	CIRCULAR	0.38		0.02505	216.4
ST-102I	MHST-102	MHST-101		27.2	63.15	63.12	CIRCULAR	1.50		0.00110	400.1
ST-102I-S	MHST-102-S	MHST-101-S	Major_System	27.2	66.28	66.07	IRREGULAR	0.00	Road-A	0.00773	34.2
ST-103I	MSHT-103	MHST-102		52.9	63.20	63.15	CIRCULAR	1.50		0.00100	384.8
ST-103I-S	MSHT-103-S	MHST-102-S	Major_System	52.9	66.13	66.28	IRREGULAR	0.00	Road-A	-0.00283	20.7
ST-104	CBMHST-104	CBMHST-101		15.1	74.14	73.84	CIRCULAR	0.38		0.01983	145.1
ST-104_1	BI-SA1	MHST-104		38.3	63.67	63.63	CIRCULAR	1.20		0.00102	271.0
ST-104_3	MHST-105	39		12.0	63.79	63.78	CIRCULAR	1.20		0.00100	108.9
ST-104_4	39	BI-SA1		75.9	63.78	63.70	CIRCULAR	1.20		0.00100	140.9
ST-104I	MHST-104	MSHT-103		32.8	63.53	63.50	CIRCULAR	1.20		0.00101	280.9
ST-105I_1-S_1	BI-SA1-S	54	Major_System	66.9	70.15	68.92	IRREGULAR	0.00	Road-B	0.01841	124.6
ST-105I_1-S_2	54	MHST-105-S	major_system	15.2	68.92	68.64	IRREGULAR	0.00	Road-B	0.01839	131.6
ST-105I_2-S	MHST-104-S	BI-SA1-S	Major_System	37.7	70.80	70.15	IRREGULAR	0.00	Road-B	0.01723	46.1
ST-106I	MHST-106	MSHT-103		44.7	63.23	63.20	CIRCULAR	1.50		0.00067	61.9
ST-106I-S	MHST-106-S	MSHT-103-S	Major_System	29.6	71.87	66.13	IRREGULAR	0.00	Road-A	0.19783	168.1
ST-107	D-MHST-170	MHST-158		13.3	71.93	71.80	CIRCULAR	0.30		0.00977	161.9
ST-120-S_1	MHST-120-S	CBMHST66,67	Major_System	14.7	74.46	73.54	IRREGULAR	0.00	Road-A_spilt	0.06272	154.3
ST-120-S_2	CB68,40	MHST-106-S	Major_System	14.9	72.63	71.87	IRREGULAR	0.00	Road-A_spilt	0.05108	133.2
ST-120-S_3	CBMHST66,67	CB68,40	Major_System	15.3	73.54	72.63	IRREGULAR	0.00	Road-A_spilt	0.05963	217.0
ST-130	MHST-130	OGS-3		35.6	67.69	67.62	CIRCULAR	1.00		0.00197	2530.1
ST-131_1	MHST-212	13		25.4	67.95	67.93	CIRCULAR	0.83		0.00094	229.6
ST-131_2	13	MHST-130		49.1	67.93	67.88	CIRCULAR	0.83		0.00096	262.6
ST-132	MHST-132	MHST-156		41.9	73.25	72.62	CIRCULAR	0.45		0.01505	334.5
ST-133	Chamber201S	MHST-212		2.9	67.95	67.95	CIRCULAR	0.83		-0.00034	213.5
ST-134	MHST-134	MHST-138		17.5	76.62	76.18	CIRCULAR	0.38		0.02515	52.9
ST-135	MHST-135	MHST-148		28.3	70.62	70.60	CIRCULAR	1.35		0.00071	909.3
ST-136_1	MHST-136	76		17.8	78.65	78.23	CIRCULAR	0.30		0.02336	0.0
ST-136_3	76	21		15.1	78.23	77.88	CIRCULAR	0.30		0.02339	19.1

CONDUITS 3/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-136_4	21	MHST-137		24.9	77.88	77.30	CIRCULAR	0.30		0.02337	35.5
ST-136-S_2	CB90	CB88	Major_System	27.3	80.75	79.79	IRREGULAR	0.00	Road-E_S	0.03515	9.3
ST-136-S_3	MHST-136-S	CB84,85	Major_System	17.9	81.70	81.32	IRREGULAR	0.00	Road-E_C	0.02121	39.1
ST-136-S_4	CB84,85	CB90	Major_System	14.4	81.32	80.75	IRREGULAR	0.00	Road-E_C	0.03949	19.8
ST-137	MHST-137	MHST-134		22.4	77.24	76.68	CIRCULAR	0.38		0.02501	52.8
ST-137-S_1	CB88	CB96	Major_System	38.1	79.79	78.66	IRREGULAR	0.00	Road-E_N	0.02965	7.5
ST-137-S_3	CB96	CB97	Major_System	24.4	78.66	77.90	IRREGULAR	0.00	Road-E_N	0.03115	7.7
ST-137-S_4	CB97	MHST-153-S	Major_System	33.9	77.90	76.52	IRREGULAR	0.00	Road-E_C	0.04070	15.7
ST-138_1	MHST-138	22		15.9	75.17	74.77	CIRCULAR	0.38		0.02499	71.8
ST-138_2	22	MHST-153		23.0	74.77	74.20	CIRCULAR	0.38		0.02494	73.7
ST-141_1	MHST-141	37		11.9	71.42	71.39	CIRCULAR	0.90		0.00253	467.6
ST-141_3	37	30		18.2	71.39	71.34	CIRCULAR	0.90		0.00258	507.7
ST-141_4	30	MHST-160		17.0	71.34	71.30	CIRCULAR	0.90		0.00253	556.6
ST-141-S_1	CB82	CBMH89	Major_System	26.5	77.15	76.26	IRREGULAR	0.00	Road-E_S	0.03363	43.6
ST-141-S_3	CBMH89	CB92	Major_System	33.3	76.26	75.27	IRREGULAR	0.00	Road-E_S	0.02973	57.1
ST-141-S_4	CB92	CB94	Major_System	19.6	75.27	75.02	IRREGULAR	0.00	Road-E_S	0.01277	27.3
ST-142	D-MHST-142	MHST-130		29.3	67.74	67.69	CIRCULAR	1.20		0.00171	2546.7
ST-143	MHST-143	MHST-159		38.2	69.45	69.41	CIRCULAR	1.35		0.00105	2461.1
ST-144B_2	56	MHST-143		21.6	69.53	69.48	CIRCULAR	1.35		0.00213	2461.1
ST-145_1	D-MHST-145	MHST-144		71.4	69.90	69.83	CIRCULAR	1.20		0.00098	2339.6
ST-146_1-S	MHST-146-S	BI-SA49-S	Major_System	5.7	75.38	75.35	IRREGULAR	0.00	Road-D_W	0.00509	89.3
ST-146_2-S_1	BI-SA49-S	74	Major_System	36.1	75.35	75.07	IRREGULAR	0.00	Road-D_W	0.00793	12.6
ST-146_2-S_2	74	MHST-157-S	Major_System	55.0	75.07	74.63	IRREGULAR	0.00	Road-D	0.00791	5.3
ST-146_3	D-MHST-146_1	73		12.1	70.17	70.15	CIRCULAR	1.50		0.00141	2578.6
ST-146_4	73	MHST-200		17.9	70.15	70.13	CIRCULAR	1.50		0.00129	2589.0
ST-147_1	MHST-147	50		6.0	70.25	70.24	CIRCULAR	1.50		0.00117	2469.2
ST-147_2	71	72		14.2	70.23	70.21	CIRCULAR	1.50		0.00127	2473.5
ST-147_3	50	71		14.6	70.24	70.23	CIRCULAR	1.50		0.00123	2470.9
ST-147_5	72	MHST-146		6.0	70.21	70.20	CIRCULAR	1.50		0.00117	2483.2
ST-147-S	CBMH57	MHST-146-S	Major_System	44.0	76.01	75.38	IRREGULAR	0.00	Road-D_W	0.01431	112.2
ST-148_1	MHST-148	64		7.2	70.45	70.44	CIRCULAR	1.50		0.00196	2353.9
ST-148_10	49	MHST-147		12.7	70.31	70.28	CIRCULAR	1.50		0.00197	2366.1
ST-148_2	65	66		5.0	70.40	70.39	CIRCULAR	1.50		0.00199	2357.4
ST-148_3	64	65		20.1	70.44	70.40	CIRCULAR	1.50		0.00199	2356.4
ST-148_4	66	68		9.9	70.39	70.37	CIRCULAR	1.50		0.00193	2358.1
ST-148_5	68	69		5.0	70.37	70.36	CIRCULAR	1.50		0.00200	2359.7
ST-148_6	69	70		5.1	70.36	70.35	CIRCULAR	1.50		0.00197	2360.5
ST-148_7	70	48		9.2	70.35	70.33	CIRCULAR	1.50		0.00195	2361.0
ST-148_8	48	49		12.2	70.33	70.31	CIRCULAR	1.50		0.00197	2363.3
ST-148-S_1	CB44	CB47	Major_System	39.1	80.37	78.63	IRREGULAR	0.00	Road-D_W	0.04460	5.0
ST-148-S_2	CB49	CB51	Major_System	10.0	78.19	77.75	IRREGULAR	0.00	Road-D_W	0.04364	13.1
ST-148-S_3	CB47	CB49	Major_System	10.0	78.63	78.19	IRREGULAR	0.00	Road-D_W	0.04362	14.0
ST-148-S_4	CB51	CB53	Major_System	9.8	77.75	77.08	IRREGULAR	0.00	Road-D_W	0.06865	14.0
ST-148-S_5	CB53	CB55	Major_System	10.0	77.08	76.58	IRREGULAR	0.00	Road-D_W	0.05025	14.8
ST-148-S_7	CB55	CBMH57	Major_System	17.0	76.58	76.01	IRREGULAR	0.00	Road-D_W	0.03354	13.3
ST-149_1	MHST-149	36		19.8	70.69	70.67	CIRCULAR	1.35		0.00116	895.4
ST-149_2	36	MHST-135		14.2	70.67	70.65	CIRCULAR	1.35		0.00120	885.8
ST-149-S_1	CB75	CB77	Major_System	8.7	79.25	78.83	IRREGULAR	0.00	Road-E_C	0.04854	10.0
ST-149-S_2	MHST-135-S	CB71	Major_System	12.7	79.98	79.68	IRREGULAR	0.00	Road-E_C	0.02357	6.1
ST-149-S_4	CB69	MHST-149-S	Major_System	15.0	78.72	77.93	IRREGULAR	0.00	Road-E_NW	0.05292	15.4

CONDUITS 4/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-149-S_5	CB71	CB75	Major_System	12.9	79.68	79.25	IRREGULAR	0.00	Road-E_C	0.03342	5.4
ST-149-S_6	CB77	CB69	Major_System	6.3	78.83	78.72	IRREGULAR	0.00	Road-E_C	0.01747	14.1
ST-150	MHST-150	MHST-149		18.1	70.76	70.72	CIRCULAR	1.35		0.00220	911.4
ST-150-S_1	MHST-149-S	CB79	Major_System	13.1	77.93	77.57	IRREGULAR	0.00	Road-E_NW	0.02743	24.3
ST-150-S_2	CB79	CB83	Major_System	17.9	77.57	77.24	IRREGULAR	0.00	Road-E_C	0.01848	24.7
ST-151_1	MHST-151	35		13.3	71.23	71.22	CIRCULAR	0.90		0.00068	566.4
ST-151_2	35	MHST-150		17.0	71.22	71.21	CIRCULAR	0.90		0.00065	571.2
ST-151-S	CB83	CB82	Major_System	11.2	77.24	77.15	IRREGULAR	0.00	Road-E_S	0.00801	38.9
ST-153_1	MHST-153	23		38.0	72.86	72.48	CIRCULAR	0.38		0.00994	84.6
ST-153_2	23	26		13.6	72.48	72.35	CIRCULAR	0.38		0.00994	113.1
ST-153_4	26	MHST-158		15.7	72.35	72.19	CIRCULAR	0.38		0.00997	142.2
ST-153-S_1	MHST-153-S	CB106,103	Major_System	26.1	76.52	75.51	IRREGULAR	0.00	Road-E_C	0.03879	19.3
ST-153-S_3	CB106,103	CB105	Major_System	15.4	75.51	75.14	IRREGULAR	0.00	Road-E_N	0.02407	5.1
ST-153-S_4	CB105	DICB9	Major_System	17.3	75.14	74.88	IRREGULAR	0.00	Road-E_N	0.01507	10.3
ST-154	MHST-154	CHAMBER-103		16.0	75.80	75.72	CIRCULAR	0.90		0.00500	3783.3
ST-154A	MHST-154A	MHST-154B		15.5	76.18	76.10	CIRCULAR	0.90		0.00516	3782.6
ST-154B	MHST-154B	MHST-154		35.9	76.04	75.86	CIRCULAR	0.90		0.00501	3783.2
ST-155_1	MHST-155	60		9.7	74.03	73.94	CIRCULAR	0.90		0.00932	1679.2
ST-155_3	60	61		6.5	73.94	73.88	CIRCULAR	0.90		0.00930	1681.0
ST-155_4	61	MHST-148		6.3	73.88	73.82	CIRCULAR	0.90		0.00945	1683.4
ST-156	MHST-156	MHST_156B		16.0	70.13	70.12	CIRCULAR	1.50		0.00062	845.3
ST-156B	MHST_156B	MHST-157		18.787	70.09	70.08	CIRCULAR	1.5		0.00053	809.5
ST-157_1	MHST-157	D-MHST-157B		13.532	70.02	70	CIRCULAR	1.5		0.00148	2492.73
ST-157_2	D-MHST-157B	MHST-145		14.706	69.97	69.96	CIRCULAR	1.5		0.00068	1938.05
ST-157_3	D-MHST-157B	CHAMBER-104B		9.4	69.97	69.91	CIRCULAR	0.9		0.00638	1385.51
ST-158_2	75	MHST-141		5.552	71.581	71.57	CIRCULAR	0.75		0.00198	414.15
ST-158_3	MHST-158	33		21.587	71.74	71.695	CIRCULAR	0.75		0.00208	300.37
ST-158_4	31	75		38.574	71.661	71.581	CIRCULAR	0.75		0.00207	314.52
ST-158_5	32	31		8.439	71.678	71.661	CIRCULAR	0.75		0.00201	329.77
ST-158_6	33	32		8.4	71.70	71.68	CIRCULAR	0.75		0.00203	312.6
ST-158-S	CB94	CB93	Major_System	39.3	75.10	75.17	IRREGULAR	0.00	Road-E_S_Amb	-0.00178	6.3
ST-158-S_2	CB93	CB107	Major_System	8.4	75.17	75.12	IRREGULAR	0.00	Road-E_S_Amb	0.00593	11.5
ST-158-S_4	CB107	CB100	Major_System	8.9	75.12	75.08	IRREGULAR	0.00	Road-E_S_Amb	0.00450	10.5
ST-158-S_6	CB100	MHST-158-S	Major_System	15.6	75.08	74.99	IRREGULAR	0.00	Road-E_S	0.00576	4.0
ST-159	MHST-159	MHST-142		44.6	69.41	69.32	CIRCULAR	1.35		0.00202	2461.1
ST-160	MHST-160	MHST-151		22.3	71.27	71.23	CIRCULAR	0.90		0.00179	564.7
ST-161_2-S_1	D-MHST-161-S	CB42	Major_System	23.3	83.25	81.44	IRREGULAR	0.00	Road-D_W	0.07781	10.6
ST-161_2-S_2	CB42	CB44	Major_System	20.7	81.44	80.37	IRREGULAR	0.00	Road-D_W	0.05168	6.3
ST-162	CBMHST-162	MHST-154A		5.4	76.27	76.24	CIRCULAR	0.90		0.00561	3715.2
ST-200_1	MHST-200	MHST-201		40.7	70.11	70.05	CIRCULAR	1.50		0.00148	1998.2
ST-200_2	MHST-200	CHAMBER-104-A		29.5	70.17	70.13	CIRCULAR	0.90		0.00135	750.3
ST-201	MHST-201	MHST-157		6.5	70.07	70.05	CIRCULAR	1.50		0.00308	2150.0
ST-203	MHST-203	MHST-205		8.6	73.11	73.09	CIRCULAR	0.68		0.00232	233.2
ST-204	MHST-204	MHST-205		12.7	73.11	73.09	CIRCULAR	0.53		0.00158	182.6
ST-205	MHST-205	MHST-206		28.9	72.94	72.91	CIRCULAR	0.68		0.00104	414.4
ST-206	MHST-206	Chamber202		10.3	72.91	72.88	CIRCULAR	0.68		0.00341	571.1
ST-208	MHST-208	MHST-209		19.4	73.41	73.35	CIRCULAR	0.38		0.00309	151.4
ST-209	MHST-209	MHST-206		28.6	73.32	73.21	CIRCULAR	0.38		0.00385	156.6
ST-211	MHST-211	Chamber201		57.4	68.31	68.24	CIRCULAR	0.53		0.00122	170.7
ST-214	MHST-214	MHST-215		38.3	68.23	68.27	CIRCULAR	0.75		-0.00104	235.4

CONDUITS 5/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-215	MHST-215	Chamber201		1.7	68.27	68.27	CIRCULAR	0.75		0.00000	235.0
ST-225	CB255	Chamber202		29.0	73.46	73.17	CIRCULAR	0.20		0.00997	5.8
ST-301	MHST301	MHST-158		8.8	72.60	72.42	CIRCULAR	0.20		0.01989	1.9
ST-42I	MHST-158-S	DICB9	major_system	6.0	74.99	74.88	IRREGULAR	0.00	Road-E_S	0.01834	4.0
ST-60-S_2	ST-60-S-B	ST-60-S-C	swale	37.6	74.11	73.25	TRAPEZOIDAL	1.00		0.02280	213.5
ST-60-S_3	ST-60-S-C	DICB8	swale	125.0	73.25	69.82	TRAPEZOIDAL	1.00		0.02748	379.9
ST-62534	MHST-62534	CBMHST-162		7.2	76.90	76.27	CIRCULAR	0.90		0.08833	3713.9
ST-62538_1	MHST-161	59		3.0	78.96	78.90	CIRCULAR	0.53		0.01959	0.1
ST-62538_3	59	38		5.2	78.90	78.80	CIRCULAR	0.53		0.01939	17.1
ST-62538_4	38	MHST-155		5.3	78.80	78.70	CIRCULAR	0.53		0.01943	21.3
St-C104	CHAMBER-104-A	MHST-201		13.1	70.13	70.07	CIRCULAR	0.90		0.00458	482.4
ST-C203	D-Chamber-203	MHST-146		15.9	71.42	71.38	CIRCULAR	0.30		0.00251	98.1
ST-CB6-S	SW_65D	DICB6	swale	104.0	77.94	76.09	TRAPEZOIDAL	0.50		0.01779	18.5
ST-G107	MHST-107	OGS1		52.5	62.03	61.24	CIRCULAR	0.30		0.01505	33.4
ST-OGS1_2	OGS1	Preston		10.0	61.21	61.06	CIRCULAR	0.30		0.01500	83.7
ST-P3	DICB3	IN119608		71.1	64.23	63.80	CIRCULAR	0.20		0.00605	0.0
ST-P46	IN119608	IN119607		30.0	63.50	63.20	CIRCULAR	0.20		0.01000	0.0
ST-SA1	MH-SA1	BI-SA1		24.7	69.45	69.08	CIRCULAR	0.30		0.01501	60.2
ST-SA49	MH-SA49	Chamber-203		17.9	74.02	73.80	CIRCULAR	0.38		0.01228	171.1
ST-SA50	MH-SA50	Chamber-203		13.2	74.07	73.67	CIRCULAR	0.38		0.03032	202.4
ST-SA51-1	MH-SA51-1	Chamber-204		14.7	73.91	73.76	CIRCULAR	0.45		0.01021	217.1
ST-SA51-2	MH-SA51-2	MH207		13.2	74.11	73.98	CIRCULAR	0.38		0.00982	157.4
ST-SA52_1	MHST-213	MHST-214		51.4	68.54	68.45	CIRCULAR	0.53		0.00175	235.0
ST-SA56-1	MH-SA56-1	MHST-203		5.0	73.24	73.19	CIRCULAR	0.53		0.00994	233.9
ST-SA56-2	MH-SA56-2	MHST-204		4.9	73.24	73.19	CIRCULAR	0.45		0.01028	183.5
ST-SA56-3	MH-SA56-3	MHST-208		8.9	73.80	73.44	CIRCULAR	0.38		0.04046	140.9
ST-UGS6B	CHAMBER-102	MHST-170		16.6	72.03	71.96	CIRCULAR	0.38		0.00421	161.6
ST-UGS-Z1	CHAMBER-104B	MHST-145		8.4	69.91	69.90	CIRCULAR	0.90		0.00119	481.9
ST-xx	MH-SAxx	MHST-107		10.7	62.45	62.15	CIRCULAR	0.20		0.02805	7.0
TD01	TD01_1	TD01_3	TrenchDrain	7.9	70.21	70.10	PARABOLIC	0.15		0.01393	7.2
TD02	TD02_01	TD02_03	TrenchDrain	21.8	68.90	68.75	RECT_OPEN	0.35		0.00689	31.1
TD03	TD03_1	TD_B	TrenchDrain	36.4	68.80	68.65	RECT_OPEN	0.35		0.00412	67.0
TD04	TD04_01	TD04_02	TrenchDrain	5.6	74.62	74.57	PARABOLIC	0.13		0.00891	11.5
TD06	TD06_1	TD06_2	TrenchDrain	17.3	69.15	69.04	RECT_OPEN	0.35		0.00634	30.8
TD07	TD07_1	TD07_2	TrenchDrain	12.2	69.10	69.04	RECT_OPEN	0.35		0.00491	4.2
TDS	TDS_1	TDS_2	TrenchDrain	2.5	76.43	76.40	PARABOLIC	0.15		0.01188	15.5
TDS_O	TDS_2	MHST-144		28.5	70.50	69.68	CIRCULAR	0.20		0.02882	15.5
TDW	TDW_1	TDW_2	TrenchDrain	2.5	76.49	76.47	PARABOLIC	0.15		0.00800	9.7
TDW_O	TDW_2	MHST-144		17.8	70.50	69.68	CIRCULAR	0.20		0.04623	9.6
UP-CB43-S	UP-CB43	CB43	major_system	36.8	83.46	81.69	IRREGULAR	0.00	Road-D_W	0.04815	23.7
WD-OLF_3	Wales-OLF-N03	Wales-OLF-N04	Major_System	81.2	68.20	66.75	IRREGULAR	0.00	P_Wales_Dr	0.01786	33.2
WD-OLF_4	Wales-OLF-N04	Wales-OLF-N05	Major_System	95.0	66.75	65.50	IRREGULAR	0.00	P_Wales_Dr	0.01316	31.3

Junctions 1/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
13		NO	67.93	70.22	2.29	2.29	70.22	10/04/2022 01:20 AM
21		NO	77.88	80.84	2.96	0.10	77.98	10/04/2022 01:10 AM
22		NO	74.77	77.92	3.15	0.13	74.91	10/04/2022 01:10 AM
23		NO	72.48	75.76	3.28	0.35	72.83	10/04/2022 01:29 AM
26		NO	72.35	75.31	2.97	0.48	72.83	10/04/2022 01:29 AM
30		NO	71.34	76.21	4.86	1.40	72.75	10/04/2022 01:30 AM
31		NO	71.66	74.97	3.31	1.12	72.78	10/04/2022 01:30 AM
32		NO	71.68	74.93	3.26	1.10	72.78	10/04/2022 01:29 AM
33		NO	71.70	74.90	3.20	1.09	72.79	10/04/2022 01:29 AM
34		NO	82.41	82.56	0.15	0.09	82.50	10/04/2022 01:21 AM
35		NO	71.22	77.20	5.98	1.50	72.72	10/04/2022 01:30 AM
36		NO	70.67	78.89	8.22	2.04	72.71	10/04/2022 01:30 AM
37		NO	71.39	75.58	4.19	1.36	72.75	10/04/2022 01:30 AM
38		NO	78.80	81.48	2.68	0.07	78.87	10/04/2022 01:10 AM
39		NO	63.78	69.31	5.54	1.98	65.76	10/04/2022 01:20 AM
45		NO	69.56	74.33	4.76	2.08	71.64	10/04/2022 01:35 AM
48		NO	70.33	77.13	6.80	2.32	72.65	10/04/2022 01:31 AM
49		NO	70.31	76.54	6.23	2.33	72.64	10/04/2022 01:31 AM
50		NO	70.24	75.84	5.60	2.38	72.62	10/04/2022 01:32 AM
51		NO	70.10	70.31	0.21	0.00	70.10	10/04/2022 00:00 AM
54		NO	68.92	69.07	0.15	0.07	68.99	10/04/2022 01:11 AM
55		NO	82.30	82.60	0.30	0.28	82.58	10/04/2022 01:11 AM
56		NO	69.53	74.02	4.49	2.08	71.61	10/04/2022 01:35 AM
59		NO	78.90	81.73	2.83	0.06	78.96	10/04/2022 01:10 AM
60		NO	73.94	80.75	6.81	0.71	74.65	10/04/2022 01:19 AM
61		NO	73.88	80.44	6.56	0.71	74.59	10/04/2022 01:19 AM
64		NO	70.44	79.78	9.35	2.26	72.70	10/04/2022 01:30 AM
65		NO	70.40	78.80	8.40	2.28	72.68	10/04/2022 01:31 AM
66		NO	70.39	78.55	8.17	2.29	72.67	10/04/2022 01:31 AM
68		NO	70.37	78.07	7.71	2.30	72.67	10/04/2022 01:31 AM
69		NO	70.36	77.83	7.47	2.30	72.66	10/04/2022 01:31 AM
70		NO	70.35	77.58	7.24	2.31	72.66	10/04/2022 01:31 AM
71		NO	70.23	75.65	5.43	2.38	72.61	10/04/2022 01:32 AM
72		NO	70.21	75.47	5.26	2.39	72.60	10/04/2022 01:32 AM
73		NO	70.15	75.14	4.99	2.23	72.38	10/04/2022 01:34 AM
74		NO	75.07	75.07	0.00	0.02	75.09	10/04/2022 01:12 AM
75		NO	71.58	75.15	3.56	1.18	72.76	10/04/2022 01:30 AM
76		NO	78.23	81.34	3.11	0.07	78.31	10/04/2022 01:10 AM
77		NO	82.15	82.45	0.30	0.30	82.45	10/04/2022 01:17 AM
78		NO	82.14	82.45	0.31	0.31	82.45	10/04/2022 01:17 AM
81DICB2_SWE1S		NO	69.36	70.00	0.64	0.18	69.54	10/04/2022 01:25 AM
AD01		NO	79.51	79.70	0.19	0.05	79.56	10/04/2022 01:10 AM
AD02		NO	79.67	79.73	0.06	0.00	79.67	10/04/2022 00:10 AM
AD03		NO	79.82	79.85	0.03	0.00	79.82	10/04/2022 00:10 AM
AD04		NO	79.80	79.85	0.05	0.00	79.80	10/04/2022 00:10 AM
AD05		NO	79.70	79.80	0.10	0.00	79.70	10/04/2022 00:10 AM
AD06		NO	79.67	79.85	0.18	0.07	79.74	10/04/2022 01:10 AM
AD07		NO	74.25	74.30	0.05	0.00	74.25	10/04/2022 00:10 AM
AD08		NO	74.25	74.35	0.10	0.00	74.25	10/04/2022 00:10 AM
AD09		NO	74.25	74.29	0.04	0.00	74.25	10/04/2022 00:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
BI-SA1		NO	63.50	70.48	6.98	2.14	65.64	10/04/2022 01:24 AM
BI-SA1-S	Major_System	NO	70.15	70.30	0.15	0.07	70.22	10/04/2022 01:10 AM
BI-SA49-S	Major_System	NO	75.35	75.51	0.16	0.03	75.38	10/04/2022 01:10 AM
Carling_OLF1		NO	66.50	66.70	0.20	0.08	66.58	10/04/2022 01:11 AM
Carling_OLFN1		NO	65.41	65.61	0.20	0.11	65.52	10/04/2022 01:11 AM
Carling_OLFN3		NO	64.80	65.00	0.20	0.16	64.96	10/04/2022 01:13 AM
CB100		NO	75.08	75.23	0.15	0.03	75.11	10/04/2022 01:10 AM
CB104		NO	75.37	75.52	0.15	0.04	75.41	10/04/2022 01:10 AM
CB105		NO	75.14	75.29	0.15	0.04	75.18	10/04/2022 01:10 AM
CB106,103		NO	75.51	75.66	0.15	0.03	75.54	10/04/2022 01:10 AM
CB107		NO	75.12	75.27	0.15	0.02	75.14	10/04/2022 01:10 AM
CB108		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB109		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB111		NO	75.04	75.40	0.36	0.29	75.33	10/04/2022 01:12 AM
CB111_SW		NO	75.17	75.45	0.28	0.21	75.38	10/04/2022 01:10 AM
CB113		NO	69.58	69.78	0.20	0.00	69.58	10/04/2022 00:10 AM
CB114		NO	74.92	75.07	0.15	0.07	74.99	10/04/2022 01:11 AM
CB209		NO	77.64	77.79	0.15	0.03	77.67	10/04/2022 01:10 AM
CB255		NO	73.46	77.72	4.26	0.06	73.51	10/04/2022 01:10 AM
CB255-S		NO	77.71	77.86	0.15	0.02	77.73	10/04/2022 01:10 AM
CB26		NO	75.96	76.11	0.15	0.03	75.99	10/04/2022 01:10 AM
CB42		NO	81.44	81.59	0.15	0.02	81.46	10/04/2022 01:10 AM
CB43		NO	81.69	81.84	0.15	0.03	81.72	10/04/2022 01:10 AM
CB44	Major_System	NO	80.37	80.52	0.15	0.02	80.39	10/04/2022 01:10 AM
CB45		NO	80.69	80.84	0.15	0.02	80.71	10/04/2022 01:10 AM
CB46		NO	79.69	79.84	0.15	0.02	79.71	10/04/2022 01:10 AM
CB47		NO	78.63	78.80	0.18	0.02	78.65	10/04/2022 01:10 AM
CB48		NO	78.85	79.00	0.15	0.03	78.88	10/04/2022 01:10 AM
CB49		NO	78.19	78.37	0.18	0.02	78.21	10/04/2022 01:10 AM
CB50		NO	77.85	78.00	0.15	0.03	77.88	10/04/2022 01:10 AM
CB51		NO	77.75	77.94	0.18	0.02	77.77	10/04/2022 01:10 AM
CB52		NO	77.14	77.29	0.15	0.03	77.17	10/04/2022 01:10 AM
CB53		NO	77.08	77.23	0.15	0.02	77.10	10/04/2022 01:10 AM
CB54		NO	76.44	76.59	0.15	0.03	76.47	10/04/2022 01:10 AM
CB55		NO	76.58	76.73	0.15	0.02	76.60	10/04/2022 01:10 AM
CB56		NO	75.98	76.13	0.15	0.04	76.02	10/04/2022 01:10 AM
CB58		NO	75.64	75.79	0.15	0.04	75.68	10/04/2022 01:10 AM
CB59		NO	74.99	75.14	0.15	0.04	75.03	10/04/2022 01:10 AM
CB60		NO	75.39	75.55	0.16	0.00	75.39	10/04/2022 00:10 AM
CB64		NO	74.57	74.72	0.15	0.03	74.60	10/04/2022 01:10 AM
CB68,40		NO	72.63	72.79	0.16	0.04	72.67	10/04/2022 01:10 AM
CB69		NO	78.72	78.87	0.15	0.03	78.75	10/04/2022 01:10 AM
CB71		NO	79.68	79.83	0.15	0.02	79.70	10/04/2022 01:10 AM
CB72_89		NO	69.49	69.64	0.15	0.02	69.51	10/04/2022 01:10 AM
CB75		NO	79.25	79.40	0.15	0.02	79.27	10/04/2022 01:10 AM
CB77		NO	78.83	78.98	0.15	0.03	78.86	10/04/2022 01:10 AM
CB79		NO	77.57	77.72	0.15	0.03	77.60	10/04/2022 01:10 AM
CB82	Major_System	NO	77.15	77.30	0.15	0.04	77.19	10/04/2022 01:10 AM
CB83	Major_System	NO	77.24	77.39	0.15	0.05	77.29	10/04/2022 01:10 AM
CB84,85		NO	81.32	81.47	0.15	0.02	81.34	10/04/2022 01:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
CB87		NO	75.50	75.65	0.15	0.01	75.51	10/04/2022 01:10 AM
CB88		NO	79.79	80.09	0.30	0.03	79.82	10/04/2022 01:10 AM
CB90		NO	80.75	80.90	0.15	0.02	80.77	10/04/2022 01:10 AM
CB92		NO	75.27	75.42	0.15	0.04	75.31	10/04/2022 01:10 AM
CB93		NO	75.17	75.32	0.15	0.02	75.19	10/04/2022 01:10 AM
CB96		NO	78.66	78.81	0.15	0.03	78.69	10/04/2022 01:10 AM
CB97		NO	77.90	78.05	0.15	0.02	77.92	10/04/2022 01:10 AM
CBMH57	Major_System	NO	76.01	76.16	0.15	0.06	76.07	10/04/2022 01:10 AM
CBMH89		NO	76.26	76.41	0.15	0.05	76.31	10/04/2022 01:10 AM
CBMHST-101		NO	73.63	76.41	2.78	0.33	73.96	10/04/2022 01:15 AM
CBMHST103		NO	72.10	74.28	2.18	1.22	73.32	10/04/2022 01:20 AM
CBMHST-103-S		NO	74.60	74.75	0.15	0.09	74.69	10/04/2022 01:11 AM
CBMHST-104		NO	74.14	76.59	2.45	0.21	74.35	10/04/2022 01:11 AM
CBMHST105		NO	72.40	74.73	2.33	1.13	73.53	10/04/2022 01:08 AM
CBMHST105-S		NO	74.82	74.97	0.15	0.02	74.84	10/04/2022 01:10 AM
CBMHST-162		NO	76.10	82.72	6.62	3.75	79.85	10/04/2022 01:10 AM
CBMHST208-S		NO	78.00	78.20	0.20	0.04	78.04	10/04/2022 01:10 AM
CBMHST66,67		NO	73.54	73.70	0.16	0.05	73.59	10/04/2022 01:10 AM
Chamber201S		NO	67.95	68.95	1.00	1.00	68.95	10/04/2022 01:21 AM
Chamber202-S		NO	70.84	73.59	2.75	0.81	71.65	10/04/2022 01:35 AM
CUP-SS1		NO	73.50	74.00	0.50	0.16	73.66	10/04/2022 01:10 AM
D-Chamber-203		NO	71.42	75.05	3.63	1.22	72.64	10/04/2022 01:32 AM
D-Chamber-204		NO	73.03	74.63	1.60	0.31	73.34	10/04/2022 01:27 AM
DICB10		NO	79.27	79.50	0.23	0.15	79.42	10/04/2022 01:19 AM
DICB11		NO	75.45	75.60	0.15	0.10	75.55	10/04/2022 01:24 AM
DICB2_SWE2S		NO	69.58	69.75	0.17	0.10	69.68	10/04/2022 01:10 AM
DICB2_SWWS		NO	69.50	70.00	0.50	0.17	69.67	10/04/2022 01:10 AM
DICB3		NO	64.00	66.43	2.43	0.00	64.00	10/04/2022 00:00 AM
DICB6		NO	74.70	76.59	1.89	0.03	74.73	10/04/2022 01:16 AM
D-MHST-100		NO	62.60	65.42	2.82	0.79	63.39	10/04/2022 01:23 AM
D-MHST-142		NO	67.80	72.58	4.78	1.30	69.10	10/04/2022 01:37 AM
D-MHST-145		NO	69.90	74.34	4.44	2.11	72.01	10/04/2022 01:35 AM
D-MHST-146_1		NO	70.17	75.39	5.22	2.22	72.39	10/04/2022 01:34 AM
D-MHST-155		NO	74.03	81.22	7.19	2.72	76.75	10/04/2022 01:19 AM
D-MHST-157B		NO	69.97	74.44	4.47	2.35	72.32	10/04/2022 01:35 AM
D-MHST-161-S	Major_System	NO	83.25	83.40	0.15	0.02	83.27	10/04/2022 01:10 AM
D-MHST-170		NO	71.93	74.51	2.58	1.13	73.06	10/04/2022 01:27 AM
IN119607		NO	63.00	65.62	2.62	0.39	63.39	10/04/2022 01:25 AM
IN119608		NO	63.50	66.14	2.64	0.00	63.50	10/04/2022 00:00 AM
MH150		NO	66.97	69.72	2.75	1.20	68.17	10/04/2022 01:07 AM
MH207		NO	73.95	75.43	1.48	0.48	74.43	10/04/2022 01:09 AM
MH-SA1		NO	69.45	70.55	1.10	0.15	69.60	10/04/2022 00:53 AM
MH-SA49		NO	73.97	75.45	1.48	0.32	74.29	10/04/2022 01:10 AM
MH-SA50		NO	74.07	75.83	1.76	0.22	74.29	10/04/2022 01:10 AM
MH-SA51-1		NO	74.08	76.53	2.45	0.23	74.31	10/04/2022 01:10 AM
MH-SA51-2		NO	74.84	76.50	1.66	0.15	74.99	10/04/2022 01:10 AM
MH-SA56-1		NO	73.24	74.54	1.30	0.31	73.55	10/04/2022 01:10 AM
MH-SA56-2		NO	73.24	74.54	1.30	0.31	73.55	10/04/2022 01:10 AM
MH-SA56-3		NO	73.80	75.80	2.00	0.19	73.99	10/04/2022 01:10 AM
MH-SAxx		NO	62.00	64.50	2.50	0.50	62.50	10/04/2022 00:16 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST_156B		NO	70.09	74.24	4.15	2.25	72.34	10/04/2022 01:35 AM
MHST-100		NO	62.60	65.42	2.82	2.98	65.58	10/04/2022 01:23 AM
MHST-100-S	Major_System	NO	65.42	65.72	0.30	0.04	65.46	10/04/2022 01:10 AM
MHST-101		NO	63.00	66.07	3.07	2.60	65.60	10/04/2022 01:24 AM
MHST-101-S	Major_System	NO	66.07	66.23	0.16	0.05	66.12	10/04/2022 01:10 AM
MHST-102		NO	63.00	66.28	3.28	2.61	65.61	10/04/2022 01:24 AM
MHST-102-S	Major_System	NO	66.28	66.44	0.16	0.04	66.32	10/04/2022 01:10 AM
MHST-104		NO	63.30	70.80	7.50	2.33	65.63	10/04/2022 01:24 AM
MHST-104-S	Major_System	NO	70.80	70.95	0.15	0.05	70.85	10/04/2022 01:10 AM
MHST-105		NO	63.60	69.13	5.53	2.21	65.81	10/04/2022 01:20 AM
MHST-105-S	Major_System	NO	68.64	68.79	0.15	0.09	68.73	10/04/2022 01:11 AM
MHST-106		NO	63.00	71.87	8.87	2.62	65.62	10/04/2022 01:24 AM
MHST-106-S	Major_System	NO	71.87	72.03	0.16	0.04	71.91	10/04/2022 01:11 AM
MHST-107		NO	62.00	64.32	2.32	0.14	62.14	10/04/2022 01:10 AM
MHST-120-S	Major_System	NO	74.46	74.62	0.16	0.04	74.50	10/04/2022 01:10 AM
MHST-126		NO	74.23	75.36	1.13	0.04	74.27	10/04/2022 01:02 AM
MHST-130		NO	67.69	70.21	2.52	1.34	69.03	10/04/2022 01:37 AM
MHST-132		NO	73.25	75.96	2.71	0.35	73.60	10/04/2022 01:10 AM
MHST-134		NO	76.62	79.19	2.57	0.11	76.73	10/04/2022 01:10 AM
MHST-135		NO	70.62	79.31	8.69	2.09	72.71	10/04/2022 01:30 AM
MHST-135-S	Major_System	NO	79.98	80.13	0.15	0.02	80.00	10/04/2022 01:10 AM
MHST-136		NO	78.65	81.94	3.29	0.00	78.65	10/04/2022 00:00 AM
MHST-136-S		NO	81.70	82.00	0.30	0.04	81.74	10/04/2022 01:10 AM
MHST-137		NO	77.24	80.00	2.76	0.11	77.35	10/04/2022 01:10 AM
MHST-138		NO	75.17	78.56	3.39	0.13	75.30	10/04/2022 01:10 AM
MHST-141		NO	71.42	75.17	3.75	1.34	72.76	10/04/2022 01:30 AM
MHST-142		NO	67.80	72.58	4.78	3.58	71.38	10/04/2022 01:35 AM
MHST-143		NO	69.45	74.02	4.57	2.11	71.56	10/04/2022 01:35 AM
MHST-144		NO	69.68	75.30	5.62	2.07	71.75	10/04/2022 01:35 AM
MHST-145		NO	69.90	73.97	4.07	2.41	72.31	10/04/2022 01:35 AM
MHST-146		NO	70.17	75.39	5.22	2.42	72.59	10/04/2022 01:32 AM
MHST-146-S	Major_System	NO	75.38	75.58	0.20	0.07	75.45	10/04/2022 01:10 AM
MHST-147		NO	70.25	75.92	5.67	2.38	72.63	10/04/2022 01:32 AM
MHST-148		NO	70.45	80.13	9.68	2.25	72.70	10/04/2022 01:30 AM
MHST-149		NO	70.69	78.30	7.61	2.02	72.71	10/04/2022 01:30 AM
MHST-149-S	Major_System	NO	77.93	78.08	0.15	0.04	77.97	10/04/2022 01:10 AM
MHST-150		NO	70.76	77.32	6.56	1.95	72.71	10/04/2022 01:30 AM
MHST-151		NO	71.23	77.10	5.87	1.50	72.73	10/04/2022 01:30 AM
MHST-153		NO	72.86	77.00	4.14	0.18	73.04	10/04/2022 01:11 AM
MHST-153-S	TGCB102	NO	76.52	76.82	0.30	0.02	76.54	10/04/2022 01:10 AM
MHST-154		NO	75.60	81.92	6.32	1.73	77.33	10/04/2022 01:10 AM
MHST-154A		NO	76.00	82.52	6.52	3.62	79.62	10/04/2022 01:10 AM
MHST-154B		NO	75.90	81.89	5.99	3.03	78.93	10/04/2022 01:10 AM
MHST-155		NO	74.03	81.22	7.19	0.71	74.74	10/04/2022 01:19 AM
MHST-156		NO	70.13	74.49	4.36	2.21	72.34	10/04/2022 01:35 AM
MHST-157		NO	70.02	74.65	4.63	2.32	72.34	10/04/2022 01:35 AM
MHST-158		YES	71.74	74.80	3.06	1.05	72.79	10/04/2022 01:29 AM
MHST-158-S	Major_System	NO	74.99	75.14	0.15	0.02	75.01	10/04/2022 01:10 AM
MHST-159		NO	69.38	74.96	5.58	2.10	71.48	10/04/2022 01:35 AM
MHST-160		NO	71.27	76.79	5.52	1.47	72.74	10/04/2022 01:30 AM
MHST-161		NO	78.96	81.88	2.92	0.00	78.96	10/04/2022 01:10 AM
MHST-170		NO	71.93	74.51	2.58	1.23	73.16	10/04/2022 01:25 AM
MHST-200		NO	70.10	74.81	4.71	2.26	72.36	10/04/2022 01:34 AM
MHST-201		NO	69.96	74.74	4.78	2.38	72.34	10/04/2022 01:35 AM
MHST-203		NO	73.11	78.83	5.72	0.41	73.52	10/04/2022 01:10 AM

Junctions 5/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST-204		NO	73.11	78.79	5.68	0.42	73.53	10/04/2022 01:10 AM
MHST-205		NO	72.94	78.20	5.26	0.57	73.51	10/04/2022 01:10 AM
MHST-206		NO	72.91	75.77	2.86	0.51	73.42	10/04/2022 01:10 AM
MHST-208		NO	73.41	77.80	4.39	0.48	73.89	10/04/2022 01:10 AM
MHST-209		NO	73.35	75.76	2.41	0.41	73.76	10/04/2022 01:10 AM
MHST-211		NO	68.31	70.38	2.07	0.66	68.97	10/04/2022 01:40 AM
MHST-212		NO	67.95	70.22	2.27	1.17	69.12	10/04/2022 01:35 AM
MHST-213		NO	68.54	70.24	1.70	0.45	68.99	10/04/2022 01:10 AM
MHST-214		NO	68.23	70.31	2.08	0.73	68.96	10/04/2022 01:40 AM
MHST-215		NO	68.27	70.25	1.98	0.70	68.97	10/04/2022 01:40 AM
MHST-221		NO	66.62	69.70	3.08	0.50	67.12	10/04/2022 01:12 AM
MHST301		NO	72.60	75.11	2.52	0.20	72.79	10/04/2022 01:29 AM
MHST62528		NO	67.34	70.08	2.74	1.01	68.35	10/04/2022 01:29 AM
MHST-62534		NO	76.90	82.80	5.90	3.26	80.16	10/04/2022 01:10 AM
MHST62545		NO	66.53	69.90	3.37	0.80	67.33	10/04/2022 01:29 AM
MHST62547		NO	64.00	71.80	7.80	1.63	65.63	10/04/2022 01:29 AM
MSHT-103		NO	63.00	66.13	3.13	2.62	65.62	10/04/2022 01:24 AM
MSHT-103-S	Major_System	NO	66.13	66.29	0.16	0.08	66.21	10/04/2022 01:11 AM
OGS1		NO	61.00	63.82	2.82	0.41	61.41	10/04/2022 01:10 AM
OGS-3		NO	67.62	70.34	2.72	0.98	68.60	10/04/2022 01:28 AM
POW_D1		NO	78.70	79.30	0.60	0.21	78.91	10/04/2022 01:11 AM
Preston		NO	61.00	63.00	2.00	0.36	61.36	10/04/2022 01:14 AM
S-26B		NO	67.58	69.60	2.02	1.96	69.54	10/04/2022 01:23 AM
S-63		NO	79.80	84.02	4.22	2.29	82.09	10/04/2022 01:20 AM
ST-60-S-B		NO	74.11	74.41	0.30	0.13	74.24	10/04/2022 01:11 AM
ST-60-S-C		NO	73.25	73.50	0.24	0.16	73.42	10/04/2022 01:12 AM
SW_42I		NO	74.96	75.15	0.19	0.08	75.04	10/04/2022 01:10 AM
SW_65D		NO	77.94	78.44	0.50	0.03	77.97	10/04/2022 01:16 AM
TD_B		NO	67.88	69.06	1.19	0.16	68.04	10/04/2022 01:06 AM
TD01_1		NO	70.21	70.34	0.13	0.10	70.31	10/04/2022 01:10 AM
TD01_3		NO	68.60	70.29	1.69	0.39	68.99	10/04/2022 01:10 AM
TD02_01		NO	68.90	69.10	0.20	0.16	69.06	10/04/2022 01:10 AM
TD02_03		NO	67.42	69.10	1.68	0.94	68.36	10/04/2022 01:12 AM
TD03_1		NO	68.80	69.10	0.30	0.35	69.15	10/04/2022 01:05 AM
TD04_01		NO	74.57	74.72	0.15	0.18	74.75	10/04/2022 01:08 AM
TD04_02		NO	74.00	74.72	0.72	0.05	74.05	10/04/2022 01:11 AM
TD05_1		NO	74.50	74.75	0.25	0.15	74.65	10/04/2022 01:10 AM
TD05_2		NO	74.00	74.72	0.72	0.07	74.07	10/04/2022 01:10 AM
TD06_1		NO	69.15	69.39	0.24	0.16	69.31	10/04/2022 01:10 AM
TD06_2		NO	67.40	69.39	1.99	0.86	68.26	10/04/2022 01:12 AM
TD07_1		NO	69.10	69.39	0.29	0.04	69.14	10/04/2022 01:10 AM
TD07_2		NO	67.40	69.39	1.99	0.71	68.11	10/04/2022 01:12 AM
TDS_1		NO	76.43	76.58	0.15	0.15	76.58	10/04/2022 01:04 AM
TDS_2		NO	70.50	76.58	6.08	1.26	71.76	10/04/2022 01:35 AM
TDW_1		NO	76.49	76.64	0.15	0.13	76.62	10/04/2022 01:10 AM
TDW_2		NO	70.50	76.64	6.14	1.25	71.75	10/04/2022 01:35 AM
UP-CB43		NO	83.46	83.61	0.15	0.03	83.49	10/04/2022 01:10 AM
Wales-OLF-N03		NO	68.20	68.40	0.20	0.05	68.25	10/04/2022 01:12 AM
Wales-OLF-N04		NO	66.75	66.95	0.20	0.05	66.80	10/04/2022 01:13 AM
Wales-OLF-N05		NO	65.50	65.70	0.20	0.07	65.57	10/04/2022 01:16 AM

Storage 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Storage Curve	Curve Name	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Volume (1000 m³)	Max. Percent Full (%)	Contributing Area (ha)
CB130	69.84	70.11	0.27	TABULAR	CB(600x600)	0.01	0.08	69.92	0	30	0.0920
CB65	72.16	73.70	1.54	TABULAR	CB65	0.02	0.04	72.20	0	0	1.1620
CB91	75.00	75.20	0.20	TABULAR	CB91	0.10	0.17	75.17	0.014	66	0.1910
CB94	75.02	75.32	0.30	TABULAR	CB94	0.02	0.15	75.17	0.012	40	0.6180
CB95	75.52	75.82	0.30	TABULAR	CB95-ponding	0.02	0.12	75.64	0.014	17	0.2440
CB99	76.90	76.95	0.05	TABULAR	CB99	0.01	0.05	76.95	0	99	0.1460
CBMHST101-S	76.42	76.57	0.15	TABULAR	CBMH101	0.01	0.10	76.52	0.003	49	0.2910
CHAMBER-102	72.03	74.24	2.21	TABULAR	Chamber102	0.38	1.27	73.30	0.271	57	1.9200
CHAMBER-103	74.08	76.78	2.70	TABULAR	Chamber103	0.47	2.70	76.78	2.13	100	13.86
CHAMBER-104-A	70.13	72.43	2.30	TABULAR	Chamber104A	0.51	2.22	72.35	1.26	97	19.50
CHAMBER-104B	69.91	72.61	2.70	TABULAR	Chamber104B	0.62	2.41	72.32	1.52	89	22.77
Chamber201	67.95	69.19	1.24	TABULAR	Chamber201	0.25	1.01	68.96	0.42	82	1.06
Chamber202	70.84	72.43	1.59	TABULAR	Chamber202	0.29	1.22	72.06	0.48	77	1.69
Chamber-203	71.42	72.90	1.48	TABULAR	Chamber203	0.32	1.46	72.88	0.27	99	0.64
Chamber-204	73.03	74.36	1.33	TABULAR	Chamber204	0.26	1.20	74.23	0.27	91	0.69
DICB8	68.11	70.10	1.99	TABULAR	swale	0.15	1.30	69.41	0.05	11	2.81
DICB9	74.60	74.88	0.28	TABULAR	DICB9	0.03	0.13	74.73	0.00	10	1.13
MHST-157-S	73.80	74.23	0.43	TABULAR	CB98-ponding	0.04	0.25	74.05	0.01	24	1.12
PS	64.92	70.03	5.11	CYLINDRICAL	*	0.54	1.03	65.95	0.00	20	0.31
S-14B	61.65	63.30	1.65	TABULAR	S-14B	0.60	1.65	63.30	0.01	100	0.13
S-15	62.10	63.90	1.80	TABULAR	S-15	1.67	1.80	63.90	0.11	100	0.36
S-19	64.00	66.00	2.00	TABULAR	S-19	0.81	1.69	65.69	0.08	30	0.21
S-21B	63.54	65.70	2.16	TABULAR	S-21B	1.79	1.97	65.51	0.79	61	1.77
S-26D	67.19	69.25	2.06	TABULAR	DICB1	0.56	1.95	69.14	0.018	47	0.0750
S-3Store	62.20	64.24	2.04	TABULAR	S-3	1.91	2.04	64.24	0.081	100	0.3940
SA-1	69.50	72.50	3.00	TABULAR	S-1	0.93	2.89	72.39	0.635	96	1.2350
SA-2	62.60	65.60	3.00	TABULAR	S-2	1.48	2.22	64.82	0.665	74	0.8680

Outlets 1/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
1	DICB6	CBMHST-101	74.70	TABULAR/DEPTH	2CB	NO	18.52	0.12
12	CBMHST208-S	MHST-208	78.00	TABULAR/DEPTH	S28_SL2_5	NO	10.62	0.15
14	CB95	CBMHST-104	75.52	TABULAR/DEPTH	S19_LP	NO	109.85	0.24
18	CB94	75	75.02	TABULAR/DEPTH	2CB	NO	100.00	0.62
20	CB65	MHST-144	72.16	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	21.79	1.16
24	CBMHST-103-S	CBMHST103	74.60	TABULAR/DEPTH	S28_SL4_0.5	NO	22.00	1.55
26	CB91	37	75.14	TABULAR/DEPTH	S19_SL2_5x2	NO	32.17	0.19
31	CB26	Chamber202	75.96	TABULAR/DEPTH	S19_SL2_5x2	NO	30.06	0.35
37	CB113	Chamber201	69.58	TABULAR/DEPTH	CB	NO	0.00	0.14
44	AD05	MH-SA56-1	79.70	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
45	AD03	MH-SA56-2	79.82	TABULAR/HEAD	AreaDrain	NO	0.00	0.03
46	CB72_89	39	69.49	TABULAR/DEPTH	S19_SL2_1	NO	2.11	2.93
47	CBMHST66,67	56	73.54	TABULAR/DEPTH	S28_SL2_5x2	NO	24.23	0.80
48	DICB11	26	75.45	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	62.91	0.43
51	CB46	64	79.69	TABULAR/DEPTH	S19_SL2_5	NO	9.42	0.08
52	CB54	49	76.44	TABULAR/DEPTH	S22_SL2_5	NO	3.90	0.15
53	CB58	71	75.64	TABULAR/DEPTH	S22_SL2_5	NO	6.75	0.19
55	CB71	MHST-135	79.68	TABULAR/DEPTH	S19_SL2_2.5	NO	0.73	0.01
56	CB75	MHST-135	79.25	TABULAR/DEPTH	S22_SL2_2.5	NO	1.58	0.02
57	CB87	MHST-160	75.50	TABULAR/DEPTH	S19_LP	NO	1.55	0.11
58	CB107	32	75.12	TABULAR/DEPTH	S19_SL2_1x2	NO	10.76	0.69
59	CB100	33	75.08	TABULAR/DEPTH	S19_SL2_1x2	NO	15.99	0.70
60	CB84,85	76	81.32	TABULAR/DEPTH	S19_SL2_2.5x2	NO	19.15	0.10
61	CB90	21	80.75	TABULAR/DEPTH	S19_SL2_2.5x2	NO	16.41	0.11
62	CB96	MHST-138	78.66	TABULAR/DEPTH	S19_SL2_2.5	NO	19.26	0.17
63	CB97	22	77.90	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.19
65	CBMHST105-S	CBMHST105	74.82	TABULAR/DEPTH	S28_SL4_0.5	NO	0.89	0.38
69	DICB10	MHST-135	79.27	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	135.62	1.32
AD01_O	AD01	MH-SA56-2	79.67	TABULAR/DEPTH	3CB	NO	0.00	0.10
AD02_O	AD02	MH-SA56-2	79.67	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD04_O	AD04	MH-SA56-1	79.80	TABULAR/DEPTH	AreaDrain	NO	0.00	0.04
AD06_O	AD06	MH-SA56-1	79.65	TABULAR/DEPTH	AreaDrain	NO	51.69	0.11
AD07_O	AD07	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD08_O	AD08	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.09
AD09_O	AD09	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.01
BI-SA1-IC	BI-SA1-S	BI-SA1	70.15	TABULAR/DEPTH	6@R-B@S=1.5%	NO	104.08	0.52
BI-SA49-IC	BI-SA49-S	D-MHST-146_1	75.35	TABULAR/DEPTH	S19_SL2_1x4	NO	76.76	0.32
CB101_103_105	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.22
CB102_106_DIC	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S19_SL2_2.5	NO	9.09	0.22
CB103_O	CB106,103	23	75.51	TABULAR/DEPTH	S22_SL2_2.5	NO	2.48	0.24
CB104_O	CB104	72	75.37	TABULAR/DEPTH	S19_SL2_5	NO	25.10	0.21
CB105_O	CB105	26	75.14	TABULAR/DEPTH	S22_SL2_2.5	NO	4.79	0.26
CB106_O	CB106,103	23	75.51	TABULAR/DEPTH	S19_SL2_2.5x2	NO	26.70	0.24
CB108_O	CB108	MHST-214	69.60	TABULAR/DEPTH	CB	NO	0.00	0.12
CB109_O	CB109	MHST-215	69.60	TABULAR/DEPTH	CB	NO	0.00	0.09
CB111_O	CB111	MHST-147	75.04	TABULAR/DEPTH	S19_LP	NO	175.93	0.49
CB114_O	CB114	MHST-200	74.92	TABULAR/DEPTH	S19_SL2_5	NO	44.45	0.28
CB130_O	CB130	MHST-130	69.84	TABULAR/DEPTH	S19_SL2_1	NO	51.76	0.09
CB255-O	CB255-S	CB255	77.71	TABULAR/DEPTH	S19_SL2_5	NO	5.87	0.14
CB40,66-68	CB68,40	56	72.63	TABULAR/DEPTH	S19_SL2_5x4	NO	97.02	0.82

Outlets 2/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
CB42_O	CB42	38	81.44	TABULAR/DEPTH	S19_SL2_5	NO	4.28	0.02
CB43_O	CB43	59	81.69	TABULAR/DEPTH	S19_SL2_5	NO	17.12	0.04
CB44_O	CB44	61	80.37	TABULAR/DEPTH	S19_SL2_5x2	NO	6.63	0.03
CB45_O	CB45	60	80.69	TABULAR/DEPTH	S19_SL2_5	NO	7.57	0.07
CB47_O	CB47	66	78.63	TABULAR/DEPTH	S22_SL2_5	NO	1.74	0.05
CB48_O	CB48	65	78.85	TABULAR/DEPTH	S22_SL2_5	NO	2.29	0.10
CB49_O	CB49	68	78.19	TABULAR/DEPTH	S22_SL2_5x2	NO	3.38	0.05
CB50_O	CB50	69	77.85	TABULAR/DEPTH	S22_SL2_5	NO	2.93	0.12
CB51_O	CB51	70	77.75	TABULAR/DEPTH	S22_SL2_5	NO	1.47	0.05
CB52_O	CB52	48	77.14	TABULAR/DEPTH	S22_SL2_5	NO	3.25	0.14
CB53_O	CB53	48	77.08	FUNCTIONAL/DEPTH	*	NO	1.51	0.06
CB55_O	CB55	49	76.58	TABULAR/DEPTH	S22_SL2_5x2	NO	3.67	0.06
CB56_58	MHST-146-S	MHST-146	75.38	TABULAR/DEPTH	S22_SL2_1x2	NO	21.72	0.32
CB56_O	CB56	50	75.98	TABULAR/DEPTH	S22_SL2_5	NO	5.48	0.16
CB59_O	CB59	73	74.99	TABULAR/DEPTH	S19_SL2_5	NO	30.51	0.25
CB60_O	CB60	MHST301	75.39	TABULAR/DEPTH	S19_SL2_1	NO	0.00	0.07
CB63	MHST-120-S	56	74.46	TABULAR/DEPTH	S22_SL2_5	NO	5.38	0.40
CB69_75	MHST-149-S	MHST-149	77.93	TABULAR/DEPTH	S22_SL2_5x2	NO	8.73	0.09
CB69_O	CB69	36	78.72	TABULAR/DEPTH	S22_SL2_2.5	NO	2.21	0.05
CB77_O	CB77	36	78.83	TABULAR/DEPTH	S19_SL2_2.5	NO	10.21	0.05
CB79_O	CB79	MHST-150	77.57	TABULAR/DEPTH	S19_SL2_2.5	NO	17.73	0.12
CB82_O	CB82	MHST-151	77.15	TABULAR/DEPTH	DB_S22_SL2_5	NO	7.63	0.19
CB83_O	CB83	35	77.24	TABULAR/DEPTH	S22_SL2_5	NO	8.94	0.16
CB88_96	CB88	MHST-137	79.79	TABULAR/DEPTH	S19_SL2_2.5	NO	17.46	0.14
CB92_O	CB92	37	75.27	TABULAR/DEPTH	S19_SL2_2.5x2	NO	54.81	0.28
CB93_O	CB93	31	75.17	TABULAR/DEPTH	S19_SL2_1x2	NO	10.02	0.67
CB99_O	CB99	CBMHST-104	76.90	TABULAR/DEPTH	S19_LP	NO	38.77	0.15
CBMH57_O	CBMH57	MHST-147	76.00	TABULAR/DEPTH	S19_SL2_5	NO	42.30	0.32
CBMH89_O	CBMH89	MHST-160	76.26	TABULAR/DEPTH	S28_SL2_5	NO	12.92	0.23
CBMHST101_O	CBMHST101-S	CBMHST-101	76.42	TABULAR/DEPTH	S28_LP	NO	57.45	0.29
DICB9_OL	DICB9	CBMHST103	74.28	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	102.29	1.13
MHST-100-IC	MHST-100-S	MHST-100	66.30	TABULAR/DEPTH	1@R-A@S=5.0%	NO	0.00	1.42
MHST-101-IC	MHST-101-S	MHST-101	66.07	TABULAR/DEPTH	4@R-A@S=5.0%	NO	37.42	1.42
MHST-102-IC	MHST-102-S	MHST-102	66.28	TABULAR/DEPTH	4@R-A@S=5.0%	NO	33.78	1.29
MHST-104-IC	MHST-104-S	MHST-104	70.80	TABULAR/DEPTH	3@R-B@S=1.5%	NO	21.08	0.12
MHST-105-IC	MHST-105-S	MHST-105	68.64	TABULAR/DEPTH	3@R-B@S=1.5%	NO	113.72	4.14
MHST-106-IC	MHST-106-S	MHST-106	71.87	TABULAR/DEPTH	2@R-E@S=5.0%	NO	16.72	0.99
MHST-157-IC	MHST-157-S	MHST-157	73.80	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	307.75	1.12
MSHT-103-IC	MSHT-103-S	MSHT-103	66.13	TABULAR/DEPTH	7@R-A@S=5.0%	NO	258.19	1.13
O-1	SA-1	MH-SA1	69.50	TABULAR/HEAD	O-1	NO	60.00	1.24
O-15	S-15	MHST-107	62.10	TABULAR/DEPTH	O-15	NO	7.86	0.36
O-19	S-19	MHST-101	64.00	TABULAR/DEPTH	50VHV-1	NO	3.82	0.21
O-2	SA-2	MH-SAxx	62.60	TABULAR/HEAD	O-2	NO	7.00	0.87
O-21B	S-21B	IN119607	63.54	TABULAR/DEPTH	50VHV-1	NO	4.16	1.77
O-26D	S-26D	MHST-105	67.19	TABULAR/DEPTH	50VHV-1	NO	4.14	0.08
O-3	S-3Store	OGS1	62.20	TABULAR/HEAD	125VHV-2	NO	26.69	0.39
O-4	S-14B	Preston	62.15	TABULAR/HEAD	125VHV-2	NO	20.15	0.13
O-63	S-63	MHST-154A	78.20	TABULAR/DEPTH	O-63	NO	72.56	1.10
O-CB209	CB209	MHST-209	77.64	TABULAR/DEPTH	S28_SL2_5	NO	6.30	0.18
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	28.54	4.14

Orifices 1/1

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Width (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (L/s)
DICB2	S-26B	BI-SA1	SIDE	CIRCULAR	0.095	0	67.58	0.65	28.24
ICD-100-1	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.3	0	63.06	0.62	287.42
ICD-100-2	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.1	0	63.85	0.62	27.96
ICD102	MHST-170	D-MHST-170	SIDE	CIRCULAR	0.1	0	71.93	0.62	21.34
ICD103	D-MHST-155	MHST-155	SIDE	CIRCULAR	0.675	0	74.06	0.62	1395.75
ICD104	MHST-145	D-MHST-145	SIDE	RECT_CLOSED	0.75	0.75	69.9	0.62	1220
ICD-105	MHST-142	D-MHST-142	SIDE	CIRCULAR	0.7	0	69.32	0.62	1384.25
ICD111	DICB8	OGS-3	SIDE	CIRCULAR	0.4	0	68.11	0.62	333.24
ICD201	Chamber201	Chamber201S	SIDE	CIRCULAR	0.35	0	67.95	0.62	128.23
ICD202	Chamber202	Chamber202-S	SIDE	CIRCULAR	0.245	0	70.84	0.62	121.21
ICD203	Chamber-203	D-Chamber-203	SIDE	CIRCULAR	0.225	0	71.42	0.62	98.13
ICD204	Chamber-204	D-Chamber-204	SIDE	CIRCULAR	0.19	0	73.03	0.62	73.8

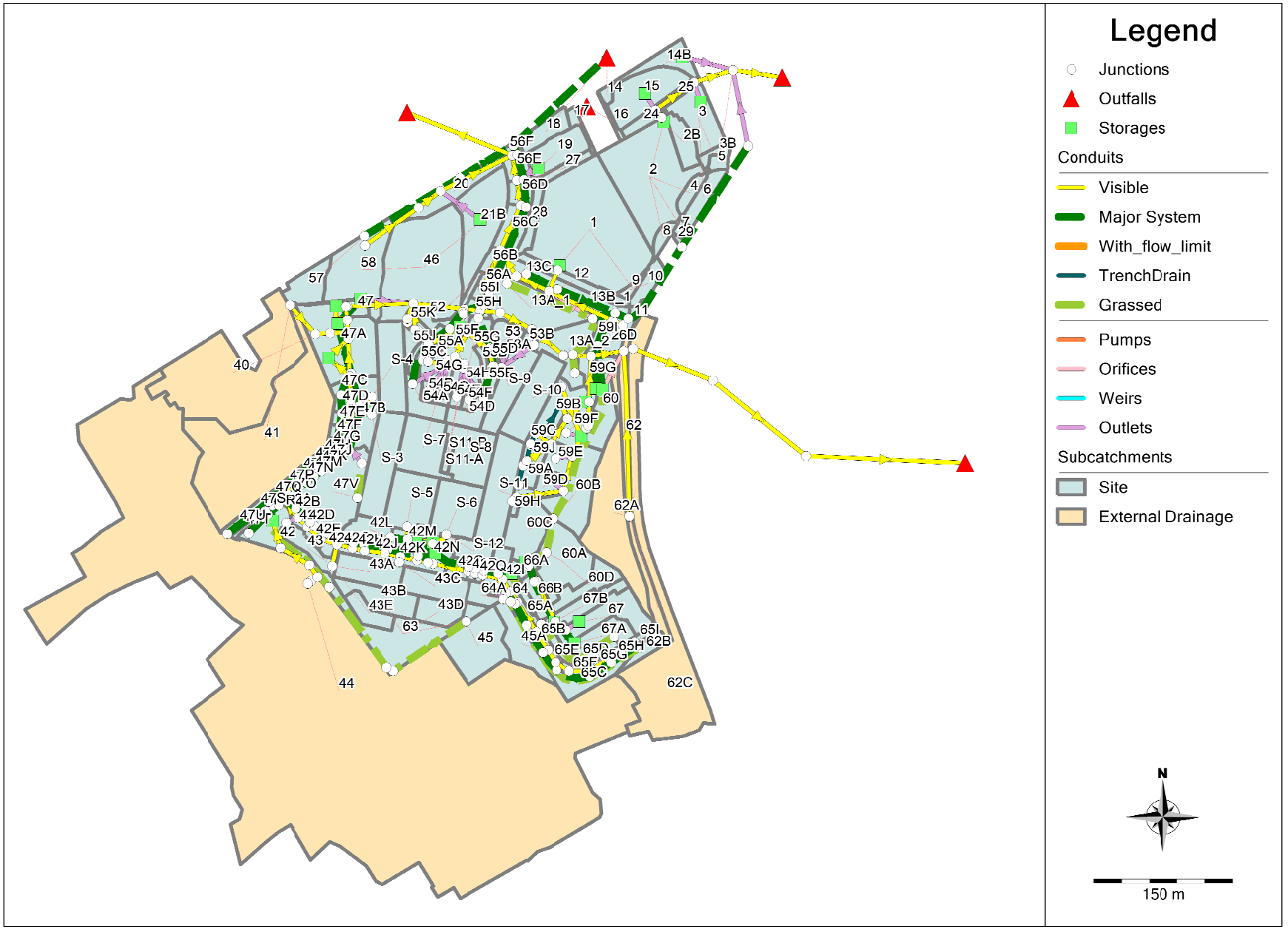
Weirs 1/1

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Inlet Elev. (m)	Max. |Flow| (L/s)	Time Max. Flow (M/D/Y)	Max/Full Depth	Contributing Area (ha)
Weir102	MHST-170	D-MHST-170	TRANSVERSE	0.3	1.5	73	152.44	10/04/2022 01:22 AM	0.53	1.92
Weir103	D-MHST-155	MHST-155	TRANSVERSE	1	1	76.45	276.08	10/04/2022 01:19 AM	0.3	13.859
Weir104	MHST-145	D-MHST-145	TRANSVERSE	1	2	71.64	1486.06	10/04/2022 01:35 AM	0.67	22.77
Weir-105	MHST-142	D-MHST-142	TRANSVERSE	0.5	1.4	70.7	1076.84	10/04/2022 01:35 AM	1	24.89
Weir112	MHST-146	D-MHST-146_1	SIDEFLOW	1.4	1.5	70.17	2564.31	10/04/2022 01:20 AM	1	19.443

Outfalls 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Type	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)	Max. Flow (L/s)	Total Flow (ML)	Contributing Area (ha)
Carling_OLF	64.6	64.8	FREE	0.13	64.73	10/04/2022 01:13 AM	310.27	0.34	2.011
Dows-Lake	63.745	66.5	FREE	0.93	64.67	10/04/2022 01:30 AM	2855.93	17.324	29.624
LRT-Corridor	56	57	FREE	0	56	10/04/2022 00:00 AM	30.61	0.026	0.059
Nepean-Bay-Trunk	62.8	65.21	NORMAL	0	62.8	10/04/2022 00:00 AM	319.52	2.838	8.845
Preston_Street	60.9	63.76	NORMAL	0.3	61.2	10/04/2022 01:09 AM	123.84	3.612	5.985

PCSWMM OUTPUT
24-HOUR SCS -100-YEAR STORM


Legend
Junctions
Outfalls
Storages
Conduits
Visible
Major System
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TrenchDrain
Grassed
Pumps
Orifices
Weirs
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Subcatchments
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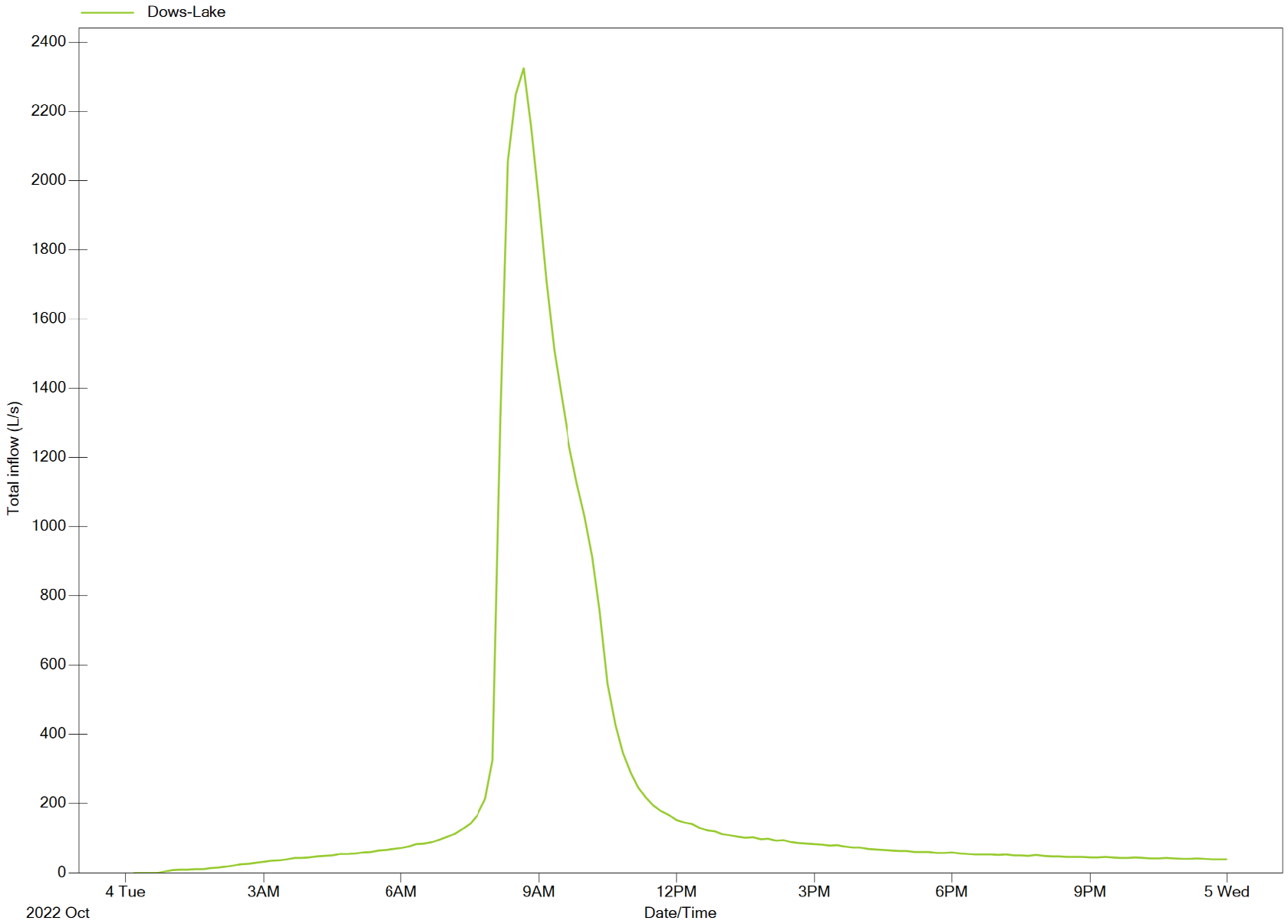
External Drainage
N
150 m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2200
2000
1800
1600
1400
1200
1000
800
600
400
200
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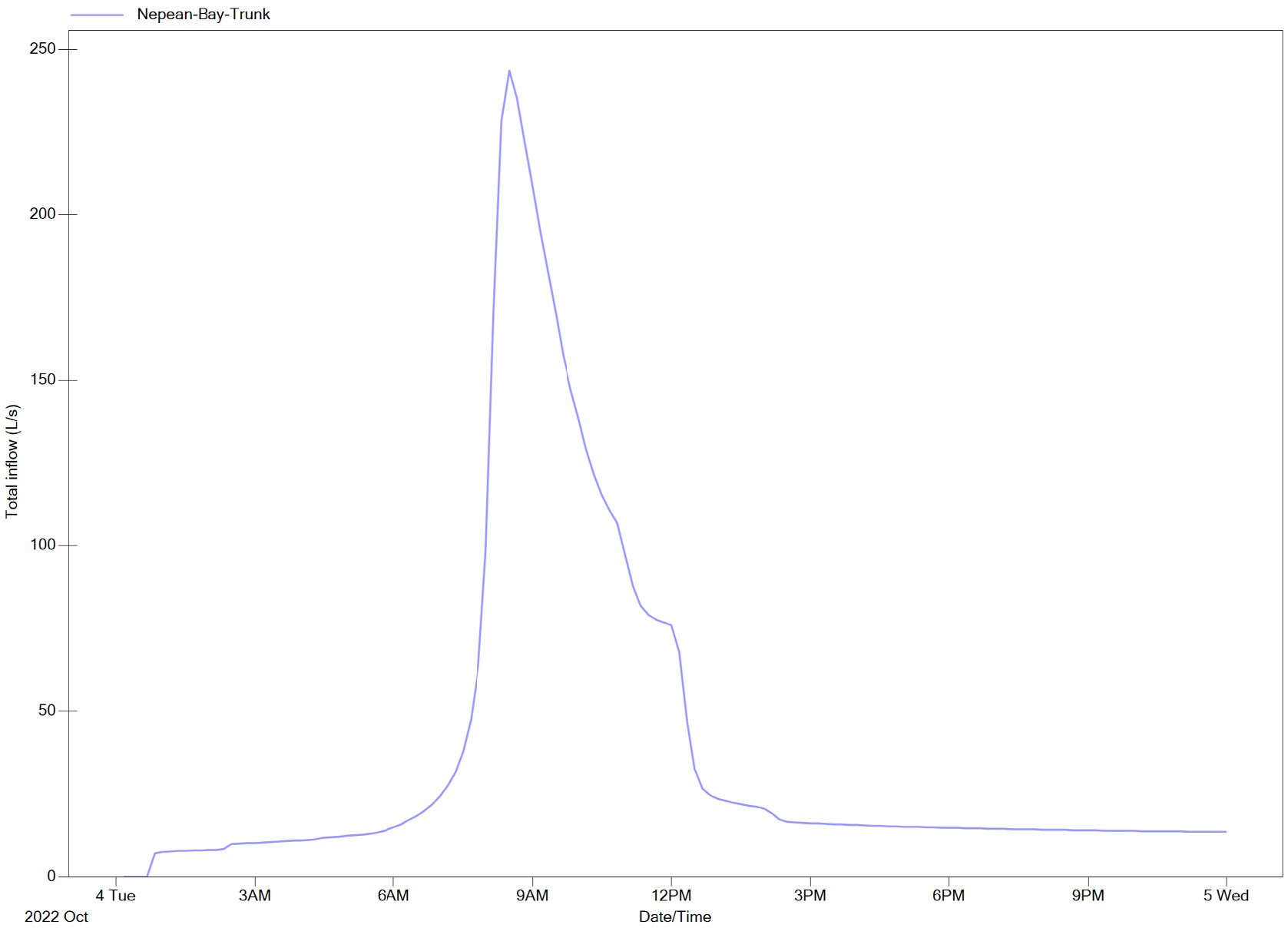
Total inflow (L/s)
4 Tue
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
2022 Oct
Date/Time


Nepean-Bay-Trunk
250
200
150
100
50
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time

SUBCATCHMENTS 1/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
1		24hr-100yr	SA-1	1.2161	3.0	599.4	1.0	100.00
10		24hr-100yr	13B_1	0.0822	3.0	35.4	0.4	8.07
11		24hr-100yr	MHST-105-S	0.0302	3.0	14.8	0.9	89.30
12		24hr-100yr	BI-SA1-S	0.1276	5.0	60.7	0.7	56.48
13A_1		24hr-100yr	DICB2_SWWS	0.4122	10.0	165.7	0.5	19.20
13A_2		24hr-100yr	DICB2_SWE2S	0.2478	10.0	77.0	0.4	3.60
13B_1		24hr-100yr	BI-SA1-S	0.1938	5.0	95.4	0.9	87.80
13C		24hr-100yr	MHST-104-S	0.1184	5.0	57.3	0.9	78.70
14		24hr-100yr	Carling_OLF	0.0580	3.0	26.2	0.7	60.27
14B		24hr-100yr	S-14B	0.1272	3.0	56.0	0.4	0.00
15		24hr-100yr	S-15	0.3643	3.0	116.0	0.4	3.61
16		24hr-100yr	LRT-Corridor	0.0229	3.0	10.3	0.3	0.00
17		24hr-100yr	LRT-Corridor	0.0361	3.0	16.1	0.4	0.00
18		24hr-100yr	Carling_OLF	0.1189	3.0	46.5	0.4	3.43
19		24hr-100yr	S-19	0.2056	3.0	77.3	0.4	7.10
2		24hr-100yr	SA-2	0.7114	3.0	358.2	1.0	100.00
20		24hr-100yr	Carling_OLFN1	0.2434	8.0	105.8	0.4	0.00
21B		24hr-100yr	S-21B	0.4325	10.0	351.8	0.7	9.20
24		24hr-100yr	MHST-107	0.0348	3.0	16.2	0.7	55.80
25		24hr-100yr	OGS1	0.0465	3.0	22.5	0.9	80.56
26D		24hr-100yr	S-26D	0.0748	2.0	22.7	0.3	0.00
27		24hr-100yr	MHST-101-S	0.0531	3.0	26.0	0.9	84.50
28		24hr-100yr	MHST-102-S	0.0844	5.0	40.4	0.8	62.60
29		24hr-100yr	7	0.0113	3.0	4.4	0.4	0.00
2B		24hr-100yr	SA-2	0.0908	3.0	45.0	1.0	100.00
3		24hr-100yr	S-3Store	0.2154	3.0	101.7	0.6	31.75
3B		24hr-100yr	3	0.0393	3.0	19.5	1.0	100.00
4		24hr-100yr	2	0.0196	3.0	9.7	1.0	100.00
40	External	24hr-100yr	MHST-156	1.1965	6.8	450.3	0.6	46.20
41	External	24hr-100yr	MHST-132	1.5372	3.0	285.4	0.4	14.60
42		24hr-100yr	DICB10	0.2213	3.0	44.5	0.3	0.01
42A		24hr-100yr	MHST-135-S	0.0106	3.5	5.2	0.9	84.62
42B		24hr-100yr	CB75	0.0107	3.5	5.3	1.0	99.40
42C		24hr-100yr	CB77	0.0243	3.5	12.1	1.0	100.00
42D		24hr-100yr	CB69	0.0062	3.5	3.1	1.0	95.34
42E		24hr-100yr	MHST-149-S	0.0345	3.5	15.2	0.6	40.14
42F		24hr-100yr	CB79	0.0354	3.5	15.8	0.6	44.00
42G		24hr-100yr	CB83	0.0415	2.8	20.3	0.9	83.29
42H		24hr-100yr	CB82	0.0225	2.8	10.9	0.8	74.75
42I		24hr-100yr	SW_42I	0.1692	2.0	74.8	0.8	75.05
42J		24hr-100yr	CBMH89	0.0485	2.8	23.4	0.8	71.99
42K		24hr-100yr	CB92	0.0466	3.0	22.5	0.9	78.08

SUBCATCHMENTS 2/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
42L		24hr-100yr	CB87	0.1098	5.0	54.2	1.0	95.54
42M		24hr-100yr	CB91	0.0808	4.5	39.6	0.9	86.55
42N		24hr-100yr	CB94	0.1467	1.5	70.9	0.9	80.74
42O		24hr-100yr	CB93	0.0494	2.0	23.9	0.9	76.95
42P		24hr-100yr	CB107	0.0173	2.2	8.5	0.9	83.72
42Q		24hr-100yr	CB100	0.0167	2.2	8.1	0.9	77.86
43		24hr-100yr	MHST-126	0.1112	9.0	55.1	1.0	98.59
43A		24hr-100yr	MHST-126	0.1990	2.0	81.4	0.7	55.00
43B		24hr-100yr	63	0.1919	1.5	85.1	0.7	55.00
43C		24hr-100yr	CUP-SS1	0.2011	2.0	75.0	0.6	45.00
43D		24hr-100yr	63	0.1257	3.0	58.3	0.7	55.00
43E		24hr-100yr	MHST-126	0.1010	0.5	49.1	1.0	99.00
44	External	24hr-100yr	MHST-62534	12.7620	1.0	3128.1	0.5	32.00
45		24hr-100yr	55	0.3614	4.0	160.9	0.7	58.75
45A		24hr-100yr	65C	0.1911	4.0	77.9	0.4	9.20
46		24hr-100yr	21B	0.8929	10.0	316.4	0.5	15.60
47		24hr-100yr	CB65	0.0376	2.5	18.4	0.9	87.89
47A		24hr-100yr	MHST-157-S	0.5324	1.5	256.5	0.9	88.00
47B		24hr-100yr	CBMH57	0.2548	2.0	121.0	0.8	69.70
47C		24hr-100yr	CB114	0.0276	2.0	13.2	0.8	65.65
47D		24hr-100yr	CB59	0.0337	2.0	16.6	0.9	91.76
47E		24hr-100yr	CB104	0.0244	2.0	12.1	1.0	100.00
47F		24hr-100yr	CB58	0.0250	2.0	12.4	1.0	99.94
47G		24hr-100yr	CB56	0.0145	2.0	7.2	1.0	99.54
47H		24hr-100yr	CB54	0.0132	5.0	6.4	0.9	83.09
47I		24hr-100yr	CB52	0.0133	5.0	6.5	0.9	82.33
47J		24hr-100yr	CB55	0.0043	5.0	2.0	0.5	25.00
47K		24hr-100yr	CB53	0.0041	5.0	2.0	1.0	99.90
47L		24hr-100yr	CB50	0.0195	5.0	9.5	0.9	82.25
47M		24hr-100yr	CB51	0.0040	5.0	2.0	1.0	99.65
47N		24hr-100yr	CB49	0.0043	5.0	2.1	1.0	100.00
47O		24hr-100yr	CB47	0.0183	5.0	9.1	1.0	99.90
47P		24hr-100yr	CB48	0.0195	5.0	9.5	0.9	82.15
47Q		24hr-100yr	CB46	0.0195	5.0	9.5	0.9	81.97
47R		24hr-100yr	CB44	0.0092	5.0	4.6	1.0	96.40
47S		24hr-100yr	CB45	0.0229	5.0	10.6	0.6	39.96
47T		24hr-100yr	D-MHST-161-S	0.0180	5.0	8.9	1.0	97.57
47U		24hr-100yr	UP-CB43	0.0418	5.0	20.1	0.8	72.19
47V		24hr-100yr	CB111_SW	0.4849	5.0	169.9	0.4	8.35
5		24hr-100yr	preston	0.0120	3.0	6.0	1.0	100.00
52		24hr-100yr	56B	0.0873	2.0	32.4	0.6	44.70
53		24hr-100yr	AD08	0.0903	20.0	41.2	0.6	32.10
53A		24hr-100yr	AD09	0.0070	1.5	3.4	0.8	72.42
53B		24hr-100yr	AD07	0.0264	1.0	12.8	0.9	80.25
54A		24hr-100yr	AD06	0.1118	1.5	55.0	1.0	98.30
54B		24hr-100yr	AD05	0.0337	2.0	16.5	0.9	87.44
54C		24hr-100yr	AD04	0.0362	1.5	17.8	0.9	89.15
54D		24hr-100yr	AD01	0.1027	2.0	50.7	1.0	99.60
54E		24hr-100yr	AD03	0.0304	1.5	14.9	0.9	89.00
54F		24hr-100yr	AD02	0.0316	2.0	15.5	0.9	86.13
54G		24hr-100yr	55F	0.0675	2.0	29.4	0.6	30.50
54H		24hr-100yr	55G	0.0634	2.0	28.3	0.6	38.04
55A		24hr-100yr	TD05_1	0.0307	4.0	15.2	1.0	98.63
55B		24hr-100yr	TD04_01	0.0231	4.5	11.4	1.0	93.90
55C		24hr-100yr	CB255-S	0.0259	5.0	12.8	1.0	99.27
55D		24hr-100yr	CB209	0.0240	5.0	11.3	0.7	53.18
55E		24hr-100yr	CBMHST208-S	0.0483	5.0	22.8	0.7	60.10
55F		24hr-100yr	CB26	0.1485	5.0	63.0	0.7	43.64
55G		24hr-100yr	MHST-120-S	0.1658	5.0	67.6	0.6	24.94
55H		24hr-100yr	CBMHST66,67	0.0408	5.0	19.2	0.7	51.58
55I		24hr-100yr	CB68,40	0.0241	5.0	11.8	0.9	81.84
55J		24hr-100yr	TDS_1	0.0804	3.0	29.4	0.5	28.65

SUBCATCHMENTS 3/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
55K		24hr-100yr	TDW_1	0.0168	2.1	8.1	0.8	75.97
56A		24hr-100yr	MHST-106-S	0.0236	5.0	11.5	0.9	80.84
56B		24hr-100yr	MHST-106-S	0.0562	5.0	40.5	0.9	86.00
56C		24hr-100yr	MSHT-103-S	0.1354	5.0	65.9	0.9	82.00
56D		24hr-100yr	MHST-102-S	0.0761	5.0	37.2	0.9	84.70
56E		24hr-100yr	MHST-101-S	0.0805	5.0	39.1	0.9	77.30
56F		24hr-100yr	Carling_OLFN3	0.0180	5.0	8.7	0.9	77.40
57		24hr-100yr	Carling_OLF1	0.1534	15.0	69.2	0.4	6.90
58		24hr-100yr	46	0.4475	16.0	151.7	0.4	10.20
59A		24hr-100yr	TD02_01	0.0527	2.0	26.1	1.0	100.00
59B		24hr-100yr	TD03_1	0.1995	4.0	92.9	0.8	61.55
59C		24hr-100yr	TD07_1	0.0071	0.5	3.5	1.0	100.00
59D		24hr-100yr	CB108	0.1168	3.0	57.9	1.0	99.94
59E		24hr-100yr	CB109	0.0937	2.0	46.5	1.0	100.00
59F		24hr-100yr	CB113	0.1387	2.0	68.7	1.0	99.81
59G		24hr-100yr	CB130	0.0920	2.2	43.6	0.8	71.12
59H		24hr-100yr	TD01_1	0.0121	1.0	6.0	1.0	99.00
59I		24hr-100yr	CB72_89	0.0233	2.4	11.6	1.0	99.81
59J		24hr-100yr	TD06_1	0.0521	2.8	25.8	1.0	100.00
6		24hr-100yr	3	0.1396	3.0	55.7	0.4	2.06
60		24hr-100yr	DICB8	0.2109	25.0	74.5	0.3	0.00
60A		24hr-100yr	ST-60-S-B	0.3586	2.5	93.3	0.5	23.90
60B		24hr-100yr	ST-60-S-C	0.3168	25.0	107.0	0.4	1.81
60C		24hr-100yr	ST-60-S-C	0.2273	2.5	58.6	0.4	7.40
60D		24hr-100yr	60A	0.1424	3.8	46.7	0.6	39.00
62	External	24hr-100yr	POW_D1	0.2744	5.0	97.8	0.7	61.70
62A	External	24hr-100yr	POW_D1	0.6276	6.0	167.8	0.5	25.00
62B		24hr-100yr	MHST-136-S	0.0674	3.0	16.2	0.3	0.00
62C	External	24hr-100yr	POW_D1	1.1137	5.0	339.4	0.7	61.80
63		24hr-100yr	55	0.4180	1.5	78.9	0.4	0.00
64		24hr-100yr	CB105	0.0174	1.8	8.6	1.0	99.23
64A		24hr-100yr	CB60	0.0677	1.0	33.5	1.0	99.96
65A		24hr-100yr	CB106,103	0.0260	3.8	12.9	1.0	100.00
65B		24hr-100yr	MHST-153-S	0.0257	3.8	12.8	1.0	100.00
65C		24hr-100yr	34	0.2345	3.0	56.1	0.4	4.68
65D		24hr-100yr	SW_65D	0.1224	2.0	17.3	0.3	0.00
65E		24hr-100yr	CB97	0.0176	3.9	8.7	1.0	100.00
65F		24hr-100yr	CB96	0.0332	3.8	16.5	1.0	99.96
65G		24hr-100yr	CB88	0.0271	3.8	13.4	1.0	99.91
65H		24hr-100yr	CB90	0.0102	3.7	5.1	1.0	100.00
65I		24hr-100yr	MHST-136-S	0.0347	3.6	17.2	1.0	100.00
66A		24hr-100yr	CBMHST-103-S	0.0414	1.5	19.5	0.8	65.20
66B		24hr-100yr	CBMHST105-S	0.0914	2.0	43.9	0.9	79.10
67		24hr-100yr	CB95	0.2437	4.0	111.8	0.7	52.07
67A		24hr-100yr	CB99	0.1464	2.0	69.4	0.9	79.54
67B		24hr-100yr	CBMHST101-S	0.1445	1.5	69.1	0.9	84.60
7		24hr-100yr	2	0.0165	3.0	8.2	1.0	100.00
8		24hr-100yr	2	0.0188	3.0	9.3	1.0	100.00
9		24hr-100yr	1	0.0192	3.0	9.5	1.0	100.00
S-10		24hr-100yr	MHST-211	0.2975	2.0	145.4	1.0	100.00
S-11		24hr-100yr	MHST-213	0.4008	2.0	192.6	1.0	100.00
S11-A		24hr-100yr	MH-SA56-2	0.0107	2.0	5.3	1.0	100.00
S11-B		24hr-100yr	MH-SA56-2	0.0153	2.0	7.4	0.8	69.20
S-12		24hr-100yr	MH-SA51-1	0.0943	2.0	45.6	0.8	74.54
S-3		24hr-100yr	MH-SA50	0.3456	2.0	167.7	1.0	99.90
S-4		24hr-100yr	MH-SA49	0.2910	2.0	142.3	1.0	99.80
S-5		24hr-100yr	MH-SA51-2	0.2908	2.0	132.6	0.8	64.20
S-6		24hr-100yr	MH-SA51-1	0.2996	2.0	137.0	0.8	65.30
S-7		24hr-100yr	MH-SA56-1	0.2899	2.0	138.2	0.9	77.20
S-8		24hr-100yr	MH-SA56-2	0.2768	2.0	132.1	0.8	75.40
S-9		24hr-100yr	MH-SA56-3	0.2599	2.0	118.7	0.8	71.40

CONDUITS 1/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
10	CBMHST105	CBMHST103		17.6	72.40	72.13	CIRCULAR	0.38		0.01534	192.3
11	AD06	CB255-S	Major_System	46.6	79.72	77.71	IRREGULAR	0.00	Road-A_spilt	0.04314	6.9
12_1	AD01	CBMHST208-S	major_system	37.5	79.53	78.00	IRREGULAR	0.00	Road-A_spilt	0.04083	50.1
12_2	CBMHST208-S	CB209	major_system	19.8	78.00	77.64	IRREGULAR	0.00	Road-A_spilt	0.01817	62.3
13	CB64	CBMHST66,67	major_system	24.4	74.57	73.54	IRREGULAR	0.00	Road-A_spilt	0.04228	52.0
15	SW_42I	DICB9	swale	2.7	74.96	74.88	TRAPEZOIDAL	1.00		0.02964	74.7
16	MH207	Chamber-204		27.2	73.98	73.88	CIRCULAR	0.38		0.00367	130.6
17	D-Chamber-204	MHST-141		21.1	73.03	72.98	CIRCULAR	0.30		0.00237	67.3
19	DICB9	CBMHST-103-S	major_system	21.2	74.88	74.60	TRAPEZOIDAL	0.50		0.01319	0.0
2	MHST-105-S	Wales-OLF-N03	Major_System	17.0	68.69	68.20	IRREGULAR	0.00	Road-B	0.02884	25.5
21	MHST-157-S	CB65	Major_System	36.2	74.22	73.54	IRREGULAR	0.00	Road-D	0.01881	0.0
22	CUP-SS1	30		5.8	73.50	73.39	CIRCULAR	0.37		0.01887	75.0
23	CBMHST-103-S	ST-60-S-B	swale	22.5	74.60	74.11	TRAPEZOIDAL	0.50		0.02180	79.2
25	CB91	CB94	major_system	25.2	75.10	75.02	RECT_OPEN	0.15		0.00317	81.4
27	TD07_2	MH150		20.0	67.40	67.20	CIRCULAR	0.20		0.01001	5.1
27_1	TD02_03	MH150		38.0	67.42	66.97	CIRCULAR	0.20		0.01178	22.6
27_2	MH150	MHST-221		32.7	66.97	66.62	CIRCULAR	0.20		0.01078	47.8
28	MHST-221	PS		26.8	66.63	66.42	CIRCULAR	0.30		0.00765	114.6
3	Preston	Preston_Street		10.0	61.03	60.90	CIRCULAR	0.30		0.01300	106.6
30	TD_B	MHST-221		18.1	67.88	67.60	CIRCULAR	0.30		0.01526	67.0
32	CB255-S	CB26	Major_System	28.5	77.71	75.96	IRREGULAR	0.00	Road-A_spilt	0.06143	15.2
33	TD06_2	MH150		22.5	67.40	67.00	CIRCULAR	0.20		0.01776	22.8
34	CB26	CB64	Major_System	22.6	75.96	74.57	IRREGULAR	0.00	Road-A_spilt	0.06184	52.3
35	TD05_1	TD05_2	TrenchDrain	5.6	74.50	74.40	RECT_OPEN	0.25		0.01788	15.1
36	TD01_3	MHST-213		6.9	68.60	68.57	CIRCULAR	0.20		0.00434	6.0
38	TD04_02	MH-SA56-2		19.4	74.00	73.24	CIRCULAR	0.25		0.03921	11.3
39	TD05_2	MH-SA56-1		20.2	74.00	73.24	CIRCULAR	0.20		0.03759	15.1
4	OGS-3	MHST62528		10.0	67.62	67.60	CIRCULAR	1.20		0.00200	2396.5
40	51	CB72_89	major_system	24.5	70.11	69.49	IRREGULAR	0.00	Road-L	0.02534	0.0
41	CB209	MHST-120-S	Major_System	34.7	77.64	74.46	IRREGULAR	0.00	Road-A_spilt	0.09199	67.6
42	CB130	51	major_system	1.0	70.11	70.10	IRREGULAR	0.00	Road-L	0.01000	0.0
43	CB72_89	54	major_system	15.8	69.49	68.92	IRREGULAR	0.00	Road-L	0.03613	9.7
49	Chamber202-S	45		5.2	70.84	70.80	CIRCULAR	0.45		0.00765	113.9
49_1	MHST-144	45		55.0	69.68	69.56	CIRCULAR	1.35		0.00213	1965.6
49_2	45	56		17.2	69.56	69.53	CIRCULAR	1.35		0.00215	2053.4
5	MHST62528	MHST62545		91.8	67.56	66.71	CIRCULAR	1.20		0.00929	2359.5
50	DICB8	51	major_system	1.0	70.11	70.10	RECT_OPEN	0.30		0.01000	0.0
54	CB114	74	major_system	9.3	74.92	75.07	IRREGULAR	0.00	Road-D_W	-0.01554	5.0
6	MHST62545	MHST62547		129.6	66.69	64.45	CIRCULAR	1.20		0.01726	2356.3
64	CB99	CBMHST101-S	major_system	32.2	76.90	76.52	RECT_OPEN	0.15		0.01181	35.3
65C_SW	34	DICB11	swale	194.0	82.41	75.45	TRAPEZOIDAL	0.30		0.03590	54.4
66	CBMHST101-S	CBMHST105-S	major_system	48.6	76.50	74.70	RECT_OPEN	0.15		0.03706	46.5
67	CBMHST105-S	CBMHST-103-S	major_system	18.9	74.82	74.60	RECT_OPEN	0.70		0.01162	87.1
68	CB87	CB91	major_system	27.5	75.50	75.10	RECT_OPEN	0.15		0.01452	52.6
7	MHST62547	Dows-Lake		171.0	64.17	63.75	CIRCULAR	1.20		0.00249	2345.7
70	MHST-126	MHST-150		23.5	74.17	71.67	CIRCULAR	450.00		0.10691	1668.3
71	S-26B	54	major_system	24.8	69.52	68.92	RECT_OPEN	0.30		0.02425	10.4
8	POW_D1	OGS-3		180.0	78.70	69.70	TRAPEZOIDAL	0.55		0.05006	568.0
8_1	CHAMBER-103	D-MHST-155		3.1	74.08	74.06	CIRCULAR	0.90		0.00645	1340.9
8_1-S	CHAMBER-103	MHST-155	Major_System	14.7	79.00	78.70	RECT_OPEN	0.30		0.02037	0.0
9	CBMHST103	CHAMBER-102		2.6	72.10	72.07	CIRCULAR	0.38		0.01154	295.5
CA-OLF_2	Carling_OLF1	Carling_OLFN1	Major_System	120.4	66.50	65.41	IRREGULAR	0.00	CarlingAve	0.00907	63.6
CA-OLF_3	Carling_OLFN3	Carling_OLF	Major_System	66.5	64.80	64.60	IRREGULAR	0.00	CarlingAve	0.00301	201.4
CA-OLF_4	Carling_OLFN1	Carling_OLFN3	Major_System	67.1	65.41	64.80	IRREGULAR	0.00	CarlingAve	0.00906	154.5
CA-STM	IN119607	D-MHST-100		86.0	63.10	62.80	CIRCULAR	0.30		0.00349	5.2
CB104-S	CB104	CB59	major_system	20.0	75.37	74.99	IRREGULAR	0.00	Road-D_W	0.01905	28.8

CONDUITS 2/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
CB111_SWA	CB111_SW	CB111	swale	37.3	75.17	75.04	TRAPEZOIDAL	0.30		0.00349	167.7
CB43-S	CB43	CB45	major_system	19.8	81.69	80.69	CIRCULAR	1.00		0.05068	5.2
CB45-S	CB45	CB46	major_system	20.1	80.69	79.69	IRREGULAR	0.00	Road-D_W	0.04970	9.2
CB46-S	CB46	CB48	major_system	20.0	79.69	78.85	IRREGULAR	0.00	Road-D_W	0.04199	10.6
CB48-S	CB48	CB50	major_system	19.9	78.85	77.85	IRREGULAR	0.00	Road-D_W	0.05039	18.0
CB50-S	CB50	CB52	major_system	13.6	77.85	77.14	IRREGULAR	0.00	Road-D_W	0.05223	24.8
CB52-S	CB52	CB54	major_system	13.6	77.14	76.44	IRREGULAR	0.00	Road-D_W	0.05141	28.2
CB54-S	CB54	CB56	major_system	12.5	76.44	75.98	IRREGULAR	0.00	Road-D_W	0.03689	31.1
CB56-S	CB56	CB58	major_system	14.6	75.98	75.64	IRREGULAR	0.00	Road-D_W	0.02331	33.6
CB58-S	CB58	CB104	major_system	14.3	75.64	75.37	IRREGULAR	0.00	Road-D_W	0.01893	39.4
CB59-S	CB59	CB114	major_system	16.0	74.99	74.92	IRREGULAR	0.00	Road-D_W	0.00436	18.8
CUP_SW1	55	77	swale	94.6	82.30	82.15	TRAPEZOIDAL	0.30		0.00159	189.8
CUP_SW2	77	78	swale	8.3	82.15	82.14	TRAPEZOIDAL	0.30		0.00121	163.6
CUP_SW3	78	S-63	swale	106.6	82.14	82.00	TRAPEZOIDAL	0.30		0.00131	144.7
DICB10_SW	S-63	DICB10	swale	104.1	82.00	79.27	TRAPEZOIDAL	1.00		0.02623	72.0
DICB2_SWE1	81DICB2_SWE1S	S-26B	swale	69.0	69.36	68.77	TRAPEZOIDAL	0.50		0.00855	72.4
DICB2_SWE2	DICB2_SWE2S	81DICB2_SWE1S	swale	20.0	69.58	69.36	TRAPEZOIDAL	0.60		0.01099	76.3
DICB2_SWW	DICB2_SWWS	S-26B	Swale	96.0	69.50	68.77	TRAPEZOIDAL	0.50		0.00760	156.7
ST-100_2	D-MHST-100	Nepean-Bay-Trunk		6.0	63.06	63.04	CIRCULAR	0.90		0.00333	244.5
ST-100-S	MHST-100-S	Carling_OLFN3	Major_System	11.0	65.42	64.80	IRREGULAR	0.00	Road-A	0.05645	55.5
ST-101I	MHST-101	MHST-100		27.4	63.12	63.09	CIRCULAR	0.90		0.00109	240.7
ST-101I-S	MHST-101-S	MHST-100-S	Major_System	27.4	66.07	65.42	IRREGULAR	0.00	Road-A	0.02371	55.9
ST-102	CBMHST-101	CBMHST105		47.9	73.63	72.43	CIRCULAR	0.38		0.02505	192.1
ST-102I	MHST-102	MHST-101		27.2	63.15	63.12	CIRCULAR	1.50		0.00110	237.7
ST-102I-S	MHST-102-S	MHST-101-S	Major_System	27.2	66.28	66.07	IRREGULAR	0.00	Road-A	0.00773	27.1
ST-103I	MSHT-103	MHST-102		52.9	63.20	63.15	CIRCULAR	1.50		0.00100	251.7
ST-103I-S	MSHT-103-S	MHST-102-S	Major_System	52.9	66.13	66.28	IRREGULAR	0.00	Road-A	-0.00283	16.4
ST-104	CBMHST-104	CBMHST-101		15.1	74.14	73.84	CIRCULAR	0.38		0.01983	125.1
ST-104_1	BI-SA1	MHST-104		38.3	63.67	63.63	CIRCULAR	1.20		0.00102	221.7
ST-104_3	MHST-105	39		12.0	63.79	63.78	CIRCULAR	1.20		0.00100	99.4
ST-104_4	39	BI-SA1		75.9	63.78	63.70	CIRCULAR	1.20		0.00100	83.8
ST-104I	MHST-104	MSHT-103		32.8	63.53	63.50	CIRCULAR	1.20		0.00101	208.2
ST-105I_1-S_1	BI-SA1-S	54	Major_System	66.9	70.15	68.92	IRREGULAR	0.00	Road-B	0.01841	105.3
ST-105I_1-S_2	54	MHST-105-S	major_system	15.2	68.92	68.64	IRREGULAR	0.00	Road-B	0.01839	111.1
ST-105I_2-S	MHST-104-S	BI-SA1-S	Major_System	37.7	70.80	70.15	IRREGULAR	0.00	Road-B	0.01723	36.9
ST-106I	MHST-106	MSHT-103		44.7	63.23	63.20	CIRCULAR	1.50		0.00067	51.5
ST-106I-S	MHST-106-S	MSHT-103-S	Major_System	29.6	71.87	66.13	IRREGULAR	0.00	Road-A	0.19783	130.7
ST-107	D-MHST-170	MHST-158		13.3	71.93	71.80	CIRCULAR	0.30		0.00977	123.7
ST-120-S_1	MHST-120-S	CBMHST66,67	Major_System	14.7	74.46	73.54	IRREGULAR	0.00	Road-A_spilt	0.06272	129.6
ST-120-S_2	CB68,40	MHST-106-S	Major_System	14.9	72.63	71.87	IRREGULAR	0.00	Road-A_spilt	0.05108	102.6
ST-120-S_3	CBMHST66,67	CB68,40	Major_System	15.3	73.54	72.63	IRREGULAR	0.00	Road-A_spilt	0.05963	176.8
ST-130	MHST-130	OGS-3		35.6	67.69	67.62	CIRCULAR	1.00		0.00197	2165.2
ST-131_1	MHST-212	13		25.4	67.95	67.93	CIRCULAR	0.83		0.00094	232.0
ST-131_2	13	MHST-130		49.1	67.93	67.88	CIRCULAR	0.83		0.00096	208.0
ST-132	MHST-132	MHST-156		41.9	73.25	72.62	CIRCULAR	0.45		0.01505	284.5
ST-133	Chamber201S	MHST-212		2.9	67.95	67.95	CIRCULAR	0.83		-0.00034	193.8
ST-134	MHST-134	MHST-138		17.5	76.62	76.18	CIRCULAR	0.38		0.02515	44.4
ST-135	MHST-135	MHST-148		28.3	70.62	70.60	CIRCULAR	1.35		0.00071	792.6
ST-136_1	MHST-136	76		17.8	78.65	78.23	CIRCULAR	0.30		0.02336	0.0
ST-136_3	76	21		15.1	78.23	77.88	CIRCULAR	0.30		0.02339	15.6

CONDUITS 3/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-136_4	21	MHST-137		24.9	77.88	77.30	CIRCULAR	0.30		0.02337	29.4
ST-136-S_2	CB90	CB88	Major_System	27.3	80.75	79.79	IRREGULAR	0.00	Road-E_S	0.03515	8.4
ST-136-S_3	MHST-136-S	CB84,85	Major_System	17.9	81.70	81.32	IRREGULAR	0.00	Road-E_C	0.02121	33.1
ST-136-S_4	CB84,85	CB90	Major_System	14.4	81.32	80.75	IRREGULAR	0.00	Road-E_C	0.03949	17.3
ST-137	MHST-137	MHST-134		22.4	77.24	76.68	CIRCULAR	0.38		0.02501	44.4
ST-137-S_1	CB88	CB96	Major_System	38.1	79.79	78.66	IRREGULAR	0.00	Road-E_N	0.02965	6.4
ST-137-S_3	CB96	CB97	Major_System	24.4	78.66	77.90	IRREGULAR	0.00	Road-E_N	0.03115	6.1
ST-137-S_4	CB97	MHST-153-S	Major_System	33.9	77.90	76.52	IRREGULAR	0.00	Road-E_C	0.04070	12.6
ST-138_1	MHST-138	22		15.9	75.17	74.77	CIRCULAR	0.38		0.02499	60.5
ST-138_2	22	MHST-153		23.0	74.77	74.20	CIRCULAR	0.38		0.02494	62.5
ST-141_1	MHST-141	37		11.9	71.42	71.39	CIRCULAR	0.90		0.00253	397.5
ST-141_3	37	30		18.2	71.39	71.34	CIRCULAR	0.90		0.00258	408.8
ST-141_4	30	MHST-160		17.0	71.34	71.30	CIRCULAR	0.90		0.00253	436.2
ST-141-S_1	CB82	CBMH89	Major_System	26.5	77.15	76.26	IRREGULAR	0.00	Road-E_S	0.03363	36.2
ST-141-S_3	CBMH89	CB92	Major_System	33.3	76.26	75.27	IRREGULAR	0.00	Road-E_S	0.02973	46.1
ST-141-S_4	CB92	CB94	Major_System	19.6	75.27	75.02	IRREGULAR	0.00	Road-E_S	0.01277	19.5
ST-142	D-MHST-142	MHST-130		29.3	67.74	67.69	CIRCULAR	1.20		0.00171	2130.4
ST-143	MHST-143	MHST-159		38.2	69.45	69.41	CIRCULAR	1.35		0.00105	2075.4
ST-144B_2	56	MHST-143		21.6	69.53	69.48	CIRCULAR	1.35		0.00213	2075.4
ST-145_1	D-MHST-145	MHST-144		71.4	69.90	69.83	CIRCULAR	1.20		0.00098	1958.9
ST-146_1-S	MHST-146-S	BI-SA49-S	Major_System	5.7	75.38	75.35	IRREGULAR	0.00	Road-D_W	0.00509	69.7
ST-146_2-S_1	BI-SA49-S	74	Major_System	36.1	75.35	75.07	IRREGULAR	0.00	Road-D_W	0.00793	10.0
ST-146_2-S_2	74	MHST-157-S	Major_System	55.0	75.07	74.63	IRREGULAR	0.00	Road-D	0.00791	4.2
ST-146_3	D-MHST-146_1	73		12.1	70.17	70.15	CIRCULAR	1.50		0.00141	2166.3
ST-146_4	73	MHST-200		17.9	70.15	70.13	CIRCULAR	1.50		0.00129	2183.4
ST-147_1	MHST-147	50		6.0	70.25	70.24	CIRCULAR	1.50		0.00117	2039.2
ST-147_2	71	72		14.2	70.23	70.21	CIRCULAR	1.50		0.00127	2046.6
ST-147_3	50	71		14.6	70.24	70.23	CIRCULAR	1.50		0.00123	2042.8
ST-147_5	72	MHST-146		6.0	70.21	70.20	CIRCULAR	1.50		0.00117	2055.6
ST-147-S	CBMH57	MHST-146-S	Major_System	44.0	76.01	75.38	IRREGULAR	0.00	Road-D_W	0.01431	90.1
ST-148_1	MHST-148	64		7.2	70.45	70.44	CIRCULAR	1.50		0.00196	2007.6
ST-148_10	49	MHST-147		12.7	70.31	70.28	CIRCULAR	1.50		0.00197	1950.8
ST-148_2	65	66		5.0	70.40	70.39	CIRCULAR	1.50		0.00199	1951.8
ST-148_3	64	65		20.1	70.44	70.40	CIRCULAR	1.50		0.00199	1955.4
ST-148_4	66	68		9.9	70.39	70.37	CIRCULAR	1.50		0.00193	1951.6
ST-148_5	68	69		5.0	70.37	70.36	CIRCULAR	1.50		0.00200	1951.6
ST-148_6	69	70		5.1	70.36	70.35	CIRCULAR	1.50		0.00197	1950.9
ST-148_7	70	48		9.2	70.35	70.33	CIRCULAR	1.50		0.00195	1949.9
ST-148_8	48	49		12.2	70.33	70.31	CIRCULAR	1.50		0.00197	1950.2
ST-148-S_1	CB44	CB47	Major_System	39.1	80.37	78.63	IRREGULAR	0.00	Road-D_W	0.04460	4.4
ST-148-S_2	CB49	CB51	Major_System	10.0	78.19	77.75	IRREGULAR	0.00	Road-D_W	0.04364	10.9
ST-148-S_3	CB47	CB49	Major_System	10.0	78.63	78.19	IRREGULAR	0.00	Road-D_W	0.04362	11.8
ST-148-S_4	CB51	CB53	Major_System	9.8	77.75	77.08	IRREGULAR	0.00	Road-D_W	0.06865	11.5
ST-148-S_5	CB53	CB55	Major_System	10.0	77.08	76.58	IRREGULAR	0.00	Road-D_W	0.05025	12.0
ST-148-S_7	CB55	CBMH57	Major_System	17.0	76.58	76.01	IRREGULAR	0.00	Road-D_W	0.03354	10.8
ST-149_1	MHST-149	36		19.8	70.69	70.67	CIRCULAR	1.35		0.00116	776.1
ST-149_2	36	MHST-135		14.2	70.67	70.65	CIRCULAR	1.35		0.00120	786.4
ST-149-S_1	CB75	CB77	Major_System	8.7	79.25	78.83	IRREGULAR	0.00	Road-E_C	0.04854	8.5
ST-149-S_2	MHST-135-S	CB71	Major_System	12.7	79.98	79.68	IRREGULAR	0.00	Road-E_C	0.02357	5.1
ST-149-S_4	CB69	MHST-149-S	Major_System	15.0	78.72	77.93	IRREGULAR	0.00	Road-E_NW	0.05292	13.1

CONDUITS 4/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-149-S_5	CB71	CB75	Major_System	12.9	79.68	79.25	IRREGULAR	0.00	Road-E_C	0.03342	4.6
ST-149-S_6	CB77	CB69	Major_System	6.3	78.83	78.72	IRREGULAR	0.00	Road-E_C	0.01747	12.1
ST-150	MHST-150	MHST-149		18.1	70.76	70.72	CIRCULAR	1.35		0.00220	779.1
ST-150-S_1	MHST-149-S	CB79	Major_System	13.1	77.93	77.57	IRREGULAR	0.00	Road-E_NW	0.02743	20.5
ST-150-S_2	CB79	CB83	Major_System	17.9	77.57	77.24	IRREGULAR	0.00	Road-E_C	0.01848	20.6
ST-151_1	MHST-151	35		13.3	71.23	71.22	CIRCULAR	0.90		0.00068	458.7
ST-151_2	35	MHST-150		17.0	71.22	71.21	CIRCULAR	0.90		0.00065	461.6
ST-151-S	CB83	CB82	Major_System	11.2	77.24	77.15	IRREGULAR	0.00	Road-E_S	0.00801	31.8
ST-153_1	MHST-153	23		38.0	72.86	72.48	CIRCULAR	0.38		0.00994	71.1
ST-153_2	23	26		13.6	72.48	72.35	CIRCULAR	0.38		0.00994	94.7
ST-153_4	26	MHST-158		15.7	72.35	72.19	CIRCULAR	0.38		0.00997	120.4
ST-153-S_1	MHST-153-S	CB106,103	Major_System	26.1	76.52	75.51	IRREGULAR	0.00	Road-E_C	0.03879	16.0
ST-153-S_3	CB106,103	CB105	Major_System	15.4	75.51	75.14	IRREGULAR	0.00	Road-E_N	0.02407	4.3
ST-153-S_4	CB105	DICB9	Major_System	17.3	75.14	74.88	IRREGULAR	0.00	Road-E_N	0.01507	8.5
ST-154	MHST-154	CHAMBER-103		16.0	75.80	75.72	CIRCULAR	0.90		0.00500	3186.0
ST-154A	MHST-154A	MHST-154B		15.5	76.18	76.10	CIRCULAR	0.90		0.00516	3185.2
ST-154B	MHST-154B	MHST-154		35.9	76.04	75.86	CIRCULAR	0.90		0.00501	3185.8
ST-155_1	MHST-155	60		9.7	74.03	73.94	CIRCULAR	0.90		0.00932	1343.6
ST-155_3	60	61		6.5	73.94	73.88	CIRCULAR	0.90		0.00930	1344.5
ST-155_4	61	MHST-148		6.3	73.88	73.82	CIRCULAR	0.90		0.00945	1345.3
ST-156	MHST-156	MHST_156B		16.0	70.13	70.12	CIRCULAR	1.50		0.00062	723.2
ST-156B	MHST_156B	MHST-157		18.787	70.09	70.08	CIRCULAR	1.5		0.00053	691.66
ST-157_1	MHST-157	D-MHST-157B		13.532	70.02	70	CIRCULAR	1.5		0.00148	2076.72
ST-157_2	D-MHST-157B	MHST-145		14.706	69.97	69.96	CIRCULAR	1.5		0.00068	1599.26
ST-157_3	D-MHST-157B	CHAMBER-104B		9.4	69.97	69.91	CIRCULAR	0.9		0.00638	1023.46
ST-158_2	75	MHST-141		5.552	71.581	71.57	CIRCULAR	0.75		0.00198	319.35
ST-158_3	MHST-158	33		21.587	71.74	71.695	CIRCULAR	0.75		0.00208	214.27
ST-158_4	31	75		38.574	71.661	71.581	CIRCULAR	0.75		0.00207	223.02
ST-158_5	32	31		8.439	71.678	71.661	CIRCULAR	0.75		0.00201	220.72
ST-158_6	33	32		8.4	71.70	71.68	CIRCULAR	0.75		0.00203	218.5
ST-158-S	CB94	CB93	Major_System	39.3	75.10	75.17	IRREGULAR	0.00	Road-E_S_Amb	-0.00178	5.5
ST-158-S_2	CB93	CB107	Major_System	8.4	75.17	75.12	IRREGULAR	0.00	Road-E_S_Amb	0.00593	10.1
ST-158-S_4	CB107	CB100	Major_System	8.9	75.12	75.08	IRREGULAR	0.00	Road-E_S_Amb	0.00450	9.3
ST-158-S_6	CB100	MHST-158-S	Major_System	15.6	75.08	74.99	IRREGULAR	0.00	Road-E_S	0.00576	3.6
ST-159	MHST-159	MHST-142		44.6	69.41	69.32	CIRCULAR	1.35		0.00202	2075.4
ST-160	MHST-160	MHST-151		22.3	71.27	71.23	CIRCULAR	0.90		0.00179	448.3
ST-161_2-S_1	D-MHST-161-S	CB42	Major_System	23.3	83.25	81.44	IRREGULAR	0.00	Road-D_W	0.07781	8.9
ST-161_2-S_2	CB42	CB44	Major_System	20.7	81.44	80.37	IRREGULAR	0.00	Road-D_W	0.05168	5.4
ST-162	CBMHST-162	MHST-154A		5.4	76.27	76.24	CIRCULAR	0.90		0.00561	3129.2
ST-200_1	MHST-200	MHST-201		40.7	70.11	70.05	CIRCULAR	1.50		0.00148	1671.5
ST-200_2	MHST-200	CHAMBER-104-A		29.5	70.17	70.13	CIRCULAR	0.90		0.00135	673.7
ST-201	MHST-201	MHST-157		6.5	70.07	70.05	CIRCULAR	1.50		0.00308	1773.2
ST-203	MHST-203	MHST-205		8.6	73.11	73.09	CIRCULAR	0.68		0.00232	199.6
ST-204	MHST-204	MHST-205		12.7	73.11	73.09	CIRCULAR	0.53		0.00158	154.8
ST-205	MHST-205	MHST-206		28.9	72.94	72.91	CIRCULAR	0.68		0.00104	353.1
ST-206	MHST-206	Chamber202		10.3	72.91	72.88	CIRCULAR	0.68		0.00341	484.5
ST-208	MHST-208	MHST-209		19.4	73.41	73.35	CIRCULAR	0.38		0.00309	127.4
ST-209	MHST-209	MHST-206		28.6	73.32	73.21	CIRCULAR	0.38		0.00385	131.5
ST-211	MHST-211	Chamber201		57.4	68.31	68.24	CIRCULAR	0.53		0.00122	141.5
ST-214	MHST-214	MHST-215		38.3	68.23	68.27	CIRCULAR	0.75		-0.00104	194.7

CONDUITS 5/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-215	MHST-215	Chamber201		1.7	68.27	68.27	CIRCULAR	0.75		0.00000	194.3
ST-225	CB255	Chamber202		29.0	73.46	73.17	CIRCULAR	0.20		0.00997	3.7
ST-301	MHST301	MHST-158		8.8	72.60	72.42	CIRCULAR	0.20		0.01989	0.0
ST-42I	MHST-158-S	DICB9	major_system	6.0	74.99	74.88	IRREGULAR	0.00	Road-E_S	0.01834	3.5
ST-60-S_2	ST-60-S-B	ST-60-S-C	swale	37.6	74.11	73.25	TRAPEZOIDAL	1.00		0.02280	170.1
ST-60-S_3	ST-60-S-C	DICB8	swale	125.0	73.25	69.82	TRAPEZOIDAL	1.00		0.02748	312.7
ST-62534	MHST-62534	CBMHST-162		7.2	76.90	76.27	CIRCULAR	0.90		0.08833	3127.8
ST-62538_1	MHST-161	59		3.0	78.96	78.90	CIRCULAR	0.53		0.01959	0.0
ST-62538_3	59	38		5.2	78.90	78.80	CIRCULAR	0.53		0.01939	14.5
ST-62538_4	38	MHST-155		5.3	78.80	78.70	CIRCULAR	0.53		0.01943	17.9
St-C104	CHAMBER-104-A	MHST-201		13.1	70.13	70.07	CIRCULAR	0.90		0.00458	372.5
ST-C203	D-Chamber-203	MHST-146		15.9	71.42	71.38	CIRCULAR	0.30		0.00251	92.6
ST-CB6-S	SW_65D	DICB6	swale	104.0	77.94	76.09	TRAPEZOIDAL	0.50		0.01779	15.9
ST-G107	MHST-107	OGS1		52.5	62.03	61.24	CIRCULAR	0.30		0.01505	30.4
ST-OGS1_2	OGS1	Preston		10.0	61.21	61.06	CIRCULAR	0.30		0.01500	76.5
ST-P3	DICB3	IN119608		71.1	64.23	63.80	CIRCULAR	0.20		0.00605	0.0
ST-P46	IN119608	IN119607		30.0	63.50	63.20	CIRCULAR	0.20		0.01000	0.0
ST-SA1	MH-SA1	BI-SA1		24.7	69.45	69.08	CIRCULAR	0.30		0.01501	60.1
ST-SA49	MH-SA49	Chamber-203		17.9	74.02	73.80	CIRCULAR	0.38		0.01228	142.1
ST-SA50	MH-SA50	Chamber-203		13.2	74.07	73.67	CIRCULAR	0.38		0.03032	167.7
ST-SA51-1	MH-SA51-1	Chamber-204		14.7	73.91	73.76	CIRCULAR	0.45		0.01021	182.6
ST-SA51-2	MH-SA51-2	MH207		13.2	74.11	73.98	CIRCULAR	0.38		0.00982	132.5
ST-SA52_1	MHST-213	MHST-214		51.4	68.54	68.45	CIRCULAR	0.53		0.00175	194.4
ST-SA56-1	MH-SA56-1	MHST-203		5.0	73.24	73.19	CIRCULAR	0.53		0.00994	200.2
ST-SA56-2	MH-SA56-2	MHST-204		4.9	73.24	73.19	CIRCULAR	0.45		0.01028	155.6
ST-SA56-3	MH-SA56-3	MHST-208		8.9	73.80	73.44	CIRCULAR	0.38		0.04046	118.8
ST-UGS6B	CHAMBER-102	MHST-170		16.6	72.03	71.96	CIRCULAR	0.38		0.00421	123.7
ST-UGS-Z1	CHAMBER-104B	MHST-145		8.4	69.91	69.90	CIRCULAR	0.90		0.00119	387.8
ST-xx	MH-SAxx	MHST-107		10.7	62.45	62.15	CIRCULAR	0.20		0.02805	7.0
TD01	TD01_1	TD01_3	TrenchDrain	7.9	70.21	70.10	PARABOLIC	0.15		0.01393	6.0
TD02	TD02_01	TD02_03	TrenchDrain	21.8	68.90	68.75	RECT_OPEN	0.35		0.00689	25.9
TD03	TD03_1	TD_B	TrenchDrain	36.4	68.80	68.65	RECT_OPEN	0.35		0.00412	67.0
TD04	TD04_01	TD04_02	TrenchDrain	5.6	74.62	74.57	PARABOLIC	0.13		0.00891	11.4
TD06	TD06_1	TD06_2	TrenchDrain	17.3	69.15	69.04	RECT_OPEN	0.35		0.00634	25.6
TD07	TD07_1	TD07_2	TrenchDrain	12.2	69.10	69.04	RECT_OPEN	0.35		0.00491	3.5
TDS	TDS_1	TDS_2	TrenchDrain	2.5	76.43	76.40	PARABOLIC	0.15		0.01188	15.5
TDS_O	TDS_2	MHST-144		28.5	70.50	69.68	CIRCULAR	0.20		0.02882	15.5
TDW	TDW_1	TDW_2	TrenchDrain	2.5	76.49	76.47	PARABOLIC	0.15		0.00800	8.1
TDW_O	TDW_2	MHST-144		17.8	70.50	69.68	CIRCULAR	0.20		0.04623	8.1
UP-CB43-S	UP-CB43	CB43	major_system	36.8	83.46	81.69	IRREGULAR	0.00	Road-D_W	0.04815	19.9
WD-OLF_3	Wales-OLF-N03	Wales-OLF-N04	Major_System	81.2	68.20	66.75	IRREGULAR	0.00	P_Wales_Dr	0.01786	25.3
WD-OLF_4	Wales-OLF-N04	Wales-OLF-N05	Major_System	95.0	66.75	65.50	IRREGULAR	0.00	P_Wales_Dr	0.01316	24.3

Junctions 1/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
13		NO	67.93	70.22	2.29	2.29	70.22	10/04/2022 08:32 AM
21		NO	77.88	80.84	2.96	0.09	77.97	10/04/2022 08:10 AM
22		NO	74.77	77.92	3.15	0.12	74.90	10/04/2022 08:10 AM
23		NO	72.48	75.76	3.28	0.20	72.69	10/04/2022 08:11 AM
26		NO	72.35	75.31	2.97	0.23	72.58	10/04/2022 08:11 AM
30		NO	71.34	76.21	4.86	1.01	72.35	10/04/2022 08:34 AM
31		NO	71.66	74.97	3.31	0.70	72.37	10/04/2022 08:29 AM
32		NO	71.68	74.93	3.26	0.69	72.37	10/04/2022 08:29 AM
33		NO	71.70	74.90	3.20	0.67	72.37	10/04/2022 08:30 AM
34		NO	82.41	82.56	0.15	0.08	82.49	10/04/2022 08:21 AM
35		NO	71.22	77.20	5.98	1.12	72.34	10/04/2022 08:34 AM
36		NO	70.67	78.89	8.22	1.67	72.33	10/04/2022 08:34 AM
37		NO	71.39	75.58	4.19	0.96	72.35	10/04/2022 08:34 AM
38		NO	78.80	81.48	2.68	0.06	78.86	10/04/2022 08:10 AM
39		NO	63.78	69.31	5.54	0.88	64.66	10/04/2022 08:30 AM
45		NO	69.56	74.33	4.76	1.80	71.37	10/04/2022 08:37 AM
48		NO	70.33	77.13	6.80	1.97	72.30	10/04/2022 08:35 AM
49		NO	70.31	76.54	6.23	1.99	72.29	10/04/2022 08:34 AM
50		NO	70.24	75.84	5.60	2.04	72.28	10/04/2022 08:35 AM
51		NO	70.10	70.31	0.21	0.00	70.10	10/04/2022 00:00 AM
54		NO	68.92	69.07	0.15	0.07	68.99	10/04/2022 08:11 AM
55		NO	82.30	82.60	0.30	0.26	82.56	10/04/2022 08:11 AM
56		NO	69.53	74.02	4.49	1.82	71.34	10/04/2022 08:37 AM
59		NO	78.90	81.73	2.83	0.06	78.96	10/04/2022 08:10 AM
60		NO	73.94	80.75	6.81	0.59	74.53	10/04/2022 08:26 AM
61		NO	73.88	80.44	6.56	0.59	74.47	10/04/2022 08:26 AM
64		NO	70.44	79.78	9.35	1.89	72.33	10/04/2022 08:34 AM
65		NO	70.40	78.80	8.40	1.92	72.32	10/04/2022 08:34 AM
66		NO	70.39	78.55	8.17	1.93	72.31	10/04/2022 08:34 AM
68		NO	70.37	78.07	7.71	1.94	72.31	10/04/2022 08:34 AM
69		NO	70.36	77.83	7.47	1.95	72.31	10/04/2022 08:34 AM
70		NO	70.35	77.58	7.24	1.96	72.30	10/04/2022 08:34 AM
71		NO	70.23	75.65	5.43	2.05	72.27	10/04/2022 08:34 AM
72		NO	70.21	75.47	5.26	2.06	72.26	10/04/2022 08:35 AM
73		NO	70.15	75.14	4.99	1.96	72.12	10/04/2022 08:36 AM
74		NO	75.07	75.07	0.00	0.02	75.08	10/04/2022 08:12 AM
75		NO	71.58	75.15	3.56	0.78	72.36	10/04/2022 08:30 AM
76		NO	78.23	81.34	3.11	0.07	78.30	10/04/2022 08:10 AM
77		NO	82.15	82.45	0.30	0.28	82.43	10/04/2022 08:19 AM
78		NO	82.14	82.45	0.31	0.28	82.42	10/04/2022 08:19 AM
81DICB2_SWE1S		NO	69.36	70.00	0.64	0.17	69.53	10/04/2022 08:33 AM
AD01		NO	79.51	79.70	0.19	0.05	79.56	10/04/2022 08:10 AM
AD02		NO	79.67	79.73	0.06	0.00	79.67	10/04/2022 00:10 AM
AD03		NO	79.82	79.85	0.03	0.00	79.82	10/04/2022 00:10 AM
AD04		NO	79.80	79.85	0.05	0.00	79.80	10/04/2022 00:10 AM
AD05		NO	79.70	79.80	0.10	0.00	79.70	10/04/2022 00:10 AM
AD06		NO	79.67	79.85	0.18	0.06	79.73	10/04/2022 08:10 AM
AD07		NO	74.25	74.30	0.05	0.00	74.25	10/04/2022 00:10 AM
AD08		NO	74.25	74.35	0.10	0.00	74.25	10/04/2022 00:10 AM
AD09		NO	74.25	74.29	0.04	0.00	74.25	10/04/2022 00:10 AM

Junctions 2/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
BI-SA1		NO	63.50	70.48	6.98	1.15	64.65	10/04/2022 08:28 AM
BI-SA1-S	Major_System	NO	70.15	70.30	0.15	0.07	70.22	10/04/2022 08:10 AM
BI-SA49-S	Major_System	NO	75.35	75.51	0.16	0.03	75.38	10/04/2022 08:10 AM
Carling_OLF1		NO	66.50	66.70	0.20	0.08	66.58	10/04/2022 08:11 AM
Carling_OLFN1		NO	65.41	65.61	0.20	0.11	65.51	10/04/2022 08:11 AM
Carling_OLFN3		NO	64.80	65.00	0.20	0.15	64.95	10/04/2022 08:13 AM
CB100		NO	75.08	75.23	0.15	0.02	75.10	10/04/2022 08:10 AM
CB104		NO	75.37	75.52	0.15	0.04	75.41	10/04/2022 08:10 AM
CB105		NO	75.14	75.29	0.15	0.04	75.18	10/04/2022 08:10 AM
CB106,103		NO	75.51	75.66	0.15	0.03	75.54	10/04/2022 08:10 AM
CB107		NO	75.12	75.27	0.15	0.02	75.14	10/04/2022 08:10 AM
CB108		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB109		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB111		NO	75.04	75.40	0.36	0.24	75.28	10/04/2022 08:12 AM
CB111_SW		NO	75.17	75.45	0.28	0.20	75.37	10/04/2022 08:10 AM
CB113		NO	69.58	69.78	0.20	0.00	69.58	10/04/2022 00:10 AM
CB114		NO	74.92	75.07	0.15	0.05	74.97	10/04/2022 08:11 AM
CB209		NO	77.64	77.79	0.15	0.03	77.67	10/04/2022 08:10 AM
CB255		NO	73.46	77.72	4.26	0.05	73.50	10/04/2022 08:10 AM
CB255-S		NO	77.71	77.86	0.15	0.02	77.73	10/04/2022 08:10 AM
CB26		NO	75.96	76.11	0.15	0.03	75.99	10/04/2022 08:10 AM
CB42		NO	81.44	81.59	0.15	0.02	81.46	10/04/2022 08:10 AM
CB43		NO	81.69	81.84	0.15	0.03	81.72	10/04/2022 08:10 AM
CB44	Major_System	NO	80.37	80.52	0.15	0.01	80.38	10/04/2022 08:10 AM
CB45		NO	80.69	80.84	0.15	0.02	80.71	10/04/2022 08:10 AM
CB46		NO	79.69	79.84	0.15	0.02	79.71	10/04/2022 08:10 AM
CB47		NO	78.63	78.80	0.18	0.02	78.65	10/04/2022 08:10 AM
CB48		NO	78.85	79.00	0.15	0.02	78.87	10/04/2022 08:10 AM
CB49		NO	78.19	78.37	0.18	0.02	78.21	10/04/2022 08:10 AM
CB50		NO	77.85	78.00	0.15	0.03	77.88	10/04/2022 08:10 AM
CB51		NO	77.75	77.94	0.18	0.02	77.77	10/04/2022 08:10 AM
CB52		NO	77.14	77.29	0.15	0.03	77.17	10/04/2022 08:10 AM
CB53		NO	77.08	77.23	0.15	0.02	77.10	10/04/2022 08:10 AM
CB54		NO	76.44	76.59	0.15	0.03	76.47	10/04/2022 08:10 AM
CB55		NO	76.58	76.73	0.15	0.02	76.60	10/04/2022 08:10 AM
CB56		NO	75.98	76.13	0.15	0.04	76.02	10/04/2022 08:10 AM
CB58		NO	75.64	75.79	0.15	0.04	75.68	10/04/2022 08:10 AM
CB59		NO	74.99	75.14	0.15	0.04	75.03	10/04/2022 08:10 AM
CB60		NO	75.39	75.55	0.16	0.00	75.39	10/04/2022 00:10 AM
CB64		NO	74.57	74.72	0.15	0.03	74.60	10/04/2022 08:10 AM
CB68,40		NO	72.63	72.79	0.16	0.03	72.66	10/04/2022 08:10 AM
CB69		NO	78.72	78.87	0.15	0.02	78.74	10/04/2022 08:10 AM
CB71		NO	79.68	79.83	0.15	0.01	79.69	10/04/2022 08:10 AM
CB72_89		NO	69.49	69.64	0.15	0.02	69.51	10/04/2022 08:10 AM
CB75		NO	79.25	79.40	0.15	0.02	79.27	10/04/2022 08:10 AM
CB77		NO	78.83	78.98	0.15	0.02	78.85	10/04/2022 08:10 AM
CB79		NO	77.57	77.72	0.15	0.03	77.60	10/04/2022 08:10 AM
CB82	Major_System	NO	77.15	77.30	0.15	0.04	77.19	10/04/2022 08:10 AM
CB83	Major_System	NO	77.24	77.39	0.15	0.05	77.29	10/04/2022 08:10 AM
CB84,85		NO	81.32	81.47	0.15	0.02	81.34	10/04/2022 08:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
CB87		NO	75.50	75.65	0.15	0.01	75.51	10/04/2022 08:10 AM
CB88		NO	79.79	80.09	0.30	0.03	79.82	10/04/2022 08:10 AM
CB90		NO	80.75	80.90	0.15	0.02	80.77	10/04/2022 08:10 AM
CB92		NO	75.27	75.42	0.15	0.04	75.31	10/04/2022 08:11 AM
CB93		NO	75.17	75.32	0.15	0.02	75.19	10/04/2022 08:09 AM
CB96		NO	78.66	78.81	0.15	0.03	78.69	10/04/2022 08:10 AM
CB97		NO	77.90	78.05	0.15	0.02	77.92	10/04/2022 08:10 AM
CBMH57	Major_System	NO	76.01	76.16	0.15	0.06	76.07	10/04/2022 08:10 AM
CBMH89		NO	76.26	76.41	0.15	0.05	76.31	10/04/2022 08:10 AM
CBMHST-101		NO	73.63	76.41	2.78	0.25	73.88	10/04/2022 08:14 AM
CBMHST103		NO	72.10	74.28	2.18	1.12	73.22	10/04/2022 08:22 AM
CBMHST-103-S		NO	74.60	74.75	0.15	0.07	74.67	10/04/2022 08:11 AM
CBMHST-104		NO	74.14	76.59	2.45	0.19	74.33	10/04/2022 08:11 AM
CBMHST105		NO	72.40	74.73	2.33	1.14	73.54	10/04/2022 08:09 AM
CBMHST105-S		NO	74.82	74.97	0.15	0.02	74.84	10/04/2022 08:10 AM
CBMHST-162		NO	76.10	82.72	6.62	2.82	78.92	10/04/2022 08:10 AM
CBMHST208-S		NO	78.00	78.20	0.20	0.04	78.04	10/04/2022 08:10 AM
CBMHST66,67		NO	73.54	73.70	0.16	0.04	73.58	10/04/2022 08:10 AM
Chamber201S		NO	67.95	68.95	1.00	1.00	68.95	10/04/2022 08:28 AM
Chamber202-S		NO	70.84	73.59	2.75	0.53	71.37	10/04/2022 08:37 AM
CUP-SS1		NO	73.50	74.00	0.50	0.14	73.64	10/04/2022 08:10 AM
D-Chamber-203		NO	71.42	75.05	3.63	0.89	72.31	10/04/2022 08:35 AM
D-Chamber-204		NO	73.03	74.63	1.60	0.28	73.31	10/04/2022 08:26 AM
DICB10		NO	79.27	79.50	0.23	0.13	79.40	10/04/2022 08:20 AM
DICB11		NO	75.45	75.60	0.15	0.09	75.54	10/04/2022 08:23 AM
DICB2_SWE2S		NO	69.58	69.75	0.17	0.09	69.67	10/04/2022 08:10 AM
DICB2_SWWS		NO	69.50	70.00	0.50	0.16	69.66	10/04/2022 08:10 AM
DICB3		NO	64.00	66.43	2.43	0.00	64.00	10/04/2022 00:00 AM
DICB6		NO	74.70	76.59	1.89	0.02	74.72	10/04/2022 08:17 AM
D-MHST-100		NO	62.60	65.42	2.82	0.75	63.35	10/04/2022 08:29 AM
D-MHST-142		NO	67.80	72.58	4.78	1.08	68.88	10/04/2022 08:39 AM
D-MHST-145		NO	69.90	74.34	4.44	1.72	71.62	10/04/2022 08:37 AM
D-MHST-146_1		NO	70.17	75.39	5.22	1.95	72.12	10/04/2022 08:36 AM
D-MHST-155		NO	74.03	81.22	7.19	2.44	76.47	10/04/2022 08:26 AM
D-MHST-157B		NO	69.97	74.44	4.47	2.11	72.08	10/04/2022 08:37 AM
D-MHST-161-S	Major_System	NO	83.25	83.40	0.15	0.02	83.27	10/04/2022 08:10 AM
D-MHST-170		NO	71.93	74.51	2.58	0.60	72.53	10/04/2022 08:28 AM
IN119607		NO	63.00	65.62	2.62	0.35	63.35	10/04/2022 08:28 AM
IN119608		NO	63.50	66.14	2.64	0.00	63.50	10/04/2022 00:00 AM
MH150		NO	66.97	69.72	2.75	0.89	67.86	10/04/2022 08:09 AM
MH207		NO	73.95	75.43	1.48	0.37	74.32	10/04/2022 08:10 AM
MH-SA1		NO	69.45	70.55	1.10	0.15	69.60	10/04/2022 07:55 AM
MH-SA49		NO	73.97	75.45	1.48	0.29	74.26	10/04/2022 08:10 AM
MH-SA50		NO	74.07	75.83	1.76	0.20	74.27	10/04/2022 08:10 AM
MH-SA51-1		NO	74.08	76.53	2.45	0.21	74.29	10/04/2022 08:10 AM
MH-SA51-2		NO	74.84	76.50	1.66	0.14	74.98	10/04/2022 08:10 AM
MH-SA56-1		NO	73.24	74.54	1.30	0.27	73.51	10/04/2022 08:10 AM
MH-SA56-2		NO	73.24	74.54	1.30	0.27	73.51	10/04/2022 08:10 AM
MH-SA56-3		NO	73.80	75.80	2.00	0.15	73.95	10/04/2022 08:10 AM
MH-SAxx		NO	62.00	64.50	2.50	0.50	62.50	10/04/2022 06:20 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST_156B		NO	70.09	74.24	4.15	2.00	72.09	10/04/2022 08:37 AM
MHST-100		NO	62.60	65.42	2.82	2.05	64.65	10/04/2022 08:29 AM
MHST-100-S	Major_System	NO	65.42	65.72	0.30	0.03	65.45	10/04/2022 08:10 AM
MHST-101		NO	63.00	66.07	3.07	1.66	64.66	10/04/2022 08:29 AM
MHST-101-S	Major_System	NO	66.07	66.23	0.16	0.04	66.11	10/04/2022 08:10 AM
MHST-102		NO	63.00	66.28	3.28	1.66	64.66	10/04/2022 08:29 AM
MHST-102-S	Major_System	NO	66.28	66.44	0.16	0.04	66.32	10/04/2022 08:10 AM
MHST-104		NO	63.30	70.80	7.50	1.35	64.65	10/04/2022 08:29 AM
MHST-104-S	Major_System	NO	70.80	70.95	0.15	0.05	70.85	10/04/2022 08:10 AM
MHST-105		NO	63.60	69.13	5.53	1.06	64.66	10/04/2022 08:30 AM
MHST-105-S	Major_System	NO	68.64	68.79	0.15	0.09	68.73	10/04/2022 08:11 AM
MHST-106		NO	63.00	71.87	8.87	1.66	64.66	10/04/2022 08:29 AM
MHST-106-S	Major_System	NO	71.87	72.03	0.16	0.04	71.91	10/04/2022 08:11 AM
MHST-107		NO	62.00	64.32	2.32	0.13	62.13	10/04/2022 08:10 AM
MHST-120-S	Major_System	NO	74.46	74.62	0.16	0.04	74.50	10/04/2022 08:10 AM
MHST-126		NO	74.23	75.36	1.13	0.04	74.27	10/04/2022 08:03 AM
MHST-130		NO	67.69	70.21	2.52	1.13	68.82	10/04/2022 08:39 AM
MHST-132		NO	73.25	75.96	2.71	0.31	73.56	10/04/2022 08:10 AM
MHST-134		NO	76.62	79.19	2.57	0.10	76.72	10/04/2022 08:10 AM
MHST-135		NO	70.62	79.31	8.69	1.71	72.33	10/04/2022 08:34 AM
MHST-135-S	Major_System	NO	79.98	80.13	0.15	0.02	80.00	10/04/2022 08:10 AM
MHST-136		NO	78.65	81.94	3.29	0.00	78.65	10/04/2022 00:00 AM
MHST-136-S		NO	81.70	82.00	0.30	0.04	81.74	10/04/2022 08:10 AM
MHST-137		NO	77.24	80.00	2.76	0.10	77.34	10/04/2022 08:10 AM
MHST-138		NO	75.17	78.56	3.39	0.12	75.29	10/04/2022 08:10 AM
MHST-141		NO	71.42	75.17	3.75	0.93	72.35	10/04/2022 08:34 AM
MHST-142		NO	67.80	72.58	4.78	3.38	71.18	10/04/2022 08:37 AM
MHST-143		NO	69.45	74.02	4.57	1.86	71.31	10/04/2022 08:37 AM
MHST-144		NO	69.68	75.30	5.62	1.76	71.44	10/04/2022 08:37 AM
MHST-145		NO	69.90	73.97	4.07	2.17	72.07	10/04/2022 08:37 AM
MHST-146		NO	70.17	75.39	5.22	2.09	72.26	10/04/2022 08:35 AM
MHST-146-S	Major_System	NO	75.38	75.58	0.20	0.06	75.44	10/04/2022 08:10 AM
MHST-147		NO	70.25	75.92	5.67	2.03	72.28	10/04/2022 08:34 AM
MHST-148		NO	70.45	80.13	9.68	1.88	72.33	10/04/2022 08:34 AM
MHST-149		NO	70.69	78.30	7.61	1.65	72.34	10/04/2022 08:34 AM
MHST-149-S	Major_System	NO	77.93	78.08	0.15	0.03	77.96	10/04/2022 08:10 AM
MHST-150		NO	70.76	77.32	6.56	1.58	72.34	10/04/2022 08:34 AM
MHST-151		NO	71.23	77.10	5.87	1.11	72.34	10/04/2022 08:34 AM
MHST-153		NO	72.86	77.00	4.14	0.17	73.03	10/04/2022 08:11 AM
MHST-153-S	TGCB102	NO	76.52	76.82	0.30	0.02	76.54	10/04/2022 08:10 AM
MHST-154		NO	75.60	81.92	6.32	1.53	77.13	10/04/2022 08:10 AM
MHST-154A		NO	76.00	82.52	6.52	2.76	78.76	10/04/2022 08:10 AM
MHST-154B		NO	75.90	81.89	5.99	2.37	78.27	10/04/2022 08:10 AM
MHST-155		NO	74.03	81.22	7.19	0.59	74.62	10/04/2022 08:26 AM
MHST-156		NO	70.13	74.49	4.36	1.96	72.09	10/04/2022 08:37 AM
MHST-157		NO	70.02	74.65	4.63	2.07	72.09	10/04/2022 08:37 AM
MHST-158		YES	71.74	74.80	3.06	0.63	72.37	10/04/2022 08:30 AM
MHST-158-S	Major_System	NO	74.99	75.14	0.15	0.02	75.01	10/04/2022 08:10 AM
MHST-159		NO	69.38	74.96	5.58	1.87	71.25	10/04/2022 08:37 AM
MHST-160		NO	71.27	76.79	5.52	1.08	72.35	10/04/2022 08:34 AM
MHST-161		NO	78.96	81.88	2.92	0.00	78.96	10/04/2022 00:00 AM
MHST-170		NO	71.93	74.51	2.58	1.19	73.12	10/04/2022 08:23 AM
MHST-200		NO	70.10	74.81	4.71	2.01	72.11	10/04/2022 08:36 AM
MHST-201		NO	69.96	74.74	4.78	2.13	72.09	10/04/2022 08:37 AM
MHST-203		NO	73.11	78.83	5.72	0.36	73.47	10/04/2022 08:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST-204		NO	73.11	78.79	5.68	0.37	73.48	10/04/2022 08:10 AM
MHST-205		NO	72.94	78.20	5.26	0.51	73.45	10/04/2022 08:10 AM
MHST-206		NO	72.91	75.77	2.86	0.46	73.37	10/04/2022 08:10 AM
MHST-208		NO	73.41	77.80	4.39	0.35	73.76	10/04/2022 08:10 AM
MHST-209		NO	73.35	75.76	2.41	0.31	73.66	10/04/2022 08:10 AM
MHST-211		NO	68.31	70.38	2.07	0.49	68.80	10/04/2022 08:41 AM
MHST-212		NO	67.95	70.22	2.27	1.11	69.06	10/04/2022 08:39 AM
MHST-213		NO	68.54	70.24	1.70	0.39	68.93	10/04/2022 08:10 AM
MHST-214		NO	68.23	70.31	2.08	0.56	68.79	10/04/2022 08:41 AM
MHST-215		NO	68.27	70.25	1.98	0.53	68.80	10/04/2022 08:43 AM
MHST-221		NO	66.62	69.70	3.08	0.43	67.05	10/04/2022 08:12 AM
MHST301		NO	72.60	75.11	2.52	0.00	72.59	10/04/2022 00:00 AM
MHST62528		NO	67.34	70.08	2.74	0.91	68.25	10/04/2022 08:37 AM
MHST-62534		NO	76.90	82.80	5.90	2.24	79.14	10/04/2022 08:10 AM
MHST62545		NO	66.53	69.90	3.37	0.73	67.26	10/04/2022 08:37 AM
MHST62547		NO	64.00	71.80	7.80	1.27	65.27	10/04/2022 08:37 AM
MSHT-103		NO	63.00	66.13	3.13	1.65	64.65	10/04/2022 08:29 AM
MSHT-103-S	Major_System	NO	66.13	66.29	0.16	0.08	66.21	10/04/2022 08:11 AM
OGS1		NO	61.00	63.82	2.82	0.39	61.39	10/04/2022 08:10 AM
OGS-3		NO	67.62	70.34	2.72	0.89	68.51	10/04/2022 08:36 AM
POW_D1		NO	78.70	79.30	0.60	0.19	78.89	10/04/2022 08:11 AM
Preston		NO	61.00	63.00	2.00	0.27	61.27	10/04/2022 08:10 AM
S-26B		NO	67.58	69.60	2.02	1.95	69.53	10/04/2022 08:35 AM
S-63		NO	79.80	84.02	4.22	2.27	82.07	10/04/2022 08:20 AM
ST-60-S-B		NO	74.11	74.41	0.30	0.11	74.22	10/04/2022 08:12 AM
ST-60-S-C		NO	73.25	73.50	0.24	0.15	73.40	10/04/2022 08:12 AM
SW_42I		NO	74.96	75.15	0.19	0.07	75.03	10/04/2022 08:10 AM
SW_65D		NO	77.94	78.44	0.50	0.03	77.97	10/04/2022 08:17 AM
TD_B		NO	67.88	69.06	1.19	0.16	68.04	10/04/2022 08:07 AM
TD01_1		NO	70.21	70.34	0.13	0.09	70.30	10/04/2022 08:10 AM
TD01_3		NO	68.60	70.29	1.69	0.34	68.94	10/04/2022 08:10 AM
TD02_01		NO	68.90	69.10	0.20	0.14	69.04	10/04/2022 08:10 AM
TD02_03		NO	67.42	69.10	1.68	0.50	67.92	10/04/2022 08:12 AM
TD03_1		NO	68.80	69.10	0.30	0.35	69.15	10/04/2022 08:07 AM
TD04_01		NO	74.57	74.72	0.15	0.18	74.75	10/04/2022 08:10 AM
TD04_02		NO	74.00	74.72	0.72	0.05	74.05	10/04/2022 08:10 AM
TD05_1		NO	74.50	74.75	0.25	0.13	74.63	10/04/2022 08:10 AM
TD05_2		NO	74.00	74.72	0.72	0.07	74.07	10/04/2022 08:10 AM
TD06_1		NO	69.15	69.39	0.24	0.14	69.29	10/04/2022 08:10 AM
TD06_2		NO	67.40	69.39	1.99	0.44	67.84	10/04/2022 08:12 AM
TD07_1		NO	69.10	69.39	0.29	0.04	69.14	10/04/2022 08:10 AM
TD07_2		NO	67.40	69.39	1.99	0.34	67.74	10/04/2022 08:12 AM
TDS_1		NO	76.43	76.58	0.15	0.15	76.58	10/04/2022 08:04 AM
TDS_2		NO	70.50	76.58	6.08	0.95	71.45	10/04/2022 08:36 AM
TDW_1		NO	76.49	76.64	0.15	0.11	76.60	10/04/2022 08:10 AM
TDW_2		NO	70.50	76.64	6.14	0.94	71.44	10/04/2022 08:37 AM
UP-CB43		NO	83.46	83.61	0.15	0.03	83.49	10/04/2022 08:10 AM
Wales-OLF-N03		NO	68.20	68.40	0.20	0.05	68.25	10/04/2022 08:11 AM
Wales-OLF-N04		NO	66.75	66.95	0.20	0.05	66.80	10/04/2022 08:13 AM
Wales-OLF-N05		NO	65.50	65.70	0.20	0.06	65.56	10/04/2022 08:17 AM

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Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Storage Curve	Curve Name	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Volume (1000 m³)	Max. Percent Full (%)	Contributing Area (ha)
CB130	69.84	70.11	0.27	TABULAR	CB(600x600)	0.01	0.07	69.91	0	25	0.0920
CB65	72.16	73.70	1.54	TABULAR	CB65	0.02	0.04	72.20	0	0	1.1620
CB91	75.00	75.20	0.20	TABULAR	CB91	0.10	0.15	75.15	0.011	51	0.1910
CB94	75.02	75.32	0.30	TABULAR	CB94	0.01	0.13	75.15	0.01	33	0.6180
CB95	75.52	75.82	0.30	TABULAR	CB95-ponding	0.01	0.11	75.63	0.011	13	0.2440
CB99	76.90	76.95	0.05	TABULAR	CB99	0.01	0.04	76.94	0	78	0.1460
CBMHST101-S	76.42	76.57	0.15	TABULAR	CBMH101	0.01	0.09	76.51	0.003	46	0.2910
CHAMBER-102	72.03	74.24	2.21	TABULAR	Chamber102	0.29	1.17	73.20	0.252	53	1.9200
CHAMBER-103	74.08	76.78	2.70	TABULAR	Chamber103	0.31	2.41	76.49	1.90	89	13.86
CHAMBER-104-A	70.13	72.43	2.30	TABULAR	Chamber104A	0.32	1.96	72.09	1.12	85	19.50
CHAMBER-104B	69.91	72.61	2.70	TABULAR	Chamber104B	0.47	2.16	72.07	1.36	80	22.77
Chamber201	67.95	69.19	1.24	TABULAR	Chamber201	0.18	0.84	68.79	0.35	68	1.06
Chamber202	70.84	72.43	1.59	TABULAR	Chamber202	0.19	1.01	71.85	0.40	63	1.69
Chamber-203	71.42	72.90	1.48	TABULAR	Chamber203	0.20	1.13	72.55	0.21	77	0.64
Chamber-204	73.03	74.36	1.33	TABULAR	Chamber204	0.17	1.02	74.05	0.23	77	0.69
DICB8	68.11	70.10	1.99	TABULAR	swale	0.09	1.16	69.27	0.02	4	2.81
DICB9	74.60	74.88	0.28	TABULAR	DICB9	0.02	0.12	74.72	0.00	7	1.13
MHST-157-S	73.80	74.23	0.43	TABULAR	CB98-ponding	0.03	0.23	74.03	0.00	19	1.12
PS	64.92	70.03	5.11	CYLINDRICAL	*	0.69	1.03	65.95	0.00	20	0.31
S-14B	61.65	63.30	1.65	TABULAR	S-14B	0.43	1.65	63.30	0.01	100	0.13
S-15	62.10	63.90	1.80	TABULAR	S-15	0.55	1.79	63.89	0.11	95	0.36
S-19	64.00	66.00	2.00	TABULAR	S-19	0.60	1.66	65.66	0.07	25	0.21
S-21B	63.54	65.70	2.16	TABULAR	S-21B	1.34	1.92	65.46	0.67	52	1.77
S-26D	67.19	69.25	2.06	TABULAR	DICB1	0.32	1.93	69.12	0.014	38	0.0750
S-3Store	62.20	64.24	2.04	TABULAR	S-3	1.46	2.04	64.24	0.081	100	0.3940
SA-1	69.50	72.50	3.00	TABULAR	S-1	0.44	2.27	71.77	0.498	76	1.2350
SA-2	62.60	65.60	3.00	TABULAR	S-2	1.20	1.89	64.49	0.566	63	0.8680

Outlets 1/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
1	DICB6	CBMHST-101	74.70	TABULAR/DEPTH	2CB	NO	15.92	0.12
12	CBMHST208-S	MHST-208	78.00	TABULAR/DEPTH	S28_SL2_5	NO	9.55	0.15
14	CB95	CBMHST-104	75.52	TABULAR/DEPTH	S19_LP	NO	94.65	0.24
18	CB94	75	75.02	TABULAR/DEPTH	2CB	NO	100.00	0.62
20	CB65	MHST-144	72.16	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	18.34	1.16
24	CBMHST-103-S	CBMHST103	74.60	TABULAR/DEPTH	S28_SL4_0.5	NO	20.00	1.55
26	CB91	37	75.14	TABULAR/DEPTH	S19_SL2_5x2	NO	3.15	0.19
31	CB26	Chamber202	75.96	TABULAR/DEPTH	S19_SL2_5x2	NO	25.33	0.35
37	CB113	Chamber201	69.58	TABULAR/DEPTH	CB	NO	0.00	0.14
44	AD05	MH-SA56-1	79.70	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
45	AD03	MH-SA56-2	79.82	TABULAR/HEAD	AreaDrain	NO	0.00	0.03
46	CB72_89	39	69.49	TABULAR/DEPTH	S19_SL2_1	NO	1.56	2.93
47	CBMHST66,67	56	73.54	TABULAR/DEPTH	S28_SL2_5x2	NO	22.95	0.80
48	DICB11	26	75.45	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	53.03	0.43
51	CB46	64	79.69	TABULAR/DEPTH	S19_SL2_5	NO	7.98	0.08
52	CB54	49	76.44	TABULAR/DEPTH	S22_SL2_5	NO	3.43	0.15
53	CB58	71	75.64	TABULAR/DEPTH	S22_SL2_5	NO	6.14	0.19
55	CB71	MHST-135	79.68	TABULAR/DEPTH	S19_SL2_2.5	NO	0.46	0.01
56	CB75	MHST-135	79.25	TABULAR/DEPTH	S22_SL2_2.5	NO	1.31	0.02
57	CB87	MHST-160	75.50	TABULAR/DEPTH	S19_LP	NO	0.62	0.11
58	CB107	32	75.12	TABULAR/DEPTH	S19_SL2_1x2	NO	9.12	0.69
59	CB100	33	75.08	TABULAR/DEPTH	S19_SL2_1x2	NO	13.69	0.70
60	CB84,85	76	81.32	TABULAR/DEPTH	S19_SL2_2.5x2	NO	15.64	0.10
61	CB90	21	80.75	TABULAR/DEPTH	S19_SL2_2.5x2	NO	13.86	0.11
62	CB96	MHST-138	78.66	TABULAR/DEPTH	S19_SL2_2.5	NO	16.53	0.17
63	CB97	22	77.90	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.19
65	CBMHST105-S	CBMHST105	74.82	TABULAR/DEPTH	S28_SL4_0.5	NO	0.32	0.38
69	DICB10	MHST-135	79.27	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	103.17	1.32
AD01_O	AD01	MH-SA56-2	79.67	TABULAR/DEPTH	3CB	NO	0.00	0.10
AD02_O	AD02	MH-SA56-2	79.67	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD04_O	AD04	MH-SA56-1	79.80	TABULAR/DEPTH	AreaDrain	NO	0.00	0.04
AD06_O	AD06	MH-SA56-1	79.65	TABULAR/DEPTH	AreaDrain	NO	47.48	0.11
AD07_O	AD07	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD08_O	AD08	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.09
AD09_O	AD09	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.01
BI-SA1-IC	BI-SA1-S	BI-SA1	70.15	TABULAR/DEPTH	6@R-B@S=1.5%	NO	84.55	0.52
BI-SA49-IC	BI-SA49-S	D-MHST-146_1	75.35	TABULAR/DEPTH	S19_SL2_1x4	NO	59.73	0.32
CB101_103_105	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.22
CB102_106_DIC	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S19_SL2_2.5	NO	6.82	0.22
CB103_O	CB106,103	23	75.51	TABULAR/DEPTH	S22_SL2_2.5	NO	2.15	0.24
CB104_O	CB104	72	75.37	TABULAR/DEPTH	S19_SL2_5	NO	22.29	0.21
CB105_O	CB105	26	75.14	TABULAR/DEPTH	S22_SL2_2.5	NO	4.23	0.26
CB106_O	CB106,103	23	75.51	TABULAR/DEPTH	S19_SL2_2.5x2	NO	22.07	0.24
CB108_O	CB108	MHST-214	69.60	TABULAR/DEPTH	CB	NO	0.00	0.12
CB109_O	CB109	MHST-215	69.60	TABULAR/DEPTH	CB	NO	0.00	0.09
CB111_O	CB111	MHST-147	75.04	TABULAR/DEPTH	S19_LP	NO	154.32	0.49
CB114_O	CB114	MHST-200	74.92	TABULAR/DEPTH	S19_SL2_5	NO	35.13	0.28
CB130_O	CB130	MHST-130	69.84	TABULAR/DEPTH	S19_SL2_1	NO	43.50	0.09
CB255-O	CB255-S	CB255	77.71	TABULAR/DEPTH	S19_SL2_5	NO	3.81	0.14
CB40,66-68	CB68,40	56	72.63	TABULAR/DEPTH	S19_SL2_5x4	NO	85.16	0.82

Outlets 2/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
CB42_O	CB42	38	81.44	TABULAR/DEPTH	S19_SL2_5	NO	3.45	0.02
CB43_O	CB43	59	81.69	TABULAR/DEPTH	S19_SL2_5	NO	14.49	0.04
CB44_O	CB44	61	80.37	TABULAR/DEPTH	S19_SL2_5x2	NO	5.44	0.03
CB45_O	CB45	60	80.69	TABULAR/DEPTH	S19_SL2_5	NO	6.37	0.07
CB47_O	CB47	66	78.63	TABULAR/DEPTH	S22_SL2_5	NO	1.54	0.05
CB48_O	CB48	65	78.85	TABULAR/DEPTH	S22_SL2_5	NO	1.96	0.10
CB49_O	CB49	68	78.19	TABULAR/DEPTH	S22_SL2_5x2	NO	2.96	0.05
CB50_O	CB50	69	77.85	TABULAR/DEPTH	S22_SL2_5	NO	2.53	0.12
CB51_O	CB51	70	77.75	TABULAR/DEPTH	S22_SL2_5	NO	1.27	0.05
CB52_O	CB52	48	77.14	TABULAR/DEPTH	S22_SL2_5	NO	2.83	0.14
CB53_O	CB53	48	77.08	FUNCTIONAL/DEPTH	*	NO	1.46	0.06
CB55_O	CB55	49	76.58	TABULAR/DEPTH	S22_SL2_5x2	NO	3.15	0.06
CB56_58	MHST-146-S	MHST-146	75.38	TABULAR/DEPTH	S22_SL2_1x2	NO	19.26	0.32
CB56_O	CB56	50	75.98	TABULAR/DEPTH	S22_SL2_5	NO	4.43	0.16
CB59_O	CB59	73	74.99	TABULAR/DEPTH	S19_SL2_5	NO	25.79	0.25
CB60_O	CB60	MHST301	75.39	TABULAR/DEPTH	S19_SL2_1	NO	0.00	0.07
CB63	MHST-120-S	56	74.46	TABULAR/DEPTH	S22_SL2_5	NO	4.42	0.40
CB69_75	MHST-149-S	MHST-149	77.93	TABULAR/DEPTH	S22_SL2_5x2	NO	7.47	0.09
CB69_O	CB69	36	78.72	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.05
CB77_O	CB77	36	78.83	TABULAR/DEPTH	S19_SL2_2.5	NO	8.24	0.05
CB79_O	CB79	MHST-150	77.57	TABULAR/DEPTH	S19_SL2_2.5	NO	15.22	0.12
CB82_O	CB82	MHST-151	77.15	TABULAR/DEPTH	DB_S22_SL2_5	NO	5.94	0.19
CB83_O	CB83	35	77.24	TABULAR/DEPTH	S22_SL2_5	NO	8.15	0.16
CB88_96	CB88	MHST-137	79.79	TABULAR/DEPTH	S19_SL2_2.5	NO	15.11	0.14
CB92_O	CB92	37	75.27	TABULAR/DEPTH	S19_SL2_2.5x2	NO	47.46	0.28
CB93_O	CB93	31	75.17	TABULAR/DEPTH	S19_SL2_1x2	NO	8.46	0.67
CB99_O	CB99	CBMHST-104	76.90	TABULAR/DEPTH	S19_LP	NO	33.07	0.15
CBMH57_O	CBMH57	MHST-147	76.00	TABULAR/DEPTH	S19_SL2_5	NO	39.35	0.32
CBMH89_O	CBMH89	MHST-160	76.26	TABULAR/DEPTH	S28_SL2_5	NO	12.24	0.23
CBMHST101_O	CBMHST101-S	CBMHST-101	76.42	TABULAR/DEPTH	S28_LP	NO	55.27	0.29
DICB9_OL	DICB9	CBMHST103	74.28	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	85.36	1.13
MHST-100-IC	MHST-100-S	MHST-100	66.30	TABULAR/DEPTH	1@R-A@S=5.0%	NO	0.00	1.42
MHST-101-IC	MHST-101-S	MHST-101	66.07	TABULAR/DEPTH	4@R-A@S=5.0%	NO	34.07	1.42
MHST-102-IC	MHST-102-S	MHST-102	66.28	TABULAR/DEPTH	4@R-A@S=5.0%	NO	30.95	1.29
MHST-104-IC	MHST-104-S	MHST-104	70.80	TABULAR/DEPTH	3@R-B@S=1.5%	NO	19.40	0.12
MHST-105-IC	MHST-105-S	MHST-105	68.64	TABULAR/DEPTH	3@R-B@S=1.5%	NO	98.91	4.14
MHST-106-IC	MHST-106-S	MHST-106	71.87	TABULAR/DEPTH	2@R-E@S=5.0%	NO	15.20	0.99
MHST-157-IC	MHST-157-S	MHST-157	73.80	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	255.38	1.12
MSHT-103-IC	MSHT-103-S	MSHT-103	66.13	TABULAR/DEPTH	7@R-A@S=5.0%	NO	206.51	1.13
O-1	SA-1	MH-SA1	69.50	TABULAR/HEAD	O-1	NO	60.00	1.24
O-15	S-15	MHST-107	62.10	TABULAR/DEPTH	O-15	NO	7.84	0.36
O-19	S-19	MHST-101	64.00	TABULAR/DEPTH	50VHV-1	NO	3.79	0.21
O-2	SA-2	MH-SAxx	62.60	TABULAR/HEAD	O-2	NO	7.00	0.87
O-21B	S-21B	IN119607	63.54	TABULAR/DEPTH	50VHV-1	NO	4.10	1.77
O-26D	S-26D	MHST-105	67.19	TABULAR/DEPTH	50VHV-1	NO	4.12	0.08
O-3	S-3Store	OGS1	62.20	TABULAR/HEAD	125VHV-2	NO	26.69	0.39
O-4	S-14B	Preston	62.15	TABULAR/HEAD	125VHV-2	NO	20.15	0.13
O-63	S-63	MHST-154A	78.20	TABULAR/DEPTH	O-63	NO	72.35	1.10
O-CB209	CB209	MHST-209	77.64	TABULAR/DEPTH	S28_SL2_5	NO	5.49	0.18
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	21.02	4.14

Orifices 1/1

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Width (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (L/s)
DICB2	S-26B	BI-SA1	SIDE	CIRCULAR	0.095	0	67.58	0.65	28.13
ICD-100-1	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.3	0	63.06	0.62	221.96
ICD-100-2	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.1	0	63.85	0.62	18.72
ICD102	MHST-170	D-MHST-170	SIDE	CIRCULAR	0.1	0	71.93	0.62	21.37
ICD103	D-MHST-155	MHST-155	SIDE	CIRCULAR	0.675	0	74.06	0.62	1336.2
ICD104	MHST-145	D-MHST-145	SIDE	RECT_CLOSED	0.75	0.75	69.9	0.62	1224.15
ICD-105	MHST-142	D-MHST-142	SIDE	CIRCULAR	0.7	0	69.32	0.62	1300.26
ICD111	DICB8	OGS-3	SIDE	CIRCULAR	0.4	0	68.11	0.62	317.32
ICD201	Chamber201	Chamber201S	SIDE	CIRCULAR	0.35	0	67.95	0.62	132.44
ICD202	Chamber202	Chamber202-S	SIDE	CIRCULAR	0.245	0	70.84	0.62	113.9
ICD203	Chamber-203	D-Chamber-203	SIDE	CIRCULAR	0.225	0	71.42	0.62	92.61
ICD204	Chamber-204	D-Chamber-204	SIDE	CIRCULAR	0.19	0	73.03	0.62	67.31

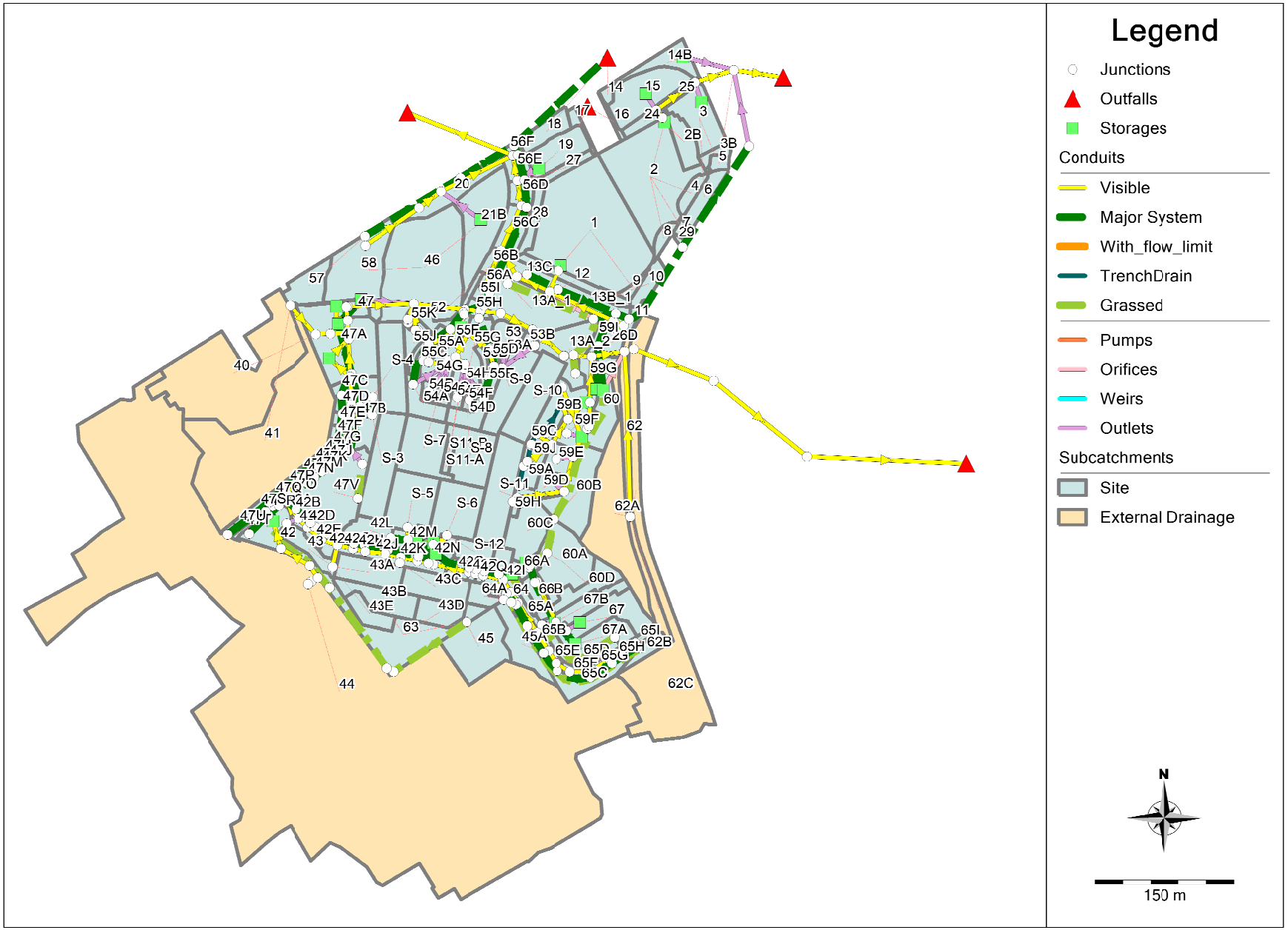
Weirs 1/1

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Inlet Elev. (m)	Max. |Flow| (L/s)	Time Max. Flow (M/D/Y)	Max/Full Depth	Contributing Area (ha)
Weir102	MHST-170	D-MHST-170	TRANSVERSE	0.3	1.5	73	104.87	10/04/2022 08:23 AM	0.41	1.92
Weir103	D-MHST-155	MHST-155	TRANSVERSE	1	1	76.45	4.7	10/04/2022 08:26 AM	0.02	13.859
Weir104	MHST-145	D-MHST-145	TRANSVERSE	1	2	71.64	925.01	10/04/2022 08:37 AM	0.43	22.77
Weir-105	MHST-142	D-MHST-142	TRANSVERSE	0.5	1.4	70.7	775.1	10/04/2022 08:37 AM	0.97	24.89
Weir112	MHST-146	D-MHST-146_1	SIDEFLOW	1.4	1.5	70.17	2146.33	10/04/2022 08:20 AM	1	19.443

Outfalls 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Type	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)	Max. Flow (L/s)	Total Flow (ML)	Contributing Area (ha)
Carling_OLF	64.6	64.8	FREE	0.12	64.72	10/04/2022 08:13 AM	259.44	0.306	2.011
Dows-Lake	63.745	66.5	FREE	0.84	64.59	10/04/2022 08:37 AM	2345.65	19.199	29.624
LRT-Corridor	56	57	FREE	0	56	10/04/2022 00:00 AM	26.39	0.022	0.059
Nepean-Bay-Trunk	62.8	65.21	NORMAL	0	62.8	10/04/2022 00:00 AM	244.52	3.269	8.845
Preston_Street	60.9	63.76	NORMAL	0.24	61.14	10/04/2022 08:10 AM	106.6	2.361	5.985

PCSWMM OUTPUT
24-HOUR SCS -100-YEAR +20% STORM


Legend
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Outfalls
Storages
Conduits
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TrenchDrain
Grassed
Pumps
Orifices
Weirs
Outlets
Subcatchments
Site
External Drainage
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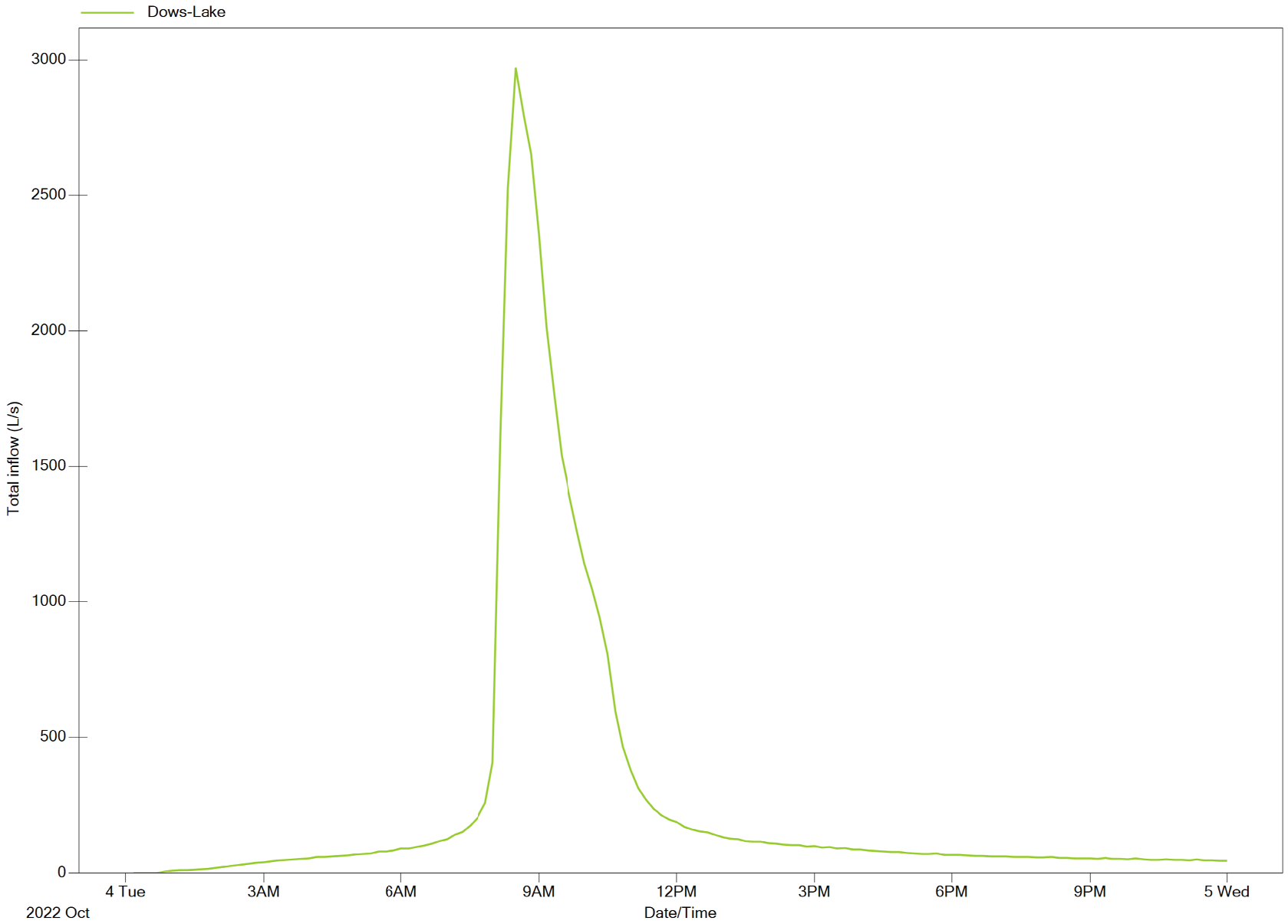
Dows-Lake
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2500
2000
1500
1000
500
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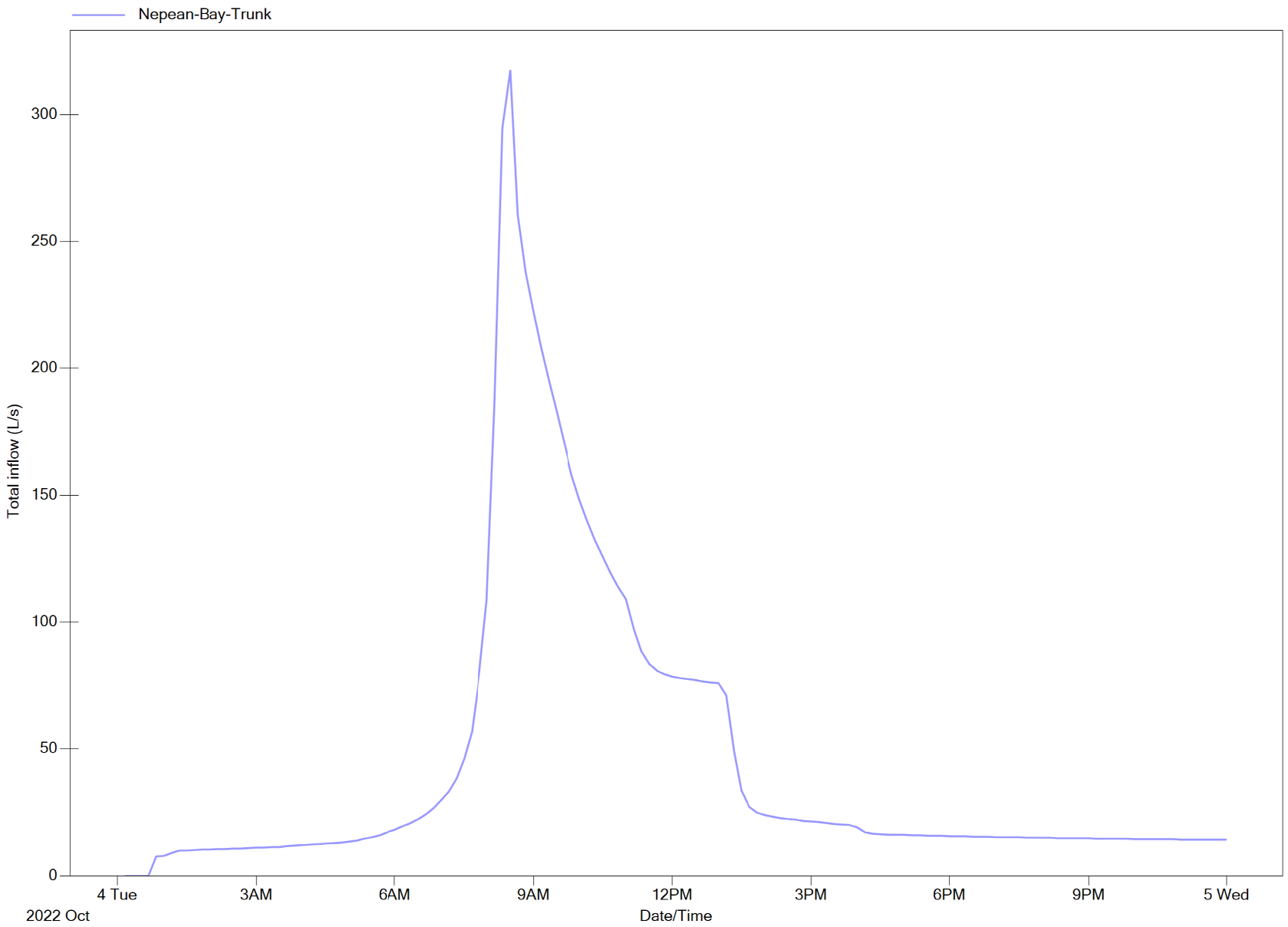
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time


Nepean-Bay-Trunk
300
250
200
150
100
50
0
Total inflow (L/s)
4 Tue
2022 Oct
3AM
6AM
9AM
12PM
3PM
6PM
9PM
5 Wed
Date/Time

SUBCATCHMENTS 1/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
1		24hr-StressTest	SA-1	1.2161	3.0	721.5	1.0	100.00
10		24hr-StressTest	13B_1	0.0822	3.0	44.6	0.4	8.07
11		24hr-StressTest	MHST-105-S	0.0302	3.0	17.8	0.9	89.30
12		24hr-StressTest	BI-SA1-S	0.1276	5.0	73.7	0.7	56.48
13A_1		24hr-StressTest	DICB2_SWWS	0.4122	10.0	213.2	0.5	19.20
13A_2		24hr-StressTest	DICB2_SWE2S	0.2478	10.0	105.6	0.4	3.60
13B_1		24hr-StressTest	BI-SA1-S	0.1938	5.0	115.2	0.9	87.80
13C		24hr-StressTest	MHST-104-S	0.1184	5.0	69.3	0.9	78.70
14		24hr-StressTest	Carling_OLF	0.0580	3.0	32.4	0.8	60.27
14B		24hr-StressTest	S-14B	0.1272	3.0	69.9	0.4	0.00
15		24hr-StressTest	S-15	0.3643	3.0	158.3	0.4	3.61
16		24hr-StressTest	LRT-Corridor	0.0229	3.0	12.7	0.4	0.00
17		24hr-StressTest	LRT-Corridor	0.0361	3.0	19.9	0.4	0.00
18		24hr-StressTest	Carling_OLF	0.1189	3.0	60.6	0.4	3.43
19		24hr-StressTest	S-19	0.2056	3.0	101.6	0.4	7.10
2		24hr-StressTest	SA-2	0.7114	3.0	430.2	1.0	100.00
20		24hr-StressTest	Carling_OLFN1	0.2434	8.0	132.7	0.4	0.00
21B		24hr-StressTest	S-21B	0.4325	10.0	469.7	0.7	9.20
24		24hr-StressTest	MHST-107	0.0348	3.0	19.9	0.7	55.80
25		24hr-StressTest	OGS1	0.0465	3.0	27.2	0.9	80.56
26D		24hr-StressTest	S-26D	0.0748	2.0	31.4	0.4	0.00
27		24hr-StressTest	MHST-101-S	0.0531	3.0	31.3	0.9	84.50
28		24hr-StressTest	MHST-102-S	0.0844	5.0	48.9	0.8	62.60
29		24hr-StressTest	7	0.0113	3.0	5.7	0.4	0.00
2B		24hr-StressTest	SA-2	0.0908	3.0	54.0	1.0	100.00
3		24hr-StressTest	S-3Store	0.2154	3.0	128.7	0.7	31.75
3B		24hr-StressTest	3	0.0393	3.0	23.4	1.0	100.00
4		24hr-StressTest	2	0.0196	3.0	11.7	1.0	100.00
40	External	24hr-StressTest	MHST-156	1.1965	6.8	576.5	0.7	46.20
41	External	24hr-StressTest	MHST-132	1.5372	3.0	396.4	0.4	14.60
42		24hr-StressTest	DICB10	0.2213	3.0	64.9	0.4	0.01
42A		24hr-StressTest	MHST-135-S	0.0106	3.5	6.2	0.9	84.62
42B		24hr-StressTest	CB75	0.0107	3.5	6.4	1.0	99.40
42C		24hr-StressTest	CB77	0.0243	3.5	14.5	1.0	100.00
42D		24hr-StressTest	CB69	0.0062	3.5	3.7	1.0	95.34
42E		24hr-StressTest	MHST-149-S	0.0345	3.5	19.0	0.6	40.14
42F		24hr-StressTest	CB79	0.0354	3.5	19.6	0.7	44.00
42G		24hr-StressTest	CB83	0.0415	2.8	24.4	0.9	83.29
42H		24hr-StressTest	CB82	0.0225	2.8	13.2	0.8	74.75
42I		24hr-StressTest	SW_42I	0.1692	2.0	92.4	0.8	75.05
42J		24hr-StressTest	CBMH89	0.0485	2.8	28.3	0.8	71.99
42K		24hr-StressTest	CB92	0.0466	3.0	27.3	0.9	78.08

SUBCATCHMENTS 2/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Peak Runoff	Runoff Coefficient	Imperv. (%)
42L		24hr-StressTest	CB87	0.1098	5.0	65.1	1.0	95.54
42M		24hr-StressTest	CB91	0.0808	4.5	47.6	0.9	86.55
42N		24hr-StressTest	CB94	0.1467	1.5	85.8	0.9	80.74
42O		24hr-StressTest	CB93	0.0494	2.0	28.9	0.9	76.95
42P		24hr-StressTest	CB107	0.0173	2.2	10.2	0.9	83.72
42Q		24hr-StressTest	CB100	0.0167	2.2	9.8	0.9	77.86
43		24hr-StressTest	MHST-126	0.1112	9.0	66.1	1.0	98.59
43A		24hr-StressTest	MHST-126	0.1990	2.0	102.6	0.7	55.00
43B		24hr-StressTest	63	0.1919	1.5	105.9	0.7	55.00
43C		24hr-StressTest	CUP-SS1	0.2011	2.0	96.2	0.7	45.00
43D		24hr-StressTest	63	0.1257	3.0	71.6	0.7	55.00
43E		24hr-StressTest	MHST-126	0.1010	0.5	59.2	1.0	99.00
44	External	24hr-StressTest	MHST-62534	12.7620	1.0	4104.0	0.5	32.00
45		24hr-StressTest	55	0.3614	4.0	199.8	0.7	58.75
45A		24hr-StressTest	65C	0.1911	4.0	100.1	0.4	9.20
46		24hr-StressTest	21B	0.8929	10.0	420.0	0.6	15.60
47		24hr-StressTest	CB65	0.0376	2.5	22.2	0.9	87.89
47A		24hr-StressTest	MHST-157-S	0.5324	1.5	310.7	0.9	88.00
47B		24hr-StressTest	CBMH57	0.2548	2.0	147.3	0.8	69.70
47C		24hr-StressTest	CB114	0.0276	2.0	16.0	0.8	65.65
47D		24hr-StressTest	CB59	0.0337	2.0	19.9	0.9	91.76
47E		24hr-StressTest	CB104	0.0244	2.0	14.5	1.0	100.00
47F		24hr-StressTest	CB58	0.0250	2.0	14.9	1.0	99.94
47G		24hr-StressTest	CB56	0.0145	2.0	8.6	1.0	99.54
47H		24hr-StressTest	CB54	0.0132	5.0	7.8	0.9	83.09
47I		24hr-StressTest	CB52	0.0133	5.0	7.8	0.9	82.33
47J		24hr-StressTest	CB55	0.0043	5.0	2.4	0.5	25.00
47K		24hr-StressTest	CB53	0.0041	5.0	2.4	1.0	99.90
47L		24hr-StressTest	CB50	0.0195	5.0	11.5	0.9	82.25
47M		24hr-StressTest	CB51	0.0040	5.0	2.4	1.0	99.65
47N		24hr-StressTest	CB49	0.0043	5.0	2.6	1.0	100.00
47O		24hr-StressTest	CB47	0.0183	5.0	10.9	1.0	99.90
47P		24hr-StressTest	CB48	0.0195	5.0	11.5	0.9	82.15
47Q		24hr-StressTest	CB46	0.0195	5.0	11.5	0.9	81.97
47R		24hr-StressTest	CB44	0.0092	5.0	5.5	1.0	96.40
47S		24hr-StressTest	CB45	0.0229	5.0	13.0	0.6	39.96
47T		24hr-StressTest	D-MHST-161-S	0.0180	5.0	10.7	1.0	97.57
47U		24hr-StressTest	UP-CB43	0.0418	5.0	24.4	0.8	72.19
47V		24hr-StressTest	CB111_SW	0.4849	5.0	226.8	0.4	8.35
5		24hr-StressTest	preston	0.0120	3.0	7.2	1.0	100.00
52		24hr-StressTest	56B	0.0873	2.0	41.5	0.7	44.70
53		24hr-StressTest	AD08	0.0903	20.0	50.8	0.6	32.10
53A		24hr-StressTest	AD09	0.0070	1.5	4.1	0.8	72.42
53B		24hr-StressTest	AD07	0.0264	1.0	15.5	0.9	80.25
54A		24hr-StressTest	AD06	0.1118	1.5	66.2	1.0	98.30
54B		24hr-StressTest	AD05	0.0337	2.0	19.9	0.9	87.44
54C		24hr-StressTest	AD04	0.0362	1.5	21.4	0.9	89.15
54D		24hr-StressTest	AD01	0.1027	2.0	60.9	1.0	99.60
54E		24hr-StressTest	AD03	0.0304	1.5	18.0	0.9	89.00
54F		24hr-StressTest	AD02	0.0316	2.0	18.6	0.9	86.13
54G		24hr-StressTest	55F	0.0675	2.0	36.9	0.6	30.50
54H		24hr-StressTest	55G	0.0634	2.0	35.2	0.6	38.04
55A		24hr-StressTest	TD05_1	0.0307	4.0	18.3	1.0	98.63
55B		24hr-StressTest	TD04_01	0.0231	4.5	13.7	1.0	93.90
55C		24hr-StressTest	CB255-S	0.0259	5.0	15.4	1.0	99.27
55D		24hr-StressTest	CB209	0.0240	5.0	13.8	0.7	53.18
55E		24hr-StressTest	CBMHST208-S	0.0483	5.0	27.8	0.8	60.10
55F		24hr-StressTest	CB26	0.1485	5.0	79.9	0.7	43.64
55G		24hr-StressTest	MHST-120-S	0.1658	5.0	87.1	0.6	24.94
55H		24hr-StressTest	CBMHST66,67	0.0408	5.0	23.4	0.7	51.58
55I		24hr-StressTest	CB68,40	0.0241	5.0	14.2	0.9	81.84
55J		24hr-StressTest	TDS_1	0.0804	3.0	38.4	0.6	28.65

SUBCATCHMENTS 3/3

Name	Tag	Rain Gage	Outlet	Area (ha)	Slope (%)	Imperv. (%)	Peak Runoff (L/s)	Runoff Coefficient
55K		24hr-StressTest	TDW_1	0.0168	2.1	9.8	0.8	75.97
56A		24hr-StressTest	MHST-106-S	0.0236	5.0	13.9	0.9	80.84
56B		24hr-StressTest	MHST-106-S	0.0562	5.0	51.3	0.9	86.00
56C		24hr-StressTest	MSHT-103-S	0.1354	5.0	79.5	0.9	82.00
56D		24hr-StressTest	MHST-102-S	0.0761	5.0	44.8	0.9	84.70
56E		24hr-StressTest	MHST-101-S	0.0805	5.0	47.2	0.9	77.30
56F		24hr-StressTest	Carling_OLFN3	0.0180	5.0	10.5	0.9	77.40
57		24hr-StressTest	Carling_OLF1	0.1534	15.0	85.3	0.4	6.90
58		24hr-StressTest	46	0.4475	16.0	203.5	0.4	10.20
59A		24hr-StressTest	TD02_01	0.0527	2.0	31.4	1.0	100.00
59B		24hr-StressTest	TD03_1	0.1995	4.0	113.9	0.8	61.55
59C		24hr-StressTest	TD07_1	0.0071	0.5	4.2	1.0	100.00
59D		24hr-StressTest	CB108	0.1168	3.0	69.5	1.0	99.94
59E		24hr-StressTest	CB109	0.0937	2.0	55.8	1.0	100.00
59F		24hr-StressTest	CB113	0.1387	2.0	82.5	1.0	99.81
59G		24hr-StressTest	CB130	0.0920	2.2	53.1	0.8	71.12
59H		24hr-StressTest	TD01_1	0.0121	1.0	7.2	1.0	99.00
59I		24hr-StressTest	CB72_89	0.0233	2.4	13.9	1.0	99.81
59J		24hr-StressTest	TD06_1	0.0521	2.8	31.0	1.0	100.00
6		24hr-StressTest	3	0.1396	3.0	72.1	0.4	2.06
60		24hr-StressTest	DICB8	0.2109	25.0	99.7	0.4	0.00
60A		24hr-StressTest	ST-60-S-B	0.3586	2.5	125.6	0.6	23.90
60B		24hr-StressTest	ST-60-S-C	0.3168	25.0	144.4	0.4	1.81
60C		24hr-StressTest	ST-60-S-C	0.2273	2.5	82.0	0.4	7.40
60D		24hr-StressTest	60A	0.1424	3.8	60.7	0.6	39.00
62	External	24hr-StressTest	POW_D1	0.2744	5.0	123.3	0.8	61.70
62A	External	24hr-StressTest	POW_D1	0.6276	6.0	225.4	0.5	25.00
62B		24hr-StressTest	MHST-136-S	0.0674	3.0	23.1	0.4	0.00
62C	External	24hr-StressTest	POW_D1	1.1137	5.0	430.1	0.7	61.80
63		24hr-StressTest	55	0.4180	1.5	112.1	0.4	0.00
64		24hr-StressTest	CB105	0.0174	1.8	10.4	1.0	99.23
64A		24hr-StressTest	CB60	0.0677	1.0	40.3	1.0	99.96
65A		24hr-StressTest	CB106,103	0.0260	3.8	15.5	1.0	100.00
65B		24hr-StressTest	MHST-153-S	0.0257	3.8	15.3	1.0	100.00
65C		24hr-StressTest	34	0.2345	3.0	80.0	0.5	4.68
65D		24hr-StressTest	SW_65D	0.1224	2.0	26.0	0.3	0.00
65E		24hr-StressTest	CB97	0.0176	3.9	10.5	1.0	100.00
65F		24hr-StressTest	CB96	0.0332	3.8	19.8	1.0	99.96
65G		24hr-StressTest	CB88	0.0271	3.8	16.1	1.0	99.91
65H		24hr-StressTest	CB90	0.0102	3.7	6.1	1.0	100.00
65I		24hr-StressTest	MHST-136-S	0.0347	3.6	20.7	1.0	100.00
66A		24hr-StressTest	CBMHST-103-S	0.0414	1.5	23.8	0.8	65.20
66B		24hr-StressTest	CBMHST105-S	0.0914	2.0	53.3	0.9	79.10
67		24hr-StressTest	CB95	0.2437	4.0	137.8	0.7	52.07
67A		24hr-StressTest	CB99	0.1464	2.0	84.6	0.9	79.54
67B		24hr-StressTest	CBMHST101-S	0.1445	1.5	83.9	0.9	84.60
7		24hr-StressTest	2	0.0165	3.0	9.8	1.0	100.00
8		24hr-StressTest	2	0.0188	3.0	11.2	1.0	100.00
9		24hr-StressTest	1	0.0192	3.0	11.4	1.0	100.00
S-10		24hr-StressTest	MHST-211	0.2975	2.0	175.2	1.0	100.00
S-11		24hr-StressTest	MHST-213	0.4008	2.0	233.0	1.0	100.00
S11-A		24hr-StressTest	MH-SA56-2	0.0107	2.0	6.4	1.0	100.00
S11-B		24hr-StressTest	MH-SA56-2	0.0153	2.0	8.9	0.8	69.20
S-12		24hr-StressTest	MH-SA51-1	0.0943	2.0	55.1	0.8	74.54
S-3		24hr-StressTest	MH-SA50	0.3456	2.0	202.4	1.0	99.90
S-4		24hr-StressTest	MH-SA49	0.2910	2.0	171.5	1.0	99.80
S-5		24hr-StressTest	MH-SA51-2	0.2908	2.0	163.5	0.8	64.20
S-6		24hr-StressTest	MH-SA51-1	0.2996	2.0	168.8	0.8	65.30
S-7		24hr-StressTest	MH-SA56-1	0.2899	2.0	168.1	0.9	77.20
S-8		24hr-StressTest	MH-SA56-2	0.2768	2.0	160.6	0.8	75.40
S-9		24hr-StressTest	MH-SA56-3	0.2599	2.0	146.0	0.8	71.40

CONDUITS 1/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
10	CBMHST105	CBMHST103		17.6	72.40	72.13	CIRCULAR	0.38		0.01534	225.9
11	AD06	CB255-S	Major_System	46.6	79.72	77.71	IRREGULAR	0.00	Road-A_spilt	0.04314	13.7
12_1	AD01	CBMHST208-S	major_system	37.5	79.53	78.00	IRREGULAR	0.00	Road-A_spilt	0.04083	60.3
12_2	CBMHST208-S	CB209	major_system	19.8	78.00	77.64	IRREGULAR	0.00	Road-A_spilt	0.01817	76.3
13	CB64	CBMHST66,67	major_system	24.4	74.57	73.54	IRREGULAR	0.00	Road-A_spilt	0.04228	69.8
15	SW_42I	DICB9	swale	2.7	74.96	74.88	TRAPEZOIDAL	1.00		0.02964	92.4
16	MH207	Chamber-204		27.2	73.98	73.88	CIRCULAR	0.38		0.00367	163.6
17	D-Chamber-204	MHST-141		21.1	73.03	72.98	CIRCULAR	0.30		0.00237	75.8
19	DICB9	CBMHST-103-S	major_system	21.2	74.88	74.60	TRAPEZOIDAL	0.50		0.01319	0.0
2	MHST-105-S	Wales-OLF-N03	Major_System	17.0	68.69	68.20	IRREGULAR	0.00	Road-B	0.02884	41.9
21	MHST-157-S	CB65	Major_System	36.2	74.22	73.54	IRREGULAR	0.00	Road-D	0.01881	0.0
22	CUP-SS1	30		5.8	73.50	73.39	CIRCULAR	0.37		0.01887	96.2
23	CBMHST-103-S	ST-60-S-B	swale	22.5	74.60	74.11	TRAPEZOIDAL	0.50		0.02180	109.6
25	CB91	CB94	major_system	25.2	75.10	75.02	RECT_OPEN	0.15		0.00317	84.7
27	TD07_2	MH150		20.0	67.40	67.20	CIRCULAR	0.20		0.01001	6.1
27_1	TD02_03	MH150		38.0	67.42	66.97	CIRCULAR	0.20		0.01178	27.1
27_2	MH150	MHST-221		32.7	66.97	66.62	CIRCULAR	0.20		0.01078	57.2
28	MHST-221	PS		26.8	66.63	66.42	CIRCULAR	0.30		0.00765	124.0
3	Preston	Preston_Street		10.0	61.03	60.90	CIRCULAR	0.30		0.01300	125.5
30	TD_B	MHST-221		18.1	67.88	67.60	CIRCULAR	0.30		0.01526	67.1
32	CB255-S	CB26	Major_System	28.5	77.71	75.96	IRREGULAR	0.00	Road-A_spilt	0.06143	22.4
33	TD06_2	MH150		22.5	67.40	67.00	CIRCULAR	0.20		0.01776	27.2
34	CB26	CB64	Major_System	22.6	75.96	74.57	IRREGULAR	0.00	Road-A_spilt	0.06184	70.1
35	TD05_1	TD05_2	TrenchDrain	5.6	74.50	74.40	RECT_OPEN	0.25		0.01788	18.2
36	TD01_3	MHST-213		6.9	68.60	68.57	CIRCULAR	0.20		0.00434	7.3
38	TD04_02	MH-SA56-2		19.4	74.00	73.24	CIRCULAR	0.25		0.03921	11.5
39	TD05_2	MH-SA56-1		20.2	74.00	73.24	CIRCULAR	0.20		0.03759	18.1
4	OGS-3	MHST62528		10.0	67.62	67.60	CIRCULAR	1.20		0.00200	3027.1
40	51	CB72_89	major_system	24.5	70.11	69.49	IRREGULAR	0.00	Road-L	0.02534	0.0
41	CB209	MHST-120-S	Major_System	34.7	77.64	74.46	IRREGULAR	0.00	Road-A_spilt	0.09199	83.0
42	CB130	51	major_system	1.0	70.11	70.10	IRREGULAR	0.00	Road-L	0.01000	0.0
43	CB72_89	54	major_system	15.8	69.49	68.92	IRREGULAR	0.00	Road-L	0.03613	11.5
49	Chamber202-S	45		5.2	70.84	70.80	CIRCULAR	0.45		0.00765	120.7
49_1	MHST-144	45		55.0	69.68	69.56	CIRCULAR	1.35		0.00213	2450.2
49_2	45	56		17.2	69.56	69.53	CIRCULAR	1.35		0.00215	2532.1
5	MHST62528	MHST62545		91.8	67.56	66.71	CIRCULAR	1.20		0.00929	3002.9
50	DICB8	51	major_system	1.0	70.11	70.10	RECT_OPEN	0.30		0.01000	0.0
54	CB114	74	major_system	9.3	74.92	75.07	IRREGULAR	0.00	Road-D_W	-0.01554	6.5
6	MHST62545	MHST62547		129.6	66.69	64.45	CIRCULAR	1.20		0.01726	3001.1
64	CB99	CBMHST101-S	major_system	32.2	76.90	76.52	RECT_OPEN	0.15		0.01181	43.3
65C_SW	34	DICB11	swale	194.0	82.41	75.45	TRAPEZOIDAL	0.30		0.03590	77.5
66	CBMHST101-S	CBMHST105-S	major_system	48.6	76.50	74.70	RECT_OPEN	0.15		0.03706	66.9
67	CBMHST105-S	CBMHST-103-S	major_system	18.9	74.82	74.60	RECT_OPEN	0.70		0.01162	116.2
68	CB87	CB91	major_system	27.5	75.50	75.10	RECT_OPEN	0.15		0.01452	62.5
7	MHST62547	Dows-Lake		171.0	64.17	63.75	CIRCULAR	1.20		0.00249	3002.3
70	MHST-126	MHST-150		23.5	74.17	71.67	CIRCULAR	450.00		0.10691	1664.9
71	S-26B	54	major_system	24.8	69.52	68.92	RECT_OPEN	0.30		0.02425	101.0
8	POW_D1	OGS-3		180.0	78.70	69.70	TRAPEZOIDAL	0.55		0.05006	734.1
8_1	CHAMBER-103	D-MHST-155		3.1	74.08	74.06	CIRCULAR	0.90		0.00645	1671.9
8_1-S	CHAMBER-103	MHST-155	Major_System	14.7	79.00	78.70	RECT_OPEN	0.30		0.02037	0.0
9	CBMHST103	CHAMBER-102		2.6	72.10	72.07	CIRCULAR	0.38		0.01154	348.8
CA-OLF_2	Carling_OLF1	Carling_OLFN1	Major_System	120.4	66.50	65.41	IRREGULAR	0.00	CarlingAve	0.00907	78.8
CA-OLF_3	Carling_OLFN3	Carling_OLF	Major_System	66.5	64.80	64.60	IRREGULAR	0.00	CarlingAve	0.00301	256.4
CA-OLF_4	Carling_OLFN1	Carling_OLFN3	Major_System	67.1	65.41	64.80	IRREGULAR	0.00	CarlingAve	0.00906	194.1
CA-STM	IN119607	D-MHST-100		86.0	63.10	62.80	CIRCULAR	0.30		0.00349	6.2
CB104-S	CB104	CB59	major_system	20.0	75.37	74.99	IRREGULAR	0.00	Road-D_W	0.01905	37.3

CONDUITS 2/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
CB111_SWA	CB111_SW	CB111	swale	37.3	75.17	75.04	TRAPEZOIDAL	0.30		0.00349	214.0
CB43-S	CB43	CB45	major_system	19.8	81.69	80.69	CIRCULAR	1.00		0.05068	6.4
CB45-S	CB45	CB46	major_system	20.1	80.69	79.69	IRREGULAR	0.00	Road-D_W	0.04970	11.4
CB46-S	CB46	CB48	major_system	20.0	79.69	78.85	IRREGULAR	0.00	Road-D_W	0.04199	13.0
CB48-S	CB48	CB50	major_system	19.9	78.85	77.85	IRREGULAR	0.00	Road-D_W	0.05039	21.9
CB50-S	CB50	CB52	major_system	13.6	77.85	77.14	IRREGULAR	0.00	Road-D_W	0.05223	30.2
CB52-S	CB52	CB54	major_system	13.6	77.14	76.44	IRREGULAR	0.00	Road-D_W	0.05141	34.5
CB54-S	CB54	CB56	major_system	12.5	76.44	75.98	IRREGULAR	0.00	Road-D_W	0.03689	38.1
CB56-S	CB56	CB58	major_system	14.6	75.98	75.64	IRREGULAR	0.00	Road-D_W	0.02331	40.9
CB58-S	CB58	CB104	major_system	14.3	75.64	75.37	IRREGULAR	0.00	Road-D_W	0.01893	48.6
CB59-S	CB59	CB114	major_system	16.0	74.99	74.92	IRREGULAR	0.00	Road-D_W	0.00436	25.7
CUP_SW1	55	77	swale	94.6	82.30	82.15	TRAPEZOIDAL	0.30		0.00159	245.0
CUP_SW2	77	78	swale	8.3	82.15	82.14	TRAPEZOIDAL	0.30		0.00121	213.3
CUP_SW3	78	S-63	swale	106.6	82.14	82.00	TRAPEZOIDAL	0.30		0.00131	171.6
DICB10_SW	S-63	DICB10	swale	104.1	82.00	79.27	TRAPEZOIDAL	1.00		0.02623	97.9
DICB2_SWE1	81DICB2_SWE1S	S-26B	swale	69.0	69.36	68.77	TRAPEZOIDAL	0.50		0.00855	99.5
DICB2_SWE2	DICB2_SWE2S	81DICB2_SWE1S	swale	20.0	69.58	69.36	TRAPEZOIDAL	0.60		0.01099	104.6
DICB2_SWW	DICB2_SWWS	S-26B	Swale	96.0	69.50	68.77	TRAPEZOIDAL	0.50		0.00760	201.9
ST-100_2	D-MHST-100	Nepean-Bay-Trunk		6.0	63.06	63.04	CIRCULAR	0.90		0.00333	321.5
ST-100-S	MHST-100-S	Carling_OLFN3	Major_System	11.0	65.42	64.80	IRREGULAR	0.00	Road-A	0.05645	72.7
ST-101I	MHST-101	MHST-100		27.4	63.12	63.09	CIRCULAR	0.90		0.00109	569.1
ST-101I-S	MHST-101-S	MHST-100-S	Major_System	27.4	66.07	65.42	IRREGULAR	0.00	Road-A	0.02371	73.2
ST-102	CBMHST-101	CBMHST105		47.9	73.63	72.43	CIRCULAR	0.38		0.02505	225.0
ST-102I	MHST-102	MHST-101		27.2	63.15	63.12	CIRCULAR	1.50		0.00110	547.5
ST-102I-S	MHST-102-S	MHST-101-S	Major_System	27.2	66.28	66.07	IRREGULAR	0.00	Road-A	0.00773	34.9
ST-103I	MSHT-103	MHST-102		52.9	63.20	63.15	CIRCULAR	1.50		0.00100	530.0
ST-103I-S	MSHT-103-S	MHST-102-S	Major_System	52.9	66.13	66.28	IRREGULAR	0.00	Road-A	-0.00283	21.1
ST-104	CBMHST-104	CBMHST-101		15.1	74.14	73.84	CIRCULAR	0.38		0.01983	149.6
ST-104_1	BI-SA1	MHST-104		38.3	63.67	63.63	CIRCULAR	1.20		0.00102	382.0
ST-104_3	MHST-105	39		12.0	63.79	63.78	CIRCULAR	1.20		0.00100	143.3
ST-104_4	39	BI-SA1		75.9	63.78	63.70	CIRCULAR	1.20		0.00100	194.2
ST-104I	MHST-104	MSHT-103		32.8	63.53	63.50	CIRCULAR	1.20		0.00101	393.1
ST-105I_1-S_1	BI-SA1-S	54	Major_System	66.9	70.15	68.92	IRREGULAR	0.00	Road-B	0.01841	126.3
ST-105I_1-S_2	54	MHST-105-S	major_system	15.2	68.92	68.64	IRREGULAR	0.00	Road-B	0.01839	162.0
ST-105I_2-S	MHST-104-S	BI-SA1-S	Major_System	37.7	70.80	70.15	IRREGULAR	0.00	Road-B	0.01723	46.9
ST-106I	MHST-106	MSHT-103		44.7	63.23	63.20	CIRCULAR	1.50		0.00067	65.9
ST-106I-S	MHST-106-S	MSHT-103-S	Major_System	29.6	71.87	66.13	IRREGULAR	0.00	Road-A	0.19783	178.5
ST-107	D-MHST-170	MHST-158		13.3	71.93	71.80	CIRCULAR	0.30		0.00977	166.6
ST-120-S_1	MHST-120-S	CBMHST66,67	Major_System	14.7	74.46	73.54	IRREGULAR	0.00	Road-A_spilt	0.06272	163.0
ST-120-S_2	CB68,40	MHST-106-S	Major_System	14.9	72.63	71.87	IRREGULAR	0.00	Road-A_spilt	0.05108	143.3
ST-120-S_3	CBMHST66,67	CB68,40	Major_System	15.3	73.54	72.63	IRREGULAR	0.00	Road-A_spilt	0.05963	230.3
ST-130	MHST-130	OGS-3		35.6	67.69	67.62	CIRCULAR	1.00		0.00197	2555.0
ST-131_1	MHST-212	13		25.4	67.95	67.93	CIRCULAR	0.83		0.00094	327.1
ST-131_2	13	MHST-130		49.1	67.93	67.88	CIRCULAR	0.83		0.00096	243.1
ST-132	MHST-132	MHST-156		41.9	73.25	72.62	CIRCULAR	0.45		0.01505	397.9
ST-133	Chamber201S	MHST-212		2.9	67.95	67.95	CIRCULAR	0.83		-0.00034	318.3
ST-134	MHST-134	MHST-138		17.5	76.62	76.18	CIRCULAR	0.38		0.02515	57.0
ST-135	MHST-135	MHST-148		28.3	70.62	70.60	CIRCULAR	1.35		0.00071	944.8
ST-136_1	MHST-136	76		17.8	78.65	78.23	CIRCULAR	0.30		0.02336	0.0
ST-136_3	76	21		15.1	78.23	77.88	CIRCULAR	0.30		0.02339	21.7

CONDUITS 3/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-136_4	21	MHST-137		24.9	77.88	77.30	CIRCULAR	0.30		0.02337	39.3
ST-136-S_2	CB90	CB88	Major_System	27.3	80.75	79.79	IRREGULAR	0.00	Road-E_S	0.03515	9.8
ST-136-S_3	MHST-136-S	CB84,85	Major_System	17.9	81.70	81.32	IRREGULAR	0.00	Road-E_C	0.02121	43.4
ST-136-S_4	CB84,85	CB90	Major_System	14.4	81.32	80.75	IRREGULAR	0.00	Road-E_C	0.03949	21.6
ST-137	MHST-137	MHST-134		22.4	77.24	76.68	CIRCULAR	0.38		0.02501	57.0
ST-137-S_1	CB88	CB96	Major_System	38.1	79.79	78.66	IRREGULAR	0.00	Road-E_N	0.02965	7.7
ST-137-S_3	CB96	CB97	Major_System	24.4	78.66	77.90	IRREGULAR	0.00	Road-E_N	0.03115	7.7
ST-137-S_4	CB97	MHST-153-S	Major_System	33.9	77.90	76.52	IRREGULAR	0.00	Road-E_C	0.04070	15.8
ST-138_1	MHST-138	22		15.9	75.17	74.77	CIRCULAR	0.38		0.02499	76.0
ST-138_2	22	MHST-153		23.0	74.77	74.20	CIRCULAR	0.38		0.02494	78.0
ST-141_1	MHST-141	37		11.9	71.42	71.39	CIRCULAR	0.90		0.00253	529.5
ST-141_3	37	30		18.2	71.39	71.34	CIRCULAR	0.90		0.00258	593.9
ST-141_4	30	MHST-160		17.0	71.34	71.30	CIRCULAR	0.90		0.00253	689.2
ST-141-S_1	CB82	CBMH89	Major_System	26.5	77.15	76.26	IRREGULAR	0.00	Road-E_S	0.03363	44.8
ST-141-S_3	CBMH89	CB92	Major_System	33.3	76.26	75.27	IRREGULAR	0.00	Road-E_S	0.02973	58.6
ST-141-S_4	CB92	CB94	Major_System	19.6	75.27	75.02	IRREGULAR	0.00	Road-E_S	0.01277	28.3
ST-142	D-MHST-142	MHST-130		29.3	67.74	67.69	CIRCULAR	1.20		0.00171	2645.5
ST-143	MHST-143	MHST-159		38.2	69.45	69.41	CIRCULAR	1.35		0.00105	2567.3
ST-144B_2	56	MHST-143		21.6	69.53	69.48	CIRCULAR	1.35		0.00213	2567.3
ST-145_1	D-MHST-145	MHST-144		71.4	69.90	69.83	CIRCULAR	1.20		0.00098	2439.6
ST-146_1-S	MHST-146-S	BI-SA49-S	Major_System	5.7	75.38	75.35	IRREGULAR	0.00	Road-D_W	0.00509	92.1
ST-146_2-S_1	BI-SA49-S	74	Major_System	36.1	75.35	75.07	IRREGULAR	0.00	Road-D_W	0.00793	13.0
ST-146_2-S_2	74	MHST-157-S	Major_System	55.0	75.07	74.63	IRREGULAR	0.00	Road-D	0.00791	5.4
ST-146_3	D-MHST-146_1	73		12.1	70.17	70.15	CIRCULAR	1.50		0.00141	2754.4
ST-146_4	73	MHST-200		17.9	70.15	70.13	CIRCULAR	1.50		0.00129	2769.0
ST-147_1	MHST-147	50		6.0	70.25	70.24	CIRCULAR	1.50		0.00117	2631.6
ST-147_2	71	72		14.2	70.23	70.21	CIRCULAR	1.50		0.00127	2637.3
ST-147_3	50	71		14.6	70.24	70.23	CIRCULAR	1.50		0.00123	2634.0
ST-147_5	72	MHST-146		6.0	70.21	70.20	CIRCULAR	1.50		0.00117	2650.7
ST-147-S	CBMH57	MHST-146-S	Major_System	44.0	76.01	75.38	IRREGULAR	0.00	Road-D_W	0.01431	115.3
ST-148_1	MHST-148	64		7.2	70.45	70.44	CIRCULAR	1.50		0.00196	2446.3
ST-148_10	49	MHST-147		12.7	70.31	70.28	CIRCULAR	1.50		0.00197	2462.2
ST-148_2	65	66		5.0	70.40	70.39	CIRCULAR	1.50		0.00199	2451.2
ST-148_3	64	65		20.1	70.44	70.40	CIRCULAR	1.50		0.00199	2450.1
ST-148_4	66	68		9.9	70.39	70.37	CIRCULAR	1.50		0.00193	2452.0
ST-148_5	68	69		5.0	70.37	70.36	CIRCULAR	1.50		0.00200	2453.9
ST-148_6	69	70		5.1	70.36	70.35	CIRCULAR	1.50		0.00197	2455.2
ST-148_7	70	48		9.2	70.35	70.33	CIRCULAR	1.50		0.00195	2455.8
ST-148_8	48	49		12.2	70.33	70.31	CIRCULAR	1.50		0.00197	2458.5
ST-148-S_1	CB44	CB47	Major_System	39.1	80.37	78.63	IRREGULAR	0.00	Road-D_W	0.04460	5.0
ST-148-S_2	CB49	CB51	Major_System	10.0	78.19	77.75	IRREGULAR	0.00	Road-D_W	0.04364	13.1
ST-148-S_3	CB47	CB49	Major_System	10.0	78.63	78.19	IRREGULAR	0.00	Road-D_W	0.04362	14.0
ST-148-S_4	CB51	CB53	Major_System	9.8	77.75	77.08	IRREGULAR	0.00	Road-D_W	0.06865	14.0
ST-148-S_5	CB53	CB55	Major_System	10.0	77.08	76.58	IRREGULAR	0.00	Road-D_W	0.05025	14.8
ST-148-S_7	CB55	CBMH57	Major_System	17.0	76.58	76.01	IRREGULAR	0.00	Road-D_W	0.03354	13.4
ST-149_1	MHST-149	36		19.8	70.69	70.67	CIRCULAR	1.35		0.00116	918.1
ST-149_2	36	MHST-135		14.2	70.67	70.65	CIRCULAR	1.35		0.00120	904.8
ST-149-S_1	CB75	CB77	Major_System	8.7	79.25	78.83	IRREGULAR	0.00	Road-E_C	0.04854	10.0
ST-149-S_2	MHST-135-S	CB71	Major_System	12.7	79.98	79.68	IRREGULAR	0.00	Road-E_C	0.02357	6.2
ST-149-S_4	CB69	MHST-149-S	Major_System	15.0	78.72	77.93	IRREGULAR	0.00	Road-E_NW	0.05292	15.5

CONDUITS 4/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-149-S_5	CB71	CB75	Major_System	12.9	79.68	79.25	IRREGULAR	0.00	Road-E_C	0.03342	5.4
ST-149-S_6	CB77	CB69	Major_System	6.3	78.83	78.72	IRREGULAR	0.00	Road-E_C	0.01747	14.1
ST-150	MHST-150	MHST-149		18.1	70.76	70.72	CIRCULAR	1.35		0.00220	940.4
ST-150-S_1	MHST-149-S	CB79	Major_System	13.1	77.93	77.57	IRREGULAR	0.00	Road-E_NW	0.02743	25.1
ST-150-S_2	CB79	CB83	Major_System	17.9	77.57	77.24	IRREGULAR	0.00	Road-E_C	0.01848	25.9
ST-151_1	MHST-151	35		13.3	71.23	71.22	CIRCULAR	0.90		0.00068	703.4
ST-151_2	35	MHST-150		17.0	71.22	71.21	CIRCULAR	0.90		0.00065	710.0
ST-151-S	CB83	CB82	Major_System	11.2	77.24	77.15	IRREGULAR	0.00	Road-E_S	0.00801	40.2
ST-153_1	MHST-153	23		38.0	72.86	72.48	CIRCULAR	0.38		0.00994	88.9
ST-153_2	23	26		13.6	72.48	72.35	CIRCULAR	0.38		0.00994	117.4
ST-153_4	26	MHST-158		15.7	72.35	72.19	CIRCULAR	0.38		0.00997	168.8
ST-153-S_1	MHST-153-S	CB106,103	Major_System	26.1	76.52	75.51	IRREGULAR	0.00	Road-E_C	0.03879	19.3
ST-153-S_3	CB106,103	CB105	Major_System	15.4	75.51	75.14	IRREGULAR	0.00	Road-E_N	0.02407	5.1
ST-153-S_4	CB105	DICB9	Major_System	17.3	75.14	74.88	IRREGULAR	0.00	Road-E_N	0.01507	10.3
ST-154	MHST-154	CHAMBER-103		16.0	75.80	75.72	CIRCULAR	0.90		0.00500	4179.5
ST-154A	MHST-154A	MHST-154B		15.5	76.18	76.10	CIRCULAR	0.90		0.00516	4178.6
ST-154B	MHST-154B	MHST-154		35.9	76.04	75.86	CIRCULAR	0.90		0.00501	4179.3
ST-155_1	MHST-155	60		9.7	74.03	73.94	CIRCULAR	0.90		0.00932	1686.3
ST-155_3	60	61		6.5	73.94	73.88	CIRCULAR	0.90		0.00930	1689.6
ST-155_4	61	MHST-148		6.3	73.88	73.82	CIRCULAR	0.90		0.00945	1694.8
ST-156	MHST-156	MHST_156B		16.0	70.13	70.12	CIRCULAR	1.50		0.00062	956.8
ST-156B	MHST_156B	MHST-157		18.787	70.09	70.08	CIRCULAR	1.5		0.00053	912.01
ST-157_1	MHST-157	D-MHST-157B		13.532	70.02	70	CIRCULAR	1.5		0.00148	2608.33
ST-157_2	D-MHST-157B	MHST-145		14.706	69.97	69.96	CIRCULAR	1.5		0.00068	2033.32
ST-157_3	D-MHST-157B	CHAMBER-104B		9.4	69.97	69.91	CIRCULAR	0.9		0.00638	1239.01
ST-158_2	75	MHST-141		5.552	71.581	71.57	CIRCULAR	0.75		0.00198	457.46
ST-158_3	MHST-158	33		21.587	71.74	71.695	CIRCULAR	0.75		0.00208	339.64
ST-158_4	31	75		38.574	71.661	71.581	CIRCULAR	0.75		0.00207	357.72
ST-158_5	32	31		8.439	71.678	71.661	CIRCULAR	0.75		0.00201	353.55
ST-158_6	33	32		8.4	71.70	71.68	CIRCULAR	0.75		0.00203	348.5
ST-158-S	CB94	CB93	Major_System	39.3	75.10	75.17	IRREGULAR	0.00	Road-E_S_Amb	-0.00178	6.4
ST-158-S_2	CB93	CB107	Major_System	8.4	75.17	75.12	IRREGULAR	0.00	Road-E_S_Amb	0.00593	11.6
ST-158-S_4	CB107	CB100	Major_System	8.9	75.12	75.08	IRREGULAR	0.00	Road-E_S_Amb	0.00450	10.6
ST-158-S_6	CB100	MHST-158-S	Major_System	15.6	75.08	74.99	IRREGULAR	0.00	Road-E_S	0.00576	4.1
ST-159	MHST-159	MHST-142		44.6	69.41	69.32	CIRCULAR	1.35		0.00202	2567.3
ST-160	MHST-160	MHST-151		22.3	71.27	71.23	CIRCULAR	0.90		0.00179	699.7
ST-161_2-S_1	D-MHST-161-S	CB42	Major_System	23.3	83.25	81.44	IRREGULAR	0.00	Road-D_W	0.07781	10.6
ST-161_2-S_2	CB42	CB44	Major_System	20.7	81.44	80.37	IRREGULAR	0.00	Road-D_W	0.05168	6.3
ST-162	CBMHST-162	MHST-154A		5.4	76.27	76.24	CIRCULAR	0.90		0.00561	4105.1
ST-200_1	MHST-200	MHST-201		40.7	70.11	70.05	CIRCULAR	1.50		0.00148	2134.9
ST-200_2	MHST-200	CHAMBER-104-A		29.5	70.17	70.13	CIRCULAR	0.90		0.00135	717.5
ST-201	MHST-201	MHST-157		6.5	70.07	70.05	CIRCULAR	1.50		0.00308	2233.2
ST-203	MHST-203	MHST-205		8.6	73.11	73.09	CIRCULAR	0.68		0.00232	236.1
ST-204	MHST-204	MHST-205		12.7	73.11	73.09	CIRCULAR	0.53		0.00158	186.1
ST-205	MHST-205	MHST-206		28.9	72.94	72.91	CIRCULAR	0.68		0.00104	418.7
ST-206	MHST-206	Chamber202		10.3	72.91	72.88	CIRCULAR	0.68		0.00341	582.4
ST-208	MHST-208	MHST-209		19.4	73.41	73.35	CIRCULAR	0.38		0.00309	157.1
ST-209	MHST-209	MHST-206		28.6	73.32	73.21	CIRCULAR	0.38		0.00385	163.4
ST-211	MHST-211	Chamber201		57.4	68.31	68.24	CIRCULAR	0.53		0.00122	170.7
ST-214	MHST-214	MHST-215		38.3	68.23	68.27	CIRCULAR	0.75		-0.00104	235.4

CONDUITS 5/5

Name	Inlet Node	Outlet Node	Tag	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Cross-Section	Geom1 (m)	Transect	Slope (m/m)	Max. |Flow| (L/s)
ST-215	MHST-215	Chamber201		1.7	68.27	68.27	CIRCULAR	0.75		0.00000	235.0
ST-225	CB255	Chamber202		29.0	73.46	73.17	CIRCULAR	0.20		0.00997	5.8
ST-301	MHST301	MHST-158		8.8	72.60	72.42	CIRCULAR	0.20		0.01989	17.0
ST-42I	MHST-158-S	DICB9	major_system	6.0	74.99	74.88	IRREGULAR	0.00	Road-E_S	0.01834	4.0
ST-60-S_2	ST-60-S-B	ST-60-S-C	swale	37.6	74.11	73.25	TRAPEZOIDAL	1.00		0.02280	232.2
ST-60-S_3	ST-60-S-C	DICB8	swale	125.0	73.25	69.82	TRAPEZOIDAL	1.00		0.02748	429.2
ST-62534	MHST-62534	CBMHST-162		7.2	76.90	76.27	CIRCULAR	0.90		0.08833	4103.5
ST-62538_1	MHST-161	59		3.0	78.96	78.90	CIRCULAR	0.53		0.01959	0.1
ST-62538_3	59	38		5.2	78.90	78.80	CIRCULAR	0.53		0.01939	17.4
ST-62538_4	38	MHST-155		5.3	78.80	78.70	CIRCULAR	0.53		0.01943	21.6
St-C104	CHAMBER-104-A	MHST-201		13.1	70.13	70.07	CIRCULAR	0.90		0.00458	570.8
ST-C203	D-Chamber-203	MHST-146		15.9	71.42	71.38	CIRCULAR	0.30		0.00251	94.7
ST-CB6-S	SW_65D	DICB6	swale	104.0	77.94	76.09	TRAPEZOIDAL	0.50		0.01779	23.7
ST-G107	MHST-107	OGS1		52.5	62.03	61.24	CIRCULAR	0.30		0.01505	34.1
ST-OGS1_2	OGS1	Preston		10.0	61.21	61.06	CIRCULAR	0.30		0.01500	85.2
ST-P3	DICB3	IN119608		71.1	64.23	63.80	CIRCULAR	0.20		0.00605	0.0
ST-P46	IN119608	IN119607		30.0	63.50	63.20	CIRCULAR	0.20		0.01000	0.0
ST-SA1	MH-SA1	BI-SA1		24.7	69.45	69.08	CIRCULAR	0.30		0.01501	60.2
ST-SA49	MH-SA49	Chamber-203		17.9	74.02	73.80	CIRCULAR	0.38		0.01228	171.1
ST-SA50	MH-SA50	Chamber-203		13.2	74.07	73.67	CIRCULAR	0.38		0.03032	202.4
ST-SA51-1	MH-SA51-1	Chamber-204		14.7	73.91	73.76	CIRCULAR	0.45		0.01021	223.9
ST-SA51-2	MH-SA51-2	MH207		13.2	74.11	73.98	CIRCULAR	0.38		0.00982	163.4
ST-SA52_1	MHST-213	MHST-214		51.4	68.54	68.45	CIRCULAR	0.53		0.00175	235.0
ST-SA56-1	MH-SA56-1	MHST-203		5.0	73.24	73.19	CIRCULAR	0.53		0.00994	237.1
ST-SA56-2	MH-SA56-2	MHST-204		4.9	73.24	73.19	CIRCULAR	0.45		0.01028	186.8
ST-SA56-3	MH-SA56-3	MHST-208		8.9	73.80	73.44	CIRCULAR	0.38		0.04046	146.5
ST-UGS6B	CHAMBER-102	MHST-170		16.6	72.03	71.96	CIRCULAR	0.38		0.00421	167.7
ST-UGS-Z1	CHAMBER-104B	MHST-145		8.4	69.91	69.90	CIRCULAR	0.90		0.00119	506.2
ST-xx	MH-SAxx	MHST-107		10.7	62.45	62.15	CIRCULAR	0.20		0.02805	7.0
TD01	TD01_1	TD01_3	TrenchDrain	7.9	70.21	70.10	PARABOLIC	0.15		0.01393	7.2
TD02	TD02_01	TD02_03	TrenchDrain	21.8	68.90	68.75	RECT_OPEN	0.35		0.00689	31.1
TD03	TD03_1	TD_B	TrenchDrain	36.4	68.80	68.65	RECT_OPEN	0.35		0.00412	67.0
TD04	TD04_01	TD04_02	TrenchDrain	5.6	74.62	74.57	PARABOLIC	0.13		0.00891	11.5
TD06	TD06_1	TD06_2	TrenchDrain	17.3	69.15	69.04	RECT_OPEN	0.35		0.00634	30.8
TD07	TD07_1	TD07_2	TrenchDrain	12.2	69.10	69.04	RECT_OPEN	0.35		0.00491	4.2
TDS	TDS_1	TDS_2	TrenchDrain	2.5	76.43	76.40	PARABOLIC	0.15		0.01188	15.5
TDS_O	TDS_2	MHST-144		28.5	70.50	69.68	CIRCULAR	0.20		0.02882	15.5
TDW	TDW_1	TDW_2	TrenchDrain	2.5	76.49	76.47	PARABOLIC	0.15		0.00800	9.8
TDW_O	TDW_2	MHST-144		17.8	70.50	69.68	CIRCULAR	0.20		0.04623	9.8
UP-CB43-S	UP-CB43	CB43	major_system	36.8	83.46	81.69	IRREGULAR	0.00	Road-D_W	0.04815	24.1
WD-OLF_3	Wales-OLF-N03	Wales-OLF-N04	Major_System	81.2	68.20	66.75	IRREGULAR	0.00	P_Wales_Dr	0.01786	41.5
WD-OLF_4	Wales-OLF-N04	Wales-OLF-N05	Major_System	95.0	66.75	65.50	IRREGULAR	0.00	P_Wales_Dr	0.01316	37.8

Junctions 1/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
13		NO	67.93	70.22	2.29	2.29	70.22	10/04/2022 08:17 AM
21		NO	77.88	80.84	2.96	0.11	77.99	10/04/2022 08:10 AM
22		NO	74.77	77.92	3.15	0.14	74.91	10/04/2022 08:10 AM
23		NO	72.48	75.76	3.28	0.50	72.98	10/04/2022 08:29 AM
26		NO	72.35	75.31	2.97	0.72	73.07	10/04/2022 08:17 AM
30		NO	71.34	76.21	4.86	1.54	72.88	10/04/2022 08:31 AM
31		NO	71.66	74.97	3.31	1.52	73.18	10/04/2022 08:17 AM
32		NO	71.68	74.93	3.26	1.56	73.24	10/04/2022 08:17 AM
33		NO	71.70	74.90	3.20	1.55	73.25	10/04/2022 08:17 AM
34		NO	82.41	82.56	0.15	0.09	82.50	10/04/2022 08:21 AM
35		NO	71.22	77.20	5.98	1.64	72.86	10/04/2022 08:31 AM
36		NO	70.67	78.89	8.22	2.18	72.84	10/04/2022 08:31 AM
37		NO	71.39	75.58	4.19	1.50	72.89	10/04/2022 08:31 AM
38		NO	78.80	81.48	2.68	0.07	78.87	10/04/2022 08:10 AM
39		NO	63.78	69.31	5.54	2.36	66.14	10/04/2022 08:19 AM
45		NO	69.56	74.33	4.76	2.17	71.73	10/04/2022 08:32 AM
48		NO	70.33	77.13	6.80	2.45	72.78	10/04/2022 08:31 AM
49		NO	70.31	76.54	6.23	2.46	72.77	10/04/2022 08:31 AM
50		NO	70.24	75.84	5.60	2.51	72.75	10/04/2022 08:31 AM
51		NO	70.10	70.31	0.21	0.00	70.10	10/04/2022 00:00 AM
54		NO	68.92	69.07	0.15	0.08	69.00	10/04/2022 08:21 AM
55		NO	82.30	82.60	0.30	0.30	82.60	10/04/2022 08:11 AM
56		NO	69.53	74.02	4.49	2.17	71.69	10/04/2022 08:33 AM
59		NO	78.90	81.73	2.83	0.06	78.96	10/04/2022 08:10 AM
60		NO	73.94	80.75	6.81	0.71	74.65	10/04/2022 08:16 AM
61		NO	73.88	80.44	6.56	0.71	74.59	10/04/2022 08:16 AM
64		NO	70.44	79.78	9.35	2.40	72.83	10/04/2022 08:31 AM
65		NO	70.40	78.80	8.40	2.42	72.81	10/04/2022 08:31 AM
66		NO	70.39	78.55	8.17	2.42	72.81	10/04/2022 08:31 AM
68		NO	70.37	78.07	7.71	2.43	72.80	10/04/2022 08:31 AM
69		NO	70.36	77.83	7.47	2.44	72.79	10/04/2022 08:31 AM
70		NO	70.35	77.58	7.24	2.44	72.79	10/04/2022 08:31 AM
71		NO	70.23	75.65	5.43	2.51	72.74	10/04/2022 08:31 AM
72		NO	70.21	75.47	5.26	2.51	72.72	10/04/2022 08:31 AM
73		NO	70.15	75.14	4.99	2.32	72.47	10/04/2022 08:32 AM
74		NO	75.07	75.07	0.00	0.02	75.09	10/04/2022 08:12 AM
75		NO	71.58	75.15	3.56	1.32	72.90	10/04/2022 08:30 AM
76		NO	78.23	81.34	3.11	0.08	78.31	10/04/2022 08:10 AM
77		NO	82.15	82.45	0.30	0.30	82.45	10/04/2022 08:14 AM
78		NO	82.14	82.45	0.31	0.31	82.45	10/04/2022 08:14 AM
81DICB2_SWE1S		NO	69.36	70.00	0.64	0.19	69.55	10/04/2022 08:20 AM
AD01		NO	79.51	79.70	0.19	0.05	79.56	10/04/2022 08:10 AM
AD02		NO	79.67	79.73	0.06	0.00	79.67	10/04/2022 00:10 AM
AD03		NO	79.82	79.85	0.03	0.00	79.82	10/04/2022 00:10 AM
AD04		NO	79.80	79.85	0.05	0.00	79.80	10/04/2022 00:10 AM
AD05		NO	79.70	79.80	0.10	0.00	79.70	10/04/2022 00:10 AM
AD06		NO	79.67	79.85	0.18	0.07	79.74	10/04/2022 08:10 AM
AD07		NO	74.25	74.30	0.05	0.00	74.25	10/04/2022 00:10 AM
AD08		NO	74.25	74.35	0.10	0.00	74.25	10/04/2022 00:10 AM
AD09		NO	74.25	74.29	0.04	0.00	74.25	10/04/2022 00:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
BI-SA1		NO	63.50	70.48	6.98	2.20	65.70	10/04/2022 08:21 AM
BI-SA1-S	Major_System	NO	70.15	70.30	0.15	0.07	70.22	10/04/2022 08:10 AM
BI-SA49-S	Major_System	NO	75.35	75.51	0.16	0.03	75.38	10/04/2022 08:10 AM
Carling_OLF1		NO	66.50	66.70	0.20	0.08	66.58	10/04/2022 08:11 AM
Carling_OLFN1		NO	65.41	65.61	0.20	0.12	65.52	10/04/2022 08:11 AM
Carling_OLFN3		NO	64.80	65.00	0.20	0.16	64.96	10/04/2022 08:13 AM
CB100		NO	75.08	75.23	0.15	0.03	75.11	10/04/2022 08:10 AM
CB104		NO	75.37	75.52	0.15	0.04	75.41	10/04/2022 08:10 AM
CB105		NO	75.14	75.29	0.15	0.04	75.18	10/04/2022 08:10 AM
CB106,103		NO	75.51	75.66	0.15	0.03	75.54	10/04/2022 08:10 AM
CB107		NO	75.12	75.27	0.15	0.02	75.14	10/04/2022 08:10 AM
CB108		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB109		NO	69.60	69.80	0.20	0.00	69.60	10/04/2022 00:10 AM
CB111		NO	75.04	75.40	0.36	0.36	75.40	10/04/2022 08:10 AM
CB111_SW		NO	75.17	75.45	0.28	0.27	75.44	10/04/2022 08:11 AM
CB113		NO	69.58	69.78	0.20	0.00	69.58	10/04/2022 00:10 AM
CB114		NO	74.92	75.07	0.15	0.07	74.99	10/04/2022 08:11 AM
CB209		NO	77.64	77.79	0.15	0.03	77.67	10/04/2022 08:10 AM
CB255		NO	73.46	77.72	4.26	0.06	73.51	10/04/2022 08:10 AM
CB255-S		NO	77.71	77.86	0.15	0.02	77.73	10/04/2022 08:10 AM
CB26		NO	75.96	76.11	0.15	0.03	75.99	10/04/2022 08:10 AM
CB42		NO	81.44	81.59	0.15	0.02	81.46	10/04/2022 08:10 AM
CB43		NO	81.69	81.84	0.15	0.03	81.72	10/04/2022 08:10 AM
CB44	Major_System	NO	80.37	80.52	0.15	0.02	80.39	10/04/2022 08:10 AM
CB45		NO	80.69	80.84	0.15	0.02	80.71	10/04/2022 08:10 AM
CB46		NO	79.69	79.84	0.15	0.02	79.71	10/04/2022 08:10 AM
CB47		NO	78.63	78.80	0.18	0.02	78.65	10/04/2022 08:10 AM
CB48		NO	78.85	79.00	0.15	0.03	78.88	10/04/2022 08:10 AM
CB49		NO	78.19	78.37	0.18	0.02	78.21	10/04/2022 08:10 AM
CB50		NO	77.85	78.00	0.15	0.03	77.88	10/04/2022 08:10 AM
CB51		NO	77.75	77.94	0.18	0.02	77.77	10/04/2022 08:10 AM
CB52		NO	77.14	77.29	0.15	0.03	77.17	10/04/2022 08:10 AM
CB53		NO	77.08	77.23	0.15	0.02	77.10	10/04/2022 08:10 AM
CB54		NO	76.44	76.59	0.15	0.03	76.47	10/04/2022 08:10 AM
CB55		NO	76.58	76.73	0.15	0.02	76.60	10/04/2022 08:10 AM
CB56		NO	75.98	76.13	0.15	0.04	76.02	10/04/2022 08:10 AM
CB58		NO	75.64	75.79	0.15	0.04	75.68	10/04/2022 08:10 AM
CB59		NO	74.99	75.14	0.15	0.04	75.03	10/04/2022 08:10 AM
CB60		NO	75.39	75.55	0.16	0.00	75.39	10/04/2022 00:10 AM
CB64		NO	74.57	74.72	0.15	0.03	74.60	10/04/2022 08:10 AM
CB68,40		NO	72.63	72.79	0.16	0.04	72.67	10/04/2022 08:10 AM
CB69		NO	78.72	78.87	0.15	0.03	78.75	10/04/2022 08:10 AM
CB71		NO	79.68	79.83	0.15	0.02	79.70	10/04/2022 08:10 AM
CB72_89		NO	69.49	69.64	0.15	0.02	69.51	10/04/2022 08:10 AM
CB75		NO	79.25	79.40	0.15	0.02	79.27	10/04/2022 08:10 AM
CB77		NO	78.83	78.98	0.15	0.03	78.86	10/04/2022 08:10 AM
CB79		NO	77.57	77.72	0.15	0.03	77.60	10/04/2022 08:10 AM
CB82	Major_System	NO	77.15	77.30	0.15	0.04	77.19	10/04/2022 08:10 AM
CB83	Major_System	NO	77.24	77.39	0.15	0.06	77.30	10/04/2022 08:10 AM
CB84,85		NO	81.32	81.47	0.15	0.03	81.35	10/04/2022 08:10 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
CB87		NO	75.50	75.65	0.15	0.01	75.51	10/04/2022 08:10 AM
CB88		NO	79.79	80.09	0.30	0.03	79.82	10/04/2022 08:10 AM
CB90		NO	80.75	80.90	0.15	0.02	80.77	10/04/2022 08:10 AM
CB92		NO	75.27	75.42	0.15	0.04	75.31	10/04/2022 08:10 AM
CB93		NO	75.17	75.32	0.15	0.02	75.19	10/04/2022 08:10 AM
CB96		NO	78.66	78.81	0.15	0.03	78.69	10/04/2022 08:10 AM
CB97		NO	77.90	78.05	0.15	0.02	77.92	10/04/2022 08:10 AM
CBMH57	Major_System	NO	76.01	76.16	0.15	0.06	76.07	10/04/2022 08:10 AM
CBMH89		NO	76.26	76.41	0.15	0.05	76.31	10/04/2022 08:10 AM
CBMHST-101		NO	73.63	76.41	2.78	0.58	74.21	10/04/2022 08:15 AM
CBMHST103		NO	72.10	74.28	2.18	1.27	73.37	10/04/2022 08:21 AM
CBMHST-103-S		NO	74.60	74.75	0.15	0.09	74.69	10/04/2022 08:11 AM
CBMHST-104		NO	74.14	76.59	2.45	0.22	74.36	10/04/2022 08:14 AM
CBMHST105		NO	72.40	74.73	2.33	1.15	73.55	10/04/2022 08:17 AM
CBMHST105-S		NO	74.82	74.97	0.15	0.02	74.84	10/04/2022 08:10 AM
CBMHST-162		NO	76.10	82.72	6.62	4.45	80.55	10/04/2022 08:10 AM
CBMHST208-S		NO	78.00	78.20	0.20	0.04	78.04	10/04/2022 08:10 AM
CBMHST66,67		NO	73.54	73.70	0.16	0.05	73.59	10/04/2022 08:10 AM
Chamber201S		NO	67.95	68.95	1.00	1.00	68.95	10/04/2022 08:20 AM
Chamber202-S		NO	70.84	73.59	2.75	0.90	71.74	10/04/2022 08:33 AM
CUP-SS1		NO	73.50	74.00	0.50	0.17	73.67	10/04/2022 08:10 AM
D-Chamber-203		NO	71.42	75.05	3.63	1.33	72.75	10/04/2022 08:31 AM
D-Chamber-204		NO	73.03	74.63	1.60	0.31	73.34	10/04/2022 08:27 AM
DICB10		NO	79.27	79.50	0.23	0.16	79.43	10/04/2022 08:17 AM
DICB11		NO	75.45	75.60	0.15	0.11	75.56	10/04/2022 08:23 AM
DICB2_SWE2S		NO	69.58	69.75	0.17	0.11	69.69	10/04/2022 08:10 AM
DICB2_SWWS		NO	69.50	70.00	0.50	0.18	69.68	10/04/2022 08:10 AM
DICB3		NO	64.00	66.43	2.43	0.00	64.00	10/04/2022 00:00 AM
DICB6		NO	74.70	76.59	1.89	0.03	74.73	10/04/2022 08:15 AM
D-MHST-100		NO	62.60	65.42	2.82	0.79	63.39	10/04/2022 08:21 AM
D-MHST-142		NO	67.80	72.58	4.78	1.34	69.14	10/04/2022 08:29 AM
D-MHST-145		NO	69.90	74.34	4.44	2.23	72.13	10/04/2022 08:32 AM
D-MHST-146_1		NO	70.17	75.39	5.22	2.32	72.49	10/04/2022 08:32 AM
D-MHST-155		NO	74.03	81.22	7.19	2.72	76.75	10/04/2022 08:15 AM
D-MHST-157B		NO	69.97	74.44	4.47	2.44	72.41	10/04/2022 08:32 AM
D-MHST-161-S	Major_System	NO	83.25	83.40	0.15	0.02	83.27	10/04/2022 08:10 AM
D-MHST-170		NO	71.93	74.51	2.58	1.26	73.19	10/04/2022 08:26 AM
IN119607		NO	63.00	65.62	2.62	0.42	63.42	10/04/2022 08:21 AM
IN119608		NO	63.50	66.14	2.64	0.00	63.50	10/04/2022 00:00 AM
MH150		NO	66.97	69.72	2.75	1.19	68.16	10/04/2022 08:07 AM
MH207		NO	73.95	75.43	1.48	0.49	74.44	10/04/2022 08:08 AM
MH-SA1		NO	69.45	70.55	1.10	0.15	69.60	10/04/2022 07:52 AM
MH-SA49		NO	73.97	75.45	1.48	0.32	74.29	10/04/2022 08:10 AM
MH-SA50		NO	74.07	75.83	1.76	0.22	74.29	10/04/2022 08:10 AM
MH-SA51-1		NO	74.08	76.53	2.45	0.23	74.31	10/04/2022 08:10 AM
MH-SA51-2		NO	74.84	76.50	1.66	0.16	75.00	10/04/2022 08:10 AM
MH-SA56-1		NO	73.24	74.54	1.30	0.32	73.56	10/04/2022 08:10 AM
MH-SA56-2		NO	73.24	74.54	1.30	0.32	73.56	10/04/2022 08:10 AM
MH-SA56-3		NO	73.80	75.80	2.00	0.21	74.01	10/04/2022 08:10 AM
MH-SAxx		NO	62.00	64.50	2.50	0.50	62.50	10/04/2022 05:55 AM

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Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST_156B		NO	70.09	74.24	4.15	2.33	72.42	10/04/2022 08:32 AM
MHST-100		NO	62.60	65.42	2.82	2.98	65.58	10/04/2022 08:20 AM
MHST-100-S	Major_System	NO	65.42	65.72	0.30	0.04	65.46	10/04/2022 08:10 AM
MHST-101		NO	63.00	66.07	3.07	2.63	65.63	10/04/2022 08:21 AM
MHST-101-S	Major_System	NO	66.07	66.23	0.16	0.05	66.12	10/04/2022 08:10 AM
MHST-102		NO	63.00	66.28	3.28	2.64	65.64	10/04/2022 08:21 AM
MHST-102-S	Major_System	NO	66.28	66.44	0.16	0.04	66.32	10/04/2022 08:10 AM
MHST-104		NO	63.30	70.80	7.50	2.38	65.68	10/04/2022 08:21 AM
MHST-104-S	Major_System	NO	70.80	70.95	0.15	0.05	70.85	10/04/2022 08:10 AM
MHST-105		NO	63.60	69.13	5.53	2.64	66.24	10/04/2022 08:19 AM
MHST-105-S	Major_System	NO	68.64	68.79	0.15	0.09	68.73	10/04/2022 08:20 AM
MHST-106		NO	63.00	71.87	8.87	2.66	65.66	10/04/2022 08:21 AM
MHST-106-S	Major_System	NO	71.87	72.03	0.16	0.04	71.91	10/04/2022 08:11 AM
MHST-107		NO	62.00	64.32	2.32	0.14	62.14	10/04/2022 08:10 AM
MHST-120-S	Major_System	NO	74.46	74.62	0.16	0.04	74.50	10/04/2022 08:10 AM
MHST-126		NO	74.23	75.36	1.13	0.04	74.27	10/04/2022 08:02 AM
MHST-130		NO	67.69	70.21	2.52	1.38	69.07	10/04/2022 08:29 AM
MHST-132		NO	73.25	75.96	2.71	1.93	75.18	10/04/2022 08:10 AM
MHST-134		NO	76.62	79.19	2.57	0.12	76.74	10/04/2022 08:10 AM
MHST-135		NO	70.62	79.31	8.69	2.22	72.84	10/04/2022 08:31 AM
MHST-135-S	Major_System	NO	79.98	80.13	0.15	0.02	80.00	10/04/2022 08:10 AM
MHST-136		NO	78.65	81.94	3.29	0.00	78.65	10/04/2022 00:00 AM
MHST-136-S		NO	81.70	82.00	0.30	0.04	81.74	10/04/2022 08:10 AM
MHST-137		NO	77.24	80.00	2.76	0.12	77.36	10/04/2022 08:10 AM
MHST-138		NO	75.17	78.56	3.39	0.13	75.30	10/04/2022 08:10 AM
MHST-141		NO	71.42	75.17	3.75	1.48	72.90	10/04/2022 08:31 AM
MHST-142		NO	67.80	72.58	4.78	3.65	71.45	10/04/2022 08:33 AM
MHST-143		NO	69.45	74.02	4.57	2.19	71.64	10/04/2022 08:32 AM
MHST-144		NO	69.68	75.30	5.62	2.17	71.85	10/04/2022 08:32 AM
MHST-145		NO	69.90	73.97	4.07	2.50	72.40	10/04/2022 08:32 AM
MHST-146		NO	70.17	75.39	5.22	2.55	72.72	10/04/2022 08:31 AM
MHST-146-S	Major_System	NO	75.38	75.58	0.20	0.07	75.45	10/04/2022 08:10 AM
MHST-147		NO	70.25	75.92	5.67	2.51	72.76	10/04/2022 08:31 AM
MHST-148		NO	70.45	80.13	9.68	2.39	72.84	10/04/2022 08:31 AM
MHST-149		NO	70.69	78.30	7.61	2.16	72.85	10/04/2022 08:31 AM
MHST-149-S	Major_System	NO	77.93	78.08	0.15	0.04	77.97	10/04/2022 08:10 AM
MHST-150		NO	70.76	77.32	6.56	2.09	72.85	10/04/2022 08:31 AM
MHST-151		NO	71.23	77.10	5.87	1.63	72.86	10/04/2022 08:31 AM
MHST-153		NO	72.86	77.00	4.14	0.19	73.05	10/04/2022 08:11 AM
MHST-153-S	TGCB102	NO	76.52	76.82	0.30	0.02	76.54	10/04/2022 08:10 AM
MHST-154		NO	75.60	81.92	6.32	1.89	77.49	10/04/2022 08:10 AM
MHST-154A		NO	76.00	82.52	6.52	4.27	80.27	10/04/2022 08:10 AM
MHST-154B		NO	75.90	81.89	5.99	3.53	79.43	10/04/2022 08:10 AM
MHST-155		NO	74.03	81.22	7.19	0.71	74.74	10/04/2022 08:15 AM
MHST-156		NO	70.13	74.49	4.36	2.29	72.42	10/04/2022 08:32 AM
MHST-157		NO	70.02	74.65	4.63	2.40	72.42	10/04/2022 08:32 AM
MHST-158		YES	71.74	74.80	3.06	1.19	72.93	10/04/2022 08:30 AM
MHST-158-S	Major_System	NO	74.99	75.14	0.15	0.02	75.01	10/04/2022 08:10 AM
MHST-159		NO	69.38	74.96	5.58	2.18	71.56	10/04/2022 08:33 AM
MHST-160		NO	71.27	76.79	5.52	1.61	72.88	10/04/2022 08:31 AM
MHST-161		NO	78.96	81.88	2.92	0.00	78.96	10/04/2022 08:10 AM
MHST-170		NO	71.93	74.51	2.58	1.29	73.22	10/04/2022 08:26 AM
MHST-200		NO	70.10	74.81	4.71	2.35	72.45	10/04/2022 08:32 AM
MHST-201		NO	69.96	74.74	4.78	2.47	72.43	10/04/2022 08:32 AM
MHST-203		NO	73.11	78.83	5.72	0.42	73.53	10/04/2022 08:10 AM

Junctions 5/5

Name	Tag	Inflows	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)
MHST-204		NO	73.11	78.79	5.68	0.43	73.54	10/04/2022 08:10 AM
MHST-205		NO	72.94	78.20	5.26	0.58	73.52	10/04/2022 08:10 AM
MHST-206		NO	72.91	75.77	2.86	0.51	73.42	10/04/2022 08:10 AM
MHST-208		NO	73.41	77.80	4.39	0.52	73.93	10/04/2022 08:10 AM
MHST-209		NO	73.35	75.76	2.41	0.44	73.79	10/04/2022 08:09 AM
MHST-211		NO	68.31	70.38	2.07	0.68	68.99	10/04/2022 08:40 AM
MHST-212		NO	67.95	70.22	2.27	1.16	69.11	10/04/2022 08:47 AM
MHST-213		NO	68.54	70.24	1.70	0.45	68.99	10/04/2022 08:10 AM
MHST-214		NO	68.23	70.31	2.08	0.76	68.99	10/04/2022 08:38 AM
MHST-215		NO	68.27	70.25	1.98	0.72	68.99	10/04/2022 08:38 AM
MHST-221		NO	66.62	69.70	3.08	0.50	67.12	10/04/2022 08:12 AM
MHST301		NO	72.60	75.11	2.52	0.37	72.97	10/04/2022 08:22 AM
MHST62528		NO	67.34	70.08	2.74	1.03	68.37	10/04/2022 08:25 AM
MHST-62534		NO	76.90	82.80	5.90	4.03	80.93	10/04/2022 08:10 AM
MHST62545		NO	66.53	69.90	3.37	0.82	67.35	10/04/2022 08:26 AM
MHST62547		NO	64.00	71.80	7.80	1.75	65.75	10/04/2022 08:23 AM
MSHT-103		NO	63.00	66.13	3.13	2.66	65.66	10/04/2022 08:21 AM
MSHT-103-S	Major_System	NO	66.13	66.29	0.16	0.08	66.21	10/04/2022 08:11 AM
OGS1		NO	61.00	63.82	2.82	0.42	61.42	10/04/2022 08:10 AM
OGS-3		NO	67.62	70.34	2.72	1.00	68.62	10/04/2022 08:25 AM
POW_D1		NO	78.70	79.30	0.60	0.22	78.92	10/04/2022 08:11 AM
Preston		NO	61.00	63.00	2.00	0.37	61.37	10/04/2022 08:14 AM
S-26B		NO	67.58	69.60	2.02	1.97	69.55	10/04/2022 08:21 AM
S-63		NO	79.80	84.02	4.22	2.29	82.09	10/04/2022 08:23 AM
ST-60-S-B		NO	74.11	74.41	0.30	0.13	74.24	10/04/2022 08:11 AM
ST-60-S-C		NO	73.25	73.50	0.24	0.17	73.43	10/04/2022 08:12 AM
SW_42I		NO	74.96	75.15	0.19	0.08	75.04	10/04/2022 08:10 AM
SW_65D		NO	77.94	78.44	0.50	0.04	77.98	10/04/2022 08:15 AM
TD_B		NO	67.88	69.06	1.19	0.16	68.04	10/04/2022 08:05 AM
TD01_1		NO	70.21	70.34	0.13	0.10	70.31	10/04/2022 08:10 AM
TD01_3		NO	68.60	70.29	1.69	0.39	68.99	10/04/2022 08:10 AM
TD02_01		NO	68.90	69.10	0.20	0.16	69.06	10/04/2022 08:10 AM
TD02_03		NO	67.42	69.10	1.68	0.95	68.37	10/04/2022 08:12 AM
TD03_1		NO	68.80	69.10	0.30	0.35	69.15	10/04/2022 08:05 AM
TD04_01		NO	74.57	74.72	0.15	0.18	74.75	10/04/2022 08:08 AM
TD04_02		NO	74.00	74.72	0.72	0.05	74.05	10/04/2022 08:11 AM
TD05_1		NO	74.50	74.75	0.25	0.15	74.65	10/04/2022 08:10 AM
TD05_2		NO	74.00	74.72	0.72	0.07	74.07	10/04/2022 08:10 AM
TD06_1		NO	69.15	69.39	0.24	0.16	69.31	10/04/2022 08:10 AM
TD06_2		NO	67.40	69.39	1.99	0.86	68.26	10/04/2022 08:12 AM
TD07_1		NO	69.10	69.39	0.29	0.04	69.14	10/04/2022 08:10 AM
TD07_2		NO	67.40	69.39	1.99	0.71	68.11	10/04/2022 08:12 AM
TDS_1		NO	76.43	76.58	0.15	0.15	76.58	10/04/2022 08:03 AM
TDS_2		NO	70.50	76.58	6.08	1.36	71.86	10/04/2022 08:32 AM
TDW_1		NO	76.49	76.64	0.15	0.13	76.62	10/04/2022 08:10 AM
TDW_2		NO	70.50	76.64	6.14	1.35	71.85	10/04/2022 08:32 AM
UP-CB43		NO	83.46	83.61	0.15	0.03	83.49	10/04/2022 08:10 AM
Wales-OLF-N03		NO	68.20	68.40	0.20	0.06	68.26	10/04/2022 08:22 AM
Wales-OLF-N04		NO	66.75	66.95	0.20	0.06	66.81	10/04/2022 08:23 AM
Wales-OLF-N05		NO	65.50	65.70	0.20	0.07	65.57	10/04/2022 08:25 AM

Storage 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Storage Curve	Curve Name	Avg. Depth (m)	Max. Depth (m)	Max. HGL (m)	Max. Volume (1000 m³)	Max. Percent Full (%)	Contributing Area (ha)
CB130	69.84	70.11	0.27	TABULAR	CB(600x600)	0.01	0.08	69.92	0	31	0.0920
CB65	72.16	73.70	1.54	TABULAR	CB65	0.02	0.04	72.20	0	0	1.1620
CB91	75.00	75.20	0.20	TABULAR	CB91	0.10	0.17	75.17	0.014	67	0.1910
CB94	75.02	75.32	0.30	TABULAR	CB94	0.02	0.15	75.17	0.012	41	0.6180
CB95	75.52	75.82	0.30	TABULAR	CB95-ponding	0.02	0.13	75.65	0.015	18	0.2440
CB99	76.90	76.95	0.05	TABULAR	CB99	0.01	0.05	76.95	0	100	0.1460
CBMHST101-S	76.42	76.57	0.15	TABULAR	CBMH101	0.01	0.10	76.52	0.003	49	0.2910
CHAMBER-102	72.03	74.24	2.21	TABULAR	Chamber102	0.33	1.31	73.34	0.281	60	1.9200
CHAMBER-103	74.08	76.78	2.70	TABULAR	Chamber103	0.39	2.70	76.78	2.13	100	13.86
CHAMBER-104-A	70.13	72.43	2.30	TABULAR	Chamber104A	0.40	2.30	72.43	1.31	100	19.50
CHAMBER-104B	69.91	72.61	2.70	TABULAR	Chamber104B	0.55	2.49	72.40	1.57	92	22.77
Chamber201	67.95	69.19	1.24	TABULAR	Chamber201	0.22	1.03	68.98	0.43	84	1.06
Chamber202	70.84	72.43	1.59	TABULAR	Chamber202	0.25	1.30	72.14	0.51	82	1.69
Chamber-203	71.42	72.90	1.48	TABULAR	Chamber203	0.27	1.48	72.90	0.27	100	0.64
Chamber-204	73.03	74.36	1.33	TABULAR	Chamber204	0.22	1.26	74.29	0.28	95	0.69
DICB8	68.11	70.10	1.99	TABULAR	swale	0.12	1.40	69.51	0.08	18	2.81
DICB9	74.60	74.88	0.28	TABULAR	DICB9	0.03	0.14	74.74	0.00	10	1.13
MHST-157-S	73.80	74.23	0.43	TABULAR	CB98-ponding	0.03	0.25	74.05	0.01	24	1.12
PS	64.92	70.03	5.11	CYLINDRICAL	*	0.69	1.03	65.95	0.00	20	0.31
S-14B	61.65	63.30	1.65	TABULAR	S-14B	0.45	1.65	63.30	0.01	100	0.13
S-15	62.10	63.90	1.80	TABULAR	S-15	1.28	1.80	63.90	0.11	100	0.36
S-19	64.00	66.00	2.00	TABULAR	S-19	0.73	1.71	65.71	0.09	34	0.21
S-21B	63.54	65.70	2.16	TABULAR	S-21B	1.42	2.01	65.55	0.89	69	1.77
S-26D	67.19	69.25	2.06	TABULAR	DICB1	0.41	1.97	69.17	0.022	58	0.0750
S-3Store	62.20	64.24	2.04	TABULAR	S-3	1.47	2.04	64.24	0.081	100	0.3940
SA-1	69.50	72.50	3.00	TABULAR	S-1	0.68	2.89	72.39	0.635	96	1.2350
SA-2	62.60	65.60	3.00	TABULAR	S-2	1.54	2.36	64.96	0.709	79	0.8680

Outlets 1/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
1	DICB6	CBMHST-101	74.70	TABULAR/DEPTH	2CB	NO	23.67	0.12
12	CBMHST208-S	MHST-208	78.00	TABULAR/DEPTH	S28_SL2_5	NO	10.67	0.15
14	CB95	CBMHST-104	75.52	TABULAR/DEPTH	S19_LP	NO	113.85	0.24
18	CB94	75	75.02	TABULAR/DEPTH	2CB	NO	100.00	0.62
20	CB65	MHST-144	72.16	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	21.93	1.16
24	CBMHST-103-S	CBMHST103	74.60	TABULAR/DEPTH	S28_SL4_0.5	NO	22.00	1.55
26	CB91	37	75.14	TABULAR/DEPTH	S19_SL2_5x2	NO	33.91	0.19
31	CB26	Chamber202	75.96	TABULAR/DEPTH	S19_SL2_5x2	NO	31.36	0.35
37	CB113	Chamber201	69.58	TABULAR/DEPTH	CB	NO	0.00	0.14
44	AD05	MH-SA56-1	79.70	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
45	AD03	MH-SA56-2	79.82	TABULAR/HEAD	AreaDrain	NO	0.00	0.03
46	CB72_89	39	69.49	TABULAR/DEPTH	S19_SL2_1	NO	2.11	2.93
47	CBMHST66,67	56	73.54	TABULAR/DEPTH	S28_SL2_5x2	NO	24.62	0.80
48	DICB11	26	75.45	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	75.26	0.43
51	CB46	64	79.69	TABULAR/DEPTH	S19_SL2_5	NO	9.62	0.08
52	CB54	49	76.44	TABULAR/DEPTH	S22_SL2_5	NO	3.94	0.15
53	CB58	71	75.64	TABULAR/DEPTH	S22_SL2_5	NO	6.77	0.19
55	CB71	MHST-135	79.68	TABULAR/DEPTH	S19_SL2_2.5	NO	0.75	0.01
56	CB75	MHST-135	79.25	TABULAR/DEPTH	S22_SL2_2.5	NO	1.58	0.02
57	CB87	MHST-160	75.50	TABULAR/DEPTH	S19_LP	NO	1.56	0.11
58	CB107	32	75.12	TABULAR/DEPTH	S19_SL2_1x2	NO	10.89	0.69
59	CB100	33	75.08	TABULAR/DEPTH	S19_SL2_1x2	NO	16.18	0.70
60	CB84,85	76	81.32	TABULAR/DEPTH	S19_SL2_2.5x2	NO	21.71	0.10
61	CB90	21	80.75	TABULAR/DEPTH	S19_SL2_2.5x2	NO	17.70	0.11
62	CB96	MHST-138	78.66	TABULAR/DEPTH	S19_SL2_2.5	NO	19.36	0.17
63	CB97	22	77.90	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.19
65	CBMHST105-S	CBMHST105	74.82	TABULAR/DEPTH	S28_SL4_0.5	NO	0.94	0.38
69	DICB10	MHST-135	79.27	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	147.15	1.32
AD01_O	AD01	MH-SA56-2	79.67	TABULAR/DEPTH	3CB	NO	0.00	0.10
AD02_O	AD02	MH-SA56-2	79.67	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD04_O	AD04	MH-SA56-1	79.80	TABULAR/DEPTH	AreaDrain	NO	0.00	0.04
AD06_O	AD06	MH-SA56-1	79.65	TABULAR/DEPTH	AreaDrain	NO	51.71	0.11
AD07_O	AD07	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.03
AD08_O	AD08	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.09
AD09_O	AD09	MH-SA56-3	74.25	TABULAR/DEPTH	AreaDrain	NO	0.00	0.01
BI-SA1-IC	BI-SA1-S	BI-SA1	70.15	TABULAR/DEPTH	6@R-B@S=1.5%	NO	106.09	0.52
BI-SA49-IC	BI-SA49-S	D-MHST-146_1	75.35	TABULAR/DEPTH	S19_SL2_1x4	NO	79.16	0.32
CB101_103_105	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S22_SL2_2.5	NO	2.00	0.22
CB102_106_DIC	MHST-153-S	MHST-153	76.52	TABULAR/DEPTH	S19_SL2_2.5	NO	9.11	0.22
CB103_O	CB106,103	23	75.51	TABULAR/DEPTH	S22_SL2_2.5	NO	2.48	0.24
CB104_O	CB104	72	75.37	TABULAR/DEPTH	S19_SL2_5	NO	25.20	0.21
CB105_O	CB105	26	75.14	TABULAR/DEPTH	S22_SL2_2.5	NO	4.79	0.26
CB106_O	CB106,103	23	75.51	TABULAR/DEPTH	S19_SL2_2.5x2	NO	26.72	0.24
CB108_O	CB108	MHST-214	69.60	TABULAR/DEPTH	CB	NO	0.00	0.12
CB109_O	CB109	MHST-215	69.60	TABULAR/DEPTH	CB	NO	0.00	0.09
CB111_O	CB111	MHST-147	75.04	TABULAR/DEPTH	S19_LP	NO	190.00	0.49
CB114_O	CB114	MHST-200	74.92	TABULAR/DEPTH	S19_SL2_5	NO	45.14	0.28
CB130_O	CB130	MHST-130	69.84	TABULAR/DEPTH	S19_SL2_1	NO	53.02	0.09
CB255-O	CB255-S	CB255	77.71	TABULAR/DEPTH	S19_SL2_5	NO	5.88	0.14
CB40,66-68	CB68,40	56	72.63	TABULAR/DEPTH	S19_SL2_5x4	NO	100.40	0.82

Outlets 2/2

Name	Inlet Node	Outlet Node	Inlet Elev. (m)	Rating Curve	Curve Name	Control Rules	Max. |Flow| (L/s)	Contributing Imp. Area (ha)
CB42_O	CB42	38	81.44	TABULAR/DEPTH	S19_SL2_5	NO	4.28	0.02
CB43_O	CB43	59	81.69	TABULAR/DEPTH	S19_SL2_5	NO	17.40	0.04
CB44_O	CB44	61	80.37	TABULAR/DEPTH	S19_SL2_5x2	NO	6.65	0.03
CB45_O	CB45	60	80.69	TABULAR/DEPTH	S19_SL2_5	NO	7.84	0.07
CB47_O	CB47	66	78.63	TABULAR/DEPTH	S22_SL2_5	NO	1.74	0.05
CB48_O	CB48	65	78.85	TABULAR/DEPTH	S22_SL2_5	NO	2.32	0.10
CB49_O	CB49	68	78.19	TABULAR/DEPTH	S22_SL2_5x2	NO	3.39	0.05
CB50_O	CB50	69	77.85	TABULAR/DEPTH	S22_SL2_5	NO	2.96	0.12
CB51_O	CB51	70	77.75	TABULAR/DEPTH	S22_SL2_5	NO	1.47	0.05
CB52_O	CB52	48	77.14	TABULAR/DEPTH	S22_SL2_5	NO	3.28	0.14
CB53_O	CB53	48	77.08	FUNCTIONAL/DEPTH	*	NO	1.51	0.06
CB55_O	CB55	49	76.58	TABULAR/DEPTH	S22_SL2_5x2	NO	3.69	0.06
CB56_58	MHST-146-S	MHST-146	75.38	TABULAR/DEPTH	S22_SL2_1x2	NO	22.04	0.32
CB56_O	CB56	50	75.98	TABULAR/DEPTH	S22_SL2_5	NO	5.54	0.16
CB59_O	CB59	73	74.99	TABULAR/DEPTH	S19_SL2_5	NO	30.67	0.25
CB60_O	CB60	MHST301	75.39	TABULAR/DEPTH	S19_SL2_1	NO	0.00	0.07
CB63	MHST-120-S	56	74.46	TABULAR/DEPTH	S22_SL2_5	NO	5.71	0.40
CB69_75	MHST-149-S	MHST-149	77.93	TABULAR/DEPTH	S22_SL2_5x2	NO	9.03	0.09
CB69_O	CB69	36	78.72	TABULAR/DEPTH	S22_SL2_2.5	NO	2.22	0.05
CB77_O	CB77	36	78.83	TABULAR/DEPTH	S19_SL2_2.5	NO	10.23	0.05
CB79_O	CB79	MHST-150	77.57	TABULAR/DEPTH	S19_SL2_2.5	NO	18.30	0.12
CB82_O	CB82	MHST-151	77.15	TABULAR/DEPTH	DB_S22_SL2_5	NO	7.89	0.19
CB83_O	CB83	35	77.24	TABULAR/DEPTH	S22_SL2_5	NO	9.07	0.16
CB88_96	CB88	MHST-137	79.79	TABULAR/DEPTH	S19_SL2_2.5	NO	17.73	0.14
CB92_O	CB92	37	75.27	TABULAR/DEPTH	S19_SL2_2.5x2	NO	55.71	0.28
CB93_O	CB93	31	75.17	TABULAR/DEPTH	S19_SL2_1x2	NO	10.19	0.67
CB99_O	CB99	CBMHST-104	76.90	TABULAR/DEPTH	S19_LP	NO	39.00	0.15
CBMH57_O	CBMH57	MHST-147	76.00	TABULAR/DEPTH	S19_SL2_5	NO	42.68	0.32
CBMH89_O	CBMH89	MHST-160	76.26	TABULAR/DEPTH	S28_SL2_5	NO	13.02	0.23
CBMHST101_O	CBMHST101-S	CBMHST-101	76.42	TABULAR/DEPTH	S28_LP	NO	57.59	0.29
DICB9_OL	DICB9	CBMHST103	74.28	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	105.06	1.13
MHST-100-IC	MHST-100-S	MHST-100	66.30	TABULAR/DEPTH	1@R-A@S=5.0%	NO	0.00	1.42
MHST-101-IC	MHST-101-S	MHST-101	66.07	TABULAR/DEPTH	4@R-A@S=5.0%	NO	37.67	1.42
MHST-102-IC	MHST-102-S	MHST-102	66.28	TABULAR/DEPTH	4@R-A@S=5.0%	NO	34.04	1.29
MHST-104-IC	MHST-104-S	MHST-104	70.80	TABULAR/DEPTH	3@R-B@S=1.5%	NO	21.22	0.12
MHST-105-IC	MHST-105-S	MHST-105	68.64	TABULAR/DEPTH	3@R-B@S=1.5%	NO	125.06	4.14
MHST-106-IC	MHST-106-S	MHST-106	71.87	TABULAR/DEPTH	2@R-E@S=5.0%	NO	17.09	0.99
MHST-157-IC	MHST-157-S	MHST-157	73.80	TABULAR/DEPTH	DICB_MTO_CHART_4.20	NO	310.82	1.12
MSHT-103-IC	MSHT-103-S	MSHT-103	66.13	TABULAR/DEPTH	7@R-A@S=5.0%	NO	269.30	1.13
O-1	SA-1	MH-SA1	69.50	TABULAR/HEAD	O-1	NO	60.00	1.24
O-15	S-15	MHST-107	62.10	TABULAR/DEPTH	O-15	NO	7.86	0.36
O-19	S-19	MHST-101	64.00	TABULAR/DEPTH	50VHV-1	NO	3.85	0.21
O-2	SA-2	MH-SAxx	62.60	TABULAR/HEAD	O-2	NO	7.00	0.87
O-21B	S-21B	IN119607	63.54	TABULAR/DEPTH	50VHV-1	NO	4.21	1.77
O-26D	S-26D	MHST-105	67.19	TABULAR/DEPTH	50VHV-1	NO	4.17	0.08
O-3	S-3Store	OGS1	62.20	TABULAR/HEAD	125VHV-2	NO	26.69	0.39
O-4	S-14B	Preston	62.15	TABULAR/HEAD	125VHV-2	NO	20.15	0.13
O-63	S-63	MHST-154A	78.20	TABULAR/DEPTH	O-63	NO	72.56	1.10
O-CB209	CB209	MHST-209	77.64	TABULAR/DEPTH	S28_SL2_5	NO	6.35	0.18
WD-OLF_5	Wales-OLF-N05	Preston	65.50	TABULAR/DEPTH	2@R-E@S=1.0%	NO	36.48	4.14

Orifices 1/1

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Width (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (L/s)
DICB2	S-26B	BI-SA1	SIDE	CIRCULAR	0.095	0	67.58	0.65	28.29
ICD-100-1	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.3	0	63.06	0.62	287.54
ICD-100-2	MHST-100	D-MHST-100	SIDE	CIRCULAR	0.1	0	63.85	0.62	27.96
ICD102	MHST-170	D-MHST-170	SIDE	CIRCULAR	0.1	0	71.93	0.62	21.34
ICD103	D-MHST-155	MHST-155	SIDE	CIRCULAR	0.675	0	74.06	0.62	1395.89
ICD104	MHST-145	D-MHST-145	SIDE	RECT_CLOSED	0.75	0.75	69.9	0.62	1219.07
ICD-105	MHST-142	D-MHST-142	SIDE	CIRCULAR	0.7	0	69.32	0.62	1410.88
ICD111	DICB8	OGS-3	SIDE	CIRCULAR	0.4	0	68.11	0.62	342.53
ICD201	Chamber201	Chamber201S	SIDE	CIRCULAR	0.35	0	67.95	0.62	127.25
ICD202	Chamber202	Chamber202-S	SIDE	CIRCULAR	0.245	0	70.84	0.62	120.92
ICD203	Chamber-203	D-Chamber-203	SIDE	CIRCULAR	0.225	0	71.42	0.62	94.72
ICD204	Chamber-204	D-Chamber-204	SIDE	CIRCULAR	0.19	0	73.03	0.62	75.81

Weirs 1/1

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Inlet Elev. (m)	Max. |Flow| (L/s)	Time Max. Flow (M/D/Y)	Max/Full Depth	Contributing Area (ha)
Weir102	MHST-170	D-MHST-170	TRANSVERSE	0.3	1.5	73	160.42	10/04/2022 08:19 AM	0.73	1.92
Weir103	D-MHST-155	MHST-155	TRANSVERSE	1	1	76.45	276.44	10/04/2022 08:15 AM	0.3	13.859
Weir104	MHST-145	D-MHST-145	TRANSVERSE	1	2	71.64	1638.07	10/04/2022 08:32 AM	0.76	22.77
Weir-105	MHST-142	D-MHST-142	TRANSVERSE	0.5	1.4	70.7	1156.43	10/04/2022 08:33 AM	1	24.89
Weir112	MHST-146	D-MHST-146_1	SIDEFLOW	1.4	1.5	70.17	2729.61	10/04/2022 08:18 AM	1	19.443

Outfalls 1/1

Name	Invert Elev. (m)	Rim Elev. (m)	Type	Max. Depth (m)	Max. HGL (m)	Time Max. HGL (M/D/Y)	Max. Flow (L/s)	Total Flow (ML)	Contributing Area (ha)
Carling_OLF	64.6	64.8	FREE	0.14	64.74	10/04/2022 08:13 AM	331.3	0.393	2.011
Dows-Lake	63.745	66.5	FREE	0.95	64.7	10/04/2022 08:26 AM	3002.27	23.218	29.624
LRT-Corridor	56	57	FREE	0	56	10/04/2022 00:00 AM	32.62	0.028	0.059
Nepean-Bay-Trunk	62.8	65.21	NORMAL	0	62.8	10/04/2022 00:00 AM	321.51	3.821	8.845
Preston_Street	60.9	63.76	NORMAL	0.3	61.2	10/04/2022 08:09 AM	125.54	2.736	5.985

APPENDIX J: WATER BALANCE CALCULATIONS

BIORETENTION 47B
STORAGE: 96 cu.m.
DRAINAGE AREA: 0.25 ha

BIORETENTION 47A
STORAGE: 152 cu.m.
DRAINAGE AREA: 0.54 ha

BIORETENTION 47
STORAGE: 32 cu.m.
DRAINAGE AREA: 0.04 ha

MAIN HOSPITAL BUILDING
LEVEL 1 = 80.36m
LEVEL 0 = 75.36m
LEVEL S = 70.36m

CENTRAL UTILITY PLANT
(SEPARATE CONTRACT)

PARKING GARAGE
(SEPARATE CONTRACT)

INFILTRATION SWALE 42I
STORAGE VOL: 3 cu.m.
DRAINAGE AREA: 0.17 ha

INFILTRATION SWALE 60B
STORAGE VOL: 22 cu.m.
DRAINAGE AREA: 1.04 ha

INFILTRATION SWALE 65C
STORAGE VOL: 66 cu.m.
DRAINAGE AREA: 0.61 ha

BIORETENTION 60A
STORAGE: 33 cu.m.
DRAINAGE AREA: 0.07 ha

INFILTRATION SWALE 65D
STORAGE VOL: 12 cu.m.
DRAINAGE AREA: 0.12 ha

BIORETENTION 67
STORAGE: 142 cu.m.
DRAINAGE AREA: 0.24 ha

PROPERTY LINE
BIRCH DR.
CARLING AVE.
PRINCE OF WALES DR.
TRILLIUM TRAIN LINE
EXISTING R.O.W.
LIMIT OF WORK LINE AT THE WEST EDGE OF THE SIDEWALK
PROTECTED R.O.W. AND FACILITY LEASE BOUNDARY

PROJECT
THE OTTAWA HOSPITAL NEW CAMPUS DEVELOPMENT - PHASE 4 MAIN HOSPITAL BUILDING

900 CARLING AVE, OTTAWA, ONTARIO

CLIENT
The Ottawa Hospital | L'Hôpital d'Ottawa
Infrastructure Ontario
PCL CONSTRUCTION | EllisDon

CLIENT PROJECT NO.
1070002

KEY PLAN
TRUE NORTH | PROJECT NORTH

01	80% SD SUBMISSION	2026-03-26

REVISIONS

DRAWING STATUS
NOT FOR CONSTRUCTION

DISCREPANCIES MUST BE REPORTED IMMEDIATELY TO THE ARCHITECT BEFORE PROCEEDING.
ONLY FIGURED DIMENSIONS ARE TO BE USED. CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. THIS DRAWING IS PROTECTED BY COPYRIGHT.

ALL DIMENSIONS ARE SHOWN IN METRIC.

AUTHOR
wsp

PROJECT TEAM
DESIGN-BUILDER PCLIED, A JOINT VENTURE
ARCHITECTURAL PARKIN ARCHITECTS LIMITED
JODOIN LAMARRE PRATTE ARCHITECTES
ADAMSON ASSOCIATES ARCHITECTS
NH ARCHITECTS OTTAWA INC.
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BUILDING CODE LMDG BUILDING CODE CONSULTANTS LTD.

AUTHOR PROJECT NO.
CA0027758.0-51

STAMP | STAMP

DRAWING TITLE
LID DRAINAGE AREAS

DRAWN	CHECKED
F.ALLEN	A.M.BARRIE
SCALE AT 40" x 65"	DATE
NTS	2026-03-26

GRAPHIC SCALE

DRAWING NO. **C4-201** | REV NO. **1**

D07-12-26-0008

#19424

PLOT DATE:

Project:	Ottawa Hospital	No.:	CA-WSP-P22-11020-51	
By:	Fiona Allen	Date:	2026-03-26	Page:
Checked:	Alyssa Mohino-Barrie	Checked:	2026-03-26	1

Subject: **Stormwater Management - Water Balance Analysis - Post-Development-Dows Lake Outlet**

Landuse Parameters

Land Use	Runoff 2-5yr C	Runoff 100yr C	Impervious level(%)	intial abstraction (m)
Impervious Roof Area	0.90	1	100	0
Green Roof	0.45	0.5625	50	0.01
Soft Landscaping	0.2	0.25	0	0.025
At-Grade Impervious	0.9	1	100	0

Catchment ID	Drainage area (ha)	Landscaped Area (ha)	Impervious Area (ha)	Greenroof Area (ha)	Impervious Level (%)	Runoff Coefficient	25 mm Water Balance Volume (m3)
42 A-H	0.41	0.28	0.13	0.00	32.10	0.42	32.7
42I	0.17	0.04	0.13	0.00	75.05	0.73	31.7
42J-Q	0.53	0.09	0.44	0.00	83.21	0.78	110.8
66A-B	0.13	0.03	0.10	0.00	74.73	0.72	24.8
47	0.04	0.00	0.03	0.00	87.89	0.82	8.3
47A	0.53	0.19	0.34	0.00	64.66	0.65	86.1
47B	0.25	0.08	0.18	0.00	69.72	0.69	44.4
47C-P	0.23	0.02	0.20	0.00	89.46	0.82	51.6
47Q-U	0.11	0.03	0.08	0.00	73.44	0.71	20.5
47V	0.49	0.45	0.04	0.00	8.35	0.26	10.2
52	0.09	0.05	0.04	0.00	44.69	0.51	9.8
55A-I	0.63	0.33	0.30	0.00	48.12	0.54	75.6
59A-I	0.79	0.16	0.63	0.00	79.33	0.76	156.3
60	0.21	0.21	0.00	0.00	0.00	0.20	0.0
60A	0.36	0.27	0.09	0.00	23.87	0.37	21.4
60B,C	0.54	0.53	0.02	0.00	3.07	0.22	4.2
60D	0.14	0.09	0.06	0.00	39.03	0.47	13.9
64	0.02	0.00	0.02	0.00	100.00	0.90	3.8
65A-B	0.03	0.00	0.03	0.00	100.00	0.90	6.9
65E-G	0.08	0.00	0.08	0.00	100.00	0.90	18.8
65I	0.02	0.00	0.02	0.00	100.00	0.90	5.3
65C,H,45	0.61	0.37	0.23	0.00	38.52	0.47	58.4
65D	0.12	0.12	0.00	0.00	0.00	0.20	0.0
67A	0.15	0.03	0.12	0.00	79.54	0.76	29.1
67B	0.14	0.02	0.12	0.00	84.55	0.79	30.5
67	0.24	0.12	0.13	0.00	52.00	0.56	31.7
62B	0.06	0.06	0.00	0.00	0.00	0.20	0.0
54A-H	0.48	0.10	0.37	0.00	78.15	0.75	93.2
53,53A-B	0.12	0.07	0.06	0.00	44.67	0.51	13.8
S-7-9, S11-AB	0.85	0.00	0.38	0.48	72.13	0.40	165.6
S-10&11	0.66	0.00	0.66	0.00	100.00	0.90	164.8
S-5,6&12	0.67	0.00	0.16	0.50	62.38	0.22	116.2
S3&S4	0.72	0.00	0.72	0.00	100.00	0.90	179.675
Total Hospital	**10.61**	**3.74**	**5.89**	**0.98**	**60.09**	**0.57**	**1,619.97**

Project:	Ottawa Hospital	No.:	CA-WSP-P22-11020-51
By:	Fiona Allen	Date:	2026-03-26
Checked:		Checked:	2026-03-26
		Page:	2

Subject: **Stormwater Management - Water Balance Analysis - Post-Development-Dows Lake Outlet**

Catchment ID	Drainage area (ha)	Runoff Coefficient	25 mm Water Balance Volume (m3)	Reuse Type	Groundwater depth below LID	Proposed LID Area (m2)	Proposed LID Volume (m3)
42I	0.17	0.73	25.80	LID-shallow	0.25	22	**3**
47	0.04	0.82	8.51	LID	1.30	47	**32**
47A	0.53	0.65	87.49	LID	1.04	280	**152**
47B	0.25	0.69	41.30	LID	0.25	184	**96**
60A	0.07	0.76	14.28	LID	0.40	36	**33**
60	1.04	0.23	37.22	LID Shallow	0.30	186	**22**
65D	0.12	0.20	0.00	LID-infiltration swale	0.30	103	**12**
67	0.24	0.56	58.53	LID-bioretention	0.25	237	**142**
65C	0.61	0.47	53.44	LID-infiltration swale	0.32	146	**66**
Total to Dow's Lake	**3.08**	**0.46**	**327**			**1,240**	**559**

Catchment ID	Drainage area (ha)	LID Characteristics							
		LID Type	Ponding Depth (m)	Soil Depth (m)	Gravel Depth (m)	Total LID Depth (m)	Drawdown Time (hrs)	LID Area (m2)	Groundwater Clearance (m)
42I	0.17	Bioswale	0	0	0.30	0.30	16	21.5	0.25
47	0.04	Bioretention	0.16	1.20	0.26	1.62	48	46.848	1.30
47A	0.53	Bioretention	0.02	1.20	0.26	1.48	48	279.799	1.04
47B	0.25	Bioretention	0	1.20	0.26	1.46	48	183.625	0.25
60A	0.07	Bioretention	0.60	0.60	0.30	1.50	56	35.642	0.40
60	1.04	Bioswale	0	0	0.30	0.30	56	186.082	0.30
65D	0.12	Bioswale	0	0	0.30	0.30	16	103.453	0.30
67	0.24	Bioretention	0	1.20	0.35	1.55	24	236.697	0.25
65C	0.61	Bioswale	0	0	0.30	0.30	56	146.175	0.32

	Project:	**Ottawa Hospital**	**No.:**	**CA-WSP-P22-11020-51**
	By:	**Fiona Allen**	**Date:**	**2026-03-26**
	Checked:	**Alyssa Mohino Barrie**	**Checked:**	**2026-03-26**

Subject: **Assessment of Bioswale Facility - Catchment 421**

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioswale Facility #1

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	1,692	m^2
Pervious area=	422	m^2
Impervious area=	1,270	m^2
Runoff coefficient=	0.73	
25mm WB volume=	31.75	m^3

Base Area (A) of Planter	21.5	m^2
Length of Swale	21.5	m
Gravel layer depth	0.30	m
Porosity of Gravel layer	40%	
Storage in voids of gravel layer	2.6	m^3
Total depth of system	0.30	m
Total Storage	**3**	**m^3**

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	18.5	mm/hr	Water depth in gravel layer	0.30	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	18.5	mm/hr
Max. Allowable Depth (d) =	0.89	m	Drawdown Time	16.2	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

Subject: **Assessment of Bioretention Facility - Catchment 47**

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioretention Facility 47

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	376	m^2
Pervious area=	46	m^2
Impervious area=	330	m^2
Runoff coefficient=	0.82	
25 mm WB volume=	8.26	m^3

Bioretention Capacity:

Base Area (A) of Planter	46.8	m^2
Filter Media Depth	1.20	m
Porosity of Filter Media	35%	
Storage in voids of filter media	19.7	m^3
Ponding Depth	0.16	m
Surface Storage	7.5	m^3
Gravel layer depth	0.26	m
Porosity of Gravel layer	40%	
Storage in voids of gravel layer	4.9	m^3
Total depth of system	1.46	m
Total Storage	**32**	**m^3**

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	5.4	mm/hr	Water depth in gravel layer	0.26	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	5.4	mm/hr
Max. Allowable Depth (d) =	0.26	m	Drawdown Time	48.1	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

Subject: **Assessment of Bioretention Facility - Catchment 47A**

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioretention Facility 47A

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	5,324	m^2
Pervious area=	1,881	m^2
Impervious area=	3,443	m^2
Runoff coefficient=	0.65	
25 mm WB volume=	86.07	m^3

Bioretention Capacity:

Base Area (A) of Planter	279.8	m^2
Filter Media Depth	1.20	m
Porosity of Filter Media	35%	
Storage in voids of filter media	117.5	m^3
Ponding Depth	0.02	m
Surface Storage	5.6	m^3
Gravel layer depth	0.26	m
Porosity of Gravel layer	40%	
Storage in voids of gravel layer	29.1	m^3
Total depth of system	1.46	m
Total Storage	**152**	**m^3**

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	5.4	mm/hr	Water depth in gravel layer	0.26	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	5.4	mm/hr
Max. Allowable Depth (d) =	0.26	m	Drawdown Time	48.1	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

Subject: **Assessment of Bioretention Facility - Catchment 47 B, C, G**

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioswale Facility 47 B, C, G

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	2,548	m^2
Pervious area=	771	m^2
Impervious area=	1,776	m^2
Runoff coefficient=	0.69	
25 mm WB volume=	86.07	m^3

Bioretention Capacity:

Base Area (A) of Planter	183.6	m^2
Filter Media Depth	1.20	m
Porosity of Filter Media	35%	
Storage in voids of filter media	77.1	m^3
Ponding Depth	0	m
Surface Storage	0.0	m^3
Gravel layer depth	0.26	m
Porosity of Gravel layer	40%	
Storage in voids of gravel layer	19.1	m^3
Total depth of system	1.46	m
Total Storage	**96**	**m^3**

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	5.4	mm/hr	Water depth in gravel layer	0.26	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	5.4	mm/hr
Max. Allowable Depth (d) =	0.26	m	Drawdown Time	48.1	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

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Subject: Assessment of Bioretention Facility-Cacthment 60A

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioretention Facility 60A

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	717	m^2
Pervious area=	146	m^2
Impervious area=	571	m^2
Runoff coefficient=	0.76	
25mm WB volume=	14.28	m^3

Bioretention Capacity:

Base Area (A) of Planter	35.6	m^2	
Filter Media Depth	0.60	m	
Porosity of Filter Media	35%		
Storage in voids of filter media	7.5	m^3	
Ponding Depth	0.6	m	
Surface Storage	21.4	m^3	
Gravel layer depth	0.30	m	
Porosity of Gravel layer	40%		
Storage in voids of gravel layer	4.3	m^3	
Total depth of system	0.90	m	*Depth to groundwater table from top of bank: 1.9 mbgs*
Total Storage	**33**	**m^3**	

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	5.4	mm/hr	Water depth in gravel layer	0.30	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	5.4	mm/hr
Max. Allowable Depth (d) =	0.26	m	Drawdown Time	55.6	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

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Subject: Assessment of Bioretention Facility - Catchment 60 & 60B

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioswale Facility 60B

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	10,418	m^2
Pervious area=	9,966	m^2
Impervious area=	452	m^2
Runoff coefficient=	0.23	
25mm WB volume=	11.30	m^3

Base Area (A) of Swale	186.1	m^2
Length of Swale	186.1	m
Gravel layer depth	0.30	m
Porosity of Gravel layer	40%	
Storage in voids of gravel layer	22.3	m^3
Total depth of system	0.30	m
Total Storage	**22**	**m^3**

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	5.4	mm/hr	Water depth in gravel layer	0.30	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	5.4	mm/hr
Max. Allowable Depth (d) =	0.26	m	Drawdown Time	55.6	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

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Subject: Assessment of Bioretention Facility-Catchment 65 D

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioswale Facility 65D

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	1,224	m^2
Pervious area=	1,224	m^2
Impervious area=	-	m^2
Runoff coefficient=	0.20	
25mm WB volume=	0.00	m^3

Base Area (A) of Planter	103.5	m^2	
Length of Swale	103.5	m	
Gravel layer depth	0.30	m	
Porosity of Gravel layer	40%		
Storage in voids of gravel layer	12.4	m^3	
Total depth of system	0.30	m	*Depth to groundwater table from top of bank: 2.1 mbgs*
Total Storage	**12**	**m^3**	

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	18.5	mm/hr	Water depth in gravel layer	0.30	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	18.5	mm/hr
Max. Allowable Depth (d) =	0.89	m	Drawdown Time	16.2	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

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Subject: Assessment of Bioretention Facility - Catchment 67

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioswale Facility 67

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	2,437	m^2
Pervious area=	1,170	m^2
Impervious area=	1,267	m^2
Runoff coefficient=	0.56	
25mm WB volume=	31.68	m^3

Bioretention Capacity:

Base Area (A) of Planter	236.7	m^2	
Filter Media Depth	1.20	m	
Porosity of Filter Media	35%		
Storage in voids of filter media	99.4	m^3	
Ponding Depth	0	m	
Surface Storage	0.0	m^3	
Gravel layer depth	0.45	m	
Porosity of Gravel layer	40%		
Storage in voids of gravel layer	42.6	m^3	
Total depth of system	1.65	m	*Depth to groundwater table from top of bank: 1.9 mbgs*
Total Storage	**142**	**m^3**	

Therefore the bioretention facility has sufficient capacity to store and treat the required quantity of runoff.

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	18.5	mm/hr	Water depth in gravel layer	0.45	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	18.5	mm/hr
Max. Allowable Depth (d) =	0.89	m	Drawdown Time	24.3	hr

Therefore the bioretention facility is capable of infiltrating water stored in gravel layer within 48 hours.

Subject: Assessment of Bioretention Facility -Catchments 65 A-C, E-G & 62B

The bioswale is proposed to treat stormwater from parking lots adjacent to it and retain water through infiltration

Bioswale Facility #65C

1. Capture capacity of stormwater

Tributary Catchment:

Drainage area=	6,060	m^2
Pervious area=	3,726	m^2
Impervious area=	2,334	m^2
Runoff coefficient=	0.47	
25mm WB volume=	58.36	m^3

Base Area (A) of Planter	146.2	m^2
Length of Swale	194.9	m
1st Gravel layer depth	0.30	m
Porosity of Gravel layer	40%	
Storage in voids of gravel layer	17.5	m^3
Filter Soil layer depth	0.50	m
Porosity ofsoil layer	30%	
Storage in voids of soil layer	17.5	m^3
Pea Gravel layer depth	0.10	m
Porosity of pea Gravel layer	40%	
Storage in voids of pea gravel layer	7.8	m^3
2nd Gravel layer depth	0.30	m
Porosity of Gravel layer	40%	
Storage in voids of pea gravel layer	23.4	m^3
Total depth of system	1.20	m
Total Storage	**66**	**m^3**

2. Drawdown Time

Solve using MOE 2003 SWM Planning and Design Manual equation 4.2:

$$d = \frac{PT}{1{,}000}$$

Assumed Percolation Rate of Native Soil (P)	5.4	mm/hr	Water depth in gravel layer	0.30	m
Drawdown Time (T)	48	hours	Percolation Rate of native soil(P)	5.4	mm/hr
Max. Allowable Depth (d) =	0.26	m	Drawdown Time	55.6	hr

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1.1 Water Balance (WB)

The proposed development should demonstrate that infiltration amount be maintained to the extent practicable, to achieve the same level of annual volume of infiltration under pre-development conditions.

1.1.1 Climate Water Budget

Data Source: Environment and Climate Change Canada
Data: Climate Normal (1981 ~ 2010)
Climate Station: Ottawa CDA
ID: 6105976 Latitude: 43°23'00" N
Elevation: 76.20 m Longitude: 75°43'00" W

1.1.1.1 Water Surplus

Thornthwaite (1948)

Month	Mean Temp. (°C)	Heat Index	Potential ET (mm)	Daylight Correction Value	Adjust Potential ET (mm)	Total Precipitation (mm)	Surplus (mm)	Deficit (mm)
Jan	-10.2	0.0	0.0	0.784	0.0	62.9	62.9	0.0
Feb	-7.9	0.0	0.0	0.879	0.0	49.7	49.7	0.0
Mar	-2.2	0.0	0.0	0.987	0.0	57.5	57.5	0.0
Apr	6.5	1.5	28.8	1.120	32.3	71.1	38.8	0.0
May	13.5	4.5	64.4	1.219	78.5	86.6	8.1	0.0
Jun	18.7	7.3	92.2	1.280	118.0	92.7	0.0	25.3
Jul	21.2	8.9	105.8	1.248	132.1	84.4	0.0	47.7
Aug	19.9	8.1	98.7	1.161	114.6	83.8	0.0	30.8
Sep	15.3	5.4	73.9	1.040	76.9	92.7	15.8	0.0
Oct	8.4	2.2	38.2	0.919	35.1	85.9	50.8	0.0
Nov	2	0.3	7.9	0.810	6.4	82.7	76.3	0.0
Dec	-5.6	0.0	0.0	0.735	0.0	69.5	69.5	0.0
Total		38.1			594.0	919.5	429.3	103.9

Annual Water Surplus = 325.5 mm

Relevant Equations Used for Calculations:

$$E = 16C\left(10\frac{T_{mi}}{I}\right)^{a}$$ https://en.wikipedia.org/wiki/Potential_evaporation

Where, E = Potential Evapotranspiration (mm)

C = Daylight Correction Value, taken from Table 6, Thornthwaite & Mather (1957)
It's obtained using the following equations if data are available.

$$C = (H/12)(D/30)$$

H = Average Daily Length (Hours) of the Month being Calculated.

D = Number of Days in the Month being Calculated.

T_{mi} = Average Monthly Temperature (°C)

a = an exponent derived from Heat Index (I) 1.10

$$a = 67.5 \times 10^{-8} I^3 - 77.1 \times 10^{-6} I^2 + 0.0179 I + 0.492$$

I = Heat Index

$$I = \sum_{i=1}^{12}\left(\frac{T_{mi}}{5}\right)^{1.51}$$ *for T_{mi} >0*

1.1.1.2 Total Moisture Surplus for Sandy Silt, Cultivated (200 mm Holding Capacity)

Thornthwaite and Mather (1957)

Month	P - PE (mm)	Accu. Potential Water Loss (mm)	Soil Moisture (mm)	Change in Soil Moisture (mm)	Actual ET (mm)	Moisture Deficit (mm)	Unadjusted Moisture Surplus (mm)
Jan	62.9	0.0	200.0	0.0	0.0	0.0	62.9
Feb	49.7	0.0	200.0	0.0	0.0	0.0	49.7
Mar	57.5	0.0	200.0	0.0	0.0	0.0	57.5
Apr	38.8	0.0	200.0	0.0	32.3	0.0	38.8
May	8.1	0.0	200.0	0.0	78.5	0.0	8.1
Jun	-25.3	-25.3	173.2	-26.8	119.5	-1.5	0.0
Jul	-47.7	-73.0	135.9	-37.3	121.7	10.4	0.0
Aug	-30.8	-103.9	118.8	-17.1	100.9	13.7	0.0
Sep	15.8	0.0	134.6	15.8	76.9	0.0	0.0
Oct	50.8	0.0	185.3	50.8	35.1	0.0	0.0
Nov	76.3	0.0	200.0	14.7	6.4	0.0	61.7
Dec	69.5	0.0	200.0	0.0	0.0	0.0	69.5
Total	325.5	-202.2	2147.8	0.0	571.4	22.6	**348.1**

1.1.1.3 Total Moisture Surplus for Sandy Silt, Urban Lawn (100 mm Holding Capacity)

Thornthwaite and Mather (1957)

Month	P - PE (mm)	Accu. Potential Water Loss (mm)	Soil Moisture (mm)	Change in Soil Moisture (mm)	Actual ET (mm)	Moisture Deficit (mm)	Unadjusted Moisture Surplus (mm)
Jan	62.9	0.0	100.0	0.0	0.0	0.0	62.9
Feb	49.7	0.0	100.0	0.0	0.0	0.0	49.7
Mar	57.5	0.0	100.0	0.0	0.0	0.0	57.5
Apr	38.8	0.0	100.0	0.0	32.3	0.0	38.8
May	8.1	0.0	100.0	0.0	78.5	0.0	8.1
Jun	-25.3	-25.3	74.8	-25.2	117.9	0.1	0.0
Jul	-47.7	-73.0	45.8	-29.0	113.4	18.8	0.0
Aug	-30.8	-103.9	33.9	-11.9	95.7	18.9	0.0
Sep	15.8	0.0	49.7	15.8	76.9	0.0	0.0
Oct	50.8	0.0	100.0	50.3	35.1	0.0	0.5
Nov	76.3	0.0	100.0	0.0	6.4	0.0	76.3
Dec	69.5	0.0	100.0	0.0	0.0	0.0	69.5
Total	325.5	-202.2	1004.1	0.0	556.3	37.7	**363.2**

1.1.1.4 Climate Based Water Budget Summary

Year of Climate Data	Total Precipitation (mm)	Total Adjusted PE (mm)	Total Water Surplus (mm)	Soil Type	Land Use	Water Holding Capacity (mm)	Total Actual ET (mm)	Total Moisture Surplus (mm)
1981 - 2010	919.5	594.0	325.5	Silty Sand	Cultivated	200	571.4	348.1
					Urban Lawn	100	556.3	363.2

1.2.1 Pre-development Site Wide Water Balance Analysis

Total Development Area = 10.61 ha

Total Imervious Area = 1.84 ha

Section 3.2.3 of Stormwater Management Planning & Design Manual (SWMPDM, MECP, 2003) gives a water balance example.

The MECP's SWMPD Manual offers a method to estimate the infiltration on the site, based on a local infiltration factor "i", which is applied to the available water surplus to determine the groundwater recharge for a given area with pervious cover. The methodology considers factors such as the soil type, topography, and vegetation to arrive at the infiltration factor that is then applied against the water surplus to provide an estimate of the amount of water infiltrating into the ground. The remaining water surplus is considered runoff.

According to website of Environment and Climate Change Canada, the mean annual precipitation at Oshawa WPCP is

919.5 mm

Under existing conditions, the site is used as agriculture purpose.
The soil beneath the top soil is sandy silt with HSG = B

Average Annual Precipitation	919.5	mm, or	97,585	m^3
Annual Evapotranspiration (Cultivated)	571.4	mm, or	50,113	m^3
Available Water Surplus (or excess of precipitation over evapotranspiration)	348.1	mm, or	30,531	m^3

Then, infiltration factors are used to determine the fraction of water surplus that infiltrates into the ground and the fraction that runs off the site. Infiltration factor is determined by summing a factor for topography, soil, and cover.

Table 3.1: Hydrologic Cycle Component Values

**This is the total infiltration of which some discharges back to the stream as base flow. The infiltration factor is determined by summing a factor for topography, soils and cover.*

Topography	Flat Land, average slope < 0.6 m/km	0.3
	Rolling Land, average slope 2.8 m to 3.8 m/km	0.2
	Hilly Land, average slope 28 m to 47 m/km	0.1
Soils	Tight impervious clay	0.1
	Medium combinations of clay and loam	0.2
	Open Sandy loam	0.4
Cover	Cultivated Land	0.1
	Woodland	0.2

Topography Factor	0.13	for slope = 2.0% or 20 m/km	
Soil Factor	0.30	for Silty Sand	
Cover	0.10	for cultivated lands	
Therefore, the infiltration factor is	0.53		

Therefore, the annual infiltration amount is	185.6	mm, or	16,275	m^3
and the annual runoff amount is	162.5	mm, or	14,256	m^3

	(%)	(mm)	(m^3)	*Comments/Assumptions:*
Infiltration	20.2	185.6	16,275	…
Evapotranspiration	62.1	571.4	50,113	…
Runoff	17.7	162.5	14,256	…
Precipitation	100	919.5	80,644	

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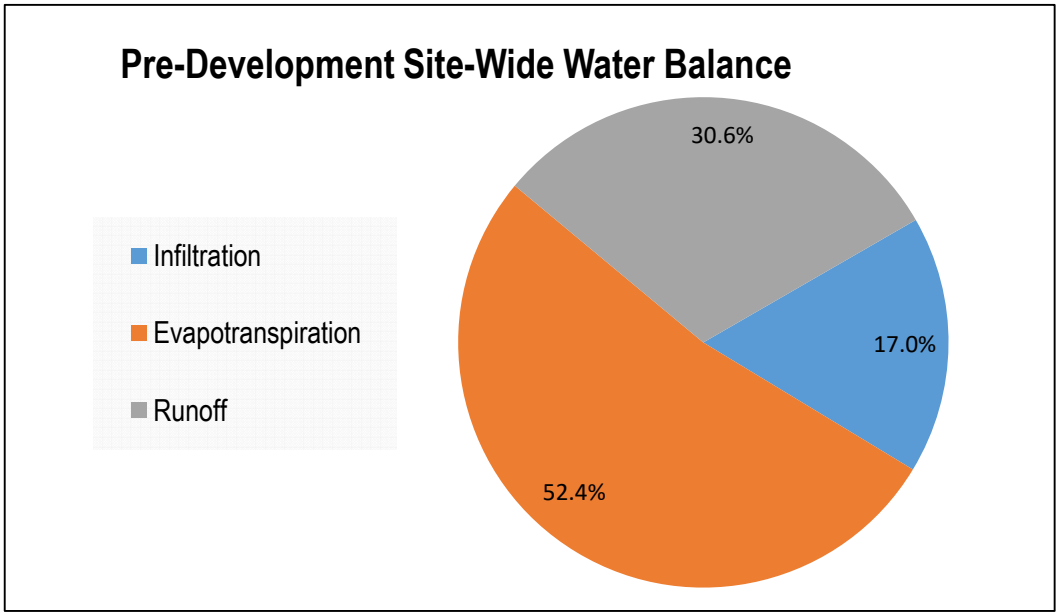
Impervious Area

	(%)	(mm)	(m^3)
Infiltration	0.0	0.0	0
Evapotranspiration	0.01	0.1	2
Runoff	99.99	919.4	16,939
Precipitation	100	919.5	16,941

Comments/Assumptions:

1.5 mm of rainfall (equivalent to 0.01% annual volume) is lost to initial abstraction/evaporation

Hydrologic Cycle Components	Impervious Area	Pervious Area	Site-Wide Water Balance		
			mm	%	m^3
% Land-Use Coverage	15.7%	84.3%	100.0%		
Infiltration	0.0	185.6	156.4	17.0%	16,597
Evapotranspiration	0.1	571.4	481.6	52.4%	51,107
Runoff	919.4	162.5	281.6	30.6%	29,881
Precipitation	919.5	919.5	919.5	100.0%	97,585



1.3.1 Post-development Site Wide Water Balance Analysis _ without Mitigation Measures

Water balance analysis for post-development conditions without mitigation measures is carried out to evaluate the impacts due to the proposed development.

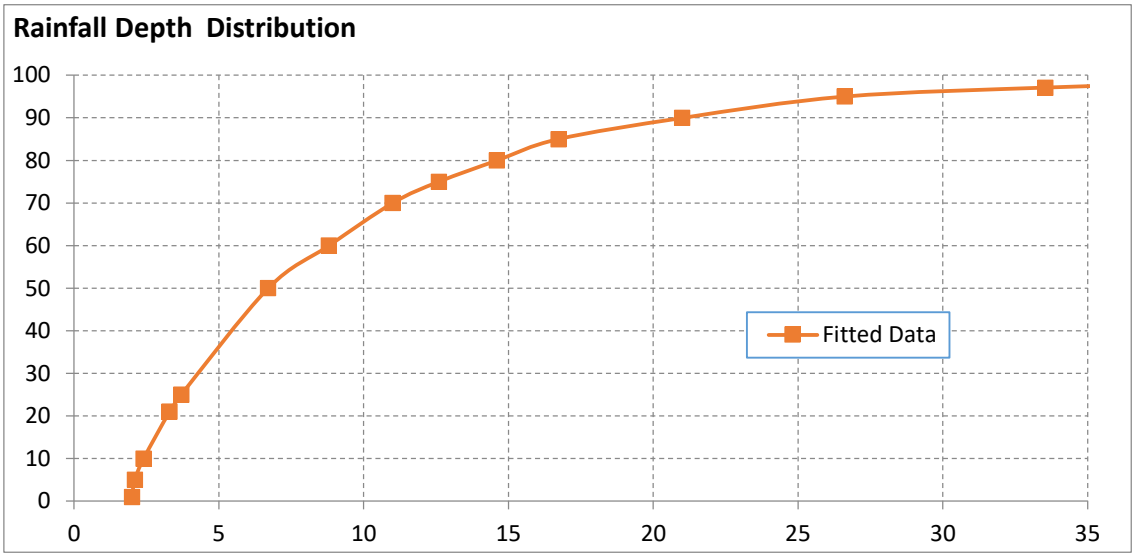
Water Balance for pervious areas follows the procedure illustrated in the WB analysis for pre-development conditions.

1.3.1.1 Proposed Development

Sub- Catchment	Drainage Area (ha)	Imperviousness (%)	Impervious Area (ha)
100	3.019	80.7	2.437
200	3.080	37.2	1.144
300	4.514	61.1	2.760
Total	10.613	59.7	6.341

1.3.1.2 Water Balance Relationship for the Impervious Area

6.341 ha, or 59.7%



	(%)	(mm)	(m^3)	*Comments/Assumptions:*
Infiltration	0.0	0.0	0	...
Evapotranspiration	0.01	0.1	6	
Runoff	99.99	919.4	58,300	...
Precipitation	100.0	919.5	58,306	

1.3.1.3 Water Balance Relationship for the Pervious Area

Under proposed conditions, the site pervious area is urban lawn and sparse trees.

4.272 ha, or 40.3%

The soil beneath the top soil is sandy silt with HSG = B

Average Annual Precipitation	919.5	mm, or	39,279	m^3
Annual Evapotranspiration (Urban Lawn)	556.3	mm, or	23,763	m^3
Available Water Surplus (or excess of precipitation over evapotranspiration)				
	363.2	mm, or	15,516	m^3

Then, infiltration factors are used to determine the fraction of water surplus that infiltrates into the ground and the fraction that runs off the site. Infiltration factor is determined by summing a factor for topography, soil, and cover.

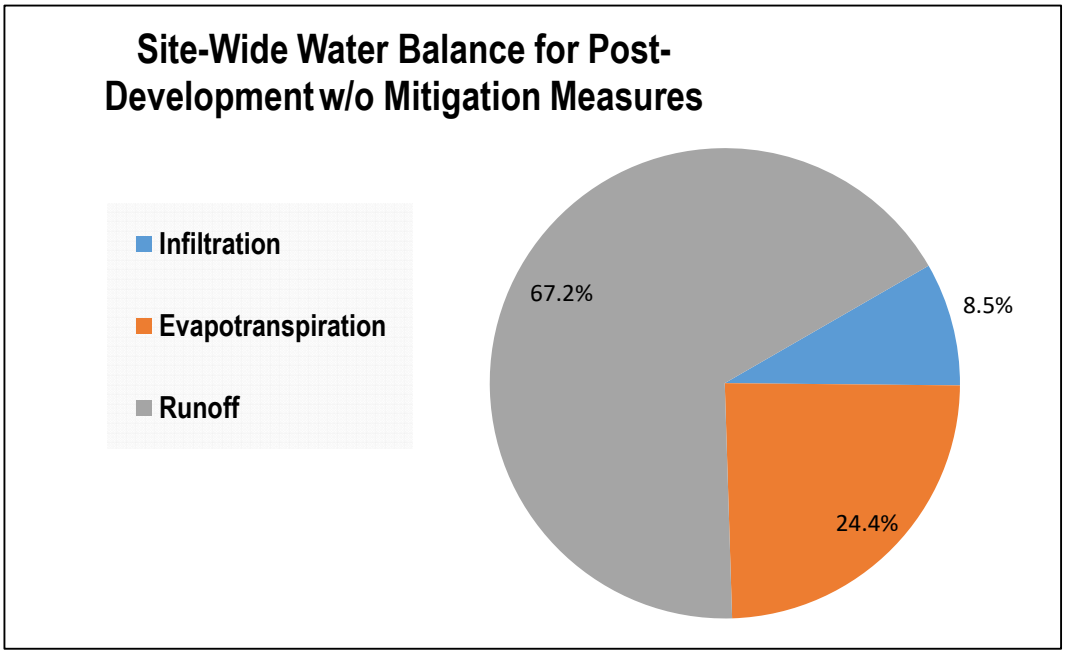
Topography Factor	0.13	for slope = 2.0% or 20 m/km
Soil Factor	0.30	for Sandy Silt
Cover	0.10	for Urban Lawn (Cultivated)
Therefore, the infiltration factor is	0.53	

Therefore, the annual infiltration amount is	193.6	mm, or	8,271	m^3
and the annual runoff amount is	169.6	mm, or	7,245	m^3

	(%)	(mm)	(m^3)	*Comments/Assumptions:*
Infiltration	21.1	193.6	8,271	…
Evapotranspiration	60.5	556.3	23,763	…
Runoff	18.4	169.6	7,245	…
Precipitation	100.0	919.5	39,279	

1.3.1.4 Site Wide Water Balance Relationship _ Post-development without Mitigation Measures

Hydrologic Cycle Components	Impervious Area	Pervious Area	Site-Wide Water Balance		
			mm	%	m^3
% Land-Use Coverage	59.7%	40.3%	100.0%		
Infiltration	0.0	193.6	77.9	8.5%	8,271
Evapotranspiration	0.1	556.3	224.0	24.4%	23,768
Runoff	919.4	169.6	617.6	67.2%	65,545
Precipitation	919.5	919.5	919.5	100.0%	97,585



1.3.2 Post-development Site Wide Water Balance Analysis

LID measures shall be incorporated into the site plan to enhance infiltration.

1.3.2.1 Water Balance Strategies

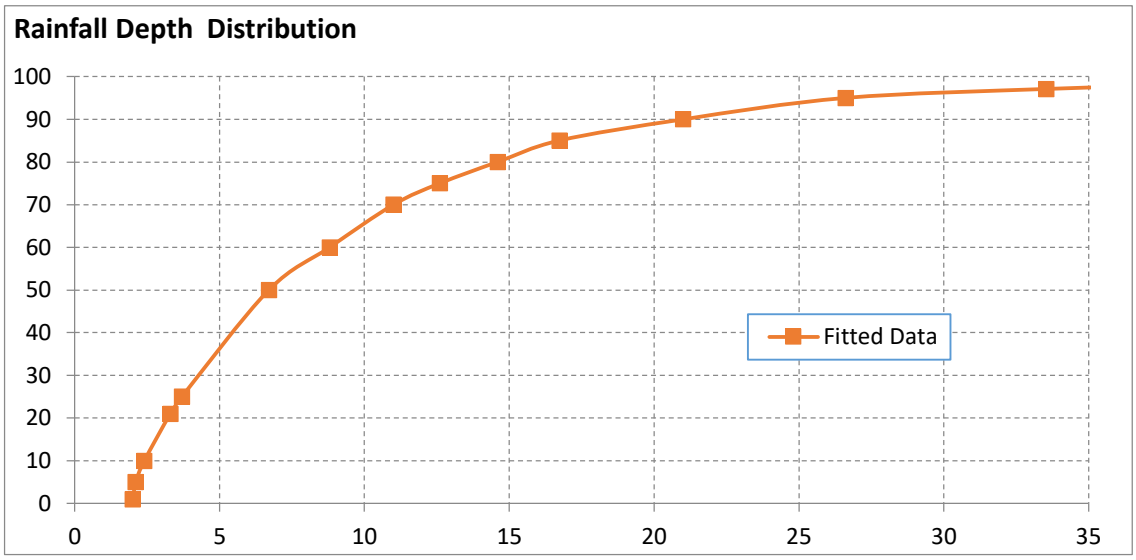
Runoff from the catchment 100 - rooftop of buildings, shall be directed to an underground chamber system for reuse.

1.3.2.2 Water Balance Analysis Assumption

The following assumptions are applied in the analysis.

1) Water balance analysis for pervious areas shall follow the method used in the analysis for pre-development conditions.

Figure below presents the relationship of the % of the total annual rainfall depth vs. the daily rainfall amounts. This relationship will be used to conduct the water balance analysis for the subject site from an annual basis.



1.3.2.3 Proposed Development

Sub- Catchment	Drainage Area (ha)	Imperviousness (%)	Impervious Area (ha)
100	1.903	100.0	1.903
101	0.175	45.0	0.079
102	0.941	45.0	0.423
200	3.080	37.2	1.144
300	4.514	61.1	2.760
Total	10.613	59.5	6.309

1.3.2.3.5 Configuration of Reuse Storage

Underground storage System shall provide storage volume for reuse for runoff from rooftop of the buildings

Storage Volume provided below the invert of outlet pipe 844.2 m^3

Chamber Facility	Drainage Catchment	Total Area (ha)	Impervious Area (ha)	Rainfall Depth (mm)	ET (mm)	Runoff Depth (mm)	Retention Volume (m^3)	Equivalent Precipitation (%)
201-204	100	1.903	1.903	44.4	0.0	44.4	844.2	100.0

1.3.2.4 Proposed LID storage

Infiltration Facility	Drainage Catchment	Total Area (ha)	Impervious Area (ha)	Rainfall Depth (mm)	ET (mm)	Runoff Depth (mm)	Retention Volume (m^3)	Equivalent Precipitation (%)
LID	200	3.080	1.144	53.6	0.0	53.6	613.0	107.0

1.3.2.5 Proposed Site Plan _ Area Breakdown

Area #	*Description of Land Use & Drainage*	*Reuse*	*Area (ha)*	*Coverage (%)*
1	Impervious Surface, Rooftop of Buildings	Irrigation	1.903	17.9%
2	Pervious Surface, Intensive Greenroof	Green Roof	0.175	1.7%
3	Pervious Surface, Extensive Greenroof	Green Roof	0.941	8.9%
4	At-Grade Impervious Surfaces, to LID	LID	1.144	10.8%
5	At-Grade Impervious Surfaces, no LID	NA	2.760	26.0%
6	All Pervious Surfaces	NA	3.689	34.8%
Total Site Area			10.613	100.0%

1.3.2.7 Define Individual Water Balance Relationships for Each Surface Type:

1.3.2.7.1 Impervious Area to Underground Storage for irrgation

	(%)	(mm)	(m^3)
Infiltration	21.1	193.6	3,685
Evapotranspiration	60.5	556.3	10,586
Runoff	18.4	169.6	3,228
Precipitation	100	919.5	17,498

Comments/Assumptions:

Apply pervious area relationship to 98% of area

…

1.3.2.7.2 Intensive Green Roof

	(%)	(mm)	(m^3)
Infiltration	0.0	0.0	0
Evapotranspiration	93.6	860.3	1,508
Runoff	6.4	59.2	104
Precipitation	100	919.5	1,612

Comments/Assumptions:

Intensive Green Roof can abstract first 25 mm

…

1.3.2.7.2 Extensive Green Roof

	(%)	(mm)	(m^3)
Infiltration	0.0	0.0	0
Evapotranspiration	65.5	601.9	5,663
Runoff	34.5	317.6	2,989
Precipitation	100	919.5	8,652

Comments/Assumptions:

Extensive Green Roof can abstract first 10 mm

…

1.3.2.7.2 Impervious Area to LID

	(%)	(mm)	(m^3)
Infiltration	93.56	860.3	9,845
Evapotranspiration	0.01	0.1	1
Runoff	6.43	59.1	677
Precipitation	100	919.5	10,523

Comments/Assumptions:

LIDs sized to retain 25 mm of rainfall
1.5 mm of rainfall (equivalent to 0.01% annual volume) is lost to initial abstraction/evaporation

1.3.2.7.3 Impervious Area without LID Measures

	(%)	(mm)	(m^3)
Infiltration	0.0	0.0	0
Evapotranspiration	0.01	0.1	1
Runoff	99.99	919.4	25,373
Precipitation	100	919.5	25,376

Comments/Assumptions:

1.5 mm of rainfall (equivalent to 3.75% annual volume) is lost to initial abstraction/evaporation

1.3.2.7.4 All Pervious Area

Refer to Section 1.3.1.3

	(%)	(mm)	(m^3)
Infiltration	21.1	193.6	7,144
Evapotranspiration	60.5	556.3	6,366
Runoff	18.4	169.6	1,941
Precipitation	100	919.5	10,523

Comments/Assumptions:

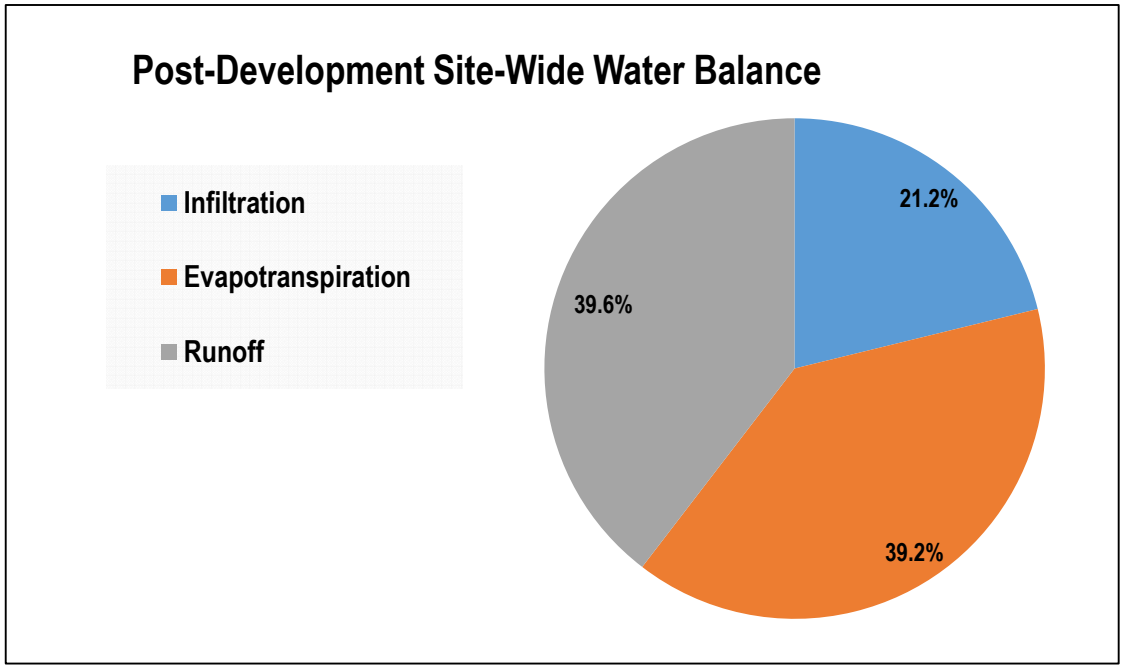
…
…
…

1.3.2.8 Site Wide Water Balance Relationship _ Post-development Conditions with Mitigation Measures

Hydrologic Cycle Components	Impervious Surface, Rooftop of Buildings	Pervious Surface, Intensive Greenroof	Pervious Surface, Extensive Greenroof
% Land-Use Coverage	17.9%	1.7%	8.9%
Infiltration (mm)	193.6	0.0	0.0
Evapotranspiration (mm)	556.3	860.3	601.9
Runoff (mm)	169.6	59.2	317.6
Precipitation (mm)	919.5	919.5	919.5

Hydrologic Cycle Components	At-Grade Impervious Surfaces, to LID	At-Grade Impervious Surfaces, no LID	Pervious Surface
% Land-Use Coverage	10.8%	26.0%	34.8%
Infiltration	860.3	0.0	193.6
Evapotranspiration	0.1	0.1	556.3
Runoff	59.1	919.4	169.6
Precipitation	919.5	919.5	919.5

Hydrologic Cycle Components	Site-Wide Water Balance Relationship		
	mm	%	m^3
% Land-Use Coverage	100.0%		
Infiltration	194.8	21.2%	20,673
Evapotranspiration	360.7	39.2%	38,284
Runoff	364.0	39.6%	38,628
Precipitation	919.5	100.0%	97,585



1.3.2.9 Post-development vs Pre-Development Water Balance

Hydrologic Cycle Components	Pre-Development Conditions		Post-Dev. Conditions with Mitigation Measures		Difference	
	%	m^3	%	m^3	m^3	%
Infiltration	17.0%	16,597	21.2%	20,673	4,076	24.6%
Evapotranspiration	52.4%	51,107	39.2%	38,284	-12,823	-25.1%
Runoff	30.6%	29,881	39.6%	38,628	8,747	29.3%
Precipitation	100.0%	97,585	100%	97,585	0	0.0%

APPENDIX K: DRAFT SALT MANAGEMENT PLAN

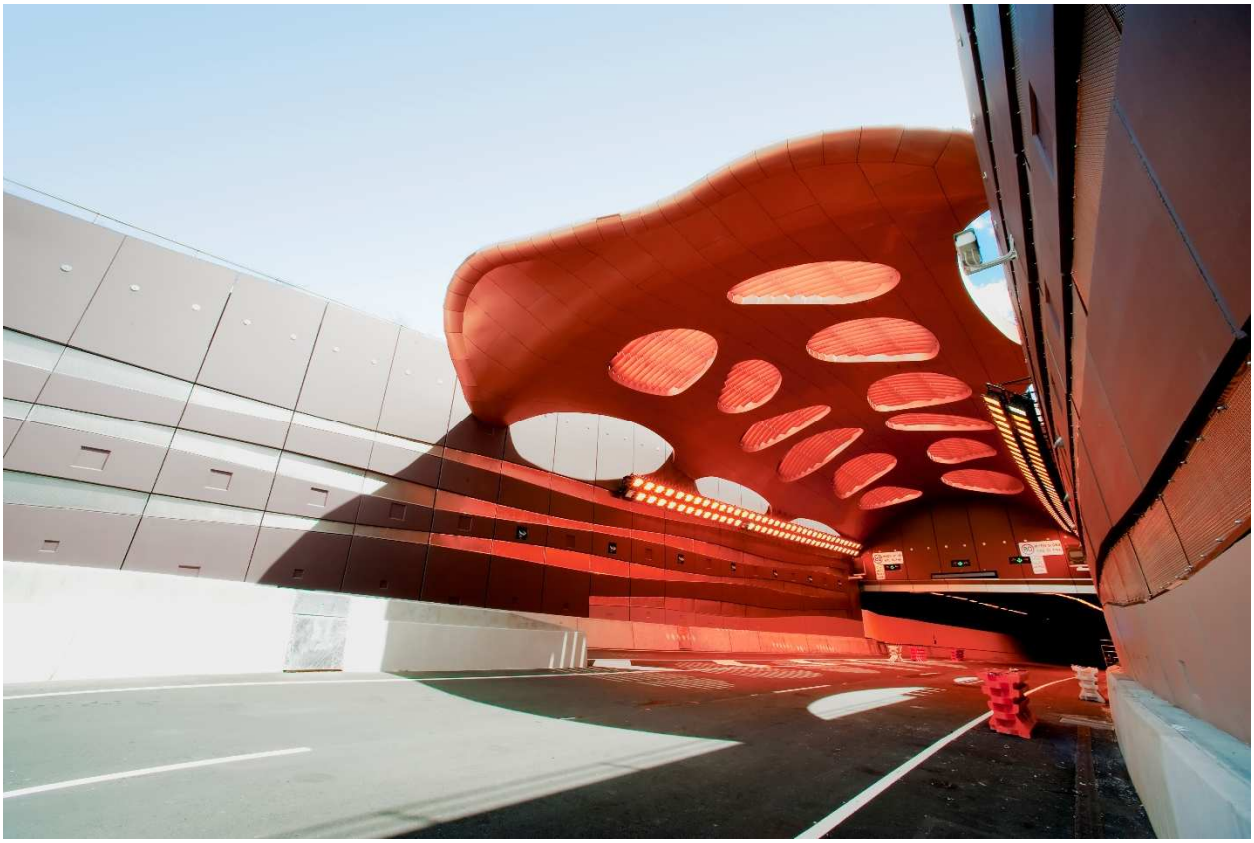
THE OTTAWA HOSPITAL

NEW CAMPUS DEVELOPMENT FOR THE OTTAWA HOSPITAL

SALT MANAGEMENT PLAN

JANUARY 09, 2025

DRAFT



NEW CAMPUS DEVELOPMENT FOR OTTAWA HOSPITAL

THE OTTAWA HOSPITAL

DRAFT

PROJECT NO.: CA0010209.4580
DATE: JANUARY 2025

WSP
150 COMMERCE VALLEY DRIVE WEST
THORNHILL, ON
CANADA L3T 7Z3

T: +1 905 882-1100
F: +1 905 882-0055
WWW.WSP.COM

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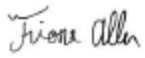
Signature			
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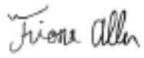
SIGNATURES

PREPARED BY



Fiona Allen, EIT
Designer, Water Resources

APPROVED[1] BY

Alyssa Mohino-Barrie, P.Eng.
Senior Project Manager, Water Resources

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PRODUCTION TEAM

CLIENT

The Ottawa Hospital

WSP

Experienced Engineer	Fiona Allen, P.Eng.
Manager	Alyssa Mohino-Barrie, P.Eng.

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TABLES

NO TABLE OF FIGURES ENTRIES FOUND.

FIGURES

NO TABLE OF FIGURES ENTRIES FOUND.

APPENDICES

1 INTRODUCTION

1.1 DISCLAIMER

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The purpose of this document is to provide guidelines to manage salt use on site and reduce the impact of salt on the proposed stormwater management (SWM) facilities within the site and the receiving water way.

Recommendations were taken from the 2013 Syntheses of Best Practices Road Salt Management issued by Transportation Association of Canada (TAC) and the 2017 Parking Lot Design Guidelines to Promote salt Reduction by the Lake Simcoe Region Conservation Authority (LSRCA) and further details may be found within these reference documents.

1.2 SITE LOCATION

The New Civic Campus is approximately a 20-hectare development located at 930 and 850 Carling Avenue, occurring at the intersection of Preston Street Carling Avenue, adjacent to Dow's Lake, in the heart of the National Capital Region. The design of the Main Hospital Building (Phase 3) is the responsibility of WSP. The site is approximately 10 ha in area and is comprised of roof top surfaces, parking lots and roads.

1.3 SWM INFRASTRUCTURE OVERVIEW

The stormwater management plan contains the following elements as part of the control strategy:

- 4 underground storage systems to collected and control runoff of the roof of the main hospital building.
- 3 underground storage systems to collected and control runoff from parking lots and roads.
- Swales to collect and convey major overland flow
- bioretention facilities have been proposed within the landscaped areas to filter stormwater and retain runoff volume. These areas are to be confirmed
- Permeable paving area with storage bedding and underdrains to filter, store, and infiltrate stormwater. These areas are to be confirmed
- An Oil and Grit Separator (OGS) to treat runoff before discharging runoff to Dow's Lake

2 DESIGN RECOMMENDATIONS

2.1 PARKING LOT

Below is a list of recommendations which can be utilized in the parking lot design to reduce salting.

- Include designated areas for snow storage and show them on the civil grading plan/servicing plans. Refer to LSRCA Salt Reduction “Snow Pile storage location and design” for additional details.
- In parking areas slopes of 2 to 4% are recommended, where possible, to minimize the potential depressions which result in the pooling of runoff and formation of ice which results in increased need for salting.
- Grading should direct runoff towards collection systems such as catchbasins and LIDs and away from building entrances and high traffic walkways.
- Target drainage area of 1,000 - 2,000 m^2 to each catchbasin and collection features to be laid out minimizing the distance meltwater travels before being removed from the parking lot surface.
- Catch basin filters should typically be inspected three to four times annually and cleaned or replaced every one to two years, when sediment buildup reduces permeability.
- OGS should be vacuum-cleaned or dredged every one to two years when sediment accumulation occupies 25% of sump. Inspections should be performed every 1 to 2 years and look for chloride buildup.

2.2 LOW IMPACT DEVELOPMENT AND LANDSCAPE

Low impact development (LID) can be effective way to reduce salt loadings in runoff as they use natural means, including vegetation and engineered soil, to treat stormwater by filtering out contaminants commonly found in runoff. Below is a list of recommendations which can be utilized in the design of the LIDs to reducing salting.

- Curb cuts can be installed to direct runoff from the parking lot into landscaped features
- Salt tolerant plants should be used in areas which will accept runoff from parking lots and walkways.
- Pretreatment is recommended to treat runoff before entering LIDs. This can include a strip of rip rap, this reduces erosion and captures the initial runoff which has the highest salt loadings.

APPENDIX L: BOUNDARY CONDITIONS

Curley, Liam

From: Steele, Matt <Matt.Steele@ottawa.ca>
Sent: April 23, 2025 10:44 AM
To: Curley, Liam
Cc: Graham, Colin; Shillington, Jeffrey; Moore, Sean; Evans, Allan
Subject: Re: TOH Boundary Conditions Request

Hi Liam,

The boundary conditions provided in the attached are still relevant.

Matt

Matt Steele, P.Eng.
Senior Water Resources Engineer
Infrastructure and Water Services
City of Ottawa
P: 613-580-2424 Ext. 16024

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

---

From: Curley, Liam <Liam.Curley@wsp.com>
Sent: Wednesday, April 23, 2025 9:18 AM
To: Steele, Matt <Matt.Steele@ottawa.ca>
Cc: Graham, Colin <colin.graham@wsp.com>; Shillington, Jeffrey <jeff.shillington@ottawa.ca>; Moore, Sean <Sean.Moore@ottawa.ca>; Evans, Allan <Allan.Evans@ottawa.ca>
Subject: TOH Boundary Conditions Request

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Hi Matt,

We have taken control of the watermain model for the TOH project and we had received the boundary conditions through the Parsons report, received by them 2022-05-17. We are just looking to request updated boundary conditions to confirm if they have remained the same or have changed since the original request that was made by Parsons. I found your emails through their report however I'm not sure if this is something I can coordinate with you or if not if you could forward this on to the relevant people or point me in the direction of the person I should talk to in order to get this closed out.

Liam Curley
Designer EIT

T +1 (613) 791-9352

WSP
2611 Queensview Drive, Suite 300
Ottawa, Ontario
K2B 8K2 Canada

wsp.com

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APPENDIX M: PRECONSULTATION MINUTES

To be included with final submission

APPENDIX N: CATCH BASIN CALCULATIONS

CATCH BASIN CALCULATION SHEET

NCD - Hospital

Designed by: Liam Hill
Checked by: Liam Curley
Approved by: Colin Graham
Drawing Ref: C1-200THRU204 and C5-200THRU204

Rainfall

2 year i =732.951 (tc + 6.199)^ -0.810 at tc=10 min; i = 77 mm/hr
5 year i =998.071 (tc + 6.053)^ -0.814 at tc=10 min; i = 104 mm/hr
10 year i =1174.184 (tc + 6.014)^ -0.816 at tc=10 min; i = 122 mm/hr
100 year i = 1735.688 (tc + 6.014)^-0.820 at tc=10 min; i = 179 mm/hr
Q = 0.375 * So^(0.5) * d^2.667/(n*Sx) (ref: Modified Manning Equation)

Catch basin **2FB = Double Surface Inlet OPSD 400.01**

CI = Curb Inlet - Type S22
With local gutter depression
No ponding

FB = Surface Inlet OPSD 400.01
Dished Herringbone Grate - square cover
No ponding

2CI = Double Curb Inlet - Type S22
With local gutter depression
No ponding

Capture for CI

Q capture = a * b^(1/x) * x^c

Where:	So = 1%	So = 2%	Reduction factor for variable cross fall	
a =	0.060000	0.049624	Sx = 3.0 %	Rf = 1.0
b =	0.999000	0.999149	Sx = 2.0 %	Rf = 0.8
c =	0.470000	0.475954	Sx = 1.0 %	Rf = 0.6

Spread Criteria

For Urban Cross-Sections
- 5 Yr Minor Storm; No barrier curb overHPping.
- Allowable depth of flooding is half of the adjacent through lane
- Catchbasin spacing determined using an inlet time of 5 min.
- 100 Yr Major Storm, max allowable depth for ponding shall be 300mm at edge of pavement
- For depressed sections, max allowable depth for 25 yr storm is 100mm on the adjacent through lane
- At stations pavement CBs shall be adequate to allow no more than 1.25m of horizontal encroachment on a through lane during a 5 yr event

Capture for Surface Inlet

Q <= y, capture = Q
Q > y, capture = min(Q, b*(Q-a)^c

Storm Event **100**

CB Count

CI	21
2CI	3
FB	49
2FB	11
Total	**76**

Sag Analysis

Ref: Appendix 7-A Type S22 Curb Inlet Catch Basin, Ottawa Sewer Guidelines

Sx = 1%	$d = 0.1858*Q^{0.3424}$
Sx = 2%	$d = 0.156*Q^{0.3179}$
Sx = 3%	$d = 0.136*Q^{0.3059}$
Sx = 4%	$d = 0.1245*Q^{0.2989}$

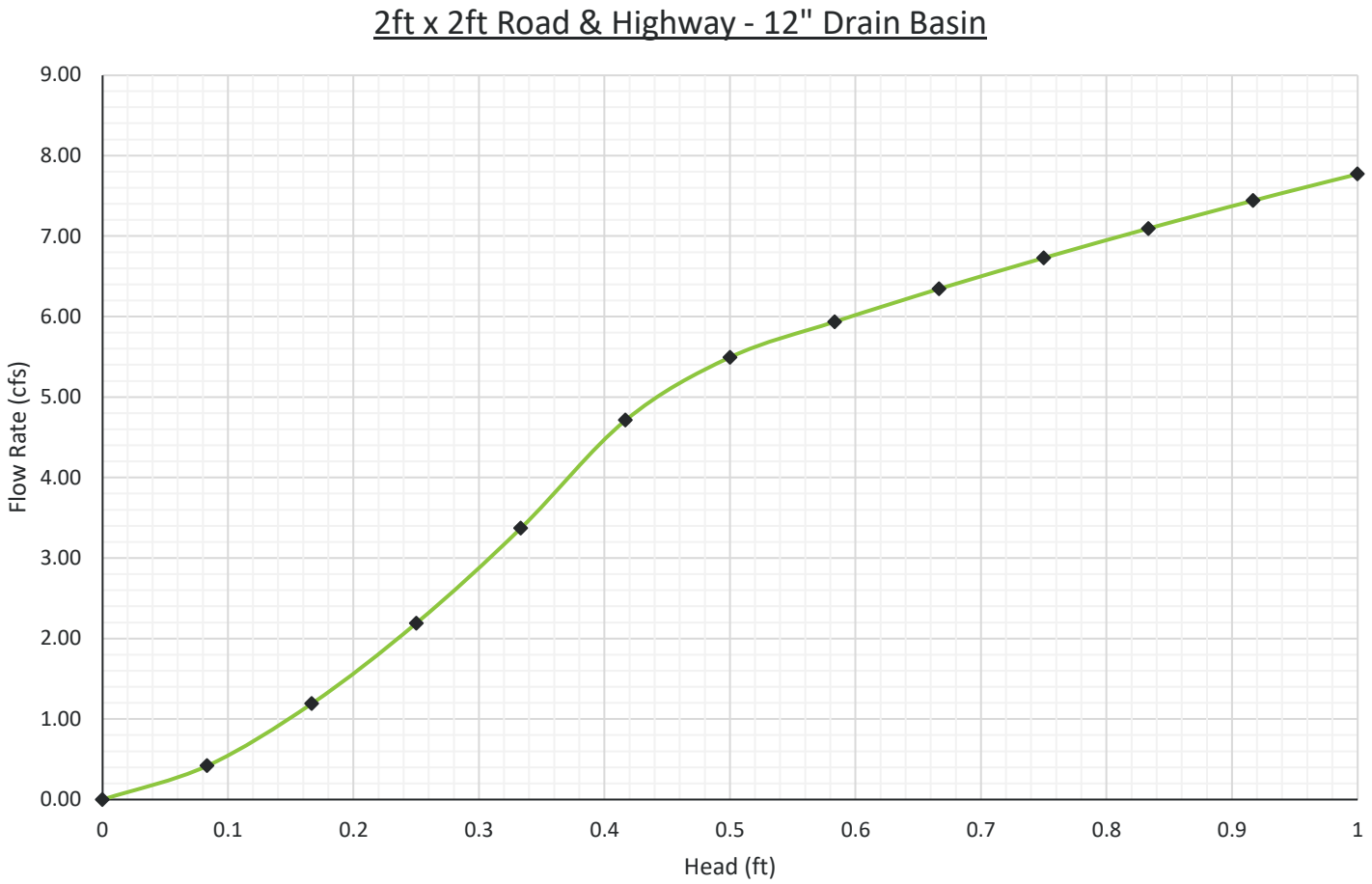
From	To	Allow. Spread	Sx	So	Coeffiecent	Area	Increm. Q	Total Q	Depth	Inlet type	Spread	Capture	Carry Over	Remarks	Comments
		m	%	%		ha	m³/s	m³/s	m		m	m³/s	m³/s		
ROAD D															
HP	CB 43	2.00	2.0	5.0	0.68	0.042	0.014	0.014	0.023	FB	**1.2**	0.010	0.004	OK	
CB 43	CB 45	2.00	2.0	5.0	0.64	0.023	0.007	0.011	0.021	FB	**1.1**	0.009	0.002	OK	
CB 45	CB 46	2.00	2.0	5.0	0.74	0.018	0.007	0.009	0.020	CI	**1.0**	0.004	0.005	OK	
CB46	CB 48	2.00	2.0	5.0	0.74	0.019	0.007	0.012	0.022	CI	**1.1**	0.004	0.008	OK	
CB48	CB 50	2.00	2.0	5.0	0.74	0.019	0.007	0.015	0.024	CI	**1.2**	0.005	0.010	OK	
CB50	CB 52	2.00	2.0	5.0	0.74	0.013	0.005	0.015	0.024	CI	**1.2**	0.005	0.010	OK	
CB52	CB 54	2.00	2.0	5.0	0.75	0.013	0.005	0.015	0.024	CI	**1.2**	0.005	0.010	OK	
HP	CB 42	2.00	2.0	5.0	0.90	0.018	0.008	0.008	0.019	FB	**0.9**	0.007	0.001	OK	
CB 42	CB 44	2.00	2.0	5.0	0.90	0.009	0.004	0.005	0.016	FB	**0.8**	0.005	0.001	OK	
HP	CB 47	2.00	2.0	5.0	0.90	0.009	0.004	0.004	0.014	CI	**0.7**	0.002	0.002	OK	
CB 47	CB 49	2.00	2.0	5.0	0.90	0.004	0.002	0.004	0.014	2CI	**0.7**	0.004	0.000	OK	
CB 49	CB 51	2.00	2.0	5.0	0.90	0.004	0.002	0.002	0.011	CI	**0.5**	0.001	0.001	OK	
CB 51	CB 53	2.00	2.0	5.0	0.90	0.004	0.002	0.002	0.012	CI	**0.6**	0.002	0.001	OK	
CB 53	CB 55	2.00	2.0	5.0	0.90	0.004	0.002	0.003	0.013	2CI	**0.6**	0.003	0.000	OK	
CB 54	CB 56	2.00	2.0	2.5	0.90	0.014	0.006	0.016	0.028	FB	**1.4**	0.012	0.005	OK	
CB 56	CB 58	2.00	2.0	2.5	0.90	0.024	0.011	0.016	0.027	FB	**1.4**	0.011	0.004	OK	
CB 58	CB 104	2.00	2.0	2.0	0.90	0.024	0.011	0.015	0.028	FB	**1.4**	0.011	0.004	OK	
CB 104	CB 59	4.50	1.3	1.0	0.90	0.033	0.015	0.019	0.030	FB	**2.3**	0.013	0.006	OK	
CB 59	CB 114	4.50	1.2	1.5	0.90	0.027	0.012	0.018	0.026	FB	**2.2**	0.012	0.006	OK	
CB 55	CBMH 57	N/A	2.0	3.0	0.90	0.014	0.006	0.006	0.019	FB	**1.0**	0.006	0.001	N/A	CB in landscaped infiltration area
CBMH 57	CB 61	N/A	1.0	2.0	0.90	0.076	0.034	0.035	0.030	FB	**3.0**	0.019	0.015	N/A	CB in landscaped infiltration area
HP	CB 62	N/A	2.0	0.5	0.90	0.073	0.033	0.033	0.049	FB	**2.4**	0.019	0.014	N/A	CB in landscaped infiltration area
HP	CB 98	N/A	1.0	2.0	0.77	0.433	0.166	0.166	0.054	FB	**5.4**	0.052	0.114	N/A	CB in landscaped infiltration area
HP	CB 65	2.00	2.5	0.5	0.9	0.018	0.008	0.008	0.031	FB	**1.3**	0.007	0.001	OK	
ROAD E - WEST															
CB 44	CB 71	2.00	2.0	3.5	0.9	0.013	0.006	0.006	0.018	FB	**0.9**	0.005	0.001	OK	
HP	CB 75	2.00	2.0	3.5	0.9	0.010	0.004	0.004	0.016	CI	**0.8**	0.002	0.002	OK	
HP	CB 77	2.00	5.0	1.4	0.9	0.055	0.024	0.024	0.051	2FB	**1.0**	0.037	0.000	OK	
CB 75	CB 69	2.00	2.0	3.5	0.9	0.013	0.006	0.008	0.020	CI	**1.0**	0.003	0.004	OK	
CB 77	CB 76	2.00	1.5	3.5	0.9	0.007	0.003	0.003	0.012	FB	**0.8**	0.003	0.000	OK	
CB 69	CB 74	2.00	2.0	3.5	0.9	0.006	0.003	0.007	0.019	CI	**1.0**	0.003	0.004	OK	
CB 76	CB 80	2.00	2.0	3.7	0.9	0.006	0.002	0.002	0.013	FB	**0.6**	0.002	0.000	OK	
CB 74	CB 79	2.00	1.5	3.7	0.9	0.005	0.002	0.006	0.016	2FB	**1.1**	0.011	0.000	OK	
CB 80/79	CB 81	2.00	1.0	1.4	0.9	0.013	0.006	0.006	0.016	2FB	**1.6**	0.012	0.000	OK	
CB 81	CB 83	2.00	1.0	1.0	0.9	0.004	0.002	0.002	0.011	CI	**1.1**	0.001	0.001	OK	
CB 83	CB 82	2.00	1.0	1.1	0.9	0.009	0.004	0.005	0.016	2CI	**1.6**	0.005	0.000	OK	
CB 82	CBMH 89	2.00	1.0	2.9	0.9	0.022	0.010	0.010	0.017	2FB	**1.7**	0.016	0.000	OK	
CBMH 89	CB 92	2.50	1.2	2.9	0.9	0.055	0.025	0.035	0.030	2FB	**2.5**	0.040	0.000	OK	
CB 92	CB 94	2.50	1.0	1.0	0.9	0.030	0.013	0.013	0.024	2FB	**2.4**	0.035	0.000	OK	
CB 94	CB 93	2.00	2.6	0.5	0.9	0.043	0.019	0.019	0.044	2FB	**1.7**	0.037	0.000	OK	
CB 93	CB 107	2.00	2.5	1.2	0.9	0.053	0.024	0.024	0.040	2FB	**1.6**	0.040	0.000	OK	
CB 107	CB 100	2.00	2.9	0.4	0.9	0.017	0.008	0.008	0.034	2FB	**1.2**	0.031	0.000	OK	
CB 100	DICB 9	N/A	1.6	1.3	0.9	0.062	0.028	0.028	0.035	FB	**2.2**	0.017	0.011	N/A	CB in landscaped area
HP	CB 87	2.00	2.0	5.0	0.9	0.066	0.029	0.029	0.031	FB	**1.5**	0.017	0.012	OK	
CB 87	CB 91	2.00	2.3	1.6	0.9	0.033	0.015	0.027	0.038	FB	**1.7**	0.016	0.011	OK	
ROAD E - EAST															
HP	CB 85	2.00	2.1	3.8	0.9	0.014	0.006	0.006	0.019	FB	**0.9**	0.006	0.001	OK	
HP	CB 84	2.00	1.9	3.8	0.9	0.020	0.009	0.009	0.020	FB	**1.1**	0.007	0.002	OK	
CB 85	CB 90	2.00	2.0	3.2	0.9	0.010	0.005	0.005	0.018	2FB	**0.9**	0.009	0.000	OK	
CB 84/90	CB 88	2.00	1.8	4.2	0.9	0.027	0.012	0.014	0.023	FB	**1.3**	0.010	0.003	OK	
CB 88	CB 96	2.00	2.1	4.3	0.9	0.033	0.015	0.018	0.027	FB	**1.3**	0.013	0.006	OK	
CB 96	CB 97	2.00	1.9	3.8	0.9	0.018	0.008	0.014	0.024	CI	**1.2**	0.004	0.009	OK	
CB 97	CB 101	2.00	1.6	4.5	0.9	0.012	0.005	0.014	0.022	CI	**1.4**	0.005	0.010	OK	
CB 97	CB 102	2.00	1.8	3.8	0.9	0.014	0.006	0.011	0.021	FB	**1.2**	0.009	0.002	OK	
CB 102	CB 106	2.00	2.0	3.6	0.9	0.011	0.005	0.007	0.019	2FB	**1.0**	0.012	0.000	OK	
CB 101	CB 103	2.00	2.0	3.8	0.9	0.015	0.007	0.016	0.026	CI	**1.3**	0.005	0.012	OK	
CB 103/106	CB 105	2.00	2.0	3.8	0.9	0.011	0.005	0.017	0.026	CI	**1.3**	0.005	0.012	OK	
ROAD E - PARKING LOT															
HP	CBMH 105	2.00	1.5	1.5	0.9	0.052	0.023	0.023	0.031	FB	**2.1**	0.000	0.023	SPACING!	
HP	CB 99	2.00	2.0	2.0	0.9	0.116	0.052	0.052	0.045	FB	**2.2**	0.000	0.052	SPACING!	
HP	CBMH 104	2.00	2.0	2.0	0.9	0.008	0.003	0.003	0.016	FB	**0.8**	0.000	0.003	OK	
HP	CB 95	N/A	2.0	2.0	0.9	0.114	0.051	0.051	0.045	FB	**2.2**	0.000	0.051	N/A	CB in landscaped area
HP	CBMH 101	2.00	2.0	2.0	0.9	0.105	0.047	0.047	0.043	FB	**2.2**	0.000	0.047	SPACING!	
HP	CBMH 103	2.00	2.0	2.0	0.9	0.021	0.009	0.009	0.024	FB	**1.2**	0.000	0.009	OK	
FOH - WEST															
HP	CB 255	2.00	1.0	6.0	0.9	0.023	0.010	0.010	0.015	FB	**1.5**	0.008	0.002	OK	
CB 255	CB 64	2.50	1.0	6.0	0.9	0.052	0.023	0.025	0.022	FB	**2.2**	0.016	0.010	OK	
CB 64	CBMH 67	2.00	1.0	6.0	0.9	0.014	0.006	0.016	0.018	FB	**1.8**	0.011	0.005	OK	
CBMH 67	CB 40	2.00	1.0	6.0	0.9	0.007	0.003	0.008	0.014	FB	**1.4**	0.007	0.001	OK	
FOH - EAST															
HP	CBMH 208	2.00	1.0	6.0	0.9	0.019	0.008	0.008	0.014	CI	**1.4**	0.003	0.006	OK	
CBMH 208	CBMH 209	2.00	1.0	6.0	0.9	0.012	0.005	0.011	0.016	CI	**1.6**	0.003	0.008	OK	
CBMH 209	CB 63	2.00	2.0	6.0	0.9	0.039	0.018	0.026	0.028	CI	**1.4**	0.006	0.020	OK	
CB 63	CBMH 66	2.00	2.0	6.0	0.9	0.012	0.005	0.025	0.028	CI	**1.4**	0.006	0.019	OK	

From	To	Allow. Spread	Sx	So	Coeffiecent	Area	Increm. Q	Total Q	Depth	Inlet type	Spread	Capture	Carry Over	Remarks	Comments
		m	%	%		ha	m³/s	m³/s	m		m	m³/s	m³/s		
CBMH 66	CB 68	2.00	2.0	6.0	0.9	0.010	0.005	0.023	0.027	CI	**1.4**	0.006	0.018	OK	
FOH - PARKING LOT															
HP	AD01	2.00	2.0	1.5	0.9	0.051	0.023	0.023	0.035	FB	**1.7**	0.015	0.008	OK	
HP	AD02	2.00	1.5	1.5	0.9	0.026	0.011	0.011	0.024	FB	**1.6**	0.009	0.003	OK	
HP	AD03	2.00	1.5	1.5	0.9	0.026	0.012	0.012	0.024	FB	**1.6**	0.009	0.003	OK	
HP	AD04	2.00	1.5	1.5	0.9	0.031	0.014	0.014	0.026	FB	**1.7**	0.010	0.004	OK	
HP	AD05	2.00	1.5	1.5	0.9	0.031	0.014	0.014	0.026	FB	**1.7**	0.010	0.003	OK	
HP	AD06	2.00	2.0	1.0	0.9	0.052	0.023	0.023	0.038	FB	**1.9**	0.015	0.009	OK	
ROAD L															
HP	CB 72	2.00	1.2	2.5	0.9	0.016	0.007	0.007	0.017	FB	**1.4**	0.006	0.001	OK	
HP	CB 86	2.00	1.0	2.5	0.9	0.017	0.008	0.008	0.016	FB	**1.6**	0.006	0.001	OK	
HP	CB 130	2.00	2.0	1.5	0.9	0.039	0.017	0.017	0.031	FB	**1.6**	0.012	0.005	OK	
CB 109	CB 113	2.50	2.5	2.5	0.9	0.153	0.068	0.107	0.061	FB	**2.5**	0.039	0.068	OK	
CB 108	CB 109	2.50	2.5	2.5	0.9	0.094	0.042	0.069	0.052	FB	**2.1**	0.030	0.039	OK	
TD 01	CB 108	2.50	2.5	2.5	0.9	0.117	0.052	0.052	0.047	FB	**1.9**	0.025	0.027	OK	
ADDITIONAL AREAS															
HP	DICB 11	2.00	3.5	25	0.2	0.156	0.015	0.015	0.022	FB	**0.6**	0.013	0.002	OK	
HP	DICB 6	2.00	3.5	11	0.2	0.156	0.015	0.015	0.026	FB	**0.7**	0.013	0.002	OK	

APPENDIX O: AREA DRAIN SPECIFICATIONS

Dynamic Nyloplast Inlet Capacity Calculator

Grate Style	2ft x 2ft Road & Highway	Drop Down
Basin Size	12"	Drop Down
Clogging Factor	25%	Input



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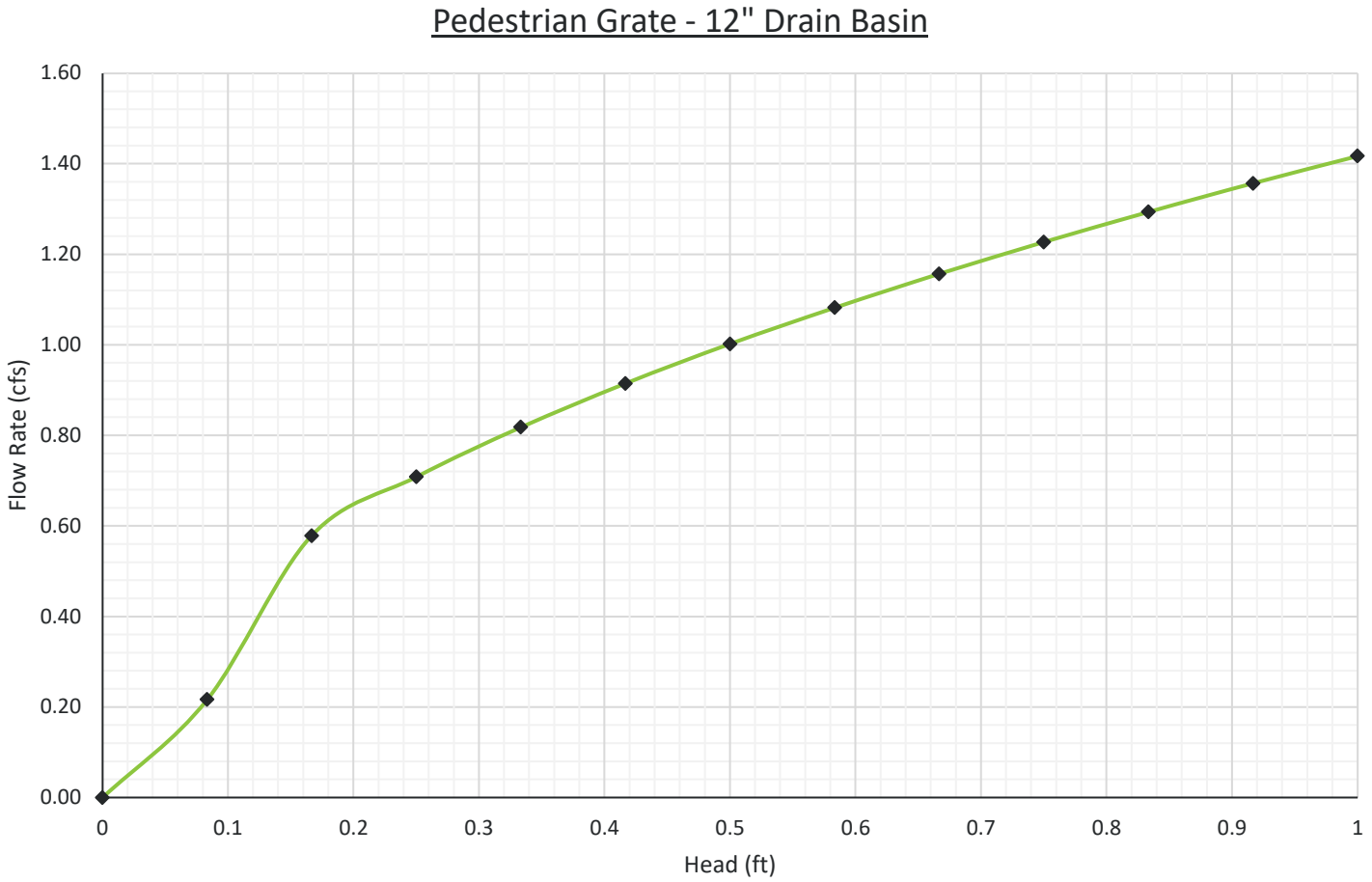
Dynamic Nyloplast Inlet Capacity Calculator

Grate Style	Pedestrian Grate	Drop Down
Basin Size	12"	Drop Down
Clogging Factor	25%	Input



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APPENDIX P: ONTARIO BUILDING CODE SANITARY CALCULATIONS BREAKDOWN

January 7, 2026

City of Ottawa
101 Centrepointe Drive
Ottawa, Ontario

RE: **The Ottawa Hospital New Campus Development**
Site Plan Control – Water and Sanitary Drainage Flows – Mechanical Design

To Whom it May Concern,

This report summarizes how the domestic water and sanitary drainage flow requirements have been estimated as part of the ongoing mechanical design for the new hospital building that is proposed as part of the above noted project.

Domestic Water

The design incoming domestic water flow has been calculated as follows:

- Summing the quantity of connected fixtures of each type based on the currently proposed layouts and project requirements, plus allowances for future fixtures.
- Applying Ontario Building Code (OBC) Tables 7.6.3.2.-A, 7.6.3.2.-C, and 7.6.3.2-D to determine hydraulic loads in water supply fixture units for cold water and hot water.
- Estimating the diversified design flow rate based on the hydraulic load following OBC 7.6.3.2, known continuous flows, and ASHRAE and/or ASPE guidelines.

It is noted that the design domestic water flow rates represent estimated peak flow and not average or typical flow.

Building Water Service	Water Supply Fixture Units	Design Flow (gpm)	Remarks
Domestic Cold	18,300	1800	From site service connection
Domestic Hot	5300	650	From Central Utility Plant (CUP)
Fire Protection	N/A	750	Shared site service connection with DCW

In the current design, domestic cold water entering the hospital building serves the domestic cold water demand but does not provide makeup to the domestic hot water system; domestic hot water is provided to the hospital from the separate Central Utility Plant (CUP) building. It is being considered to generate domestic hot water for the hospital in the hospital building instead of in the CUP. If this design change is implemented, the flow requirement for the domestic cold water service would increase to include the domestic hot water flow that is indicated above.

Incoming building water flow requirements for fire protection have been determined in accordance with OBC and NFPA 13 as applicable.

Sanitary Drainage

The design sanitary drainage flow rate for each leaving building sewer connection has been calculated as follows:

- Summing the quantity of connected fixtures of each type based on the currently proposed layouts and project requirements, plus allowances for future fixtures.
- Applying OBC Table 7.4.9.3 to determine the hydraulic load in drainage fixture units.
- Applying OBC Table 7.4.10.5 to estimate the diversified flow rate based on the hydraulic load.
- Adding known continuous flows.

It is noted that the design sanitary drainage flow rates represent estimated peak flow and not average or typical flow.

Building Sanitary Connection	Drainage Fixture Units	Fixture Design Flow (gpm)	Largest Sump Pump Flow (gpm)	Total Design Flow (gpm)
TA-SAN-1	4800	506	N/A	506
TA-SAN-2	5500	561	325	886
PG-SAN-1	1100	184	N/A	184
TB-SAN-1	4400	472	250	722
TB-SAN-2	4400	472	325	797
TB-SAN-3	5000	522	N/A	522
TB-SAN-4	2600	315	100	415

The proposed sanitary sump pumps will serve only elevator pits and in some cases, emergency floor drains or funnel floor drains serving fire protection system drains used for maintenance and testing. Sanitary sump pump operation will be infrequent and of short duration and it would be rare that multiple sump pumps would operate simultaneously.

Yours very truly,

PATRICK WALLER, P.ENG.
Senior Vice President