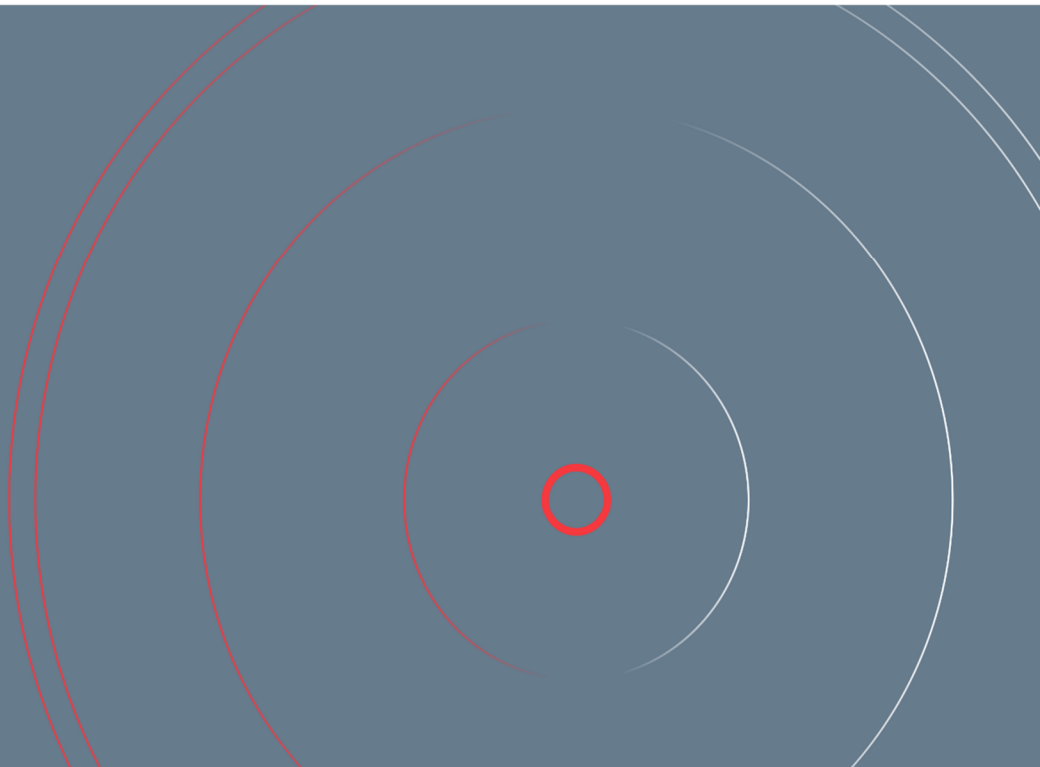
COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

705 Kingston Road Ltd.

FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

705 Kingston Road
Zoning Bylaw Amendment Application
Version: 1st Submission

Date: October 31, 2024



EXECUTIVE SUMMARY

This Functional Servicing and Stormwater Management Report ('FSSR') has been prepared to support a Zoning Bylaw Amendment ('ZBA') application for the site municipally known as 705 Kingston Road, Pickering, Ontario, L1V 6K3 (referred to as 'the site') and is owned by 705 Kingston Ltd. The report has been prepared on behalf of the applicant Resident (or 'client').

The overall proposed 2.73 ha site is to include 5 mixed used buildings, with a podium connecting Buildings 3, 4, and 5. There is a 14m MTO setback along the West and South borders of the site adjacent to Highway 401. A 17.4m wide municipal right-of-way (ROW) is proposed at the northeast corner of the site terminating in a cul-de-sac where the existing sites vehicular access currently is today. Only the ROW within the existing property line will be developed as part of this application, the remainder of the proposed ROW will be constructed once the neighbouring property is developed. Additionally, the site is required to provide dedication for public parkland on site. The site of the proposed parkland dedication is a 0.22 ha. For clarity, the uses are:

- Building 1: 28 storey tower mixed use building (316 units),
- Building 2: 31 storey tower mixed use building (376 units).
- Building 3: 35 storey tower residential building (330 units).
- Building 4: 35 storey tower residential building (330 units).
- Building 5: 35 storey tower residential building (330 units).
- Podium: 4 storey mixed use building (66 Units)
- Public parkland: 0.22 ha

The re-development will provide for 1748 new residential units, 3,922m^2 of commercial floor space and multi-leveled parking both below grade in the underground and above grade in a parking deck.

Water Servicing:

The adjacent municipal roadways contain watermains that are of a typical size to service the proposed development. The domestic and fire flow water demands were calculated in accordance with Region of Durham criteria and FUS methodology (2020). The flow test was completed on the existing 400mm diameter watermain on Kingston Road. The results of the test indicate that the municipal water distribution system can support the proposed development.

Sanitary Servicing:

The adjacent municipal roadways contain separated sanitary sewers that currently service the site. A SUE investigation confirmed that the site currently drains to the municipal sanitary sewer in Kingston Rd. The development proposal will result in an increase in the equivalent population and peak flow to the City's sewer system, with new connections into the future Regional sanitary sewer on Kingston Rd. The new Regional Sanitary sewer proposed to receive the sites wastewater flows is intended to have sufficient capacity to accept the sites sanitary discharge.

Stormwater Servicing:

Kingston Road contains a municipal storm sewer however it is not a viable outlet for the site. The whole of the site in its existing condition drains entirely to a separate outlet which is located in the southeast corner of the site where it is collected and controlled onsite prior to being released downstream into this existing sewer system. This existing receiving sewer is located within an existing easement along the rear of the adjacent property which eventually discharges to the MTO corridor several properties to the east of the site. To maintain existing drainage patterns, the new development will continue to utilize this existing outlet in the post-development condition. On-site stormwater management ('SWM') infrastructure has been proposed to meet the City's quantity, quality, and water balance criteria. High-level feasibility calculations have been included to support the ZBA application. Details of SWM will be further developed as part of a future Site Plan Approval ('SPA') process.

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INTRODUCTION

1.1 BACKGROUND

This Functional Servicing and Stormwater Management Report ('FSSR') has been prepared to support a Zoning Bylaw Amendment ('ZBA') application for the site municipally known as 705 Kingston Road, Pickering, Ontario, L1V 6K3 (referred to as 'the site'). The legal description is as follows: Part 1 of Lot 28, Range 3, Plan 40R-9869 and the property owner is 705 Kingston Ltd. The report has been prepared on behalf of the applicant, Resident (or 'client').

The existing site consists of a main single storey retail plaza building with multiple units and a second standalone retail building at the frontage of Kingston Road. The remainder of the site consists of paved parking areas with some minor landscape along the south and west perimeter of the site. The existing site access is from a right-in only access off Kingston Road as well as a signalized entrance at the north-east corner of the site using a shared access with the neighbouring car dealership property.

The overall proposed 2.73 ha site is to include 5 mixed used buildings, with a podium connecting Buildings 3, 4, and 5. There is a 14m MTO setback along the West and South borders of the site adjacent to Highway 401. A 17.4m wide municipal right-of-way (ROW) is proposed at the northeast corner of the site terminating in a cul-de-sac where the existing site's vehicular access is. Only the ROW within the existing property line will be developed as part of this application, the remainder of the proposed ROW will be constructed once the neighbouring property is developed. Additionally, the site is required to provide dedication for public parkland on site. The proposed parkland dedication of the site is 0.22 ha. For clarity, the uses are as follows:

- Building 1: 28 storey tower mixed use building (316 units),
- Building 2: 31 storey tower mixed use building (376 units).
- Building 3: 35 storey tower residential building (330 units).
- Building 4: 35 storey tower residential building (330 units).
- Building 5: 35 storey tower residential building (330 units).
- Podium: 4 storey mixed use building (66 Units)
- Public parkland: 0.22 ha

The re-development will provide for 1,748 new residential units, 3,922m^2 of commercial floor space and multi-leveled parking both below grade in the underground and above grade in a parking deck.

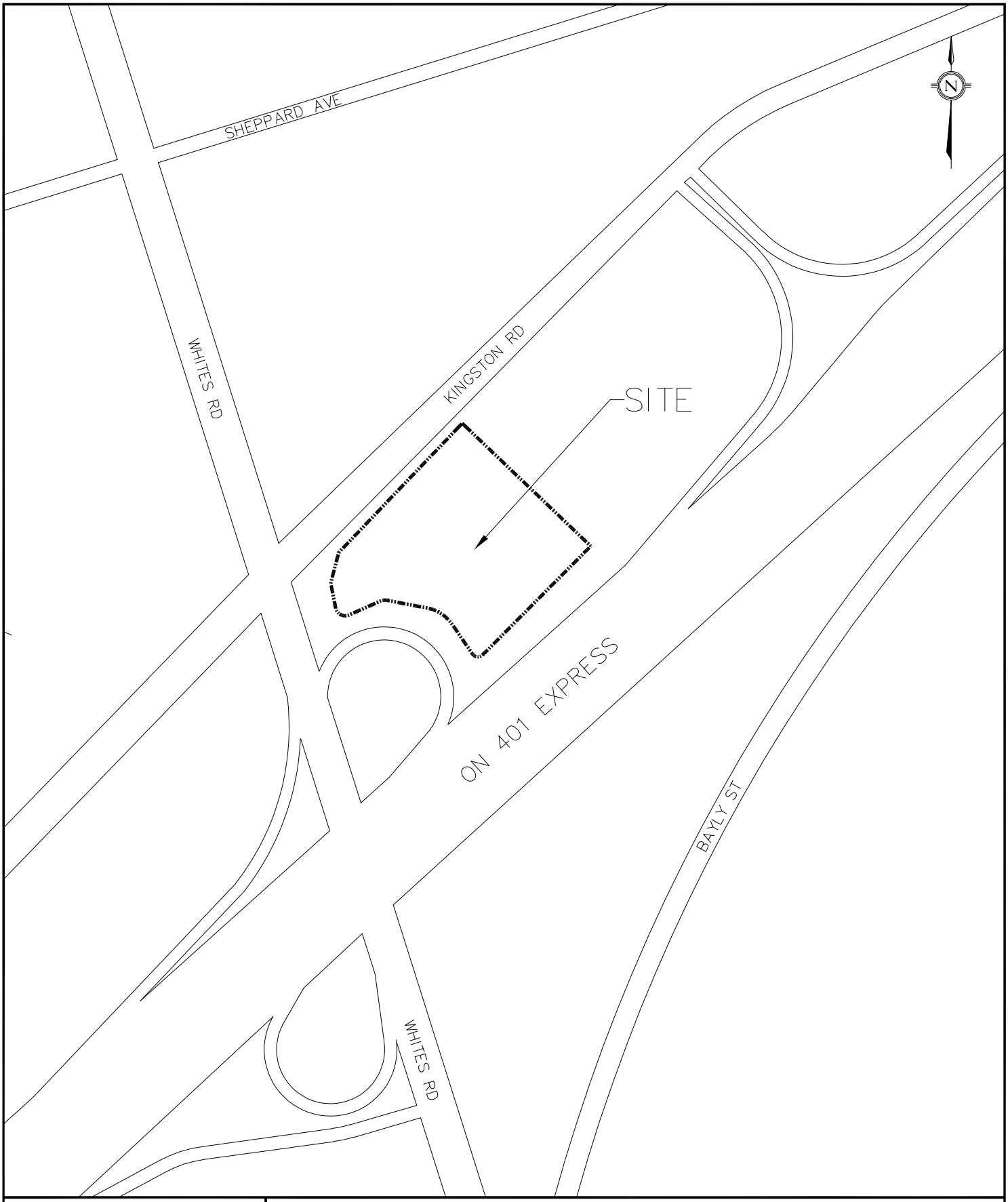
The proposed development will be constructed in a phased configuration consisting of the first phase being constructed along the Kingston Road frontage and the second phase along the southern portion of the site. At the time of this submission, both phases are intended be facilitated under a single ownership. Refer to the architectural plans for the delineation of the preliminary concept phasing limits.

The proposed development is bound by Kingston Rd to the North, Highway 401 westbound on-ramp to the west, Highway 401 to the south, and a commercial plaza to the east. Refer to **Figure 1 – Site Location** for illustrations of the subject site within the context of its surroundings.

1.2 STUDY PARAMETERS

This servicing assessment is based on:

- Topological Survey, By Speight, Van Norstrand & Gibson Ltd. dated April 12 2024
- Buried Utility Map, by Mark It Located Inc, dated September 28, 2023
- Design Specifications for Sanitary Sewers, The Regional Municipality of Durham, Works Department, April 2023.
- Design Specifications for Watermain, The Regional Municipality of Durham, Works Department, April 2023.
- Engineering Design Criteria, Storm Sewers and Appurtenances, Pickering, January 2020.
- Plan and Profile Drawings, City of Pickering.
- Existing Site Servicing Drawings, R.V. Anderson Associated Limited, dated Sept 1987
- Fire Underwriters Survey, 2020
- Architectural Plans, by Quadrangle Architects Limited
- Hydrant Flow Tests, by Lozzi Aqua Check, dated Oct 12 2023.



SITE LOCATION PLAN

counterpoint ENGINEERING
COUNTERPOINT ENGINEERING INC.
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

DEVELOPMENT PROJECT
AT 705 KINGSTON RD

PICKERING, ONTARIO, CANADA

DRAWING BY: AW	DATE: OCTOBER 2024
CHECKED BY: GD	PROJECT NO.: 23068
SCALE: N.T.S.	FIGURE NO.: 1

WATER SUPPLY

1.3 EXISTING WATER SUPPLY

The adjacent municipal roadways all contain available watermain servicing, as follows:

- Kingston Road:
  - 400mm diameter distribution watermain, North side of Kingston Road
  - 200mm diameter distribution watermain, South side of Kingston Road

Two existing municipal fire hydrants are available adjacent to the subject property.

1.4 PROPOSED WATER SUPPLY

The proposed development is proposed to have 2 watermain connections. One set will be a private connection to the private development and one will be a public connection to public parkland dedication. The private connection is to be serviced, from the existing 400mm diameter watermain in Kingston Road, by a 200mm diameter fire service and one independent 150mm diameter domestic connection. The private servicing will also have a second dedicated fire connection as required by the Ontario Building Code ("OBC") since the proposed buildings are above 84m high. The public park is to be serviced from the 200mm diameter watermain on Kingston Road by a 50mm diameter copper service. The watermain connections are broken down as follows in **Table 1**:

Table 1: Proposed Water Connection Locations

TOWER/BLDG.	MUNICIPAL MAIN	CONNECTION TYPE	2ND FIRE CONNECTION (> 84M HIGH)	DOM. LATERAL SIZES (MM)	FIRE LATERAL SIZES (MM)
All Towers + Podium	Kingston Road – 400mm dia.	Tapping sleeve connection from existing 400mm dia. Distribution main	Yes	150	200
Public Parkland Dedication	Kingston Road - 200mm dia.	Tapping Sleeve with main stop	No	50	

Refer to drawing **CSP-Concept Servicing Plan** for the site servicing layout.

The Region of Durham's design criteria states that the water demand used for watermain size selection should be sufficient to satisfy, the greater of, the maximum day demand plus the fire flow or the maximum hour demand. Fire flow for the residential area will not be less than 4500 L/min, delivered with a residential pressure of not less than 140kPa or 275kPa under normal operating conditions. Fire demand was calculated as per the Fire Under Survey (FUS).

Domestic water demands were calculated using a per capita rate of 190 litres/person/day and peaked in accordance with proposed land use. The proposed land use will contain 1,748 residential units, generating an equivalent residential population of 3,525 persons. The podium floor has the largest floor area so it was calculated that the fire demand for the podium would govern. Fire Under Survey (FUS) parameters were determined based on the 2020 Water Supply for Public Fire Protection guidelines. FUS fire demands were tabulated for each building on the site. The governing parameters were then used to calculate the water demand for the site. The governing building on site is the Podium building. The resulting domestic and fire flow demands for the entire site are as follows in Table 2: Summary of Water Demand. Full calculations can be seen in **Appendix B.**

Table 2: Summary of Water Demands

DAILY DEMAND (L/S)	MAX. DAY DEMAND(L/S)	PEAK HOUR (L/S)	FIRE FLOW (L/S)	MAX. DAY + FF (L/S)
7.88	10.08	19.39	116.67	126.75

A hydrant flow test was completed by Lozzi Aqua Check on the existing 400mm diameter watermain in Kingston Road. The results are as follows in **Table 3:**

Table 3: Hydrant Flow Test Results

TEST NO.	WATERMAIN	STATIC PRESSURE (PSI)	FLOW AT 20PSI (L/S)	GREATER THAN DEMAND?
1	Kingston Road – 400mm	66	454.8	Yes

As such, for each connection, the available flow in the municipal system at 20 psi/140 kPa exceeds the calculated maximum day plus fire flow demand rate. The municipal water systems can sufficiently support the proposed development. Refer to **Appendix B** for all water demand calculations and flow test results.

GROUNDWATER MANAGEMENT

A Permit to Take Water (PTTW) from the Ontario Ministry of the Environment, Conservation and Parks (MECP) is required for short term water taking over 400 m^3/day. An Environmental Activity and Sector Registry (EASR) is required from the MECP for short term water taking between 50 m^3/day and 400 m^3/day. Groundwater taking from a proposed building structure by means of a PWDS will require a PTTW when water taking is greater than **50m^3/day**. Additionally, a Discharge Permit is required from the City of Pickering for temporary and long-term discharges to the municipal sewer system.

A hydrogeological investigation was prepared by Grounded Engineering Inc., dated October 24, 2024 for the proposed development

1.5 SHORT TERM (CONSTRUCTION)

Maximum construction groundwater rates are expected to be **571,000 L/day (6.61 L/s**) for the site. This rate includes the removal of a 25mm rainfall event over the area of the excavation for the private development blocks of the site. At the time of construction, the dewatering values at one given time will only be a portion of the estimated maximum rate above as the site is going to be constructed in phases. Detailed construction dewatering rates per phase will be provided once a final phasing plan is provided. The total short-term groundwater rate is less than the allowable post-development stormwater release flows to the storm sewer outlet (34 L/s). The short-term discharge to the storm sewer system will cease before the site is occupied.

The sampled groundwater currently meets the allowable concentrations for discharge to the storm sewer except for an exceedance in Total Suspended Solids ("TSS"). The discharge will be treated by the dewatering contractor for storm sewer Discharge By-law Limits prior to discharge to the existing sites storm sewer outlet at the southeast corner of the site.

The hydrogeological report has been provided under a separate cover as part of the submission.

1.6 LONG TERM DISCHARGE

Quantity – The report indicates an estimated long-term discharge rate of **98,000 L/day (1.13 L/s)** for the entire development site. Once a final site phasing plan is established, a more detailed long-term groundwater discharge rate will be established for each phase and adjusted for accordingly. A permit with the Region and Municipality will be required for the Long-Term Discharge of Private Water.

The owner will utilize a sub-floor Permanent Drainage System (PDS). Foundation drainage will be collected in a sump and then discharged through storm sewer in the easement along the southeast property limit via the Storm Control Maintenance Access Hole. A sampling port will be installed at ground level to ensure quality and quantity control is maintained.

Quality – The sampled groundwater currently exceeds the allowable concentrations of Total Suspended Solids (TSS) for discharge to storm sewers. However, the groundwater collected by the PDS will be pumped to a filtration system to ensure groundwater quality meets storm sewer Discharge By-Law limits for TSS before being discharged to the Municipal storm system. A sampling port will be installed at ground level to ensure quality and quantity control is maintained.

Details of the treatment system, sub slab foundation system, sump pit sizing, water meter location and specification to be provided, by others, at the time of Long-Term Discharge Application.

The hydrogeological report has been provided under a separate cover as part of the submission.

SANITARY SERVICING

1.7 EXISTING SANITARY SERVICING

The site is currently serviced by 2 private 150mm sanitary service connections. The existing sanitary services ultimately discharge a flow of 3.59 L/s to an existing 200mm sanitary sewer on Kingston Road that travels east. Refer to **Appendix C** for detailed calculations of the sites existing sanitary discharge.

1.8 PROPOSED SANITARY SERVICING

Per discussions with Regional staff, a new sanitary sewer trunk sewer along with a shallow sewer for services is proposed along Kingston Road as part of the Regional Rapid Transit works. This sanitary sewer is understood to be designed by the Region to have sufficient capacity to accommodate the wastewater flows from this development. The sewer works are projected for tendering in Q1 or Q2 of 2025. The site is intended to connect to this future sanitary sewer network in Kingston Road. Once final construction drawings of the sewers are provided by the Region, the site's sanitary service connection details can be refined. Refer to **Appendix C** for correspondence with Regional Works staff.

A secondary option for sanitary servicing is available for the site in an event the newly proposed Regional sewer in Kingston Road has timing or budgetary delays. If the site is developed prior to the commissioning of the new Regional sewers in Kingston Road, there is an opportunity to connect to the existing 200mm sanitary sewer that services the existing site uses. If deemed necessary to use this secondary option, a

sewer capacity analysis will be conducted to ensure sufficient capacity in the existing 200mm sanitary sewer.

While two sanitary servicing options are presented above the connection to the proposed Regional sewer network in Kingston Road is the preferred and intended outlet for this site.

The proposed development is to have two sanitary connections into the future Regional sanitary sewer that will be located on Kingston Road. Two sanitary connections are provided, one for the private mixed-use development and one for the public parkland dedication. Refer to drawing **CSP-Concept Servicing Plan** for the site servicing layout.

Table 3: Proposed Sanitary Connection Locations

TOWER/BLDG.	MUNICIPAL MAIN
Private Development	Fut. Kingston Road Sewer – 250mm dia. Service
Public Parkland Dedication	Fut. Kingston Road Sewer – 100mm dia. Service

The proposed development will contain 1,748 total units, generating an equivalent residential population of 3,525 persons. In addition, the commercial area (3922 m^2) generates 0.82 L/s, the ROW (1100m^2) generates a sanitary flow of 0.03 L/s, and the public parkland (2200m^2) generates a sanitary flow of 0.10 L/s. The breakdown of generated sanitary flows from the subject development is as follows in **Table 4**. The net increase in peak flow to the Municipal sewer system is 48.14 L/s. Refer to **Appendix C** for detailed sanitary calculations.

Table 4: Summary of Sanitary Flows

TOWER/BLDG.	CONNECTION	UNITS	COMMERCIAL AREA (SQ.M.)	EQUIV. RESI POP	PEAK FLOW (L/S)	TOTAL FLOW INCL INFILTRATION (L/S)
Private Development	Kingston Road	1748	3,922	3,522	51.60	**51.73**
Public Parkland	Kingston Road	-	-	2	0.10	
ROW	-	-	-	-	0.03	

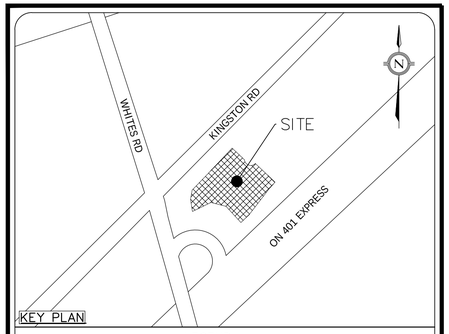
A downstream sanitary sewer capacity analysis is not required for this development because its proposed sanitary service connections will be to the new municipal sanitary sewer in Kingston Road as mentioned above. Per discussions with Region of Durham Works staff, the new sanitary sewer is understood to have been designed with sufficient capacity to accommodate the wastewater flows from this development. Refer to correspondence in included in **Appendix C**.

STORMWATER SERVICING

1.9 EXISTING STORMWATER DRAINAGE

Kingston Road contains a municipal storm sewer however it is not a viable outlet for the site. The whole of the site in its existing condition drains entirely to an existing 750mm diameter concrete storm sewer outlet which is located in the southeast corner of the site where it is collected and controlled onsite prior to being released downstream into this existing sewer system. Refer to **Figure 2: Pre-development Drainage Area Plan** for the existing conditions drainage of catchment area Ex. 100.

This existing receiving sewer is located within an existing easement along the rear of the adjacent property which eventually discharges to the MTO corridor several properties to the east of the site. The flows from the MTO corridor are then conveyed to Amberlea Creek, which discharges to Frenchman's Bay Watershed within Toronto and Region Conservation Authority (TRCA), in the City of Pickering.



KEY PLAN

LEGEND

AREA_NAME
A = AREA (Ha)
C = RUNOFF COEFFICIENT

PRE-DEV LAND OVERFLOW

PRE-DEV AREA BOUNDARIES

BUILDING ROOF

LEGAL & TOPOGRAPHY

PROVIDED BY: SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
750 OAKDALE RD, UNITS 65 & 66
TORONTO, ON, M3N2Z4
PHONE: (416) 749-7864

BENCHMARK AND ELEVATION

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE CITY OF PICKERING BENCHMARK No. 00820188082.HAVING A PUBLISHED ELEVATION OF 94.830 METERS

BEARINGS SHOWN HEREON ARE UTM GRID AND ARE DERIVED FROM THE SMARTNET NETWORK, AND ARE REFERRED TO UTM ZONE 17, CENTRAL MERIDIAN 81°00' WEST LONGITUDE, NAD 83 (CSRS)

No.	REVISIONS/ISSUED	DATE	BY	CITY
01	ISSUED FOR ZBA#1	OCT. 31, 2024	G.D.	

counterpoint ENGINEERING
A SUBSIDIARY OF DILLON CONSULTING LIMITED
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

ENGINEER'S STAMP

APPLICANT:
RESIDENT
ADDRESS: 22 ST CLAIR AVENUE EAST, SUITE 1203
TORONTO, ONTARIO, M4T 2S5
PHONE: 416-932-6634
FAX:
CONTACT: NIK PAPAPETROU

SITE LOCATION:
705 KINGSTON LTD. MIXED-USE DEVELOPMENT
ADDRESS: 705 KINGSTON ROAD, PICKERING, ONTARIO
ADDRESS

SITE PLAN FILE No.:

PRE-DEVELOPMENT DRAINAGE AREA FIGURE

DESIGNED BY: J.Y	CHECKED BY: G.D	DATE: OCT. 31, 2024
DRAWING BY: T.S	CHECKED BY: G.D	PROJECT NO. 23068
SWM BY: Y.K	CHECKED BY: R.K	
SCALE: 1:400m (0m 10m 20m)		DRAWING NO. FIGURE 2

REGION FILE No.:

P:\Land Development\23\23068_Pilica_705 Kingston Road\Design\Drawings\Drainage\23068_SWM.dwg

1.11 STORMWATER MANAGEMENT CRITERIA

The French's Bay watershed does not currently have a watershed hydrology study. In accordance with TRCA's Flood Flow Criteria, quantity control is not established for the area. However, the City of Pickering has identified the requirement to control post to pre-development peak flows for the 2 to 100-yr storm events. In addition, the Regional storm event will be assessed to satisfy the MTO criteria.

The following stormwater management criteria were established for the project, based on City design criteria:

- Quantity Control: control all storm events, up to the 100-year design storm event, to the calculated allowable release rate (refer to **Section 1.14**).
- Quality Control: provide quality control on discharged stormwater such that 80% of total suspended solids ('TSS') are captured on an annual basis.
- Water Balance: infiltrate or re-use runoff generated from a 5mm storm event.

There may be runoff from rainstorms that exceeds the capacity of City's storm sewer service connections. Therefore, the proposed site plan design shall be responsible for providing flood protection or a safe overland flow route for the proposed development without causing damage to the adjacent public and private properties. Overland flow, in excess of the 100-yr storm event will discharge primarily to the site's storm outlet; the MTO Corridor and partially to the Kingston Road right-of-way. Existing drainage patterns on adjacent properties shall not be altered and stormwater runoff from the subject development shall not be directed to drain onto adjacent properties.

1.12 ALLOWABLE RELEASE RATE

The allowable release rate for the site should be based on existing conditions controls to match post-development discharge from the site to pre-development levels. Site Servicing drawings available for the property from 1987 design by R.V. Anderson Associates Limited were obtained from the City.

The existing stormwater management control consists of a three-section storage facility. Two upstream units are located within the swale and the third unit is in the south-east corner of the site with a direct connection to the 750mm diameter concrete storm sewer. The details of the existing outlet structure are unknown, and the control of peak flows cannot be confirmed at this time. However, based on Site Servicing drawings available for the property from 1987 designed by R.V. Anderson Associates Limited, the total storage volume provided in the on-site system is 1739m^3.

A Visual OTTHYMO model was set up to model the existing and proposed conditions. A ROUTE CHANNEL command was used to assess the peak flow out of the detention facility given total volume available and the assumption that all volume provided is utilized during the 100-yr storm event. The resulting uncontrolled peak flow of 0.30 m^3/s from the 2.73ha existing development, attenuated within the available storage of 1739m^3 will result in a modelled peak flow of 0.034m^3/s.

The allowable release rate is modelled as the 100-year peak flow rate at the above noted on-site volume control. Refer to **Table 6** and **Appendix D** for allowable release rate calculations.

Table 5: Allowable Release Rates

PRE-DEVELOPMENT DRAINAGE AREA	RECEIVING SYSTEM	RELEASE RATE (L/S)
Area EX. 100	750mm diam STM Sewer	34

The above release rate is based on a reasonable assumption of existing controls and is adopted for the preliminary stormwater management design. Further investigation into existing outlet controls at the 750mm diameter storm sewer will be conducted to confirm the target and subsequent design iterations.

To maintain existing drainage patterns, the new development will continue to utilize this existing outlet in the post-development condition. Area EX.100's composite imperviousness under existing conditions is 87%. It is noted that the modelled uncontrolled 100-yr peak flow from the site under pre-development conditions is 0.30 m^3/s, which is substantially less than the capacity of the downstream outlet. However, it has been confirmed that there are no external areas draining to the site and the site currently has quantity control.

In accordance with the Preliminary Geotechnical Engineering Report for the subject site prepared by Grounded Engineering in October 2024, the soils on subject site are classified as clay/silt. Further soil and groundwater information will be available at detailed design. Similarly, Amberlea Creek Watershed was modelled as soil group B (CN=71) in the Amberlea Creek Hydrology Study by Aquafor Beech Limited in 2005.

1.13 PROPOSED STORM SERVICING

The site has been divided into several development blocks. There is the proposed mixed-use development which will be constructed in two phases, the parkland dedication block, and the proposed municipal ROW block. Each block is proposed to have its own storm sewer network which will connect to a proposed municipal system conveying flows to the sites existing storm outlet. Since the sites existing storm outlet is located at the southeast corner of the site but the proposed ROW ends in a cul-de-sac which doesn't extend all the way to the outlet, a 4.5m wide municipal easement is proposed over the conveyance storm pipe along the south eastern property line.

For the mixed-use development block, the proposed underground limits of the site covers majority of the developable area, so the majority of stormwater will be captured by area drains and conveyed internally through the building via mechanical plumbing system. These drains will be directed to two separate SWM tanks located in the P1 level of the underground where the stormwater will be stored and released through the control maintenance hole at the allowable rate for the block outlined in **Section 1.13**. Additionally, within the bounds of this block exists a 14.0m MTO setback limit. No development is allowed within this limit, however, the stormwater runoff needs to be captured and controlled. To meet SWM criteria, the runoff from the MTO setback is proposed to be conveyed with a swale and collected in catchbasins which connect into the development blocks plumbing system until such time the MTO expropriates the land.

For the parkland dedication block, a storm connection is provided to the site with a single catchbasin at a low point to capture site drainage. The storm connection and single catch basin allows for flexibility for future park programming. The park will require stormwater to be controlled to the allowable release rate

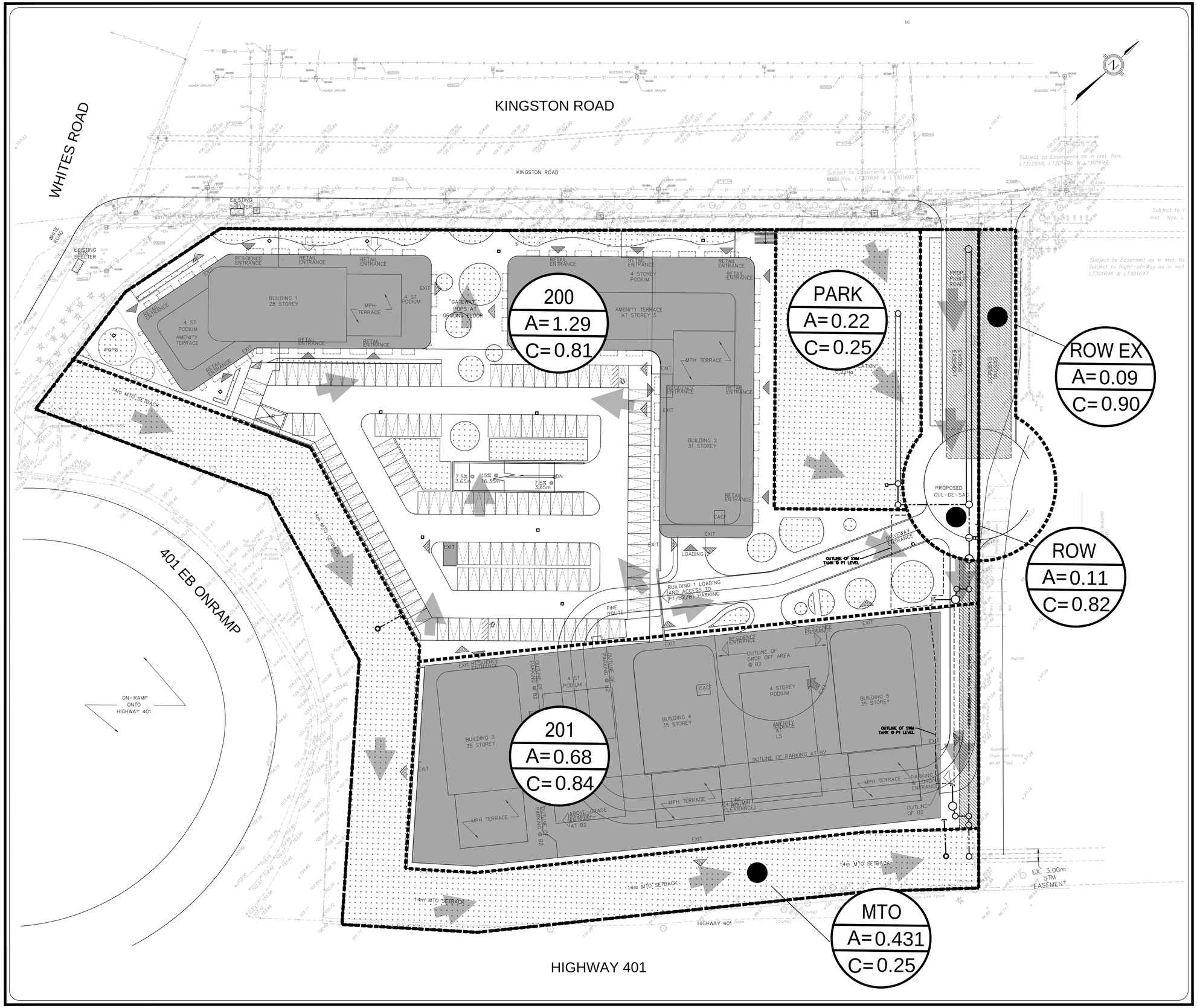
outlined in **Section 1.13** below and discharged through the control maintenance hole. SWM detention onsite will be provided through an oversized pipe onsite.

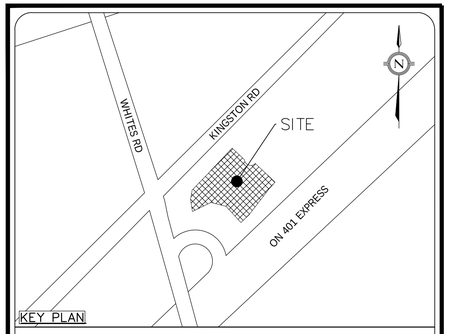
For the Municipal ROW block, a stormwater connection is provided to capture and collect runoff from the ROW. The ROW will require stormwater to be controlled to the allowable release rate outlined in **Section 1.13** below and discharged through the control maintenance hole. SWM detention onsite will be provided through an oversized pipe onsite.

Refer to drawing **CSP-Concept Servicing Plan** for the storm sewer serving design concept.

The post-development drainage areas are as follows, per **Figure 3: Post-Development Drainage Area Plan** for more details.

- Area 200 (Development Block): 1.29 ha, controlled drainage directed to existing storm outlet.
- Area 201 (Development Block): 0.68 ha, controlled drainage directed to existing storm outlet.
- Area Park: 0.22 ha, controlled drainage directed to existing storm outlet.
- Area ROW: 0.11 ha, controlled drainage directed to existing storm outlet.
- Area ROW EX to be development as part of adjacent site: 0.09 ha, controlled drainage directed through the subject site to existing storm sewer outlet.
- Area MTO: 0.431 ha, will be split between phases to convey storm runoff through internal controlled drainage prior to discharging to existing storm outlet.





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POST-DEV AREA BOUNDARIES

BUILDING ROOF

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BEARINGS SHOWN HEREON ARE UTM GRID AND ARE DERIVED FROM THE SMARTNET NETWORK, AND ARE REFERRED TO UTM ZONE 17, CENTRAL MERIDIAN 81°00' WEST LONGITUDE, NAD 83 (CSRS)

No.	REVISIONS/ISSUED	DATE	BY	CITY
01	ISSUED FOR ZBA#1	OCT. 31, 2024	G.D.	

counterpoint ENGINEERING
A SUBSIDIARY OF DILLON CONSULTING LIMITED
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

ENGINEER'S STAMP

APPLICANT:
RESIDENT
ADDRESS: 22 ST CLAIR AVENUE EAST, SUITE 1203
TORONTO, ONTARIO, M4T 2S5
PHONE: 416-932-6634
FAX:
CONTACT: NIK PAPAPETROU

SITE LOCATION:
705 KINGSTON LTD. MIXED-USE DEVELOPMENT
ADDRESS: 705 KINGSTON ROAD, PICKERING, ONTARIO
ADDRESS

SITE PLAN FILE No.:

POST-DEVELOPMENT DRAINAGE AREA FIGURE

DESIGNED BY: J.Y	CHECKED BY: G.D	DATE: OCT. 31, 2024
DRAWING BY: T.S	CHECKED BY: G.D	PROJECT NO. 23068
SWM BY: Y.K	CHECKED BY: R.K	
SCALE: 1:400m (0m 10m 20m)		DRAWING NO. FIGURE 3

REGION FILE No.:

1.15 STORMWATER QUANTITY CONTROL

The VISUAL-OTTHYMO Version ('VO6') Model has been employed to analyse the 2-year to 100-year storm events for the preliminary post-development conditions. The design storm events used in this analysis are based on the 12-hour AES storm hyetographs. The proposed site development drainage area of 2.82ha (e.g., consisting of 2.73ha site area plus 0.09ha future external road) has been modelled in VO6 using the STANHYD command with the Modified SCS formula for areas with impervious areas; the NASHYD command to model the MTO block and pervious portion of the park block. The ROUTE RESERVOIR command has been used to model the SWM underground storage.

Each block will provide its own quantity control to ensure the total allowable release rate of 34L/s is met at the storm outlet. **Table 7** below outlines the establishment of individual block target release rates, which is based on proration of drainage areas.

Table 6: Allowable Release Rate and Volumetric Requirement – Block Breakdown

CATCHMENT AREA	AREA (HA)	% OF TOTAL AREA	UNCONTROLLED 100-YR PEAK FLOW (L/S)	PRO-RATED ALLOWABLE 100-YR PEAK FLOW (L/S)	STORAGE REQUIRED (M^3)
Area 200	1.29	46%	142	18.1	875
Area 201	0.68	24%	75	10.8	490
Park	0.22	8%	9	2.7	55
MTO Block	0.43	15%	25	0.0	0
ROW	0.20	7%	23	2.4	140
Total Site	2.82			34.0	1560

As can be seen from the table above, it is not feasible to convey the drainage from the MTO Setback Block, Park Block and ROW Blocks uncontrolled as those would exceed the total allowable for the site. On this basis, on-site storage is proposed on all blocks within the development. Furthermore, it is assumed that no storage can be provided within the MTO Setback block so the drainage is equally split between Areas 200 and 201 for retention. At detailed design the drainage and servicing of the MTO block will be confirmed and storage requirements will be adjusted as needed.

The storage provided within Blocks 200 and 201 is further adjusted to utilize the space available in Block 201. Refer to **Table 8**.

Table 7: Quantity Control Summary

CATCHMENT AREA	AREA (HA)	STORAGE PROVIDED (M^3)	CONTROLLED 100-YR PEAK FLOW (L/S)
Area 200	1.29	780	27
Area 201	0.68	635	0.9
Park	0.22	55	2.7
MTO Block	0.43	0	0
ROW	0.20	140	2.4
Total Site	2.82	1560	33

The overall 100-yr post-development release rate is still at or below the allowable release rate. This approach also preserves capacity for both short- and long-term groundwater discharge, as detailed in **Sections 1.5** and **1.6**, thereby satisfying the City's Quantity Control Criteria. There is no major flow discharging from the development blocks as they are controlling the 100-year storm event to drain to minor system. However, the grading will accommodate any emergency flow from blocks as outlined in Section 1.10.

Volumetric requirements will be adjusted, as necessary, with any updates to the site's allowable release rate.

1.15.1Regional Storm Conveyance

The regional storm was assessed for both pre- and post-development conditions to satisfy an MTO requirement. Refer to **Table 9** and Appendix D for model results and detailed output. Given the existing development was built in 1987, the on-site storage likely provides a 100-year level of service, at most.

Under proposed conditions, a portion of future right-of-way (0.09ha) will be serviced by the site through controls up to the 100-yr storm event. Under existing conditions, this area drains through the adjacent site to the same 750mm diameter storm sewer. To compare post to pre-development conditions, the 0.09ha was added to the pre-development scenario.

Table 8: Regional Storm Conveyance Summary

Scenario	Area (ha)	Total Regional Storm Release Rate (l/s)
Pre-development	2.82	90
Pre-development	2.82	91

The marginal increase in post-development peak flows during the Regional storm event represent about 1% difference and are considered negligible.

1.16 PROPOSED QUALITY CONTROLS

The subject site will be required to provide quality control on discharged stormwater such that 80% of total suspended solids ('TSS') are captured on an annual basis.

Runoff from rooftop surfaces and landscape areas are generally considered clean with 80% TSS removal prior to any treatment. Therefore, only the vehicular areas will be routed towards the treatment devices to achieve a total of 80% TSS removal of the entire site.

Quality control devices such as oil/grit separator ('OGS') units will be proposed at the controlled storm connections for each block (200, 201, ROW). Refer to drawing **CSP-Concept Servicing Plan**. The units will be located in the underground basement downstream of the proposed stormwater management tanks. Details will be provided at SPA stage. The park only releases drainage from the dedicated parkland which drains clean runoff with 80% TSS removal prior to treatment. Therefore, no quality control device was proposed.

1.17 WATER BALANCE

The subject site will be required to meet the water balance criteria. The minimum run-off retention requirement is to retain all run-off generated from a small design event, typically classified as a 5mm event.

The water retention volume required for the site is calculated to be **98.1 m^3**. Refer to Table 9 for detailed calculations. The 0.22 ha area of the proposed public park is intended to consist of landscape areas therefore run-off will be infiltrated at similar rates as landscape areas for small storm events.

Table 9: Water Balance Summary – Volumetric Requirements

CATCHMENT AREA	AREA (HA)	RC	% OF TOTAL AREA	BLOCK TARGET (5MM OVER IMP-HA)	BLOCK TARGET (M^3)	ROW COMPENSATION (M^3)	TOTAL VOLUME (M^3)
Block 200	1.29	0.81	87%	59%	56.2	5.9	62.1
Block 201	0.68	0.84	91%	31%	31.1	3.1	34.2
Park	0.22	0.25	7%	10%	0.8	1.0	1.8
ROW	0.20	0.9	0%	-	0.0	0.0	0.0
Total Site	2.39						98.1
Total Site excluding ROW	2.19						

Table above shows zero storage contribution towards the water balance criteria for the right-of-way portions of the development. This is a conservative approach, where the compensation for the right-of-way requirement is split between the development blocks on an area relationship basis. However, at detailed design, the water balance requirements will be further refined given landscaping within the right-of-way.

The water balance targets will be achieved through storm tanks located in the basement by retaining water from the site or through landscape reuse and irrigation or infiltration. Details regarding water recycling usage will be provided at SPA stage.

CONCLUSIONS

This FSSR presents a site servicing strategy for the proposed development that addresses the requirements of the applicable regulatory agencies and provides the basis for detailed servicing design.

We trust this report sufficiently addresses the site servicing requirements and allows for approval of a Zoning Bylaw Amendment ('ZBA') application. Should there be any questions or comments, please feel free to contact the undersigned.

Sincerely,

Counterpoint Land Development by Dillon Consulting Limited

Gian-Micheal Di Luca, P.Eng
Associate
Direct: 416.886.1075
Email: gidiluca@counterpointeng.com

Yelena Koshenkov, P.Eng.
Stormwater Manager
Direct: 289-556-3570
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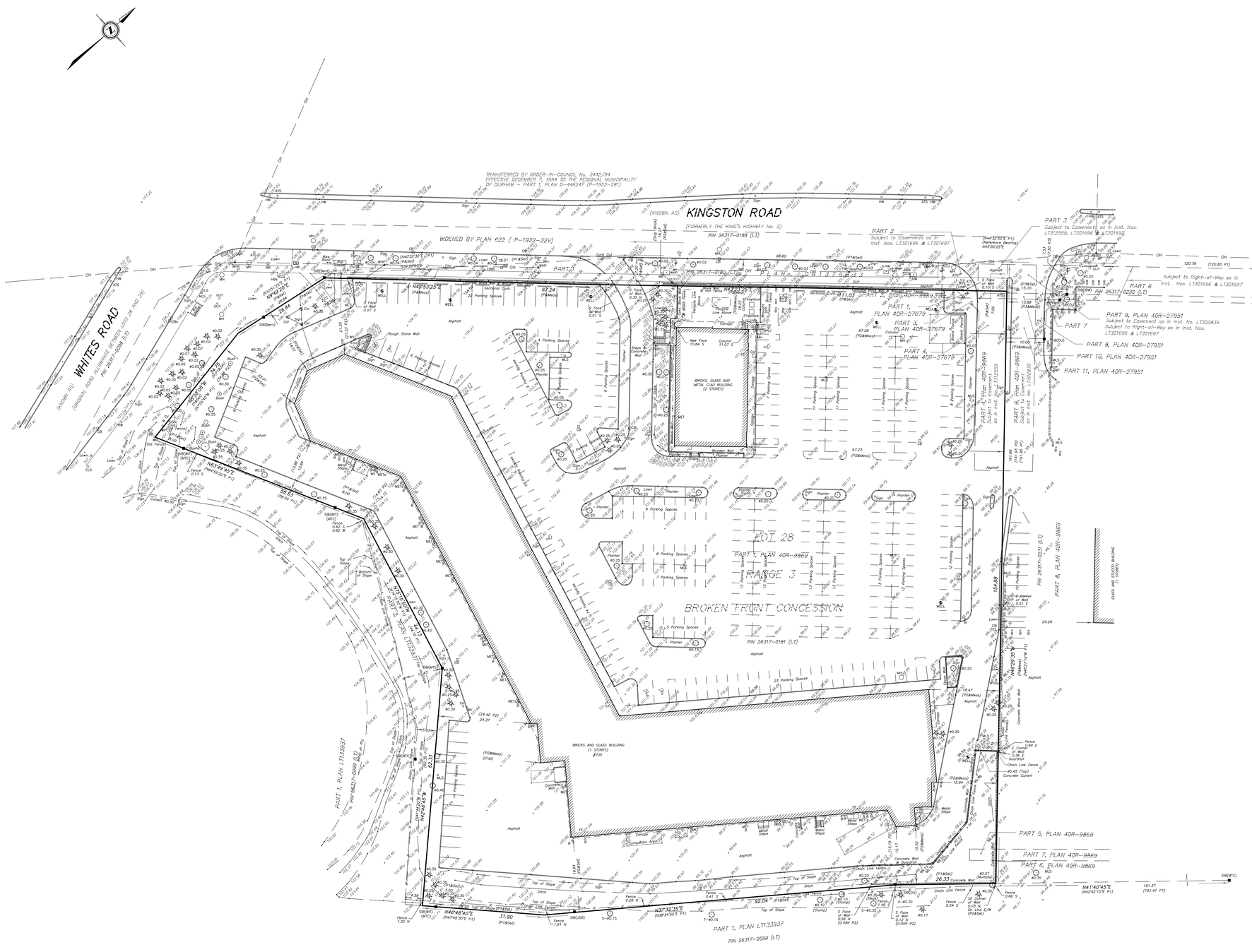
APPENDIX A

Site Plan

Topographic Survey

Locates



PLAN OF SURVEY WITH TOPOGRAPHY OF

PART OF LOT 28
RANGE 3, BROKEN FRONT CONCESSION
CITY OF PICKERING

REGIONAL MUNICIPALITY OF DURHAM

SCALE 1 : 400

10 0 10 20 30 40 metres

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
2022

ELEVATION NOTE

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE CITY OF PICKERING BENCHMARK No. 00820188082.

LOCATION :

A BRASS CAP FLUSH IN CONCRETE LOCATED ON THE CONCRETE BOX CULVERT, NORTH OF HWY 401 IN PICKERING. IT IS NORTHWEST ON RAMP ONTO HWY 401 FROM KINGSTON ROAD, 150.0m EAST OF MICHAEL BOYER CHEVROLET LIMITED.

ELEVATION: (DATUM: CGVD28:78)

PUBLISHED ELEVATION = 94.830 metres.

BEARING NOTE

BEARINGS SHOWN HEREON ARE UTM GRID AND ARE REFERRED TO THE NORTHERLY LIMIT OF PART 1 AS SHOWN ON PLAN DR1379833, HAVING A BEARING OF N43°30'25"E.

METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	„	SURVEY MONUMENT PLANTED
WIT	„	WITNESS MONUMENT
SIB	„	STANDARD IRON BAR
SSIB	„	SHORT STANDARD IRON BAR
IB	„	IRON BAR
CC	„	CUT CROSS
N,S,E,W	„	NORTH, SOUTH, EAST, WEST
OU	„	ORIGIN UNKNOWN
P	„	PLAN DR1379833
P1	„	PLAN 40R-9869
P2/JDB	„	PLAN OF SURVEY BY J. D. BARNES LIMITED, O. L.S. – DATED FEB. 28, 1990
P3	„	PLAN 40R-27951
MTO		MINISTRY OF TRANSPORTATION ONTARIO
ATS	„	AUTOMATIC TRAFFIC SIGNAL
B	„	BOLLARD
BB	„	BELL BOX
BP	„	BELL POLE
CB	„	CATCH BASIN
CLS	„	CONCRETE LIGHT STANDARD
COL	„	COLUMN
FF	„	FLOOR FINISH
FH	„	FIRE HYDRANT
GV	„	GAS VALVE
GUY	„	GUY WIRE / POLE
HB	„	HYDRO BOX
HYT	„	HYDRO TRANSFORMER
HW	„	HAND WELL
MET	„	METER
MH	„	MANHOLE
MLS	„	METAL LIGHT STANDARD
MP	„	METAL POLE
OH	„	OVERHEAD WIRE
WELL	„	MONITORING WELL
WHP	„	WOODEN HYDRO POLE
WP	„	WOODEN POLE
WV	„	WATER VALVE
⊙	„	DECIDUOUS TREE
✳	„	CONIFEROUS TREE
▨	„	CONCRETE
▨	„	BRICK
▨	„	GRAVEL
▦	„	METAL

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON

DATE : ______ ______ ______

D. A. WILTON
ONTARIO LAND SURVEYOR

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
750 OAKDALE ROAD, Units 65 & 66
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DRAWN :	F. P. B./M. M.	FILE NAME :	A2200094.DWG
CHECKED :	D. A. W.	PLOT SCALE :	MET. 1=0.40
JOB No. :	220-0094	PLOTTED :	
REF. No. :		UPDATED :	

A0 (840x1189)

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

Project No. 21057
Date 16 OCTOBER 2024
Issued for CONSULTANT COORDINATION

ARCHITECTURAL DRAWINGS

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Toronto, ON, M1N 1V3
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CIVIL ENGINEER

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WIND CONSULTANTS

Gnobi Consulting Inc.
N/A
Guelph, ON
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GEOTHERMAL & ENVIRON-MENTAL ENGINEER

Grounded Engineering Inc.
12 Banigan Drive
Toronto, ON M4H 1E9
T: 647.264.7909

NOISE & VIBRATION CONSULTANT

Dillon Consulting Ltd.
111 Farquhar Street
Suite 301
Guelph, ON N1H 3N4
T: 519.571.9833

NORTH

Context Plan - NTS

PLAN OF SURVEY WITH TOPOGRAPHY OF
PART OF LOT 28
RANGE 3, BROKEN FRONT CONCESSION
CITY OF PICKERING
REGIONAL MUNICIPALITY OF DURHAM

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
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I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON

DATE : _____

D. A. WILTON
ONTARIO LAND SURVEYOR

SPEIGHT, VAN NOSTRAND & GIBSON LIMITED
ONTARIO LAND SURVEYORS
750 OMOLULE ROAD, Units 65 & 66
TORONTO, ONTARIO M9W 2Z4
TEL. 416 749-5VNG(7864) FAX 416 749-7866
E-MAIL: toronto@vng.on.ca

DRAWN :	F. P. B./M. M.	FILE NAME :	A2200094.DWG
CHECKED :	D. A. W.	PLOT SCALE :	MET. 1=0.40
JOB No. :	220-0094	PLOTTED :	
REF. No. :		UPDATED :	

Surveyor's Certificate

PROJECT STATISTICS SUMMARY		
Municipal Address:	705 Kingston Road, Pickering, ON	
		(sm)
Gross Site Area		27,316.00
Net Site Area (Gross Site Area -Public Road - Parkland)		24,019.00
Parkland Area		2,193.00
Zoning By-law =	City Centre By-law 7553/17	
		(m)
Established Grade =		98.43
(Average elevation of Cul-De-Sac as entry onto site)		
Building 1 Height (Storeys): (excl. Mech Penthouse)		28
Building 2 Height (Storeys): (excl. Mech Penthouse)		31
Building 3 Height (Storeys): (excl. Mech Penthouse)		35
Building 4 Height (Storeys): (excl. Mech Penthouse)		35
Building 5 Height (Storeys): (excl. Mech Penthouse)		35
Building 1 Height (m): (excl. Mech Penthouse)		96.12
Building 2 Height (m): (excl. Mech Penthouse)		104.97
Building 3 Height (m): (excl. Mech Penthouse)		116.77
Building 4 Height (m): (excl. Mech Penthouse)		116.77
Building 5 Height (m): (excl. Mech Penthouse)		116.77
		(sm)
GFA - Residential Uses (less required Amenity)		116,199
GFA - Retail Uses		3,922
Total GFA (less required Amenity)		**120,121**
Floor Space Index (FSI)		5.00
Residential FSI		4.84
Number of Residential Suites		1,748
		(sm)
Total Residential Interior Amenity Space Provided		3,149
Total Residential Exterior Amenity Space Provided		6,648
Vehicular Parking Provided: Long-Term Residential		1,128
Vehicular Parking Provided: Combined Visitor & Retail		346
Vehicular Parking Provided: Total		1,474
Bicycle Parking Total Required		874
Bicycle Parking Total Provided		1052
Total Loading Spaces Provided		5

Statistics Summary

GREEN ROOF STATISTICS		
GENERAL PROJECT DESCRIPTION		**PROPOSED**
TOTAL GROSS FLOOR AREA		120,121 m²
AVAILABLE ROOF SPACE CALCULATION		**PROPOSED**
TOTAL ROOF AREA (m²)		9,078 m²
AREA OF RESIDENTIAL PRIVATE TERRACES (m²)		308 m²
ROOFTOP OUTDOOR AMENITY SPACE, IF IN A RESIDENTIAL BUILDING (m²)		1,644 m²
AREA OF RENEWABLE ENERGY DEVICES (m²)		TBD
TOWER(S) ROOF AREA WITH FLOOR PLATE NOT EXCEEDING 750 m²		3,750
TOTAL AVAILABLE ROOF SPACE (m²)		3,376 m²
GREEN ROOF COVERAGE	**REQUIRED**	**PROPOSED**
COVERAGE OF AVAILABLE ROOF SPACE (m²)	1,688 m²	1,688 m² *
COVERAGE OF AVAILABLE ROOF SPACE (%)	50.0 %	50.0 % *

*EXACT DIVISION BETWEEN ROOFTOP GREEN ROOF AND REGULAR LANDSCAPE TO BE DEFINED FURTHER IN FUTURE SUBMISSIONS

Green Roof Stats

RESIDENTIAL BUILDING ACCESSIBILITY CHECKLIST		
	ITEM	**DRAWINGS**
1.0	**SITE PLAN**	
1.1	Sidewalks min. 1500mm wide (DOPS)	A101, A201, A152
1.2	Parking according to DOPS - Type A - min. 3400mm, Access Aisle - min. 1500mm	A151, A152, A153, A201, A202
1.3	Passenger Loading Zone (min. 2440mm x 7400mm), overhead clearance min. 3600mm AFF	A101, A152, A201
1.4	Curb ramps min. 1500mm wide + flared sides, TA/S	Refer to Landscape dwgs.
1.5	Overhead clearance min. 1980mm AFF	A101, A152, A201, A400 series
1.6	Path - stable, firm, slip-resistant	Refer to Landscape dwgs.
1.7	Min. 1100mm path of travel (min. 1800mm x 1800mm layby space every 30m)	A101, A152, A201
2.0	**Parking Levels**	
2.1	Overhead clearance from parking entrance to accessible parking min. 2100mm AFF	A151, A152, A153, A201, A202, A450 series
2.2	Accessible parking spaces	A151, A152, A153, A201, A202
2.3	Signage at accessible parking spaces (ISA)	Traffic consultant to provide signage in future submissions
2.4	Access aisles	A151, A152, A153, A201, A202
2.5	Curb ramps where level change max. 200mm or less	N/A
2.6	Accessible entrance into building	A151, A152, A153, A201, A202
2.7	Vestibule min. 1500mm (doors in series), min. 1500mm turning circle (un-aligned doors)	A151, A152, A153, A201, A202
2.8	Served by a passenger elevator	A151, A152, A153, A201, A202
3.0	**Building Entrance**	
3.1	Barrier-free entrances to satisfy the OBC	A151, A152, A153, A201, A202
3.2	Door clear width min. 860mm	A151, A152, A153, A201, A202
3.3	Designated barrier-free leaf (where multiple doors)	N/A AT THIS STAGE
3.4	Accessible door hardware (lever style handles, D or U-shaped handles)	N/A AT THIS STAGE
3.5	Power door operator (min. 900mm - max. 1100mm AFF), min. 600mm - max.1500mm from door swing where door swings towards control / Proximity scanning devices	N/A AT THIS STAGE
3.6	Vestibule min. 1500mm (doors in series), min. 1500mm turning circle (un-aligned doors)	A151, A152, A153, A201, A202
3.7	Accessible door threshold (max. 13mm)	N/A AT THIS STAGE
3.8	Signage incorporating the International Symbol of Access (ISA)	N/A AT THIS STAGE
3.9	Min. 1100mm path of travel	A151, A152, A153, A201, A202
4.0	**Amenity Spaces**	
4.1	Power door operator (min. 900mm - max. 1100mm AFF), min. 600mm - max.1500mm from door swing where door swings towards control / Proximity scanning devices	N/A AT THIS STAGE
4.2	Accessible washroom (multi-stall with barrier-free stall)	N/A AT THIS STAGE
4.3	Universal Washroom	N/A AT THIS STAGE
5.0	**Barrier-Free Suites**	
5.1	Barrier-free path of travel to one washroom	N/A AT THIS STAGE
5.2	Barrier-free path of travel to one bedroom	N/A AT THIS STAGE
5.3	Barrier-free path of travel to kitchen space	N/A AT THIS STAGE
5.4	Barrier-free path of travel to living room space	N/A AT THIS STAGE
5.5	Level floor area at doors	A201-A204
5.6	Barrier-free washroom min. 1500mm turning circle and wall reinforcement	N/A AT THIS STAGE
6.0	**General Requirements for All Spaces and Common Corridors**	
6.1	Door clear width min. 860mm	A151 - A206
6.2	Latch-side clearance min. 600mm (pull side), min. 300mm (push side)	A151 - A206
6.3	Level floor area at door, 1100mm x 1500mm space	A151 - A206
6.4	Power door operator provided where latch-side clearance is not met	N/A AT THIS STAGE
6.5	Min. 1100mm path of travel	A151 - A206
6.6	Min. 1800mm x 1800mm layby space every 30m where applicable	A151 - A206
6.7	Ramp max. slope 1 in 12 (8.3%), 1670mm x 1670mm landings, demarcation of edge	Refer to Landscape dwgs.
6.8	Vestibule min. 1500mm (doors in series), min. 1500mm turning circle (un-aligned doors)	A151 - A206
6.9	TA/s at the top of all stairs and landings served by a door	A151 - A206
6.10	Finishes with no glare, min. 70% tonal contrast between wall and door	N/A AT THIS STAGE
6.11	Wall reinforcement in main bathrooms in all suites (per A-3.8.2.1 (6))	N/A AT THIS STAGE
6.12	Doors widths within a non-BF suite (per 3.8.3.3 (2))	N/A AT THIS STAGE

Accessibility Checklist

BUILDING 1 — 28 STOREY TOWER w/ 4 STOREY PODIUM

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
MPH	430	1	430	*4,629*	430	0	*0*									
Level 6-28	750	23	17,250	*185,679*	1,242	16,008	*172,310*			0	46	115	69	0	23	253
Level 5	1,375	1	1,375	*14,801*	55	1,320	*14,208*									
Level 2-4	1,400	3	4,200	*45,209*	210	3,990	*42,948*			0	6	36	12	3	6	63
Ground Floor	1,485	1	1,485	*15,985*	80	379	*4,080*	1,106	*11,896*							
Building 1 Total		**28**	24,740	*266,301*		**21,697**	***232,547***	**1,106**	***11,896***	0	52	151	81	3	29	**316**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			632	*6,803*			0.0%	16.5%	47.8%	25.6%	0.9%	9.2%	
Building Height	**96.12** m									Saleable Areas (sf)						
Height To top of MPH Roof	**102.12** m		RGFA =	21,065 sm		226,744 sf				0	25,314	87,132	55,458	2,298	26,092	***196,294***
			NRGFA =	1,106 sm		11,896 sf				Average Unit Area (sf)						
										0	487	577	685	766	900	
			Total =	**22,171.0** sm		238,640 sf				Required Barrier Free Units						
										0	31		13		5	**49**

BUILDING 2 — 31 STOREY TOWER w/ 4 STOREY PODIUM

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
MPH	430	1	430	*4,629*	430	0	*0*									0
Level 6-31	750	26	19,500	*209,898*	1,534	17,966	*193,386*			26	52	104	52	26	26	286
Level 5	750	1	750	*8,073*	56	694	*7,470*									0
Level 2-4	2,100	3	6,300	*67,813*	213	6,087	*65,520*			3	3	30	39	6	9	90
Ground Floor	2,045	1	2,045	*22,012*	109	150	*1,615*	1,683	*18,106*							0
Building 1 Total		**31**	29,025	*312,425*		**24,897**	***267,991***	**1,683**	***18,106***	29	55	134	91	32	35	**376**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			752	*8,095*			7.7%	14.6%	35.6%	24.2%	8.5%	9.3%	
Building Height	**104.97** m									Saleable Areas (sf)						
Height To top of MPH Roof	**110.97** m		RGFA =	24,145 sm		259,897 sf				10,563	26,866	76,345	62,153	26,312	31,486	***233,725***
			NRGFA =	1,683 sm		18,106 sf				Average Unit Area (sf)						
										364	488	570	683	822	900	
			Total =	**25,828.0** sm		278,003 sf				Required Barrier Free Units						
										5	29		19		6	**59**

BUILDING 3 — 35 STOREY (excl. 5-ST PODIUM)

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Mech PH	430	1	430	4,629	430	0	0									
Level 6-35	750	30	22,500	242,190	1,680	20,820	224,106			30	90	60	90	30	30	330
Level 5	750	1	750	8,073	62	688	7,406									0
Building 3 Total		**31**	23,680.0	*254,892*		**21,508**	***231,512***	**0**	***0***	30	90	60	90	30	30	**330**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			660	*7,104*			9.1%	27.3%	18.2%	27.3%	9%	9.1%	
Building Height (incl. podium)	**116.77** m									Saleable Areas (sf)						
Height To top of MPH Roof	**122.77** m		RGFA =	20,848 sm		224,408 sf				11,730	46,050	33,240	61,050	26,040	27,120	***205,230***
			NRGFA =	0 sm		0 sf				Average Unit Area (sf)						
										0	512	554	678	868	904	
			Total =	**20,848.0** sm		224,408 sf				Required Barrier Free Units						
										5	23		18		5	**51**

BUILDING 4 — 35 STOREY (excl. 5-ST PODIUM)

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Mech PH	430	1	430	4,629	430	0	0									
Level 6-35	750	30	22,500	242,190	1,680	20,820	224,106			30	90	60	90	30	30	330
Level 5	750	1	750	8,073	82	668	7,190									0
Building 4 Total		**31**	23,680.0	*254,892*		**21,488**	***231,297***	**0**	***0***	30	90	60	90	30	30	**330**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			660	*7,104*			9.1%	27.3%	18.2%	27.3%	9%	9.1%	
Building Height (incl. podium)	**116.77** m									Saleable Areas (sf)						
Height To top of MPH Roof	**122.77** m		RGFA =	20,828 sm		224,193 sf				11,730	46,050	33,240	61,050	26,040	27,120	***205,230***
			NRGFA =	0 sm		0 sf				Average Unit Area (sf)						
										0	512	554	678	868	904	
			Total =	**20,828.0** sm		224,193 sf				Required Barrier Free Units						
										5	23		18		5	**51**

BUILDING 5 — 35 STOREY (excl. 5-ST PODIUM)

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Mech PH	430	1	430	4,629	430	0	0									
Level 6-35	750	30	22,500	242,190	1,680	20,820	224,106			30	90	60	90	30	30	330
Level 5	750	1	750	8,073	101	649	6,986									0
Building 5 Total		**31**	23,680.0	*254,892*		**21,469**	***231,092***	**0**	***0***	30	90	60	90	30	30	**330**
BUILDING HEIGHT			Interior amenity deduction (2*units) =			660	*7,104*			9.1%	27.3%	18.2%	27.3%	9%	9.1%	
Building Height (incl. podium)	**116.77** m									Saleable Areas (sf)						
Height To top of MPH Roof	**122.77** m		RGFA =	20,809 sm		223,988 sf				11,730	46,050	33,240	61,050	26,040	27,120	***205,230***
			NRGFA =	0 sm		0 sf				Average Unit Area (sf)						
										0	512	554	678	868	904	
			Total =	**20,809.0** sm		223,988 sf				Required Barrier Free Units						
										5	23		18		5	**51**

4-ST SHARED PODIUM & SITE PARKING LEVELS

Floor	GBA/Typ. Floor (sm)	No. Typ. Floors	GBA Gross Building Area (no exclusions) sm	GBA Gross Building Area (no exclusions) sf	Exemptions	City Centre By-law 7553/17 GFA (Res) sm	GFA (Res) sf	GFA (Non-Res) sm	GFA (Non-Res) sf	B	1B	1B+D	2B	2B+D	3B	Total Suites
Buildings 3/4/5: Level 2-4	5,690	3	17,070.0	183,741	12,402	4,668	50,246	0	0	9	36	3	6	0	6	60
Buildings 3/4/5: Ground Floor	5,550	1	5,550.0	59,740	4,000	1,550	16,684	0	0	0	0	3	2	0	1	6
Level B1	8,850	1	8,850.0	95,261	8,250	600	6,458	0	0							
Level B2	16,175	1	16,175.0	174,108	13,224	1,818	19,568	1,133	12,197							
Level P1	18,760	1	18,760.0	201,933	18,760	0	0	0	0							
Podium & Parking Total	**Above Grade**	**4**	66,405.0	*714,783*		**8,636**	***92,957***	**1,133**	***12,197***	9	36	6	8	0	7	**66**
	Below Grade	*3*	Interior amenity deduction (2*units) =			132	*1,421*			13.6%	54.5%	9.1%	12.1%	0%	10.6%	
										Saleable Areas (sf)						
			RGFA =	8,504 sm		91,536 sf				1,356	3,150	3,731	4,834	0	6,010	***19,081***
			NRGFA =	1,133 sm		12,197 sf				Average Unit Area (sf)						
										452	525	622	690	#DIV/0!	859	
			Total =	**9,637.0** sm		103,733 sf				Required Barrier Free Units						
										2	7		2		2	**13**

STATISTICS SUMMARY

TOTAL DEVELOPMENT

		TOTAL NEW RESIDENTIAL GFA	sm	sf	TOTAL NEW RETAIL GFA	sm	sf			TOTAL UNIT NUMBER	
NORTH	BUILDING 1 =		21,065	*226,744*	BUILDING 1 =	1,106	*11,896*			BUILDING 1 =	316
	BUILDING 2 =		24,145	*259,897*	BUILDING 2 =	1,683	*18,106*			BUILDING 2 =	376
SOUTH	BUILDING 3=		20,848	*224,408*	BUILDING 3=	0	*0*			BUILDING 3=	330
	BUILDING 4=		20,828	*224,193*	BUILDING 4=	0	*0*			BUILDING 4=	330
	BUILDING 5=		20,809	*223,988*	BUILDING 5=	0	*0*			BUILDING 5=	330
	PODIUM=		6,086	*65,510*	PODIUM=	0	*0*			PODIUM=	66
SHARED	P1/B1/B2=		2,418	*26,026*	P1/B1/B2=	1,133	*12,197*				
	TOTAL GFA =		**116,199**	***1,250,765***	**TOTAL GFA =**	**3,922**	***42,199***			**TOTAL =**	**1,748**

FSI

					FSI Calculation			**Parkland Calculation**		**Landscape Coverage**	
					Gross Site Area =	27,316 sm				**Total**	0 sm
					Public Road Conveyance =	1,104 sm		MTO Lands =	4,310 sm		0.00%
Total Residential GFA=					**Net Site Area for FSI =**			**Net Site Area for Parkland =**			
					(Gross Site Area -Public Road - Parkland)	**24,019 sm**		*(Gross Site Area -Public Road - MTO)*	21,902 sm		
Total Retail GFA=	**3,922**	**sm**	42,199	sf				**Min. Parkland - 10% Net Site Area =**	*2,191* **sm**	**LOT COVERAGE (Gross Site Area)**	
Total GFA=	**120,121**	**sm**	1,292,964	sf	**FSI = Total GFA/NSA**	**5.00**		**Parkland Provided =**	**2,193 sm**	**Total**	8,850 sm
											36.85%

PARKING

Unit Mix: Unit Type	Unit Count	Unit %
Bachelor	128	7%
1B	884	51%
2B	575	33%
3B	161	9%
TOTAL	**1,748 units**	

Parking Provided: Level	Combined Vis. & Retail	Long Term Residential
Level 4		120
Level 3		120
Level 2		120
Ground Floor	133	104
Level B1	65	90
Level B2	148	117
Level P1	0	457
SITE TOTAL	**346**	**1,128**

Combined Vis. & Retail	Long Term Residential	Net Parking Space Ratio
0.20	**0.65**	**0.84**

Accessible Parking (included in the total): Provided	Required (by-law)	Required (AODA)
Level 4	0		
Level 3	0		
Level 2	0		
Ground Floor	2		
Level B1	1		
Level B2	9		
Level P1	13		
TOTAL	**25**	***TBD*****	***TBD*****

Additional Temporary Drop-Off Spaces: Building	Level	Number
Building 1	Ground	4
Building 2	Ground	4
Building 3	Ground	4
Building 4	B2	Circular Drop-off
Building 5	B2	Circular Drop-off

**Values determined by Traffic Consultant*

AMENITY

Building	Unit Count	Amenity Provided (sm): Location	Indoor	Outdoor	Total (sm): Indoor	Outdoor	Ratio (sm/unit): Indoor	Outdoor	Combined
Building 1	316	Level 5	547	164	**634**	**1,274**			
		Ground	87				***2.01***	***4.03***	***6.04***
		Balconies		1,110					
Building 2	376	Level 5	564	471	**564**	**1,828**			
		Balconies		1,357			***1.50***	***4.86***	***6.36***
Buildings 3, 4 & 5	1,056	Level 5	1,640	1,010	**2,585**	**4,820**			
Including 4-ST Podium		Ground	530				***2.45***	***4.56***	***7.01***
		B2	414						
		Balconies		3,810					
SITE TOTAL	**1,432**				**3,149**	**6,648**	***2.20***	***4.64***	***6.84***

Date	No.	Description
REVISION RECORD		

Issued for RZA	31-08-2024
ISSUE RECORD	

BDP. Quadrangle

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The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057	N/A	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Statistics & Context Plan

A001.S

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Autodesk Docs://705 Kingston Road/BDP_SITE_21057_705 Kingston Rd_R2023.rvt

KINGSTON ROAD TO SERVE AS FIRE ROUTE FOR BUILDING 1

KINGSTON ROAD

WHITE ROAD

BUILDING 1
750 SM
28 ST

4 ST PODIUM

AMENITY TERRACE AT L5

MPH TERRACE

BUILDING 2
750 SM
31 ST

BUILDING 3
750 SM
35 ST

BUILDING 4
750 SM
35 ST

BUILDING 5
750 SM
35 ST

URBAN PARK
FFE = +/- 100.00

PARKLAND DEDICATION
2,193 SM (10% OF NET SITE AREA)

PUBLIC ROAD

CUL-DE-SAC

14m MTO SETBACK

ON-RAMP ONTO HIGHWAY 401

HIGHWAY 401

4 SHORT-TERM DROP OFF SPACES EACH FOR BLDG 1 & 2 (NOT INCL. IN COMBINED PARKING COUNT)

5 SHORT-TERM DROP OFF SPACES (NOT INCL. IN COMBINED PARKING COUNT)

BUILDING 1 LOADING AND ACCESS TO P1/B2/B1 PARKING

DROP OFF

DRIVEWAY ENTRANCE

FIRE ROUTE

FIRE ROUTE (4.5m MIN CLEARANCE)

PODIUM SEP

22.1 m

36.0 m

17.3 m

17.4 m

5.0 m

9.0 m

14.0 m

4.6 m

1.5 m

6.0 m

3.0 m

7.0 m

8330

1670

8000

OUTLINE OF B2

LOADING ENTRANCES AT B2

ABOVE-GRADE PARKING ENTRANCE AT GRADE

4.5m EASEMENT

SITE PLAN LEGEND

- PROPERTY LINE
- MAIN BUILDING ENTRANCE
- RETAIL ENTRANCE
- EXIT
- VEHICLE / LOADING ENTRANCE / EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION

REVISION RECORD

ISSUE RECORD

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t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 1:400 PROJECT SCALE

MT YA DRAWN REVIEWED

Site Plan

A101.S

Autodesk Docs://705 Kingston Road/BDPQ_SITE_21057_705 Kingston Rd_R2023.rvt

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PARKING NOTES:

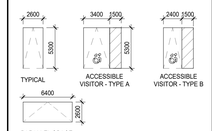
1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5300mm LONG (NO SIDES OBSTRUCTED)
   - 2600mm WIDE X 6400mm LONG (PARALLEL)

2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6500mm UNLESS OTHERWISE NOTED.

3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- 1830 / 315 / 315 — BIKE LOCKER (HORIZONTAL)
- 1766 2134 / 500 / 500 — BIKE PARKING (STACKED)
- 1200 / 500 / 500 — BIKE PARKING (VERTICAL)
- ELECTRIC BICYCLE SPACE
- ELECTRIC VEHICLE READY SPACE
- ELECTRIC VEHICLE ROUGH-IN SPACE



PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

* 113 SPACES ON B2 TO BE EV-READY (10% OF TOTAL)

** 451 SPACES ON P1 TO BE FITTED WITH EV-ROUGH INS (40% OF TOTAL)

*** BUILDINGS 1, 2 & 3 TO HAVE ADDITIONAL 4 SPACES EACH ON GROUND FLOOR TO SERVE AS SHORT-TERM DROP OFF. THIS VALUE IS NOT INCLUDED IN TOTAL PARKING COUNT.

BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

* 131 ELECTRIC BIKE SPACES ON B1 (15% OF LONG-TERM)

** BICYCLE MOUNTING:
100 VERTICAL SPACES (9.5%)
630 SINGLE HORTIZONTAL SPACES (60%)
320 STACKED HORIZONTAL SPACES (30.6%)

*** ALL LONG-TERM RESIDENTIAL BICYCLE STORAGE ROOMS TO HAVE MIN. 1 BIKE REPAIR STATION 1.8m x 2.6m

REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

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t 416.598.1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 1:250 MT YA
PROJECT SCALE DRAWN REVIEWED

Underground Level P1

A151.S

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PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5300mm LONG (NO SIDES OBSTRUCTED)
   - 2600mm WIDE X 6400mm LONG (PARALLEL)

2. MAINTAIN MININUM DRIVE AISLE WIDTH OF 6500mm UNLESS OTHERWISE NOTED.

3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- RESIDENTIAL PARKING SPACE
- BIKE LOCKER (HORIZONTAL)
- BIKE PARKING (STACKED)
- BIKE PARKING (VERTICAL)
- ELECTRIC BICYCLE SPACE
- ELECTRIC VEHICLE READY SPACE
- ELECTRIC VEHICLE ROUGH-IN SPACE

TYPICAL — ACCESSIBLE VISITOR - TYPE A — ACCESSIBLE VISITOR - TYPE B — PARALLEL SPACE

PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

* 113 SPACES ON B2 TO BE EV-READY (10% OF TOTAL)

** 451 SPACES ON P1 TO BE FITTED WITH EV-ROUGH INS (40% OF TOTAL)

*** BUILDINGS 1, 2 & 3 TO HAVE ADDITIONAL 4 SPACES EACH ON GROUND FLOOR TO SERVE AS SHORT-TERM DROP OFF. THIS VALUE IS NOT INCLUDED IN TOTAL PARKING COUNT.

BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m^2	

* 131 ELECTRIC BIKE SPACES ON B1 (15% OF LONG-TERM)

** BICYCLE MOUNTING:
100 VERTICAL SPACES (9.5%)
630 SINGLE HORTIZONTAL SPACES (60%)
320 STACKED HORIZONTAL SPACES (30.5%)

*** ALL LONG-TERM RESIDENTIAL BICYCLE STORAGE ROOMS TO HAVE MIN. 1 BIKE REPAIR STATION 1.8m x 2.6m

REVISION RECORD

ISSUE RECORD

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705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 PROJECT | 1:250 SCALE | MT DRAWN | YA REVIEWED

Level B2

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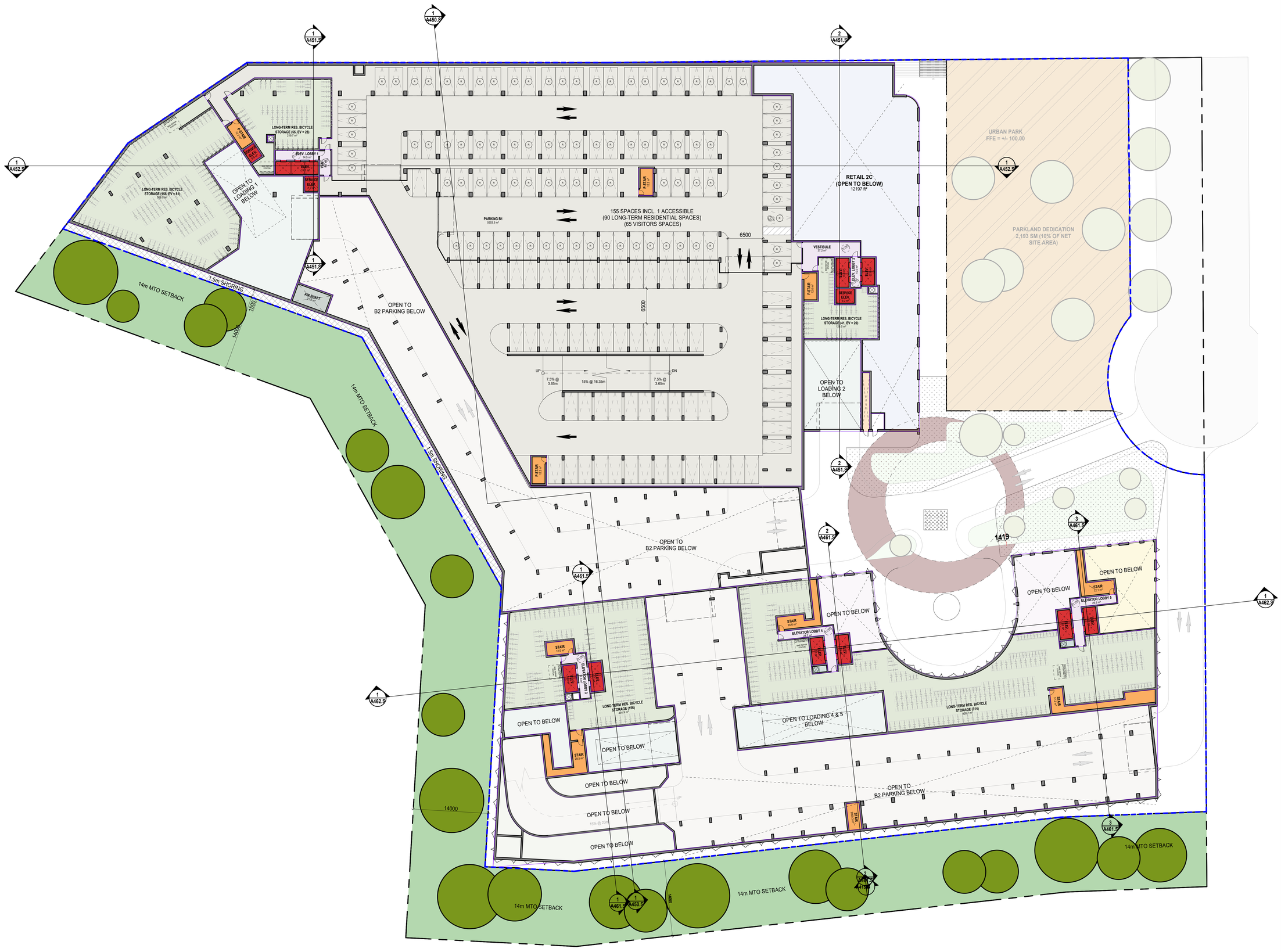
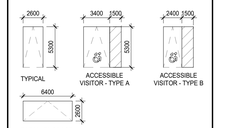


PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5300mm LONG (NO SIDES OBSTRUCTED)
   - 2600mm WIDE X 6400mm LONG (PARALLEL)
2. MAINTAIN MINIMUM DRIVE AISLE WIDTH OF 6500mm UNLESS OTHERWISE NOTED.
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

- (R) RESIDENTIAL PARKING SPACE
- 1830 / 315 / 315 — BIKE LOCKER (HORIZONTAL)
- 1766, 2134 / 500 / 500 — BIKE PARKING (STACKED)
- 1200 / 600 / 600 — BIKE PARKING (VERTICAL)
- ELECTRIC BICYCLE SPACE
- ELECTRIC VEHICLE READY SPACE
- ELECTRIC VEHICLE ROUGH-IN SPACE



PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

* 113 SPACES ON B2 TO BE EV-READY (10% OF TOTAL)

** 451 SPACES ON P1 TO BE FITTED WITH EV-ROUGH INS (40% OF TOTAL)

*** BUILDINGS 1, 2 & 3 TO HAVE ADDITIONAL 4 SPACES EACH ON GROUND FLOOR TO SERVE AS SHORT-TERM DROP OFF. THIS VALUE IS NOT INCLUDED IN TOTAL PARKING COUNT.

BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

* 131 ELECTRIC BIKE SPACES ON B1 (15% OF LONG-TERM)

** BICYCLE MOUNTING:
100 VERTICAL SPACES (9.5%)
630 SINGLE HORTIZONTAL SPACES (60%)
320 STACKED HORIZONTAL SPACES (30.5%)

*** ALL LONG-TERM RESIDENTIAL BICYCLE STORAGE ROOMS TO HAVE MIN. 1 BIKE REPAIR STATION 1.8m x 2.6m

REVISION RECORD

ISSUE RECORD

BDP. Quadrangle

Quadrangle Architects Limited
The Well, 8 Spadina Avenue, Suite 2100, Toronto, ON M5V 0S8
t 416 598 1240 www.bdpquadrangle.com

705 Kingston Road, Pickering

Ontario, Canada

for
Resident

21057 PROJECT | 1:250 SCALE | MT DRAWN | YA REVIEWED

Level B1

A153.S

Autodesk Docs://705 Kingston Road/BDPQL_SITE_21057_705 Kingston Rd_R23D23.rvt
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SITE PLAN LEGEND

PROPERTY LINE
MAIN BUILDING ENTRANCE
RETAIL ENTRANCE
EXIT
VEHICLE / LOADING ENTRANCE / EXIT
FIRE HYDRANT
SC SIAMESE CONNECTION

PARKING NOTES:

1. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED):
   - 2600mm WIDE X 5300mm LONG (NO SIDES OBSTRUCTED)
   - 2600mm WIDE X 6400mm LONG (PARALLEL)
2. MAINTAIN MININUM DRIVE AISLE WIDTH OF 6500mm UNLESS OTHERWISE NOTED.
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.

PARKING LEGEND:

Ⓡ RESIDENTIAL PARKING SPACE
1830 915 BIKE LOCKER (HORIZONTAL)
1766 2134 610 BIKE PARKING (STACKED)
1200 600 BIKE PARKING (VERTICAL)
ϟ ELECTRIC BICYCLE SPACE
ELECTRIC VEHICLE READY SPACE
ELECTRIC VEHICLE ROUGH-IN SPACE

2600 5300 TYPICAL
3400 1500 5300 ACCESSIBLE VISITOR - TYPE A
2400 1500 ACCESSIBLE VISITOR - TYPE B
6400 2600 PARALLEL SPACE

PARKING COUNT:

LEVEL	COMBINED VISITOR & RETAIL	RESIDENTIAL	OF WHICH ACCESSIBLE
L4	0	120	0
L3	0	120	0
L2	0	120	0
GF	133	104	2
B1	65	90	1
B2	148	117*	9
P1	0	457**	13
TOTALS	346	1,128	25
RATIO	0.2 /UNIT	0.65 /UNIT	

* 113 SPACES ON B2 TO BE EV-READY (10% OF TOTAL)

** 451 SPACES ON P1 TO BE FITTED WITH EV-ROUGH INS (40% OF TOTAL)

*** BUILDINGS 1, 2 & 3 TO HAVE ADDITIONAL 4 SPACES EACH ON GROUND FLOOR TO SERVE AS SHORT-TERM DROP OFF. THIS VALUE IS NOT INCLUDED IN TOTAL PARKING COUNT.

BICYCLE COUNT:

LEVEL	SHORT -TERM RESIDENTIAL	LONG-TERM RESIDENTIAL	SHORT-TERM RETAIL	LONG-TERM RETAIL
B1	0	724*	0	0
B2	173	0	2	3
P1	0	148	0	0
TOTALS	173	872	2	3
RATIO	0.1 /UNIT	0.5 /UNIT	1 PER 1000 m²	

* 131 ELECTRIC BIKE SPACES ON B1 (15% OF LONG-TERM)

** BICYCLE MOUNTING:
100 VERTICAL SPACES (9.5%)
630 SINGLE HORTIZONTAL SPACES (60%)
320 STACKED HORIZONTAL SPACES (30.5%)

*** ALL LONG-TERM RESIDENTIAL BICYCLE STORAGE ROOMS TO HAVE MIN. 1 BIKE REPAIR STATION 1.8m x 2.6m

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21057	As indicated	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Ground Floor Plan

A201.S

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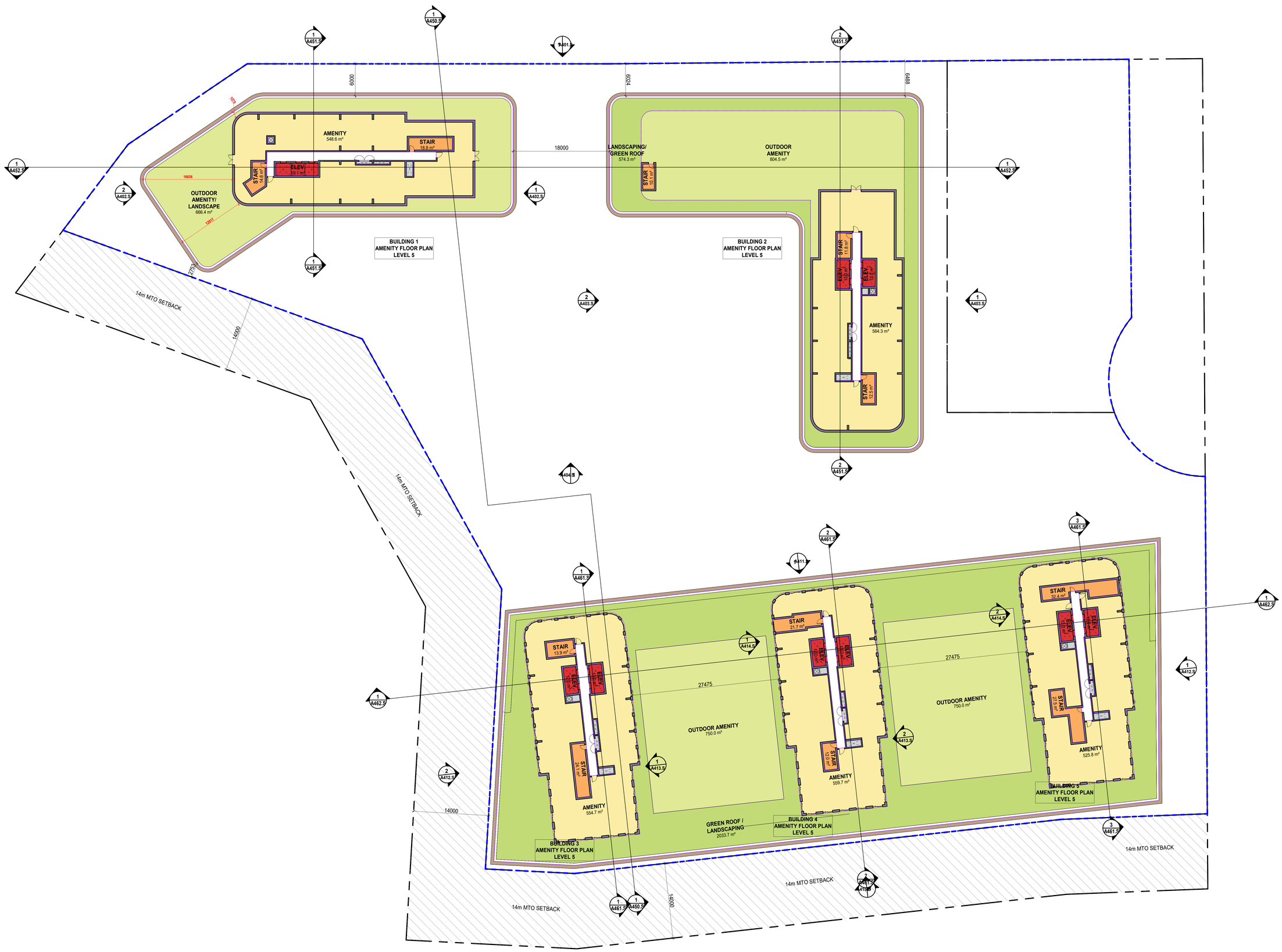

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705 Kingston Road, Pickering

Ontario, Canada

for

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21057 1 : 250 MT YA
PROJECT SCALE DRAWN REVIEWED

Podium Roof Plan (Floor 5)

A203.S

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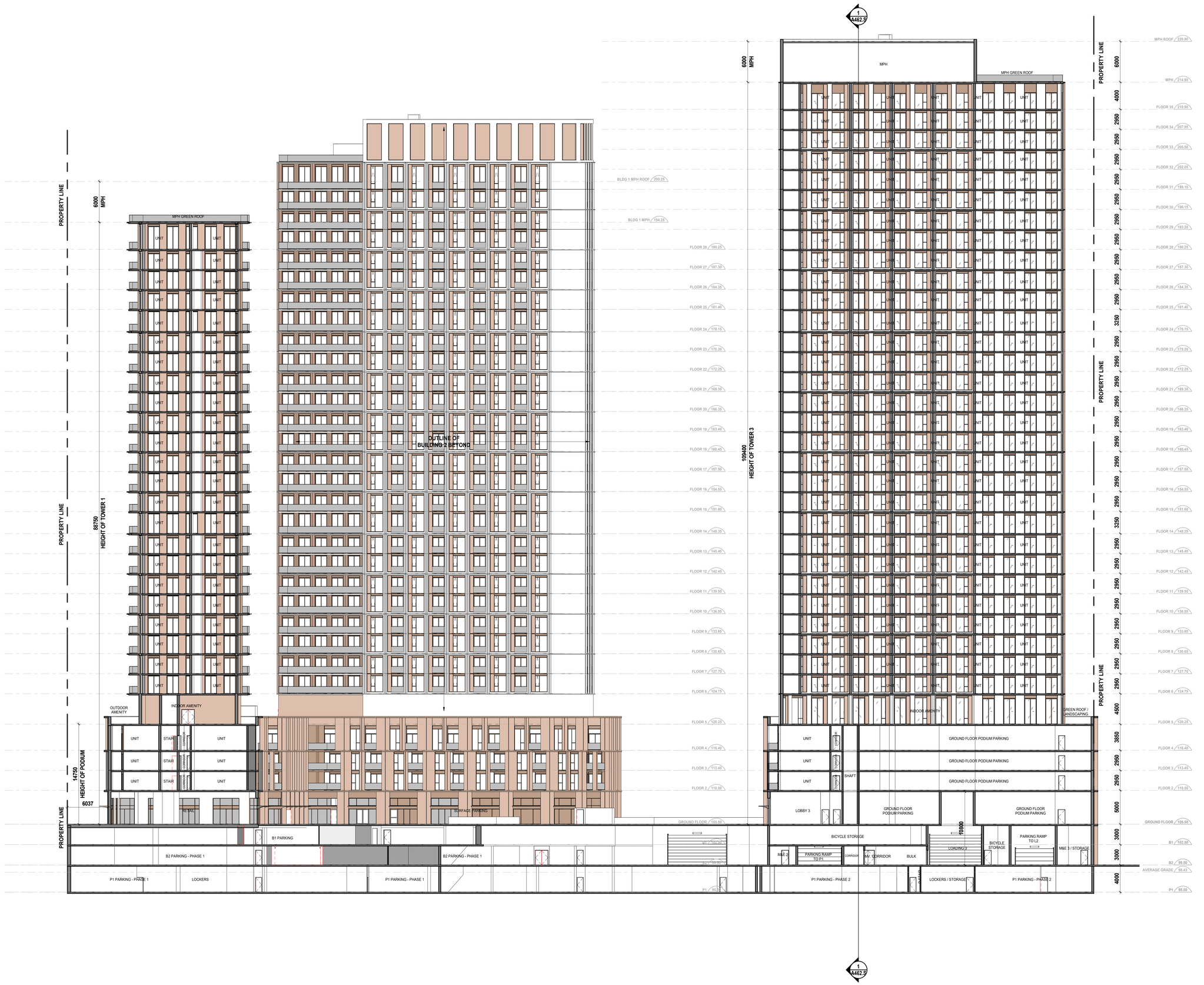

1 Site Section N-S
A450.S

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705 Kingston Road, Pickering

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21057 1 : 200 MT YA
PROJECT SCALE DRAWN REVIEWED

Site Section

A450.S

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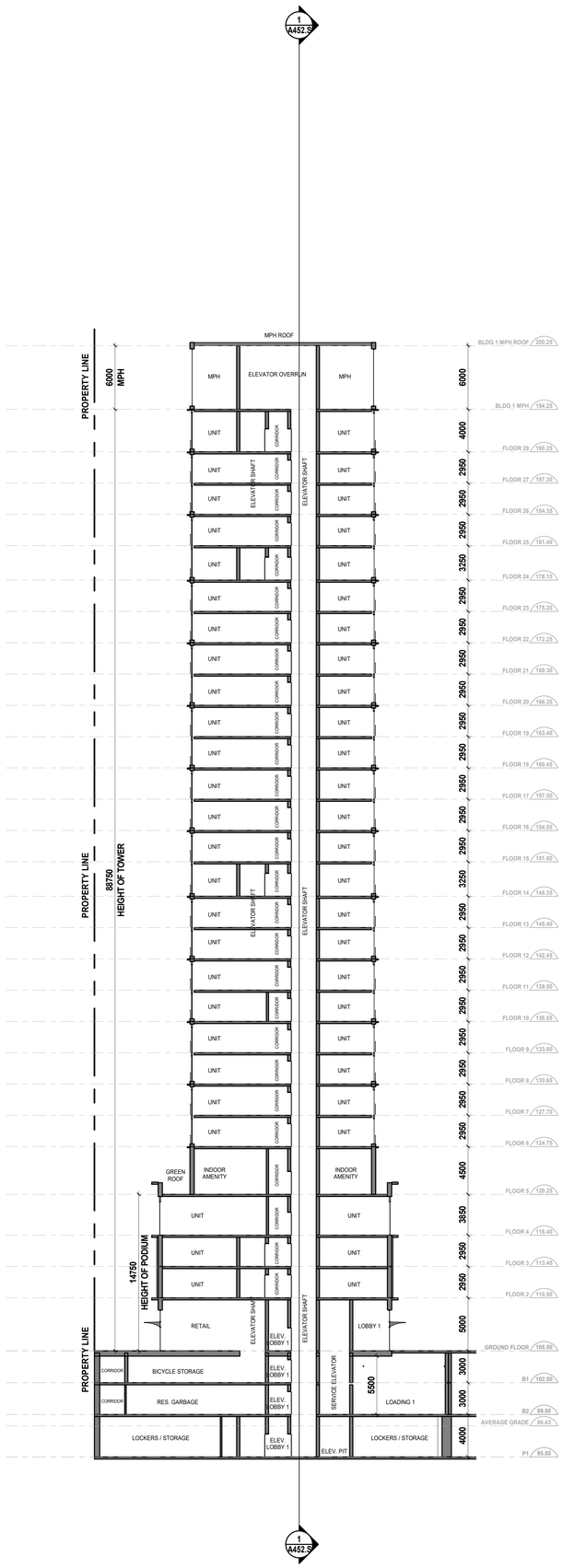
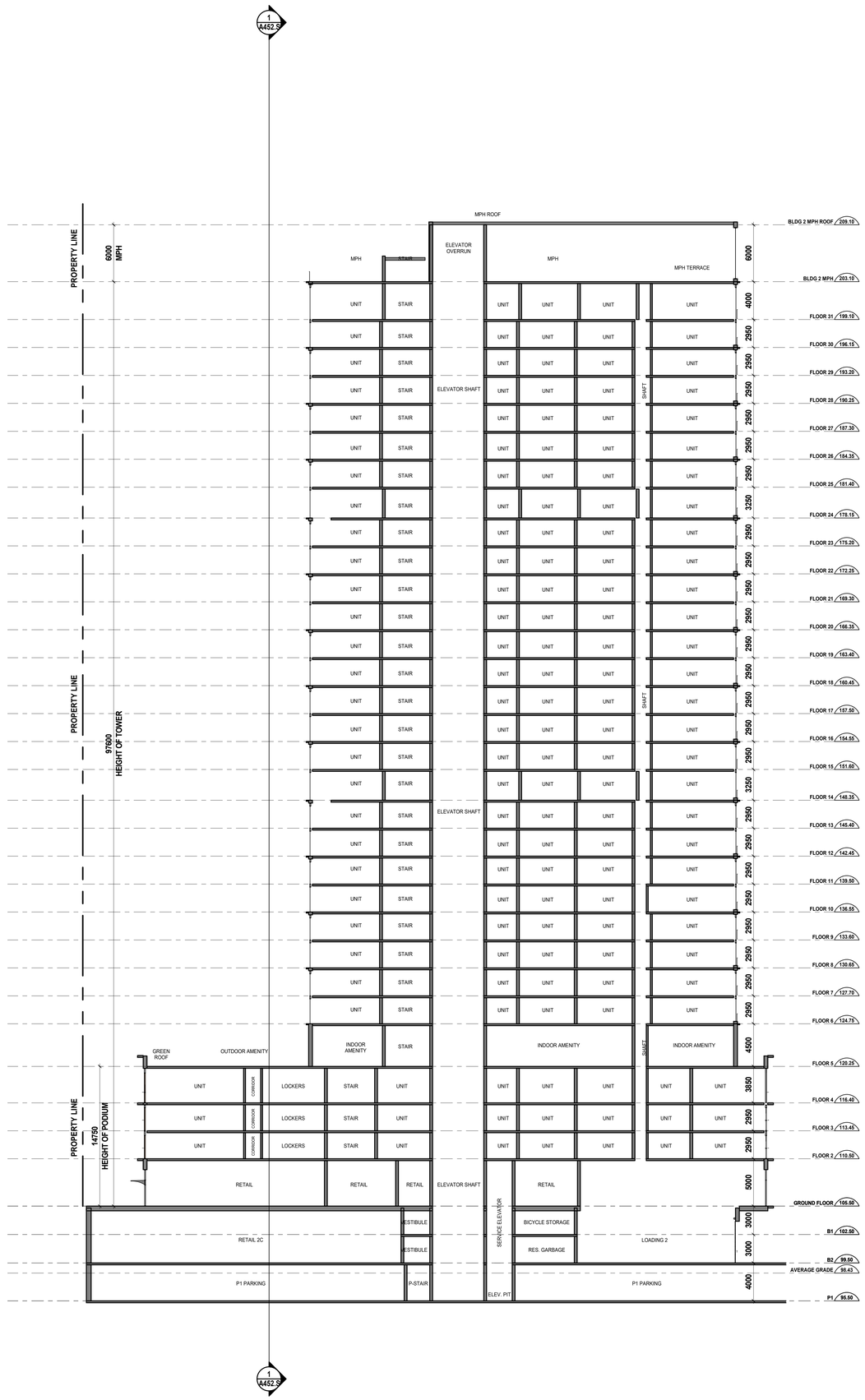


1 A451.S Building 1 Section N-S



2 A451.S Building 2 Section N-S

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Building 1 & 2 - North-South Sections

A451.S

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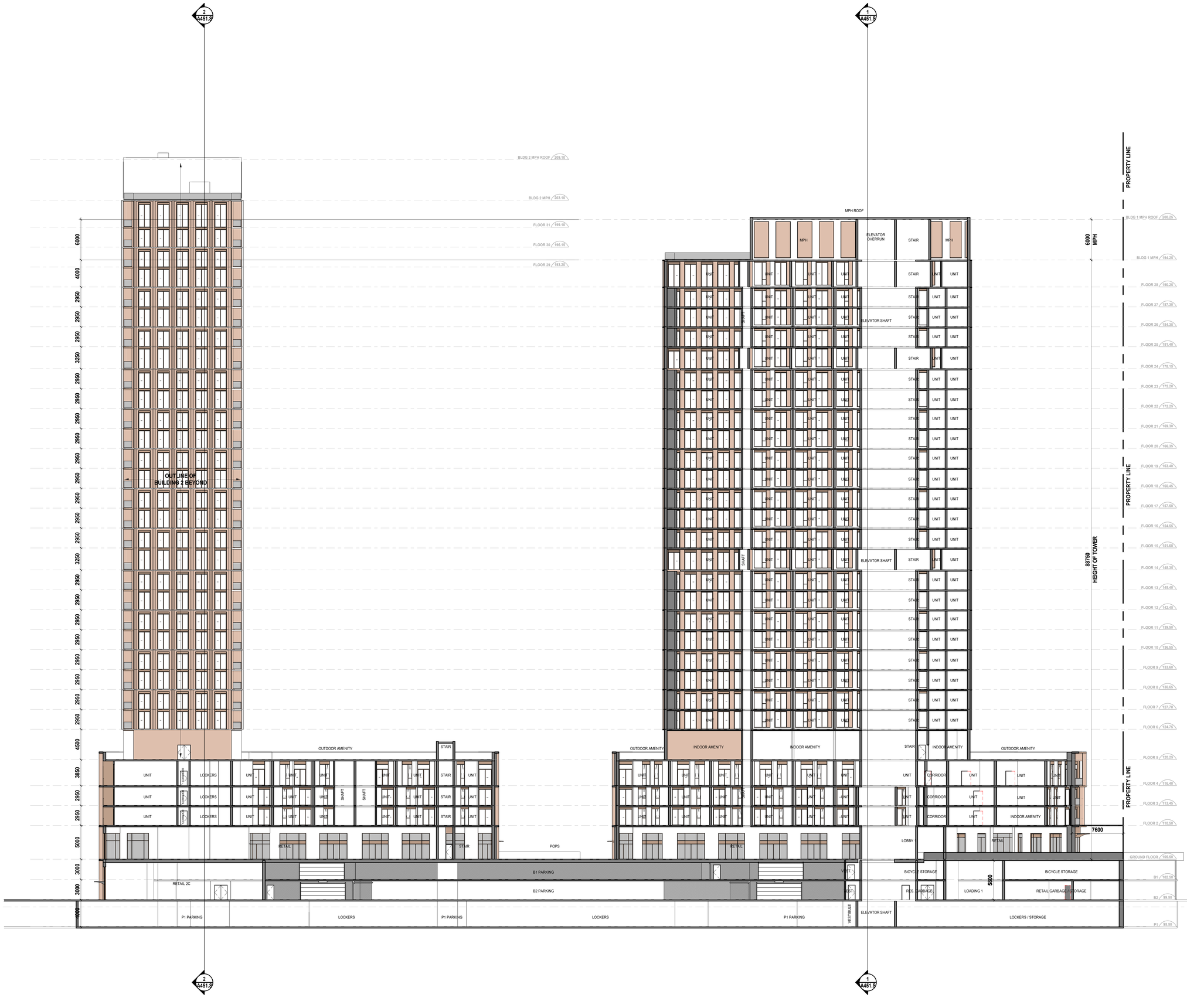

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Resident

21057	1 : 200	MT	YA
PROJECT	SCALE	DRAWN	REVIEWED

Building 1 & 2 - East-West Sections

A452.S

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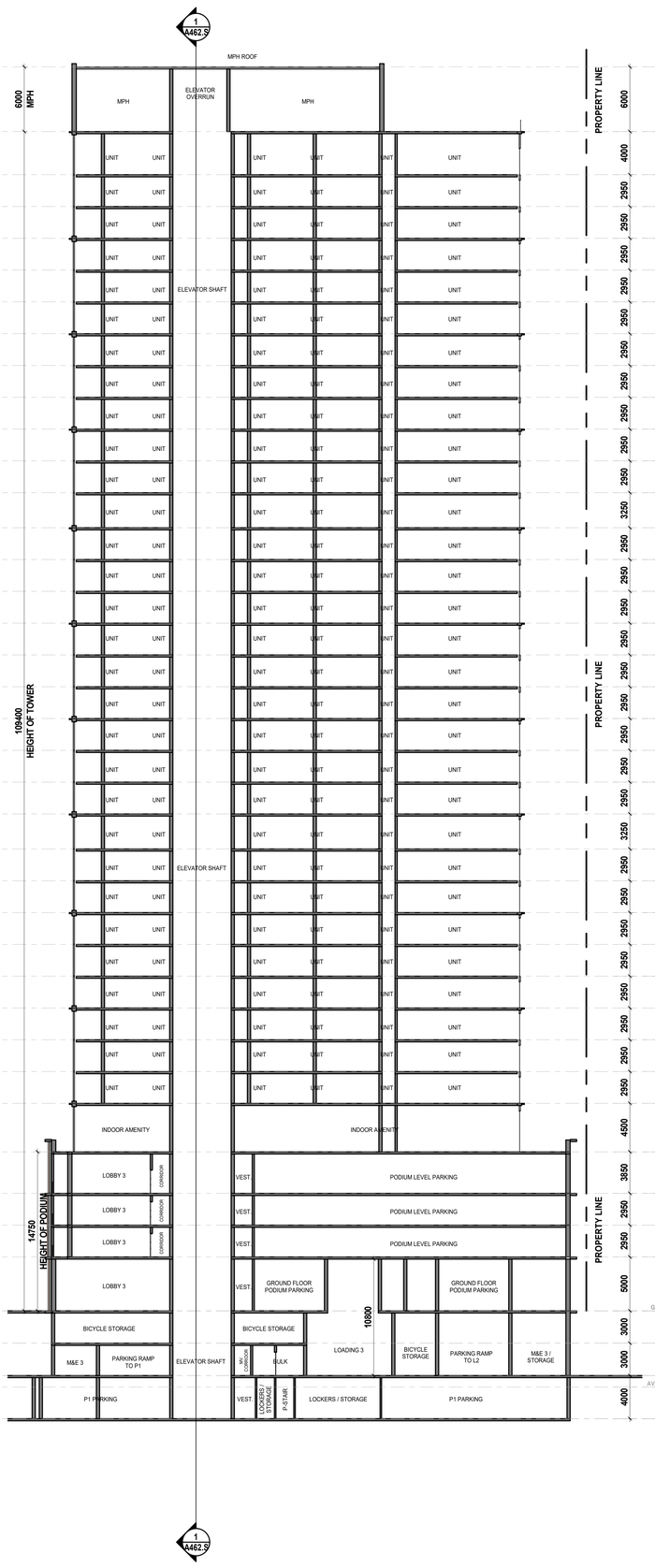
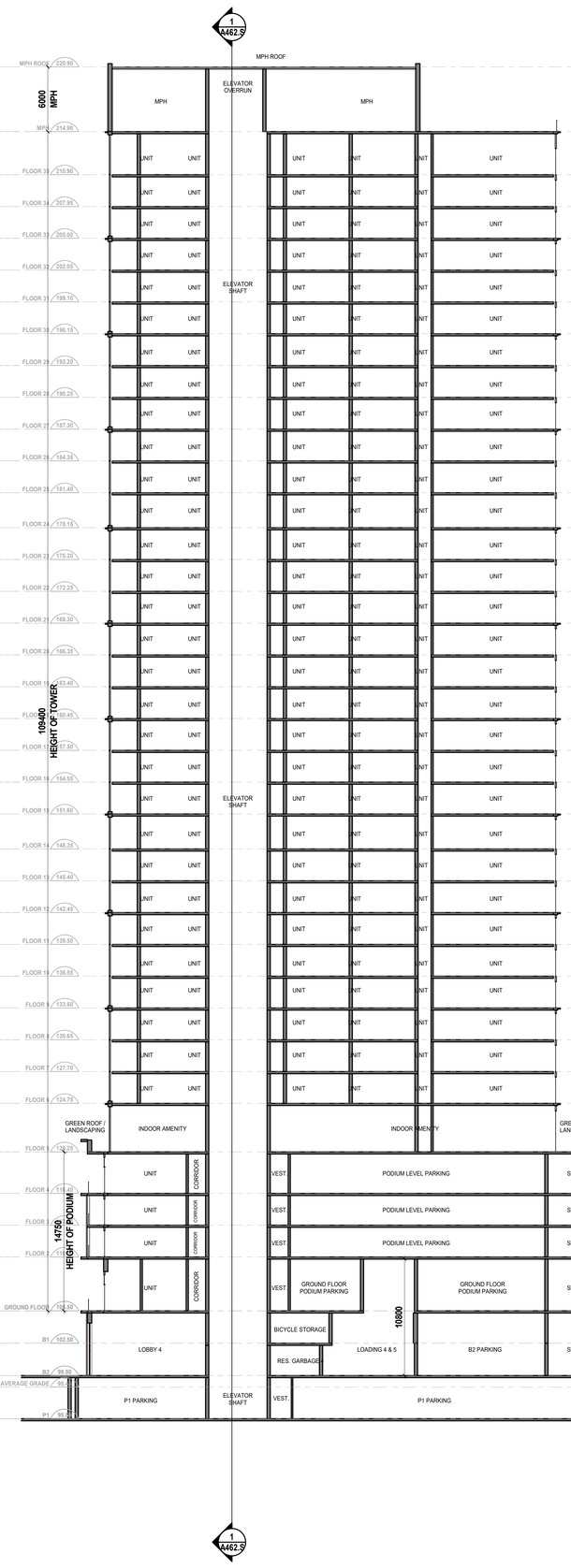
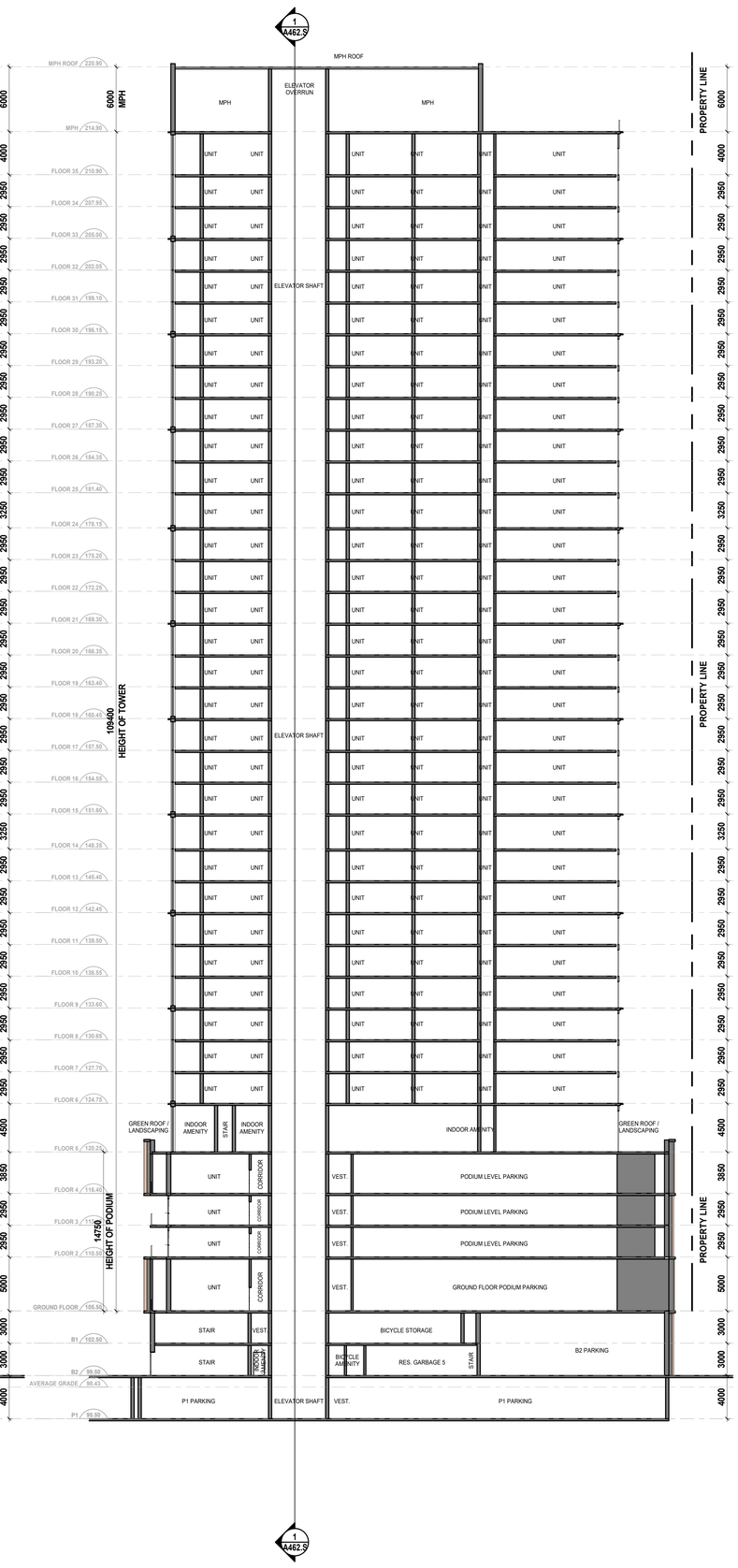


1 Building 3 Section N-S



2 Building 4 Section N-S



3 Building 5 Section N-S

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705 Kingston Road, Pickering

Ontario, Canada

for

Resident

21057 1 : 200 MT YA
PROJECT SCALE DRAWN REVIEWED

Building 3/4/5 - North-South Sections

A461.S

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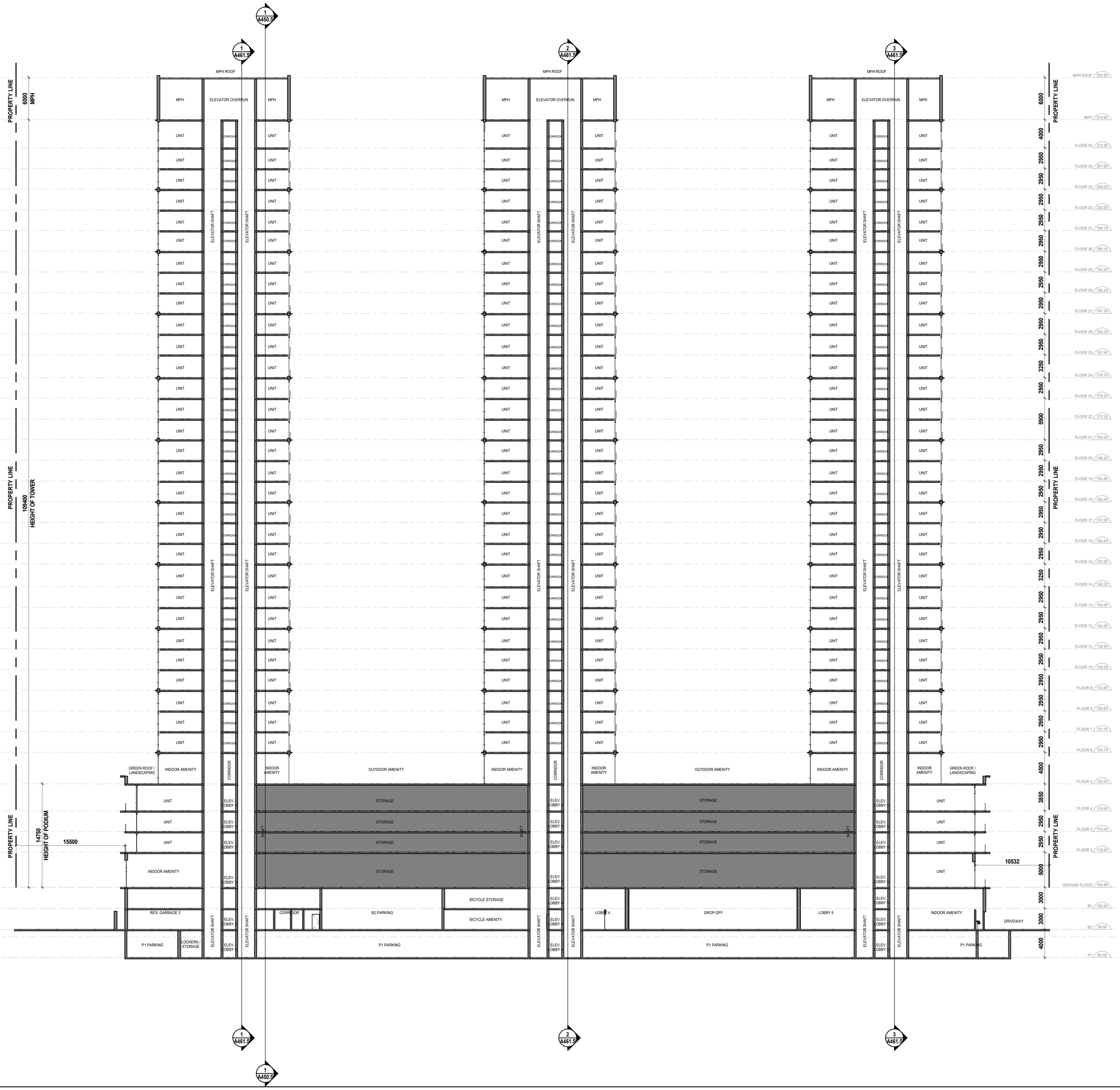

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Building 3/4/5 - East-West Sections

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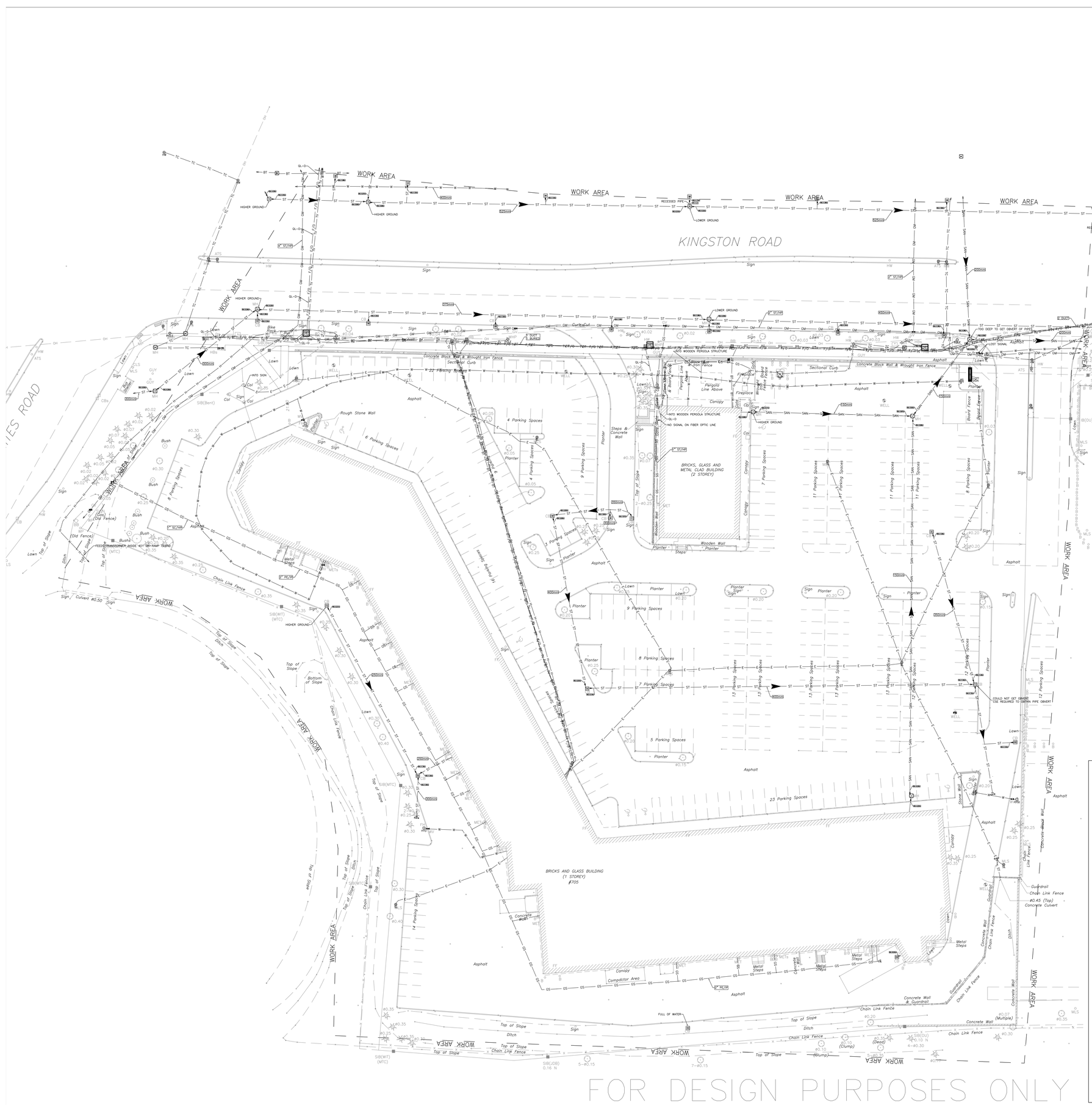


FOR DESIGN PURPOSES ONLY

SYMBOLS LEGEND

- MANHOLE
- CATCH BASIN
- POLE
- CLEAN OUT
- STREET / TRAFFIC LIGHT
- HYDRANT
- VALVE
- TRANSFORMER
- HAND WELL
- PEDESTAL
- CONTROL BOX / PLUG
- VALVE CHAMBER
- TRAFFIC BOX (TB)
- AIR PUMP (AP)
- SIGN
- BUS SHELTER (BUS SHELTER)
- TRAFFIC CONTROL BOX (TRFC. CB)
- FLUSH TO GRADE VAULT (FTG)
- HEADWALL
- FLOW
- UTILITY CONTINUES
- TEST PIT

UTILITY CODES LEGEND

W	WATER
E	ELECTRIC
H	HYDRO
BT	BELL TELEPHONE
C	COMMUNICATION CABLES/DUCT
ALL	ALL STREAM
F/O	FIBER OPTIC
TV	TELEVISION
GS	GAS SERVICE
GM	GAS MAIN
DZL	DIESEL
TNPL	TRANS NORTHERN PIPELINE
SCPL	SUN-CANADIAN PIPELINE
IMPL	IMPERIAL PIPELINE
FL	FUEL LINE
SAN	SANITARY SEWER
ST	STORM SEWER
Wt	WEEPING TILE
COMB	COMBINATION SEWER
IR	IRRIGATION
?	UNKNOWN SERVICE
TC	TRAFFIC CONTROL
STM	STEAM
OXY	OXYGEN

MARK IT LOCATES INC.

Utility Mapping Quality Levels as per ASCE C-I 38-02

QL-A – Locating exact vertical and horizontal position of underground utilities using appropriate safe excavation techniques and recording these data.

QL-B – Designating the horizontal position of underground utilities by the application of appropriate surface geophysical methods.
- Limited in scope to verification of provided level D information.
- Utilities may escape detection. (See Notes)

QL-C – Survey of surface features.

QL-D – Records and plans research including record collection and review.

Notes:

1. This information is provided for design purposes only.
2. This information is not a substitute for sanctioned locates as provided by the utility owner.
3. Prior to any excavation, all utility owners must be contacted to obtain sanctioned locates, as stipulated by the Occupational Health & Safety Act.
4. Inferred utility depths indicated on this drawing are only estimates and should be verified by direct physical exposure.
5. Underground infrastructure shown on this drawing was obtained on a best-effort, best-practices basis, within the technical limitations of the instrumentation.
6. The spatial accuracy of the plotted information is dependent on the accuracy of the base map information as provided by others.
7. This information is provided on a best effort basis within the limitations of the technology. Consequently some utilities may escape detection (i.e. non-conductive, inaccessible, incomplete Level D information provided by the Client and/or physical expression not reasonably identifiable at the time of the survey, etc.)
8. The information herein documents the position of suspected or known utilities existing at this site as of the drawing date.
9. Quality Level 'D' information was obtained by MARK IT Locates Inc. during the course of this investigation.

Buried Utility Map

For: Plaza Partners	Site: 705 Kingston Road, Pickering, ON
Project# 2023-12501	Date: SEP 28, 2023 Checked: SI

APPENDIX B

Watermain Demand

Hydrant Flow Test

FUS Calculations

Lozzi Aqua Check Massimo Lozzi

12307 Woodbine Ave, P.O. Box 519 Cell: 416 990-2131

Gormley, ON L0H 1G0 E-mail: lozziaquacheck@gmail.com

Hydrant Flow Test Form

Job Location: 705 Kingston Rd,Pickering Date: October 12, 2023

Time of Test: 9:30 am

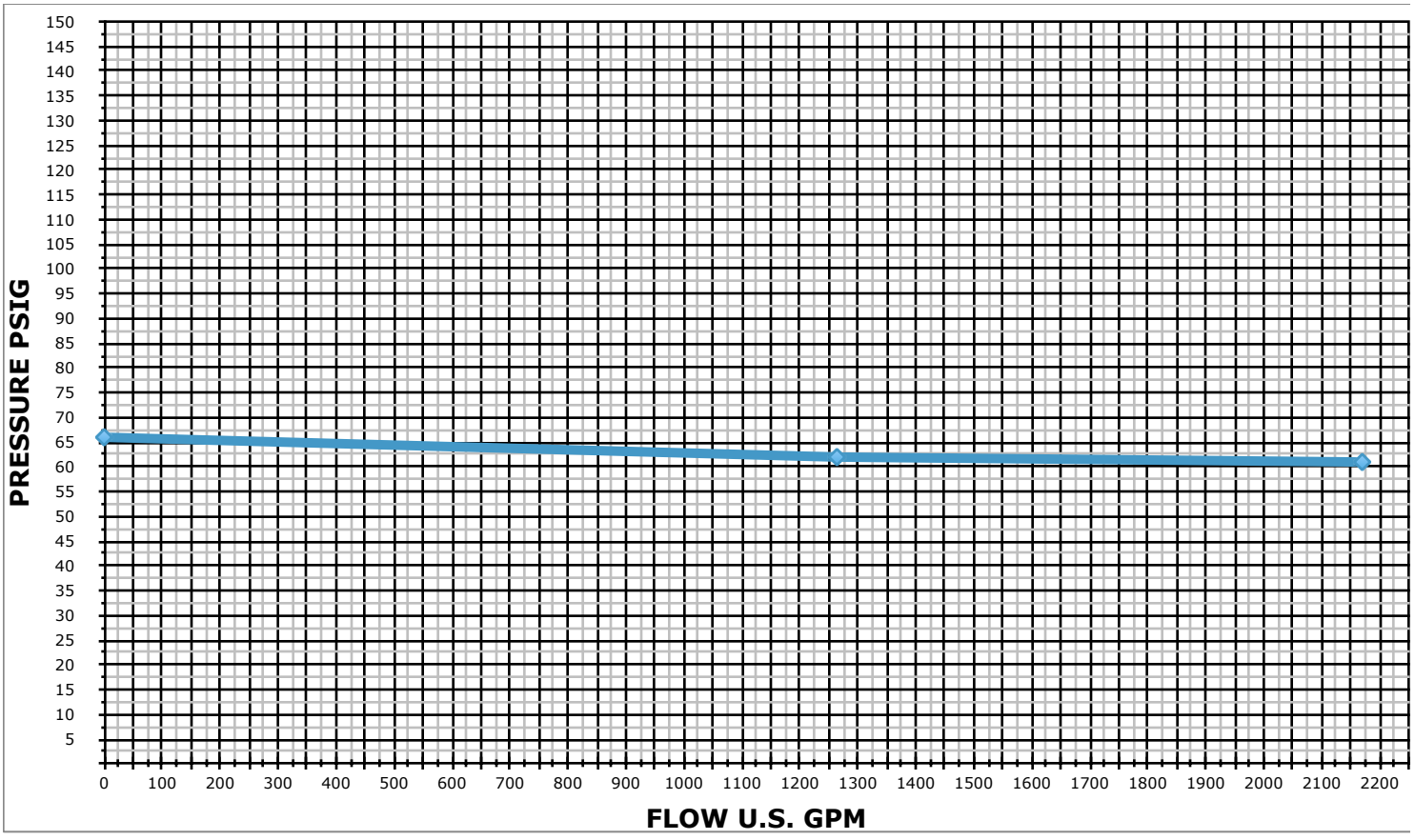
Location of Flow Hydrant: N/E corner of Kingston Rd & Whites Rd.

Residual: The next hydrant East at Delta Blvd

Main Size: 400 mm Static Pressure: 66 psi

	Number of Outlets & Orifice Size	Pitot Pressure (psi)	Flow (U.S. G.P.M.)	Residual Pressure (psi)
1.	Static	0	0	66
2.	1 x 2 ½	57	1264	62
3.	2 x 2 ½	42	2170	61

Note: Flow test conducted in accordance with NFPA 291



Lozzi Aqua Check

12307 Woodbine Ave, P.O. Box 519

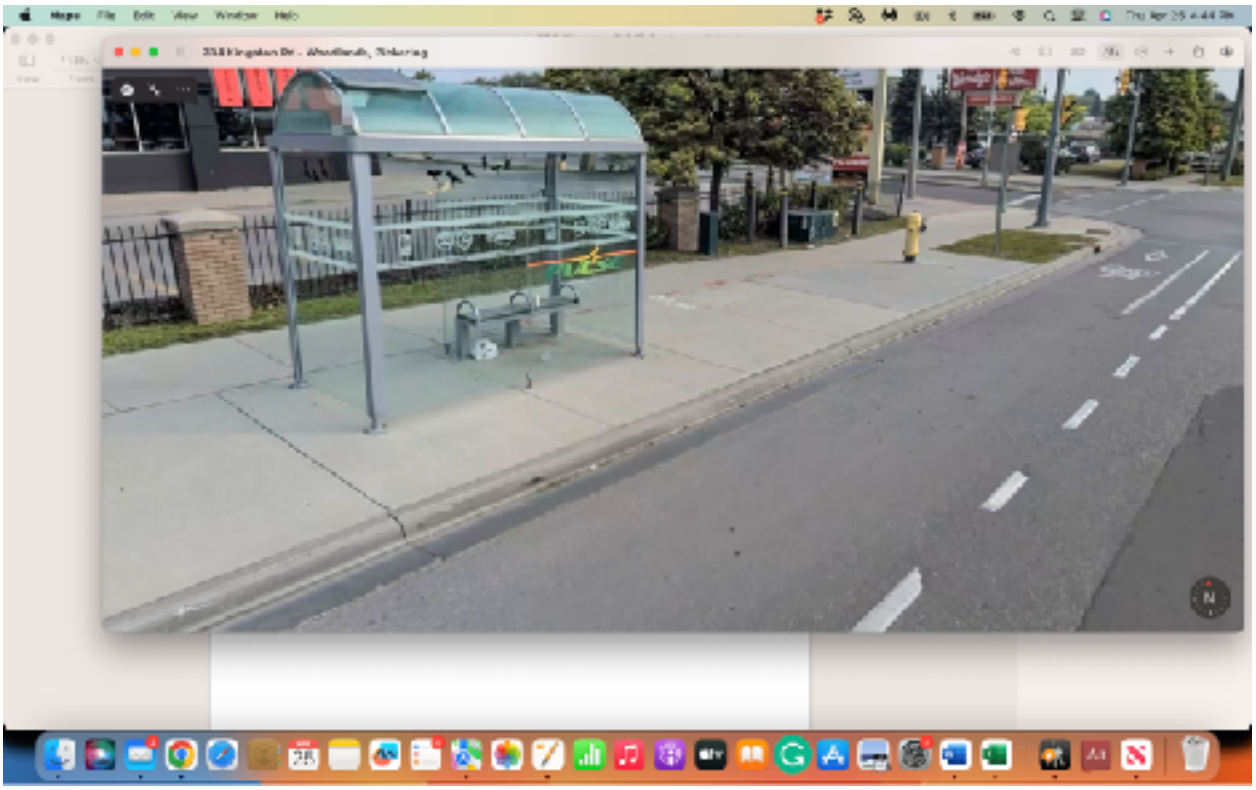
Gormley, ON L0H 1G0

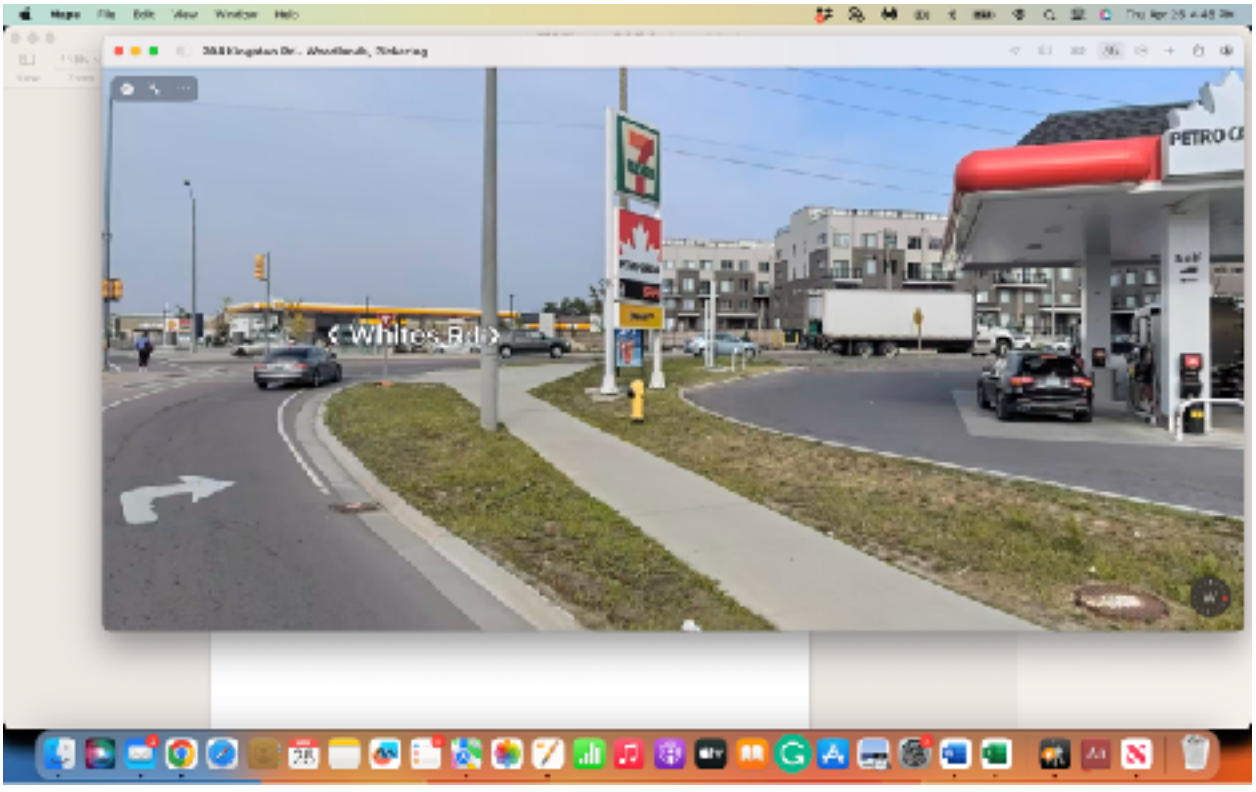
Massimo Lozzi

Cell: 416 990-2131

E-mail: lozziaquacheck@gmail.com

Site Map





Counterpoint Engineering Inc.

WATER DEMANDS BY BLOCK AND BUILDING

Project: 705 Kingston
Project No: 23068
Location: Pickering

Per Capita Demand

Single Family	310	litres/person/day
Multi-Unit	190	litres/person/day

Retail/Residential Population Criteria

1 Bedroom	1.5	ppu
2 Bedroom	2.5	ppu
3 Bedroom	3.5	ppu
Townhouse	3	ppu
Commercial/Retail	86	persons/ha
Office	3.3	persons/100m^2
Parkland	10	persons/Ha^3

Unit and Floor Area Breakdown

POPULATION AND AVERAGE DAY DEMANDS SUMMARY

Building #	1 Bedroom Units	2 Bedroom Units	3 Bedroom Units	Townhouse	Total Residential Units*	Parkland Populations	Total Residential Population	Residential Average Demand	Office (m^2)	Total Office Population	Office Average Demand	Retail/ Commercial (m^2)	Retail/ Commercial Average Demand (28m^3/ha/day)
	1.5 persons/unit	2.5 persons/unit	3.5 persons/unit	3.0 persons/unit	Units	Persons	Equivalent Population	L/s	Area	Equivalent Population	L/s	Area	L/s
1	203	84	29	0	316	0	617	1.36	-	0.0	0.00	1106	0.04
2	218	123	35	0	376	0	758	1.67	-	0.0	0.00	1683	0.05
3	180	120	30	0	330	0	676	1.49	-	0.0	0.00	-	0.00
4	180	120	30	0	330	0	676	1.49	-	0.0	0.00	-	0.00
5	180	120	30	0	330	0	676	1.49	-	0.0	0.00	-	0.00
Podium	51	8	7	0	66	0	122	0.27	-	0.0	0.00	1133	0.04
Park	0	0	0	0	0	2.20	2.2	0.00	-	0.0	0.00	0	0.00
Site Total	***1,012***	***575***	***161***	***0***	***1,748***	***2.20***	***3,525***	***7.76***	***0***	***0***	***0***	***3,922***	***0.13***

**Note: total units rounded up due to rounding when applying unit mix ratio percentages.*

Peaking Factors

Land Use	Minimum Hour	Maximum Hour	Maximum Day
Apartment	0.84	2.50	1.30
Commercial	0.84	1.20	1.10
Industrial	0.84	1.90	1.10
Institutional	0.84	1.90	1.10

Summary of Demands

Daily Water Demand (L/sec)	Max Day Water Demand (L/sec)	Peak Hour Water Demand (L/sec)	Fire Demand Required (L/sec)	Max Day plus Fire Demand (L/sec)
7.88	10.08	19.39	116.67	126.75

counterpoint engineering

Fire Underwriter Survey (2020) Fire Flow Calculation
Reference: https://fireunderwriters.ca/assets/img/Water%20Supply%20for%20Public%20Fire%20Protection%20in%20Canada%202020.pc

Project: 705 Kingston
Building: **Podium**
Project No: 23068
Location: Pickering

A) Determine the Construction Coefficient (C). Refer to pages 20, 21.

Construction Type, see pages 20 and 21 for definitions: Type II Noncombustible Construction
Construction Coefficient (C): **0.8**

B) Determine the Total Effective Floor Area (A). Refer to pages 22, 23.

Based on the Construction Type and associated Construction Coefficient:
Are any vertical openings unprotected? Yes
Take two largest adjoining floor areas plus 50% of the sum of all floor areas immediately above them up to a maximum of eight
Total Effective Floor Area (A): 8,535 m^2

C) Calculate the Required Fire Flow (RFF), rounded to nearest 1,000 LPM. $RFF = 220C\sqrt{A}$ **16,000** L/min

D) Determine the decrease or increase for the Occupancy Contents Adjustment Factor. Apply to value obtained in C. Refer to pages 24 to 26.

Contents, see Page 24 for definitions and Pages 25-26 for examples: Limited Combustible
Adjustment Factor: -15%

Adjusted Required Fire Flow: **13,600** L/min

E) Determine decrease for having Automatic Sprinkler Protection, if warranted. Refer to pages 27 to 29.

Automatic Sprinkler System Design

Installed and Designed to NFPA 13 Standard?	Yes	[30% Reduction]
Water Supply standard for both system and fire department hose lines?	Yes	[10% Reduction]
Fully supervised system?	Yes	[10% Reduction]

Does the sprinkler system have complete building coverage? Yes

Reduction for Automatic Sprinkler Protection: 50%
6,800 L/min

F) Determine the total Exposure Adjustment Charge for exposures. Refer to pages 30 to 32.

Building Face	Distance to Exposure (m)	Length-Height Factor (L.H.F.)	L.H.F. Bracket	Bldg Type	Reduction Notes		Charge
North	Greater than 30m	2940	Over 100	Type I-II (2)	Site bldg. and exposed bldg. fully protected with automatic sprinkler system. [100% Reduction]	=	0%
East	Greater than 30m	6	0-20	Type I-II (2)	Exposed bldg. has automatic sprinkler system. [50% Reduction]	=	0%
South	Greater than 30m	80	61-80	Type I-II (2)	Exposed bldg. has automatic sprinkler system. [50% Reduction]	=	0%
West	Greater than 30m	20	0-20	Type I-II (2)	Exposed bldg. has automatic sprinkler system. [50% Reduction]	=	0%
						Total Exposure Charge:	**0%**

Increase for Exposure Adjustment Charge: **0** L/min

G) Final Calculation of Required Fire Flow. Subtract the value obtained in E from the answer obtained in D, then add the value obtained in F.

F =	**7,000**	**L/min**
F =	**1,849**	**GPM**
F =	**116.7**	**L/s**

APPENDIX C

Sanitary Flow Calculation

Counterpoint Engineering Inc.

Sanitary Flow

Project: 705 Kingston
Project No: 23068
Location: Pickering
Site Area: 2.732 ha

Existing Sanitary Flow

As per Design Specifications for Sanitary Sewers, Regional municipality of Durham dated April 2021

Design Flow: 180 m³/gross floor area ha/day (2.08 L/s/day) including infiltration and peaking effect

Existing Site Building Areas

Building A	6261.29	m²
Building B	732.64	m²

Commercial/Office Average flow	180	m³/ha/day	*based on gross floor area
	2.08	L/s/ha	including infiltration and peaking
Infiltration	0.26	litres/second/ha	

Retail/Commercial Flow	1.45	**L/s**
Infiltration	0.71	**L/s**
Existing Total Peak Flow	**3.59**	**L/s**

Counterpoint Engineering Inc.

Proposed Sanitary Flow

Project: 705 Kingston
Project No: 23068
Location: Pickering
Site Area: 2.732 ha

Proposed Sanitary Flow Calculations

Design flow = average daily dry weather flow x peaking factor + infiltration

Persons Per Unit and per Land Use

Townhouse	3	ppu
1BR/1BR+Den	1.5	ppu
2BR/2BR+Den/	2.5	ppu
3BR/3BR+Den	3.5	ppu

Peak flow Design Parameters

Residential Average flow	364	litres/person/day
Commercial Average flow	2.08	litres/second/ha
Parkland	10	Persons/ha
Infiltration	0.26	litres/second/ha

Harmon Peaking Factor

PF = 1 + (14/(4+(P/1000)$^{1/2}$))

Phase/Building	Residential Units									Harmon Peaking Factor	Total Residential Flow	Area (Ha)	Infiltration Rate	Retail		Total Residential Flow
	1B / 1B+D	2B / 2B + D	3B / 3B+D	Total Units	Population 1BR / 1B + D	Population 2BR / 2BR + D	Population 3BR / 3BR + D	Parkland Populations	Total Population					Area (m2)	Total Flow Retail (L/s)	
Building 1	203	84	29	316	305	210	102		617					1106	0.23	
Building 2	218	123	35	376	327	308	123		758					1683	0.35	
Building 3	180	120	30	330	270	300	105		675					0	0.00	
Building 4	180	120	30	330	270	300	105		675					0	0.00	
Building 5	180	120	30	330	270	300	105		675					0	0.00	
Podium	51	8	7	66	77	20	25		122					1133	0.24	
Subtotal	1,012	575	161	1,748	1518	1438	564		3520	3.38	50.16	2.40	0.62	3,922	0.82	51.60
ROW												0.11	0.03			0.03
PARKLAND								2.2	2	4.46	0.04	0.22	0.06			0.10
Consolidated	**1,012**	**575**	**161**	**1748**	**1,518**	**1,438**	**564**	**2**	**3,522**	**3.38**	**50.19**	**2.73**	**0.71**	**3922**	**0.82**	**51.73**

Net increase in flow from Existing (L/s)
48.14

Public Folder Viewer 2

From: Di Iorio, Dave <ddiiorio@counterpointeng.com>
Sent: September 30, 2024 10:21 AM
To: Gian-Michael Di Luca
Subject: Fwd: Pickering

Dave Di Iorio, P.Eng.
Partner
Counterpoint Land Development
by Dillon Consulting Limited
8395 Jane Street Suite 100
Vaughan, Ontario, Canada, L4K 5Y2
T: 416.574.1382
ddiiorio@counterpointeng.com
www.counterpointeng.com
www.dillon.ca

---------- Forwarded message ---------
From: **Nathaniel Andres** <Nathaniel.Andres@durham.ca>
Date: Tue, Sep 10, 2024 at 10:11 AM
Subject: RE: Pickering
To: Di Iorio, Dave <ddiiorio@counterpointeng.com>, Aaron Christie <Aaron.Christie@durham.ca>
Cc: Peter Castellan <Peter.Castellan@durham.ca>, Stephen Wylie <Stephen.Wylie@durham.ca>

Hi Dave,

The additional geotechnical field program is now complete, but the overall schedule remains susceptible mostly to outstanding approvals and, of course, funding. The team is working their way through those approval challenges now, while updating the design based on the findings of the geotechnical investigation. The Region is still targeting Q1 2025 for tender, but I could see that slip to Q2 relatively easily. Stay tuned on that.

Our design staff are expecting an updated submission in the next month or so. Until now, there has been a lot of back and forth on some key details, including MTBM shaft and maintenance hole locations and strategizing for a shallow sanitary sewer that ties into the trunk. If you can wait on that next design iteration, I would prefer to get you something more presentable that we are relatively confident with going forward. At the same time, we would appreciate any input that you may have for your anticipated site servicing needs.

Trusting this works for you.

Thanks,
Nat

Nathaniel Andres | Manager, Water & Wastewater Infrastructure Planning
Works Department

The Regional Municipality of Durham | **Celebrating 50 years!**

Nathaniel.Andres@durham.ca | 905-668-4113 extension 3170 | durham.ca

My pronouns are he / him | durham.ca/50years

From: Di Iorio, Dave <ddiiorio@counterpointeng.com>
Sent: Monday, September 9, 2024 5:01 PM
To: Aaron Christie <Aaron.Christie@durham.ca>
Cc: Nathaniel Andres <Nathaniel.Andres@durham.ca>; Peter Castellan <Peter.Castellan@Durham.ca>
Subject: Re: Pickering

Thanks Aaron, appreciate the quick reply.

Is it possible to obtain a copy of the latest plans? For coordination purposes.

Thanks,

Dave Di Iorio, P.Eng.

Partner
Counterpoint Land Development
by Dillon Consulting Limited
8395 Jane Street Suite 100
Vaughan, Ontario, Canada, L4K 5Y2
T: 416.574.1382
ddiiorio@counterpointeng.com
www.counterpointeng.com
www.dillon.ca

On Mon, Sep 9, 2024 at 4:57 PM Aaron Christie <Aaron.Christie@durham.ca> wrote:

> Hello Dave,
>
> I am not aware of any updates. The last I heard was 'to be tendered in 2025'. Nat, have you heard any new dates from the Rapid Transit project team for the section to the east of, and crossing, Whites Road?
>
> Dave, you are correct, we will not need any analysis of the new trunk sanitary sewer on Kingston Road if the site develops in the near to medium term. Timelines for this type of development and proposed scenarios on all the sites tend to change overtime, so we likely have text regarding sewer capacity analysis just to cover ourselves if the site goes quite for many years and there are changes to consider in the surrounding area.
>
> I have included Peter in case he has anything to add.
>
> Thanks,

Aaron Christie, P.Eng.| Senior Project Engineer

Water & Wastewater Infrastructure Planning |Works Department

The Regional Municipality of Durham | **Celebrating 50 years!**

Aaron.Christie@durham.ca| 905-668-4113 extension 3608 | durham.ca

My pronouns are he/him. | durham.ca/50years

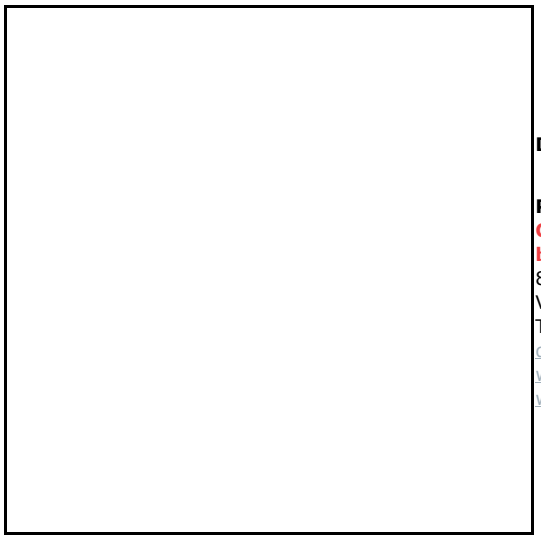
From: Di Iorio, Dave <ddiiorio@counterpointeng.com>
Sent: Friday, September 6, 2024 4:52 PM
To: Aaron Christie <Aaron.Christie@durham.ca>
Cc: Nathaniel Andres <Nathaniel.Andres@durham.ca>
Subject: Re: Pickering

Hi Aaron - I thought I'd check in on this. Resident (formerly Plaza) is looking to file an application in the near future, so wanted to engage again. Any updates would be helpful.

I realize that this may not be for you to specifically comment on, however one of the application requirements is to provide a sanitary capacity analysis. I suspect that the typical analysis we would provide to support a development application isn't required, the sewer is designed by the Region, and instead we'd like to inform the design as opposed to analyze it for available capacity.

I was planning on connecting with Pete Castellan on this, but thought I'd also reach out to you as well for any thoughts that you may have.

Thanks Aaron.



Dave Di Iorio, P.Eng.

Partner
Counterpoint Land Development
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8395 Jane Street Suite 100
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T: 416.574.1382
ddiiorio@counterpointeng.com
www.counterpointeng.com
www.dillon.ca

On Mon, Apr 8, 2024 at 9:07 AM Aaron Christie <Aaron.Christie@durham.ca> wrote:

> Hello Dave,
>
> The sanitary sewer work on Kingston Road from east of Whites Road to the west side of Whites Road is now lined up with the transit project on Kingston Road.
>
> It is my understanding that there is a delay in the schedule for the transit project. I think that the timing for tendering has been pushed to 2025.
>
> I have copied Nat Andres in hopes that he can confirm.
>
> Thanks,

Aaron Christie, P.Eng.| Senior Project Engineer

Water & Wastewater Infrastructure Planning |Works Department

The Regional Municipality of Durham | **Celebrating 50 years!**

Aaron.Christie@durham.ca| 905-668-4113 extension 3608 | durham.ca

My pronouns are he/him. | durham.ca/50years

From: Di Iorio, Dave <ddiiorio@counterpointeng.com>
Sent: Friday, April 5, 2024 3:57 PM
To: Aaron Christie <Aaron.Christie@durham.ca>
Subject: Re: Pickering

Hi Aaron - hope you are well. I was talking to the Plaza (now Resident) people and they suggested that I check in with you regarding the work on Kingston Road. Last time we talked, I believe that you said that the sewer extension work was going to be added into the road work program and would be tendered in the next half year or so. I also had a reminder to check in with you in spring 2024.

Any updates would be great.

Have a good weekend.

counterpoint ENGINEERING
A SUBSIDIARY OF DILLON CONSULTING LIMITED

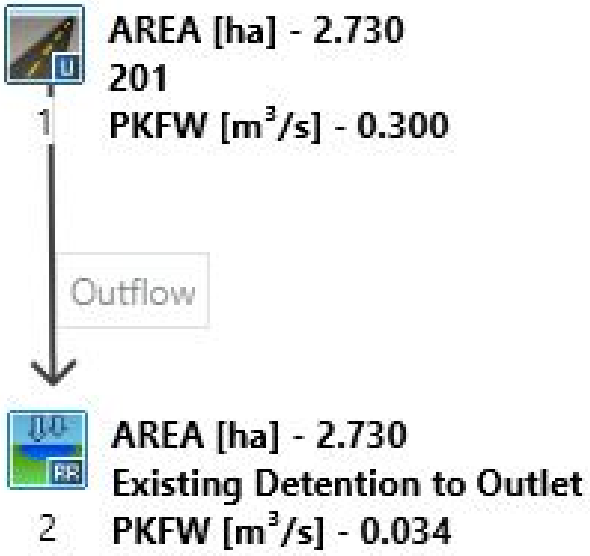
Dave Di Iorio, P.Eng.

Partner, Practice Area Lead - Commercial
Counterpoint Engineering Inc.
Direct: 416-574-1382
www.counterpointeng.com
ddiiorio@counterpointeng.com

APPENDIX D

Stormwater Management Modelling and Calculations

PRE-DEVELOPMENT VO MODEL SCHEMATIC



COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

PRE-DEVELOPMENT VO MODEL OUTPUT

Project No.:
October 2024

Prepared by: Y.K.

Pre-development Conditions

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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e-acc6-4219-8ea4-4a85255e5fb9\scenari


DATE: 10-28-2024                          TIME: 04:43:35

USER:    Yelena Koshenkov


COMMENTS: 2 - 100-yr storm events, 12-hour AES storm hyetographs.


--------------------------------------------------------------------------------
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  ********************************************
  ** SIMULATION : 100 Year 12 Hour AES (Bloor,  **
  ********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\21yk\AppD
```

Pre-development Conditions

	ata\Local\Temp\
	84b83dc2-a2d6-41b1-ba6a-f479372d62fd\72bd5dd2
Ptotal= 88.54 mm	Comments: 100 Year 12 Hour AES (Bloor, TRCA)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	15.05	6.50	6.20	9.75	0.89
0.25	0.89	3.50	15.05	6.75	6.20	10.00	0.89
0.50	0.89	3.75	15.05	7.00	6.20	10.25	0.89
0.75	0.89	4.00	15.05	7.25	3.54	10.50	0.89
1.00	0.89	4.25	40.71	7.50	3.54	10.75	0.89
1.25	0.89	4.50	40.71	7.75	3.54	11.00	0.89
1.50	0.89	4.75	40.71	8.00	3.54	11.25	0.89
1.75	0.89	5.00	40.71	8.25	1.77	11.50	0.89
2.00	0.89	5.25	11.51	8.50	1.77	11.75	0.89
2.25	5.31	5.50	11.51	8.75	1.77	12.00	0.89
2.50	5.31	5.75	11.51	9.00	1.77		
2.75	5.31	6.00	11.51	9.25	0.89		
3.00	5.31	6.25	6.20	9.50	0.89		

CALIB	
STANDHYD (0001)	Area (ha)= 2.73
ID= 1 DT= 5.0 min	**Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00**

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.38	0.35
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	134.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89

Pre-development Conditions

0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	**5.31**	**6.000**	**11.51**	**9.083**	**1.77**	**12.17**	**0.89**
3.000	**5.31**	**6.083**	**11.51**	**9.167**	**1.77**	**12.25**	**0.89**
3.083	**5.31**	**6.167**	**11.51**	**9.250**	**1.77**		

Max.Eff.Inten.(mm/hr)=	40.71	32.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	4.38 (ii)	9.11 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.23	0.12	
			TOTALS
PEAK FLOW (cms)=	0.27	0.03	0.300 (iii)
TIME TO PEAK (hrs)=	5.17	5.25	5.25
RUNOFF VOLUME (mm)=	87.54	57.45	83.63
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.99	0.65	0.94

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Pre-development Conditions

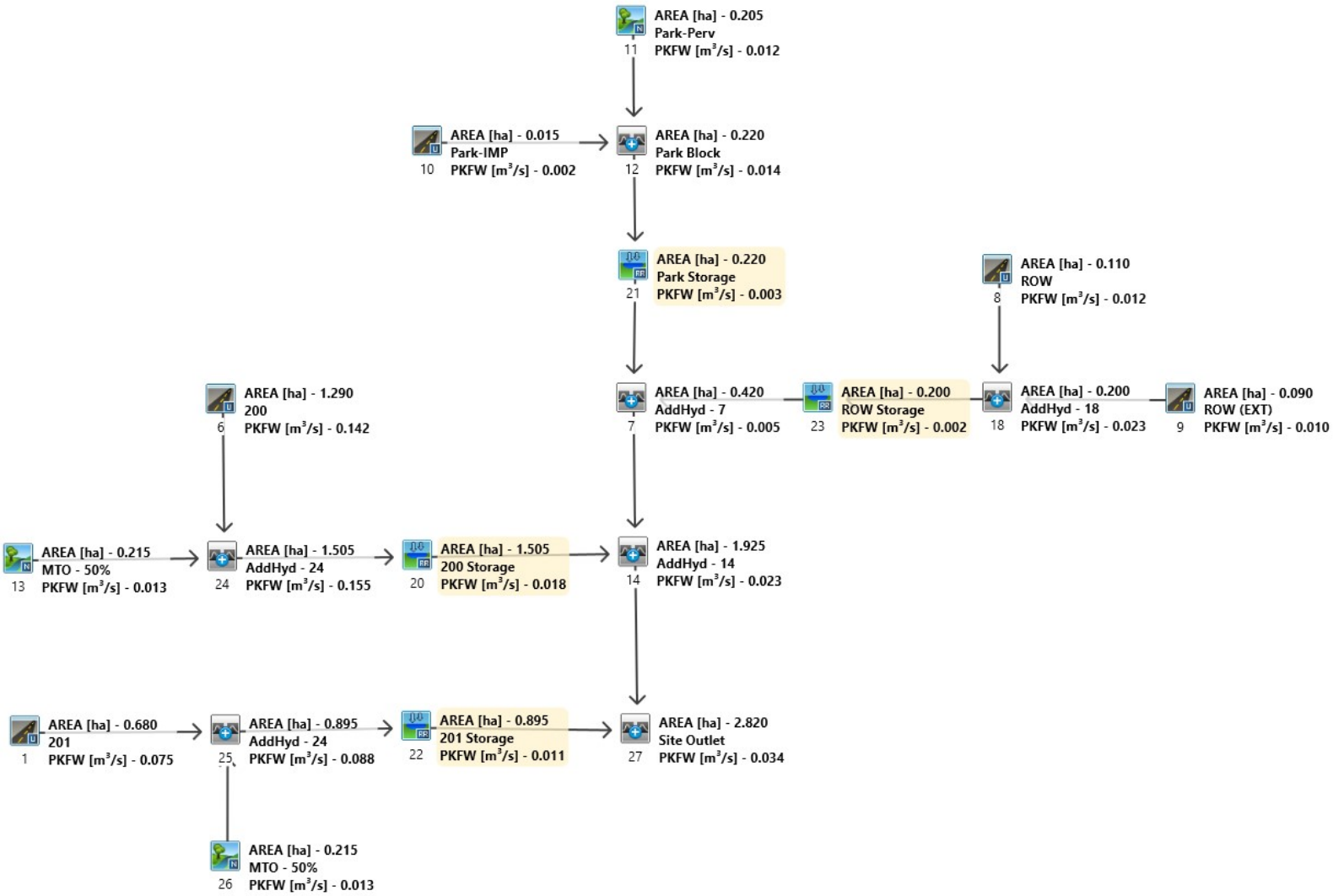
```
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0340      0.1739

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0001)      2.730      0.300      5.25      83.63
   OUTFLOW: ID= 1 (  0002)      2.730      0.034      7.33      83.15

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.30
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1734

--------------------------------------------------------------------------------
```

POST-DEVELOPMENT VO MODEL SCHEMATIC



COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

POST-DEVELOPMENT VO MODEL OUTPUT

Project No.:
October 2024

Prepared by: Y.K.

Post-development Conditions

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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  Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\aaed1f2
8-8a34-4704-9407-8b7f85fb0cd4\scenari


DATE: 10-28-2024                          TIME: 04:44:21

USER:  Yelena Koshenkov


COMMENTS: 2 - 100-yr storm events, 12-hour AES storm hyetographs.


--------------------------------------------------------------------------------
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  ********************************************
  ** SIMULATION : 10 Year 12 Hour AES (Bloor, T **
  ********************************************


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|    READ STORM    |    Filename: C:\Users\21yk\AppD
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Post-development Conditions

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Ptotal= 62.71 mm	Comments: 10 Year 12 Hour AES (Bloor, TRCA)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	10.66	6.50	4.39	9.75	0.63
0.25	0.63	3.50	10.66	6.75	4.39	10.00	0.63
0.50	0.63	3.75	10.66	7.00	4.39	10.25	0.63
0.75	0.63	4.00	10.66	7.25	2.51	10.50	0.63
1.00	0.63	4.25	28.84	7.50	2.51	10.75	0.63
1.25	0.63	4.50	28.84	7.75	2.51	11.00	0.63
1.50	0.63	4.75	28.84	8.00	2.51	11.25	0.63
1.75	0.63	5.00	28.84	8.25	1.25	11.50	0.63
2.00	0.63	5.25	8.15	8.50	1.25	11.75	0.63
2.25	3.76	5.50	8.15	8.75	1.25	12.00	0.63
2.50	3.76	5.75	8.15	9.00	1.25		
2.75	3.76	6.00	8.15	9.25	0.63		
3.00	3.76	6.25	4.39	9.50	0.63		

CALIB NASHYD (0011)	Area (ha)=	0.20	Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63

Post-development Conditions

1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 20.586
TOTAL RAINFALL (mm)= 62.710
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0010)	Area (ha)= 0.01
ID= 1 DT= 5.0 min	Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	**0.63**	**5.000**	**28.84**	**8.083**	**2.51**	**11.17**	**0.63**
2.000	**0.63**	**5.083**	**28.84**	**8.167**	**2.51**	**11.25**	**0.63**
2.083	**0.63**	**5.167**	**28.84**	**8.250**	**2.51**	**11.33**	**0.63**
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Max.Eff.Inten.(mm/hr)=	28.84	20.66		
over (min)	5.00	15.00		
Storage Coeff. (min)=	1.06 (ii)	14.32 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.34	0.08		
			TOTALS	
PEAK FLOW (cms)=	0.00	0.00	0.001 (iii)	
TIME TO PEAK (hrs)=	4.58	5.25	5.25	

```
                              Post-development Conditions
     RUNOFF VOLUME    (mm)=      61.71        35.33          54.35
     TOTAL RAINFALL   (mm)=      62.71        62.71          62.71
     RUNOFF COEFFICIENT   =       0.98         0.56           0.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0012)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0010):     0.01   0.001     5.25    54.35
      + ID2= 2 (  0011):     0.20   0.007     5.25    20.59
        ================================================
        ID = 3 (  0012):     0.22   0.008     5.25    22.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0021)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.0027      0.0055

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)      0.220      0.008      5.25      22.89
   OUTFLOW: ID= 1 (  0021)      0.220      0.001      7.25      20.56

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.77
                  TIME SHIFT OF PEAK FLOW         (min)=120.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0030

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.11         0.00
```

		Post-development Conditions	
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	**0.63**	**4.333**	**28.84**	**7.417**	**2.51**	**10.50**	**0.63**
1.333	**0.63**	**4.417**	**28.84**	**7.500**	**2.51**	**10.58**	**0.63**
1.417	**0.63**	**4.500**	**28.84**	**7.583**	**2.51**	**10.67**	**0.63**
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

	Post-development Conditions		
Max.Eff.Inten.(mm/hr)=	28.84	20.90	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.92 (ii)	3.77 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.25	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.009 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	61.71	35.33	61.44
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.56	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0009)
ID= 1 DT= 5.0 min

Area (ha)= 0.09
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	24.49	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63

Post-development Conditions

0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	**3.76**	**6.083**	**8.15**	**9.167**	**1.25**	**12.25**	**0.63**
3.083	**3.76**	**6.167**	**8.15**	**9.250**	**1.25**		

Max.Eff.Inten.(mm/hr)=	28.84	20.90	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.81 (ii)	3.65 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.25	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.007 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	61.71	35.33	61.44
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.56	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

```
--------------------
| ADD HYD  (  0018)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0008):     0.11   0.009     5.25    61.44
      + ID2= 2 (  0009):     0.09   0.007     5.25    61.44
        ================================================
        ID = 3 (  0018):     0.20   0.016     5.25    61.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0023)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0024      0.0140

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0018)      0.200      0.016      5.25       61.44
   OUTFLOW: ID= 1 (  0023)      0.200      0.002      7.33       54.04

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.26
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0096

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0021):     0.22   0.001     7.25    20.56
      + ID2= 2 (  0023):     0.20   0.002     7.33    54.04
        ================================================
        ID = 3 (  0007):     0.42   0.003     7.33    36.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0013)|   Area    (ha)=   0.22   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	**0.63**	**4.917**	**28.84**	**8.000**	**2.51**	**11.08**	**0.63**
1.917	**0.63**	**5.000**	**28.84**	**8.083**	**2.51**	**11.17**	**0.63**
2.000	**0.63**	**5.083**	**28.84**	**8.167**	**2.51**	**11.25**	**0.63**
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 20.586
TOTAL RAINFALL (mm)= 62.710
RUNOFF COEFFICIENT = 0.328

Post-development Conditions

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 1.29
ID= 1 DT= 5.0 min	Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	**0.63**	**3.417**	**10.66**	**6.500**	**4.39**	**9.58**	**0.63**
0.417	**0.63**	**3.500**	**10.66**	**6.583**	**4.39**	**9.67**	**0.63**
0.500	**0.63**	**3.583**	**10.66**	**6.667**	**4.39**	**9.75**	**0.63**
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63

Post-development Conditions

2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Max.Eff.Inten.(mm/hr)=	28.84	20.66	
over (min)	5.00	20.00	
Storage Coeff. (min)=	4.02 (ii)	17.28 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.24	0.06	
			TOTALS
PEAK FLOW (cms)=	0.09	0.01	0.098 (iii)
TIME TO PEAK (hrs)=	5.17	5.25	5.25
RUNOFF VOLUME (mm)=	61.71	35.33	58.27
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.56	0.93

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0013):	0.22	0.007	5.25	20.59	
+ ID2= 2 (0006):	1.29	0.098	5.25	58.27	
ID = 3 (0024):	1.50	0.105	5.25	52.89	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)

Post-development Conditions
0.0000 0.0000 | 0.0175 0.0875

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0024)	1.505	0.105	5.25	52.89
OUTFLOW: ID= 1 (0020)	1.505	0.012	7.33	52.05

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.39
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0600

ADD HYD (0014)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0020):	1.50	0.012	7.33	52.05
	+ ID2= 2 (0007):	0.42	0.003	7.33	36.50
	ID = 3 (0014):	1.92	0.015	7.33	48.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0026)				
ID= 1 DT= 5.0 min	Area (ha)= 0.22	Curve Number (CN)= 71.0		
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.20			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63

Post-development Conditions

1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 20.586
TOTAL RAINFALL (mm)= 62.710
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0001)	Area (ha)= 0.68
ID= 1 DT= 5.0 min	Total Imp(%)= 91.00 Dir. Conn.(%)= 91.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.06
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	67.33	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	0.63	3.667	10.66	6.750	4.39	9.83	0.63
0.667	0.63	3.750	10.66	6.833	4.39	9.92	0.63
0.750	0.63	3.833	10.66	6.917	4.39	10.00	0.63
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	**0.63**	**4.833**	**28.84**	**7.917**	**2.51**	**11.00**	**0.63**
1.833	**0.63**	**4.917**	**28.84**	**8.000**	**2.51**	**11.08**	**0.63**
1.917	**0.63**	**5.000**	**28.84**	**8.083**	**2.51**	**11.17**	**0.63**
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63
2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

Max.Eff.Inten.(mm/hr)=	28.84	20.90	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.31 (ii)	7.91 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.26	0.13	
			TOTALS

Post-development Conditions

PEAK FLOW (cms)=	0.05	0.00	0.053 (iii)
TIME TO PEAK (hrs)=	5.08	5.25	5.25
RUNOFF VOLUME (mm)=	61.71	35.33	59.33
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.56	0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		0.68	0.053	5.25	59.33
+ ID2= 2 (0026):		0.22	0.007	5.25	20.59
ID = 3 (0025):		0.90	0.060	5.25	50.02

NOTE: **PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.**

RESERVOIR(0022)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0108	0.0490

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0025)	0.895	0.060	5.25	50.02
OUTFLOW: ID= 1 (0022)	0.895	0.007	7.33	48.74

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.15
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0332

ADD HYD (0027)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

Post-development Conditions

```
  ID1= 1 (  0014):     1.92   0.015     7.33    48.66
+ ID2= 2 (  0022):     0.90   0.007     7.33    48.74
  ================================================
  ID = 3 (  0027):     2.82   0.022     7.33    48.68
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD   (  0028)|   Area    (ha)=   0.43   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.76	6.250	8.15	9.33	0.63
0.167	0.00	3.250	3.76	6.333	4.39	9.42	0.63
0.250	0.00	3.333	10.66	6.417	4.39	9.50	0.63
0.333	0.63	3.417	10.66	6.500	4.39	9.58	0.63
0.417	0.63	3.500	10.66	6.583	4.39	9.67	0.63
0.500	0.63	3.583	10.66	6.667	4.39	9.75	0.63
0.583	**0.63**	**3.667**	**10.66**	**6.750**	**4.39**	**9.83**	**0.63**
0.667	**0.63**	**3.750**	**10.66**	**6.833**	**4.39**	**9.92**	**0.63**
0.750	**0.63**	**3.833**	**10.66**	**6.917**	**4.39**	**10.00**	**0.63**
0.833	0.63	3.917	10.66	7.000	4.39	10.08	0.63
0.917	0.63	4.000	10.66	7.083	4.39	10.17	0.63
1.000	0.63	4.083	10.66	7.167	4.39	10.25	0.63
1.083	0.63	4.167	10.66	7.250	4.39	10.33	0.63
1.167	0.63	4.250	10.66	7.333	2.51	10.42	0.63
1.250	0.63	4.333	28.84	7.417	2.51	10.50	0.63
1.333	0.63	4.417	28.84	7.500	2.51	10.58	0.63
1.417	0.63	4.500	28.84	7.583	2.51	10.67	0.63
1.500	0.63	4.583	28.84	7.667	2.51	10.75	0.63
1.583	0.63	4.667	28.84	7.750	2.51	10.83	0.63
1.667	0.63	4.750	28.84	7.833	2.51	10.92	0.63
1.750	0.63	4.833	28.84	7.917	2.51	11.00	0.63
1.833	0.63	4.917	28.84	8.000	2.51	11.08	0.63
1.917	0.63	5.000	28.84	8.083	2.51	11.17	0.63
2.000	0.63	5.083	28.84	8.167	2.51	11.25	0.63
2.083	0.63	5.167	28.84	8.250	2.51	11.33	0.63
2.167	0.63	5.250	28.84	8.333	1.25	11.42	0.63
2.250	0.63	5.333	8.15	8.417	1.25	11.50	0.63
2.333	3.76	5.417	8.15	8.500	1.25	11.58	0.63
2.417	3.76	5.500	8.15	8.583	1.25	11.67	0.63
2.500	3.76	5.583	8.15	8.667	1.25	11.75	0.63

Post-development Conditions

2.583	3.76	5.667	8.15	8.750	1.25	11.83	0.63
2.667	3.76	5.750	8.15	8.833	1.25	11.92	0.63
2.750	3.76	5.833	8.15	8.917	1.25	12.00	0.63
2.833	3.76	5.917	8.15	9.000	1.25	12.08	0.63
2.917	3.76	6.000	8.15	9.083	1.25	12.17	0.63
3.000	3.76	6.083	8.15	9.167	1.25	12.25	0.63
3.083	3.76	6.167	8.15	9.250	1.25		

```
     Unit Hyd Qpeak  (cms)=   0.082

     PEAK FLOW       (cms)=   0.014 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  20.587
     TOTAL RAINFALL   (mm)=  62.710
     RUNOFF COEFFICIENT   =   0.328

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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3-fec8-4ff2-8be9-78b83fec3d86\scenari
  Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\1932bcd
3-fec8-4ff2-8be9-78b83fec3d86\scenari
```

Post-development Conditions

DATE: 10-28-2024 TIME: 04:44:21

USER:

COMMENTS: _____

****
** SIMULATION : 100 Year 12 Hour AES (Bloor, **
****

READ STORM	Filename: C:\Users\21yk\AppData\Local\Temp\ab141049-113e-4a11-acbd-14963de973f2\72bd5dd2
Ptotal= 88.54 mm	Comments: 100 Year 12 Hour AES (Bloor, TRCA)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	**0.00**	**3.25**	**15.05**	**6.50**	**6.20**	**9.75**	**0.89**
0.25	**0.89**	**3.50**	**15.05**	**6.75**	**6.20**	**10.00**	**0.89**
0.50	**0.89**	**3.75**	**15.05**	**7.00**	**6.20**	**10.25**	**0.89**
0.75	0.89	4.00	15.05	7.25	3.54	10.50	0.89
1.00	0.89	4.25	40.71	7.50	3.54	10.75	0.89
1.25	0.89	4.50	40.71	7.75	3.54	11.00	0.89
1.50	0.89	4.75	40.71	8.00	3.54	11.25	0.89
1.75	0.89	5.00	40.71	8.25	1.77	11.50	0.89
2.00	0.89	5.25	11.51	8.50	1.77	11.75	0.89
2.25	5.31	5.50	11.51	8.75	1.77	12.00	0.89
2.50	5.31	5.75	11.51	9.00	1.77		
2.75	5.31	6.00	11.51	9.25	0.89		
3.00	5.31	6.25	6.20	9.50	0.89		

CALIB			
NASHYD (0011)	Area (ha)= 0.20	Curve Number (CN)= 71.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	**0.89**	**4.917**	**40.71**	**8.000**	**3.54**	**11.08**	**0.89**
1.917	**0.89**	**5.000**	**40.71**	**8.083**	**3.54**	**11.17**	**0.89**
2.000	**0.89**	**5.083**	**40.71**	**8.167**	**3.54**	**11.25**	**0.89**
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 37.189
TOTAL RAINFALL (mm)= 88.540
RUNOFF COEFFICIENT = 0.420

Post-development Conditions

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0010) ID= 1 DT= 5.0 min	Area (ha)= 0.01 Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	**0.89**	**3.417**	**15.05**	**6.500**	**6.20**	**9.58**	**0.89**
0.417	**0.89**	**3.500**	**15.05**	**6.583**	**6.20**	**9.67**	**0.89**
0.500	**0.89**	**3.583**	**15.05**	**6.667**	**6.20**	**9.75**	**0.89**
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89

Post-development Conditions

2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	32.69	
over (min)	5.00	15.00	
Storage Coeff. (min)=	0.92 (ii)	11.96 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.34	0.09	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.002 (iii)
TIME TO PEAK (hrs)=	4.58	5.25	5.25
RUNOFF VOLUME (mm)=	87.54	57.45	78.24
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.99	0.65	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0012)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0010):	0.01	0.002	5.25	78.24	
+ ID2= 2 (0011):	0.20	0.012	5.25	37.19	
ID = 3 (0012):	0.22	0.014	5.25	39.99	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0021)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)

Post-development Conditions

0.0000 0.0000 | 0.0027 0.0055

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	0.220	0.014	5.25	39.99
OUTFLOW: ID= 1 (0021)	0.220	0.003	6.92	37.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.93
TIME SHIFT OF PEAK FLOW (min)=100.00
MAXIMUM STORAGE USED (ha.m.)= 0.0053

CALIB
STANDHYD (0008)
ID= 1 DT= 5.0 min

Area (ha)= 0.11
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.11	0.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	27.08	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89

Post-development Conditions

1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

			TOTALS
Max.Eff.Inten.(mm/hr)=	40.71	32.96	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.67 (ii)	3.28 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.27	
PEAK FLOW (cms)=	**0.01**	**0.00**	**0.012 (iii)**
TIME TO PEAK (hrs)=	**5.08**	**5.25**	**5.25**
RUNOFF VOLUME (mm)=	**87.54**	**57.45**	**87.23**
TOTAL RAINFALL (mm)=	88.54	88.54	88.54
RUNOFF COEFFICIENT =	0.99	0.65	0.99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0009)	Area (ha)=	0.09	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00

Post-development Conditions

Length	(m)=	24.49	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	**0.89**	**4.500**	**40.71**	**7.583**	**3.54**	**10.67**	**0.89**
1.500	**0.89**	**4.583**	**40.71**	**7.667**	**3.54**	**10.75**	**0.89**
1.583	**0.89**	**4.667**	**40.71**	**7.750**	**3.54**	**10.83**	**0.89**
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Max.Eff.Inten.(mm/hr)=		40.71	32.96
	over (min)	5.00	5.00

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                              Post-development Conditions
     Storage Coeff.  (min)=       1.57 (ii)    3.18 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.27
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.010 (iii)
     TIME TO PEAK    (hrs)=       5.08         5.25           5.25
     RUNOFF VOLUME    (mm)=      87.54        57.45          87.24
     TOTAL RAINFALL   (mm)=      88.54        88.54          88.54
     RUNOFF COEFFICIENT   =       0.99         0.65           0.99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0018)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0008):     0.11   0.012     5.25    87.23
      + ID2= 2 (  0009):     0.09   0.010     5.25    87.24
        ==================================================
        ID = 3 (  0018):     0.20   0.023     5.25    87.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0023)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)    |   (cms)     (ha.m.)
                           0.0000     0.0000    |   0.0024      0.0140

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0018)      0.200      0.023      5.25      87.24
   OUTFLOW: ID= 1 (  0023)      0.200      0.002      7.33      79.84

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.30
                   TIME SHIFT OF PEAK FLOW         (min)=125.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.0136

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Post-development Conditions

ADD HYD (0007)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0021):	0.22	0.003	6.92	37.65
	+ ID2= 2 (0023):	0.20	0.002	7.33	79.84
	ID = 3 (0007):	0.42	0.005	7.33	57.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0013)				
ID= 1 DT= 5.0 min	Area (ha)=	0.22	Curve Number (CN)=	71.0
	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	**0.00**	**3.333**	**15.05**	**6.417**	**6.20**	**9.50**	**0.89**
0.333	**0.89**	**3.417**	**15.05**	**6.500**	**6.20**	**9.58**	**0.89**
0.417	**0.89**	**3.500**	**15.05**	**6.583**	**6.20**	**9.67**	**0.89**
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89

Post-development Conditions

2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 37.191
TOTAL RAINFALL (mm)= 88.540
RUNOFF COEFFICIENT = 0.420

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 1.29
ID= 1 DT= 5.0 min	Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89

Post-development Conditions

0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	**5.31**	**5.917**	**11.51**	**9.000**	**1.77**	**12.08**	**0.89**
2.917	**5.31**	**6.000**	**11.51**	**9.083**	**1.77**	**12.17**	**0.89**
3.000	**5.31**	**6.083**	**11.51**	**9.167**	**1.77**	**12.25**	**0.89**
3.083	5.31	6.167	11.51	9.250	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	32.96		
over (min)	5.00	10.00		
Storage Coeff. (min)=	3.50 (ii)	8.22 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.26	0.13		
			TOTALS	
PEAK FLOW (cms)=	0.13	0.01	0.142 (iii)	
TIME TO PEAK (hrs)=	5.08	5.25	5.25	
RUNOFF VOLUME (mm)=	87.54	57.45	83.63	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.99	0.65	0.94	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

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--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0013):     0.22   0.013     5.25    37.19
      + ID2= 2 (  0006):     1.29   0.142     5.25    83.63
        ================================================
        ID = 3 (  0024):     1.50   0.155     5.25    76.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0175      0.0875

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0024)      1.505      0.155      5.25      76.99
   OUTFLOW: ID= 1 (  0020)      1.505      0.017      7.33      76.15

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.31
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0875

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0014)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0020):     1.50   0.017     7.33    76.15
      + ID2= 2 (  0007):     0.42   0.005     7.33    57.74
        ================================================
        ID = 3 (  0014):     1.92   0.022     7.33    72.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.22   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20
```

Post-development Conditions

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	**0.89**	**4.750**	**40.71**	**7.833**	**3.54**	**10.92**	**0.89**
1.750	**0.89**	**4.833**	**40.71**	**7.917**	**3.54**	**11.00**	**0.89**
1.833	**0.89**	**4.917**	**40.71**	**8.000**	**3.54**	**11.08**	**0.89**
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 37.191

Post-development Conditions

TOTAL RAINFALL (mm)= 88.540
RUNOFF COEFFICIENT = 0.420

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0001)	Area (ha)= 0.68
ID= 1 DT= 5.0 min	Total Imp(%)= 91.00 Dir. Conn.(%)= 91.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.06
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	67.33	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	**0.00**	**3.250**	**5.31**	**6.333**	**6.20**	**9.42**	**0.89**
0.250	**0.00**	**3.333**	**15.05**	**6.417**	**6.20**	**9.50**	**0.89**
0.333	**0.89**	**3.417**	**15.05**	**6.500**	**6.20**	**9.58**	**0.89**
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89
1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89

Post-development Conditions

2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	5.31	6.167	11.51	9.250	1.77		

Max.Eff.Inten.(mm/hr)=	40.71	32.96		
over (min)	5.00	10.00		
Storage Coeff. (min)=	2.89 (ii)	6.89 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.28	0.14		
			TOTALS	
PEAK FLOW (cms)=	0.07	0.01	0.075 (iii)	
TIME TO PEAK (hrs)=	5.08	5.25	5.25	
RUNOFF VOLUME (mm)=	87.54	57.45	84.83	
TOTAL RAINFALL (mm)=	88.54	88.54	88.54	
RUNOFF COEFFICIENT =	0.99	0.65	0.96	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		0.68	0.075	5.25	84.83
+ ID2= 2 (0026):		0.22	0.013	5.25	37.19
ID = 3 (0025):		0.90	0.088	5.25	73.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0022)		OVERFLOW IS OFF
IN= 2---> OUT= 1		

Post-development Conditions

DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0108	0.0490

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0025)	0.895	0.088	5.25	73.38
OUTFLOW: ID= 1 (0022)	0.895	0.011	7.33	72.10

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.15
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0486

ADD HYD (0027)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0014):	1.92	0.022	7.33	72.14
	+ ID2= 2 (0022):	0.90	0.011	7.33	72.10
	ID = 3 (0027):	2.82	0.033	7.33	72.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0028) | ID= 1 DT= 5.0 min				
	Area (ha)=	0.43	Curve Number (CN)=	71.0
	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	5.31	6.250	11.51	9.33	0.89
0.167	0.00	3.250	5.31	6.333	6.20	9.42	0.89
0.250	0.00	3.333	15.05	6.417	6.20	9.50	0.89
0.333	0.89	3.417	15.05	6.500	6.20	9.58	0.89
0.417	0.89	3.500	15.05	6.583	6.20	9.67	0.89
0.500	0.89	3.583	15.05	6.667	6.20	9.75	0.89
0.583	0.89	3.667	15.05	6.750	6.20	9.83	0.89
0.667	0.89	3.750	15.05	6.833	6.20	9.92	0.89
0.750	0.89	3.833	15.05	6.917	6.20	10.00	0.89
0.833	0.89	3.917	15.05	7.000	6.20	10.08	0.89
0.917	0.89	4.000	15.05	7.083	6.20	10.17	0.89

Post-development Conditions

1.000	0.89	4.083	15.05	7.167	6.20	10.25	0.89
1.083	0.89	4.167	15.05	7.250	6.20	10.33	0.89
1.167	0.89	4.250	15.05	7.333	3.54	10.42	0.89
1.250	0.89	4.333	40.71	7.417	3.54	10.50	0.89
1.333	0.89	4.417	40.71	7.500	3.54	10.58	0.89
1.417	0.89	4.500	40.71	7.583	3.54	10.67	0.89
1.500	0.89	4.583	40.71	7.667	3.54	10.75	0.89
1.583	0.89	4.667	40.71	7.750	3.54	10.83	0.89
1.667	0.89	4.750	40.71	7.833	3.54	10.92	0.89
1.750	0.89	4.833	40.71	7.917	3.54	11.00	0.89
1.833	0.89	4.917	40.71	8.000	3.54	11.08	0.89
1.917	0.89	5.000	40.71	8.083	3.54	11.17	0.89
2.000	0.89	5.083	40.71	8.167	3.54	11.25	0.89
2.083	0.89	5.167	40.71	8.250	3.54	11.33	0.89
2.167	0.89	5.250	40.71	8.333	1.77	11.42	0.89
2.250	0.89	5.333	11.51	8.417	1.77	11.50	0.89
2.333	5.31	5.417	11.51	8.500	1.77	11.58	0.89
2.417	5.31	5.500	11.51	8.583	1.77	11.67	0.89
2.500	5.31	5.583	11.51	8.667	1.77	11.75	0.89
2.583	5.31	5.667	11.51	8.750	1.77	11.83	0.89
2.667	5.31	5.750	11.51	8.833	1.77	11.92	0.89
2.750	5.31	5.833	11.51	8.917	1.77	12.00	0.89
2.833	5.31	5.917	11.51	9.000	1.77	12.08	0.89
2.917	5.31	6.000	11.51	9.083	1.77	12.17	0.89
3.000	5.31	6.083	11.51	9.167	1.77	12.25	0.89
3.083	**5.31**	**6.167**	**11.51**	**9.250**	**1.77**		

Unit Hyd Qpeak (cms)= 0.082

PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 37.192
TOTAL RAINFALL (mm)= 88.540
RUNOFF COEFFICIENT = 0.420

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

FINISH

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
```

Post-development Conditions

```
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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***** D E T A I L E D O U T P U T *****

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

Output filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\221385ef-7c91-44aa-975f-9ab7a7382e86\scenari
Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\221385ef-7c91-44aa-975f-9ab7a7382e86\scenari

DATE: 10-28-2024 TIME: 04:44:20

USER:

COMMENTS: _____

```
  **********************************************
  ** SIMULATION : 2 Year 12 Hour AES (Bloor, TR **
  **********************************************
```

READ STORM	Filename: C:\Users\21yk\AppData\Local\Temp\ab141049-113e-4a11-acbd-14963de973f2\f19034d4
Ptotal= 42.00 mm	Comments: 2 Year 12 Hour AES (Bloor, TRCA)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

Post-development Conditions

0.00	0.00	3.25	7.14	6.50	2.94	9.75	0.42
0.25	0.42	3.50	7.14	6.75	2.94	10.00	0.42
0.50	0.42	3.75	7.14	7.00	2.94	10.25	0.42
0.75	0.42	4.00	7.14	7.25	1.68	10.50	0.42
1.00	0.42	4.25	19.32	7.50	1.68	10.75	0.42
1.25	0.42	4.50	19.32	7.75	1.68	11.00	0.42
1.50	0.42	4.75	19.32	8.00	1.68	11.25	0.42
1.75	0.42	5.00	19.32	8.25	0.84	11.50	0.42
2.00	0.42	5.25	5.46	8.50	0.84	11.75	0.42
2.25	2.52	5.50	5.46	8.75	0.84	12.00	0.42
2.50	2.52	5.75	5.46	9.00	0.84		
2.75	2.52	6.00	5.46	9.25	0.42		
3.00	2.52	6.25	2.94	9.50	0.42		

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| CALIB            |
| NASHYD   (  0011)|   Area    (ha)=   0.20   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42

Post-development Conditions

1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	2.52	5.500	5.46	8.583	0.84	11.67	0.42
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 9.706
TOTAL RAINFALL (mm)= 42.000
RUNOFF COEFFICIENT = 0.231

(i) **PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.**

CALIB
STANDHYD (0010)
ID= 1 DT= 5.0 min

Area (ha)= 0.01
Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42

Post-development Conditions

0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	**2.52**	**5.500**	**5.46**	**8.583**	**0.84**	**11.67**	**0.42**
2.500	**2.52**	**5.583**	**5.46**	**8.667**	**0.84**	**11.75**	**0.42**
2.583	**2.52**	**5.667**	**5.46**	**8.750**	**0.84**	**11.83**	**0.42**
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

Max.Eff.Inten.(mm/hr)=	19.32	11.36	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.24 (ii)	18.08 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.33	0.06	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.001 (iii)
TIME TO PEAK (hrs)=	4.58	5.33	5.25
RUNOFF VOLUME (mm)=	41.00	19.22	33.78
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.98	0.46	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

Post-development Conditions

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0012)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0010):	0.01	0.001	5.25	33.78
	+ ID2= 2 (0011):	0.20	0.003	5.25	9.71
	ID = 3 (0012):	0.22	0.004	5.25	11.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0021)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0027	0.0055

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	0.220	0.004	5.25	11.35
OUTFLOW: ID= 1 (0021)	0.220	0.001	7.33	9.03

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.70
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0015

CALIB	
STANDHYD (0008)	Area (ha)= 0.11
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	**0.42**	**4.833**	**19.32**	**7.917**	**1.68**	**11.00**	**0.42**
1.833	**0.42**	**4.917**	**19.32**	**8.000**	**1.68**	**11.08**	**0.42**
1.917	**0.42**	**5.000**	**19.32**	**8.083**	**1.68**	**11.17**	**0.42**
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	2.52	5.500	5.46	8.583	0.84	11.67	0.42
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

Max.Eff.Inten.(mm/hr)=	19.32	11.73	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.25 (ii)	4.42 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.30	0.23	
			TOTALS

Post-development Conditions

PEAK FLOW	(cms)=	0.01	0.00	0.006 (iii)
TIME TO PEAK	(hrs)=	4.83	5.25	5.25
RUNOFF VOLUME	(mm)=	41.00	19.22	40.78
TOTAL RAINFALL	(mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT	=	0.98	0.46	0.97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0009)
ID= 1 DT= 5.0 min

Area (ha)= 0.09
Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	24.49	40.00
Mannings n	=	**0.013**	**0.250**

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42

Post-development Conditions

1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	2.52	5.500	5.46	8.583	0.84	11.67	0.42
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

			TOTALS
Max.Eff.Inten.(mm/hr)=	19.32	11.73	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.12 (ii)	4.29 (ii)	
Unit Hyd. Tpeak (min)=	**5.00**	**5.00**	
Unit Hyd. peak (cms)=	**0.31**	**0.23**	
PEAK FLOW (cms)=	0.00	0.00	0.005 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	41.00	19.22	40.78
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.98	0.46	0.97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0008):	0.11	0.006	5.25	40.78	

Post-development Conditions

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      + ID2= 2 (  0009):     0.09   0.005     5.25    40.78
        ================================================
        ID = 3 (  0018):     0.20   0.011     5.25    40.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0023)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0024      0.0140

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0018)      0.200      0.011      5.25      40.78
   OUTFLOW: ID= 1 (  0023)      0.200      0.001      7.33      33.40

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.18
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0064

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--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0021):     0.22   0.001     7.33     9.03
      + ID2= 2 (  0023):     0.20   0.001     7.33    33.40
        ================================================
        ID = 3 (  0007):     0.42   0.002     7.33    20.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0013)|   Area    (ha)=   0.22   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
              TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
             0.083    0.00 | 3.167    2.52 | 6.250    5.46 |  9.33    0.42
             0.167    0.00 | 3.250    2.52 | 6.333    2.94 |  9.42    0.42
```

Post-development Conditions

0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	**2.52**	**5.417**	**5.46**	**8.500**	**0.84**	**11.58**	**0.42**
2.417	**2.52**	**5.500**	**5.46**	**8.583**	**0.84**	**11.67**	**0.42**
2.500	**2.52**	**5.583**	**5.46**	**8.667**	**0.84**	**11.75**	**0.42**
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

```
     Unit Hyd Qpeak  (cms)=   0.041

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=   9.706
     TOTAL RAINFALL   (mm)=  42.000
     RUNOFF COEFFICIENT   =   0.231

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
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| CALIB            |
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Post-development Conditions

| STANDHYD (0006)| Area (ha)= 1.29
|ID= 1 DT= 5.0 min | Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	**0.42**	**3.917**	**7.14**	**7.000**	**2.94**	**10.08**	**0.42**
0.917	**0.42**	**4.000**	**7.14**	**7.083**	**2.94**	**10.17**	**0.42**
1.000	**0.42**	**4.083**	**7.14**	**7.167**	**2.94**	**10.25**	**0.42**
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	2.52	5.500	5.46	8.583	0.84	11.67	0.42
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42

Post-development Conditions

2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

			TOTALS
Max.Eff.Inten.(mm/hr)=	19.32	11.36	
over (min)	5.00	25.00	
Storage Coeff. (min)=	4.71 (ii)	21.56 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.22	0.05	
PEAK FLOW (cms)=	0.06	0.00	0.064 (iii)
TIME TO PEAK (hrs)=	5.25	5.33	5.25
RUNOFF VOLUME (mm)=	41.00	19.22	38.16
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.98	0.46	0.91

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0013):	0.22	0.003	5.25	9.71
+	ID2= 2 (0006):	1.29	0.064	5.25	38.16
	ID = 3 (0024):	1.50	0.068	5.25	34.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0175	0.0875

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0024)	1.505	0.068	5.25	34.10
OUTFLOW: ID= 1 (0020)	1.505	0.008	7.42	33.25

Post-development Conditions

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.42
TIME SHIFT OF PEAK FLOW (min)=130.00
MAXIMUM STORAGE USED (ha.m.)= 0.0387

ADD HYD (0014)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0020):	1.50	0.008	7.42	33.25
	+ ID2= 2 (0007):	0.42	0.002	7.33	20.63
	ID = 3 (0014):	1.92	0.010	7.33	30.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0026)	Area (ha)=	0.22	Curve Number (CN)=	71.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.20			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42

Post-development Conditions

1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	2.52	5.500	5.46	8.583	0.84	11.67	0.42
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 9.706
TOTAL RAINFALL (mm)= 42.000
RUNOFF COEFFICIENT = 0.231

(i) **PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.**

CALIB	
STANDHYD (0001)	Area (ha)= 0.68
ID= 1 DT= 5.0 min	Total Imp(%)= 91.00 Dir. Conn.(%)= 91.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.06
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	67.33	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42

Post-development Conditions

0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	0.42	4.167	7.14	7.250	2.94	10.33	0.42
1.167	0.42	4.250	7.14	7.333	1.68	10.42	0.42
1.250	0.42	4.333	19.32	7.417	1.68	10.50	0.42
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	**0.42**	**5.333**	**5.46**	**8.417**	**0.84**	**11.50**	**0.42**
2.333	**2.52**	**5.417**	**5.46**	**8.500**	**0.84**	**11.58**	**0.42**
2.417	**2.52**	**5.500**	**5.46**	**8.583**	**0.84**	**11.67**	**0.42**
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42
3.083	2.52	6.167	5.46	9.250	0.84		

Max.Eff.Inten.(mm/hr)=	19.32	11.36	
over (min)	5.00	25.00	
Storage Coeff. (min)=	3.89 (ii)	20.73 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.25	0.05	
			TOTALS
PEAK FLOW (cms)=	0.03	0.00	0.035 (iii)
TIME TO PEAK (hrs)=	5.08	5.33	5.25
RUNOFF VOLUME (mm)=	41.00	19.22	39.03
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.98	0.46	0.93

Post-development Conditions

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0025)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     0.68   0.035     5.25    39.03
      + ID2= 2 (  0026):     0.22   0.003     5.25     9.71
        ================================================
        ID = 3 (  0025):     0.90   0.038     5.25    31.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0022)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0108      0.0490

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0025)      0.895      0.038      5.25      31.99
   OUTFLOW: ID= 1 (  0022)      0.895      0.005      7.33      30.70

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.26
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0212

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     1.92   0.010     7.33    30.50
      + ID2= 2 (  0022):     0.90   0.005     7.33    30.70
        ================================================
        ID = 3 (  0027):     2.82   0.014     7.33    30.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

Post-development Conditions

CALIB					
NASHYD (0028)	Area (ha)=	0.43	Curve Number (CN)=	71.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.20			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	2.52	6.250	5.46	9.33	0.42
0.167	0.00	3.250	2.52	6.333	2.94	9.42	0.42
0.250	0.00	3.333	7.14	6.417	2.94	9.50	0.42
0.333	0.42	3.417	7.14	6.500	2.94	9.58	0.42
0.417	0.42	3.500	7.14	6.583	2.94	9.67	0.42
0.500	0.42	3.583	7.14	6.667	2.94	9.75	0.42
0.583	0.42	3.667	7.14	6.750	2.94	9.83	0.42
0.667	0.42	3.750	7.14	6.833	2.94	9.92	0.42
0.750	0.42	3.833	7.14	6.917	2.94	10.00	0.42
0.833	0.42	3.917	7.14	7.000	2.94	10.08	0.42
0.917	0.42	4.000	7.14	7.083	2.94	10.17	0.42
1.000	0.42	4.083	7.14	7.167	2.94	10.25	0.42
1.083	**0.42**	**4.167**	**7.14**	**7.250**	**2.94**	**10.33**	**0.42**
1.167	**0.42**	**4.250**	**7.14**	**7.333**	**1.68**	**10.42**	**0.42**
1.250	**0.42**	**4.333**	**19.32**	**7.417**	**1.68**	**10.50**	**0.42**
1.333	0.42	4.417	19.32	7.500	1.68	10.58	0.42
1.417	0.42	4.500	19.32	7.583	1.68	10.67	0.42
1.500	0.42	4.583	19.32	7.667	1.68	10.75	0.42
1.583	0.42	4.667	19.32	7.750	1.68	10.83	0.42
1.667	0.42	4.750	19.32	7.833	1.68	10.92	0.42
1.750	0.42	4.833	19.32	7.917	1.68	11.00	0.42
1.833	0.42	4.917	19.32	8.000	1.68	11.08	0.42
1.917	0.42	5.000	19.32	8.083	1.68	11.17	0.42
2.000	0.42	5.083	19.32	8.167	1.68	11.25	0.42
2.083	0.42	5.167	19.32	8.250	1.68	11.33	0.42
2.167	0.42	5.250	19.32	8.333	0.84	11.42	0.42
2.250	0.42	5.333	5.46	8.417	0.84	11.50	0.42
2.333	2.52	5.417	5.46	8.500	0.84	11.58	0.42
2.417	2.52	5.500	5.46	8.583	0.84	11.67	0.42
2.500	2.52	5.583	5.46	8.667	0.84	11.75	0.42
2.583	2.52	5.667	5.46	8.750	0.84	11.83	0.42
2.667	2.52	5.750	5.46	8.833	0.84	11.92	0.42
2.750	2.52	5.833	5.46	8.917	0.84	12.00	0.42
2.833	2.52	5.917	5.46	9.000	0.84	12.08	0.42
2.917	2.52	6.000	5.46	9.083	0.84	12.17	0.42
3.000	2.52	6.083	5.46	9.167	0.84	12.25	0.42

Post-development Conditions

3.083 2.52 | 6.167 5.46 | 9.250 0.84 |

Unit Hyd Qpeak (cms)= 0.082

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 9.707
TOTAL RAINFALL (mm)= 42.000
RUNOFF COEFFICIENT = 0.231

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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***** D E T A I L E D O U T P U T *****

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

Output filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\314ee591-854c-4b20-b0c0-09746b3ad9ca\scenari
Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\314ee591-854c-4b20-b0c0-09746b3ad9ca\scenari

DATE: 10-28-2024 TIME: 04:44:21

USER:

Post-development Conditions

COMMENTS: _____

```
------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : 25 Year 12 Hour AES (Bloor, T **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\21yk\AppD
|                  |              ata\Local\Temp\
|                  |              ab141049-113e-4a11-acbd-14963de973f2\56aba7b2
| Ptotal= 73.10 mm |    Comments: 25 Year 12 Hour AES (Bloor, TRCA)
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  3.25   12.43 |  6.50    5.12 |  9.75    0.73
                0.25    0.73 |  3.50   12.43 |  6.75    5.12 | 10.00    0.73
                0.50    0.73 |  3.75   12.43 |  7.00    5.12 | 10.25    0.73
                0.75    0.73 |  4.00   12.43 |  7.25    2.92 | 10.50    0.73
                1.00    0.73 |  4.25   33.63 |  7.50    2.92 | 10.75    0.73
                1.25    0.73 |  4.50   33.63 |  7.75    2.92 | 11.00    0.73
                1.50    0.73 |  4.75   33.63 |  8.00    2.92 | 11.25    0.73
                1.75    0.73 |  5.00   33.63 |  8.25    1.46 | 11.50    0.73
                2.00    0.73 |  5.25    9.50 |  8.50    1.46 | 11.75    0.73
                2.25    4.39 |  5.50    9.50 |  8.75    1.46 | 12.00    0.73
                2.50    4.39 |  5.75    9.50 |  9.00    1.46 |
                2.75    4.39 |  6.00    9.50 |  9.25    0.73 |
                3.00    4.39 |  6.25    5.12 |  9.50    0.73 |

------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0011)|   Area    (ha)=   0.20   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.00 | 3.167    4.39 | 6.250    9.50 |  9.33    0.73
               0.167    0.00 | 3.250    4.39 | 6.333    5.12 |  9.42    0.73
```

Post-development Conditions

0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	**4.39**	**5.417**	**9.50**	**8.500**	**1.46**	**11.58**	**0.73**
2.417	**4.39**	**5.500**	**9.50**	**8.583**	**1.46**	**11.67**	**0.73**
2.500	**4.39**	**5.583**	**9.50**	**8.667**	**1.46**	**11.75**	**0.73**
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 26.933
TOTAL RAINFALL (mm)= 73.100
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB

Post-development Conditions

| STANDHYD (0010)| Area (ha)= 0.01
|ID= 1 DT= 5.0 min | Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	**0.73**	**3.917**	**12.43**	**7.000**	**5.12**	**10.08**	**0.73**
0.917	**0.73**	**4.000**	**12.43**	**7.083**	**5.12**	**10.17**	**0.73**
1.000	**0.73**	**4.083**	**12.43**	**7.167**	**5.12**	**10.25**	**0.73**
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73

Post-development Conditions

2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

			TOTALS
Max.Eff.Inten.(mm/hr)=	33.63	25.46	
over (min)	5.00	15.00	
Storage Coeff. (min)=	0.99 (ii)	13.19 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.34	0.08	
PEAK FLOW (cms)=	0.00	0.00	0.001 (iii)
TIME TO PEAK (hrs)=	4.58	5.25	5.25
RUNOFF VOLUME (mm)=	72.10	44.03	63.94
TOTAL RAINFALL (mm)=	73.10	73.10	73.10
RUNOFF COEFFICIENT =	0.99	0.60	0.87

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0012)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0010):	0.01	0.001	5.25	63.94
+	ID2= 2 (0011):	0.20	0.009	5.25	26.93
	ID = 3 (0012):	0.22	0.010	5.25	29.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0021)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0027	0.0055

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	0.220	0.010	5.25	29.46
OUTFLOW: ID= 1 (0021)	0.220	0.002	7.25	27.13

Post-development Conditions

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.82
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.0039

| CALIB |
| STANDHYD (0008)| Area (ha)= 0.11
|ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	**0.00**	**3.250**	**4.39**	**6.333**	**5.12**	**9.42**	**0.73**
0.250	**0.00**	**3.333**	**12.43**	**6.417**	**5.12**	**9.50**	**0.73**
0.333	**0.73**	**3.417**	**12.43**	**6.500**	**5.12**	**9.58**	**0.73**
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73

Post-development Conditions

2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Max.Eff.Inten.(mm/hr)=	33.63	25.71	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.80 (ii)	3.54 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.26	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.010 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	72.10	44.03	71.82
TOTAL RAINFALL (mm)=	73.10	73.10	73.10
RUNOFF COEFFICIENT =	0.99	0.60	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.09
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	24.49	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	**0.73**	**5.000**	**33.63**	**8.083**	**2.92**	**11.17**	**0.73**
2.000	**0.73**	**5.083**	**33.63**	**8.167**	**2.92**	**11.25**	**0.73**
2.083	**0.73**	**5.167**	**33.63**	**8.250**	**2.92**	**11.33**	**0.73**
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Max.Eff.Inten.(mm/hr)=	33.63	25.71	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.70 (ii)	3.44 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.26	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.008 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25

Post-development Conditions

```
     RUNOFF VOLUME    (mm)=      72.10        44.03          71.82
     TOTAL RAINFALL   (mm)=      73.10        73.10          73.10
     RUNOFF COEFFICIENT   =       0.99         0.60           0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0018)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0008):     0.11   0.010     5.25    71.82
      + ID2= 2 (  0009):     0.09   0.008     5.25    71.82
        ================================================
        ID = 3 (  0018):     0.20   0.019     5.25    71.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0023)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0024      0.0140

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0018)      0.200      0.019      5.25      71.82
   OUTFLOW: ID= 1 (  0023)      0.200      0.002      7.33      64.41

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.28
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0112

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--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0021):     0.22   0.002     7.25    27.13
      + ID2= 2 (  0023):     0.20   0.002     7.33    64.41
```

Post-development Conditions

==========

ID = 3 (0007): 0.42 0.004 7.33 44.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0013)	Area (ha)=	0.22	Curve Number (CN)=	71.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	**0.73**	**3.833**	**12.43**	**6.917**	**5.12**	**10.00**	**0.73**
0.833	**0.73**	**3.917**	**12.43**	**7.000**	**5.12**	**10.08**	**0.73**
0.917	**0.73**	**4.000**	**12.43**	**7.083**	**5.12**	**10.17**	**0.73**
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73

Post-development Conditions

2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 26.933
TOTAL RAINFALL (mm)= 73.100
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 1.29
ID= 1 DT= 5.0 min	Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73

Post-development Conditions

1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Max.Eff.Inten.(mm/hr)=	33.63	25.46	
over (min)	5.00	20.00	
Storage Coeff. (min)=	3.78 (ii)	15.98 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.25	0.07	
			TOTALS
PEAK FLOW (cms)=	0.10	0.01	0.115 (iii)
TIME TO PEAK (hrs)=	5.08	5.25	5.25
RUNOFF VOLUME (mm)=	72.10	44.03	68.44
TOTAL RAINFALL (mm)=	73.10	73.10	73.10
RUNOFF COEFFICIENT =	0.99	0.60	0.94

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	

```
                              Post-development Conditions
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0013):     0.22   0.009     5.25    26.93
      + ID2= 2 (  0006):     1.29   0.115     5.25    68.44
        ================================================
        ID = 3 (  0024):     1.50   0.125     5.25    62.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0020)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.0175      0.0875

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0024)      1.505      0.125      5.25      62.51
   OUTFLOW: ID= 1 (  0020)      1.505      0.014      7.33      61.67

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.38
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0710

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0014)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0020):     1.50   0.014     7.33    61.67
      + ID2= 2 (  0007):     0.42   0.004     7.33    44.88
        ================================================
        ID = 3 (  0014):     1.92   0.018     7.33    58.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.22   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

Post-development Conditions

0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	**0.73**	**5.250**	**33.63**	**8.333**	**1.46**	**11.42**	**0.73**
2.250	**0.73**	**5.333**	**9.50**	**8.417**	**1.46**	**11.50**	**0.73**
2.333	**4.39**	**5.417**	**9.50**	**8.500**	**1.46**	**11.58**	**0.73**
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 26.933
TOTAL RAINFALL (mm)= 73.100
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

```
--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  91.00   Dir. Conn.(%)=  91.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.06
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      67.33        40.00
     Mannings n             =     0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	**0.73**	**3.750**	**12.43**	**6.833**	**5.12**	**9.92**	**0.73**
0.750	**0.73**	**3.833**	**12.43**	**6.917**	**5.12**	**10.00**	**0.73**
0.833	**0.73**	**3.917**	**12.43**	**7.000**	**5.12**	**10.08**	**0.73**
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73
1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73

Post-development Conditions

2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Max.Eff.Inten.(mm/hr)=	33.63	25.71	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.12 (ii)	7.44 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.27	0.13	
			TOTALS
PEAK FLOW (cms)=	0.06	0.00	0.062 (iii)
TIME TO PEAK (hrs)=	5.08	5.25	5.25
RUNOFF VOLUME (mm)=	72.10	44.03	69.57
TOTAL RAINFALL (mm)=	73.10	73.10	73.10
RUNOFF COEFFICIENT =	0.99	0.60	0.95

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (0001):	0.68	0.062	5.25	69.57
	+ ID2= 2 (0026):	0.22	0.009	5.25	26.93
	ID = 3 (0025):	0.90	0.071	5.25	59.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0022)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0108	0.0490

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

Post-development Conditions

```
   INFLOW : ID= 2 (  0025)      0.895      0.071      5.25      59.33
   OUTFLOW: ID= 1 (  0022)      0.895      0.009      7.33      58.04

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.15
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0393
```

```
--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     1.92   0.018     7.33    58.01
      + ID2= 2 (  0022):     0.90   0.009     7.33    58.04
        ================================================
        ID = 3 (  0027):     2.82   0.027     7.33    58.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------
| CALIB            |
| NASHYD   (  0028)|   Area    (ha)=   0.43   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20
```

NOTE: RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.39	6.250	9.50	9.33	0.73
0.167	0.00	3.250	4.39	6.333	5.12	9.42	0.73
0.250	0.00	3.333	12.43	6.417	5.12	9.50	0.73
0.333	0.73	3.417	12.43	6.500	5.12	9.58	0.73
0.417	0.73	3.500	12.43	6.583	5.12	9.67	0.73
0.500	0.73	3.583	12.43	6.667	5.12	9.75	0.73
0.583	0.73	3.667	12.43	6.750	5.12	9.83	0.73
0.667	0.73	3.750	12.43	6.833	5.12	9.92	0.73
0.750	0.73	3.833	12.43	6.917	5.12	10.00	0.73
0.833	0.73	3.917	12.43	7.000	5.12	10.08	0.73
0.917	0.73	4.000	12.43	7.083	5.12	10.17	0.73
1.000	0.73	4.083	12.43	7.167	5.12	10.25	0.73
1.083	0.73	4.167	12.43	7.250	5.12	10.33	0.73
1.167	0.73	4.250	12.43	7.333	2.92	10.42	0.73
1.250	0.73	4.333	33.63	7.417	2.92	10.50	0.73
1.333	0.73	4.417	33.63	7.500	2.92	10.58	0.73
1.417	0.73	4.500	33.63	7.583	2.92	10.67	0.73

Post-development Conditions

1.500	0.73	4.583	33.63	7.667	2.92	10.75	0.73
1.583	0.73	4.667	33.63	7.750	2.92	10.83	0.73
1.667	0.73	4.750	33.63	7.833	2.92	10.92	0.73
1.750	0.73	4.833	33.63	7.917	2.92	11.00	0.73
1.833	0.73	4.917	33.63	8.000	2.92	11.08	0.73
1.917	0.73	5.000	33.63	8.083	2.92	11.17	0.73
2.000	0.73	5.083	33.63	8.167	2.92	11.25	0.73
2.083	0.73	5.167	33.63	8.250	2.92	11.33	0.73
2.167	0.73	5.250	33.63	8.333	1.46	11.42	0.73
2.250	0.73	5.333	9.50	8.417	1.46	11.50	0.73
2.333	4.39	5.417	9.50	8.500	1.46	11.58	0.73
2.417	4.39	5.500	9.50	8.583	1.46	11.67	0.73
2.500	4.39	5.583	9.50	8.667	1.46	11.75	0.73
2.583	4.39	5.667	9.50	8.750	1.46	11.83	0.73
2.667	4.39	5.750	9.50	8.833	1.46	11.92	0.73
2.750	4.39	5.833	9.50	8.917	1.46	12.00	0.73
2.833	4.39	5.917	9.50	9.000	1.46	12.08	0.73
2.917	4.39	6.000	9.50	9.083	1.46	12.17	0.73
3.000	4.39	6.083	9.50	9.167	1.46	12.25	0.73
3.083	4.39	6.167	9.50	9.250	1.46		

Unit Hyd Qpeak (cms)= 0.082

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 26.934
TOTAL RAINFALL (mm)= 73.100
RUNOFF COEFFICIENT = 0.368

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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Post-development Conditions

***** D E T A I L E D O U T P U T *****

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

Output filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\6e0db2d3-65d7-43bd-ba0a-5a63f42cb266\scenari
Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\6e0db2d3-65d7-43bd-ba0a-5a63f42cb266\scenari

DATE: 10-28-2024 TIME: 04:44:21

USER:

COMMENTS: _____

****
** SIMULATION : 5 Year 12 Hour AES (Bloor, TR **
****

READ STORM	Filename: C:\Users\21yk\AppData\Local\Temp\ab141049-113e-4a11-acbd-14963de973f2\6ae99da1
Ptotal= 54.38 mm	Comments: 5 Year 12 Hour AES (Bloor, TRCA)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	9.25	6.50	3.81	9.75	0.54
0.25	0.54	3.50	9.25	6.75	3.81	10.00	0.54
0.50	0.54	3.75	9.25	7.00	3.81	10.25	0.54
0.75	0.54	4.00	9.25	7.25	2.18	10.50	0.54
1.00	0.54	4.25	25.02	7.50	2.18	10.75	0.54
1.25	0.54	4.50	25.02	7.75	2.18	11.00	0.54
1.50	0.54	4.75	25.02	8.00	2.18	11.25	0.54
1.75	0.54	5.00	25.02	8.25	1.09	11.50	0.54
2.00	0.54	5.25	7.07	8.50	1.09	11.75	0.54
2.25	3.26	5.50	7.07	8.75	1.09	12.00	0.54
2.50	3.26	5.75	7.07	9.00	1.09		

Post-development Conditions

2.75	3.26	6.00	7.07	9.25	0.54
3.00	3.26	6.25	3.81	9.50	0.54

CALIB			
NASHYD (0011)	Area (ha)=	0.20	Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	**0.54**	**3.833**	**9.25**	**6.917**	**3.81**	**10.00**	**0.54**
0.833	**0.54**	**3.917**	**9.25**	**7.000**	**3.81**	**10.08**	**0.54**
0.917	**0.54**	**4.000**	**9.25**	**7.083**	**3.81**	**10.17**	**0.54**
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54

Post-development Conditions

2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.891
TOTAL RAINFALL (mm)= 54.380
RUNOFF COEFFICIENT = 0.292

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0010)	Area (ha)= 0.01		
ID= 1 DT= 5.0 min	Total Imp(%)= 84.00	Dir. Conn.(%)= 84.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54

Post-development Conditions

1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Max.Eff.Inten.(mm/hr)=	25.02	16.91	
over (min)	5.00	20.00	
Storage Coeff. (min)=	1.12 (ii)	15.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.34	0.07	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.001 (iii)
TIME TO PEAK (hrs)=	4.58	5.25	5.25
RUNOFF VOLUME (mm)=	53.38	28.62	44.53
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.53	0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0012)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

Post-development Conditions

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):	0.01	0.001	5.25	44.53
+ ID2= 2 (0011):	0.20	0.005	5.25	15.89
ID = 3 (0012):	0.22	0.006	5.25	17.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0021)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0027	0.0055

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	0.220	0.006	5.25	17.84
OUTFLOW: ID= 1 (0021)	0.220	0.001	7.25	15.51

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.73
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.0024

CALIB		
STANDHYD (0008)	Area (ha)= 0.11	
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54

Post-development Conditions

0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	**3.26**	**5.750**	**7.07**	**8.833**	**1.09**	**11.92**	**0.54**
2.750	**3.26**	**5.833**	**7.07**	**8.917**	**1.09**	**12.00**	**0.54**
2.833	**3.26**	**5.917**	**7.07**	**9.000**	**1.09**	**12.08**	**0.54**
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Max.Eff.Inten.(mm/hr)=	25.02	17.13	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.03 (ii)	3.99 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.24	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.008 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	53.38	28.62	53.13
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.53	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

Post-development Conditions

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.09
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	24.49	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	**0.54**	**3.417**	**9.25**	**6.500**	**3.81**	**9.58**	**0.54**
0.417	**0.54**	**3.500**	**9.25**	**6.583**	**3.81**	**9.67**	**0.54**
0.500	**0.54**	**3.583**	**9.25**	**6.667**	**3.81**	**9.75**	**0.54**
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54

Post-development Conditions

2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Max.Eff.Inten.(mm/hr)=	25.02	17.13	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.91 (ii)	3.87 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.25	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.006 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	53.38	28.62	53.13
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.53	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):	0.11	0.008	5.25	53.13
+ ID2= 2 (0009):	0.09	0.006	5.25	53.13
ID = 3 (0018):	0.20	0.014	5.25	53.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0023)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)

Post-development Conditions

0.0000 0.0000 | 0.0024 0.0140

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0018)	0.200	0.014	5.25	53.13
OUTFLOW: ID= 1 (0023)	0.200	0.001	7.33	45.74

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.23
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0083

ADD HYD (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0021):	0.22	0.001	7.25	15.51
	+ ID2= 2 (0023):	0.20	0.001	7.33	45.74
	ID = 3 (0007):	0.42	0.003	7.33	29.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0013)				
ID= 1 DT= 5.0 min	Area (ha)=	0.22	Curve Number (CN)=	71.0
	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54

Post-development Conditions

1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.891
TOTAL RAINFALL (mm)= 54.380
RUNOFF COEFFICIENT = 0.292

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 1.29
ID= 1 DT= 5.0 min	Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	**0.54**	**4.833**	**25.02**	**7.917**	**2.18**	**11.00**	**0.54**
1.833	**0.54**	**4.917**	**25.02**	**8.000**	**2.18**	**11.08**	**0.54**
1.917	**0.54**	**5.000**	**25.02**	**8.083**	**2.18**	**11.17**	**0.54**
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Max.Eff.Inten.(mm/hr)=	25.02		16.91
over (min)	5.00		20.00
Storage Coeff. (min)=	4.25	(ii)	18.62 (ii)
Unit Hyd. Tpeak (min)=	5.00		20.00
Unit Hyd. peak (cms)=	0.24		0.06

TOTALS

Post-development Conditions

PEAK FLOW (cms)=	0.08	0.01	0.085 (iii)
TIME TO PEAK (hrs)=	5.17	5.33	5.25
RUNOFF VOLUME (mm)=	53.38	28.62	50.15
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.53	0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0013):	0.22	0.006	5.25	15.89
+ ID2= 2 (0006):	1.29	0.085	5.25	50.15
ID = 3 (0024):	1.50	0.090	5.25	45.26

NOTE: **PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.**

RESERVOIR(0020)
IN= 2---> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0175	0.0875

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0024)	1.505	0.090	5.25	45.26
OUTFLOW: ID= 1 (0020)	1.505	0.010	7.33	44.41

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.39
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0514

ADD HYD (0014)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

Post-development Conditions

```
  ID1= 1 (  0020):     1.50   0.010     7.33    44.41
+ ID2= 2 (  0007):     0.42   0.003     7.33    29.90
  ================================================
  ID = 3 (  0014):     1.92   0.013     7.33    41.25
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0026)|   Area    (ha)=   0.22   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	**0.54**	**3.667**	**9.25**	**6.750**	**3.81**	**9.83**	**0.54**
0.667	**0.54**	**3.750**	**9.25**	**6.833**	**3.81**	**9.92**	**0.54**
0.750	**0.54**	**3.833**	**9.25**	**6.917**	**3.81**	**10.00**	**0.54**
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54

Post-development Conditions

2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.891
TOTAL RAINFALL (mm)= 54.380
RUNOFF COEFFICIENT = 0.292

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0001)
ID= 1 DT= 5.0 min

Area (ha)= 0.68
Total Imp(%)= 91.00 Dir. Conn.(%)= 91.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.06
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	67.33	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54

Post-development Conditions

1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	0.54	5.083	25.02	8.167	2.18	11.25	0.54
2.083	0.54	5.167	25.02	8.250	2.18	11.33	0.54
2.167	0.54	5.250	25.02	8.333	1.09	11.42	0.54
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Max.**Eff.Inten.(mm/hr)=**	**25.02**	**17.13**	
over (min)	**5.00**	**10.00**	
Storage Coeff. (min)=	3.51 (ii)	8.38 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.26	0.12	
			TOTALS
PEAK FLOW (cms)=	0.04	0.00	0.046 (iii)
TIME TO PEAK (hrs)=	5.08	5.25	5.25
RUNOFF VOLUME (mm)=	53.38	28.62	51.15
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.53	0.94

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

```
| ADD HYD  (  0025)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     0.68   0.046     5.25    51.15
      + ID2= 2 (  0026):     0.22   0.006     5.25    15.89
        ====================================================
        ID = 3 (  0025):     0.90   0.051     5.25    42.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0022)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.0108      0.0490

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0025)      0.895      0.051      5.25      42.68
   OUTFLOW: ID= 1 (  0022)      0.895      0.006      7.33      41.39

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.15
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0283

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     1.92   0.013     7.33    41.25
      + ID2= 2 (  0022):     0.90   0.006     7.33    41.39
        ====================================================
        ID = 3 (  0027):     2.82   0.019     7.33    41.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0028)|   Area    (ha)=   0.43   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
```

Post-development Conditions

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	3.26	6.250	7.07	9.33	0.54
0.167	0.00	3.250	3.26	6.333	3.81	9.42	0.54
0.250	0.00	3.333	9.25	6.417	3.81	9.50	0.54
0.333	0.54	3.417	9.25	6.500	3.81	9.58	0.54
0.417	0.54	3.500	9.25	6.583	3.81	9.67	0.54
0.500	0.54	3.583	9.25	6.667	3.81	9.75	0.54
0.583	0.54	3.667	9.25	6.750	3.81	9.83	0.54
0.667	0.54	3.750	9.25	6.833	3.81	9.92	0.54
0.750	0.54	3.833	9.25	6.917	3.81	10.00	0.54
0.833	0.54	3.917	9.25	7.000	3.81	10.08	0.54
0.917	0.54	4.000	9.25	7.083	3.81	10.17	0.54
1.000	0.54	4.083	9.25	7.167	3.81	10.25	0.54
1.083	0.54	4.167	9.25	7.250	3.81	10.33	0.54
1.167	0.54	4.250	9.25	7.333	2.18	10.42	0.54
1.250	0.54	4.333	25.02	7.417	2.18	10.50	0.54
1.333	0.54	4.417	25.02	7.500	2.18	10.58	0.54
1.417	0.54	4.500	25.02	7.583	2.18	10.67	0.54
1.500	0.54	4.583	25.02	7.667	2.18	10.75	0.54
1.583	0.54	4.667	25.02	7.750	2.18	10.83	0.54
1.667	0.54	4.750	25.02	7.833	2.18	10.92	0.54
1.750	0.54	4.833	25.02	7.917	2.18	11.00	0.54
1.833	0.54	4.917	25.02	8.000	2.18	11.08	0.54
1.917	0.54	5.000	25.02	8.083	2.18	11.17	0.54
2.000	**0.54**	**5.083**	**25.02**	**8.167**	**2.18**	**11.25**	**0.54**
2.083	**0.54**	**5.167**	**25.02**	**8.250**	**2.18**	**11.33**	**0.54**
2.167	**0.54**	**5.250**	**25.02**	**8.333**	**1.09**	**11.42**	**0.54**
2.250	0.54	5.333	7.07	8.417	1.09	11.50	0.54
2.333	3.26	5.417	7.07	8.500	1.09	11.58	0.54
2.417	3.26	5.500	7.07	8.583	1.09	11.67	0.54
2.500	3.26	5.583	7.07	8.667	1.09	11.75	0.54
2.583	3.26	5.667	7.07	8.750	1.09	11.83	0.54
2.667	3.26	5.750	7.07	8.833	1.09	11.92	0.54
2.750	3.26	5.833	7.07	8.917	1.09	12.00	0.54
2.833	3.26	5.917	7.07	9.000	1.09	12.08	0.54
2.917	3.26	6.000	7.07	9.083	1.09	12.17	0.54
3.000	3.26	6.083	7.07	9.167	1.09	12.25	0.54
3.083	3.26	6.167	7.07	9.250	1.09		

Unit Hyd Qpeak (cms)= 0.082

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.892
TOTAL RAINFALL (mm)= 54.380
RUNOFF COEFFICIENT = 0.292

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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

  Output  filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\03c9ed1
3-e3b3-491a-bfbb-4429958db66d\scenari
  Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\03c9ed1
3-e3b3-491a-bfbb-4429958db66d\scenari


DATE: 10-28-2024                          TIME: 04:44:21

USER:



COMMENTS: _____________________________________________________________


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  ********************************************
  ** SIMULATION : 50 Year 12 Hour AES (Bloor, T **
  ********************************************
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Post-development Conditions

READ STORM	Filename: C:\Users\21yk\AppData\Local\Temp\ab141049-113e-4a11-acbd-14963de973f2\587398f2
Ptotal= 80.82 mm	Comments: 50 Year 12 Hour AES (Bloor, TRCA)

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.25	13.74	6.50	5.66	9.75	0.81
0.25	0.81	3.50	13.74	6.75	5.66	10.00	0.81
0.50	0.81	3.75	13.74	7.00	5.66	10.25	0.81
0.75	0.81	4.00	13.74	7.25	3.23	10.50	0.81
1.00	0.81	4.25	37.17	7.50	3.23	10.75	0.81
1.25	0.81	4.50	37.17	7.75	3.23	11.00	0.81
1.50	0.81	4.75	37.17	8.00	3.23	11.25	0.81
1.75	0.81	5.00	37.17	8.25	1.62	11.50	0.81
2.00	0.81	5.25	10.50	8.50	1.62	11.75	0.81
2.25	4.85	5.50	10.50	8.75	1.62	12.00	0.81
2.50	4.85	5.75	10.50	9.00	1.62		
2.75	4.85	6.00	10.50	9.25	0.81		
3.00	4.85	6.25	5.66	9.50	0.81		

CALIB NASHYD (0011) ID= 1 DT= 5.0 min	Area (ha)= 0.20	Curve Number (CN)= 71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81

Post-development Conditions

1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 31.950
TOTAL RAINFALL (mm)= 80.820
RUNOFF COEFFICIENT = 0.395

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0010)	Area (ha)= 0.01
ID= 1 DT= 5.0 min	Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Post-development Conditions

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	**0.81**	**4.833**	**37.17**	**7.917**	**3.23**	**11.00**	**0.81**
1.833	**0.81**	**4.917**	**37.17**	**8.000**	**3.23**	**11.08**	**0.81**
1.917	**0.81**	**5.000**	**37.17**	**8.083**	**3.23**	**11.17**	**0.81**
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Max.Eff.Inten.(mm/hr)=	37.17		29.06
over (min)	5.00		15.00
Storage Coeff. (min)=	0.95	(ii)	12.52 (ii)
Unit Hyd. Tpeak (min)=	5.00		15.00
Unit Hyd. peak (cms)=	0.34		0.08
			TOTALS

Post-development Conditions

PEAK FLOW (cms)=	0.00	0.00	0.001 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	79.82	50.68	71.08
TOTAL RAINFALL (mm)=	80.82	80.82	80.82
RUNOFF COEFFICIENT =	0.99	0.63	0.88

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0012)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0010):	0.01	0.001	5.25	71.08
	+ ID2= 2 (0011):	0.20	0.010	5.25	31.95
	ID = 3 (0012):	0.22	0.012	5.25	34.62

NOTE: **PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.**

RESERVOIR(0021)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0027	0.0055

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0012)	0.220	0.012	5.25	34.62
OUTFLOW: ID= 1 (0021)	0.220	0.002	7.25	32.30

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.87
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.0046

CALIB	
STANDHYD (0008)	Area (ha)= 0.11
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

Post-development Conditions

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.11	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	27.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	**0.81**	**4.167**	**13.74**	**7.250**	**5.66**	**10.33**	**0.81**
1.167	**0.81**	**4.250**	**13.74**	**7.333**	**3.23**	**10.42**	**0.81**
1.250	**0.81**	**4.333**	**37.17**	**7.417**	**3.23**	**10.50**	**0.81**
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81

Post-development Conditions

3.083	4.85	6.167	10.50	9.250	1.62

			TOTALS
Max.Eff.Inten.(mm/hr)=	37.17	29.32	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.73 (ii)	3.40 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.26	
PEAK FLOW (cms)=	0.01	0.00	0.011 (iii)
TIME TO PEAK (hrs)=	4.83	5.25	5.25
RUNOFF VOLUME (mm)=	79.82	50.68	79.52
TOTAL RAINFALL (mm)=	80.82	80.82	80.82
RUNOFF COEFFICIENT =	0.99	0.63	0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0009)	Area (ha)= 0.09
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	24.49	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81

Post-development Conditions

0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	**4.85**	**5.917**	**10.50**	**9.000**	**1.62**	**12.08**	**0.81**
2.917	**4.85**	**6.000**	**10.50**	**9.083**	**1.62**	**12.17**	**0.81**
3.000	**4.85**	**6.083**	**10.50**	**9.167**	**1.62**	**12.25**	**0.81**
3.083	4.85	6.167	10.50	9.250	1.62		

Max.Eff.Inten.(mm/hr)=	37.17	29.32		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.63 (ii)	3.30 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.32	0.27		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.00	0.009 (iii)	
TIME TO PEAK (hrs)=	4.83	5.25	5.25	
RUNOFF VOLUME (mm)=	79.82	50.68	79.53	
TOTAL RAINFALL (mm)=	80.82	80.82	80.82	
RUNOFF COEFFICIENT =	0.99	0.63	0.98	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

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--------------------
| ADD HYD  (  0018)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0008):     0.11   0.011     5.25    79.52
      + ID2= 2 (  0009):     0.09   0.009     5.25    79.53
        ================================================
        ID = 3 (  0018):     0.20   0.021     5.25    79.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0023)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0024      0.0140

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0018)      0.200      0.021      5.25      79.52
   OUTFLOW: ID= 1 (  0023)      0.200      0.002      7.33      72.13

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.29
                  TIME SHIFT OF PEAK FLOW         (min)=125.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0124

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--------------------
| ADD HYD  (  0007)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0021):     0.22   0.002     7.25    32.30
      + ID2= 2 (  0023):     0.20   0.002     7.33    72.13
        ================================================
        ID = 3 (  0007):     0.42   0.004     7.33    51.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0013)|   Area    (ha)=   0.22   Curve Number   (CN)= 71.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20
```

Post-development Conditions

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	**0.81**	**4.750**	**37.17**	**7.833**	**3.23**	**10.92**	**0.81**
1.750	**0.81**	**4.833**	**37.17**	**7.917**	**3.23**	**11.00**	**0.81**
1.833	**0.81**	**4.917**	**37.17**	**8.000**	**3.23**	**11.08**	**0.81**
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 31.950

Post-development Conditions

TOTAL RAINFALL (mm)= 80.820
RUNOFF COEFFICIENT = 0.395

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0006)| Area (ha)= 1.29
|ID= 1 DT= 5.0 min | Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	**0.00**	**3.250**	**4.85**	**6.333**	**5.66**	**9.42**	**0.81**
0.250	**0.00**	**3.333**	**13.74**	**6.417**	**5.66**	**9.50**	**0.81**
0.333	**0.81**	**3.417**	**13.74**	**6.500**	**5.66**	**9.58**	**0.81**
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81

Post-development Conditions

2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Max.Eff.Inten.(mm/hr)=	37.17	29.32	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.63 (ii)	8.53 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.25	0.12	
			TOTALS
PEAK FLOW (cms)=	0.12	0.01	0.129 (iii)
TIME TO PEAK (hrs)=	5.08	5.25	5.25
RUNOFF VOLUME (mm)=	79.82	50.68	76.03
TOTAL RAINFALL (mm)=	80.82	80.82	80.82
RUNOFF COEFFICIENT =	0.99	0.63	0.94

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0013):	0.22	0.011	5.25	31.95	
+ ID2= 2 (0006):	1.29	0.129	5.25	76.03	
ID = 3 (0024):	1.50	0.140	5.25	69.73	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0020)		OVERFLOW IS OFF
IN= 2---> OUT= 1		

Post-development Conditions

DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0175	0.0875

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0024)	1.505	0.140	5.25	69.73
OUTFLOW: ID= 1 (0020)	1.505	0.016	7.33	68.89

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.31
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0792

ADD HYD (0014)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0020):	1.50	0.016	7.33	68.89
	+ ID2= 2 (0007):	0.42	0.004	7.33	51.27
	ID = 3 (0014):	1.92	0.020	7.33	65.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0026) ID= 1 DT= 5.0 min				
	Area (ha)=	0.22	Curve Number (CN)=	71.0
	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81

Post-development Conditions

1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	**4.85**	**6.167**	**10.50**	**9.250**	**1.62**		

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 31.950
TOTAL RAINFALL (mm)= 80.820
RUNOFF COEFFICIENT = 0.395

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0001)	Area (ha)= 0.68
ID= 1 DT= 5.0 min	Total Imp(%)= 91.00 Dir. Conn.(%)= 91.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.06
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	67.33	40.00
Mannings n	=	0.013	0.250

Post-development Conditions

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	0.81	3.500	13.74	6.583	5.66	9.67	0.81
0.500	0.81	3.583	13.74	6.667	5.66	9.75	0.81
0.583	0.81	3.667	13.74	6.750	5.66	9.83	0.81
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	**0.81**	**4.667**	**37.17**	**7.750**	**3.23**	**10.83**	**0.81**
1.667	**0.81**	**4.750**	**37.17**	**7.833**	**3.23**	**10.92**	**0.81**
1.750	**0.81**	**4.833**	**37.17**	**7.917**	**3.23**	**11.00**	**0.81**
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Max.Eff.Inten.(mm/hr)=	37.17	29.32
over (min)	5.00	10.00
Storage Coeff. (min)=	2.99 (ii)	7.15 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00

Post-development Conditions

Unit Hyd. peak (cms)=	0.28	0.14		
				TOTALS
PEAK FLOW (cms)=	0.06	0.00		0.069 (iii)
TIME TO PEAK (hrs)=	5.08	5.25		5.25
RUNOFF VOLUME (mm)=	79.82	50.68		77.19
TOTAL RAINFALL (mm)=	80.82	80.82		80.82
RUNOFF COEFFICIENT =	0.99	0.63		0.96

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0025)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		0.68	0.069	5.25	77.19
+ ID2= 2 (0026):		0.22	0.011	5.25	31.95
ID = 3 (0025):		**0.90**	**0.080**	**5.25**	**66.32**

NOTE: **PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.**

RESERVOIR(0022)		OVERFLOW IS OFF			
IN= 2---> OUT= 1					
DT= 5.0 min		OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
		0.0000	0.0000	0.0108	0.0490

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0025)	0.895	0.080	5.25	66.32
OUTFLOW: ID= 1 (0022)	0.895	0.010	7.33	65.04

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.15
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.0440

ADD HYD (0027)	

Post-development Conditions

1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):		1.92	0.020	7.33	65.04
+ ID2= 2 (0022):		0.90	0.010	7.33	65.04
ID = 3 (0027):		2.82	0.030	7.33	65.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0028)	Area (ha)=	0.43	Curve Number (CN)=	71.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	4.85	6.250	10.50	9.33	0.81
0.167	0.00	3.250	4.85	6.333	5.66	9.42	0.81
0.250	0.00	3.333	13.74	6.417	5.66	9.50	0.81
0.333	0.81	3.417	13.74	6.500	5.66	9.58	0.81
0.417	**0.81**	**3.500**	**13.74**	**6.583**	**5.66**	**9.67**	**0.81**
0.500	**0.81**	**3.583**	**13.74**	**6.667**	**5.66**	**9.75**	**0.81**
0.583	**0.81**	**3.667**	**13.74**	**6.750**	**5.66**	**9.83**	**0.81**
0.667	0.81	3.750	13.74	6.833	5.66	9.92	0.81
0.750	0.81	3.833	13.74	6.917	5.66	10.00	0.81
0.833	0.81	3.917	13.74	7.000	5.66	10.08	0.81
0.917	0.81	4.000	13.74	7.083	5.66	10.17	0.81
1.000	0.81	4.083	13.74	7.167	5.66	10.25	0.81
1.083	0.81	4.167	13.74	7.250	5.66	10.33	0.81
1.167	0.81	4.250	13.74	7.333	3.23	10.42	0.81
1.250	0.81	4.333	37.17	7.417	3.23	10.50	0.81
1.333	0.81	4.417	37.17	7.500	3.23	10.58	0.81
1.417	0.81	4.500	37.17	7.583	3.23	10.67	0.81
1.500	0.81	4.583	37.17	7.667	3.23	10.75	0.81
1.583	0.81	4.667	37.17	7.750	3.23	10.83	0.81
1.667	0.81	4.750	37.17	7.833	3.23	10.92	0.81
1.750	0.81	4.833	37.17	7.917	3.23	11.00	0.81
1.833	0.81	4.917	37.17	8.000	3.23	11.08	0.81
1.917	0.81	5.000	37.17	8.083	3.23	11.17	0.81
2.000	0.81	5.083	37.17	8.167	3.23	11.25	0.81
2.083	0.81	5.167	37.17	8.250	3.23	11.33	0.81
2.167	0.81	5.250	37.17	8.333	1.62	11.42	0.81
2.250	0.81	5.333	10.50	8.417	1.62	11.50	0.81
2.333	4.85	5.417	10.50	8.500	1.62	11.58	0.81

Post-development Conditions

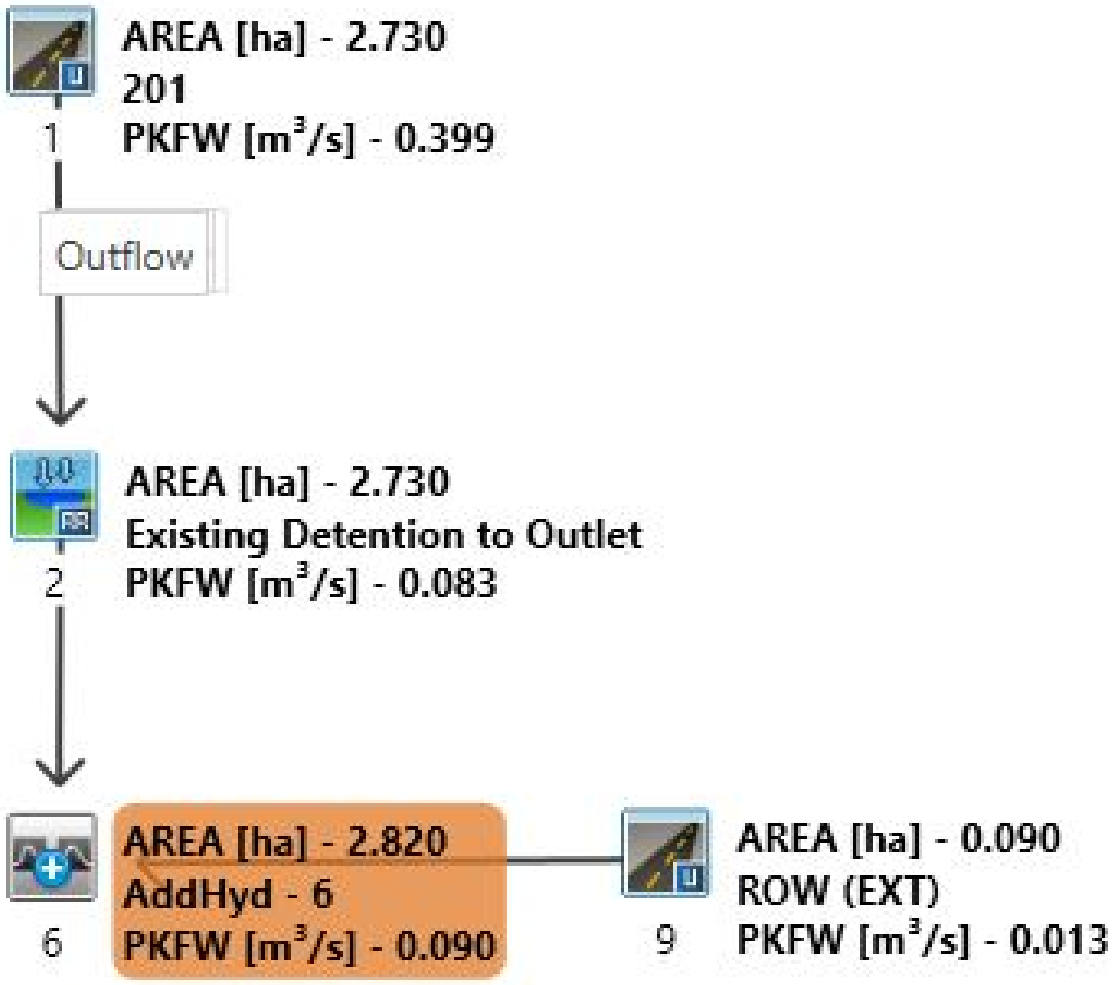
2.417	4.85	5.500	10.50	8.583	1.62	11.67	0.81
2.500	4.85	5.583	10.50	8.667	1.62	11.75	0.81
2.583	4.85	5.667	10.50	8.750	1.62	11.83	0.81
2.667	4.85	5.750	10.50	8.833	1.62	11.92	0.81
2.750	4.85	5.833	10.50	8.917	1.62	12.00	0.81
2.833	4.85	5.917	10.50	9.000	1.62	12.08	0.81
2.917	4.85	6.000	10.50	9.083	1.62	12.17	0.81
3.000	4.85	6.083	10.50	9.167	1.62	12.25	0.81
3.083	4.85	6.167	10.50	9.250	1.62		

Unit Hyd Qpeak (cms)= 0.082

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 31.952
TOTAL RAINFALL (mm)= 80.820
RUNOFF COEFFICIENT = 0.395

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

PRE-DEVELOPMENT VO MODEL SCHEMATIC (REGIONAL STORM EVENT)



COUNTERPOINT LAND DEVELOPMENT BY | DILLON CONSULTING

PRE-DEVELOPMENT VO MODEL OUTPUT (REGIONAL STORM EVENT)

Project No.:
October 2024

Prepared by: Y.K.

Pre-development Conditions

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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d-aef8-475a-9daf-2dbce51a7dbd\scenari


DATE: 10-28-2024                          TIME: 04:50:36

USER: Yelena Koshenkov



COMMENTS:Regional Storm Event


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  ********************************************
  ** SIMULATION : Hazel                      **
  ********************************************


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|    READ STORM    |    Filename: C:\Users\21yk\AppD
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Pre-development Conditions

	ata\Local\Temp\
	12564aee-bcf4-4ff2-8922-013a0e075a76\05ba0a93
Ptotal=212.00 mm	Comments: Hazel

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.00	3.00	13.00	6.00	23.00	9.00	53.00
1.00	4.00	4.00	17.00	7.00	13.00	10.00	38.00
2.00	6.00	5.00	13.00	8.00	13.00	11.00	13.00

CALIB	
STANDHYD (0001)	Area (ha)= 2.73
ID= 1 DT= 5.0 min	Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.38	0.35
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	134.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00

Pre-development Conditions

1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

			TOTALS
Max.Eff.Inten.(mm/hr)=	53.00	50.33	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.94 (ii)	8.19 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.24	0.13	
PEAK FLOW (cms)=	0.35	0.05	0.399 (iii)
TIME TO PEAK (hrs)=	10.00	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	173.55	206.13
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.82	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0002)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0340	0.1739

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0001)	2.730	0.399	10.00	206.13

Pre-development Conditions

OUTFLOW: ID= 1 (0002) 2.730 0.083 12.00 205.66

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.85
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.4259

CALIB	
STANDHYD (0009)	Area (ha)= 0.09
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.09	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	24.49	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00

Pre-development Conditions

2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	50.33		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.42 (ii)	2.86 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	0.33	0.28		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.00	0.013 (iii)	
TIME TO PEAK (hrs)=	9.42	10.00	10.00	
RUNOFF VOLUME (mm)=	211.00	173.55	210.59	
TOTAL RAINFALL (mm)=	212.00	212.00	212.00	
RUNOFF COEFFICIENT =	1.00	0.82	0.99	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0006)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		2.73	0.083	12.00	205.66
+ ID2= 2 (0009):		0.09	0.013	10.00	210.59
ID = 3 (0006):		2.82	0.090	11.00	205.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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Pre-development Conditions

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POST-DEVELOPMENT VO MODEL OUTPUT (REGIONAL STORM EVENT)

Project No.:
October 2024

Prepared by: Y.K.

Post-development Conditions

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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2015)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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6-1641-48f9-9987-e6532be2eb75\scenari
  Summary filename:
C:\Users\21yk\AppData\Local\Civica\VH5\946992b3-465d-43ba-a8b8-ff4639fdfd3c\be34314
6-1641-48f9-9987-e6532be2eb75\scenari


DATE: 10-28-2024                          TIME: 04:51:24

USER: Yelena Koshenkov



COMMENTS: Regional Storm Event


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  ********************************************
  ** SIMULATION : Hazel                      **
  ********************************************


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|    READ STORM    |    Filename: C:\Users\21yk\AppD
```

Post-development Conditions

	ata\Local\Temp\
	fd1e2d1b-3d12-436c-ace9-8794677d885b\05ba0a93
Ptotal=212.00 mm	Comments: Hazel

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.00	3.00	13.00	6.00	23.00	9.00	53.00
1.00	4.00	4.00	17.00	7.00	13.00	10.00	38.00
2.00	6.00	5.00	13.00	8.00	13.00	11.00	13.00

CALIB			
NASHYD (0011)	Area (ha)=	0.20	Curve Number (CN)= 86.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00

Post-development Conditions

2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.039

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 172.205
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0010)	Area (ha)= 0.01
ID= 1 DT= 5.0 min	Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.01	0.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	10.00	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00

Post-development Conditions

0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	**6.00**	**5.833**	**13.00**	**8.833**	**13.00**	**11.83**	**13.00**
2.917	**6.00**	**5.917**	**13.00**	**8.917**	**13.00**	**11.92**	**13.00**
3.000	**6.00**	**6.000**	**13.00**	**9.000**	**13.00**	**12.00**	**13.00**

Max.Eff.Inten.(mm/hr)=	53.00	50.33	
over (min)	5.00	10.00	
Storage Coeff. (min)=	0.83 (ii)	5.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.16	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.002 (iii)
TIME TO PEAK (hrs)=	9.25	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	173.55	204.79
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.82	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Post-development Conditions

```
--------------------
| ADD HYD  (  0012)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0010):     0.01   0.002    10.00   204.79
      + ID2= 2 (  0011):     0.20   0.029    10.00   172.20
        ================================================
        ID = 3 (  0012):     0.22   0.031    10.00   174.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------
| RESERVOIR(  0021)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0027      0.0055

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0012)      0.220      0.031     10.00     174.43
   OUTFLOW: ID= 1 (  0021)      0.220      0.011     11.33     172.12

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 36.35
                  TIME SHIFT OF PEAK FLOW         (min)= 80.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0228

--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.11         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.08        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.00 | 3.083   13.00 | 6.083   23.00 |  9.08   53.00
```

Post-development Conditions

0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	**6.00**	**5.250**	**13.00**	**8.250**	**13.00**	**11.25**	**13.00**
2.333	**6.00**	**5.333**	**13.00**	**8.333**	**13.00**	**11.33**	**13.00**
2.417	**6.00**	**5.417**	**13.00**	**8.417**	**13.00**	**11.42**	**13.00**
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	50.33	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.50 (ii)	2.95 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.28	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.016 (iii)
TIME TO PEAK (hrs)=	9.42	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	173.55	210.62
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.82	0.99

Post-development Conditions

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       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0009)|   Area    (ha)=   0.09
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.09         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      24.49        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00

Post-development Conditions

2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	50.33	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.42 (ii)	2.86 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.28	
			TOTALS
PEAK FLOW (cms)=	0.01	0.00	0.013 (iii)
TIME TO PEAK (hrs)=	9.42	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	173.55	210.59
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.82	0.99

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0018)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0008):	0.11	0.016	10.00	210.62
+ ID2= 2 (0009):	0.09	0.013	10.00	210.59
ID = 3 (0018):	0.20	0.029	10.00	210.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0023)	OVERFLOW IS OFF

Post-development Conditions

IN= 2---> OUT= 1					
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)	
	0.0000	0.0000	0.0024	0.0140	

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0018)	0.200	0.029	10.00	210.61
OUTFLOW: ID= 1 (0023)	0.200	0.006	12.00	203.22

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.11
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.0328

ADD HYD (0007)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0021):	0.22	0.011	11.33	172.12	
+ ID2= 2 (0023):	0.20	0.006	12.00	203.22	
ID = 3 (0007):	0.42	0.017	11.42	186.93	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0013)	Area (ha)=	0.22	Curve Number (CN)=	86.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00

Post-development Conditions

0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 172.205
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0006)	Area (ha)= 1.29
ID= 1 DT= 5.0 min	Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.12	0.17
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	92.74	40.00
Mannings n	=	0.013	0.250

Post-development Conditions

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	**4.00**	**4.583**	**17.00**	**7.583**	**13.00**	**10.58**	**38.00**
1.667	**4.00**	**4.667**	**17.00**	**7.667**	**13.00**	**10.67**	**38.00**
1.750	**4.00**	**4.750**	**17.00**	**7.750**	**13.00**	**10.75**	**38.00**
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	50.33
over (min)	5.00	10.00
Storage Coeff. (min)=	3.15 (ii)	7.40 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.27	0.13

Post-development Conditions

			TOTALS
PEAK FLOW (cms)=	0.17	0.02	0.189 (iii)
TIME TO PEAK (hrs)=	9.83	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	173.55	206.13
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.82	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0024)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0013):		0.22	0.030	10.00	172.21
+ ID2= 2 (0006):		1.29	0.189	10.00	206.13
ID = 3 (0024):		1.50	0.219	10.00	201.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0020)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0175	0.0875

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0024)	1.505	0.219	10.00	201.28
OUTFLOW: ID= 1 (0020)	1.505	0.046	12.00	200.44

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.94
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.2290

ADD HYD (0014)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3					

Post-development Conditions

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0020):	1.50	0.046	12.00	200.44
+ ID2= 2 (0007):	0.42	0.017	11.42	186.93
ID = 3 (0014):	1.92	0.062	12.00	197.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0026)	Area (ha)= 0.22	Curve Number (CN)= 86.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.20		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00

Post-development Conditions

2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.041

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 10.000
RUNOFF VOLUME (mm)= 172.205
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0001)
ID= 1 DT= 5.0 min

Area (ha)= 0.68
Total Imp(%)= 91.00 Dir. Conn.(%)= 91.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.06
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	67.33	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.00	3.083	13.00	6.083	23.00	9.08	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.250	6.00	3.250	13.00	6.250	23.00	9.25	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.417	6.00	3.417	13.00	6.417	23.00	9.42	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.583	6.00	3.583	13.00	6.583	23.00	9.58	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.750	6.00	3.750	13.00	6.750	23.00	9.75	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.917	6.00	3.917	13.00	6.917	23.00	9.92	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00

Post-development Conditions

1.083	4.00	4.083	17.00	7.083	13.00	10.08	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.250	4.00	4.250	17.00	7.250	13.00	10.25	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.417	4.00	4.417	17.00	7.417	13.00	10.42	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.583	4.00	4.583	17.00	7.583	13.00	10.58	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.750	4.00	4.750	17.00	7.750	13.00	10.75	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.917	4.00	4.917	17.00	7.917	13.00	10.92	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.083	6.00	5.083	13.00	8.083	13.00	11.08	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.250	6.00	5.250	13.00	8.250	13.00	11.25	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.417	6.00	5.417	13.00	8.417	13.00	11.42	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.583	6.00	5.583	13.00	8.583	13.00	11.58	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.750	6.00	5.750	13.00	8.750	13.00	11.75	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.917	6.00	5.917	13.00	8.917	13.00	11.92	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	50.33	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.60 (ii)	6.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.29	0.15	
			TOTALS
PEAK FLOW (cms)=	0.09	0.01	0.100 (iii)
TIME TO PEAK (hrs)=	9.67	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	173.55	207.62
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.82	0.98

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (0025)|

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                                Post-development Conditions
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     0.68   0.100    10.00   207.62
      + ID2= 2 (  0026):     0.22   0.030    10.00   172.21
        ================================================
        ID = 3 (  0025):     0.90   0.130    10.00   199.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0022)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.0108      0.0490

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0025)      0.895      0.130     10.00     199.12
   OUTFLOW: ID= 1 (  0022)      0.895      0.029     12.00     197.83

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 22.37
                  TIME SHIFT OF PEAK FLOW         (min)=120.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1315

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--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0014):     1.92   0.062    12.00   197.49
      + ID2= 2 (  0022):     0.90   0.029    12.00   197.83
        ================================================
        ID = 3 (  0027):     2.82   0.091    12.00   197.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 FINISH
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