For Office Use Only:  File Number  Related File Number  Pre-consultation Meeting  Application Submitted  Complete Application		Conservation Authority Fee	
Che	ck the type of planning applic	cation(s) you are submitting.	
	Official Plan Amendment		
	Zoning By-Law Amendment		
	Temporary Use By-law		
	Draft Plan of Subdivision/Vac	cant Land Condominium	
	Condominium Exemption		
X	Site Plan Application		
	Extension of a Temporary Us	se By-law	
	Part Lot Control		
	Cash-in-Lieu of Parking		
	Renewable Energy Project o	r Radio Communication Tower	
zoniı	ng provision on the subject land or official plan designation of th	result of this application (for example: a special ds to include additional use(s), changing the zone subject lands, creating a certain number of lots, or	
-			
-			
-			
_			
Dror	nerty Assessment Roll Numb	or·	



## A. Applicant Information Name of Owner It is the responsibility of the owner or applicant to notify the planner of any changes in ownership within 30 days of such a change. Address Town and Postal Code Phone Number Cell Number **Email** Name of Applicant Address Town and Postal Code Phone Number Cell Number **Email** Name of Agent Address Town and Postal Code Phone Number Cell Number **Email** Please specify to whom all communications should be sent. Unless otherwise directed, all correspondence and notices in respect of this application will be forwarded to both owner and agent noted above. ☐ Owner ☐ Agent ☐ Applicant Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:



# B. Location, Legal Description and Property Information 1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet): Municipal Civic Address: Present Official Plan Designation(s): Present Zoning: \_\_\_\_ 2. Is there a special provision or site specific zone on the subject lands? ☐ Yes ☐ No If yes, please specify corresponding number: 3. Present use of the subject lands: 4. Please describe **all existing** buildings or structures on the subject lands and whether they are to be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application: 5. If an addition to an existing building is being proposed, please explain what it will be used for (for example: bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe. 6. Please describe all proposed buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in

metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot

coverage, number of storeys, width, length, and height on your attached sketch



which must be included with your application:

7.	Are any existing buildings on the subject lands designated under the <i>Ontario</i> Heritage Act as being architecturally and/or historically significant? Yes   No			
	If yes, identify and provide details of the building:			
8.	If known, the length of time the existing uses have continued on the subject lands:			
9.	Existing use of abutting properties:			
10	Are there any easements or restrictive covenants affecting the subject lands?			
	☐ Yes ☐ No If yes, describe the easement or restrictive covenant and its effect:			
C.	Purpose of Development Application			
No	te: Please complete all that apply.			
1.	Please explain what you propose to do on the subject lands/premises which makes this development application necessary:			
2.	Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:			
3.	Does the requested amendment alter all or any part of the boundary of an area of settlement in the municipality or implement a new area of settlement in the municipality? $\square$ Yes $\square$ No If yes, describe its effect:			
4.	Does the requested amendment remove the subject land from an area of employment? $\Box$ Yes $\Box$ No If yes, describe its effect:			



Does the requested amendment alter, replace, or delete a policy of the Official Plan? $\Box$ Yes $\Box$ No If yes, identify the policy, and also include a proposed text of the		
policy amendment	(if additional space is required, please attach a separate sheet):	
Description of land Frontage:	I intended to be severed in metric units:	
Depth:		
Width:		
Lot Area:		
Present Use:		
Proposed Use:		
·	size (if boundary adjustment):	
·	stment, identify the assessment roll number and property owner or	
the lands to which	the parcel will be added:	
Description of land Frontage:	I intended to be retained in metric units:	
Depth:		
Width:		
Lot Area:		
Present Use:		
Proposed Use:		
Buildings on retain	ed land:	
Description of prop Frontage:	posed right-of-way/easement:	
Depth:		
Width:		
Area:		
Proposed use:		
Name of person(s) leased or charged	, if known, to whom lands or interest in lands to be transferred, (if known):	



9.	Site Information	Zoning	Proposed
Ρle	ease indicate unit of measureme	ent, for example: m, m <sup>2</sup> or %	
Lo	t frontage	<del></del>	
Lo	t depth		
Lo	t width		
Lo	t area		
Lo	t coverage		
Fro	ont yard		
Re	ar yard		
Le	ft Interior side yard		
Ri	ght Interior side yard		
Ex	terior side yard (corner lot)		
La	ndscaped open space		
En	trance access width		
Ex	it access width		
Siz	ze of fencing or screening		
Ту	pe of fencing		
10	.Building Size		
Νu	mber of storeys		
Bu	ilding height		
То	tal ground floor area		
То	tal gross floor area		
То	tal useable floor area		
11	.Off Street Parking and Loading	y Facilities	
Νu	mber of off street parking space	es	
Νu	mber of visitor parking spaces		
	mber of accessible parking spa		
Nh	mber of off street loading faciliti	95	



12. Residential (if applicable)		
Number of buildings existing	:	
Number of buildings propose	ed:	
Is this a conversion or addition	on to an existing building	? □ Yes □ No
If yes, describe:		
Туре	Number of Units	Floor Area per Unit in m2
Single Detached		
Semi-Detached		_
Duplex		_
Triplex		_
Four-plex		_
Street Townhouse		_
Stacked Townhouse		_
Apartment - Bachelor		_
Apartment - One bedroom		_
Apartment - Two bedroom		_
Apartment - Three bedroom		_
Other facilities provided (for or swimming pool):	example: play facilities, ι	underground parking, games room,
13. Commercial/Industrial Us	es (if applicable)	
Number of buildings existing		
Number of buildings propose	ed:	
Is this a conversion or addition	on to an existing building	? □ Yes □ No
If yes, describe:		
Indicate the gross floor area	by the type of use (for e	xample: office, retail, or storage):



Seating Capacity (for assembly halls or similar):
Total number of fixed seats:
Describe the type of business(es) proposed:
Total number of staff proposed initially:
Total number of staff proposed in five years:
Maximum number of staff on the largest shift:
Is open storage required: ☐ Yes ☐ No
Is a residential use proposed as part of, or accessory to commercial/industrial use?
☐ Yes ☐ No If yes please describe:
14. Institutional (if applicable)
Describe the type of use proposed:
Seating capacity (if applicable):
Number of beds (if applicable):
Total number of staff proposed initially:
Total number of staff proposed in five years:
Maximum number of staff on the largest shift:
Indicate the gross floor area by the type of use (for example: office, retail, or storage):
15. Describe Recreational or Other Use(s) (if applicable)



D.	Previous Use of the Property		
1.	Has there been an industrial or commercial use on the subject lands or adjacent lands? $\Box$ Yes $\Box$ No $\Box$ Unknown		
	If yes, specify the uses (for example: gas station or petroleum storage):		
2.	Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? $\square$ Yes $\square$ No $\square$ Unknown		
3.	Provide the information you used to determine the answers to the above questions:		
4.	If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? $\square$ Yes $\square$ No		
E.	Provincial Policy		
1.	Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the <i>Planning Act, R.S.O. 1990, c. P. 13</i> ? $\square$ Yes $\square$ No		
	If no, please explain:		
2.	It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? $\square$ Yes $\square$ No		
	If no, please explain:		



3.	Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? $\square$ Yes $\square$ No		
	If no, please explain:		
	Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.		
4.	Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.		
	Livestock facility or stockyard (submit MDS Calculation with application)		
	□ On the subject lands or □ within 500 meters – distance		
	Industrial or commercial use (specify the use(s))		
	☐ On the subject lands or ☐ within 500 meters – distance  Active railway line		
	☐ On the subject lands or ☐ within 500 meters – distance		
	Seasonal wetness of lands		
	☐ On the subject lands or ☐ within 500 meters – distance <b>Erosion</b>		
	☐ On the subject lands or ☐ within 500 meters – distance		
	Abandoned gas wells		
	$\Box$ On the subject lands or $\Box$ within 500 meters – distance		



## F. Servicing and Access 1. Indicate what services are available or proposed: Water Supply ☐ Municipal piped water □ Communal wells ☐ Individual wells ☐ Other (describe below) Sewage Treatment ☐ Municipal sewers ☐ Communal system ☐ Septic tank and tile bed in good working order ☐ Other (describe below) Storm Drainage ☐ Storm sewers □ Open ditches ☐ Other (describe below) 2. Existing or proposed access to subject lands: ☐ Municipal road ☐ Provincial highway ☐ Unopened road ☐ Other (describe below) Name of road/street: G. Other Information 1. Does the application involve a local business? $\square$ Yes $\square$ No If yes, how many people are employed on the subject lands? 2. Is there any other information that you think may be useful in the review of this

application? If so, explain below or attach on a separate page.



## H. Supporting Material to be submitted by Applicant

In order for your application to be considered complete, **folded** hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the properly named site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

- 1. Concept/Layout Plan
- 2. All measurements in metric
- 3. Key map
- 4. Scale, legend and north arrow
- 5. Legal description and municipal address
- 6. Development name
- 7. Drawing title, number, original date and revision dates
- 8. Owner's name, address and telephone number
- 9. Engineer's name, address and telephone number
- 10. Professional engineer's stamp
- 11. Existing and proposed easements and right of ways
- 12. Zoning compliance table required versus proposed
- 13. Parking space totals required and proposed
- 14. All entrances to parking areas marked with directional arrows
- 15. Loading spaces, facilities and routes (for commercial developments)
- 16. All dimensions of the subject lands
- 17. Dimensions and setbacks of all buildings and structures
- 18. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
- 19. Gross, ground and useable floor area
- 20. Lot coverage
- 21. Floor area ratio
- 22. Building entrances, building type, height, grades and extent of overhangs
- 23. Names, dimensions and location of adjacent streets including daylighting triangles
- 24. Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
- 25. All exterior stairways and ramps with dimensions and setbacks
- 26. Retaining walls including materials proposed
- 27. Fire access and routes
- 28. Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
- 29. Location of mechanical room, and other building services (e.g. A/C, HRV)
- 30. Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
- 31. Winter snow storage location



- 32. Landscape areas with dimensions
- 33. Natural features, watercourses and trees
- 34. Fire hydrants and utilities location
- 35. Fencing, screening and buffering size, type and location
- 36. All hard surface materials
- 37. Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
- 38. Business signs (make sure they are not in sight lines)
- 39. Sidewalks and walkways with dimensions
- 40. Pedestrian access routes into site and around site
- 41. Bicycle parking
- 42. Architectural elevations of all building sides
- 43. All other requirements as per the pre-consultation meeting

may also be required as part of the complete application submission:
Zoning Deficiency Form
On-Site Sewage Disposal System Evaluation Form (to verify location and condition)
Architectural Plan
Buildings Elevation Plan
Cut and Fill Plan
Erosion and Sediment Control Plan
Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)
Landscape Plan
Photometric (Lighting) Plan
Plan and Profile Drawings
Site Servicing Plan
Storm water Management Plan
Street Sign and Traffic Plan
Street Tree Planting Plan
Tree Preservation Plan
Archaeological Assessment
Environmental Impact Study



	Functional Servicing Report
	Geotechnical Study / Hydrogeological Review
	Minimum Distance Separation Schedule
	Noise or Vibration Study
	Record of Site Condition
	Storm water Management Report
	Traffic Impact Study – please contact the Planner to verify the scope required
Site	e Plan applications will require the following supporting materials:
	<ol> <li>Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format</li> <li>Letter requesting that the Holding be removed (if applicable)</li> <li>A cost estimate prepared by the applicant's engineer</li> <li>An estimate for Parkland dedication by a certified land appraiser</li> <li>Property Identification Number (PIN) printout</li> </ol>
_	andard condominium exemptions will require the following supporting materials:
Ш	Plan of standard condominium (2 paper copies and 1 electronic copy)
	Draft condominium declaration
	Property Identification Number (PIN) printout

Your development approval might also be dependent on Ministry of Environment and Climate Change, Ministry of Transportation or other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

All final plans must include the owner's signature as well as the engineer's signature and seal.

## I. Development Agreements

A development agreement may be required prior to approval for site plan, subdivision and condominium applications. Should this be necessary for your development, you will be contacted by the agreement administrator with further details of the requirements including but not limited to insurance coverage, professional liability for your engineer, additional fees and securities.



## J. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, and/or transfer(s) of easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

## K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

#### L. Freedom of Information

mm 1.0

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act*, *R.S.O. 1990, c. P.* 13 for the purposes of processing this application.

Motules	
Owner/Applicant Signature	Date
M. Owner's Authorization	
f the applicant/agent is not the registered of application, the owner(s) must complete the	owner of the lands that is the subject of this e authorization set out below.
/Weands that is the subject of this application.	am/are the registered owner(s) of the
We authorize	•
Owner	Date
Owner	Date



# N. Declaration John Vallee

## of Simcoe Ontario

Owner Applicant Signature

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Sworn remotely by John Vallee stated as

being located in the Town of Simcoe in the

County of Norfolk, before me in the City of

Niagara Falls in the Regional Municipality of

Niagara, on January 12, 2022, in accordance

with O. Reg 431/20, Administering Oath or

Declaration Remotely.

A Commissioner, etc.

ELDON FRASER DARBYSON, a commissioner, etc., Province of Ontario, for G. Douglas Vallee Limited Expires March 28, 2022.





January 14, 2022

Norfolk County Planning Department Robinson Administration Building 185 Robinson Street, Suite 200 Simcoe, ON N3Y 5L6

Attention: Jennifer Catarino, MCIP, RPP

Reference: Site Plan Application

Vacant Lot - Roll # 40101540505

Our Project 21-116

Dear Jennifer,

Enclosed please find the necessary documents to support a site plan application for two warehouse buildings on the subject property, including:

- Signed Norfolk County Development Application, dated January 12, 2022;
- Site Plan Drawings, G. Douglas Vallee Limited;
- Traffic Impact Letter, G. Douglas Vallee Limited, dated January 13, 2022;
- Grading Plan, G. Douglas Vallee Limited, dated January 14, 2022;
- Draft Mutual Drainage Agreement;
- Servicing Plan, G. Douglas Vallee Limited, dated January 14, 2022; and
- Functional Servicing Brief, G. Douglas Vallee Limited, dated January 11, 2022.

If you require any further information, please do not hesitate to contact me at <a href="mailto:scottpuillandre@gdvallee.ca">scottpuillandre@gdvallee.ca</a> or 519-410-1212.

Regards,

Scott Puillandre, CD, MSc

Planner

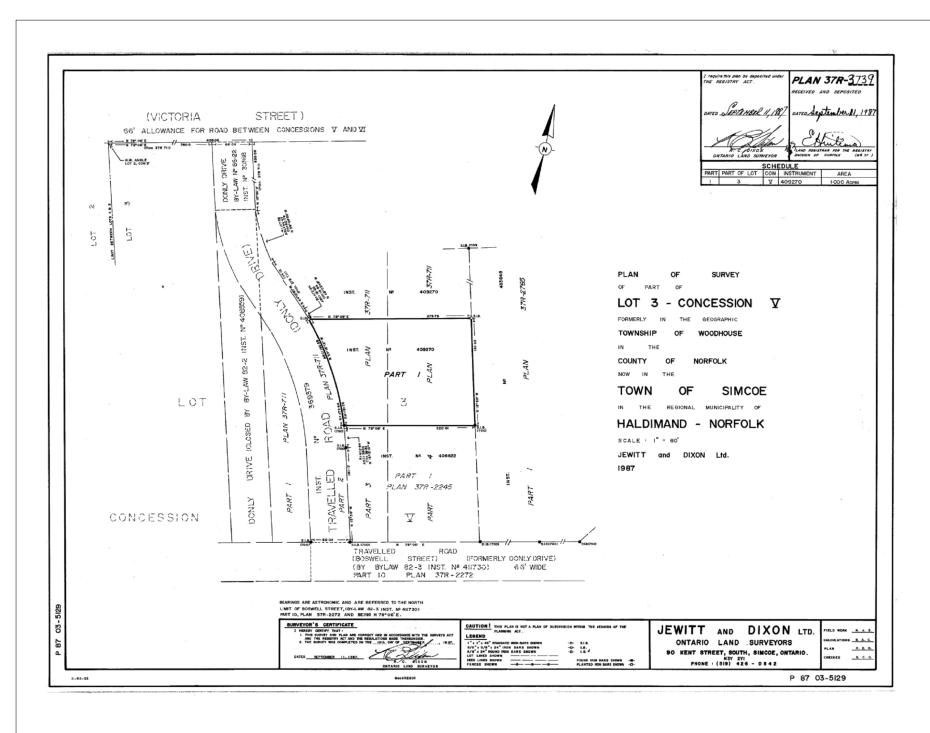
**G. DOUGLAS VALLEE LIMITED** 

Consulting Engineers, Architects & Planners

H:\Projects\2021\21-116 Fredericks Warehouse\Agency\Site Plan\Submission







## SITE STATISTIC & ZONING REQ.'S

PROPERTY LEGAL DESCRIPTION:				
	PLAN 3TR-3T39, WDH CON.5 PT LOT 3, ROLL # 40101540505 IN SIMCOE, NORFOLK COUNTY			
,	ZONING: IN ACCORDANCE WITH ZONING BY-LAW 1-Z-2014 NORFOLK COUNTY - JULY-2020-CONSOLIDATION			
PROVISION  7.1 7.1.1	LAND USE: GENERAL INDUSTRIAL ZONE (MG) u) STORAGE			
PROVISION	SETBACKS (m - METERS):	REQUIRED (m)	PROVIDED (m)	

	I	1	1	
<u>PROVISION</u>	SETBACKS (M - METERS):	REQUIRED (m)	PROVI	DED (m)
			PART 1	PART 2
7.1.4a)	MIN. LOT AREA:	1,855m²	2019.5m <sup>2</sup>	2028.5m <sup>2</sup>
7.1.4b)	MIN. LOT FRONTAGE: MINOR VARIANCE APPROVED - PART 1	30	28.6	30
7.1.4c)	MIN. FRONT YARD:	6	14	14
7.1.4d)	MIN. EXTERIOR SIDE YARD:	6	N/A	N/A
7.1.4e)	MIN. INTERIOR SIDE YARD i) ABUTTING A RESIDENTIAL ZONE	3 20	3.1/7.26	3.1/10.48
7.1.4f)	MIN. REAR YARD :	9	35.65	30.13
7.1.4g)	MAX. BLDG. HEIGHT	SUBJECT TO A 45 DEGREE ANGULAR PLANE MEASURED FROM THE EDGE OF ANY RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL ZONED LOTS		
7.1.4h)	OUTDOOR STORAGE	PROHIBITED IN ANY FRONT YARD OR ANY REQUIRED EXTERIOR SIDE YARD		

PARKING REQ.'D: NON-RESIDENTIAL			
4.9tt)	MAREHOUSE OR WHOLESALE ESTABLISHMENT:  1 SPACE / 180m² OF USABLE FLOOR AREA =  300m² / 180m² = 1.67 PER BUILDING	<b>2</b> SPACE(5)	<u>2</u> SPACE(S)
	TOTAL PARKING:	2 SPACE(S)	<b>2</b> SPACE(S)
PARKING	REQ.'D - BARRIER FREE: (PART OF REQ.	D PARKING)	
4.3.3	BARRIER FREE PARKING REQ.'D: 1-25 PARKING SPACES =		

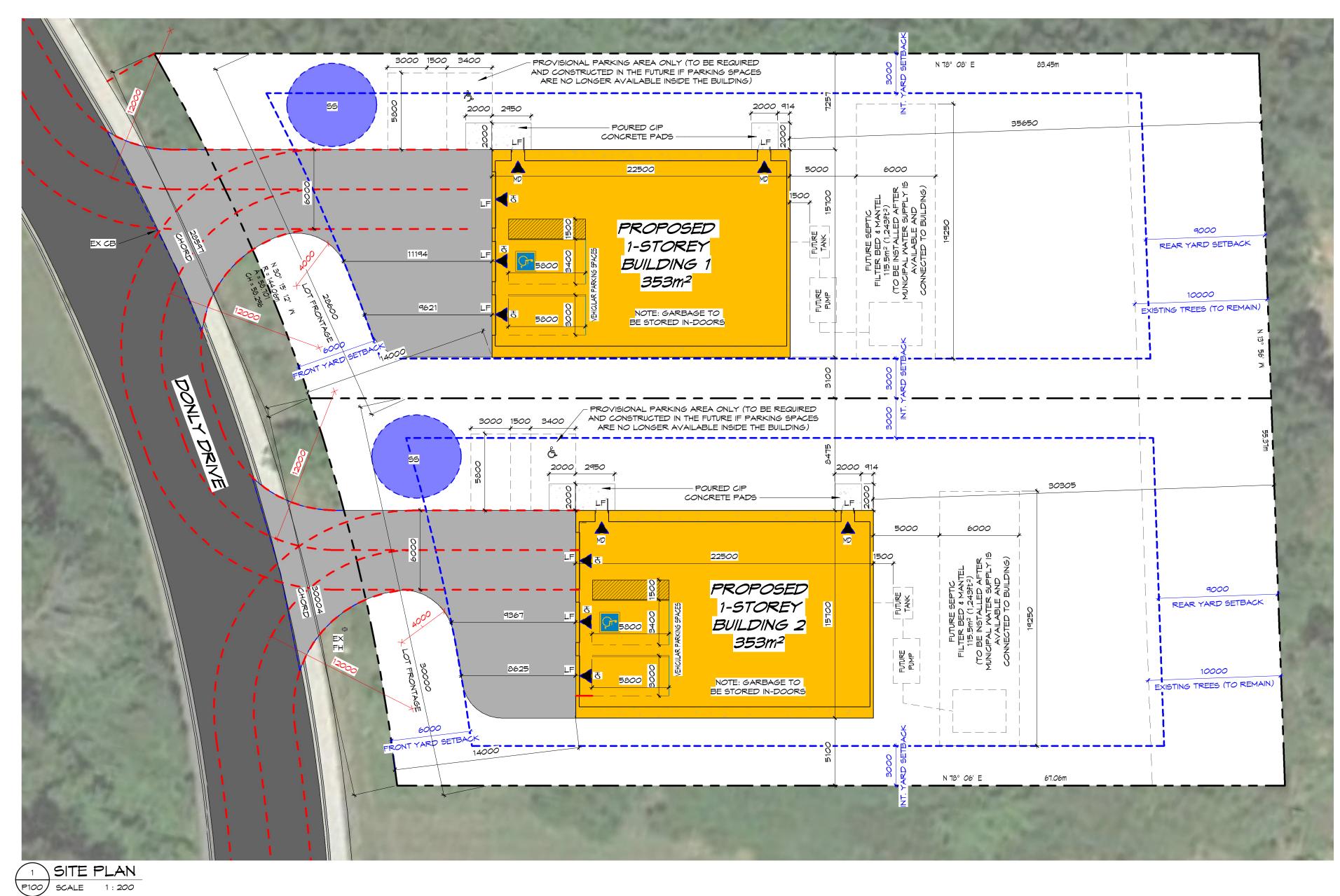
NOTE: REQ'D PARKING SPACES PROVIDED INSIDE BUILDING(S)

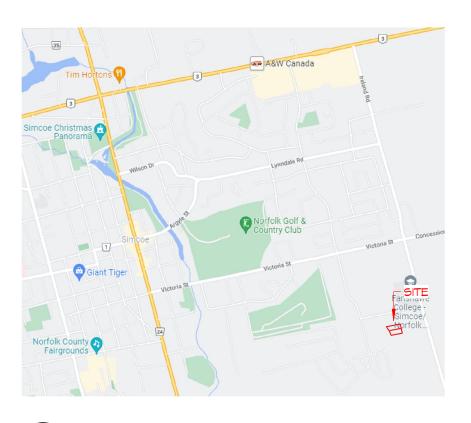
.3.3	BARRIER FREE PARKING REQ.'D: 1-25 PARKING SPACES =			NOTE: REQ'D BARRIER FREE PARKING SPACES
	TYPE 'A' (3.4m WIDE) PLUS 1.5m AISLE	1 SPACE(S)	1 SPACE(S)	PROVIDED INSIDE
	TYPE 'B' (2.4m WIDE) PLUS 1.5m AISLE	<u>O</u> SPACE(S)	<u>o</u> space(s)	BUILDING(S)
PARKING	REQ.'D - LOADING SPACES			
7	LOADING SPACES: 3m WIDTH x 10m DEPTH	<u>N/A</u>	N/A	
PARKING	REQ.'D - DROP OFF SPACES			
	DROP OFF SPACES:	<u>N/A</u>	<u>N/A</u>	
PARKING	AREA REGULATIONS			
1 1.3a)	PARKING SPACE DIMENSIONS WIDTH OF PARKING SPACE:			
·	FOR VEHICLES PARKED SIDE BY SIDE	3 MIN.	3	
	FOR VEHICLES PARKED WITH WALL OR FENCE ADJ.	3.3 MIN.	N/A	
1.3b)	DEPTH OF PARKING SPACE:  FOR 90 DEGREE PARKING  FOR PARALLEL PARKING	5.8 MIN. 7 MIN.	5.8 N/A	
	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		1	

OWNER INFORMATION:

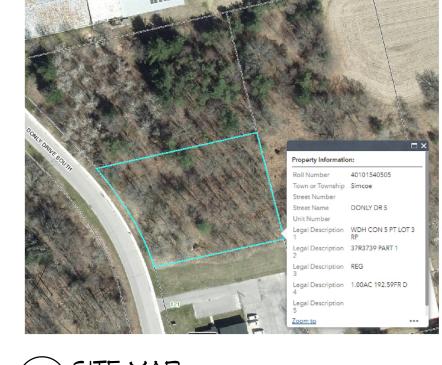
4 FREDS INC. 155 VICTORIA ST., SIMCOE (519) 428-8020

7.3 MIN.









) SCALE 1:100

## SITE PLAN LEGEND

(6m WIDE / 12m CENTER RADIUS) SNOW STORAGE (SS) LIGHT FIXTURE

(TO PROJECT DOWNWARDS & BE DARK SKY COMPLIANT) • WHEELCHAIR SIGN ON ASPHALT / CONC. (MHITE & BLUE COLOUR) A - ACCESSIBLE

 DIAGONAL MARKINGS MAN DOOR

OVERHEAD DOOR

HATCH IDENTIFICATION LEGEND CONC. SIDEWALK / PAD / CROSSWALK / SIDEWALK / LANEWAY / STAIRS / ETC.

AREA OF ASPHALT

NEW BLDG. / ADDITION



PARKING AISLE REQ.'S TWO-WAY TRAFFIC

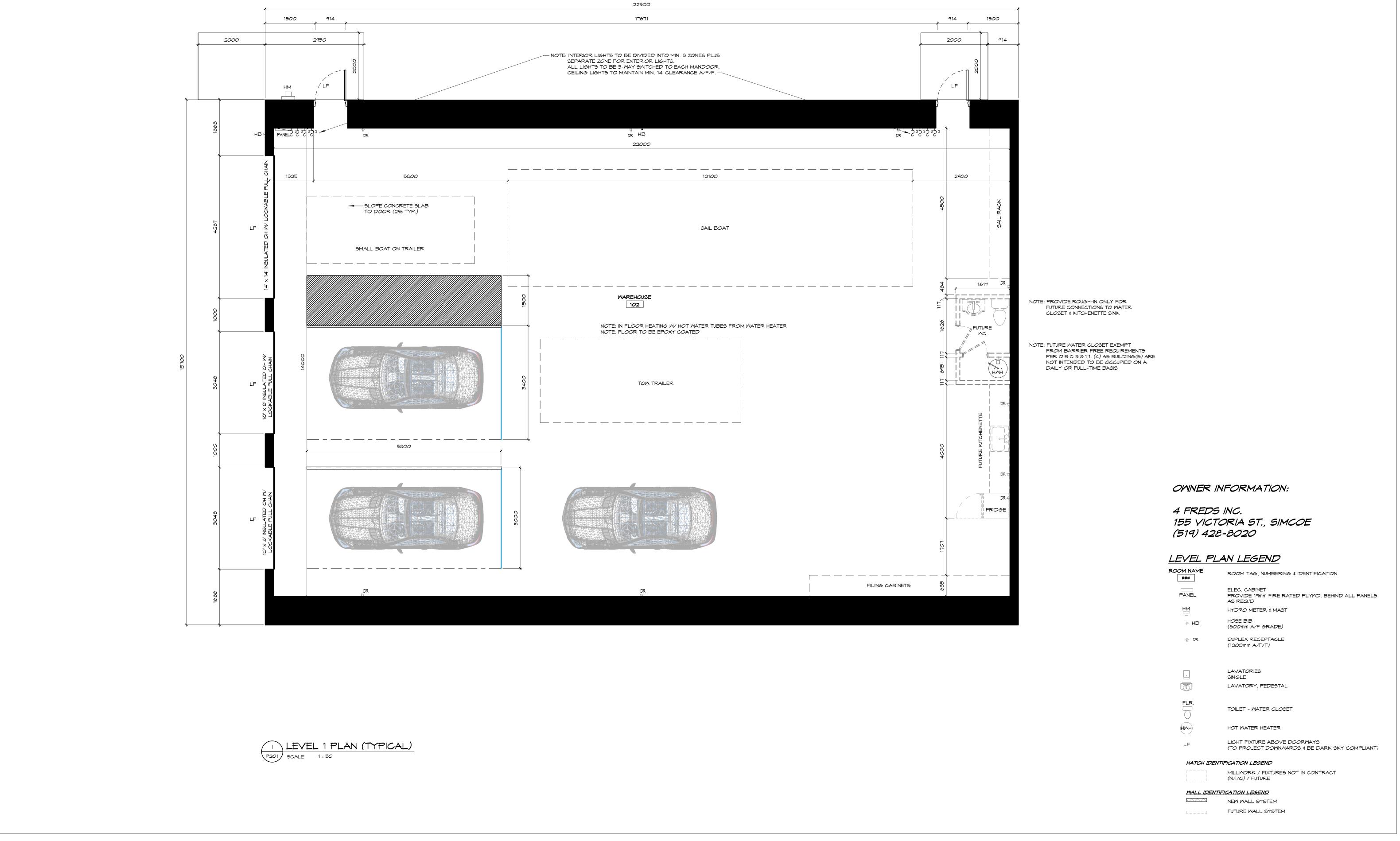
G. DOUGLAS VALLEE LIMITED

2 TALBOT STREET NORTH SIMCOE ONTARIO N3Y 4W3 (519) 426-6270

DONLY DRIVE WAREHOUSE SIMCOE, ONTARIO, CANADA,

PROJECT No. 21-116 **Drawing Title** 

SITE PLAN





Project Title

DONLY DRIVE WAREHOUSE SIMCOE, ONTARIO, CANADA,

PROJECT No.

21-116

Drawing Title

PRESENTATION PLANS

Drawing No.

G. DOUGLAS VALLEE LIMITED

2 TALBOT STREET NORTH SIMCOE ONTARIO N3Y 4W3 (519) 426-6270



January 13, 2022

County of Norfolk Robinson Administration Building 185 Robinson Street, Suite 200 Simcoe, ON N3Y 5L6

Attention: Jennifer Catarino, Senior Planner

Dear Jennifer,

Reference: Traffic Impact Letter – Site Plan Application

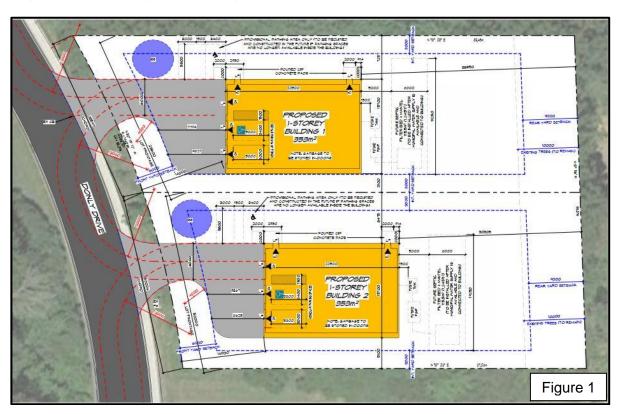
Vacant Lot - Roll # 40101540505

Our Project 21-116

#### Introduction

G. Douglas Vallee Limited has been retained by 2212638 Ontario Ltd. to make application for site plan approval in order to construct two small warehousing buildings on a vacant lot – Roll #40101540505 on Donly Drive South in Simcoe (Figure 1). This parcel received consent approval from the Norfolk County Committee of Adjustment on December 15, 2021 (reference BNPL2021344 / 368).

The purpose of the site plan application is to satisfy the necessary design criteria established by Norfolk County as part of the development approval process. The intent of this letter is to outline the anticipated traffic impacts from the proposed development.



### **Analysis**

The subject lands are a 4047m² vacant parcel located on the east side of Donly Drive South in Simcoe. The parcel is located north of the intersection of Donly Drive and Boswell Drive within an established industrial area. A large significant woodlot is located on the west side of Donly Drive, across from the subject lands.

As shown on Figure 1, the intended use of the subject lands is for two small warehouse buildings. These buildings are intended to be rented or sold to individual users seeking indoor storage spaces for large items such as recreational vehicles (RVs, ATV, etc.) or pleasure crafts (camping trailers, classic cars, etc.).

As small single user facilities, the proposed buildings are not intended for daily occupation by employees. Given the low intensity proposed use, the trips generated by this development is expected to average less than 1 total vehicle trip per day. Due to the extremely low expected trip generation, formal data collection and sightline analysis is not required.

### Conclusion

The proposed development of two small warehouse buildings on Donly Drive South in Simcoe is expected to generate less than 1 total vehicle trip per day on average. The extremely low trip generation will result in no observable impact to traffic operations on Donly Drive. It is this engineer's opinion that all-direction access to and from the proposed site access is acceptable and poses no undue hazards to traffic operations at this location.

Therefore, based on the low density proposed use, it is this engineer's opinion that the development, as proposed, will not adversely impact area traffic operations.

Yours truly,

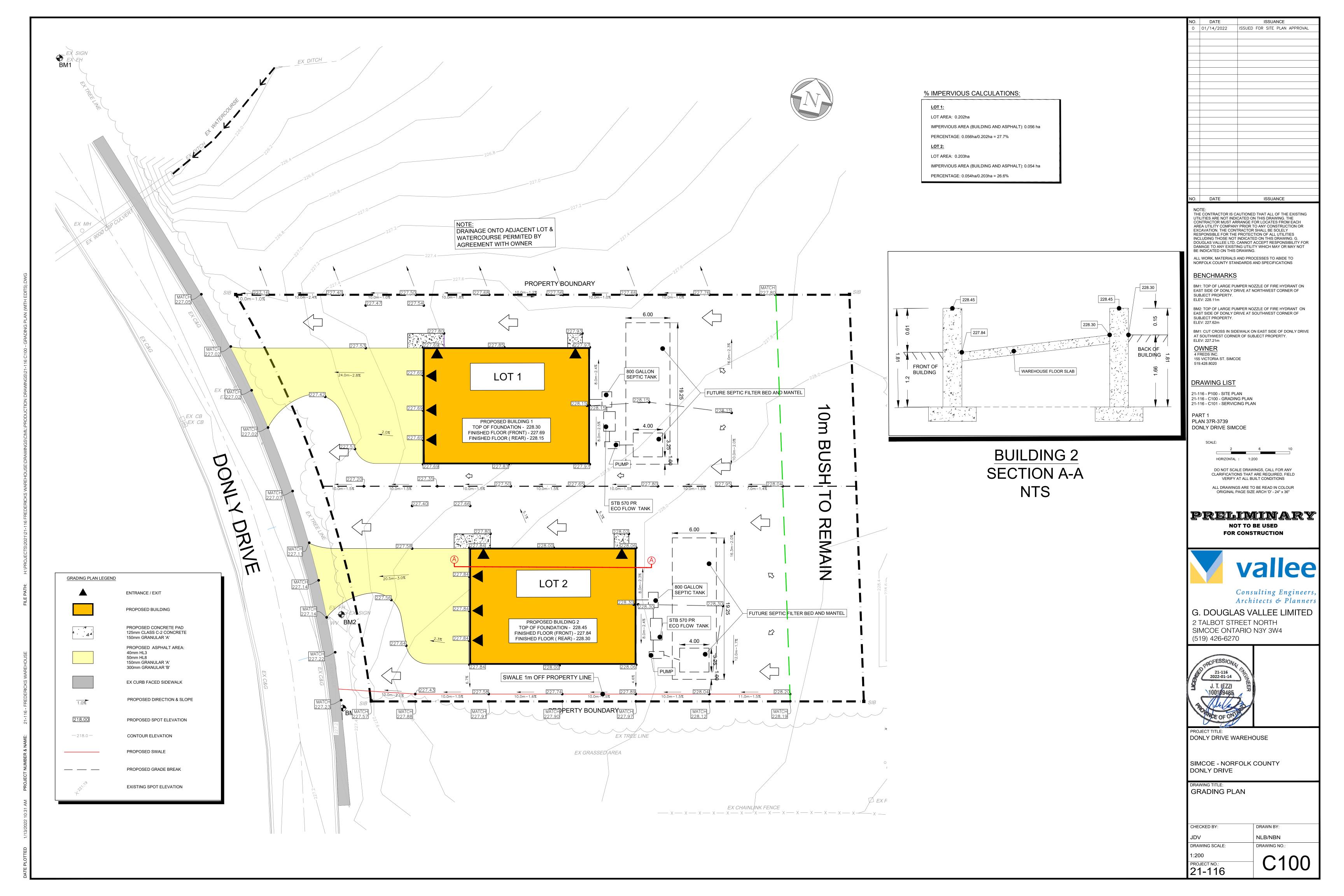
John D. Vallee, P.Eng., President G. DOUGLAS VALLEE LIMITED

Consulting Engineers, Architects & Planners

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## Mutual Agreement Drain Agreement

#### Between

4Freds Inc. 155 Victoria Street Simcoe ON N3Y 4R6

(herein called "Fredericks")

-and -

2212638 Ontario Limited 2 Talbot Street North Simcoe ON N3Y 3W3

(herein called the "2212")

WHEREAS Fredericks is the registered owner of the properties legally described as:

- a. Part Lot 3, Concession 5, Woodhouse, being Parts 3 and 4 37R711, except Part 1 37R2245 and Part 1 37R3739; Norfolk County (all of P.I.N. 50236-0451 (LT)) (herein called the "northern lands") and
- b. Part Lot 3, Concession 5, Woodhouse, being Part 1 Plan 37R3739; Norfolk County (all of P.I.N. 50236-0455 (LT)) (herein called the "southern lands")

which are immediately adjacent to each other and both of which are on the east side of Donly Drive South in Simcoe, Norfolk County;

AND WHEREAS 2212 and Fredericks have entered into an Agreement of Purchase and Sale dated July 21<sup>st</sup>, 2021, to allow 2212 to purchase the southern lands from Fredericks;

AND WHEREAS stormwater runoff from the southern lands currently drains by overland flow to the northern lands, which northern lands contain a natural watercourse providing legal stormwater outlet;

AND WHEREAS the parties have agreed to enter into this Agreement to allow stormwater runoff from the southern lands to continue to drain onto the north lands following the purchase of the southern lands by 2212;

NOW THERFORE THIS AGREEMENT WITNESSETH that in consideration of the premises and the sum of TWO (\$2.00) DOLLARS of lawful money of Canada now paid by 2212 to Fredericks, the receipt and sufficiency whereof is hereby acknowledged, the Parties agree as follows:

- 1. Fredericks, as the owner of the northern lands, agrees to allow surface stormwater from the southern lands to continue to flow onto the northern lands following the purchase of the southern lands by 2212, and to not obstruct the flow of same.
- 2. Following the closing of the purchase transaction by 2212, it shall grade the southern lands, at its expense, to allow said surface water to discharge onto the northern lands and to ultimately following the natural watercourse that exists on the northern lands. No construction, grading or other work is anticipated to be needed for the northern lands.

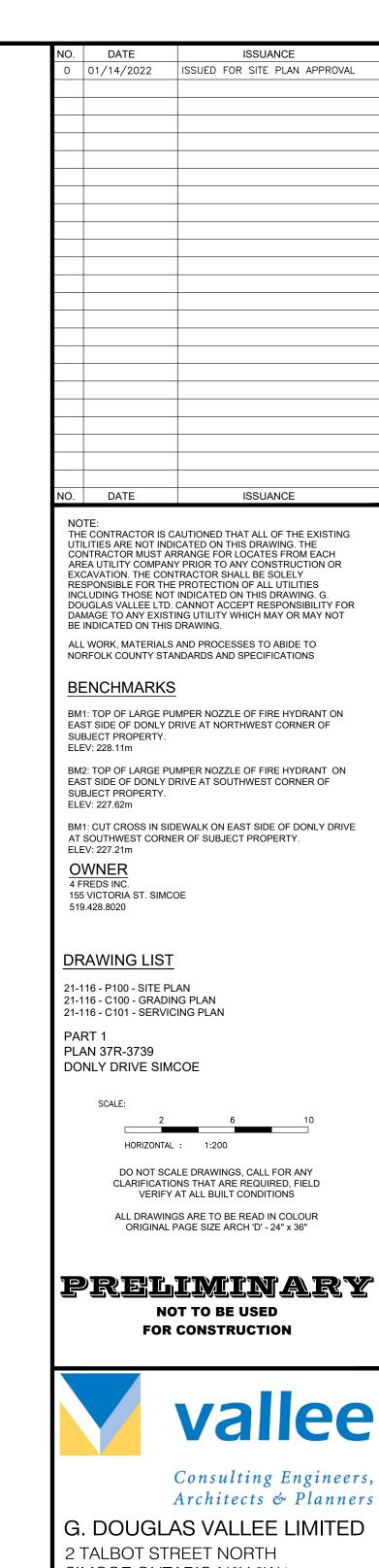
- 3. The grading and drainage of surface stormwater from the southern lands to the northern lands shall be generally as illustrated in a grading plan to be approved by Norfolk County under the site plan approval process, same to be prepared at 2212's expense.
- 4. The portion of the southern lands draining onto the northern lands shall, if possible, be, less than half of the total area of the southern lands.
- 5. The construction cost of the Mutual Drain is estimated to be \$1,000.00 and shall be paid by 2212 as part of the cost of grading the southern lands.
- 6. For the purposes of future maintenance, the Mutual Drain works will be identified as the grading of the southern lands in accordance with the grading plan as approved by Norfolk County under the site plan approval process.
- 7. Future maintenance and improvement costs of the Mutual Drain works on the southern lands shall be one hundred (100%) percent the responsibility of 2212.
- 8. This agreement is pursuant to the Drainage Act, R.S.O. 1990, c. D. 17, in accordance with Section 2(3) of the Drainage Act, an agreement or an executed copy thereof made under this section shall, upon registration in the proper land registry office, be binding upon the successors and assigns of the parties to the agreement.
- 9. This agreement shall be deemed to have been made in and be governed in accordance with the laws of the Province of Ontario, and the laws of Canada applicable therein.
- 10. Either party to this agreement shall be entitled to register this agreement on title to both the southern lands and the northern lands.

IN WITNESS WHEREOF the parties have executed this Agreement on this 13<sup>th</sup> day of January, 2022.

4FREDS INC.

	Per: I have authority to bind the Corporation.
	2212638 ONTARIO LIMITED
Witness	Per: I have the authority to bind the Corporation





SIMCOE ONTARIO N3Y 3W4 (519) 426-6270



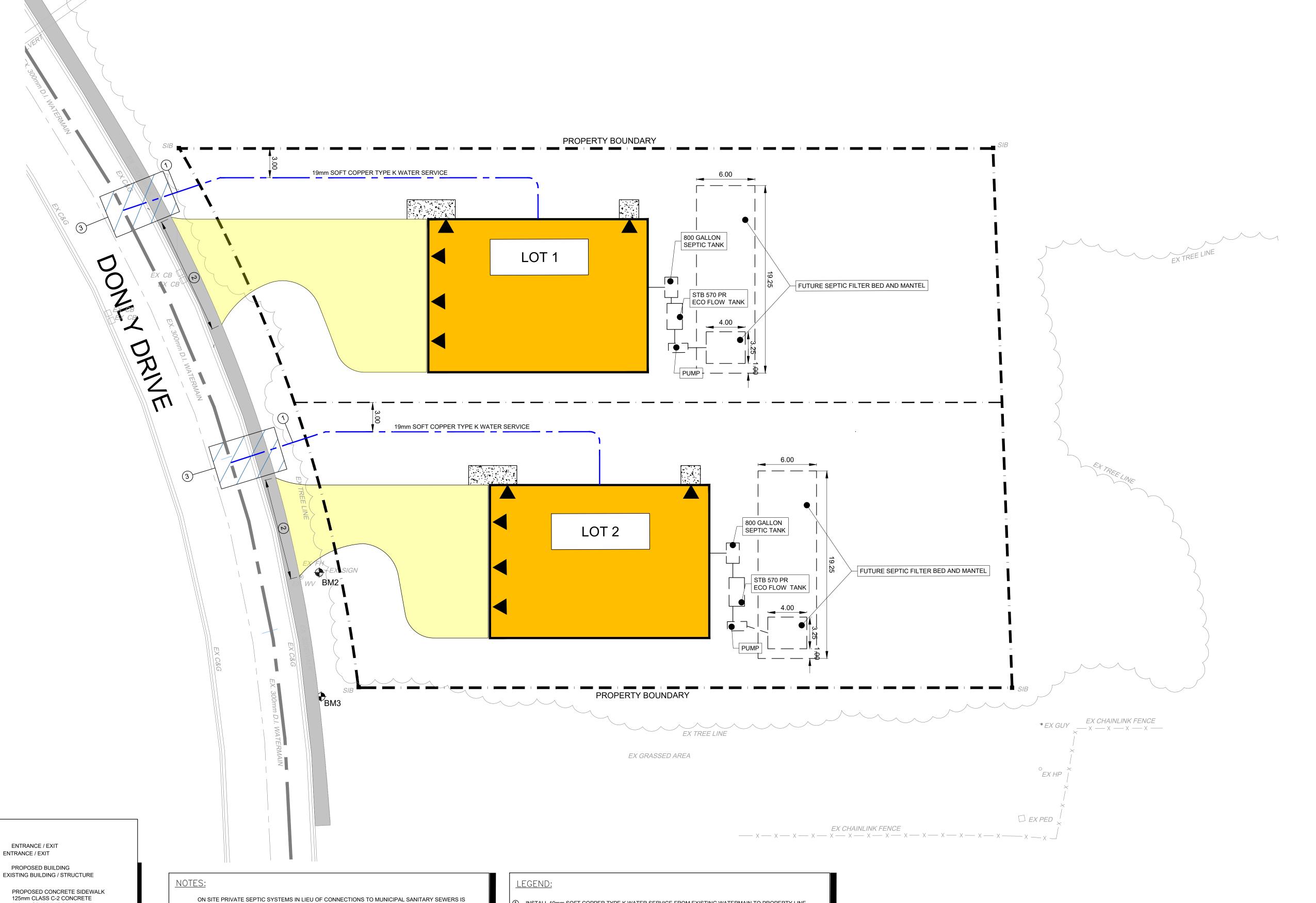
DONLY DRIVE WAREHOUSE

SIMCOE - NORFOLK COUNTY DONLY DRIVE

SERVICING PLAN

21-116

CHECKED BY: DRAWN BY: NLB/NBN DRAWING SCALE: DRAWING NO.: 1:200 PROJECT NO.:



N INSTALL 19mm SOFT COPPER TYPE K WATER SERVICE FROM EXISTING WATERMAIN TO PROPERTY LINE

3 SAW CUT ASPHALT, CURB AND SIDEWALK AS REQUIRED TO INSTALL NEW WATER SERVICE. RESTORE WITH

② REMOVE EXISTING CURB AND GUTTER (BARRIER) AND REPLACE WITH NEW MOUNTABLE CURB FOR

AVAILABLE AND ALLOCATED TO THESE LOTS.

- OPSD'S FOR SIDEWALKS AND CURB & GUTTER

- 40mm HL3

- 150mm GRANULAR 'A'

- 300mm GRANULAR 'B'

COMPLETE WITH CURB STOP AT PROPERTY LINE AND CONNECTION TO WATER SERVICE TO BUILDING, INSTALLATION TO BE AFTER NORFOLK COUNTY CONFIRMS THAT MUNICIPAL WATER SERVICING CAPACITY IS

SERVICING PLAN LEGEND

150mm GRANULAR 'A'

150mm GRANULAR 'A' 300mm GRANULAR 'B'

40mm HL3

50mm HL8

PROPOSED ASPHALT AREA:

EX CURB FACED SIDEWALK

PROPOSED 19mm WATER SERVICE

LIMIT OF ROAD RESTORATION

PERMITTED FOR THESE TWO LOTS IN ACCORDANCE WITH:

C)NORFOLK COUNTY STAFF REPORTS FOR PROPOSALS

-BNBL 2021368

-BNBL 2021344

-ANPL 2021345

SERVICES.

A)NORFOLK COUNTY ZONING BY-LAW SECTION 3.9.5 THAT

ENVIRONMENTAL SERVICES TO WAIVE THE REQUIREMENT FOR

ALL AS CONSIDERED AND APPROVED BY NORFOLK COUNTY COMMITTEE OF ADJUSTMENT ON DECEMBER 15

B) LETTER DATED NOVEMBER 22,2021 FROM NORFOLK COUNTY, MR.JASON GODBY, GENERAL MANAGER,

WATER SERVICE INSTALLATION IS NOT REQUIRED UNTIL MUNICIPAL WATER SERVICING CAPACITY IS AVAILABLE AND ALLOCATED TO THESE LOTS.

WAIVING THE REQUIREMENT FOR CONNECTION TO MUNICIPAL SANITARY SEWERS.

ALLOWS THE GENERAL MANAGER OF PUBLIC



January 11, 2022

Mike Fredericks 4Fred Inc. 155 Victoria Street, Simcoe ON N3Y 4R6

Attention: Mike Fredericks

Reference: Functional Servicing Brief

Donly Drive Warehouses Simcoe, Norfolk County Our Project # 21-116

## Introduction

This Functional Servicing Brief has been prepared in support of the site plan application required for the construction of two storage/warehouse buildings on Donly Drive South in Simcoe – Norfolk County. This report presents the functional serving for the proposed development, including sanitary servicing, stormwater management and domestic and fire water servicing.

The subject lands are a vacant parcel of approximately 0.4ha in area located within the Urban boundary of Simcoe on Donly Drive South, just north of the intersection of Donly Drive South and Boswell Street. The property is located on the east side of Donly Drive and immediately north of the existing Eastlink yard and office.

## **Stormwater Management**

Under existing conditions, the subject site is covered with trees and brush. Runoff from the site drains overland in a north westerly direction towards an existing watercourse which ultimately leads to the Lynn River. As part of the Woodway Trails Subdivision (Vallee Project No. 09-056), the subject property was included in the external area contributing runoff to the Woodway Trails stormwater management facility. This external area was allocated an impervious percentage of 35% for the purpose of the stormwater management analysis. Refer to Appendix A for the Woodway Trails Subdivision Stormwater Management Report for details.

The following presents the calculations used to determine the impervious percentage associated with each lot for the proposed development.

Lot 1 Area: 0.202 ha
Lot 1 Impervious Area (building and asphalt): 0.056 ha

Lot 1 Impervious Percentage: 0.056 ha/ 0.202 ha = 27.7%

Lot 2 Area: 0.203 ha
Lot 1 Impervious Area (building and asphalt): 0.054 ha

Lot 1 Impervious Percentage: 0.054 ha/ 0.203 ha = 26.6%

Page 2

To summarize, the impervious percentages associated with Lot 1 and 2 for the proposed development are 28% and 27%, respectively. Therefore, the runoff flows that will be generated from the proposed development are less than the flow allowance allocated to the downstream stormwater management facility designed as part of the Woodway Trails Subdivision. Consequently, no on-site stormwater management is required for the proposed development.

## **Sanitary Servicing**

Despite being an existing lot within the established urban area of Simcoe, the subject property does not have access to municipal sanitary services. Access to sanitary services end approximately 160 meters north and 250m south of the property on Donly Drive. Due to existing depth of the sanitary sewer on either side of the subject property and the existing road profile, it is not possible to extend the existing sanitary sewer to service the proposed development. We understand that both the property immediately to the east on Boswell Drive and the property immediately to the south on Donly Drive are serviced with on-site septic system due to the lack of municipal sanitary sewers in this area. Therefore, it is proposed that each storage/warehouse building be serviced by an on-site septic system. See Appendix B for the proposed septic system design details.

## **Water Servicing**

Norfolk County GIS online mapping and the Norfolk County ISMP indicate an existing 300mm diameter ductile iron watermain along Donly Drive. It is proposed that this watermain will be utilized to service the proposed development. It is understood that water connection will not be permitted until treatment capacity and allocation is available, so the following domestic and fire demands are provided for future reference only. Norfolk County's design criteria stipulates the following requirements for system pressures, and the system shall be designed to meet the greater of either of the following requirements;

- Fire flow conditions

   not less than 140 kPa
- Normal operating conditions not less than 280 kPa

### **Domestic Water Demand**

The following summarizes the domestic water flow information for the proposed development:

Industrial Population Density: 120 persons/ha

Site Area: 0.4 haPopulation: 48 people

Average Daily Water Demand (per person) 0.450 m³/person/day
 Average Daily Water Demand: 21.6 m³/day (0.25 L/s)

Maximum Day Demand Factor: 2.25

Maximum Day Demand:
 48.6 m³/day (0.56 L/s)

Peak Hourly Demand Factor (Residential) 2.00

Peak Hourly Demand
 1.80 m³/hour (0.50 L/s)





## **Fire Water Service**

According to Norfolk County GIS online mapping, there are three existing fire hydrants located in proximity to the subject development site. The first hydrant is located on the east side of Donly Drive. Approximately 45m north of the northwest corner of the subject property, the second is located on the east side of Donly Drive, directly in front of the subject property, and the third is located on the northeast corner of Donly Drive and Boswell Street. The entire subject property is covered within the 90m radii of the existing hydrants, consequently, no fire hydrants are required to be installed on the subject property to service the proposed development.

Typically, available fire flow during the maximum day demand is the critical criteria when evaluating a watermain distribution system's ability to service a residential subdivision. The estimated fire flow requirement for the development has been determined using both the recommendations of the Fire Underwriters Survey – 1999 (FUS) method. Using the FUS recommendations, the minimum required fire flow was determined to be 117 L/s. Supporting calculations for both methods are detailed in Appendix C.

The Norfolk County ISMP estimates that the available fire flow in the existing watermain on Donly Drive is greater than 159 L/s, as displayed in Appendix C. Therefore, the available municipal watermain is anticipated to provide sufficient flow to service the proposed development. It should be noted that the ISMP modeling was from 2015, consequently, it is recommended that Norfolk County review against their current model and provide more current available demands to confirm that the supply is adequate.

## **Conclusions and Recommendations**

The functional servicing design for the proposed development can be summarized as follows:

- The impervious percentages associated with Lot 1 and 2 for the proposed development are 28% and 27%, respectively, which is less than the 35% impervious allowance allocated as part of the Woodway Trails Subdivision project. Consequently, no on-site stormwater management is required for the proposed development.
- The proposed development will be serviced by an on-site sanitary septic system.
- The existing 300mm watermain on Donly Drive shall serve as the water supply for the proposed development once treatment capacity and allocation are approved.
- An analysis of the hydraulic modelling will be conducted by the County consultants to determine the
  water servicing capacity and constraints on the existing water system to ensure adequate system flows
  and pressure for the aforementioned domestic and fire demands.
- The domestic maximum day demand and peak hourly demand were found to be 48.6 m3/day (0.56 L/s) and 1.80 m3/hour (0.50 L/s), respectively.
- The required fire flow demand for the proposed development was found to be 117 L/s, which is less than the estimated fire flow (greater than 159 L/s).





It is recommended that this report be provided to the Norfolk County in support of the application for zoning by-law amendment of the proposed development.

We trust that this information is complete and sufficient for submission. Should you have any questions or require further information please do not hesitate to contact us

Respectfully submitted,

Nataliè Biesinger, B.A.Sc., EIT G. DOUGLAS VALLEE LIMITED

Consulting Engineers, Architects and Planners

John lezzi, Parag.
G. DOUGLAS VALLEE LIMITED

Consulting Engineers, Architects and Planners

Appendix A

- 09-056 Stormwater Management Report - Woodway Trails Subdivision

Appendix B

- Sanitary Septic System Design

Appendix C

- Domestic Water Demand Calculations
- FUS Calculations
- Norfolk ISMP Map





APPENDIX A
09-056 Stormwater Management Report – Woodway Trails Subdivision

# Storm Water Management Report Woodway Trails Subdivision

Simcoe - Norfolk County - Ontario



January 8, 2010 Revised May 6, 2010

Our Project #09-056

January 8, 2010 Revised May 6, 2010

2177545 Ontario Inc 2177546 Ontario Inc c/o The Zitia Group 2 Grand River St. S. Paris, ON N3L4G4

Attention: Mr. Peter Labiris and Mr. Paul Halyk

Dear Sirs:

Reference: Storm Water Management Report

Woodway Trails Subdivision Simcoe – Norfolk County

Our File 09-056

## 1.0 Introduction

This storm water report has been completed on behalf of 2177545 Ontario Inc. and 2177546 Ontario Inc. to summarize the storm water management design for Woodway Trails Subdivision in Simcoe, Norfolk County, Ontario. It is the intention to submit this report to Norfolk County and the Long Point Region Conservation Authority for review and approval. Once all comments have been received and incorporated in the design this report will be submitted to the Ministry of the Environment as part of the application for the Certificate of Approval.

The Woodway Trails Subdivision is a residential development that when complete will include approximately 948 units comprised of a mix of town houses, single-family dwellings, semi-detached dwellings and apartments. At this time planning approvals have only been received for Phase 1 of the development, which includes 230 units made up of single family, semi-detached and townhouse units. Figure 1 shows the overall development as well as Phase 1. This report will outline the SWM approach for Phase 1 only. Some consideration has been given to the remainder of the future development, as portions will utilize the pond provided by Phase 1.

In regards to the SWM approach for the remainder of the development outside of the current draft plan approval; Figure 2 identifies the catchment areas associated with each of the potential SWM areas. No detailed design has been completed at this time for these areas. Therefore they represent a best guess of the portions of the development that will drain to these facilities.

There is also a large external area the currently drains from the east through the site as well as a portion of Oakwood Cemetery. These areas are shown on Figure 3. Consideration has also been given to these areas in the SWM design presented by this report.

The SWMHYMO computer model has been used to simulate the sub watershed under pre and post development conditions. The simulations were conducted using the 4-hour Chicago Distribution design storm of the 2-year, 5-year, 10-year, 25-year, 50-year and 100-year storm events.

During consultations on previous projects, the Long Region Conservation Authority (LPRCA) as expressed some concerns with respect to developments in general. Their issue of concern is the reduction of land surface area available for natural infiltration in the post development state. It was generally agreed that the individual lots have practices in place to promote the infiltration of surface runoff. These include:

- Roof leaders: By directing the roof leaders away from buildings and to the ground surface, runoff
  collected from roof tops will have an opportunity to infiltrate while following the ground surface and
  swales provided by a proposed grading plan.
- Sump Pump Discharges: Storm sewer services are not proposed for this development. Therefore
  any sump pump discharges will be directed to the grass surface, away from the buildings and
  providing an opportunity for any discharge to infiltrate while following the ground surface and swales
  provided by the proposed grading plan.

Recognizing that the soil conditions in the Simcoe area (ie sand) promote infiltration of surface runoff, the approach proposed for this site is to design a dry pond facility with a sediment forebay to promote water quality enhancement. This forebay will be designed to maintain a permanent pool of water and therefore will require a clay liner to protect against infiltration. The remainder of the facility will not have a clay liner and therefore promote infiltration of surface runoff that is retained during storm events.

As a result of the initial submission of this report in January of 2010, the LPRCA provided some comments as follows:

- 1) Water quality enhancement needs to be provided for post development areas 3 and 6.
- 2) For the portions of the development outside of the current draft plan approval, the potential drainage areas and associated future SWM facilities need to be shown.
- 3) Future lots along the western side of Street B are of concern to the LPRCA due to large grade differential and proimity to the ravine.

Items 1 and 2 are addressed later by this revised report. Item 3 is beyond the scope of this report. However it is noted that this area of the development had not currently received draft plan approval. Once approval is sought for these lots, item 3 can be addressed to the satisfaction of the LPRCA.

## 2.0 Pre-Development

The existing site is of rolling topography that drains generally in a southwesterly and southerly direction. The site can be divided into five (5) pre-development catchment areas each with a stand-alone outlet. These areas are shown on Figure 2 and can be generally described as follows:

- 1. PRE1: Approximately 21.82 ha of the northern portion of the site that drains to an existing watercourse and ultimately to the Lynn River. The external area identified that drains through this portion of the site making the total catchment area to this watercourse approximately 50.26 ha.
- 2. PRE2: An area of approximately 10.27 ha that drains under the Lynn Valley Trail via 300 to 400mm tile and ultimately to the Lynn River.
- 3. PRE3: Approximately 4.35 ha of the southwest corner of the site the drains via a large diameter culvert under Decou Road and ultimately to the Lynn River.



- 4. PRE4: Approximately 21.66 ha of the central portion of the site. This area also is served by the large diameter culvert under Decou Road and ultimately drains to the Lynn River.
- 5. PRE5: The 18.88 ha of the eastern portion of the site. This area is served by two (2) 600mm diameter culverts under Decou Road and to an existing watercourse that ultimately drains to the Lynn River.

The existing watercourse the currently serves area PRE1 will serve as the outlet for the proposed SWM facility presented by this report. All other outlets will remain as is and no additional flow will be introduced to them with the development of Phase 1. The other drainage areas are only presented by this report so that they can be identified for future reports as the outlets are utilized for future SWM facilities that proposed as the development proceeds.

The SWMHYMO computer model was used to simulate pre-development conditions of area PRE1 for the design storm events indicated previously. The model uses a modified SCS procedure to estimate losses that occur naturally during a rainfall event such as evaporation and infiltration. Table 1 summarizes the background information and input parameters for the computer model with complete notes included with this report as Appendix A.

Table 1 SWMHYMO Model Input – Pre Development		
Parameter	Area PRE1	
Area (ha)	50.26	
Soil Type	Brant – lacustrine silt loam	
	Brady – lacustrine sand and loamy sand	
	Fox – lacustrine sand and loamy sand	
Hydrologic Soil Group	AB	
SCS Curve Number	70	
	Crop and other improve land	
Longest Flow Path (m)	1,110m	
Average Slope (%)	2.32%	
Runoff Coeff	0.2	
Time to Peak (hrs)	0.74	

Table 2 summarizes the pre-development storm water runoff generated from area PRE1. These would represent the anticipated peak runoff from the area at the crossing of the Lynn Valley Trail of the existing watercourse.



Table 2 Pre-Development – Storm Runoff	
Storm Event	PRE1 (m <sup>3</sup> /s)
2-Year	0.579
5-Year	0.915
10-Year	1.211
25-Year	1.571
50-Year	1.983
100-Year	2.500

### 3.0 Post-Development

As was noted as part of the pre development discussion external drainage areas currently drain through the site. These areas generally drain towards the site from the north and the east and follow the central low-lying area through the site continuing west ultimately to the Lynn River. Due to these drainage patterns there is no good opportunity to convey the runoff from these areas through the site separately from the drainage system that will be provided to service the development. Therefore the applicable storm sewers and the SWM facility described by this report will be designed with consideration to these external areas.

### Post Development Drainage Areas

In total seven (7) post development drainage areas (six (6) within site, plus external) will be developed that will contribute surface runoff to the proposed facility outlined by this report. These areas are shown on Figure 4, which can be generally described as follows:

#### External Areas

- Donly Drive This area is the majority of the external area that will continue to drain through the drainage system provided by this development. The total area is estimate at approximately 18.7 ha.
- o Oakwood Cemetery This area is the remainder of the external area and is associated with the southern portion of the cemetery. The total area is estimated at approximately 9.74 ha.
- Post 1 This area will be the catchment area for Streets A, H, I, J and E. Total area is estimated at approximately 10.24 ha.
- Post 2 This area will be the catchment area for Streets A, F and B and is approximately 7.49 ha in size.
- Post 3 This area will be the catchment area for portions of Street B, F and H. The storm sewer system associated with this area will direct the runoff to the proposed SWM facility during minor storm events. However, due to the topography of the site, the overland flow route for this area will convey the runoff during major events to the outlet for the proposed SWM facility. This area is outside of Phase 1.
- Post 4 This area is outside of Phase 1 and represents approximately 5.72 ha of the development south of the proposed SWM facility. The future streets of P, Q and R service this area.
- Post 5 This area represents to the location of the proposed SWM facility and is approximately 4.23
  ha in size.
- Post 6 This area is to the west of the proposed SWM facility. Due to the topography this area will not drain to the proposed SWM facility. The runoff for the minor and major storm events will be directed to



the outlet system from the SWM facility.

Post development, impervious land areas will be introduced to each of these areas to differing degrees. For the areas within the development the following assumptions have been made with respect to impervious surfaces introduced post development.

•	Assumed Roof Area per Dwelling Unit	185m <sup>2</sup>
•	Assumed Driveway Area per Dwelling Unit	45 m <sup>2</sup>
•	Road Area per metre of Length (includes sidewalk one side)	11m²/m
	(Road area considered directly connected to storm sewers)	

For the Donly Drive area, the impervious area has been estimated from an aerial photograph as shown by Figure 5. This results in a total impervious area of 4.43 ha or 24% of the total area of 18.7 ha. For the purposes of this analysis 35% impervious has been used. It is anticipated that future developments in this area will be required to provide some level of storm water management and that this will include limiting post development runoff to pre-development values.

No impervious land area has been estimated for the portion of Oakwood Cemetery that drains to the site due to its park like state.

The following summarizes the anticipated impervious areas for each of the sub catchment areas of the overall site.

#### Post 1

•	Number of Units	122
•	Length of Road	1,135m
•	Impervious Area	4.05 ha (1.25 ha directly connected)

#### Post 2

•	Number of Units	117
•	Length of Road	1,105m
•	Impervious Area	3.91 ha (1.22 ha directly connected)

## Post 3

•	Number of Units	85
•	Length of Road	770m
•	Impervious Area	2.80 ha (0.85 ha directly connected)

#### Post 4

<ul> <li>Number of Units</li> </ul>	76
<ul> <li>Length of Road</li> </ul>	775m
<ul> <li>Impervious Area</li> </ul>	2.60 ha (0.85 ha directly connected)

#### Post 6

•	Number of Units	44
•	Length of Road	479
•	Impervious Area	1.54 ha (0.53 ha directly connected)



Area Post 5 is associated only with the proposed SWM facility and therefore will have no typical impervious areas introduced. However, any water surfaces that are present will tend to act similar to impervious surfaces. Therefore to account for this it has been assumed that 50% of the 4.23 ha, or 2.12 ha, is impervious with all of this considered as directly connected.

#### Discharge to Storage Relationship

To determine the required level of storage for a storm water detention pond, the post-development conditions were modeled, again using the SWMHYMO computer model. In order for the computer model to determine the storage volume required the relationship between the storage volume of the pond and the discharge must be defined and is referred to as the pond-rating curve. This rating curve is determined by calculating volume of the proposed pond facility up to a proposed contour elevation and then calculating the expected discharge from the facility based on the water level at this contour elevation and the proposed outlet control configuration.

It is proposed to control the discharge from the proposed facility in two stages. The initial control will be provided by a 150mm diameter orifice and the secondary control provided by twin 0.75m wide weirs. The invert of the orifice will be placed at elevation 214.00 and will control the discharge during the minor storm events up to the 2-year event. The weirs will be placed at an elevation of 214.90. This elevation corresponds to the level below which the pond will take approximately 48 hours to drain, which is the target time to achieve water quality enhancement of the runoff. The controlled discharge from the facility is estimated using the following equations.

1. <u>150mm Orifice – Elevations 214.00 to 216.00</u>

o 
$$Q = C * A * \sqrt{2 * g * h}$$

where:

Q = Discharge in cms

C = constant, 0.63

A = orifice area in m<sup>2</sup>

g = gravitational constant, 9.81 m/s<sup>2</sup>

h = height above orifice, m

2. Twin 0.75m Wide Weir - Elevations 214.90 to 216.00

$$O = n * 1.67 * w * h^{3/2}$$

where: n = number of weirs, 2

w = width of weir, 0.75m

h = height above weir. m

Include flow from orifice.

The rating curve for each of the ponds is appended to this report as Appendix B.

#### Runoff Criteria

Typically the post development runoff from a site is to limited or controlled to the pre-development levels. This is achieved by the construction of retention facilities such as ponds with controls such as orifice plates and/or weirs placed on the outlet pipes. This is the case with Phase 1 and the pre-development runoff values will serve as the post development runoff criteria.



#### Post Development Model

The post development model developed for Phase 1 SWM facility is appended to this report as Appendix C. Table 3 summarizes the post development conditions for the storm events analyzed.

Post	Table 3 Post Development Runoff – Woodway Trails Subdivision Phase 1 SWM Facility											
Event	Pre Development (cms)	Post Development (cms)	Storage Provided (ha*m)	Estimated Water Level (m)								
2-Year	0.579	0.231	0.6962	215.05								
5-Year	0.915	0.448	0.8370	215.17								
10-Year	1.211	0.679	0.9620	215.27								
25-Year	1.571	1.014	1.1230	215.40								
50-Year	1.983	1.344	1.2680	215.50								
100-Year	2.500	1.851	1.4730	215.65								

For all storm events the post development discharge from the site to the ravine has been reduced to less than pre development values.

#### 4.0 Proposed Detention Pond

The Ministry of the Environment's document titled <u>Stormwater Management Practices Planning and Design Manual</u> (March 2003) was used in conjunction with requirements of Norfolk County to determine the design for the storm water ponds for Dover Coast development. The following summarizes the design guidelines presented by the manual along with the corresponding value for the proposed facility. The complete calculations are provided as Appendix D.

- a) <u>Storage Sizing:</u> Table 3.2 of the MOE design manual provides levels of storage volume required dependent on the percent impervious land area. For a dry pond facility based on 41% impervious area of the contributing area of the development (32.9 ha) to the facility, the required volume of storage is 103m³/ha or contributing area. This results in a volume of approximately 3,553 m³, which compares the volume of storage provided during the quality storm (2-year event) of approximately 6,962 m³.
- b) <u>Detention Time:</u> During the quality storm the design manual indicates a 24 hr detention time as a minimum requirement for dry pond facilities with 48 hr preferred. For the proposed facility the runoff stored during the quality storm (2-year event) is estimated to be between 44 and 48 hours.
- c) <u>Minimum Orifice Size</u>: A minimum orifice of 100mm is recommended for dry pond facilties. For this facility a 150mm orifice is proposed.
- d) <u>Active Storage Depth:</u> The MOE guideline recommends a maximum active storage depth of 2.0m. At the deepest point of the facility the active storage depth will be between 1.6 and 1.7m.
- e) <u>Side Slopes</u>: Average side slopes are recommended to be at 4(h):1(v) or flatter. The exposed side slopes of the proposed facility are proposed to be 7(h):1(v).



- f) Forebay Settling Length: The design manual outlines the calculation of the required length for the forebay to allow a certain size of particle to settle. The calculation is based on the peak flow rate from the pond during the quality storm, the length to width ratio of the forebay and settling velocity of the particle size (0.0003 m/s). The resulting length is 37m and compares to the 40 to 90m provided depending on the pond inlet.
- g) Forebay Dispersion Length: The design manual also outlines a calculation to determine the length of forebay required to slow a discharge. This calculation is based on the inlet flow rate during the quality storm (2-year), the depth of the permanent pool in the forebay and the desired velocity in the forebay (0.5 m/s). The following summarizes the lengths provided for each inlet:
  - Inlet 1 (0.974 cms): 16m
  - Inlet 3 (0.211 cms): 3m

These results compare to the 40 to 90m provided depending on the pond inlet.

h) <u>Sediment Accumulation</u>: Based on the anticipated sediment loading rates outlined by Table 6.3 of the MOE guidelines, the estimated sediment accumulation can be determined based on the impervious land area within the catchment area along with the target removal efficiency of the proposed facility. For the estimated 41% impervious land area of the development (excluding external area) sediment accumulation is estimated to be approximately 199 m³ over a 10-year period. This compares to the forebay volume of 1,539 m³.

For maintenance purposes an access road has been provided to the proposed facility.

In regards to water quality enhancement, MOE guidelines do not provide volumetric requirements for water quality for dry ponds providing normal protection (70% removal efficiency). The proposed facility is a dry pond and is therefore only anticipated to provided basic protection in terms of suspended solids removal (60% removal efficiency) when designed in accordance with MOE guidelines.

However it is noted that the proposed design includes items that will further enhance the performance of the facility, these include:

- A large forebay design in terms of length from the respective outlets that will promote increased settling of solids as runoff passes through the facility.
- A release period approaching 48 hours during the quality storm.
- A permanent pool volume of 1,539 m3 that approaches the volume of 1,842 m3 that would be required for a wet pond facility to provide normal protection. (Reference Table 3.2 MOE guidelines, 41% impervious, 39.2 ha contributing)

It is also noted the post development drainage Areas 3 and 6, do not drain to the SWM facility and therefore do not receive any water quality enhancement. Furthermore, these areas beyond the limits of the current draft plan approval and therefore not detailed servicing design has been completed at this time. Once these areas become draft plan approved and progress to the detailed design stage, additional water quality enhancement will have to be considered.



#### 5.0 Proposed SWM Facility Summary

The following summarizes the proposed SWM facility, shown drawings SW-1 and SW-2, for the Phase 1 and portions of the future phases of the Woodway Trails Subdivision development in Simcoe based on the analysis presented by this report;

- A dry pond facility with a permanent pool elevation of 214.50 in the sediment forebay, pond bottom of elevation 213.25 in the forebay and 214.00 in the main storage area both with a top of slope elevation of 216.00.
- Permanent pool depth of 1.25m in the sediment forebay with a volume of 1,539 m<sup>3</sup>.
- Total storage volume provided for the 100-year storm event is 14,730 m<sup>3</sup>.
- Three pond inlets, two to be constructed as part of this phase of diameter 825mm and 1050mm. A
  future third inlet with diameter to be determined.
- Discharge from the proposed facility controlled by:
  - o 150mm diameter orifice at elevation 214.00
  - Twin 0.75m wide weirs each at elevation 214.90
- Outlet from the proposed facility to be provided by a 825mm diameter storm sewer and discharging to an existing watercourse just east of the facility and ultimately to the Lynn River.
- Emergency overflow/overland flow provided by catch basin structure with top of casting elevation placed at the approximate 100-year storage level (215.70).

#### 6.0 Erosion and Sediment Control

During construction, the contractor is required to protect the work site and all adjacent lands from sediment and erosion regardless of the source to the satisfaction of all applicable parties. The measures installed by the contractor are to remain in place until such time as there is no further threat of damage.



#### 9.0 Conclusions

It is concluded that:

1. Post development flows have been reduced to below pre-development levels for all storm events analyzed.

2. The proposed storm water pond has sufficient capacity and meets the design guidelines outlined by the MOE's document titled **Stormwater Management Practices Planning and Design Manual** (March 2003) and requirements of Norfolk County.

We trust that this is the information you require to complete the review and approval for this facility. Should you have any questions or require further information please do not hesitate to call. Thank you.

Yours truly,

T. Gregory Smith, P.Eng.

G. DOUGLAS VALLEE LIMITED

Consulting Engineers, Architects and Planners

H:\Projects\2007\07-099 Silver Lake Phase 3 Design\07099 Stormwater Report.doc



#### List of Figures

Figure 1: Proposed Development Layout

Figure 2: Site Pre Development Drainage Areas and External Areas (Phase 1)

Figure 3: Post Development Drainage Areas - Phase 1 SWM Facility

Figure 4: Donly Drive External Area – Impervious Areas

List of Appendices

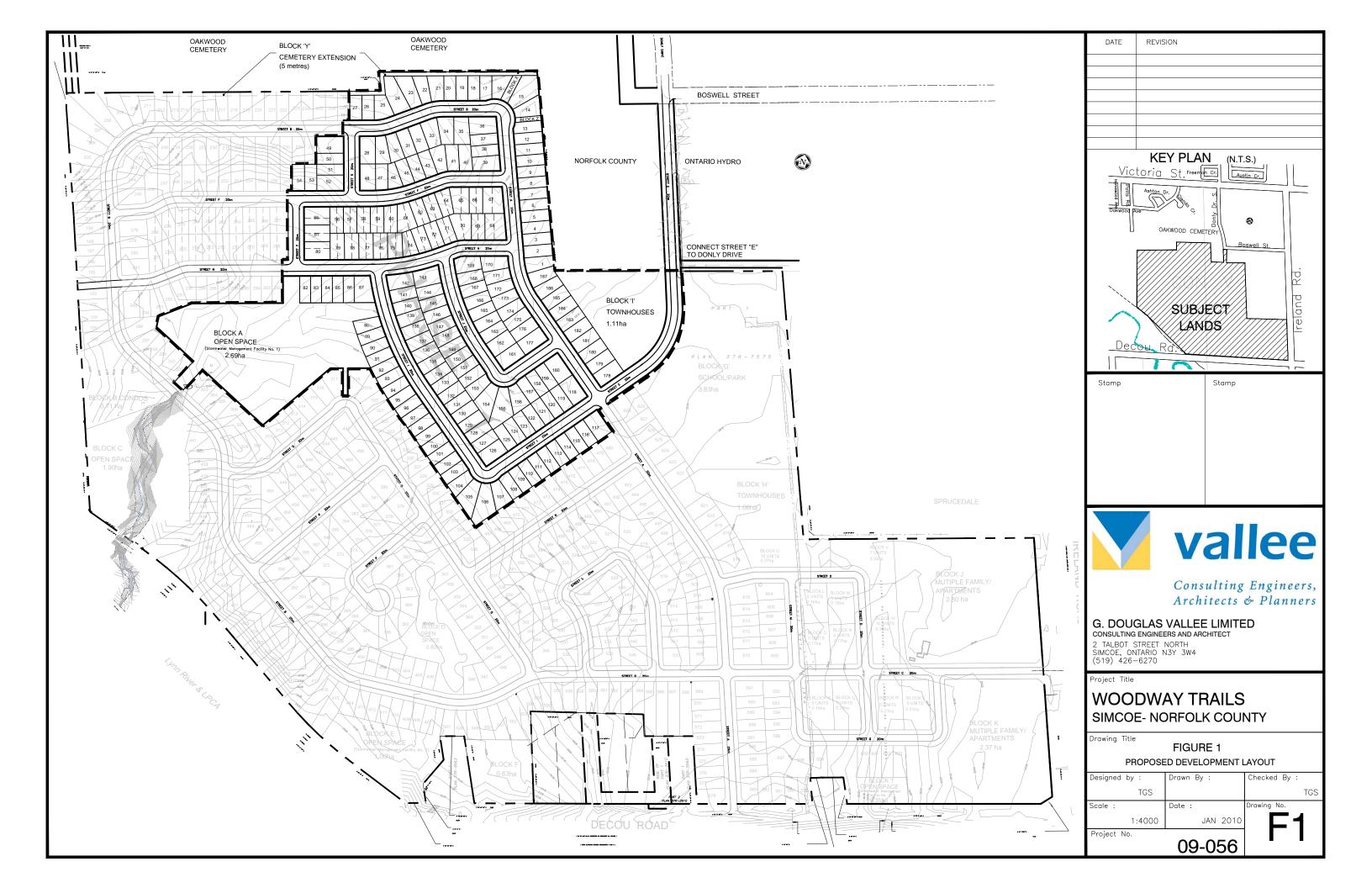
Appendix A: Pre-Development Model Appendix B: Pond Rating Curves Appendix C: Post Development Model

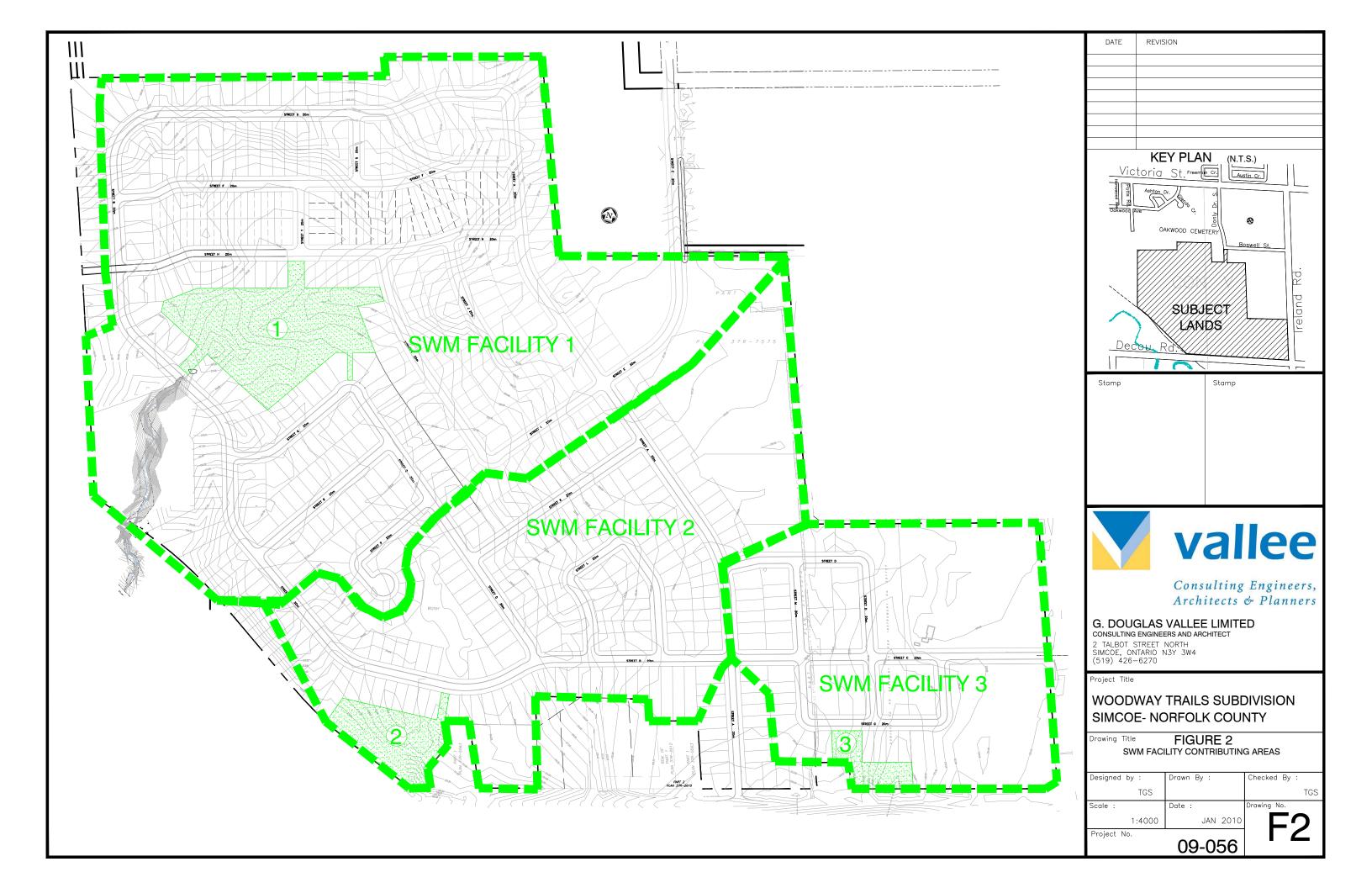
Appendix D: Miscellaneous Pond Design Calculations

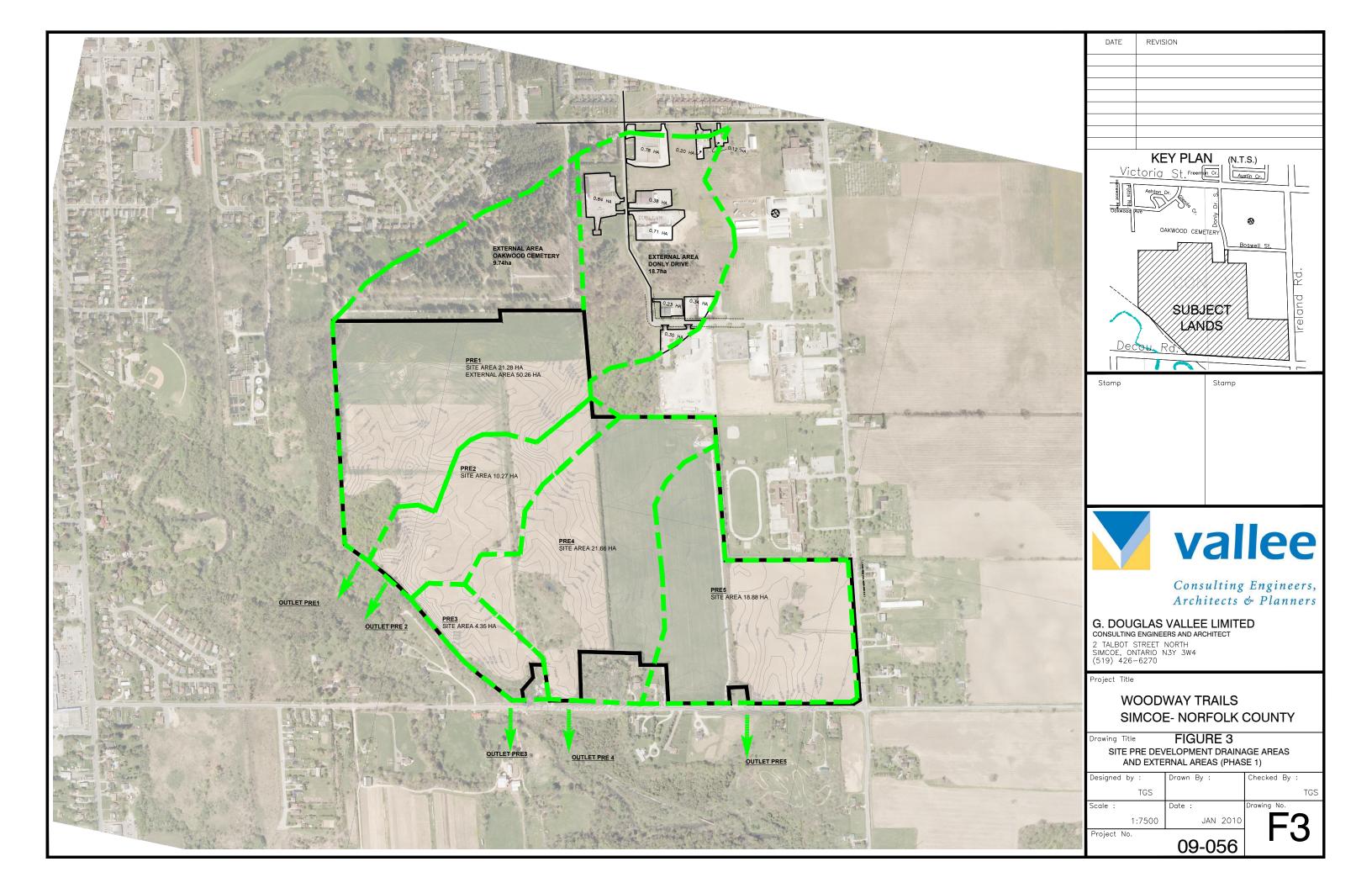
List of Drawings

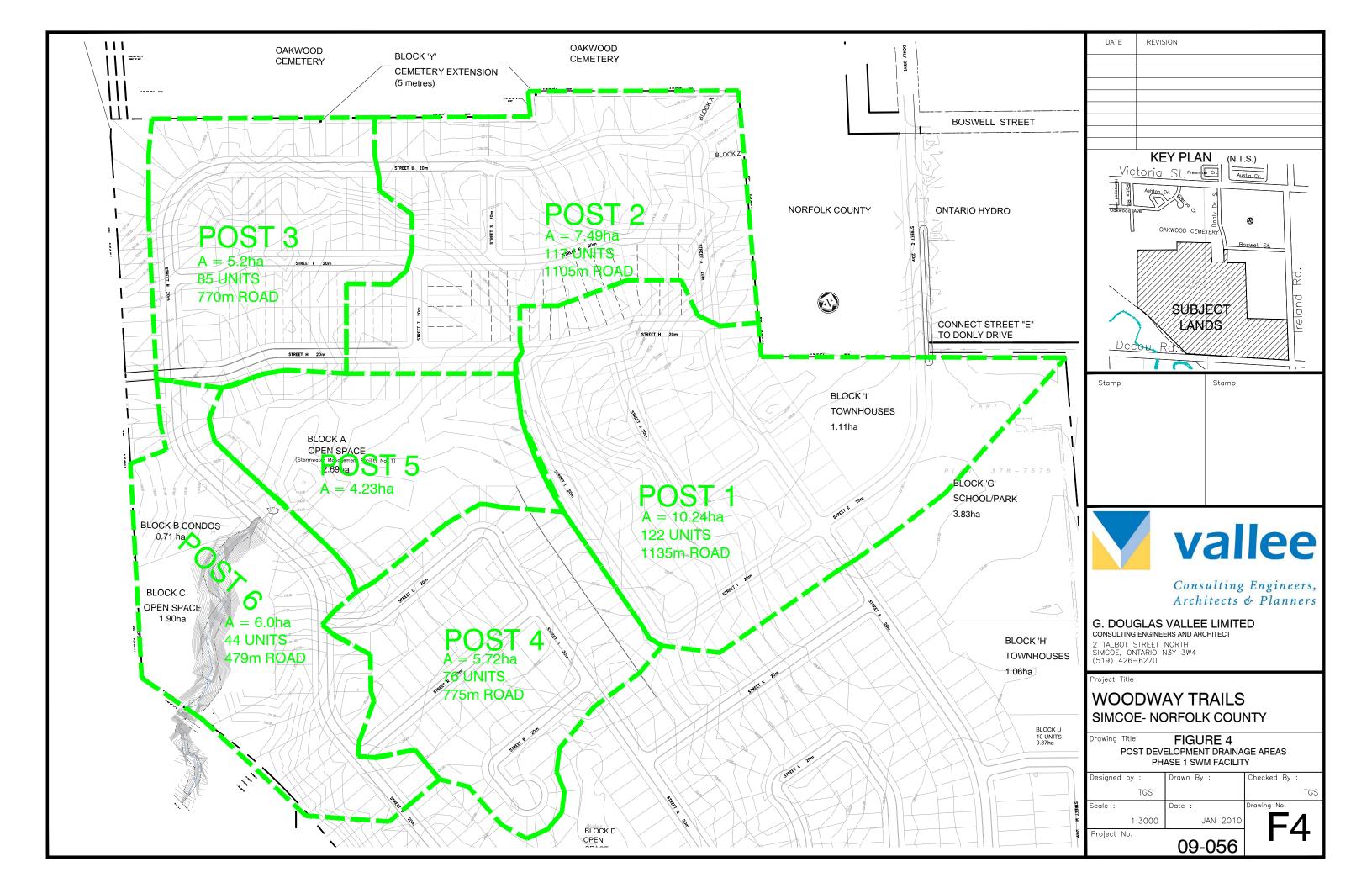
09056-SW1 09056-SW2

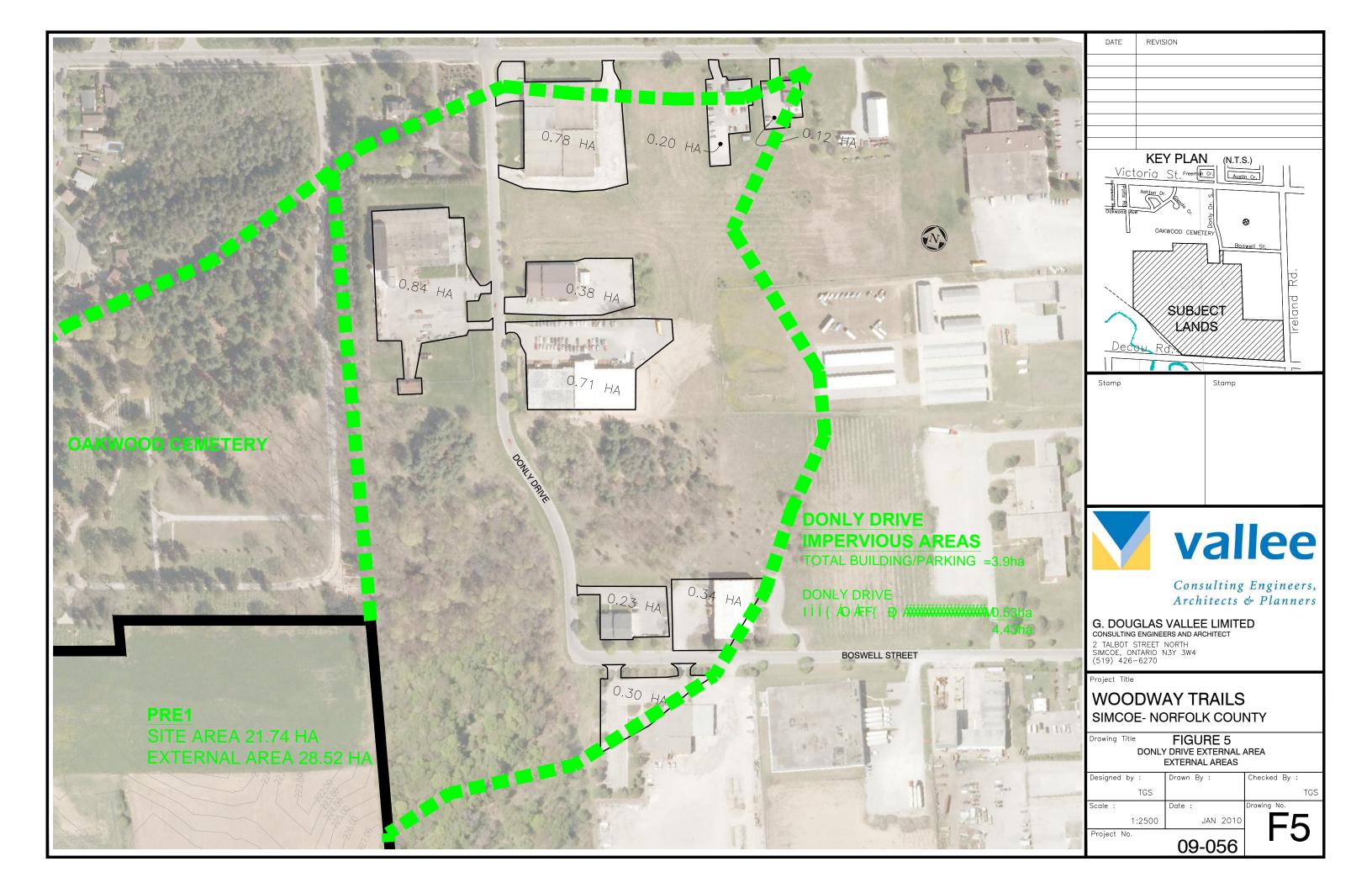


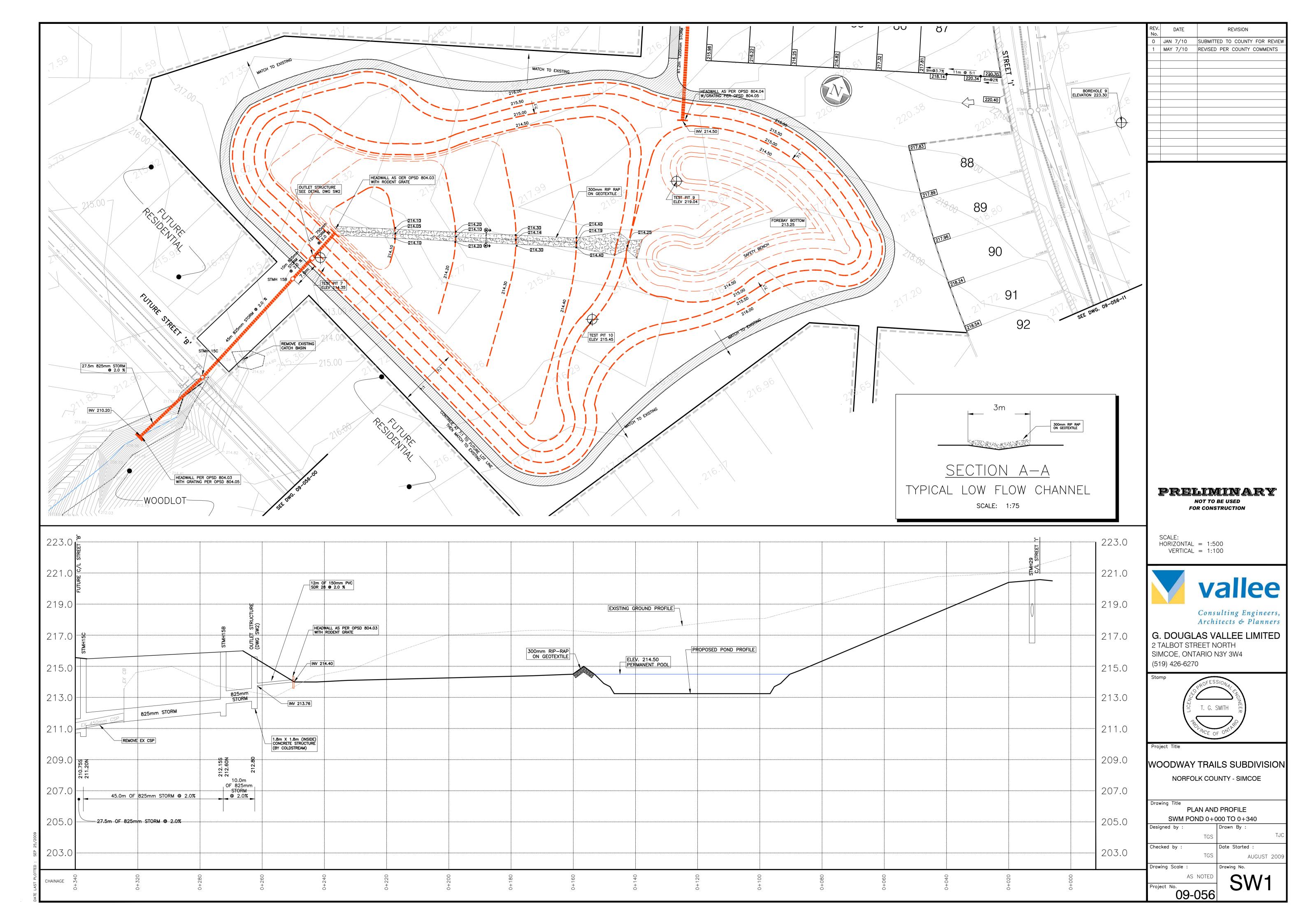


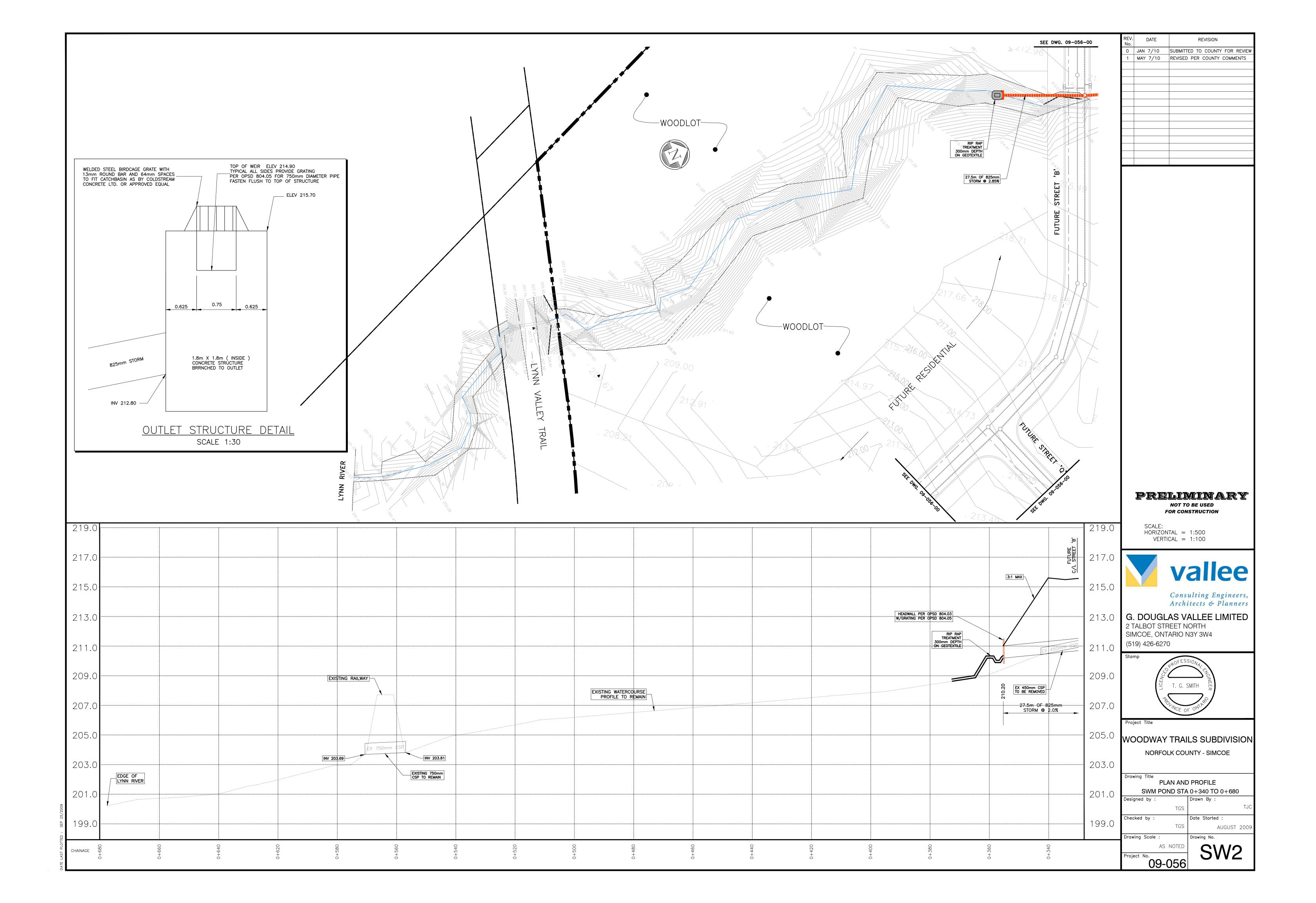












**Appendix A: Pre-Development Model** 

 $t_{j}$ 

```
StormWater Management HYdrologic Model
  SWHHYNG-99 Ver/4.02

***** A single event and continuous hydrologic simulation model

based on the principles of HYNO and its successors

OTHING-83 and OTHING-89.
  Distributed by: J.F. Sabourin and Associates Inc.

OttaWa, Ontario: (613) 727-5199

Gatineau, Quebec: (819) 243-6958

E-Mail: awmhymo@jfsa.Com
   ......
  ++++++ PROGRAM ARRAY DIMENSIONS ++++++

Maximum value for ID numbers : 10

Max. number of rainfall points: 15000

Max. number of flow points : 15000
   DATE: 2009-12-22 TIME: 15:41:38 RUN COUNTER: 000959
   Input filename: H:\SWMHYN-\\09056D-\\PRE.DAT
Output filename: H:\SWMHYN-\\09056D-\\PRE.out
Summary filename: H:\SWMHYM-\\09056D-\\PRE.sum
User comments:
  4 3:
 # Project Name: [DECOU] Project Number: (09056)

# Date : 09-23-209

# Modeller : [TGS]

# Company : G. Douglas Vallee Limited

# License # : 3568969
| START | Project dir.: H:\SWMHYM-1\09056D-1\
Rainfall dir.: H:\SWMHYM-1\09056D-1\
       TZERO = .00 hrs on 0
METOUT= 2 (output = METRIC)
NRUN = 001
NSTORM= 1
        HSTORM= 1
# 1=CH2.STM
001:0002-----
                                            Filename: H:\SWMHYM-1\09056D-1\CH2.STM
Comments: 2 YEAR CHICAGO 4 HOUR DESIGN STORM DISTR
                             TIME
                                            RAIN | TIME RAIN | TIME
                                          | Mark | 
                                                                                                                                     hrs
3.17
3.33
3.50
3.67
3.83
4.00
                                                                                                                mm/hr |
8.150 |
7.010 |
6.200 |
5.590 |
                                                                                                                                                    mm/hr
4.390
4.110
3.890
                                                                                                                                                     3.680
                                                                                                                  5,110 |
4,720 |
                                                                                                                                                     3.510
SITE INCLUDING EXTERNAL AREA
 _
   DESIGN NASHYD | Area (ha)= 50.26 Curve Number (CN)=70.00 01:PREJEX DT= 1.00 | Ia (mm)= 1.500 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= .740
          Unit Hyd Opeak (cms)= 2.594
         PEAK FLOW (cms) = 5.79 (i)
TIME TO PEAK (hrs) = 2.483
RUNOFF VOLUME (rms) = 9.781
TOTAL RAINFALL (rms) = 39.385
RUNOFF COEFFICIENT = 248
          (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
NSTORM= 1
# 1=CH5.STM
| READ STORM
| Ptotal= 48.48 mm|
                         Filename: H:\SWMHYM~1\09056D~1\CH5.STM
Comments: 5 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTIO
                         RAIN | TIME RAIN |
                TIME
                 hrs
.17
                        mm/hr |
3.529 |
3.658 |
                                   hrs mm/hr |
1.17 | 10.190 |
1.33 | 21.620 |
1.50 | 112.370 |
                                                     hrs
2.17
2.33
2.50
                                                               mm/hr |
9.150 |
7.700 |
                                                                           hrs
3.17
                                                                                   mm/hr
4.550
                                                                                   4.220
                  . 50
                        4,040
                                                               6.680
                                                                                  3.960
                  . 67
                        4.670
                                   1.67
                                          27.760 I
                                                       2.67
                                                               5.940
                                                                           3.67
                                                                                   3.730
                       5.610 | 1.83 15.750 |
7.110 | 2.00 11.430 |
                                                               5,390
                                                                        4.00
                                                     3.00
                                                               4,930
                                                                                   3.350
* SITE INCLUDING EXTERNAL AREA
| DESIGN NASHYD | Area (ha) = 50.26 Curve Number (CN)=70.00 | 01:PRELEX DT= 1.00 | Ia (nm) = 1.500 | # of Linear Res.(N) = 3.00 | U.H. Tp(hrs) = .740
| DESIGN NASHYD
     Unit Hyd Qpeak (cms)= 2.594
     PEAK FLOW (cms)= 915
TIME TO PEAK (hrs)= 2.417
RUHOFF VOLUME (mm)= 14.162
TOTAL RAINFALL (mm)= 48.478
RUHOFF COEFFICIENT = 292
                                    .915 (i)
      (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
903:0002-----
            RM f Filename: H:\SWMHYM~1\09056D~1\CHIO.STM
56.08 mm| Comments: 10 YEAR CHICAGO 4 HOURS DESIGN DISTRIBUT
 READ STORM
                       RAIN | TIME RAIN | TIME
mrd/hr | hrs mrd/hr | hrs
3.580 | 1.17 | 11.510 | 2.17
3.990 | 1.33 | 25.320 | 2.33
3.990 | 1.50 | 133.600 | 2.50
5.210 | 1.67 | 32.000 | 2.67
6.270 | 1.83 | 19.730 | 2.83
6.000 | 2.00 | 12.954 | 3.00
                                                               RAIN | TIME
                                                                                   RAIN
               TIME
                                                     hrs ma/hr |
2.17 10.310 |
2.33 8.660 |
2.50 7.520 |
2.67 6.650 |
2.83 5.380 |
3.00 5.490 |
                                                                          hrs
3.17
3.33
3.50
3.67
3.83
4.00
                                                                                  5,050
4,700
4,394
4,140
3,910
* SITE INCLUDING EXTERNAL AREA
 Curve Number
I DESIGN WASHYD
                                                                         (CN) = 70.00
                                                        # of Linear Res.(N)= 3.00
      Unit Hyd Qpeak (cms) = 2.594

        PEAK FLOW
        (cms)=
        1.211 (i)

        TIME TO PEAK
        (hrs)=
        2.400

        RUNOFF VOLUME
        (mm)=
        18.229

        TOTAL RAIRBALL
        (mm)=
        56.083

        RUNOFF COEFFICIENT
        -325

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
003:0004-----
```

```
003:0002-----
        ______
003:0002----
     END OF RUN: 3
TART | Project dir.: H:\SWMHYM-1\09056D-1\
TZBRO = .00 hrs on 0
HETOUT= 2 (output = METRIC)
HRUN = 004
HSTORM-1
START
    HSTORM=
           = 1
# 1=CH25.STM
# Project Name: (DECOU) Project Number: [09056]

# Date : 09-23-2009

# Modellor : [TGS]

# Company : G. Douglas Vallee Limited

# License # : 3568969
  READ STORM |
Ptotal= 66.02 mm|
                     Filename: H:\SWMHYM~1\09056D~1\CH25.STM
Comments: 25 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTI
              TIME
                     RAIN | TIME
                                       RAIN |
                                                        RAIN I
                                              hrs man/hr i
2.17 12.320 i
2.33 10.440 |
2.50 9.144 |
2.67 8.150 |
2.83 7.390 |
3.00 6.780 |
               hrs
                    mm/hr |
4.500 |
                             hrs mm/hr |
1.17 | 13.670 |
1.33 | 27.690 |
                                                                 hrs
3.17
3.33
3.50
                                                                        m/hr
6.270
5.000
5.840
               .33
                     4,980
               .50
.67
                     5.613
                               1.50 158.650
                              1.67 35.080 |
1.83 20.600 |
2.00 15.240 |
                                                                 3.67
3.83
4.00
                     6.450
                                                                        5.180
                     7.700 |
9.700 |
                                                                         4.900
SITE INCLUDING EXTERNAL AREA
Curve Number (CN)=70.00
                                                 # of Linear Res.(N)= 3.00
    Unit Hyd Qpeak (cms)= 2.594
    PEAK FLOW (cms)= 1.571
TIME TO PEAK (hrs)= 2.400
RUHOFF VOLUME (rmn)= 24.012
TOTAL RAHRALL (rm)= 66.023
RUHOFF COEFFICIENT = 3.64
                             1.571 (i)
     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
START
Project Name: [DECOU] Project Number: [09056]
Date : 09-23-2009
Modeller : [TGS]
Company : G. Douglas Vallee Limited
License # : 3569969
005:0002-----
 READ STORM |
Ptotal= 72.96 mm|
                     Filename: H:\SWMHYM~1\09056D~1\CH50.STM
Comments: 50 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTI
                    RAIN | TIME RAIN | mm/hr | hrs mm/hr | 3.990 | 1.17 | 14.270 | 4.450 | 1.33 | 33.900 | 5.080 | 1.50 | 186.560 | 5.970 | 1.67 | 44.810 | 7.290 | 1.83 | 23.440 | 9.530 | 2.00 | 16.260 |
             TIME
                                      RAIN | TIME
                                               hrs RM/hr | 2.17 | 12.620 | 2.33 | 10.390 | 2.50 | 8.890 | 2.67 | 7.800 | 2.83 | 6.960 | 3.00 | 6.300 |
                                                                        75.790
5.330
4.980
4.650
4.370
4.140
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```
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DESIGN NASHYD | Area (ha)=
01:PRE1EX DT= 1.00 | Ia (mm)=
U.H. Tp(hrs)=
                                Curve Number (CN)=70.00 # of Linear Res.(N)= 3.00
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   PEAK FLOW (cms) =
TIME TO PEAK (hrs) =
RUROFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT =
                   1.983 (1)
2.367
28.321
72.962
                     .388
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005:0004-----
      ______
005:0002-----
005:0002

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         TIME
              RAIN | TIME
                          RAIN |
                                TIME
                                     RAIN I
                                                RAIN
         TIME
hrs
.17
.33
.50
.67
.83
            RAIN |
mm/hr |
4.500 |
5.050 |
5.820 |
6.830 |
8.410 |
11.070 |
                    TIME RAIN | TIME | hrs sm/hr | hrs 1.17 | 16.860 | 2.17 | 1.33 | 41.070 | 2.33 | 1.50 | 205.920 | 2.50 | 1.67 | 54.560 | 2.67 | 1.83 | 29.170 | 2.83 | 2.00 | 19.280 | 3.00
                                   6.600
6.100
5.660
5.280
4.980
4.700
SITE INCLUDING EXTERNAL AREA
   ......
 DESIGN NASHYD | Area (ha)=
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U.H. Tp(hrs)=
                           50.26
                                Curve Number (CN)=70.00
# of Linear Res.(N)= 3.00
                           1.500
   Unit Hyd Qpeak (cms)= 2.594
   PEAK FLOW (cms) =
TIME TO PEAK (hrs) =
RUNOFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT =
                   2.500 (i)
2.367
35.502
83.902
.423
   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
006:0002-----
      ______
006:0002-----
      _____
006:0002--
       _____
    FINISH
_______
   WARNINGS / ERRORS / NOTES
  Simulation ended on 2009-12-22 at 15:41:40
```



Project #:

Decou Road Subdivsion

Date:

Bv: Sept 24/09 09056 Page **TGS** 

Pre development site is divided into five drainage areas.

Calculate time of concentration and time to peak for each area. Time to peak equal to 0.6 \* time of concentration

#### PRE1 (site only)

to calc for upstream drainage area

 $tc = 3.26*(1.1-C)*L^{(0.5)}/S^{0.333}$ 

(airport formula)

L as above

580 m

S as above but as percent

1.72 %

C, rational Runoff Coefficient (Pre dev)

0.2

tc =

59 min

0.98 hrs

tp =

35 min

0.59 hrs

#### PRE1 (including external)

to calc for upstream drainage area

 $tc = 3.26*(1.1-C)*L^{(0.5)}/S^{0.333}$ 

(airport formula)

L as above

1110 m 2.32 %

S as above but as percent C, rational Runoff Coefficient (Pre dev)

0.2

tc =

74 min

1.23 hrs

tp =

44 min

0.74 hrs

#### PRE2

to calc for upstream drainage area

 $tc = 3.26*(1.1-C)*L^{(0.5)}/S^{0.333}$ 

(airport formula)

L as above

600 m

S as above but as percent

3.14 %

C, rational Runoff Coefficient (Pre dev)

0.2

tc =

49 min

0.82 hrs

tp =

29 min

0.49 hrs

#### PRE3

to calc for upstream drainage area

 $tc = 3.26*(1.1-C)*L^{(0.5)}/S^{0.333}$ 

(airport formula)



Project #:

Decou Road Subdivsion

Date:

Bv: Sept 24/09 09056 Page TGS

L as above

S as above but as percent

350 m

2.3 %

C, rational Runoff Coefficient (Pre dev)

0.2

tc =

42 min

0.69 hrs

tp=

25 min

0.42 hrs

#### PRE4

to calc for upstream drainage area

 $tc = 3.26*(1.1-C)*L^{(0.5)}/S^{0.333}$ 

(airport formula)

L as above

820 m

S as above but as percent

2.08 %

C, rational Runoff Coefficient (Pre dev)

0.2

tc =

66 min

1.10 hrs

tp=

40 min

0.66 hrs

#### PRE5

to calc for upstream drainage area

 $tc = 3.26*(1.1-C)*L^{0.5}/S^{0.333}$ 

(airport formula)

L as above

350 m

S as above but as percent

1.83 %

C, rational Runoff Coefficient (Pre dev)

0.2

tc =

45 min

0.75 hrs

tp =

27 min

0.45 hrs

#### CHART C2-8 - SOIL/LAND USE CURVE NUMBERS

		Hyd	rologi	c Soil	Group		
Land Use	A	AB	В	BC	C	CD	D
Fallow (special cases only)  Crop and other improved land  Pasture & other unimproved land  Woodlots and forest	77 66* 58* 50*	82 70 62* 54*	86 74 65 58	89 78 71 65	91 82 76 71	93 84 79 74	94 86 81 77
Impervious areas (paved) Bare rock draining directly to stread Bare rock draining indirectly to stread Water surfaces		98 98 70 100	(use :	in spe	cial c	ases c	nly)

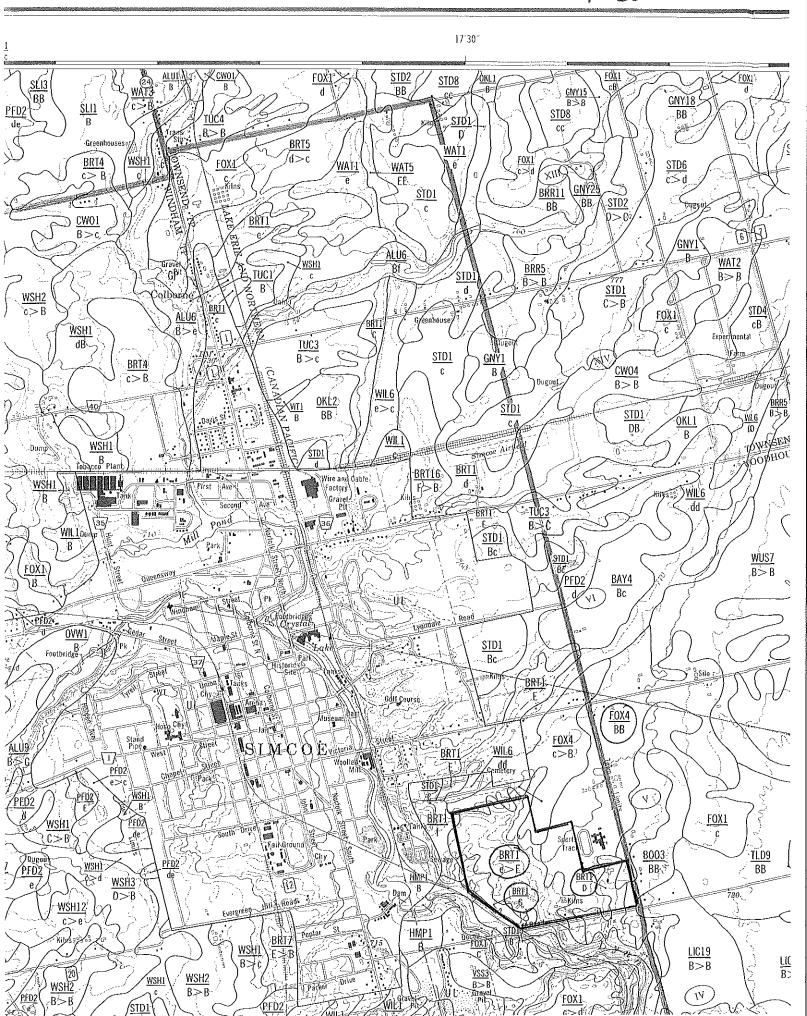
#### Notes

- 1. Figures are based on average antecedent moisture condition (AMC II) except those marked \*, which are initially wet (AMC III) or an intermediate condition. For definition of AMC's see Chart C2-10.
- 2. Table is not applicable to frozen soils or to periods in which snowmelt contributes to runoff.
- 3. For detailed values in urban areas see Table 2.2 of ref. 14.
- 4. Source: SCS Handbook of Hydrology, Chapter 9 (9), with modifications.

CHART C2-9 - PERCENT IMPERVIOUSNESS OF URBAN AREAS

Urban Land Use	% Imperviousness
Business — Commercial Industrial — Light Industrial — Heavy Residential — Low density Residential — Medium density Residential — High density	40 - 90 45 - 65 50 - 70 20 - 30 25 - 35 30 - 40

Source: SCS Handbook of Hydrology, Chapter 15 (9)



MAP UNIT	MAP COMP	UNIT ONENTS	PARENT MATERIAL DRAINAG COMPONENTS COMPONEN			
SYMBOL	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2
ALU - Allu	ıvium		٠.			
ALU 1	1-ALU	None	Variable floodplain deposits		Variable	
ALU 6	1-ALU	BRT	see ALU 1	see BRT 1	Variable	Well
ALU 7	1-ALU	FOX	see ALU 1	see FOX 1	Variable	Rapid to well
ALU 8	1-ALU	PFD	see ALU 1	see PFD 1	Variable	Rapid to well
ALU 9	1-ALU	WSH	see ALU 1	see WSH 1	Variable	Well
BAY-Bra	ady		No. of the last of		and the second	
BAY 1)	BAY	None	Mainly lacustrine sand and loamy sand		Imperfect	
BAY 4	BAY	FOX	see BAY 1	see FOX 1	Imperfect	Rapid to well
BAY 5	BAY	GNY	see BAY 1	see GNY 1	Imperfect	Poor
BAY 6	BAY	BRT	see BAY 1	see BRT 1	Imperfect	Well
BAY 10	BAY	PFD	see BAY 1	see PFD 1	Imperfect	Rapid to well
BAY 11	BAY	WAM	see BAY 1	seeWAM 1	Imperfect	Imperfect
BAY 13	BAY	VIT	see BAY 1	see VIT 1	Imperfect	Imperfect
BFO - Brai	ntford	· · · · · · · · · · · · · · · · · · ·				
BFO 1	BFO	None	Mainly lacustrine silty clay		Moderately well	
BFO 7	BFO	TLD	seeBFO 1	see TLD 1	Moderately well	Poor
BFO 12	BFO	1-ALU	see BFO 1	see ALU 1	Moderately well	Variable
BFO 22	BFO.C	BVY.C	15-40 cm sandy textures over lacustrine silty clay	see BVY 2	Moderately well	Imperfect
BFO 27	BFO.L	TVK	15-40 cm loamy textures over lacustrine silty clay	see TVK 1	Moderately well	Imperfect
BFO 42	BFO	BRR	see BFO 1	see BRR 1	Moderately well	Imperfect
B00 - Boo	kton				'	
B00 1	ВОО	None	40-100 cm sandy textures over lacustrine silty clay		Well	
B00 3	воо	BRR	see BOO 1	see BRR 1	Well	Imperfect
BOO 4	воо	wus	see BOO 1	see WUS 1	Well	Poor
BOO 7	воо	BVY	see BOO 1	see BVY 1	Well	Imperfect
B00 8	воо	BVY.C	see BOO 1	see BVY 2	Well	Imperfect

80°30'00" 42°52'30″ <u>F0X1</u> B ( EDX. B> FOX1 d 50'00" -<u>F0X1</u> c>ξ <u>3TC</u> ≥0, F0X10 B>B/ 

			r.		l Vestable (	1
ALU 1.	1-ALU CWO	None None	Variable floodplain Mamiy lacustrine silt loam		Variable Poor	
CWO 2	cwo.c	None	15-40 cm sandy textures over lacustrine silt loam		Poor	***************************************
CWO 4	cwo	TUC	see CWO 1	see TUC 1	Poor	Imperfect
cwo 8	cwo	VIT	see CWO 1	see VIT 1	Poor	Imperfect
CWO 17	cwo.c	BRT.C	see CWO 2	see BRT 2	Poor	Well
CWO 18	CWO.C	TUC.C	see CWO 2	see TUC 2	Poor	Imperfect
FOX - Fox						
FOX 1)	FOX	None (	Mainly lacustrine sand and loamy sand	(	Rapid to well	
FOX 3	FOX	GNY	see FOX 1	see GNY 1	Rapid to well	Poor
FOX 4	FOX	BAY (	see FOX 1	see BAY 1	Rapid to well	Imperfect
FOX 6	FOX	VIT	see FOX 1	see VIT 1	Rapid to well	Imperfect
FOX 8	FOX	BRR	see FOX 1	see BRR 1	Rapid to well	Imperfect
FOX 10	FOX	OKL	see FOX 1	see OKL 1	Rapid to well	Imperfect
FOX 11	FOX	BRT	see FOX 1	see BRT 1	Rapid to well	Well
FOX 12	FOX	1-ALU	see FOX 1	see ALU 1	Rapid to well	Variable
FOX 13	FOX	cwo	see FOX 1	see CWO 1	Rapid to well	Poor
FOX 14	FOX	PFD	see FOX 1	see PFD 1	Rapid to well ,	Rapid to well
FOX 16	FOX	WSH	see FOX 1	see WSH 1	Rapid to well	Well
FOX 25	FOX	wus	see FOX 1	see WUS 1	Rapid to well	Poor
FOX 26	FOX	TUC	see FOX 1	see TUC 1	Rapid to well	Imperfect

Soil information by the Ontario Institute of Pedology. (Field mapping 1974–1979)

Compiled, drawn and published by the Cartography Section, Land Resource Research Institute, Research Branch, Agriculture Canada 1983. Base information and printing supplied by the Reproduction and Distribution Division, Surveys and Mapping Branch, Energy, Mines and Resources, Canada. Copies of this map are available from: Ontario Institute of Pedology Guelph Agriculture Centre P.O. Box 1030 Guelph, Ontario N1H6N1 4294

			lacustrine silty clay			
BRR 4	BRR	воо	see BRR 1	see BOO 1	Imperfect	Well
BRR 5	BRR	wus	seeBRR 1	see WUS 1	Imperfect	Poor
BRR 9	BRR	TLD.C	see BRR 1	see TLD 2	Imperfect	Poor
BRR 11_	BRR	GNY	see BRR 1	see GNY 1	Imperfect	Poor
BRT - Brai	nt					
BRT 1	BRT	None (	Mainly lacustrine silt loam		Well	
BRT 2	BRT.C	None	15-40 cm sandy textures over lacustrine silt loam		Well	
BRT 3	BRT	BRT.C.	see BRT 1	see BRT 2	Well	Well
BRT 4	BRT	TUC	see BRT 1	seeTUC 1	Well	Imperfect
BRT 5	BRT	CWO	see BRT 1	see CWO 1	Well	Poor
BRT 6	BRT	FOX	see BRT 1	see FOX 1	Well	Rapid to well
BRT 7	BRT	GNY	see BRT 1	see GNY 1	Well	Poor
BRT 8	BRT	WSH	see BRT 1	see WSH 1	Well	Well
BRT 13	BRT	1-ALU	see BRT 1	see ALU 1	Well	Variable
BRT 15	BRT	PFD.D	see BRT 1	see PFD 2	Well	Rapid to well
BRT 16	BRT	VSS	see BRT 1	see VSS 1	Well	Poor
BRT 21	BRT.C	WSH	see BRT 2	see WSH 1	Well	Well
BRT 22	BRT.C	VIT	see BRT 2	see VIT 1	Well	Imperfect
BRT 23	BRT.C	SIH	see BRT 2	see SiH 1	Well	Poor
BRT 25	BRT	SIH	see BRT 1	see SIH 1	Well	Poor
BUF - Bu	ırford				•	
BUF 1	BUF	None	Fluvial gravelly loamy sand		Rapid to well	THE PROPERTY OF THE PROPERTY O
BVY-Be	verlv					Approximation of the state of t
BVY 1	BVY	None	Mainly lacustrine silty clay		Imperfect	
BVY 2	BVY.C	None	15-40 cm sandy textures over lacustrine silty clay		Imperfect	
BVY 8	BVY	TLD	see BVY 1	see TLD 1	Imperfect	Poor
BVY 18	BVY.C	TLD	see BVY 2	see TLD 1	Imperfect	Poor
BVY 20	BVY.C	BFO	see BVY 2	see BFO 1	Imperfect	Moderately well
BVY 32	BVY	BRR	see BVY 1	see BRR 1	Imperfect	Imperfect
cwo-c	olwood					
CWO 1	CWO	None	Mainly lacustrine silt loam		Poor	
cwo 2	CWO.C	None .	15-40 cm sandy textures over lacustrine silt loam	·	Poor	A DESCRIPTION OF THE PROPERTY
CWO 4	CWO	TUC	see CWO 1	see TUC 1	Poor	Imperfect
			·		l _	tion of grade and

# CHART C2-6

## CHART C2-6 -continued

61-147CE-04N	·				,			
Soil Series	Soil Type	Hyd. Soil Grp.	Soil Series	Soil Type	Hyd. Soil Grp.	Soil Series	Soil Type	Hyd. Soil Grp.
Crombie  "Dack Dalton Darlington "Dawson "Deloro Devlin  Dinorwic Dobie Doe "Donald Donnybrook "Dorion Dorking Dumfries "Dumdonald Dunedin Dymond "Eagle Lake Eamer Earlton "Eastport Edenvale Eganville Elderslie "" Eldorado "" Elk Pit Ellwood Elmbrook "" Elmira Elmsley Embro "" Emily Emo	sil	B BC A B B C A B B B B A AB C B A AB A B AB B B B	Englehart Evanturel " Falardeau " Falardeau " Farmington " Ferndale " Flamboro Floradale Fonthill Font Forbes Fox " Foxboro Franktown Freeport Galesburg " Gameland Gananoque Gerow Gilford " Cordon Granby " Grand Grenville " Grimsby Guelph " " Guerin " Gwillimb. Haileybury " Haldimand " " Hanbury " " Harkaway "	si   1   1   1   1   1   1   1   1   1	BECECABCECBBAADA BBAABBCCBBCBBABABABCCCBCCCDBEC	Harriston  "Harrow  "Havelock Hawkesvi. Haysville Heidelburg Hendrie Henwood Hespeler Hillier Hillsburgh Himsworth Hinchinbr.  "Honeywood "Howland "Huron "" "Innisville Jeddo "" Kagawong Kars Kemble "" Kenabeek "" Kirkland Kossuth L'Achigan Lambton "" Lanark Lansdowne Leech "Ieitrim Leith Lily	1   si	BC BC A B B A B A B B B B B B B B B B B

## CHART C2-6

CHART C2-6 -HYDROLOGIC SOIL GROUPS FOR PRINCIPAL SOIL TYPES IDENTIFIED ON AGRICULTURAL SOILS MAPS (TENTATIVE) (6)

Soil Series	Soil Type	Hyd. Soil Grp.	Soil Series	Soil Type	Hyd. Soil Grp.	Soil Series	Soil Type	Hyd. Soil Grp.
Alberton Allendale Alliston Almonte Ameliasbg " Ancaster " Anstruther Appleton Atherley " Athol Atwood Ayr Bainsville " Balderson Bamford Bancroft " Bass Bastard Battersea " Bearbrook " " Belmeade Bennington " Berriedale Beverly " Binbrook	s 1 si 1 s	BC A B C C B B B B B D A EC B B A AB AB AB AB	Blackwell Blanche Blue Bolingbr. Bondhead "Bookton Boomer Brady Brant Brantford "Brentha "Brentha "Brethour Breypen Bridgman Brid	s 1 1 1 s	C BC A AB B B B C D A B B B A A AB A B B C C C C C B AB A AB B A C C	Buzwah Caledon Caistor " Camilla " Campbell Cane " Carp Casey Cashel Castor " Chesley " " Chinguac. " " Christy Clyde " " Colborne Colwood " Codrington Conestogo Conover " Cooksville Coutts " Craigleith Cramahe	Ċ.	DACCABCCCBCABCCABBCCAABCCAABCCAABCCAABC

Notes: 1. See footnotes to Chart C2-2

- 2. For later additions see supplementary list at end.
- 3. Key to abbreviations: c clay; f fine; g gravel; l loam; ma marl; m muck; p peat; r rock; s sand; si silt.

**Appendix B: Pond Rating Curves** 



Decou Phase 1 Rating Curve

Date:

Ву: Nov 9/09 Project #: 09-056 Page TGS

Pond Rating Curve - without external area, determine volume required to contain 2-year storm and release at controlled rate over 48 hours

Orfice invert 214 m 0.15 m Orifice Diameter **CL Elevation** 214.075 m 0.017671 sq m Orifice C/S Area

Orifice Constant 0.63

			Incr		Cum	Height	Orifice	Storage	Incr Time	Total
Contour	Forebay	Main	Total Vol		Vol	Above Orf	Flow		Discharge	Time to Dis
(m)	(m2)	(m2)	(m2) (m3)		(m3)	(m)	(cms)	(ha*m)	(hrs)	(hrs)
214	(/	Ò	ÓÌ		,	0	` '	` ,	. ,	` ,
214.1		359	359	18	18	0.025	0.0078	0.0018	0.0	0.0
214.2		1526	1526	94	112	0.125	0.0174	0.0112	2.1	2.1
214.3		3111	3111	232	344	0.225	0.0234	0.0344	3.2	5.2
214.4		5173	5173	414	758	0.325	0.0281	0.0758	4.5	9.7
214.5	1952	6616	8568	687	1445	0.425	0.0321	0.1445	6.3	16.0
214.6	2325	6874	9199	888	2334	0.525	0.0357	0.2334	7.3	23.3
214.7	2463	7135	9598	940	3273	0.625	0.0390	0.3273	7.0	30.3
214.8	2603	7399	10002	980	4254	0.725	0.0420	0.4254	6.7	37.0
214.9	2747	7666	10413	1021	5274	0.825	0.0448	0.5274	6.5	43.5
215	2893	7936	10829	1062	6336	0.925	0.0474	0.6336	6.4	49.9
215.1		12148	12148	1149	7485	1.025	0.0499	0.7485	6.6	56.5
215.2		12501	12501	1232	8718	1.125	0.0523	0.8718	6.7	63.2
215.3		12856	12856	1268	9986	1.225	0.0546	0.9986	6.6	69.8
215.4		13215	13215	1304	11289	1.325	0.0568	1.1289	6.5	76.3
215.5		13577	13577	1340	12629	1.425	0.0589	1.2629	6.4	82.7
215.6		13942	13942	1376	14005	1.525	0.0609	1.4005	6.4	89.1
215.7		14310	14310	1413	15417	1.625	0.0629	1.5417	6.3	95.5
215.8		14681	14681	1450	16867	1.725	0.0648	1.6867	6.3	101.8
215.9		15055	15055	1487	18354	1.825	0.0666	1.8354	6.3	108.1



Subject: Decou Phase 1 Rating Curve

Date:

Nov 9/09 By: TGS

Project #: 09-056

Page \_\_\_\_

216 15432 15432 1524 19878 1.925 0.0684 1.9878 6.3 114.3

Reference SWMHYMO results for QUALTY.DAT==>storge used is approximately 0.4699 ha\*m which is somewhere between elevation 214.9 and 214.8. Therefore place secondary outlet control at 214.9, retention provided of approximately 44 hours provided for surface runoff generated by site.

Orfice invert 214 m
Orifice Diameter 0.15 m
CL Elevation 214.075 m
Orifice C/S Area 0.017671 sq m
Orifice Constant 0.63
Weir Elevation 214.9
Weir Width 1.5

				Incr.	Cum.	Height	Orf H	eight Abv	Weir	Total			
Contour	Forebay	Main	Total	Vol	Vol	Above O	Flow	Weir	Flow	Flow	Storage		
(m)	(m2)	(m2)	(m2)	(m3)	(m3)	(m)	(cms)	(m)	(cms)	(cms)			
214		0	0	0		0	0	0.00	0.00	0.000	0.0000	0.00	
214.1		359	359	17.95	17.95	0.025	0.0078	0.00	0.00	0.008	0.0018	1.28	1.28
214.2		1526	1526	94.25	112.2	0.125	0.01743	0.00	0.00	0.017	0.0112	2.08	3.35
214.3		3111	3111	231.85	344.05	0.225	0.02339	0.00	0.00	0.023	0.0344	3.15	6.51
214.4		5173	5173	414.2	758.25	0.325	0.02811	0.00	0.00	0.028	0.0758	4.47	10.98
214.5	1952	6616	8568	687.05	1445.3	0.425	0.03215	0.00	0.00	0.032	0.1445	6.33	17.31
214.6	2325	6874	9199	888.35	2333.65	0.525	0.03573	0.00	0.00	0.036	0.2334	7.27	24.58
214.7	2463	7135	9598	939.85	3273.5	0.625	0.03899	0.00	0.00	0.039	0.3273	6.99	31.57
214.8	2603	7399	10002	980	4253.5	0.725	0.04199	0.00	0.00	0.042	0.4254	6.72	38.29
214.9	2747	7666	10413	1020.75	5274.25	0.825	0.04479	0.00	0.00	0.045	0.5274	6.53	44.83
215	2893	7936	10829	1062.1	6336.35	0.925	0.04743	0.10	0.08	0.127	0.6336	3.44	48.27
215.1		12148	12148	1148.85	7485.2	1.025	0.04993	0.20	0.22	0.274	0.7485	1.59	49.86
215.2		12501	12501	1232.45	8717.65	1.125	0.0523	0.30	0.41	0.464	0.8718	0.93	50.79
215.3		12856	12856	1267.85	9985.5	1.225	0.05458	0.40	0.63	0.688	0.9986	0.61	51.40



Decou Phase 1 Rating Curve

Date:

Nov 9/09 By: TGS Project #: 09-056 Page

215.4	13215	13215	1303.55	11289.1	1.325	0.05676	0.50	0.89	0.942	1.1289	0.44	51.85
215.5	13577	13577	1339.6	12628.7	1.425	0.05887	0.60	1.16	1.223	1.2629	0.34	52.19
215.6	13942	13942	1375.95	14004.6	1.525	0.0609	0.70	1.47	1.528	1.4005	0.28	52.47
215.7	14310	14310	1412.6	15417.2	1.625	0.06286	0.80	1.79	1.855	1.5417	0.23	52.70
215.8	14681	14681	1449.55	16866.8	1.725	0.06477	0.90	2.14	2.204	1.6867	0.20	52.90
215.9	15055	15055	1486.8	18353.6	1.825	0.06662	1.00	2.51	2.572	1.8354	0.17	53.07
216	15432	15432	1524.35	19877.9	1.925	0.06842	1.10	2.89	2.958	1.9878	0.15	53.22

### Interpolation

Storage Elev 215.6 1.4005 215.651 1.473 215.7 1.5417 **Appendix C: Post Development Model** 



Decou Road Subdivision

Date:

Project #:

Nov 6/09 By: Page

TGS

# **IMPERVIOUS AREA ASSUMPTIONS:**

AVERAGE DWELLING ROOF AREA:

185 m2

AVERAGE DWELLING DRIVEWAY AREA: TOTAL IMPERVIOUS AREA PER DWELLING:

45 m2 230 m2

0.023 ha

ROADWAY AND ONE SIDE SIDEWALK AREA

PER METRE LENGTH OF ROAD:

11 m2

0.0011 ha

Area No.	Total Area (ha)	No. of Dwell	Dwellling Imp Area (ha)	Street Lenth (m)	Street Imp Area (ha)	Dir Conn Ratio	Total Imp Area (ha)	Imp Area Ratio
POST 1	10.24	122	2.81	1135	1.25	0.12	4.05	0.40
POST 2	7.49	117	2.69	1105	1.22	0,16	3.91	0.52
POST 3	5.2	85	1. <del>9</del> 6	770	0.85	0.16	2.80	0.54
POST 4	5.72	76	1.75	775	0.85	0.15	2.60	0.45
POST 6	6	44	1.01	479	0.53	0.09	1.54	0.26

Of the above only Post 1,2,3 and 4 contribute to the pond

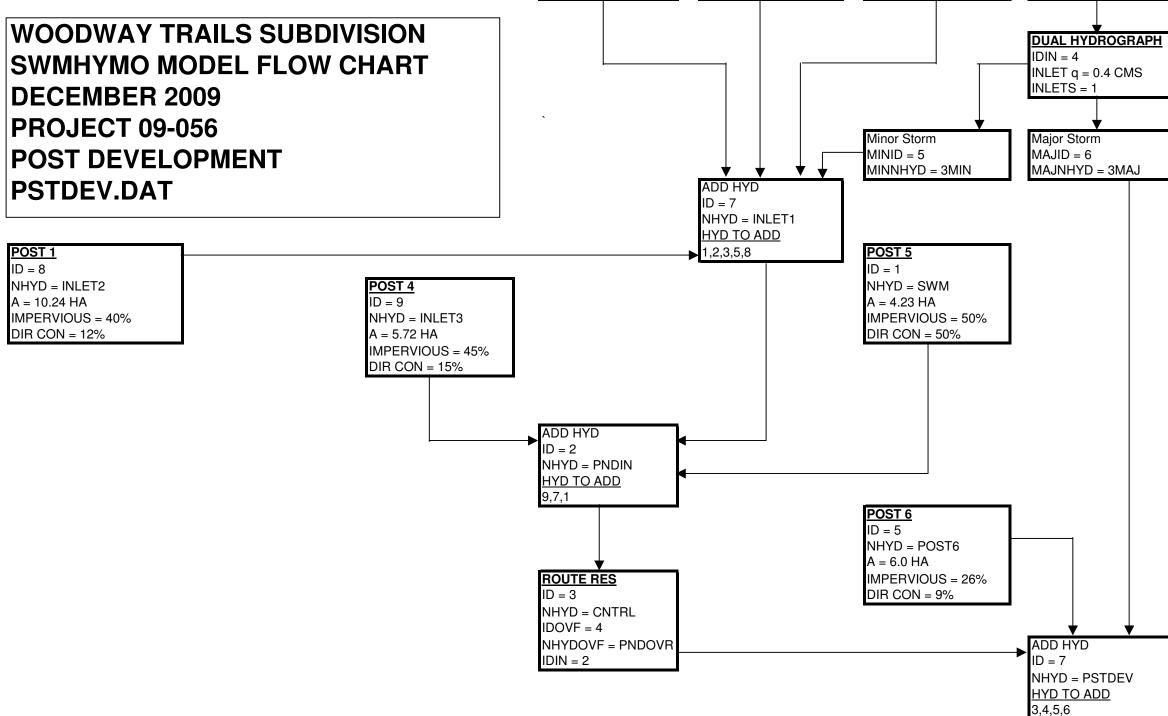
Estimate impervious area of development that contributes flow to the pond Total area to the pond includes these areas plus Post 5 (swm facility area)

13.4 32.9

As a percentage

41%





**DONLY DRIVE** 

NHYD = DONLY

DIR CON = 10%

IMPERVIOUS = 35%

A = 18.7 HA

ID = 1

OAKWOOD CEM.

NHYD = CEM

Tp = 0.5 HOURS

A = 9.74 HA

 $\dot{CN} = 62$ 

ID = 2

POST 2

NHYD = POST2

**DIR CON = 16%** 

IMPERVIOUS = 52%

A = 7.49 HA

ID = 3

POST 3

NHYD = POST3

**DIR CON = 16%** 

IMPERVIOUS = 54%

A = 5.2 HA

ID = 4

```
2 Metric units

## Project Name: [DECOU] Project Number: [09056]

## Date : 11-06-2009

## Modeller : [TGS]

## Company : G. Douglas Vallee Limited

## License ## : 3569969
                  : 11-00-2005
: [TGS]
: G. Douglas Vallee Limited
: 3569969
                     TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
["CH2.STM"] <--storm filename, one per line for NSTORM time
START
READ STORM STORM_FILENAME=["STORM.001"]
  EXTERNAL AREA - DONLY DRIVE
EXTERNAL AREA - CEMETARY
 FOST 2 - STREET A, F, AND B
ID=[3], NHYD=["POST 2"], DT=[1.0]min, AREA=[7.49][ha],
XIMP=[0.16], TIMP=[0.52], DWE=[0](cms), LOSS=[2], CN=[62],
SLOPE=[1.5](8), RAINFALL=[,,,,](mm/hr), EMD=-1
DESIGN STANDHYD
 POST 3 - STREETS B, F AND H MAJOR STAYS ON STREET B, MINOR GOES TO POND ALONG STREET H
                      ID=(4], NHYD=["POST3"], DT=[1.0]min, AREA=[5.20](ha),
XIMP=[0.16], TIMP=(0.54], DNF=[0](cms), LOSS=[2], CN=[62],
SLOPE=[1.5](%), RRIMFALL=[, , , ](mm/hr), END=-1
DESIGN STANDAYD
                      Din=[4], CINLET=[0.4](cms), NINLET=[1],
MAJID=[6], MajHEYD=["3MAJ"],
MINID=[5], MINNEYD=["3MIN"],
TMUSTO=[0](cu-m)
COMPUTE DUALHYD
*$~~~~~~~|
* POST 1 - STREETS A, H, I, J AND E
ID=[8], NHYD=["IMLET2"], DT=[1.0]min, AREA=[10.24](ha), XIMP=[0.12], TIMP=[0.4], DWF=[0](cms), LOSS=[2], CN=[62], SLOFE=[1.5][8], RAINFALL=[,,,,](men/hr), END=-1
DESIGN STANDHYD
* INLET ONE - EXT AREAS, POST 2 AND MINOR POST 3
INLET TWO (FUTURE) - POST 4 - STREETS P, Q AND R
ID=(9), NHYD=("INLET3"), DT=(1.0)min, ARRA=[5.72](ha), XIMP=(0.15], TIMP=(0.45), DWF=(0](cms), LOSS=[2], CH=[62], SLOPE=[1.5](8), RAINFALL={ , , , , }(mco/hr), END=-1
POST 5 - SWM AREA
                     ID=[1], NHYD=["SWM"], DT=[1.0]min, AREA=[4.23](ha), XIMP=[0.50], TIMP=[0.50], DWF=[0](cms), LOSS=[2], CN=(62], SLOPE=[1.5)(%), RAINFALL=[, , , , ](em/hr), END=-1
DESIGN STANDHYD
* TOTAL INFLOW TO POND INLET1, INLET2, INLET3 AND SWM AREA
IDsum=(2), NHYD=("PNDIN"), IDs to add=[9,7,1)
                      | IDout=[3], NHYD=["CHTRL"], IDin=[2], | RDT=[1.0] (min), | TABLE of ( OUTFLOW-STORAGE ) values
ROUTE RESERVOIR
                                          OUTFLOW-STORAGE
(cms) - {ha-m}
0.0 , 0.0 ]
0.0 0, 0.0 ]
0.008, 0.0112
0.022, 0.0344]
0.023, 0.0759
0.032, 0.1445]
0.036, 0.234, 0.034,
0.036, 0.2334
0.037, 0.2341
0.045, 0.5274
0.127, 0.63361
0.274, 0.7405
0.274, 0.7405
0.464, 0.8718
0.680, 0.9966
0.942, 1.1289
1.528, 1.4005
1.855, 1.5417
1.2624, 1.6867
1.572, 1.6854
```

	G. Douglas value innite
	[ 2.958, 1.9878]
	[ -1 , -1 ] (max twenty pts)
	IDovf=(4), NHYDovf=("PNDOVR")
* 8	IDovf=(4], NHYDovf=("PNDOVR")
*********	********************
*	
* POST 6 - STREET	В
DESTAN STANDAYD	ID=[5], NHYD=["POST6"], DT=[1.0]min, AREA=[6.0](ha),
DESCRIPTION ID	XIMP=[0.09], TIMP=[0.26], DWF=[0](cms), LOSS=[2], CN=[62],
	SLOPE=[1.5](%), RAINFALL=[ , , , ] (mm/hr), END=-1
• 0	SECRETION (S) (S) (MINIMUST ( , , , ) (SUMMIT), ERDI
	******************
<ul> <li>POST DEVELOPMEN</li> </ul>	T FROM SITE
•	************************
ADD HYD	IDsum=[7], NHYD=["PSTDEV"], IDs to add=[3,4,5,6]
* %	i
*8	
START	TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[2]
	["CH5.STM"] <storm filename,="" for="" line="" nstorm="" one="" per="" td="" time<=""></storm>
* %	T2ERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[2] ["CH5.STM"] <storm filename,="" for="" line="" nstorm="" one="" per="" td="" time<=""></storm>
START	TZERO=10.01brs or date. METOUT=[2]. NSTORM=[1]. NRUN=[3]
	["CHIO.STM"] <storm filename,="" for="" line="" nstorm="" one="" per="" td="" time<=""></storm>
+ 3	["CHIO.STM"] <storm filename,="" for="" line="" nstorm="" one="" per="" td="" time<=""></storm>
START	TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[4]
JIM.	["CH25.STM"] <storm filename,="" for="" line="" nstorm="" one="" per="" td="" time<=""></storm>
+ 0	
START	TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[5]
	["CH50.STM"] <storm filename,="" for="" hstorm="" line="" one="" per="" td="" time<=""></storm>
	TZERO=[0.0]hrs or date, METOUT=[2], NSTORM=[1], NRUN=[6]
START	
	["CH100.STM"] <storm filename,="" for="" line="" mstorm="" one="" per="" td="" tim<=""></storm>
* &	
* &	
FINISH	

392

```
SSSS W W M M M H H Y Y M M OOO 999 999 -------
S W W W M MM M HHEHH Y W MM M O O ## 9 9 9 9 Ver. 4.02
S W W M M M H H H Y M M M O O 9999 9999 July 1999
SSSS W W M M M H H Y M M OOO 9999 9999 July 1999
                                                                           9 9 9 9 # 3568969
999 999 =======
        StormWater Management HYdrologic Model
 Stormwater Hanagement BYBTOLOGIC MODEL

SWMHYMO-99 Ver/4.02

A single event and continuous hydrologic simulation model

based on the principles of MYMO and its successors

OTHYMO-83 and OTHYMO-89.

J.F. Sabourin and Associates Inc.

Ottawa, Ontario: [613] 727-5199

Gatineau, Quebec: [819] 243-6958

E-Mail: sembymo@ffsa.Com
  *****
  ++++++ PROGRAM ARRAY DIMENSIONS +++++

Maximum value for ID numbers : 10

Max. number of rainfall points: 15000

Max. number of flow points : 15000
  * DATE: 2010-05-10 TIME: 09:19:51 RUN COUNTER: 001004 *
  Input filename: H:\SWMHYM-1\09056D-1\PSTDEV.DAT
Output filename: H:\SWMHYM-1\09056D-1\PSTDEV.out
Summary filename: H:\SWMHYM-1\09056D-1\PSTDEV.sum
User comments:
  ## Project Name: [DECOU] Project Number: (09056)
## Date : 11-06-2009
## Modeller : [TGS]
## Company : G. Douglas Vallee Limited
## License # : 3569969
    ................
| START | Project dir.: R:\SWMHYM-1\09056D-1\
| TZERO = .00 hrs on 0 |
| METOUT= 2 (output = METRIC) |
| MSTORM= 1 |
   READ STORM |
Ptotal= 39.39 mm|
                              Filename: H:\SWMHYM~1\09056D~1\CH2.STM
Comments: 2 YEAR CHICAGO 4 HOUR DESIGN STORM DISTR
                              RAIN | TIME
                                                                                         TIME
                                                  78.820 |
21.890 |
                                          hrs
1.17
1.33
1.50
                                                                 hrs
2,17
2,33
2,50
2,67
                                                                           mm/hr |
8.150 |
7.010 |
                                                                                                  mm/hr
4.390
4.110
3.890
3.680
                     hrs
                            mm/hr |
3.250 |
                                                                                         3.33
3.50
3.67
                            3.560
                                                                           6.200 |
5.590 |
5.110 |
4.720 |
                     .50
                            3.960
4.520
                                          1.83
                                                  13.000
                                                                                                   3.510
                            6.550 1
                                                    9.880 1
                                                                 3.00
001:0003-----
  EXTERNAL AREA - DONLY DRIVE
| DESIGN STANDHYD | Area (ha)= 18.70
| 01:DONLY DT= 1.00 | Total Imp(%)= 35.00 Dir. Conn.(%)= 10.00
IMPERVIOUS
                                                            PERVIOUS (i)
                             {ha} = (mm) = (%) = (m) =
                                              6.55
.80
1.50
                                                               12.16
1.50
1.50
      Surface Area
      Dep. Storage
Average Slope
Length
Mannings n
                                           353.08
                                                                .250
                                              .013
      Max.eff.Inten.(mm/hr)=
                                             78.82
                                                               15.25
      over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                              5.00
5.30 (ii)
5.00
,22
                                                               22,00
21,63 (ii)
22,00
                                            .34
1.52
38.58
39.38
.98
      PEAK FLOW (cms) =
TIME TO PEAK (hrs) =
RUNOFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT =
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN' = 62.0 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.
```

		0. 20	agaab raaaee	
* EXTERNAL AREA - CEMETARY				
* **************************	*******	******	*******	*******
DESIGN NASHYD	(ha) = (nun) =	9.74 Cu 1.500 #	rve Number (CN)=0 of Linear Res.(N)=	3.00 3.00
Unit Hyd Qpeak (cms)=	.744	.500		
PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT =	.107 (i) 2.133 7.415 39.385 .188			
(i) PEAK FLOW DOES NOT IN		FLOW IF ANY		
001:0005				
* POST 2 - STREET A, F, AND B				
	*******	********	**************	******
DESIGN STANDHYD   Area   03:POST 2 DT= 1.00   Total	(ha) = Imp (%) =	7.49 52.00 Di	r. Conn.(%)= 16.0	0
Surface Area (ha)=	IMPERVIOUS 3.89	PERVIOU 3.60	S (i)	
Dep. Storage (mm) = Average Slope (%) =	.00 1.50	1.50 1.50		
Surface Area (ha) = Dep. Storage (nm) = Average Slope (%) = Length (m) = Mannings n =		40.00	ı	
Max.eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)=	78.82	26.67		
over (min) Storage Coeff. (min)=	4.00	17.00 (1) 17.09	(11)	
Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	4.00	26.67 17.00 (1) 17.09 17.00		
PEAK FLOW (cms)=	.23	.16	*TOTALS* .299 (ii	1)
PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (nm) = TOTAL RAINFALL (nm) =	.23 1.50 38.58	1.75 11.64 39.38	10.904	
TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT =	39.38 .98	39.38 .30		
(i) CN PROCEDURE SELECT CN* = 62.0 Ia = (ii) TIME STEP (DT) SHOU THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT	Dep. Stora LD BE SMALI EFFICIENT.	age (Above LER OR EQUA	) L	
002.0006				
001:0006	******		******	*****
POST 3 - STREETS B, F AND II				
* MAJOR STAYS ON STREET B, MIN				
DESIGN STANDHYD   Area   04:POST3 DT= 1.00   Total	Imp (%) =	54.00 Di	r. Conn. (%)= 16.0	0
Surface Area (hala	IMPERVIOUS	PERVIOU 2.39		
Dep. Storage (mm)=	2.81 .60	1.50		
Surface Area (ha)= Dep. Storage (nm)= Average Slope (%)= Length (m)= Mannings n =	186.19	40.00		
Max.eff.Inten.(mm/hr)=		29.64		
over (min) Storage Coeff, (min)=	4.00 3.61 (i	16.00		
Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	4.00	16.00		
PEAK FLOW (cms)=	.17	,12	*TOTALS*	• •
matem mo person ()		1.73 12.01	1.517	~,
RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT =	39.38	39.38	39,385	
(i) CN PROCEDURE SELECT				
$CN^* = 62.0$ Ia = (ii) TIME STEP (DT) SHOUL	Dep, Stora	ge (Above	)	
THAN THE STORAGE COM	EFFICIENT.			
001;0007				
			(CINLET) = .400	(cms)
COMPUTE DUALHYD   Average   TotalHyd 04: POST3   Number   Total	of inlets minor syst	in system em capacit	(NIHLET) = 1 y = .400	(cms)
Total	major syst	em storage	(TMJSTO] = 0	. (cu.m.)
ID; NHYD	AREA (ha)	QPEAK (cms)	TPEAK R.V. (hrs) (mm) 1.517 16.263	DWF (cms)
TOTAL HYD. 04:POST3				444555
MAJOR SYST 06:3MAJ MINOR SYST 05:3MIN	.00 5.20	.000 .218	.000 .000 1.517 16.263	.000
NOTE: PEAK FLOWS DO NOT				
001:0008		*********		
POST 1 - STREETS A, H, I, J				
POST 1 - STREETS A, H, I, J ;		*******		*****
08:INLET2 DT= 1.00   Total	(ha) = = (	40.00 Di	r. Conn.(%)= 12.0	)
1	MPERVIOUS	PERVIOUS	(i)	

$(H: \backslash \dots PSTDEV$	7.out)				
Surface Area	(ha)=	4 10	6.14		
Surface Area Dep. Storage Average Slope Length Mannings n	(mm) =	.80	1.50		
Average Slope Length	(w) =	261.28	1.50		
			.250		
Max.eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	mm/hr)= (min)	78.82 4.00	18.01 20.00		
Storage Coeff. Unit Hyd. Tpeak	(min) = (min) =	4.43 (ii 4.00	i) 19.70 (ii) 20.00		
Unit Hyd. peak	(cms)=	. 26	.06	*TOTALS*	
PEAK FLOW	(cms)=	.24 1.50 38.58 39.38	.18 1.80 10.18	.297 (iii) 1.517	
RUNOFF VOLUME	(mm) =	38.58	10.18	13,592	
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI	ENT =	,98	39.38 .26	39,385 ,345	
(i) CN PROCEDU	URE SELECT	ED FOR PERVI	OUS LOSSES:		
CN' = 62 (ii) TIME STEP	<pre>,0 Ia = (DT) SHOU:</pre>	Dep, Storag LD BE SMALLI	je (Above) ER OR EQUAL		
THAN THE : (iii) PEAK FLOW		EFFICIENT. INCLUDE BASI	EFLOW IF ANY.		
01:0009					
INLET ONE - EXT ARI				********	
ADD RYD (INLET1)	ID; NHYD	AREA (ha)	QPEAK TPEAK (cms) (hrs) .438 1.53 .107 2.13 .299 1.52 .218 1.52 .297 1.52	R.V. DNF (mm) (cms)	
ID1 +ID2	01:DONLY 02:CEM	18.70 9.74	.438 1.53 .107 2.13	12.62 .000 7.42 .000	
+ID3	03:POST 2 05:3MIN	7.49 5.20	.299 1.52 .218 1.52	15.95 .000 16.26 .000	
4ID5	08:INLET2	10.24	.297 1.52	13.59 .000	
			1.270 1.53		
NOTE: PEAK FLOWS	DO NOT IN	CLUDE BASEFI	LOWS IF ANY.		
01:0010				*****************	
INLET TWO (FUTURE)	- POST 4	· STREETS P.	O AND R		
				*********	
DESTAL SERVICE		()1-	E 70		
DESIGN STANDHYD 09:INLET3 DT= 1.00	Area   Total	(na)= Imp(%)= 4	5.72 15.00 Dir. Con	m.(%)= 15.00	
Surface Area Dep. Storage	(ha) = (mm) =	2.57	3.15 1.50		
Average Slope Length	(%) = (m) =	2.57 .80 1.50 195.28 .013	1.50 40.00		
Mannings n	=	.013	.250		
Max.eff.Inten.(	m/hr)=	78.82	20.71		
Max.eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak	(min) =	3.72 (11	.) 18.16 (11)		
Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	(min)=	.30	.06		
PEAK FLOW	(cms)=	.17	.11	*TOTALS* .211 (iii)	
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE	(hrs) = (mm) =	1.50 38.58	.11 1.77 10.60 39.38	1.517 14.802	
TOTAL RAINFALL RUNOFF COEFFICIE	(mm) = ENT =	39.38 .98	39.38 .27	14.802 39.385 .376	
(i) CN PROCEDU	IRE SELECTE	ED FOR PERVI			
CN* = 62.	.0 Ia =	Dep. Storag	e (Above)		
THAN THE S	STORAGE COR	EFFICIENT.			
(111) PEAK FLOW	DOES NOT I	RCLUDE BASE	FLOW IF ANY.		
	*********	*********	***********	**************	
POST 5 - SWM AREA					
			**********	******	
DESIGN STANDHYD 01:SWM DT= 1.00	Area	(ha)= Tmp(%)= 5	4.23 0.00 Dir. Con	n. (%)≃ 50.00	
		MPERVIOUS	PERVIOUS (i)		
Surface Area	(ha)≃	2.12	2.12		
Dep. Storage Average Slope	(8) = (mm) =	1.50	1.50		
Surface Area Dep. Storage Average Slope Length Mannings n	(m) = =	167.93 .013	40.00 .250		
Man aff Inten to	(1,)				
over	(min)	3.00	25.00		
Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	(min) =	3.00	25.00		
				*TOTALS*	
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE	(cms)= (hrs)=	.44 1.50 38.58 39.38	.03 1.90 7.41	.441 (iii) 1.500	
RUNOFF VOLUME TOTAL RAINFALL	(mm) = (mm) =		7.41 39.38	23.000 39.385	
RUNOFF COEFFICIE	INT =	.98	.19	.584	
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  CN* = 62.0 I a = Dep. Storage (Above)  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL					
(ii) TIME STEP	(DT) SHOUL	Dep. Storag	R OR EQUAL		
THAN THE S (111) PEAK FLOW	TORAGE COE DOES NOT I		FLOW IF ANY.		

* TOTAL INFLOW TO POND INLET1						
						*****
ADD HYD (PNDIN )   ID: NBYD   ID1 09:INLET   +ID2 07:INLET   +ID3 01:SWM	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	DWF (cms)	
ID1 09:INLET: +ID2 07:INLET	3 5.72 1 51.37	.211	1.52	14.80 12.68	.000	
+ID3 01:SWM	4.23	.441	1.50	23.00	.000	
SUM 02:PNDIN						
NOTE: PEAK FLOWS DO NOT I	NCLUDE BASEF	LOWS IF A	MY.			
001:0013						
IN>02:(PNDIN )	ested routin					
	LOW STORA					
(cr	ms) (ha.m 100 .000E+	.)	(cms)	(ha.m.	)	
:	008 .1800E-	02	.464	,8718E+0	10	
1	023 .3440E-	01	.942	,1129E+0	1	
	032 .1445E+	00	1.528	.1401E+0	1	
	LOW STORA ms) (ha.m 000 .000DE+ 008 .1800E- 017 .1120E- 023 .3440E- 028 .7580E- 032 .1445E+ 036 .2334E+ 039 .3273E+ 042 .4254E+ 045 .5274E+ 045 .6336E+	00	2.204	.1687E+0	1	
	042 .4254E+	00	.000	.0000E+0	10	
•	127 .6336E+	00	.000	.0000E+0	10	
ROUTING RESULTS  INFLOW >02: (PNDIN ) OUTFLOW<03: (CHTRL ) OVERFLOW<04: (PNDOVR)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V (mm	i)	
INFLOW >02: (PNDIN ) OUTFLOW<03: (CNTRL )	61.32 61.32	1.901 .207	1.517	13.59 13.59	1	
OVERPLOW<04: (PNDOVR)	.00	,000	.000	.00	10	
TOTAL NUMBI	ER OF SIMULA	TED OVERF	LOWS =	00,00		
PERCENTAGE	TIME OF OVE OF TIME OVE	RFLOWING	(8)=	.00		
	a pron	u to	d=1 /0 '	10.00=		
PEAK FLOW TIME SHIFT	REDUCTION OF PEAK FLO	M [Gont/G	(min)=	162.00		
MAXIMUM S	FORAGE USE	D {	ha.m.)=.	.6962E+00	1	
001:0014						
****************************	*******	********	******	*******	*****	*****
* POST 6 - STREET B						
***********						*****
DESIGN STANDHYD   Area   05:POST6 DT= 1.00   Total	(ha)=	6.00			0.00	
				1. (8)=	9.00	
Surface Area (ha)=	IMPERVIOUS 1.56	4.4	4			
Surface Area (ha) = Dop. Storage (mm) = Average Slope (%) = Length (m) =	.80 1.50	1.5 1.5	0			
Length (m) = Mannings n =	.013	40.0 .25				
Max.eff.Inten.(mm/hr)=	78.82	12.2	1			
over (min) =  Storage Coeff. (min) =  Unit Hyd. Tpeak (min) =	78.82 4.00 3.77 (i 4.00	22.0 i) 21.6	0 (11)			
Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	4.00	22.0	5			
DEAU FLOW (cmn)-	1.	.0		*TOTALS	* (iii)	
TIME TO PEAK (hrs)=	1.50 38.58	1.8	5	1.517		
TIME TO PEAK (hrs) =  RUNOFF VOLUME (mm) =  TOTAL RAINFALL (mm) =  RUNOFF COEFFICIENT =	39.38	39.3	8	11.518 39.385		
		.2		.292		
(i) CM PROCEDURE SELECT CM* = 62.0 Ia =	Dep. Stora	qe (Abov	e)			
(ii) TIME STEP (DT) SHOWN THAN THE STORAGE CO	JLD BE SMALL DEFFICIENT.	ER OR EQU	AL			
(iii) FEAK FLOW DOES NOT	INCLUDE BAS	EFLOW IF	ANY.			
001:0015						
*****	********	*******	*******	*******	*****	******
* POST DEVELOPMENT FROM SITE						
******	*********			******	*****	*****
ADD HYD (PSTDEV)   ID: NHYD	AREA (ha)	QPEAK (cms) .207	TPEAK	R.V.	DME	
ID1 03:CNTRL	61.32	(cms)	(hrs) 4.22	13.59	(cms)	
+1D2 04:PNDOVF +1D3 05:POST6 +1D4 06:3MAJ		.000	.00 1.52	.00 11.52 .00	.000	**DRY**
					.000	**DRY**
SUM 07:PSTDEN	67.32	.231	4.03	13.41	.000	
NOTE: PEAK FLOWS DO NOT IN	CLUDE BASEF	LOWS IF A	NY.			
001:0016						
** END OF RUN : 1						
******************************	******		******	******	*****	******
START   Project	dir. 1 11/35					
TZERO = .00 hrs on METOUT= 2 (output = METF	0	,4	1			
NRUN = 002	•					

```
NSTORM= 1
# 1=CH5.STM
002:002-----
002:0002-----
                                                      Filename: B:\swmHYM~1\09055D~1\CR5.STM
Comments: 5 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTIO
    READ STORM
Ptotal= 46
                            46 49 mm
                                   TIME
hrs
.17
.33
.50
.67
.83
1.00
                                                     RAIM |
mm/hr |
3,529 |
3,658 |
4,040 |
4,670 |
5,610 |
7,110 |
                                                                               TIME
                                                                                                    RATH I
                                                                                                                            TIME
                                                                                                                                                 RATH I
                                                                                                                                                                        TIME
                                                                             TIME RAIN |
hrs mm/hr |
1.17 10.190 |
1.33 21.620 |
1.50 112.370 |
1.67 27.760 |
1.83 15.750 |
2.00 11.430 |
                                                                                                                                             RAIN
nvn/hr
9.150
7.700
6.680
5.940
5.390
4.930
                                                                                                                           hrs
2.17
2.33
2.50
2.67
2.83
3.00
                                                                                                                                                                                           mm/hr
4.550
4.220
3.960
3.730
3.530
3.350
                                                                                                                                                                        hrs
3.17
3.33
3.50
3.67
3.83
4.00
EXTERNAL AREA - DONLY DRIVE
    DESIGN STANDRYD
                                                                Area {ha}= 18.70
Total Imp(%)= 35.00 Dir, Conn.(%)= 10.00
                              ANDRYD |
DT= 1.00 |
                                                                             IMPERVIOUS
                                                                                                                 PERVIOUS (i)
           Surface Area
Dep, Storage
Average Slope
Length
Mannings n
                                                                                  MPERVIOU
6.55
.80
1.50
353.08
.013
                                                                                                                       12.16
1.50
1.50
40.00
                                                         (ha) =
(mm) =
(%) =
(m) =
           Max.eff.Inten.(mm/hr)=
            over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                       17.00
17.16 (ii)
17.00
.07
                                                                                    5.00
4.60 (ii)
5.00
.24
            PEAK FLOW (CM
TIME TO PEAK (hr
RUNOFF VOLUME (m
TOTAL RAINFALL (m
RUNOFF COEFFICIENT
                                                     (cms) = (hrs) = (mm) = (final) = (fi
                                                                                     .50
1.52
47.68
48.48
                                                                                                                                                            .761 (111)
1.700
17.416
48.476
                                                                                                                       1.75
14.05
48.48
                                                                                                                                                                 .359
                                                                                        .98
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             (1) CR PROCEDURE SELECTED FOR PROVIDED SOSSES:

CN* = 62.0 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.
EXTERNAL AREA - CEMETARY
.
   DESIGN MASHYD | Area (ha)=
02:CEM DT= 1.00 | Ia (mm)=
U.H. Tp(hrs)=
                                                                                                      9.74
1.500
.500
                                                                                                                           Curve Number (CN)=62.00 # of Linear Res.(N)= 3.00
            Unit Hyd Qpeak (cms)=
                                                                               .744
           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                   .175 (i)
                                                                         2,100
             (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
002:0005------
    POST 2 - STREET A, F, AND B
DESIGN STANDHYD | Area {ha}= 7.49
03:FOST 2 DT= 1.00 | Total Imp(%)= 52.00 Dir. Conn.(%)= 16.00
                                                                                                                  PERVIOUS (i)
                                                                             IMPERVIOUS
           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                        (ha) =
(mm) =
(%) =
(m) =
                                                                                        3,89
                                                                                                                          3.60
1.50
                                                                                        .80
1.50
                                                                                                                          1,50
                                                                                  223.46
                                                                                                                       40.00
           Max.eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                       49.57
14.00
13.68 (ii)
14.00
                                                                                   112.37
                                                                                    3.00
3.50 (ii)
3.00
.34
                                                                                                                                                          *TOTALS*
    .488 (iii)
1.517
21.576
48.478
           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                     .35
1.50
47.68
48.48
.98
                                                                                                                       .31
1.70
16.60
48.48
                  (i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN* = 62.0 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.
```

			G. Do	ugıas	vallee	TIMITE
<b></b>						
002:0006			******		*********	******
* POST 3 - STREETS B, * MAJOR STAYS ON STRE	F AND H	OR GOES TO P	OND ALONG	STREET !	ı	
		*********	******	.,,,	******	*****
DESIGN STANDHYD		(ha)=	5.20			
04:POST3 DT= 1.00	-	(ha)= Imp(%)= 5 IMPERVIOUS	4.00 Di		[8]= 16.00	
Surface Area Dep. Storage Average Slope Length Mannings n	(ha)=	2.81	2.39			
Dep. Storage	(mm) =	.80	1.50 1.50			
Average Stope	(w) =	186.19	40.00			
Length Mannings n	=	.013	.250			
Max.eff.Inten.in	m/hr)=	112.37	55.78			
over	(min)	3.00	13.00			
Storage Coeff. Unit Hyd. Toeak	(min)= (min)=	3.13 (11	13.00	(11)		
Max,eff.Inten.(n over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	(cms)=	.36	.09	-		
			,23		TOTALS*	1
TIME TO PEAK	(hrs)=	,25 1.50	1.69		.358 (iii 1.517	
RUNOFF VOLUME TOTAL RAINFALL	(mm) =	47.68 48.48	17.09 48.48		21.962 46.478	
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE	nt =	, 98	. 35		. 453	
(i) CM PROCEDU CN* = 62.	RE SELECTI	ED FOR PERVI-	OUS LOSSE e (Above	S: )		
(ii) TIME STEP	(DT) SHOUL	D BE SMALLE	R OR EQUA	ь		
THAN THE S (iii) PEAK FLOW			FLOW IF A	NY.		
(,						
002:0007						
COMPUTE DUALHYD   TotalHyd 04:POST3	Averag	ge inlet cap r of inlets minor syste	acities in system	[CINLET]	= .400 = 1	(cms)
	- Total	minor system	m capacit	у (,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	= .400 = .400	(cms)
		major syste			•	
ID:	NHYD	AREA	QPEAK	TPEAK	R.V.	DWF
ID: TOTAL HYD. 04:	DOCT 3	(ha)	(cms)	(hrs)	(mm) 21 982	(cms)
						20200
MAJOR SYST 06: MINOR SYST 05:	3MAJ	.00 5.20	.000	.000	.000 21.982	.000
MINUR SIST US:	SMIN	3.20	. 330	1.317	21.302	.000
NOTE: PEAK FLOW	S DO NOT	INCLUDE BASE	FLOWS IF	ANY.		
002:0008						
*	******			********		
* POST 1 - STREETS A,	П, І, Ј	AND E				
*			*******	*****		******
DESIGN STANDHYD   08:INLET2 DT= 1.00	Area	(ha) = 1 $Imp(3) = 4$	0.24 0.00 Di	r Conn	91= 12.00	
[ 00.1HBBIZ DI- 1.00	-				10, 12.00	
CHARLES AND AND	(10-1)-	MPERVIOUS	PERVIOU 6.14	S (1)		
Dep. Storage	(mm) =	.80	1.50			
Average Slope	(8)=	1.50	1.50 40.00			
Surface Area Dep. Storage Average Slope Length Mannings n	(m) =	.013	.250			
Max.eff.Inten.(n over	m/br)= (min)	112.37 4.00 3.84 (ii	33.65 16.00			
Max.eff.Inten.(n over Storage Coeff, Unit Hyd. Tpeak Unit Hyd. peak	(min)=	3.84 (11 4.00	15.74	(ii)		
Unit Hyd. Tpeak	(min)=	4.00	16.00			
				,	TOTALS*	
PEAK FLOW TIME TO PEAK	(cms)=	.35 1.50	.35 1.73		.493 (iii 1.533	}
RUNOFF VOLUME	(mm) =	47.68	14.66		18.623	
RUNOFF VOLUME TOTAL RAINFALL	(mm) =	48.48 .98	46,48		48,478	
RUNOFF COEFFICIE	141 -	. 50	.30		. 304	
(i) CN PROCEDU	RE SELECTI	D FOR PERVI	OUS LOSSE	3:		
$CN^* = 62$ , (ii) TIME STEP	(DT) SHOUL	Dep. Storag LD BE SMALLE	e (ADOVE R OR EQUA	ı.		
THAN THE S	TORAGE COL	EFFICIENT.				
(iii) PEAK FLOW	DOES NOT	INCLUDE BASE	FLOW IF A	NY.		
002:0009	********		******		******	******
•						
* INLET ONE - EXT ARE	AS, POST	2 AND MINOR	POST 3			
************			*****	******	******	*****
			00004		.v. DWF	
ADD HYD (INLET1)	TD: MUID	AREA (ha)	QPEAK (cms)	(hrs)	(.V, DNE (mm) (cms) 1.42 .000	
101	01: DONLY	(ha) 18.70 9.74 7.49 5.20	.761	1.70 17	.42 .000	
+ID2 +TD3	02:CEM 03:POST 2	9.74 7.49	.175 .488	2.10 10 1.52 21	.89 .000 1.58 .000	
+ID4	05:3MIN	5.20	.358	1.52 21	.98 .000	
SUM	07:INLET1	51.37				
NOTE: PEAK FLOWS						
002:0010						
*************	*******	**********	******	*******	******	*****
* * INLET TWO (FUTURE)	- POST 4 -	STREETS D	O AND D			
*						
***************	*******	*********	*******	*******	*******	******
DESIGN STANDHYD	Area	(ha)=	5.72			
09:INLET3 DT= 1.00	Total	Imp (%) = 4	5.00 Di	r. Conn.	(%)= 15.00	

		TMREDITOR	e pentition	le (()		
Surface Are	a (ha)	IMPERVIOUS = 2.57 = .80 = 1.5.28 = .013	S PERVIOU	5		
Dep. Storage Average Slo	e (mm) pe (%)	= .80 = 1.50	1.50 1.50 40.00			
Length Mannings n	{m}	= 195.28	40.00	)		
May and Total	on twenther	= 112.37	20.71			
Max.eff.Inc	en.(mm/hr) over (min)	3.00	14.00	)		
Storage Coe Unit Hyd. T Unit Hyd. p	ff. (min) peak (min)	= 3.23 = 3.00	(ii) 14.35 14.00	; (ii)		
Unit Hyd. p	eak (cms)	36	. 08	,	*TOTALS*	
			. 21		.345 (ii	li)
PEAK FLOW TIME TO PEAT RUNOFF VOLUT TOTAL RAINFA	K (hrs): ME (mm):	= .25 = 1.50 = 47.69	1.70 15.22	2	1.517 20.093	
TOTAL RAINER	ALL (mm):	= 48.48	48,48	3	48.478	
		LECTED FOR PE				
CN* = (ii) TIME : THAN :	62.0 STEP (DT) THE STORAGE	LECTED FOR PER LA = Dep. Stor SHOULD BE SMAI E COEFFICIENT. NOT INCLUDE BA	rage (Above LLER OR EQUA	t)		
02:0011						
*********						
POST 5 - SWM AL	REA					
*****						******
DESIGN STANDHY	D I A	rea (ha)=	4.23			
01:SWM DT=	1,00   Te				(%)= 50.0	10
Surface Are:	a (ha):	IMPERVIOUS 2.12	PERVIOU 2.12	S (i)		
Dep. Storage	e (mm):	.80	1.50	)		
Length	(u): he (t):	2,12 = .80 = 1.50 = 167.93 = .013	40.00	1		
Mannings n	,	. 013	.250			
Max.eff.Inte	en.(mm/hr):	112.37 3.00	15.29	) )		
Storage Coei	ff. (min)	2.95	(ii) 19.25	(ii)		
Unit Hyd. Ti Unit Hyd. po	peak (min): sak (cms):	112.37 3.00 2.95 3.00 3.38	19.00	;		
					*TOTALS* .648 (11	ii
TIME TO PEAR	(hrs)	1.50	1.78 10.89		1.500	,
TOTAL RAINE	LL (mm):	1.50 47.68 48.48	10.89 48.48		29.284 48.478	
RUMOFF COEF	FICIENT :	.98	.22		.604	
CN* = (ii) TIME 8 THAN T	62.0 : STEP (DT) : THE STORAGE	LECTED FOR PER E = Dep. Store SHOULD BE SMAI C COEFFICIENT. ROT INCLUDE BA		L L		
CN* = (ii) TIME S THAN 3 (iii) PEAK E	62.0 STEP (DT) STEP (DT) STEP (DT) STORAGE	a = Dep. Stor SHOULD BE SMAI COEFFICIENT. FOT INCLUDE BA	age (Above LER OR EQUA ASEFLOW IF A	HY.		
CN* = (ii) TIME 8 THAN 7 (iii) PEAK 8	62.0 : STEP (DT) : THE STORAGI	a = Dep. Stor SHOULD BE SMAI C COEFFICIENT. FOT INCLUDE BA	age (Above	HY.	*********	
CN* = (ii) TIME 8 THAN 2 (iii) PEAK 6 02:0012 TOTAL INFLOW TO	62.0  FER (DT):  FIRE STORAGI  FLOW DOES ?	ia = Dep. Ston HOULD BE SMAI COEFFICIENT OT INCLUDE BA	Eage (Above	NY.		
CM* = (ii) TIME S THAN 1 (iii) PEAK E	62.0 STEP (DT) STEP (DT) STEP (DT) STEP STORAGE FLOW DOES STEP (DT) STEP (DT	ia = Dep. Stor SHOULD BE SMAI COEFFICIENT. ROT INCLUDE BA	Eage (Above	MY.	*******	*******
(ii) THE S THAN 1 (iii) PEAK I  TOTAL INFLOW TO	62.0 STEP (DT): CHE STORAGE FLOW DOES N O FOND INLE	ia = Dep. Stor BHOULD BE SMAI COEFFICIENT. ROT INCLUDE BF	Age (Above	DY.	R.V. DWF	*******
(ii) THE S THAN 1 (iii) PEAK I  OZ:0012  TOTAL INFLOW TO	62.0 STEP (DT): CHE STORAGE FLOW DOES N O FOND INLE	ia = Dep. Stor BHOULD BE SMAI COEFFICIENT. ROT INCLUDE BF	Age (Above	DY.	R.V. DWF	*******
(ii) THE S THAN 1 (iii) PEAK I  TOTAL INFLOW TO	62.0 STEP (DT): CHE STORAGE FLOW DOES N O FOND INLE	THE PROPERTY OF THE PROPERTY O	ASEFLOW IF A ASEFL	MY.  MY.  MY AREA  TPEAK (hrs) 1.52 2 1.53 1 1.50 2	R.V. DWF	******** ) 0 0
(ii) THE S THAN 1 (iii) PEAK (iii) PEAK (iii) PEAK (iii) PEAK (iii) PEAK (iii) PEAK (iiii) PEAK (iiii) PEAK (iiii) PEAK (iiiiii) PEAK (iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	62.0 STEP (DT): CHE STORAGE FLOW DOES to the storage O POND INLE D POND INLE D ID1 09:INI HD2 07:INI HD3 01:SW	THE PROPERTY OF THE PROPERTY O	AGE (Above LER OR EQUA SEFLON IF A CNLET3 AND S CMEAK (cms) .345 2.107 .648	MY AREA  TPEAK (hrs) 1.52 2 1.53 1 1.50 2	R.V. DWF (mm) (cms 0.09 .00 7.49 .00 9.28 .00	
(ii) THE S THAN 1 (iii) PEAK I  TOTAL INFLOW TO TAND HYD (PRDIN	62.0 TTEP (DT): THE STORAGE FLOW DOES Y POND INLE D FOND INLE D FO	ia = Dep. Stor HOULD BE SMAL CODEFICIENT. ROT INCLUDE BE TITL, INLET2, I TITL, INLET2, I TITL, INLET3, I TITL,	ASEFLON IF A SEFLON IF A SEFLO	MY.  WM AREA  TPEAK (hrs) 1.52 2 1.53 1	R.V. DWF (mm) (cms 0.09 .00 7.49 .00 9.28 .00	
CN* = (11 TIME : THAN I (111) PEAK I  22:0012 TOTAL INFLOW TO ADD HYD (PNDIN (111) PEAK I (	62.0 STEPE (DT): CHE STORAGIGE FLOW DOES & COND. INLL C	ia = Dep. Stod Hobild Be SMAI S COEFFICIENT FOOT INCLUDE BF  TT1, INLET2, I  TT1, INLET2, I  TT1, INLET3, I  TT1, INLET3, I  TT1, INLET3, I  TT1, INLET4, I  TT1, INLET5, I  T	ASSEPTION IF A ASSEPT	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cms 0.09 .00 7.49 .00 9.28 .00 8.54 .00	) 0 0 0 0 0
(ii) PEAK I (iii) PEAK I	62.0 : STEP [DT]: STEP [DT]: STEP [AD]: STEP	ia = Dep. Stod HOULD BE SMAI S COEFFICIENT FOR INCLUDE BA  ET1, INLET2, I  ET1, INLET2, I  AREA (ha) LET3 5.72 LET1 51.37 1 4.23  NIN 61.32  INCLUDE BASE	ASSEPTION IF A ASSEPT	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cms 0.09 0.09 7.49 .00 9.28 .00 8.54 .00	) 0 0 0 0 0
(ii) PEAK I  (iii) PEAK I  (2:0012  TOTAL INFLOW TO  ADD HYP (PNDIN  NOTE: PEAK FI  02:0013  ROUTE RESERVOIF	62.0   STREE (DT)   STOPAGE   STOPAG	ia - Dep. Story HOULD BE SMAI E COEFFICIENT FOR INCLUDE BA  ET1, INLET2, I  ET1, INLET2, I  AREA (ha) (ha) 4.23  NINCLUDE BASE  AUCUUL	Age (Above LER or EQUA ASSETLOW IF A COMMENT AND STATE OF A COMMENT	DE TOTAL OF THE PROPERTY OF TH	R.V. DWF (mm) (cms 0,09 0,09 0,09 0,09 0,09 0,09 0,08 0,00 0,00	) 0 0 0 0 0
(ii) PEAK I  (iii) PEAK I  (iii) PEAK I  D2:0012  TOTAL INFLOW TO  ADD HYD (PNDIN  NOTE: PEAK FI  22:0013  ROUTE RESERVOIF	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story HOULD BE SMAI C COEFFICIENT. ROT INCLUDE BE  TITL INLET2, I  TITL INLET2, I  TITL AREA (Fa) LET3 5.72 LET1 51.37 LA 4.23 LIN 61.32 PINCLUDE BASE  Equested routi	Age (Above LER OR EQUA IF A SEFLOW IF A COMMENT AND S COMM	MM AREA  TPEAK (hrs) 1.52 1 1.52 1 1.52 1 1.52 1 1.52 1	R.V. DWF (mm) (cms 0.09 .00 7.49 .00 9.28 .00 9.20 .00 9.20 .00 9.20 .00 9.	) 0 0 0 0 0
CN* = (ii) PEAK (iii) PEAK (iiii) PEAK (iiii) PEAK (iiiii) PEAK (iiiiiii) PEAK (iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Hould Be SMAI E COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, INLET2, I TII, INLET2, I TII, INLET2, I TII, INLET3, I TII, INLET4, I TII, INLET5, I TII, INLET5, I TII, INLET5, I TII, INLET6, I TII, INLET7, I TII, INL	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012 TOTAL INFLOW TO  ADD HYD (PRDIN  HOTE: PEAK FI  22:0013 ROUTE RESERVOIF IN>02:(PHDIN)  007<03:(CHTEL)	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Hould Be SMAI E COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, INLET2, I TII, INLET2, I TII, INLET2, I TII, INLET3, I TII, INLET4, I TII, INLET5, I TII, INLET5, I TII, INLET5, I TII, INLET6, I TII, INLET7, I TII, INL	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012 TOTAL INFLOW TO  ADD HYD (PRDIN  HOTE: PEAK FI  22:0013 ROUTE RESERVOIF IN>02:(PHDIN)  007<03:(CHTEL)	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Houlub Es SMAH S COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, IN	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012 TOTAL INFLOW TO  ADD HYD (PRDIN  HOTE: PEAK FI  22:0013 ROUTE RESERVOIF IN>02:(PHDIN)  007<03:(CHTEL)	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Houlub Es SMAH S COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, IN	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012 TOTAL INFLOW TO  ADD HYD (PRDIN  HOTE: PEAK FI  22:0013 ROUTE RESERVOIF IN>02:(PHDIN)  007<03:(CHTEL)	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Houlub Es SMAH S COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, IN	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012 TOTAL INFLOW TO  ADD HYD (PRDIN  HOTE: PEAK FI  22:0013 ROUTE RESERVOIF IN>02:(PHDIN)  007<03:(CHTEL)	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Houlub Es SMAH S COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, IN	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012 TOTAL INFLOW TO  ADD HYD (PRDIN  HOTE: PEAK FI  22:0013 ROUTE RESERVOIF IN>02:(PHDIN)  007<03:(CHTEL)	62.0  STREE [DT]  CHE STORAGIG  FLOW DOES &  D POND INLI  )   ID: Ni  ID1 09:INI  ID2 07:INI  SUM 02:PNI  COMB DO NOT	ia = Dep. Story Houlub Es SMAH S COEFFICIENT TO INCLUDE BA TII, INLET2, I TII, IN	APPENDING TO STORAGE OF OUR COLORS OF AND STORAGE O	) L L L L L L L L L L L L L L L L L L L	R.V. DWF (mm) (cma 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK I (iii)	62.0 : STREE [DT]:	THE SAME SAME SAME SAME SAME SAME SAME SAM	Age (Above LER OR EQUA IF A COMMISSERION I A COMMISSERION	TPEAK (hrs) 1.52 1 1.52 1 1.52 1 Y.  TABLE TFLOW (cms) .274 .464 .688 .942 .1.223 .1.525 1 1.525 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R.V. DWF (mm) (cma) 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 1.28 .00 1	) 0 0 0 0 0
CN* = (11) TIME S THAN 1 (111) PEAK E  22:0012	62.0 : STEP [DT]: STEP [DT]: STEP [ST]: STEP	THE SAME SAME SAME SAME SAME SAME SAME SAM	Age (Above LER OR EQUA IF A COMMISSERION I A COMMISSERION	TPEAK (hrs) 1.52 1 1.52 1 1.52 1 Y.  TABLE TFLOW (cms) .274 .464 .688 .942 .1.223 .1.525 1 1.525 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R.V. DWF (mm) (cma) 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 1.28 .00 1	) 0 0 0 0 0
CN* = (11) TIME : THAN 1 (111) PEAK !  22:0012	62.0 : STEP [DT]: STEP [DT]: STEP [ST]: STEP	THE PROPERTY OF THE PROPERTY O	Age (Above LERO R EQUA SEFION IF A SEFION STORAGE OUT AGE OUT	MM AREA  *********  MM AREA  ******  *****  *****  ****  ****  ****	R.V. DWF (mm) (cma) 0.09 .00 7.49 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 1.28 .00 1	) 0 0 0 0 0
CN* = (11) TIME S THAN 1 (111) PEAK I  22:0012	62.0 : STEP [DT]: STEP [DT]: STEP [ST]: STEP	THE PROPERTY OF THE PROPERTY O	Age (Above LER OR EQUA SEFION IF A SEFION IF A SEFION IF AND SEFION IF AND SEFION IF AND SEFION IF AND SEFION STORAGE OF A SEFION IN SEF	MM AREA  **********************************	R.V. DWF (mm) (cma) 0.09 .00 7.49 .00 9.28 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 12928-01 12928-01 140128-01 140128-01 166728-01 169728-01 169728-01 169728-01 18.545 18.545 19.545	) 0 0 0 0 0
CN* = (11) TIME S THAN 1 (111) PEAK E (111)	62.0 : STEE [DT]: CHE STORAGISTION DOES ? CHE STORAGISTION DOES ? CHE STORAGISTION DOES ? CHE STORAGISTION DOES ? CHE STORAGISTION DO NOT CHE ? CHE STORAGE DOES	THE PROPERTY OF THE PROPERTY O	Age (Above LER OR EQUA LER OR EXPLOSE EXPLANT OF THE EXPLOSE	TPEAK (hrs) 1.52 1 1.52 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1.52 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R.V. DWF (mm) (cma 0.09 .00 0.09 .00 0.09 .00 0.00 0.00 0	) 0 0 0 0 0
CN* = (11) TIME S THAN 1 (111) PEAK E (111)	62.0 : STEP [DT]: STEP	THE PROPERTY OF STATE	ADER ON EQUAL SEFICIAL SEFICIA	NY   NY   NY   NY   NY   NY   NY   NY	R.V. DWF (mm) (cma) 0.09 .00 7.49 .00 9.28 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 8.54 .00 0.00 0.00	) 0 0 0 0 0
CN* = (11) TIME : THAN 1 (111) PEAK [  22:0012	G2.0 : STEP [DT]: STEP	The page of the	age (Above Lage (A	NY   NY   NY   NY   NY   NY   NY   NY	R.V. DWF (mm) (cms 0.09 .00 0.09 .00 9.28 .00 9.28 .00 8.54 .00 8.54 .00  min.  STORRGE (ha.m.) 7485E+00 9986E+00 1129E+01 1263E+01 1401E+01 1542E+01 1835E+01 0000E+00 0000E+00 0000E+00 0000E+00 0000E+00 0000E+00 0000E+00	) 0 0 0 0 0
CN* = (ii) TIME : THAN I (iii) PEAK !  22:0012	62.0 : STEP [DT]: CHE STORAGIC FLOW DOES ?  POND INLI  )   ID: NI	A = DEP, StOCK  A = DEP, STOCK  B = SMAIL  COEFFICIENT.  COT INCLUDE BS  AREA  (ha)  COEFFICIENT.  AREA  (ha)  COEFFICIENT.  COEFFICIT.  COEFFICIENT.  COEFFICIENT.  COEFFICIENT.  COEFFICIENT.  COEFF	age (Above LER OR EQUA SEFLOW IF A SEFLOW IF A Common September Se	NY   NY   NY   NY   NY   NY   NY   NY	R.V. DWF (mm) (cms 0.09 .00 0.09 .00 9.28 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 11.29E+01 12.25E+01 16.32E+01 16.32E+01 18.545 .00 0.00 0.00 13.405 12.6.00 370E+00	) 00 00 00 = 0
CN* = (11) TIME : THAN 1 (111) PEAK [  22:0012	G2.0 : STEP (PT): STEP	The part	age (Above Lage (A	TPEAK (hrs) 1.52 1 1.50 2 1.52 1 1.52 1 1.52 1 1.52 1 1.53 1 1.55	R.V. DWF (mm) (cma 0.09 .00 0.09 .00 9.28 .00 9.28 .00 8.54 .00 8.54 .00 8.54 .00 1129E+01 129E+01 1263E+01 1000E+00 000E+00 000E+00 000E+00 000E+00 000E+00 000E+00 000E+00 000E+00 000E+00 0000E+00 000E+00 000E+00 000E+00	) 0 0 0 0 

DESIGN STANDHYD   05:POST6 DT= 1.00	Area	(ha) =	6.00 25.00 D	ir Com	n (91-	9.00	ı
					11. (8)-	9.00	,
Surface Area Dep. Storage Average Slope Length Mannings n	(ha)=	1.56	4.4	4			
Average Slope	(%)=	1.50	1.5	0			
Length Mannings n	{m} =	.013	40.0 .25				
Max.eff.Inten.(			23.6	8			
Stores Coaff	(min)	3.00	17 4				
Unit Hyd, Tpeak Unit Hyd, peak	(min)=	3.27 (i 3.00	17.0	0			
Unit Hyd, peak	(cms)=	, 35	. 0	7	*TOTAL	1.5	
PEAK FLOW TIME TO PEAK	(cms)= (hrs)=	.16 1.50	1.7	5	.22 1.51	21 (iii 17	)
TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL	(mm) =	47.68 48.48	12.8 48.4	5	15.96		
RUNOFF COEFFICI	ENT =	.98	, 2		.33		
(ii) TIME STEP	.0 Ia = (DT) SHOUL STORAGE COE	Dep, Stora D BE SMALL FFICIENT,	ge (Abov ER OR EQU	e) Al			
002:0015							
*********							
* POST DEVELOPMENT F	ROM SITE						
,,.,.,			******	******			*****
ADD HYD (PSTDEV)		AREA	QPEAK	TPEAK	R.V,	DWF	
		(ha) 61.32	(cms)	(hrs)	(mm)	(cms)	
+1D2	03:CNTRL 04:PNDOVR 05:POST6 06:3MAJ	.00	.000	.00	.00	.000	**DRY**
+1D3 +ID4	06:3MAJ	.00	QPEAK (cms) .410 .000 .221 .000	.00	.00	.000	**DRY**
===	07:PSTDEV						
NOTE: PEAK FLOWS	DO NOT INC	LUDE BASEF	LOWS IF A	NY.			
002:0016							
002:0002							
	2						
i start	Project	dir.: H:\S	WWHYM~1 <b>\</b> 0	9056D~ <b>1</b> \		******	******
[ START	Project Rainfall s on put = METRI	dir.: H:\SI dir.: H:\S	WWHYM~1 <b>\</b> 0	9056D~ <b>1</b> \			******
[ START   TZERO = .00 hr METOUT = 2 (out	Project Rainfall s on put = METRI	dir.: H:\SI dir.: H:\S	WWHYM~1 <b>\</b> 0	9056D~ <b>1</b> \			
( START   TZERO = .00 hr METCUT= 2 (out. NRUN = 003 NSTORM= 1 -CH10	Project Rainfall s on put = METRI .STM	dir.: H:\Si Gir.: H:\Si G C)	ЮМНҮМ~1\09 МИНҮМ~1\09	9056D~1\ 9056D~1\			
[ START   TZERO = .00 hr METOUT = 2 (out NRUN = 003 NSTORM= 1	Project Rainfall s on put = METRI .STM	dir.: H:\Si 0 0 C)	WMHYM~1\09	9056D~1\			
[ START   TZERO = .00 hr METOUT = 2 (out NRUN = 003 NSTORM= 1	Project Rainfall s on put = METRI .STM	dir.: H:\Si 0 0 C)	WMHYM~1\09	9056D~1\			
( START   TZERO = .00 hr METGUT= 2 (out NRUN = 003 NSTORM= 1 -CH10 003:0002	Project Rainfall s on put = METRI .STM .STM ECOU; Pr -06-2009 SS; Douglas Va 568969	dir.: H:\Si dir.: H:\Si 0 C) 	минум-1\09 минум-1\09 	9056D~1\ 9056D~1\			
[ START   TZERO = .00 hr METOUT = 2 (out. NRUN = 003 NSTORM= 1	Project Rainfall s on put = METRI .STM .STM ECOU; Pr -06-2009 SS; Douglas Va 568969	dir.: H:\Si dir.: H:\Si 0 C) 	минум-1\09 минум-1\09 	9056D~1\ 9056D~1\			
[ START   TZERO = .00 hr METCUT= 2 (out. NRUN = 003 NSTORM= 1   TCH10 003:0002	Project Rainfall s on put = METRI .STM .STM	dir.: H:\Si dir.: H:\Si 0 C) 	минум-1\09 минум-1\09 	9056D~1\ 9056D~1\			
START   TZERO = .00 hr METGUT = 2 (out NRUN = 003 NSTORM= 1 = CH10 003:0002	Project Rainfall S on put = METRI .STM	dir.: H:\St dir.: H:\St OC)	MMHYM~1\0; MMHYM~1\0; MMHYM~1\0; MMHYM~1\0; MMHYM~1\0; MMHYM~1\0; MMHYMHYMHYMHYMHYMHYMHYMHYMHYMHYMHYMHYMHY	9056D~1\ 9056D~1\			
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\St dir.: H:\St dir.: H:\St dir.: H:\St c) c) llee Limit e: H:\SWMH.	MMHYM-1\0: MMHYM-1\0: Ez: [09056 ed	9056D~1\ 9056D~1\			
START   TZERO = .00 hr METGUT= 2 (out NRUN = 003 NSTORM= 1 -CH10 003:0002	Project Rainfall S on put = METRI .STM .STM	dir.: H:\Si dir.: H:\Si dir.: H:\Si circle dir.: H:\Si circle dir.: H:\Si dir.: H:\Si dir.: H:\Si dir.: H:\Si	MMHYM-1\09 MMHYM-1\09 MM-1\09056 MM-1\09056 CHICAGO	9056D~1\ 9056D~1\ 9056D~1\ 60500000000000000000000000000000000000	O.STM DESIGN	DISTRI	BUT
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\Si dir.: H:\Si dir.: H:\Si circle dir.: H:\Si circle dir.: H:\Si dir.: H:\Si dir.: H:\Si dir.: H:\Si	MMHYM-1\09 MMHYM-1\09 MM-1\09056 MM-1\09056 CHICAGO	9056D~1\ 9056D~1\ 9056D~1\ 6000000000000000000000000000000000000	O.STM DESIGN	DISTRI	BUT
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\Si dir.: H:\Si dir.: H:\Si circle dir.: H:\Si circle dir.: H:\Si dir.: H:\Si dir.: H:\Si dir.: H:\Si	MMHYM-1\09 MMHYM-1\09 MM-1\09056 MM-1\09056 CHICAGO	9056D~1\ 9056D~1\ 9056D~1\ 6000000000000000000000000000000000000	O.STM DESIGN	DISTRI	BUT
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\Si dir.: H:\Si dir.: H:\Si circle dir.: H:\Si circle dir.: H:\Si dir.: H:\Si dir.: H:\Si dir.: H:\Si	MMHYM-1\09 MMHYM-1\09 MM-1\09056 MM-1\09056 CHICAGO	9056D~1\ 9056D~1\ 9056D~1\ 6000000000000000000000000000000000000	O.STM DESIGN	DISTRI	BUT
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\Si dir.: H:\Si dir.: H:\Si circle dir.: H:\Si circle dir.: H:\Si dir.: H:\Si dir.: H:\Si dir.: H:\Si	MMHYM-1\09 MMHYM-1\09 MM-1\09056 MM-1\09056 CHICAGO	9056D~1\ 9056D~1\ 9056D~1\ 6000000000000000000000000000000000000	O.STM DESIGN	DISTRI	BUT
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\St dir.:	MMHYM-1\09	9056D~1\ 9056D~1\ 9056D~1\ 601 601 602 602 603 603 603 603 603 603 603 603 603 603	0.STM DESIGN IN   hr   hr   50   50   50	DISTRI TIME 3.17 3.33 3.50 3.67 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START	Project Rainfall S on put = METRI .STM .STM	dir.: H:\St dir.:	MMHYM-1\09	9056D~1\ 9056D~1\ 9056D~1\ 601 601 602 602 603 603 603 603 603 603 603 603 603 603	0.STM DESIGN IN   hr   hr   50   50   50	DISTRI TIME 3.17 3.33 3.50 3.67 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START	Project Rainfall S on put = METRI .STM .STM .STM .STM .STM .STM .STM .STM	dir.: H:\St dir.:	MMHYM-1\09	9056D~1\ 9056D~1\ 9056D~1\ 60 60 60 60 60 60 60 60 60 60 60 60 60	0.STM DESIGN IN   hr   hr   50   50   50	DISTRI TIME 3.17 3.33 3.50 3.67 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
[ START	Project Rainfall S on put = METRI STM  STM	dir.: H:\St dir.:	MMHYM-1\09	9056D~1\ 9056D~1\ 9056D~1\ 60 60 60 60 60 60 60 60 60 60 60 60 60	0.STM DESIGN IN   hr   10   50   220   550   90	DISTRI TIME hrs 3.17 3.13 3.50 3.67 3.69 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START	Project Rainfall S on put = METRI .STM .STM .STM .STM .STM .STM .STM .STM	dir.: H:\Sidir.: H:\Si	WMHYM-1\09  ####YM-1\09  ###################################	9056D~1\ 9056D~1\ 9056D~1\ 9056D~1\ 601 601 601 601 601 601 601 601 601 601	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START	Project Rainfall S on put = METRI .STM .STM .STM .STM .STM .STM .STM .STM	dir.: H:\Sidir.: H:\Si	WMHYM-1\09  WM-1\09956  ed  WM-1\09956  CHICAGO  CHICAGO  CHICAGO  2.1  20   2.1  20   2.5  3.6	9056D~1\ 9056D~1\ 9056D~1\ 9056D~1\ 60]  50~1\CH1 1 HOURS 4E Res mm/ 25	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START	Project Rainfall S on put = METRI .STM .STM .STM .STM .STM .STM .STM .STM	dir.: H:\Sidir.: H:\Si	MMHYM-1\09	9056D~1\ 9056D~1\ 9056D~1\ 60 60 60 60 60 60 60 60 60 60 60 60 60	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.632
START	Project Rainfall S on put = METRI .STM .STM .STM .STM .STM .STM .STM .STM	dir.: H:\St dir.:	MMHYM-1\09	9056D~1\9056D~1\9056D~1\chi 9056D~1\chi 6]  6071\chi 1 HOURS 4E RA 65 mts 77 10.3 33 8.6 650 7.5 65 6.6 650 7.5 650 7.5 650 7.5 650 7.5 650 7.5 660 7.5 67 6.6 680 7.5	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.632
START	Project Rainfall S on put = METRI STM	dir.: H:\St dir.:	MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MM-1\09056 MMHYM-1\09056 MMHYM-1\09066 MMHYM-1\09056 MMHYM-1\09056 MMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMHYMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMHYM-1\09066 MMH	9056D~1\9056D~1\ 9056D~1\CHI 6]  6]  60 7.5 660 7.5 67 6.6 60 7.5	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START	Project Rainfall S on put = METRI STM	dir.: H:\Si dir.:	MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MMHYM-1\09 MM-1\09056	9056D~1\ 9056D~1\ 60 7.5 61 1 HOURS 4E RATE MARKET 10.3 3 8.6 60 7.5 57 6.6 60 7.5 57 6.6 60 7.5 60	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START       TZERO = .00 hr METGUT= 2 (out NRUN = 003 NSTORM= 1	Project Rainfall S on put = METRI S on put = METRI  .STM	dir.: H:\Si dir.:	MMHYM-1\09	9056D~1\9056D~1\9056D~1\frac{1}{6}}  60 7.5 66 7.5 66 7.5 6.6	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRII TIME hrs 3.17 3.67 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632
START       TZERO = .00 hr METGUT = 2 (out NRUN = 003 NSTORM = 1 - CH10       1003:0002	Project Rainfall S on put = METRI S on put = METRI  .STM	dir.: H:\St dir.:	MMHYM-1\09	9056D~1\9056D~1\9056D~1\frac{1}{6}}  60 7.5 66 7.5 66 7.5 6.6	0.STM DESIGN AIN   hr   110   160   120   150   180   190	DISTRI TIME MRS 3.17 3.23 3.50 3.83 4.00	BUT RAIN mm/hr 5.050 4.700 4.394 4.140 3.910 3.632

	FALL FFICIE	(mm) = (mm) = (mm) =	55.28 56.08 .99	18.07 56.08 .32		21.788 56.083 .389	
CH* (ii) TIME THAN	= 62. STEP THE S	O Ia : (DT) SHO TORAGE C	= Dep. Stor ULD BE SMAL OEFFICIENT.	VIOUS LOSSE: age (Above) LER OR EQUAI SEFLOW IF AI	i L		
03:0004							
i			*********	**********			
EXTERNAL AREA							
DESIGN NASHYD		- l Area	(ha)=	9.74 Cu	rve Numbe	er (CN)=6	2.00
02:CEM DT=	1.00		(ha) = (mm) = Tp(hrs) = .744	1.500 # « .500	of Linea:	Res.(N)=	3.00
BENY BLOW			226 (4)				
TIME TO PER RUNOFF VOIM TOTAL RAINS RUNOFF COE	AK UME FALL	(hrs) = (mm) = (mm) =	2.100 14,170 56.083				
(i) PEAK F	OU NO	ES NOT I	NCLUDE BASE	FLOW IF ANY.			
03:0005							
*********	*****	******	********	*******	*******	*********	
POST 2 - STREE				• • • • • • • • • • • • • • • • • • • •	******		
DESIGN STANDHY 03:POST 2 DT=		-	TMREDITTOILE	prpyrous		(%)= 16.00	)
Surface Are Dep. Storag Average Slo Length Mannings n	ea re	(ha) =	3.89 .80	3.60 1.50	, (1)		
Average Slo	ope	(8) = (m) =	1.50 223.46	1.50			
Max.eff.Int	en.(m	m/hr)= (min)	133.60 3.00	71.97 12.00			
Storage Cod Unit Hyd, 1 Unit Hyd, 1	eff. Ppeak peak	(min) = (min) = (cms) =	3,26 (. 3,00 ,35	71.97 12.00 11) 12.04 12.00 .09	(ii)	TOTALS*	
PEAK FLOW		(cms)=	.42 1.50			.658 (iii	i.)
TIME TO PER RUNOFF VOLU TOTAL RAINI RUNOFF COE	ME FALL FFICIE	(mm) = (mm) = (mm =	55.28 56.08 .99	.44 1.65 21.15 56.08 .38		26.614 56.083 .475	
CH* = (ii) TIME THAN	= 62. STEP THE S	0 Ia = (DT) SHOU TORAGE CO	= Dep. Stor. JLD BE SMAL DEFFICIENT.	VIOUS LOSSES age (Above) LER OR EQUAL SEFLOW IP AM			
03:0006					******		
POST 3 - STREE	ETS B,	F AND H	NOR GOES TO	POND ALONG	STREET 1	***********	******
POST 3 - STREE	ETS B,	F AND H	VOR GOES TO	POND ALONG	STREET 1	***********	******
POST 3 - STREI MAJOR STAYS ON CONTROL OF STAYS OF CONTROL OF CONTR	ETS B, STRE	F AND H ET B, MIN	NOR GOES TO	POND ALONG	********* STREET :	. * * * * * * * * * * * * * * * * * * *	
POST 3 - STREI MAJOR STAYS ON DESIGN STANDHY 04:POST3 DT=	ETS B, N STRE	F AND H ET B, MIN	NOR GOES TO  ***********  (ha)=   Imp(%)=	POND ALONG 5.20 54.00 Dir	STREET F	. * * * * * * * * * * * * * * * * * * *	
POST 3 - STREI MAJOR STAYS ON DESIGN STANDHY 04:POST3 DT=	ETS B, N STRE	F AND H ET B, MIN  Area  Total	NOR GOES TO  (ha)= 1 Imp(%)= IMPERVIOUS 2.81	POND ALONG  5.20 54.00 Dir  PERVIOUS 2.39	STREET F	. * * * * * * * * * * * * * * * * * * *	
POST 3 - STREI MAJOR STAYS ON DESIGN STANDHY 04: POST3 DT= Surface Are Dep. Storag Average Sic	ETS B, N STRE	F AND H ET B, MIN  Area  Total	NOR GOES TO  (ha)= 1 Imp(%)= IMPERVIOUS 2.81	POND ALONG  5.20 54.00 Dir  PERVIOUS 2.39	STREET F	. * * * * * * * * * * * * * * * * * * *	
DOST 3 - STREEMAJOR STAYS ON  DESIGN STANDHY 04: POST3 DT=  Surface Are Dep. Storag Average Slc Length Mannings n  Max.eff.Int	ETS B,  STRE  STRE  1.00  1.00  pa	F AND H ET B, MIH    Area   Total   (ha) =   (mm) =   (m) =   (m) =	(ha)=   Imp(%)=   Imp(%)=   Impervious 2.81 .80 1.50 186.19 .013 133.60	5.20 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250	STREET :	. * * * * * * * * * * * * * * * * * * *	
DOST 3 - STREEMAJOR STAYS ON  DESIGN STANDHY 04: POST3 DT=  Surface Are Dep. Storag Average Slc Length Mannings n  Max.eff.Int	ETS B,  STRE  STRE  1.00  1.00  pa	F AND H ET B, MIH    Area   Total   (ha) =   (mm) =   (m) =   (m) =	(ha)=   Imp(%)=   Imp(%)=   Impervious 2.81 .80 1.50 186.19 .013 133.60	5.20 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250	STREET :	. * * * * * * * * * * * * * * * * * * *	
DOST 3 - STREEMAJOR STAYS ON  DESIGN STANDHY 04: POST3 DT=  Surface Are Dep. Storag Average Slc Length Mannings n  Max.eff.Int	ETS B,  STRE  STRE  1.00  1.00  pa	F AND H ET B, MIH    Area   Total   (ha) =   (mm) =   (m) =   (m) =	(ha)=   Imp(%)=   Imp(%)=   Impervious 2.81 .80 1.50 186.19 .013 133.60	5.20 54.00 Dir PERVIOUS 2.39 1.50 1.50 40.00 .250	STREET I	(*************************************	
POST 3 - STREI MAJOR STAYS ON DESIGN STANDHY 04: POST3 DT= Surface Are Dep. Storag Average Sic Length Mannings n Max.eff.Int Storage Cote Unit Hyd. 7 Unit Hyd. 7	ETS B,  STRE  1.00  1.00  cea  je  cen. (mover  eff.  l'peak  ceak	F AND H ET B, MIN  Area    Area   Total  (ha) = (mm) = (m) = (min) = (	(ha)= (lap(%)= Imp(%)= IMPERVIOUS 2.81 .80 1.50 1.86 .013 133.60 2.93 (3.30 3.00 3.30 3.30	5.20 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250 81.90 11.00 (1) 11.26 11.00	STREET I	(*************************************	,,,,,,,,,,
POST 3 - STREI MAJOR STAYS ON DESIGN STANDHY 04: POST3 DT= Surface Are Dep. Storag Average Sic Length Mannings n Max.eff.Int Storage Cote Unit Hyd. 7 Unit Hyd. 7	ETS B,  STRE  1.00  1.00  cea  je  cen. (mover  eff.  l'peak  ceak	F AND H ET B, MIN  Area    Area   Total  (ha) = (mm) = (m) = (min) = (	(ha)= (lap(%)= Imp(%)= IMPERVIOUS 2.81 .80 1.50 1.86 .013 133.60 2.93 (3.30 3.00 3.30 3.30	5.20 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250 81.90 11.00 (1) 11.26 11.00	STREET : Conn.: : (i)	TOTALS* .492 (iii 1.517 27.102	,,,,,,,,,,
DOST 3 - STREEMAJOR STAYS ON  DESIGN STANDHY 04: POST3 DT=  Surface Are Dep. Storag Average Slc Length Mannings n  Max.eff.Int	ETS B,  STRE  1.00  1.00  cea  je  cen. (mover  eff.  l'peak  ceak	F AND H ET B, MIN  Area    Area   Total  (ha) = (mm) = (m) = (min) = (	(ha)= (lap(%)= Imp(%)= IMPERVIOUS 2.81 .80 1.50 1.86 .013 133.60 2.93 (3.30 3.00 3.30 3.30	5.20 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250 81.90 11.00 (1) 11.26 11.00	STREET :	(%)= 16.00 TOTALS* .492 (iii	,,,,,,,,,,
DOST 3 - STREI MAJOR STAYS ON THE MAJOR STAYS ON THE MAJOR STAYS ON THE MAJOR STAYS OF TH	ZO 1.00  1.00  1.00  cen. (mover fif.)  ceak  AK  MAE  MAE  FICIEI  FICIEI  CROCEDUI	F AND H ET B, MII    Area   Total     (ha) = (min = (min) = (m	MOR GOES TO   More	5.20 Dir 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250 81.90 11.00 .10 .33 1.63 21.73 56.08 .39	STREET :	TOTALS* .492 (iii 1.517 27.102 56.083	,,,,,,,,,,
POST 3 - STREEM MAJOR STAYS ON THE POST 3 DT STAYS ON THE POST S	CO 1.00  cen.(mm over iff. ppe with the control of	F AND H ET B, MIT  I Area   Total  (ha) = (mm) = (%) = (min) =	(ha)= [Imp(%)=  IMPERVIOUS 2.81 .80 1.50 186.19 .013 133.60 3.00 2.93 3.00 .38 .30 1.50 55.28 56.08 .99 PED FOR PER* - Dep. Storijub BE SMAIJ	5.20 54.00 Dir PERVIOUS 2.39 1.50 40.00 .250 81.90 11.00 11.00 11.00 .10 .33 1.63 21.73 56.08	STREET :	TOTALS* .492 (iii 1.517 27.102 56.083	,,,,,,,,,,
DOST 3 - STREEM MAJOR STAYS ON THE TO PER RUNOFF VOLL TOTAL RAINE RUNOFF COE (i) CN = (ii) THAM (iii) PEAK	ETS B, STRE	F AND H ET B, MIT    Area   Total     (ha) = (mm) = (%) = (min) = (min	(ha)= (ha)= 1 Imp(%)= Imp(%)= IMPERVIOUS 2.81 1.50 186.19 .013 133.60 3.00 2.93 (: 3.00 .38 .30 1.50 55.28 56.08 .99 PED FOR PER* - Dep. Stort, IND BE SMALL DEFFICIENT. INCLUDE BA:	5.20 54.00 Dir 52.00 1.50 1.50 1.50 2.39 1.50 2.50 81.90 11.00 10 .33 1.63 21.73 56.08 21.73 56.08 22.73 56.08 22.73 56.08 22.73 56.08 22.73 56.08 22.73 56.08 23.73	STREET : Conn.: .: (i) (ii)	TOTALS* .492 (iii 1.517 27.102 56.083 .483	
DOST 3 - STREI MAJOR STAYS ON  DESIGN STANDHY 04: POST3 DT=  Surface Are Dep. Storage Average Slo Length Mannings n  Max.eff.Int  Storage Coe Unit Hyd. 7 Unit Hyd. 7 Unit Hyd. 7 EAK FLOW TIME TO PER RUNOFF VOLU TOTAL RAINE RUNOFF COE  (i) CN PE (ii) TIME THAN (iii) PEAK	ETS B, STRE	F AND H ET B, MIT    Area   Total     (ha) = (mm) = (min) = (min) = (min) = (min) = (mn) = (m	(ha)= (ha)= (Imp(%)= Imp(%)= IMPERVIOUS 2.81 .80 1.50 186.19 .013 .300 .38 .300 .38 .300 .38 .300 .55.28 .600 .99 (t) .700	5.20 54.00 Dir 52.00 1.50 1.50 1.50 2.50 81.90 11.00 10 .33 1.63 21.73 56.08 39 //IOUS LOSSES age (Above)	STREET :	TOTALS* 492 (iii 1.517 27.102 56.083 483	
DOST 3 - STREEM MAJOR STAYS ON THE TO PER RUNOFF VOLL TOTAL RAINE RUNOFF COE (i) CN = (ii) THAM (iii) PEAK	D D D SST3	F AND H ET B, MII    Area   Total     (ha) = (min) = (	(ha)=   Imp(%)=   Imp(%)=   Impervious	5.20 54.00 Dir FERVIOUS 2.39 1.50 40.00 2.50 81.90 11.00 .10 .33 1.63 21.73 56.08 .39  VIOUS LOSSES age (Above) LER OR EQUAL SEPLOW IF AN	STREET :  Conn.: (ii)  (ii)  (ii)  (iii)  (cinlet)  (ninlet)  (tMJSTO)	TOTALS* .492 (iii 1.517 27.102 56.083 .483	(cms) (cms.)
POST 3 - STREI MAJOR STAYS ON  DESIGN STANDHY 04: POST3 DT=  Surface Are Dep. Storag Average Sid Length Mannings n  Max.eff.Int Storage Coe Unit Hyd. 7 Unit Hyd. 7 Unit Hyd. 7 Unit TO PEP RUNOFF VOLL TOTAL RAINE RUNOFF COE  (i) CN P  (ii) TIME (iii) THAM (iii) PEAK  O3:0007 COMPUTE DUALHY O3:40007 COMPUTE DUALHY TOTALHY O4:PC	CO 1.00  eage ppe  ean. (mm over ff. (peak ANN EALL STEP FICTE FICT FICTE FICT FICTE FICTE FICT FICTE FICT FICT FICT FICT FICT FICT FICT FICT	F AND H ET B, MII    Area   Total     (ha) = (min) = (	(ha)=   Imp(%)=   Imp(%)=   Impervious	5.20 54.00 Dir FERVIOUS 2.39 1.50 40.00 2.50 81.90 11.00 .10 .33 1.63 21.73 56.08 .39  VIOUS LOSSES age (Above) LER OR EQUAL SEPLOW IF AN	STREET :  Conn.: (ii)  (ii)  (ii)  (iii)  (cinlet)  (ninlet)  (tMJSTO)	TOTALS* .492 (iii 1.517 27.102 56.083 .483	(cms) (cms.)
DOST 3 - STREI MAJOR STAYS ON THE POST 3 - STREI MAJOR STAYS ON THE POST 3 DT STAYS ON THE POST 3 DT STAYS ON THE POST 3 DT STAYS ON THE TO PER KINGEF VOIL TOTAL RAINE RUNGEF COST (1) THE THE POST STAYS ON THE TO PER KINGEF VOIL TOTAL RAINE RUNGEF COST (1) THE THAN (111) PEAK	ten. (mm over te	F AND H ET B, MII    Area   Total     (ha) = (mm) = (%) = (min) = (min	(ha)=   Imp(%)=   Imp(%)=   Impervious	5.20 54.00 Dir 5.20 1.50 1.50 1.50 1.50 1.00 1.00 1.00 1.0	STREET :  Conn.: (ii)  (iii)  (iii)  (cinlet] (nulet] (mulet) (mulet) (mulet) (mulet) (mulet) (mulet) (mulet)	TOTALS* .492 (iii 1.517 27.102 4001400 - 0. R.V. (mm) 27.102	(cms) (cms) (cms) (cms)

			o. Doug	Tab value Din	
NOTE: PEAK FLO	WS DO NOT	INCLUDE BASER	LOWS IF ANY		
					_
003:0008		********	*********		*
* POST 1 - STREETS A			*******	*******	
DESIGN STANDHYD 08:INLET2 DT= 1.00	Area	(ha)= 10 Imp(%)= 40	.24 .00 Dir. (	Conn.(%)= 12.00	
			PERVIOUS (		
Surface Area	(ha)=	4.10 .80	6.14	•1	
Surface Area Dep. Storage Average Slope	(8)=	1.50	1.50		
Length Mannings n	(m) = =	261.28 .013	40.00		
Max.eff.Inten.(	rom/hr)=	133.60	48.13		
over Storage Coeff.	(min) (min) =	4.00	14.00 13.89 (i	1	
Unit Hyd. Tpeak Unit Hyd. peak	(min)=	4.00	14.00	••	
			.50	*TOTALS* .668 (iii)	
PEAK FLOW TIME TO PEAK	(cms)= (hrs)=	.42 1.50	1.70	1.533	
RUHOFF VOLUME TOTAL RAINFALL	(mn) =	55.28 56.08	18.81 56.08	23.184 56.083	
RUNOFF COEFFICI	ENT =	.99	. 34	,413	
$CN^* = 62$ (ii) TIME STEP	.0 Ia = (DT) SHOU STORAGE CO	EFFICIENT.	(Above) OR EQUAL		
003:0009					-
*				******	
* INLET ONE - EXT AR	EAS, POST	2 AND MINOR P	OST 3		
**************	********	*********	,,,,,,,,,,,,	******************	
ADD HYD (INLET1)	ID: NHYD	AREA (ha)	QPEAK TPE	K R.V. DWF (mm) (cms)	
ID1	01:DONLY 02:CEM	18.70 9.74	(cms) (hrs 1.061 1.6	68 21.79 .000 .0 14.17 .000	
		7.49	.236 2.1 .658 1.5	0 14.17 .000 2 26.61 .000 7 27.10 .000	
+1D4 +1D5	05:3MIN 08:INLET2	7,49 5,08 10,24	.400 1.4	2 26.61 .000 7 27.10 .000 3 23.18 .000	
222				3 21.85 .000	
		CLUDE BASEFLO			
					-
003.0010					_
				*********	*
	********	******	*********		- *
* INLET TWO (FUTURE)	- POST 4	- STREETS P,	Ο WMD Ε		*
INLET TWO (FUTURE)	- POST 4	- STREETS P,	Ο WMD Ε	***********	*
A INLET TWO (FUTURE)	- POST 4	- STREETS P,	.72	***********	*
DESIGN STANDHYD 09: INLET3 DT= 1.00	- POST 4	- STREETS P,  (ha) = 5 Imp(%) = 45 IMPERVIOUS	Q AND R .72 .00 Dir. C	conn. (%)= 15.00	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage	- POST 4   Area   Total   Tota	- STREETS P,  (ha)= 5 Imp(%)= 45 IMPERVIOUS 2.57 .80	.72 .00 Dir. C PERVIOUS (3 3.15 1.50	conn. (%)= 15.00	*
* INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length	- POST 4   Area   Total   Total   (ha) = (rm) = (%) = (m) = (%) = (m) = (%) =	- STREETS P,  (ha) = 5 Imp(%) = 45 IMPERVIOUS 2.57 .80 1.50 195.28	Q AND R .72 .00 Dir. C PERVIOUS (3 3.15 1.50 1.50 40.00	conn. (%)= 15.00	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n	- POST 4	- STREETS P,  (ha) = 5 Imp(%) = 45 IMPERVIOUS 2.57 .80 1.50 195.28 .013	Q AND R  .72 .00 Dir. C  PERVIOUS (3 3.15 1.50 40.00 .250	conn. (%)= 15.00	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IHLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.(	- POST 4    Area   Total	- STREETS P,  (ha) = 5 Imp(%) = 45 IMPERVIOUS 2.57 .80 1.50 195.28	Q AND R .72 .00 Dir. C PERVIOUS (3 3.15 1.50 1.50 40.00	conn. (%)= 15.00	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMAET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff.	- POST 4    Area   Total	- STREETS P,  {ha} = 5 Imp(%) = 45 IMPERVIOUS 2.50 1.50 1.50 1.50 2.50 3.00 3.00 3.00 3.00 3.00	Q AND R  .72 .00 Dir. C  PERVIOUS (1 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11	fonn.(%)= 15.00	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.(	- POST 4    Area   Total   (ha) = (mm) = (%) = (min) =	- STREETS P,  (ha) = 5 Imp(%) = 45 IMPERVIOUS 2.57 .80 1.50 195.28 .013 133.60 3.00	Q AND R  .72 .00 Dir. C  PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00	fonn.(%)= 15.00	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	- POST 4    Atea   Total     (ha) = (mm) = (8) = (min) = (min) = (min) = (min) = (cms)	- STREETS P,  (ha) = 5 Imp(%) = 45  IMPERVIOUS 2.57 .80 1.50 195.28 .013  133.60 3.00 3.01 (ii) 3.7	Q AND R  .72 .00 Dir. C  PERVIOUS 3.15 1.50 40.00 .250 55.15 13.00 12.77 13.00 .09	*TOTALS* .448 (iii)	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak  PEAK FLOW TIME TO PEAK	- POST 4    Area   Total	(ha) = 5 Imp(8) = 45 IMP(8V = 45 IMPRENVIOUS 2.57 .80 15.50 155.28 .013 .133.60 3.00 3.01 3.10 3.00 .37 .30 1.50 55.28	Q AND R  .72 .00 Dir. 6 3.15 1.50 40.00 .250 55.15 13.00 12.77 13.00 .09 .30 1.68 19.49	*TOTALS* .448 (iii) 1.517 24.859	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak  PEAK FLOW TIME TO PEAK	- POST 4    Area   Total	- STREETS P,  {ha} = 5 Imp(%) = 45 IMPERVIOUS 2.50 1.50 1.50 1.50 2.50 3.00 3.00 3.00 3.00 3.00	.72 .00 Dir. C PERVIOUS 3.15 1.50 40.00 .250 55.15 13.00 12.77 13.00 .09 .30 1.68	*TOTALS* .448 (iii) 1.517	•
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten. ( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak TIME TO FEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI	- POST 4    Area   Total     (ha) = (mm) = (min) = (min) = (min) = (min) = (cms) = (cms) = (min) = (mi	(ha) = 5 Imp(F) = 45 IMP(FV) = 45 1150 155.28 .013 .00 3.01 3.00 3.01 (ii) 3.00 .37 .30 .30 .30 .30 .30 .30 .30 .30 .30 .30	Q AND R  .72 .00 Dir. C FERVIOR 5 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35	*TOTALS* .448 (iii) 1.517 24.859 56.083	*
DESIGN STANDHYD    DESIGN STANDHYD   09:INLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak RUNOFF VOLUME TOTAL BAINFALL RUNOFF COEFFICI.  (1) CN PROCED	- POST 4    Atea   Total	(ha) = 5 Imp(8) = 45 IMP(8V) = 45 IMPREVIOUS 2.57 .80 15.28 .13.60 3.00 3.01 3.01 3.13.60 3.01 3.01 3.01 55.28 66.08 .99	Q AND R  .72 .00 Dir. ( 3.15 1.50 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35	*TOTALS* .448 (iii) 1.517 24.859 56.083	*
INLET TWO (FUTURE)  DESIGN STANDHYD  OF: INLETS DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Peak FLON TIME TO FEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI  (1) CH PROCED CH' = 62 (11) TIME STEP TRAN THE	- POST 4    Area   Total	(ha) = 5 Imp(R) = 45 45 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 2.013 133.60 3.00 3.01 (ii) 3.00 3.01 (ii) 3.00 3.05 5.28 56.28 56.08 99 ED FOR PERVIO Dep. Storage LD BE SMALLER	2 AND R  .72 .00 Dir. C FERVIOUS (3 3.15 1.50 40.00 .250 55,15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL	*TOTALS* .448 (iii) 1.517 24.859 56.083	*
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Peak TOTAL RAINFALL RUNGFF COEFFICI  (i) CH FROCED CM' = 62 (ii) TIME STEP THAN THE {iii) PEAK FLOW	- POST 4    Area   Total    (ha)= (mm)= (%)= (min)=	(ha)= 5 Imp(f)= 45 Imp(f)= 45 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 3.00 3.01 3.01 3.00 3.01 1.50 55.28 56.08 .99 ED FOR PERVIO Dep. Storage LD BE SMALLER EFFICIENT.	2 AND R  .72 .00 Dir. C  PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	- * *
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. TPeak Unit Hyd. Peak Unit Hyd. Peak FLOW TIME TO PEAK RUNOFF COEFFICI  (i) CN PROCED CN' = 62 (ii) TIME STEP THAN THE (iii) PEAK FLOW  003:0011	- POST 4    Area   Total	(ha) = 5 Imp(f) = 45 Imp(f) = 45 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 2.013 133.60 3.00 3.01 (ii) 3.00 3.01 (ii) 3.00 3.05 55.28 56.08 99 ED FOR PERVIO Dep. Storage LD BE SMALLER EFFICIENT. INCLUDE BASEF	2 AND R  .72 .00 Dir. C PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .440 (iii) 1.517 24.659 5.6093 .443	•
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMAET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Theak Unit Hyd. Theak Unit Hyd. Peak Unit Hyd. Peak TOTAL PAINFALL RUNOFF COEFFICI  (i) CH PROCED (ii) TIME STEP THMU THE  (iii) PEAK FLOW  003:0011	- POST 4    Area   Total	(ha) = 5 Imp(f) = 45 Imp(f) = 45 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 2.013 133.60 3.00 3.01 (ii) 3.00 3.01 (ii) 3.00 3.05 55.28 56.08 99 ED FOR PERVIO Dep. Storage LD BE SMALLER EFFICIENT. INCLUDE BASEF	2 AND R  .72 .00 Dir. C PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	•
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Peak Unit Hyd. Peak FLOW TIME TO PEAK RUNOFF COEFFICI  (i) CN PROCED CN' = 62 (ii) TIME STEP THAN THE (iii) PEAK FLOW  003:0011	- POST 4    Area   Total	(ha) = 5 Imp(f) = 45 Imp(f) = 45 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 2.013 133.60 3.00 3.01 (ii) 3.00 3.01 (ii) 3.00 3.05 55.28 56.08 99 ED FOR PERVIO Dep. Storage LD BE SMALLER EFFICIENT. INCLUDE BASEF	2 AND R  .72 .00 Dir. C PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.659 56.083 .443	
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Peak Unit Hyd. Peak FLOW TIME TO PEAK RUNOFF COEFFICI  (i) CN PROCED CN' = 62 (ii) TIME STEP THAN THE (iii) PEAK FLOW  003:0011	- POST 4    Area   Total	(ha) = 5 Imp(f) = 45 Imp(f) = 45 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 2.013 133.60 3.00 3.01 (ii) 3.00 3.01 (ii) 3.00 3.05 55.28 56.08 99 ED FOR PERVIO Dep. Storage LD BE SMALLER EFFICIENT. INCLUDE BASEF	2 AND R  .72 .00 Dir. C PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .440 (iii) 1.517 24.659 5.6093 .443	
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMAET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. Theak Unit Hyd. Theak Unit Hyd. Peak Unit Hyd. Peak TOTAL PAINFALL RUNOFF VOLUME TOTAL PAINFALL RUNOFF COEFFICE  (i) CH PROCED CH = 62 (ii) TIME STEP THMU THE (iii) PEAK FLOW  003:0011	- POST 4    Atea   Total	(ha) = 5 Imp(i) = 45 Imp(i) = 45 IMPFERVIOUS 2.57 .80 1.50 1.50 1.50 3.00 3.01 (ii) 3.00 .37 .30 1.50 55.28 56.08 .99 ED FOR PERVIO Dep. Storage LD BE SMALLER EFFICIENT, INCLUDE BASEF	Q AND R  .72 .00 Dir. C  PERVIOUS 3.15 1.50 40.00 .250 55.15 13.00 12.77 (ii 13.00 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.899 56.083 .443	
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. TPeak Unit Hyd. Peak FLOW TIME TO FEAK RUNOFF COLFFICI  (1) CH PROCED CH = 62 (11) TIME STEP THAN THE (111) PEAK FLOW  003:0011	- POST 4    Area   Total	STREETS P,	2 AND R  .72 .00 Dir. C PERVIOUS (3 3.15 1.50 40.00 .250 55.15 13.00 12.77 (11 13.00 .99 .30 1.69 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. TPeak Unit Hyd. Peak FLOW TIME TO FEAK RUNOFF COLFFICI  (1) CH PROCED CH = 62 (11) TIME STEP THAN THE (111) PEAK FLOW  003:0011	- POST 4    Area   Total	STREETS P,	2 AND R  72 .00 Dir. C FERVIOUS 1 3.15 1.50 40.00 .250 55,15 13.00 12.77 (11 13.00 .09 .30 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.( over Storage Coeff. Unit Hyd. TPeak Unit Hyd. Peak FLOW TIME TO FEAK RUNOFF COLFFICI  (1) CH PROCED CH = 62 (11) TIME STEP THAN THE (111) PEAK FLOW  003:0011	- POST 4    Area   Total	(ha)= 5 Imp(f)= 4 Imp(f)= 5 Imp(f)= 45 Imp(f)= 6 Imp(f)=	Q AND R  .72 .00 Dir. C  PERVIOUS (1 .50 1.50 40.00 .250 55.15 13.00 1.68 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	
DESIGN STANDHYD   09:INLET3 DT= 1.00   Surface Area Dep. Storage Average Slope Length Mannings n Max.eff.Inten.(cover Storage Coeff. Unit Hyd. Theak Unit Hyd. Theak Unit Hyd. Theak Unit Hyd. PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI. (1) CM PROCED CM' = 62 (ii) THE STEP THAN THE (iii) PEAK FLOW O03:0011	- POST 4    Area   Total	- STREETS P,  (ha) = 5 Imp(1) = 45 Imp(2) = 50 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 1.50 3.00 3.01 1.30 3.01 3.00 3.01 1.50 55.28 56.08 .99 ED FOR PERVIO Dep. Storage EFFICIENT, INCLUBE BASEF  (ha) = 4 Imp(5) = 50 IMPERVIOUS 2.12 .80 1.50 167.93	Q AND R  .72 .00 Dir. C  PERVIOUS (1 .50 .55.15 .13.00 .250 .55.15 .13.00 .1.68 .19.49 .56.08 .35 US LOSES: (Above) OR EQUAL LOW IF ANY.  .23 .00 Dir. C  PERVIOUS (1 .150 .150 .150 .150 .150 .150 .150 .15	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	
DESIGN STANDHYD   09: INLET3 DT= 1.00   Surface Area Dep. Storage Average Slope Length Mannings n   Max.eff.Inten. (cover Storage Coeff. Unit Hyd. TPEAK FLOW TIME TO FFAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI (1) CM PROCED CM' = 62 (ii) THE STEP TRAIN THE (iii) PEAK FLOW   O03:0011	- POST 4    Atea   Total   (%) = (%)	- STREETS P,  (ha) = 5 Imp(1) = 4 Imp(1) = 5 IMPERVIOUS 2.57 .80 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.5	Q AND R  .72 .00 Dir. ( 3.15 1.50 1.50 40.00 .250  55.15 13.00 1.69 19.49 56.08 .35 US LOSSES: (Above) OR EQUAL LOW IF ANY.  .23 .00 Dir. ( PERVIOUS (1 2.12 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	
DESIGN STANDHYD   09: INLET3 DT= 1.00   Surface Area Dep. Storage Average Slope Length Mannings n   Max.eff.Inten. (cover Storage Coeff. Unit Hyd. TPEAK FLOW TIME TO FFAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI. (i) CN PROCED CN' = 62 (ii) THE STEP TRAIN THE (iii) PEAK FLOW   O03:0011	- POST 4    Atea   Total   (%) = (%)	- STREETS P,  (ha) = 5 Imp(1) 45  IMPREVIOUS 2.57 .80 1.50 1.50 1.50 1.50 3.00 3.01 1.30 3.01 3.00 1.50 55.28 56.08 .99  ED FOR PERVIOUS EFFICIENT. INCLUDE BASEF  (ha) = 4 Imp(8) = 50  IMPERVIOUS 2.12 .80 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.5	Q AND R	*TOTALS* .448 (iii) 1.517 24.659 56.083 .443	
DESIGN STANDHYD   09:INLET3 DT= 1.00   Surface Area Dep. Storage Average Slope Length Mannings n   Max.eff.Inten.(cover Storage Coeff. Unit Hyd. TPEAK FLOW TIME TO FEAK RUNOFF VOLUME TOTAL BAINFALL RUNOFF COEFFICI.  (1) CN PROCED CN' = 62 (ii) TIME STEP TRAN THE (iii) PEAK FLOW O03:0011	- POST 4    Atea   Total   (mm) = (%) = (mm) = (min) =	- STREETS P,  (ha) = 5 Imp(1) = 4 Imp(1) = 5 103	Q AND R  .72 .00 Dir. (6 .73, 15 .150 .1, 50 .1, 50 .1, 50 .2, 50 .2, 50 .2, 77 .13, .00 .2, 60 .2,	*TOTALS* .448 (iii) 1.517 24.659 56.083 .443	
INLET TWO (FUTURE)  DESIGN STANDHYD  O9:IMLET3 DT= 1.00  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Inten.(	- POST 4    Atea   Total   (mm) = (%) = (mm) = (min) =	- STREETS P,  (ha) = 5 Imp(1) 45 Imp(2) 45 IMPREVIOUS 2.57 .80 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.5	Q AND R  .72 .00 Dir. 6 PERVIOUS (1 3.15 1.50 40.00 .250 55.15 13.00 1.69 19.49 56.08 .35 US LOSSES: (Above) on EQUAL LOW IF ANY.  .23 .00 Dir. 6 PERVIOUS (1 2.12 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.700 1.65 17.00 16.94 117.00 16.94 117.00 16.94 117.00 117.00	*TOTALS* .448 (iii) 1.517 24.659 56.083 .443	
DESIGN STANDHYD   09:INLET3 DT= 1.00   Surface Area Dep. Storage Average Slope Length Mannings n   Max.eff.Inten.(cover Storage Coeff. Unit Hyd. TPEAK FLOW TIME TO FEAK RUNOFF VOLUME TOTAL BAINFALL RUNOFF COEFFICI.  (1) CN PROCED CN' = 62 (ii) TIME STEP TRAN THE (iii) PEAK FLOW O03:0011	- POST 4    Area   Total	(ha) = 5 Imp(f) = 4 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50	Q AND R  .72 .00 Dir. (6 .73, 15 .150 .1, 50 .1, 50 .1, 50 .2, 50 .2, 50 .2, 77 .13, .00 .2, 60 .2,	*TOTALS* .448 (iii) 1.517 24.859 56.083 .443	

RUNOFF VOLUM TOTAL RAINFA RUNOFF COEFF	E (mm) = LL (mm) =	55.28	1.4				
	ICIENT =	56.08 .99	14. 56.	08 25	34.7 56.0 .6	83	
CN* ≃ (ii) TIME S	62.0 I. TEP (DT) S	ECTED FOR PER a = Dep. Stor HOULD BE SMAL COEFFICIENT.	age (Abo LER OR EO	SES: Ve) UAL			
(iii) PEAK F	LOW DOES N	OT INCLUDE BY	SEFLOW IF	ANY.			
03:0012	********	*********	******	*******	******	******	
TOTAL INFLOW TO	POND THIS	T1. INLET2. T	NLETS AND	SWM ARE	ea.		
************						******	
ADD HYD (PNDIN	, , 1D: ин 	YD AREA (ha) ET3 5.72 ET1 51.25 4.23	(cms)	(hrs)	(mm)	(cms)	
+	ID1 09:INL ID2 07:INL	ET3 5.72 ET1 51.25	.448 2.787	1.52	24.86 21.85	.000	
f.	ID3 01:SWM	4.23	.783	1.50	34.73	.000	
		IN 61.20					
NOTE: PEAK FLA	OWS DO NOT	INCLUDE BASE	FLOWS IF	ANY.			
03:0013		,					
ROUTE RESERVOIR	Re	quested routi	ng time s	tep = 1	.0 min.		
OUT<03: (CNTRL )		OUTL	FOW STORA	GE TABLE			
	00:	rflow stor (cms) {ha.:	AGE   ·	(cms)	STOR.	AGE m.)	
		30000, 00002	+00   -02	.274	.7485E	+00 +00	
		.017 .11208	-01 -01	688	9986E	+00	
		.028 .7580E	-01	1.223	1263E	+01	
		.032 .1445E	+00 I	1.855	.1401E	+01	
		.039 .3273E .042 .4254E	+00   +00	2.204	.1667E	+01 +01	
		.045 .5274E	+00 i	000	,0000E	+00 +00	
ROUTE RESERVOIR IN-02: (PNDIN ) OUT-03: (CNTRL )	rme	2002	ODEAN	ע בט מון		v	
		AREA (ha) 61.20 61.20	QPEAK (cms) 3.943 .623 .000	TPEAK (hrs) 1.517 3.083	R	rum)	
INFLOW >02: OUTFLOW<03:		61.20 61.20	3.943 .623	1.517 3.083	23.	922 922	
OVERFLOW<04:		.00	.000	.000		000	
	TOTAL T ATTO	MBER OF SIMUL	ATED OVER	FLOWS =		0	
	TOTAL NO	ID STAIR OF OUR	DD DY OTTO			~ ~	
	CIDARLANTS	OF TIME OF OUR	POPLOMS	=(hours) =(عُ)	· , ·	00 00	
	CUMULATI PERCENTA	VE TIME OF OV GE OF TIME OV	erflows Erflowing	(%)=	: ,(	00	
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: <b></b>	CUMULATI PERCENTA  PEAK FI TIME SHII MAXIMUM	VE TIME OF OVI GE OF TIME OVI LOW REDUCTION FT OF PEAK FIAN STORAGE USI	ERFLOWS ERFLOWING ON [Qout/ OW ED	(%) = Qin] (%) = (min) = (ha.m.) =	15,86 94.0 9620E+0	00 00 00	
POST 6 - STREET	PEAK FI TIME SHI MAXIMUM	VE TIME OF OVI	ERFLOWS ERFLOWING ON [Qout/	(%) =  Qin] (%) =  (min) =  (ha.m.) =	: 15.84 : 94.4 : 9620E+4	00 09 00 00	*****
POST 6 - STREET	PEAK FITTIME SHITMAXIMUM	VE TIME OF OVI	ERFLOWS ERFLOWING ON [Qout/one DOW [Qout/one	(%) =  Qin] (%) =  (min) =  (ha.m.) =	: 15.84 : 94.4 : 9620E+4	00 09 00 00	*****
POST 6 - STREET	PEAK FI TIME SHII MAXIMUM  B  A  A  A  O  O  T  T  T  T  T  T  T  T  T  T  T	VE TIME OF OVI GE OF TIME OVI LOW REDUCTION FOR FRAK FIA STORAGE USI	ERFLOWS ERFLOWING  ON [Qout/on	(%) =  Qin] (%) =  (min) =  (ha.m.) =	: 15.86 : 94.1 : 9620E+6	000	*****
POST 6 - STREET	PEAK FI TIME SHII MAXIMUM  B  A  A  A  O  O  T  T  T  T  T  T  T  T  T  T  T	VE TIME OF OVI GE OF TIME OVI LOW REDUCTION FOR FRAK FIA STORAGE USI	ERFLOWS ERFLOWING  ON [Qout/on  ON [And on  ON [Cout/on  ON  ON [Cout/on  ON [Cout/	(%) =  Qin] (%) =  (min) =  (ha.m.) =	: 15.86 : 94.1 : 9620E+6	000	*****
POST 6 - STREET  DESIGN STANDHYD 05:POST6 DT= 1.	PEAK FI TIME SHII MAXIMUM  B  A  A  A  O  O  T  T  T  T  T  T  T  T  T  T  T	VE TIME OF OVI GE OF TIME OVI LOW REDUCTION FOR FRAK FIA STORAGE USI	ERFLOWS ERFLOWING  ON [Qout/on  ON [And on  ON [Cout/on  ON  ON [Cout/on  ON [Cout/	(%) =  Qin] (%) =  (min) =  (ha.m.) =	: 15.86 : 94.1 : 9620E+6	000	*****
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POST 6 - STREET  DESIGN STANDHYD 05:POST6 DT= 1.  Surface Area Dep. Storage Average Slope Length Mannings n  Max.eff.Intor	PEAK FI PEAK F	VE TIME OF OVI GE OF TIME OVI LOW REDUCTIT TO P FRAK FIA STORAGE USI LOW REDUCTIT STORAGE USI LOW REDUCTIT STORAGE USI LOW REDUCTION OF THE STORAGE USING	ERFLOWS ERFLOWING  ON (Qout/ OW ED  6.00 26.00  PERVI 1 1 40 2.2	(%) = (%) = (min) = (ha.m.) = (ha.m.	: 15.86 : 94.1 : 9620E+6	000	*****
POST 6 - STREET  DESIGN STANDHYD 05:POST6 DT= 1.  Surface Area Dep. Storage Average Slop- Length Mannings n  Max.eff.Intor	PEAK FI PEAK F	VE TIME OF OVI GE OF TIME OVI LOW REDUCTIT TO P FRAK FIA STORAGE USI LOW REDUCTIT STORAGE USI LOW REDUCTIT STORAGE USI LOW REDUCTION OF THE STORAGE USING	ERFLOWS ERFLOWING  ON (Qout/ OW ED  6.00 26.00  PERVI 1 1 40 2.2	(%) = (%) = (min) = (ha.m.) = (ha.m.	: 15.86 : 94.1 : 9620E+6	000	*****
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POST 6 - STREET  DESIGN STANDHYD 05:POST6 DT= 1.  Surface Area Dep. Storage Average Slopt Length Mannings n  Max.eff.Intor OSTORAGE Coeff Unit Hyd. Tpc Unit Hyd. Des PEAR FLOW TIME TO PFAR RUNOFF VOLUME TOTAL RAINFAR RUNOFF COEFF (1) CN PROC CM* = (11) TIME SS TRAN TI (111) FFAR FI 03:0015	CUMULATIT PERCENTAN PEAK FI TIME SHILL MAXIMUM    Art   00   Tof   (ma) =   (ms) =     (ms) =   (ms) =     (ms) =   (ms) =     (ms) =   (ms) =     (cms) =   (cms) =     (cms) =	VE TIME OF OVI EEE OF TIME OVI LOW REPUCTIT LOW REPUCTIT LOW REPUCTIT STORAGE USI  A hal =  Lal Imp(%) =  IMPERVIOUS 1.56 1.56 200.00 0.13 33.60 3.00 3.70 1.50 55.28 56.08 99 ECTED FOR PERK A = Dep. Store IOULD BE SMALL OCEFFICIENT. TI INCLUDE BAS	ERFLOWS ERFLOWING  ON (Qout/ OW ED  6.00 26.00  PERVI 4. 1. 40. 22. 33. 15. 16. 16. 56. VIOUS LOSS age (Abouter of EQU	(%) = (%) = (min) = (man) = (m	** 15.88 * 94.1 * 94.2	9.00	
POST 6 - STREET  DESIGN STANDHYD 05:FOST6 DT= 1.  Surface Area Dep. Storage Average Slop- Length Mannings n  Max.eff.Intor OSTORAGE Coeff Unit Hyd. Tpc Unit Hyd. Tpc Unit Hyd. Tpc FEAK FLOW TIME TO PFAK RUNGFF VOLUME TOTAL RAINFAL RUNGFF COEFF) (1) CM PROC CM' = (1) TIME SI TIM	PEAK FI PERCENTAY PEAK FI TIME SHILL MAXIMUM    Art   00   Tot   (mal =   (	VE TIME OF OVI EEE OF TIME OVI LOW REDUCTION LOW REPUCTION TO OF PERK FIL STORAGE USI  A hal =  Lal Imp(8) =  IMPERVIOUS 1.56 .80 .150 .200.00 .013 .33.60 .3.05 .3.00 .37 .19 1.50 .55.28 .56.08 .99 ECTED FOR PERK A = Dep. Stora LOULD BE SMALL OCEFFICIENT. TO INCLUDE BAS	ERFLOWS ERFLOWING  ON (Qout/ OW ED  6.00 26.00  PERVI 4. 1. 40. 22. 33. 15. 16. 16. 56. VIOUS LOSS age (Abouter of EQU	(%) = (%) = (min) = (man) = (m	** 15.88 * 94.1 * 94.2	9.00	
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POST 6 - STREET  DESIGN STANDHYD 05:POST6 DT= 1.  Surface Area Dep. Storage Average Slop- Length Mannings n  Max.eff.Inter Storage Coeff Unit Hyd. Tpc Unit Hyd. Tpc Unit Hyd. Tpc PEAK FLOW TIME TO PEAK RUNGF VOLUME TOTAL RAINFAL RUNGF COEFF (11) TME ST TTAN TI (111) PEAK FI  03:10015	PEAK FI PERCENTAY PERCENTAY PERCENTAY PEAK FI	WE TIME OF OVI EEE OF TIME OVI EEE OF TIME OVI LOW REDUCTII. EYE OF PERK FIL STORAGE USI  DA (ha)= Cal Imp(8)=  IMPRIVIOUS 1.50 200.00 3.05 133.60 3.05 133.60 3.05 1.50 200.00 3.7 19 1.50 55.28 56.08 .99 ECTED FOR PERM EDEN STORAGE COEFFICIENT, OT INCLUDE BASE  COEFFICIENT, OT INCLUDE BASE  COEFFICIENT, OT ARPA (ha)  CAPPA (ha)	ERFLOWS ERFLOWING  BREPLOWING  ON [Qout/ OW  6.00 26.00  PERVI  4.1 1.1 1.1 1.5 1.1 1.5 56.4 VIOUS LOSS age (About Ler Or Equity  VIOUS Ler Or Equity  VIO	(%) = (%) = (min) = (min) = (ma.m.)	** 15.88 ** 94.4 ** 9620E+4 ** 9620E+4 ** 15.88	9.00 9.00 9.00 9.00	
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Max. eff.Into or Storage Coefi Unit Hyd. Tpe Unit Hyd. Tpe Unit Hyd. Tpe Unit Hyd. Tpe EEX FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFAIR RUNOFF COEFF  (1) CH PROC CH* = (11) TIME 33 THAN TI (11) PEAK FI  103:0015	PEAK FI PERCENTAY PERCENTAY PERCENTAY PEAK FI TIME SHILL MAXIMUM    Article   Article   Article	WE TIME OF OW.  LOW REDUCTIT.  ET OF PERA FIL.  STORAGE USI  Cal Imp(8)=  IMPREVIOUS  1.56  .80  .80  .90  .150  .3.00  .3.7  .19  1.50  .55.28  .56.08  .99  CCTED FOR PERA  DESCRIPTION PERA	ERFLOWS ERFLOWING  ON [Qout/ OW ED  6.00 26.00  PERVI 4 1 15 15 15 16 56 VIOUS LOSSage (Abouter of Abouter of A	(%) = (%) = (min) = (min) = (ha.m.) = (ha.m.) =	** 15.88 ** 94.1 **.9620E+1 **.96	9.00  DWF (cms) .000 .000 .000	
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	3						
*******	******	*******	*****	*****	******	*****	
START	-   Project	dir.: H:	SWMIIYM	-1\0905	6D~1\		
	<ul> <li>Rainfal</li> </ul>	l dir.: H:	SWHIIYM	1\0905	6D~1\		
TZERO = .00 h METOUT= 2 (ou NRUN = 004	tput = MET	RIC)					
NSTORM= 1 # 1=CH2	5.STM						
004:0002							
# Project Name: (	DECOU)	Project Nur	mber: [(	9056)	******		*******
## Date : 1 ## Modeller : (' ## Company : G	1-06-2009 TGS]						
*# Modeller : (' *# Company : G *# License # :	3568969	ANTIGG DIM					
004:0002							
READ STORM	- l Filen	ame: H:\SW	MIIYM~1\(	9056D~	1\CH25.ST	4	
Ptotal= 66.02 mm	_	ame: H:\SW nts: 25 YE	AR CHICA	GO 4 H	OUR DESIG	DISTRI	BUTI
TIME hrs	RAIN (	TIME H	RAIN   n/hr   .670	TIME hrs	RAIN   mm/hr   12.320	TIME hrs	RAIN mm/hr
.17 .33	4.500   4.980	1,33 27	.690	2.33	10.440	3.33	6.270 5.000
.50 .67	6.450	1,67 35.	, 080 (	2.67	9.144   8.150	3.67	5.840 5.180
.83 1.00	7.700   9.700		.600 ( .240 (	2.83 3.00	7.390 6.780	3.83 4.00	4.900 4.650
			<b>.</b>				
004:0003	********			*****	*******		*******
EXTERNAL AREA - D	ONLY DRIVE						
*******	**********		******	*****	******	******	*****
DESIGN STANDHYD 01:DONLY DT= 1.0	Area   Total	(ha)= 1 Imp(%)=	18.70 35.00	Dir.	Conn. (%)=	= 10.00	)
		IMPERVIOUS	5 PER	RVIOUS	(1)		
Surface Area Dep. Storage Average Slope	(ha) = (mm) =	6.55 .80	3	2.16 1.50			
Length	(m) =	.80 1.50 353.08		1.50			
Mannings n	-	.013		.250			
Max.eff.Inten. ove: Storage Coeff.	(mm/hr)= r (min)	158.85 4.00	1	3.00 3.00 3.39 (			
Unit Hyd, Tpea Unit Hyd, peak	k (min)=	4.01 ( 4.00 .28	1	.09	11,		
PEAK FLOW	(cms)=	.74		1.23		TALS* 496 (11:	.)
TIME TO PEAK RUNOFF VOLUME	(hrs)= (em)=	1.50 65.22	2	1.67	1.	650 920	
TOTAL RAINFALL RUNOFF COEFFIC	(mm) =	66.02 .99	6	.36		023 423	
		TED FOR PER					
		= Dep. Stor ULD BE SMAI	LLER OR	bove) EQUAL			
$CN^* = 62$ (ii) TIME STE	P (DT) SHOW						
$CN^* = 62$ (ii) TIME STE	P (DT) SHOW STORAGE CO	DEFFICIENT.		IF ANY	•		
CN* = 62 (ii) TIME STEI THAN THE (iii) PEAK FLOI	P (DT) SHOW STORAGE CO	DEFFICIENT.		IF ANY	• 		
CM* = 6: (ii) TIME STEIN THAN THE (iii) PEAK FLOW	P (DT) SHOW	DEFFICIENT.	ASEFLOW				*******
CN+ = 6: (ii) TIME STE; THAN THE (iii) PEAK FLOT  104:0044	P (DT) SHOT STORAGE CO W DOES NOT	DEFFICIENT.	ASEFLOW			.,,,,,,,,	4+++++
CN* = 6: (i) TIME STEIL THAN THE (iii) PEAK FLOI  004:0004 EXTERNAL AREA - CI	P (DT) SHOT STORAGE CO W DOES NOT EMETARY	DEFFICIENT.	ASEFLOW	*****	******	******	*****
CN* = 6:  (ii) TIME STEIL THAN THE (iii) PEAK FLOI  104:0004	P (DT) SHOT STOPAGE CON DOES NOT	DEFFICIENT.	9.74	******  ******  Curv	******	******	*****
CN* = 6:  (ii) TIME STEI THAN THE (iii) PEAK FLOI  004:0004	P (DT) SHOI STOPAGE CX W DOES NOT EMETARY Area 0 i Ia U.H.	(ha) = (mm) = Tp(hrs) =	9.74 1.500	******  ******  Curv		******	*****
CN* = 6:  (ii) TIME STEIL THAN THE (iii) PEAK FLOI  104:0004	P (DT) SHOT STORAGE COW DOES NOT  EMETARY  Area 0   Ia  U.H.  (cms)=	(ha)= (ma)= Tp(hrs)=	9.74 1.500	******  ******  Curv	*******	******	*****
CN* = 6:  (ii) TIME STEI THAN THE (iii) PEAK FLOI  DESIGN NASHYD 02:CEM DT= 1.00  Unit Hyd Qpeak	P (DT) SHOT STORAGE CO N DOES NOT  EMETARY    Area 0   Ia	(ha)= (mm)= Tp(hrs)= .744	9.74 1.500	******  ******  Curv	*******	******	*****
CN* = 6:  (ii) TIME STEI THAN THE (iii) PEAK FLOI  DESIGN NASHYD 02:CEM DT= 1.00  Unit Hyd Qpeak	P (DT) SHOT STORAGE CO N DOES NOT  EMETARY    Area 0   Ia	(ha)= (mm)= Tp(hrs)= .744	9.74 1.500	******  ******  Curv	*******	******	*****
CN* = 6:  (ii) TIME STEIL THAN THE (iii) PEAK FLOI  104:0004  EXTERNAL AREA - CI  DESIGN NASHYD 02:CEM D7= 1.00  Unit Hyd Qpeak FEAK FLOW TIME TO FEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI	P (DT) SHOT SHOT STORAGE (CM) DOES NOT CM CM DOES NOT CM	(ha)= (mm)= Tp(hrs)= .744 .309 (i) 2.083 18.906 66.023 .286	9.74 1.500	+>***	*******	******	*****
CN* = 6:  (ii) TIME STEI THAN THE (iii) PEAK FLOI  DESIGN NASHYD 02:CEM DT= 1.00  Unit Hyd Qpeak	P (DT) SHOT SHOT STORAGE (CM) DOES NOT CM CM DOES NOT CM	(ha)= (mm)= Tp(hrs)= .744 .309 (i) 2.083 18.906 66.023 .286	9.74 1.500	+>***	*******	******	*****
CN* = 6:  (i1) TIME STEIL THAN THE (i11) PEAK FLOI  104:0004 EXTERNAL AREA - CI  DESIGN NASHYD 02:CEM DT= 1.00  Unit Hyd Qpeak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI (1) PEAK FLON I	P (DT) SHOT SHOT STORAGE (N DOES NOT L)  EMETARY    Area 0   Ia	(ha)= (ma)= Tp(hrs)=	9.74 1.500 .500	Curv	e Number Linear Re	(CN)=6; es,(N)= 3	00
CN* = 6:  (ii) TIME STEIL THAN THE (iii) PEAK FLOI  104:0004 EXTERNAL AREA - CI  DESIGN NASHYD 02:CEM DT= 1.00  Unit Hyd Qpeak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI (i) PEAK FLON I	P (DT) SHOT STORAGE (N DOES NOT L)  EMETARY    Area 0   Ia	(ha)= (ma)= Tp(hrs)=	9.74 1.500 .500	Curv	e Number Linear Re	(CN)=6; es,(N)= 3	00
CN* = 6:  (11) TIME STEIL THAN THE (111) PEAK FLOI  D04:0004  EXTERNAL AREA - CI  EXTERNAL AREA - CI  DESIGN NASHYD  02:CEM DT= 1.00  Unit Hyd Qpeak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAHFALL RUNOFF COEFFICI (1) PEAK FLON I	P (DT) SHOT SHOT STORAGE (N DOES NOT L)  EMETARY    Area 0   Ia	(ha)= (ma)= Tp(hrs)= .309 (i) 2.083 18.906 66.023 .286 KCLUDE BASE	9.74 1.500 .500	CUEV # of	e Number Linear Re	(CN) =63	.,00
CN* = 6:  (11) TIME STEIL THAN THE (111) PEAK FLOI  (1004-0004	EMETARY  EMETARY  Area    Area    I area    (ins) = (i	(ha)= (mm)= 744 .309 (i) 2.083 18.906 66.023 .206 ICLUDE BASE	9.74 1.500 .500	CUEVE H OF	o Number Lânear Re	(CN)=66	
CN* = 6:  (11) TIME STEIL THAN THE (111) PEAK FLOI  (111) PEAK FLOI  (111) PEAK FLOI  DESIGN NASHYD  G2:CEM DT= 1.01  Unit Hyd Qpeak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI (1) PEAK FLON I	EMETARY  EMETARY  Area    Area    I area    (ins) = (i	(ha)= (mm)= 744 .309 (i) 2.083 18.906 66.023 .206 ICLUDE BASE	9.74 1.500 .500	CUEVE H OF	o Number Lânear Re	(CN)=66	
CN* = 6:  (11) TIME STEIL THAN THE (111) PEAK FLOI  1004:0004	P (DT) SHOT STORAGE (CM) DOES HOT COM DOES HOT IN COMPANY COM DOES HOT IN COMPANY	(ha)= (mm)= Tp(hrs)= .744 .309 (i) .206 .66.023 .206 .6CLUDE BASE	9.74 1.500 .500	CUEVE H OF	o Number Lânear Re	(CN)=66	
CN* = 6:  (i1) TIME STEIL THAN THE (i11) PEAK FLOI  104:0004	P (DT) SHOT SHOT STOPAGE (CM) DOES NOT IN COME (CM) = (CMS) =	(ha)= (mm)= Tp(hrs)= .744 .309 (i) .206 .66.023 .286 .6CLUDE BASE	9.74 1.500 .500	Curv # of	o Number Lânear Re	(CN)=66	

Max.eff.Inten.(mm/hr)=	158.85	101.61		
over (min) Storage Coeff. (min)=	3.00 3.05 ()	11.00 () 10.69 ()	11	
Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =	3.00	101.61 11.00 i) 10.69 (i 11.00 .10		
onize njar peak (ems)			*TOTALS*	
TIME TO PEAK (hrs)=	1.50	1.63	.886 (iii) 1.517	
PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT =	65.22 66.02	.62 1.63 27.55 66.02	33,580 66,023	
RUNOFF COEFFICIENT =	.99	.42	.509	
(i) CN PROCEDURE SELEC	TED FOR PERV	IOUS LOSSES:		
CN* = 62.0 Ia (ii) TIME STEP (DT) SHO	NULD BE SMALL	ER OR EQUAL		
THAN THE STORAGE C (iii) PEAK FLOW DOES NOT	OEFFICIENT.	EFLOW IF ANY.		
04:0006				
POST 3 - STREETS B, F AND F	ŧ			
MAJOR STAYS ON STREET B, MI	NOR GOES TO	POND ALONG ST	REET H	
******************	*********	*******		• • • • •
DESIGN STANDBYD   Area	(ha)=	5.20		
DESIGN STANDBYD   Area 04:POST3 DT= 1.00   Tota	1 Imp(%)≂	54.00 Dir.	Conn.(%)= 16.00	
			i)	
Dep. Storage (mm)=	.80 1.50	1.50 1.50		
Surface Area (ha) = Dep. Storage (mm) = Average Slope (%) = Length (m) = Mannings n =	186.19	40.00		
Max.eff.Inten.(mm/hr) = over (min) Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =	158.85 3.00	116.66 10.00		
Storage Coeff. (min)=	2.73 (i.	i) 9.96 (i	<b>i</b> )	
		.11	*TOTALS*	
PEAK FLOW (cms)=	.35	.46	.667 (iii) 1.517	
PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (nm) = TOTAL RAINFALL (nm) = RUNOFF COEFFICIENT =	.35 1.50 65.22 66.02	.46 1.62 28.26		
TOTAL RAINFALL (mm) = BUNOFF COEFFICIENT =	66.02 .99	66.02 .43	66.023 .518	
(i) CN PROCEDURE SELEC			, 510	
CN* = 62.0 1a	= Dep. Stora	ge (Above)		
(ii) TIME STEP (DT) SHO	ULD BE SMALL	ER OR EQUAL		
THAN THE STORAGE C (iii) PEAK FLOW DOES NOT	OEFFICIENT.	PRION IF ANY.		
(III) THE THON DOLD NOT	INCLUDE DAD	2000 11 78111		
04:0007				
TotalHyd 04:POST3   Numb	aye iniet cap er of inlets	in system (N	INLET) = .400 (CI	u <b>5</b> }
COMPUTE DUALHYD   Aver TotalHyd 04:POST3   Numb Tota	1 minor syste	em capacity	= .400 (cr MJSTO) = 0.(cu	ns) .m.\
ID: NHYD TOTAL HYD. 94:POST3	(ha)	(cms) (1	hrs) (mm) (cm:	1)
				==
MAJOR SYST 06:3MAJ MINOR SYST 05:3MIN	.50 4.70	.267 1 .400 1	.517 34.171 .00 .433 34.171 .00	) () () ()
NOTE: PEAK FLOWS DO NOT				
	*******		.,,	****
POST 1 - STREETS A, H, I, J	**************************************			
POST 1 - STREETS A, H, I, J	**************************************			
POST 1 - STREETS A, H, I, J	AND E	**************************************	******	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota	AND E  {ha}= 1  Imp(%)=	10.24 10.00 Dir.	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota	AND E  thal= 1  Imp(%)= 4  IMPERVIOUS	10.24 40.00 Dir.	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota	AND E  thal= 1  Imp(%)= 4  IMPERVIOUS	10.24 40.00 Dir. ( PERVIOUS (: 6.14 1.50	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota	AND E  thal= 1  Imp(%)= 4  IMPERVIOUS	10.24 40.00 Dir. ( PERVIOUS () 6.14 1.50 1.50 40.00	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota	AND E  (ha)= 1 Imp(8)= 4.10 .00 1.50 261.28 .013	10.24 40.00 Dir. ( PERVIOUS (: 6.14 1.50	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   tha)= Dep. Storage   tmm)= Average Slope   the   the   Mannings n =	(ha)= 1 Imp(%)= 1 Imp(%)= 4.10	10.24 40.00 Dir. ( PERVIOUS (. 6.14 1.50 1.50 40.00 .250 70.85	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   (ha) = Dep. Storage   (hma) = Average Slope   (%) = Length   (m) = Mannings n =  Max.eff.Inten.(mm/hr) = over (min) Storage Coeff	AND E  (ha)= 1  Imp(R)= 4  1 Imp(R)= 4  1.50  261.28  .013  158.85  3.00  3.34  (iii)	PERVIOUS ( 6.14 1.50 40.00 250 70.85 12.00	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   (ha) = Dep. Storage   (hma) = Average Slope   (%) = Length   (m) = Mannings n =  Max.eff.Inten.(mm/hr) = over (min) Storage Coeff	AND E  (ha)= 1  Imp(R)= 4  1 Imp(R)= 4  1.50  261.28  .013  158.85  3.00  3.34  (iii)	PERVIOUS (1 6.14 1.50 1.50 1.250 70.85 12.00 (1 12.18 (1 12.00 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1	Conn. (%)= 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Hannings n  Max.eff.Inten.[mm/hr]= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	(ha)= 1 Imp(8)= 4.10	PERVIOUS (1 6.14 1.50 1.50 1.50 70.85 12.00 (1) 12.18 (1) 12.00 (1) 0.09	Conn. (%) = 12.00	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area (ha)= Dep. Storage (ma)= Average Slope (%)= Length (m)= Mannings n  Max.eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	(ha)= 1 Imp(8)= 4.10	PERVIOUS ( 6.14 1.50 40.00 250 70.65 12.00 1.12 12.18 (i:	Conn. (%) = 12.00  L)  *TOTALS* .924 (iii)	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area (ha)= Dep. Storage (ma)= Average Slope (%)= Length (m)= Mannings n  Max.eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	(ha)= 1 Imp(8)= 4.10	PERVIOUS (: 6.14 1.50 1.50 250 70.85 12.00 12.18 (1: 12.00 .09 .73 1.65 24.69	Conn. (%) = 12.00 L)  *TOTALS*  .924 (iii) 1.533 29.551	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   (ha) = Dep. Storage   (hma) = Average Slope   (%) = Length   (m) = Mannings n =  Max.eff.Inten.(mm/hr) = over (min) Storage Coeff	(ha)= 1 Imp(8)= 4.10	PERVIOUS ( 6.14 1.50 40.00 250 70.65 12.00 12.18 (i: 12.00 .09 .73 1.65	Conn. (%) = 12.00  1)  *TOTALS*  .924 (iii) 1.533	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   (ha) = Dep. Storage   (ma) = Average Slope   (†) = Length   (m) = Mannings n =  Max.eff.Inten.[mm/hr] = over (min) Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = Time To PEAK FLOW   (cms) = TIME TO PEAK   (hrs) = RUNOFF VOLUME   (man) = TOTAL RAHREALL   (man) = RUNOFF COEFFICIENT =	AND E	70.24 40.00 Dir. 6 6.14 1.50 1.50 40.00 .250 70.65 12.00 12.18 (i: 12.00 .09 .73 1.65 24.69 66.02 .37	Conn.(%)= 12.00  1)  *TOTALS*	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area (ha) = Dep. Storage (ma) = Average Slope (%) = Length (m) = Max.eff.Inten.(mn/hr) = over (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) = PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (ma) = TOTAL RAHHEALL (ma) = RUNOFF COEFFICIENT =  (1) CN PROCEDURE SELEC	(ha)= 1 Imp(%)= 4.10 (ha)= 1.50 (261.28 (ha)= 3.34 (hi) 3.00 (hi) 3.55 (hi) 65.22 (hi) 66.02 (hi) 79 TED FOR PERVI	PERVIOUS (: 6.14 1.50 1.50 250 70.85 12.00 1) 12.19 (1: 12.00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES:	Conn.(%)= 12.00  1)  *TOTALS*	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLETZ DT= 1.00   Tota  Surface Area (ha)= Dep. Storage (ma)= Average Slope (%)= Length (mi)= Max.eff.Inten.(mm/hr)= over (min)= Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= FEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= TOTAL RAINFALL (mm)= (1) CN PROCEDURE SELEC CN* = 62.0 I ac (ii) INME STEP (DT) SHO	(ha) = 1 Imp(%) = 4 Imp(%) = 4 ImpERVIOUS 4.10 .80 1.50 261.29 .013 158.85 3.00 3.34 (ii) 3.00 .35 .51 1.50 65.22 66.02 .99 TED FOR PERVI	PERVIOUS (: 6.14 1.50 1.50 250 70.85 12.00 1) 12.19 (1: 12.00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES:	Conn.(%)= 12.00  1)  *TOTALS*	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area (ha) = Dep. Storage (ma) = Average Slope (%) = Length (m) = Max.eff.Inten.(mm/hr) = over (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) = PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (ma) = TOTAL PARHEALL (ma) = RUNOFF COEFFICIENT =  (1) CN PROCEDURE SELEC	Table   Tabl	PERVIOUS (1 6.14 1.50 1.50 4.00 .250 70.85 12.00 12.18 (1:00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES: 14 (Above) 2: OR EQUAL	Conn.(%)= 12.00  1)  *TOTALS*	
Surface Area (ha)= Dep. Storage (ma)= Average Slope (%)= Length (m)= Mannings n =  Max.eff.Inten.(mm/hr)= over (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAHHFALL (mm)= TOTAL RAHHFALL (mm)= (1) CN PROCEDURE SELEC CN* = 62.0 I a (ii) THME STEP (DT) SHO THAN THE STORAGE C (iii) PEAK FLOW DOES NOT	(ha)= 1 Imp(%)= 4.10	PERVIOUS ( 6.14 1.50 1.50 1.50 1.50 1.250 1.50 1.65 1.2.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	Conn. (%) = 12.00  1)  *TOTALS* .924 (iii) 1.533 29.551 66.023 .448	****
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   (ha) = Dep. Storage   (ma) = Average Slope   (3) = Length   (ms) = Mannings n =  Max.eff.Inten.(mm/hr) = Over (min) Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Peak (min) = TIME TO PEAK (hrs) = RUNOFF VOLUME   (mm) = RUNOFF VOLUME   (mm) = RUNOFF COEFFICIENT =  (1) CN PROCEDURE SELEC CN* = 62.0   Ia (11) TIME STEP (DT) SIGO THAN THE STORAGE C (111) PEAK FLOW DOES NOT	Table   Tabl	PERVIOUS (1 6.14 1.50 1.50 40.00 .250 70.05 12.00 12.18 (1:10.00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES: 14 (Above) CR OR EQUAL 22FLOW IF AMY.	Conn. (%) = 12.00  L)  *TOTALS* .924 (iii) 1.533 29.551 66.023 .448	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area	(ha)= 1 1 Imp(%)= 4.10 . 80 1.50 261.28 .013 158.85 3.00 3.34 (i) 3.00 3.55 1.50 65.22 66.02 .99 TED FOR PERVI	PERVIOUS (6.14 1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50	Conn. (%) = 12.00  L)  *TOTALS* .924 (iii) 1.533 29.551 66.023 .448	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area	Table   Tabl	PERVIOUS (6.14 1.50 1.50 40.00 .250 70.85 12.00 12.18 (ii 12.00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES: 12 (Above) ER OR EQUAL EFLOW IF ANY.	Conn. (%) = 12.00  1)  *TOTALS*	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area	Table   Tabl	PERVIOUS (6.14 1.50 1.50 40.00 .250 70.85 12.00 12.18 (ii 12.00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES: 12 (Above) ER OR EQUAL EFLOW IF ANY.	Conn. (%) = 12.00  1)  *TOTALS*	
POST 1 - STREETS A, H, I, J  DESIGN STANDHYD   Area 08:INLET2 DT= 1.00   Tota  Surface Area   (ha) = Dep. Storage   (ma) = Average Slope   (i) = Length   (m) = Mannings n =  Max.eff.Inten.(mm/hr) = Over (min) Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = TIME TO PEAK (hrs) = RUNOFF VOLUME   (mm) = TOTAL RAINEALI   (mm) = RUNOFF COEFFICIENT =  (1) CN PROCEDURE SELEC CN* = 62.0   Ia (ii) TIME STEP (DT) SHO IT HAM THE STORAGE C (iii) PEAK FLOW DOES NOT	(ha)= 1 Imp(8)= 4.10	PERVIOUS (6.14 1.50 1.50 40.00 .250 70.85 12.00 12.18 (ii 12.00 .09 .73 1.65 24.69 66.02 .37 (OUS LOSSES: 12 (Above) ER OR EQUAL EFLOW IF ANY.	Conn. (%) = 12.00  1)  *TOTALS* .924 (iii) 1.533 29.551 66.023 .448	

				(	G. 1	Dougla	s Val.	l.ee	Limited
	+1D3	03:POST 2 05:3MIN 08:INLET2	7.49		.886	1.52	33.58	.000	
	+1D5	08:INLET2	10.24		.924			.000	
		07:INLET1					27.93	.000	
NOTE: PE	AK FLOWS	DO NOT INC	LUDE BAS	EFLOR	7S IF	ANY.			
004:0010			******	****	****		******		******
INLET TWO	(FUTURE)	- POST 4 -	STREETS	P, Q	AND	R			
			******		****	*******	*******	****	******
DESIGN STA   09:INLET3	ИДНҮД DT= 1.00	Area   Total	(ha)= Imp(%)=	5. 45.	72	Dir. Con	n.(%)=	15.00	
Surface	Area	(ha)=	MPERVIOU. 2.57	5	3.	. 15			
Dep. St Average	orage Slope	(ha) = (mm) = (%) = (m) = (m) = =	.80 1.50		1. 1.	.50 .50			
					.2	250			
Max,eff	. Inten. (1 over	nm/hr)= (min)= (min)= (min)= (cms)=	158.85 3.00		92 11	20			
Storage Unit Hy	Coeff, d. Tpeak	(min) = (min) =	2.81 3.00	(ii)	11.	13 (11) .00			
							*TOTALS		
PEAK FL	PEAK	(cms) = (hrs) = (mm) = (mm) =	.36 1.50 65.22		1 . 25 .	63	.624 1.517 31.480	(111	)
TOTAL R	AINFALL COEFFICIA	= (mm) = THE	66.02		66.	. 02 . 39	66.023 .477		
		JRE SELECTE		RVIOU					
(ii) T	N* = 62. IME STEP	.O Ia = (DT) SHOUL	Dep. Sto. D BE SMA	rage LLER	(Abo	ve)			
T (iii) P	HAN THE S	STORAGE COE DOES NOT I	FFICIENT NCLUDE B	Asefl	OW II	ANY.			
004:0011									
* POST 5 - S	WM AREA								
**********			*******	****	****	******	*******	****	******
DESIGN STA	DT= 1.00	Area Total	(ha) = Imp (%) =	4. 50.	23 00	Dir. Con	n.{%}= !	50.00	
		 I	MPERVIOU:	s		ous (i)			
Surface Dep. St	Area orage	(ha) = (mm) =	2.12		2.	50			
Average Length Manning	Slope	(ha) = (mm) = (8) = (m) =	167.93		40,				
namzny	5		1013			24			
Storage	over Coeff.	m/hr)= (min) (min)=	158.85 3.00 2.57 3.00	(11)	15.	00			
Unit Hy Unit Hy	d. Tpeak	(min) = (cms) =	3.00	,	15.	00			
							*TOTALS*	(iii)	<b>)</b>
TIME TO RUNOFF	PEAK VOLUME	(hrs) = (mm) =	1.50 65.22		1. 18. 66.	72 91	1.500 42.065		
TOTAL R	AINFALL COEFFICIE	(cms) = (hrs) = (mm) = (mm) =	66.02 .99			02 29	66.023 .637		
(i) C	N PROCEDU	RE SELECTE	D FOR PE	RVIOU					
(11) T	IME STEP	0 Ia = (DT) SHOUL	D BE SMAL	LLER	OR EC	UAL			
(iii) P	EAK FLOW	TORAGE COE DOES NOT I	NCLUDE BA	ASEFI.	OW IF	ANY,			
004:0012									
*********	*******	********	******	* * * * *	****	******	*******	****	******
* TOTAL INFLO									
********									******
! ADD HYD (PI	( NIDN	ID: NHYD 09:INLET3 07:INLET1 01:SWM	AREA (ha)	Q (	PEAK cms)	TPEAK (hrs)	R, V, (mm)	DWF (cms)	
	+1D2	09:INLET3 07:INLET1	5.72 50.87	3	.624 .718	1,52	31.48 27,93	.000	
	MMM								
NAME. DE		02:PNDIN DO NOT INC				1.52	29.25	.000	
NOIE: PE								<b>.</b> .	
004:0013									
ROUTE RESEI   IN>02:(PNI   OUT<03:(CNT	RVOIR	Reques	ted routi	ing t	ime s	tep = 1	,0 min.		
OUT<03: (CN	FRL )	OUTFLO					STORAGE		
		(cms	) (ha	m 1	- 1	(cms) 274	(ha.m.)	)	
		.00	9 .1800F 7 .1120F	-02 -01	I	.464 .688	.8718E+00 .9986E+00 .1129E+01	)	
		. 02	3 3440F	-01 -01	İ	,942 1,223	.1129E+01		
		.03	2 14451	00+3 00+3	Í		.1401E+01	l	
		.03	9 .3273E 2 .4254E	+00	į	2.204	.1697E+01		
		.04		00+2	1	.000	.0000E+00	)	
ROUTING	RESULTS	***			AK		R.V.		
			(ha)	(cm	s)	(hrs)	(mm)		

ID1 01:DONLY +ID2 02:CEM

```
INFLOW >02: (PNDIN )
OUTFLOW<03: (CNTRL )
OVERFLOW<04: (PNDOVR)
                                                           5.172
                                            60.82
                                                           .931
                           TOTAL NUMBER OF SIMULATED OVERFLOWS = CUMULATIVE TIME OF OVERFLOWS (hours) = PERCENTAGE OF TIME OVERFLOWING (%) =

        PEAK
        FLOW
        REDUCTION
        [Qout/Qin](%)=
        17.995

        TIME SHIFT OF PEAK
        FLOW
        [min]=
        82.00

        MAXIMUM
        STORAGE
        USED
        (ha.m.)=.1123E+01

 POST 6 - STREET B
   DESIGN STANDHYD |
05:POST6 DT= 1.00 |
                                   Area \{ha\}= 6.00
Total Imp\{\$\}= 26.00 Dir, Conn,\{\$\}= 9.00
                                          IMPERVIOUS
                                                              PERVIOUS (1)
        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                             MPERVIOU
1,56
,80
1,50
200,00
.013
                                                                 4.44
1.50
1.50
40.00
.250
                                (ha)=
(mm)=
(%)=
(m)=
                                             158.85
3.00
2.85 (ii)
3.00
        Max.eff.Inten.(mm/hr)=
                                                                 49.40
13.00
13.05 (ii)
13.00
        over (min)
Storage Coeff, (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd, peak (cms)=
                                                 .39
                                                                   . 09
                                                                                    *TOTALS*
.431 (iii)
1.667
                             (cms) =
(hrs) =
(mm) =
(mm) =
EHT =
                                               .23
1.50
65.22
        PEAK FLOW
TIME TO PEAK
RUNOFF VOLUME
TOTAL RAINFALL
                                                                    . 37
                                                                 1.67
21.94
                                                                                     25.836
                                               66.02
                                                                 66.02
                                                                                     66.023
        RUNOFF COEFFICIENT
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 62.0 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.
 004:0015-----
   POST DEVELOPMENT FROM SITE
 | ADD HYD (PSTDEV) | ID: NHYD
                                                AREA
                                                            OPEAK
                                                                        TPEAK
                                                                                 R.V.
                                                                                              DWF
                                                             (cms)
.931
.000
                                                (ha)
60.82
                                                                        (hrs) (mm)
2.88 29.25
                                                                                             (cms)
                       ID1 03:CNTRL
+ID2 04:PNDOVR
+ID3 05:FOST6
                                               .00
6.00
.50
                                                                                               .000 **DRY**
                                                                                 .00
25.84
                                                              .431
                                                                                               .000
                       +ID4 06:3MAJ
                                                                         1.52
                                                                                 34.17
                                                                                               .000
                        SUM 07:PSTDEV 67.32
                                                            1.014
                                                                        2.75 28.98
                                                                                              .000
    NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
*************************************
005:0002-----
                              Filename: H:\SWMHYM~1\09056D~1\CH50.STM
Comments: 50 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTI
 | READ STORM
               72.96 mm
                             RAIN ( mm/hr | 3.990 | 4.450 | 5.080 | 5.970 | 7.290 | 9.530 |
                    TIME
                                           TIME
                                                      RAIN
                                                                  TIME
                                                                              RATH
                                                                                           TIME
                                                                                                      RATH
                                        TIME RAIN | hrs mm/hr | hrs mm/hr | 1.17 | 14.270 | 1.33 | 33.900 | 1.50 | 186.560 | 1.67 | 44.810 | 1.63 | 23.440 | 2.00 | 16.260 |
                                                                           RAIN |
mm/hr |
12.620 |
10.390 |
8.890 |
7.800 |
6.960 |
6.300 |
                                                                  nrs
2.17
2.33
2.50
2.67
2.83
3.00
                                                                                                     mm/hr
5.790
5.330
4.980
4.650
4.370
4.140
                                                                                           hrs
3.17
3.33
3.50
3.67
3.83
4.00
005:0003-----
```

* EXTERNAL AREA - DO		*****	********	*******
DESIGN STANDHYD   01:DONLY DT= 1.00	Area   Total	{ha}= Imp(%)=	18.70 35.00 Dir.	Conn.(%)= 10.00
Surface Area Dep. Storage Average Slope Length Mannings n	(ha) = (mm) = (%) = (m) =	IMPERVIOUS 6.55 .80 1.50 353.08 .013	S PERVIOUS 12.16 1.50 1.50 40.00 .250	(5)
Max.eff.Inten.( over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	mm/hr)= (min)= (min)= (min)= (cms)=	186.56 4.00 3.76 4.00	81,71 12.00 (ii) 12.10 ( 12.00 .09	ii) *TOTALS*
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI	(cms) = (hrs) = (nm) = (nm) =	.80 1.50 72.16 72.96	28.03	2.014 (iii) 1.633 32.444 72.962 .445
$CN^* = 62$ (ii) TIME STEP	.0 Ia = (DT) SHOU STORAGE CO DOES NOT	Dep. Sto: LD BE SMAI EFFICIENT INCLUDE B	ASEFLOW IF ANY	
005:0004	********			**********
				**********
DESIGN MASHYD   02:CEM DT= 1.00	Area   Ia U.H.	(ha) = (mm) = Tp(hrs) =	9.74 Curv 1.500 # of	e Number (CN)=62.00 Linear Res.(N)= 3.00
Unit Hyd Qpeak		.744		
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICE	(cms) = (hrs) = (mm) = (mm) = ENT =	.400 (1) 2.067 22.483 72.962 .308		
(i) PEAK FLOW D	DES NOT IN	CLUDE BASI	EFLOW IF ANY.	
005:0005		*******		**************************************
* POST 2 - STREET A,		******		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
DESIGN STANDHYD   03:POST 2 DT= 1.00	   Area   Total	{ha}= Imp(%}=	7.49 52.00 Dir.	Conn. (%) = 16.00
Surface Area Dep. Storage Average Slope Length Mannings n	(ha)=	3.89 3.89 .80 1.50 223.46 .013	3.60	(i.)
Max.eff.Inten.(	mm/hr) = (min) = (min) = (min) =		136.76 10.00	
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICII	(mm) ==	.60 1.50 72.16 72.96 .99	,83 1,62 32,28 72,96 ,44	*TOTALS* 1.161 (111) 1.533 38.661 72.962 .530
$CN^* = 62$ (ii) TIME STEP	.0 Ia = (DT) SHOU: STORAGE CO	Dep. Stor LD BE SMAI EFFICIENT.		
005:0006				*********
* POST 3 - STREETS B, * MAJOR STAYS ON STRE	FAND H	OR GOES TO	FOND ALONG S	
DESIGN STANDHYD	   Area	(ha)=	5,20	
1 04:POST3 DT= 1.00		Imp(%)= IMPERVIOUS		
Surface Area Dep. Storage Average Slope Length Mannings n	(ha) =	2.81 .80 1.50 186.19 .013	2.39	,
Max.eff.Inten.(n over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	m/hr)= (min) (min)= (min)= (cms)=	186.56 3.00 2.56 3.00 .42	152.68 9.00 (ii) 9.06 (: 9.00 .13	
	(cms) = (hrs) = (mm) = (mm) =	.42 1.50 72.16 72.96 .99	.62 1.60 33.06 72.96 .45	*TOTALS*     .073 (iii) 1.517 39.321 72.962 .539

(i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:

(1) (	N PROCEI	2.0 Ia =	ED FOR PERVI Dep. Storag LD BE SMALLE	e (Above	S; }			
(ii) T	IME STEE	OT) SHOU	LD BE SMALLE EFFICIENT.	R OR EQUA	L			
(iii) P	EAK FLOW	DOES NOT	INCLUDE BASE	FLOW IF A	NY.			
005:0007								
			go inlat car	acities	ICTRLE	T1 =	400	(cms)
COMPUTE DU   TotalHyd C	4:POST3	Numbe	r of inlets	in system	[HINLE	T) =	1	(CMD)
		Total Total	manor systemajor systemajor	m capacit m storage	y (TMJST	0) =	0. (	(cms)
	11	: NHYD	AREA	QPEAK	TPEAK	R.	٧.	DWF
TOTAL H	YD. 0/	: POST3	AREA (ha) 5,20	(cms)	(hrs)	4m 39.3	m) ( 21	ms) .000
			******					
MINOR S	YST 05	: 3MIN	,97 4.23	.400	1.400	39.3	21	000
NOTE:	PEAK FLO	OWS DO NOT	INCLUDE BASE	FLOWS IF	ANY.			
005:0008	*******		*********			* * * * * * *	*****	*****
* POST 1 - S	TOPETE A	х. н. т. л	AND E					
*					*****		******	
DESIGN STA	DT= 1.00	)   Area	Imp(%)= 4	0.00 Di	r. Conn	. (%)=	12.00	
			TMDEDWIGHTS	DEDUTAL	S (i)			
Surface Nen. Sh	Area			6.14 1.50				
Average Length	Tobe	(%) = (m) =	.80 1.50 261.28 .013	1.50 40.00				
Manning		=	.013	.250				
Max.eff	.Inten.	(mm/hr)=	186.56 3.00 3.14 (iii 3.00 .36	95.32				
Storage	ove: : Coeff.	(min) (min)=	3.00 3.14 (ii	11.00	(ii)			
Unit Hy Unit Hy	d. Tpeak	(min)= (cms)=	3.00 .36	11.00				
						*TOTAL	s* 7 (ili)	
TIME TO	PEAK	(hrs)=	1.50	.99 1.63 29.06 72.96		1.53	3	
RUNOFF TOTAL F	VOLUME AINFALL	(mm) =	72.16	72.96		34.23 72.96	2	
RUNOFF	COEFFIC	ENT =	.60 1.50 72.16 72.96 .99	.40		. 46	9	
(1) (	N PROCEI	DURE SELECT	ED FOR PERVI	OUS LOSSE	S:			
(ii) T	IME STE	(DT) SHOU	Dep. Storac	R OR EQUA	ī,			
			EFFICIENT. INCLUDE BASE	FLOW IF A	NY.			
005:0009	****		******	*****		******	*****	*****
* INLET ONE	_ PVT AT	DENG DOGT	2 AND MINOR	POST 3				
* **********								
J ADD HYD (I	NLET1)	ID; NHYD	AREA (ha)	(cms)	TPEAK (hrs)	R.V.	(cms)	
	ID: +ID2	01:DONLY	18.70 9.74	2.014	1.63	32.44 22.48	.000	
	+100	3 03:POST 2	7.49	1.161	1.53	38.66	.000	
	+10	08:INLET2	AREA (ha) 18.70 9.74 7.49 4.23 10.24	1.227	1.53	34.23	.000	
			50.40				.000	
NOTE: PE	AK FLOWS	DO NOT IN	CLUDE BASEFI	OWS IF AN	Y.			
				<del></del>				
005:0010			*********	4,,,,,,,,,	******	******	******	******
*								
* INLET TWO								
		- POST 4						
	******				*****	*****	******	******
I DESIGN STA	*******	Area	**************************************					******
	*******	Area	(ha)= Imp(%)=	5,72 5,00 Di	r. Conn			******
DESIGN STA	BIDRYD DT= 1.00	Area	(ha)= Imp(%)= 4 IMPERVIOUS 2.57	5.72  5.00 Di  PERVIOU  3.15	r. Conn S (1)			******
DESIGN STA 09:INLET3 Surface Dep. St Average	BIDHYD DT= 1.00	Area   Total   (ha) = (sun) = (%) =	(ha) = Imp(%) = 4 IMPERVIOUS 2.57 .80 1.50	5.72  5.00 Di  PERVIOU   3.15   1.50   1.50	r. Conn S (1)			******
DESIGN STA 09:INLET3 Surface Dep. St	BIDHYD DT= 1.00  Area corage Slope	Area   Total   ha = (mm) =	(ha)= Imp(%)= 4 IMPERVIOUS 2.57 .80	5.72  5.00 Di  PERVIOU   3.15   1.50	r. Conn S (1)			•••••
J DESIGN STA J 09:INLET3 Surface Dep. St Average Length Manning	MIDHYD DT= 1.00  Area orage Slope	Area   Total	(ha) = Imp(%) = 4 IMPERVIOUS 2.57 .80 1.50 195.28 .013	5.72 15.00 Di PERVIOU 3.15 1.50 1.50 40.00 .250	r. Conn S (i)			•••••
DESIGN STA 1 09: INLET3 Surface Dep. St Average Length Manning	MIDHYD DT= 1.00  Area corage slope (s n	Area   Total	(ha) = Imp(8) = 4 Imp(8) = 4 IMPERVIOUS 2.57 .80 1.50 195.28 .013 186.56 3.00	5,72 5,00 Di PERVIOU 3,15 1,50 1,50 40,00 ,250 111,01	r. Conn S (i)			•••••
DESIGN STA 1 09: INLET3 Surface Dep. St Average Length Manning	MIDHYD DT= 1.00  Area corage slope (s n	Area   Total	(ha) = Imp(%) = 4 IMPERVIOUS 2.57 .80 1.50 195.28 .013 186.56 3.00 2.63 (ii) 3.00	5.72 5.00 Di PERVIOU 3.15 1.50 1.50 0.250 111.01 10.00 .} 10.01	r. Conn S (i)			•••••
DESIGN STA 1 09:INLET3 Surface Dep. St Average Length Mannien Max.eff Storage Unit Hy	BIDHYD DT= 1.00  Area corage Slope Slope S.Inten. over Coeff. dd. Tpeal	Area	(ha)= Imp(*)= 4 IMPERVIOUS 2.57 .80 1.50 195.28 .013 186.56 3.00 2.63 (ii 3.00 .41	5.72 5.00 Di PERVIOU 3.15 1.50 1.50 40.00 .250 111.01 10.00 .11	r. Conn S (i)	. (%)=	15,00	•••••
DESIGN STA 1 09:INLET3 Surface Dep. St Average Length Manning Max.eff Storage Unit Hy Unit Hy PEAK FIT	EARCA CONTROL OF THE	Area	(ha) = 1mp(%) = 4 Imp(%) = 4 IMPERVIOUS 2.57 80 1.50 195.28 .013 186.56 3.00 2.63 (ii) 3.00 .41 .43 1.50	5.72 5.00 Di PERVIOU 3.15 1.50 1.50 0.250 111.01 10.00 .} 10.01	r. Conn S (1) (11)	*TOTAL 	15.00 S* 6 (iii)	******
J DESIGN STA J 09:INLETS Surface Dep. St Average Length Manning Max.eff Storage Unit Hy Unit Hy PEAK FI TIME TC RUNOFF	EARCA CORAGE STOPE STOP	Area     Total   (ha) = (sm) = (%) = (min) = (min) = (min) = (min) = (cns) =	(ha) = Imp(8) = 4  IMPERVIOUS 2.57 .80 1.50 195.28 .013  186.56 3.00 2.63 (ii 3.00 .41 .43 1.50 72.16	5.72 5.00 Di PERVIOU 3.15 1.50 40.00 .250 111.01 10.00 .10.00 .11 .58 1.62 30.00	r. Conn S (i) (ii)	*TOTAL . 61 1.51 36.32	15.00 S* 6 (iii) 7	******
DESIGN STR 09:INLET3 Surface Dep. St Average Length Manning Max.eft Storage Unit Hy Unit Hy PEAK FI TIME TO RUNOPF TOTAL F	ATTACHMENT OF THE PROPERTY OF	Area     Total   (ha) = (sm) = (%) = (min) = (min) = (min) = (min) = (cns) =	(ha) = 1mp(%) = 4 Imp(%) = 4 IMPERVIOUS 2.57 80 1.50 195.28 .013 186.56 3.00 2.63 (ii) 3.00 .41 .43 1.50	5.72 5.00 Di PERVIOU 3.15 1.50 40.00 .250 111.01 10.00 .111 .58	r. Conn S (i) (ii)	*TOTAL 	15,00 S* 6 (iii) 7 9 9	******
DESIGN STA 1 09:INLETS Surface Dep. St Average Length Manning Max.eff Storage Unit My Unit My PEAK FI TIME TC RUNOFF TOTAL F RUNOFF	ATTENTION OF PROCEEDS OF PROCEDS OF PROCEDURES.	Area   Area   Total	(ha) = Imp(%) = 4 IMPERVIOUS 2.57 80 1.50 1.50 2.63 0.13 186.56 3.00 2.63 (ii 3.00 41 43 1.50 72.16 72.96 99	5.72 15.00 Di PERVIOU 3.15 1.50 40.00 .250 111.01 10.00 .11 .58 1.62 30.00 72.96 .41	r. Conn S (i) (ii)	*TOTAL .81 1.51 36.32 72.96	15,00 S* 6 (iii) 7 9 9	
DESIGN STA OPIRILETS  Surface Dep. St Average Length Manning Max.eff Storage Unit Hy Unit Hy PEAK FI TIME TO RUNOFF TOTAL F RUNOFF (i) ( (ii) (	MIDHYD DT= 1.00 E Area orage E Slope (S n  .Inten. over COEff. CM. Tpeal COUME ANIPPALL COEFFIC: CN PROCEIN* = 6:	(ha) = (sm) = (min) =	(ha) = Imp(%) = 4 IMPERVIOUS 2.57 2.57 2.50 1.50 1.50 2.63 3.00 2.63 3.00 41 43 1.50 72.16 72.96 72.96 99 ED FOR PERVI	5.72 15.00 Di PERVIOU 3.15 1.50 40.00 .250 111.01 10.00 .11 .58 1.62 30.00 72.96 .41	r. Conn S (i) (ii)	*TOTAL .81 1.51 36.32 72.96	15,00 S* 6 (iii) 7 9 9	
DESIGN STA 1 09:INLETS Surface Dep. St Average Length Manning Max.eff Storage Unit Hy Unit Hy PEAK Ff TIME TC RUNOPF TOTAL F RUNOPF (1) ( (11) 7	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	Area	(ha) = Imp(%) = 4 Imp(%) = 4 IMPERVIOUS 2.57 .80 1.50 195.28 .013 186.56 3.00 2.63 (ii 3.00 .41 .43 1.50 72.16 72.96 .99 ED FOR PERVI Dep. Storac LD BE SMALL	5.72 15.00 Di PERVIOLO DI 3.15 1.50 40.000 1.50 10.00 10.	r. Conn S (i) (ii) S:	*TOTAL .81 1.51 36.32 72.96	15,00 S* 6 (iii) 7 9 9	
Surface Dep. St Average Length Manning Max.eff Storage Unit Hy PEAK FI TIME TO RUNOPF TOTAL F RUNOPF (ii) ( (ii) 7	MDHYD DT= 1.00  Area corage Slope Slope Coeff. A. Tpeak OW PEAK VOLUME AINFALL COEFFIC: COEFF	Area	(ha) = Imp(%) = 4 IMPERVIOUS 2.57 2.57 2.50 1.50 1.50 2.63 3.00 2.63 3.00 41 43 1.50 72.16 72.96 72.96 99 ED FOR PERVI	5.72 15.00 Di PERVIOLO DI 3.115 1.50 40.000 1.50 10.00 10.00 11.01 10.00 11.00 10.00 11.00 10	r. Conn S (i) (ii) S: } L	*TOTAL . : 61 1. 51 36. 32 72. 96 . 49	15,00 S* 6 (iii) 7 9 9	
Surface Dep. St Average Length Manning Max.eff Storage Unit Hy PEAK FI TIME TO RUNOPF TOTAL F RUNOPF (ii) ( (ii) 7	Alea Orage Slope S	Area   ha =   (mm)=   (3)=   (m)=   (min)=   (	(ha) = Imp(%) = 4 Imp(%) = 4 IMPERVIOUS 2.57 .80 1.50 195.28 .013 186.56 3.00 2.63 (ii 3.00 .41 .43 1.50 72.16 72.96 .99 ED FOR PERVI Dep. Storac LD BE SMALLI EFFICIENT. INCLUDE BASE	5.72 15.00 Di PERVION 3.15 1.50 40.000 1.50 1.50 10.00 10.00 11.00 10.00	r. Conn S (i) (ii) S: } L	*TOTAL .81 1.51 36.32 72.96 .49	\$* 6 (iii) 7 9 2 8	

* POST 5 - SWM AREA						
***************		**********	,,	******	*******	*******
DESIGN STANDHYD   01:SWM DT= 1.00	)   Tota:	(ha)= L Imp(%)=			n.(%)= 5	0.00
Surface Area	(ha) =	IMPERVIOUS 2.12	2.	12		
Surface Area Dep. Storage Average Slope Length	(mm) =	.80	1.	50		
Average Slope Length	= { & } = { m}	167.93	40.	50 00		
Length Mannings n	=	.013	.2	\$0		
Max.eff.Inten.	(mm/hr)=	186.56	43.	92		
Max.eff.Inten.over Storage Coeff. Unit Hyd. Tpeak	c (min) =	2.00 2.41 (i 2.00	13. 1) 13.	00 10 (ii)		
Unit Hyd. Tpea)	c (min)=	2.00	13.	00		
onwo mja. paan				**	*TOTALS*	
PEAK FLOW	(cms)=	1.08	1.	16 68	1.146 1.500	(iii)
RUNOFF VOLUME	(mm) =	72.16	22.	46	47.322	
PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI	(mm)= ENT =	.99	72.	31	72.962 .649	
(i) CN PROCES			TOUS LOS	SESI		
CN* = 62 (ii) TIME STEI	2.0 Ia: P (DT) SHO STORAGE C	= Dep. Stora JLD BE SMALL DEFFICIENT.	ge (Abo ER OR EQ	Ve) UAL		
005:0012	******	*********	* * * * * * * *	.,	*******	********
* * TOTAL INFLOW TO PO	OND INDET1	. INLET2. IN	LET3 AND	SWM ARE	A	
*						
ADD BYD (PNDIN )  ID: +ID: +ID:	ID; NHYD	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V.	DWF cms)
ID	1 09; INLET	3 5.72	.816	1.52	36.33	.000
+1D3	3 01:SWM	4.23	1.146	1.50	47.32	.000
24.2	4 02:PHDIN			~~=====	33.81	
NOTE: PEAK FLOWS						
005:0013						
ROUTE RESERVOIR	Page	ested routin	a time s	ten = 1	0 min	
ROUTE RESERVOIR IN>02: (PHDIN ) OUT<03: (CNTRL )	l veda					
) OUT<03:(CNTRL)	OUTE	OUTLE LOW STORA	OW STORA GE	GE TABLE OUTFLOW	STORAGE	
	(c	LOW STORA	(.)	(cms)	(ha.m.)	
	:	008 .1800E-	02	464	8718E+00	
	:	017 .1120E- 023 .3440E-	01	.688 .942	.9986E+00	
		026 .7580E-	01 j	1.223	.1263E+01	
	:	036 .2334E+	00	1.855	.1542E+01	
		039 ,3273E+ 042 ,4254E+	00   00	2.204	.1687E+01	
		ms) (ha.m .0000E+ .0000E+ .0000E+ .0000E+ .0000E+ .017 .1120E- .023 .3440E- .032 .1445E+ .036 .2334E+ .039 .3273E+ .042 .4254E+ .045 .5274E+ .045 .5274E+ .046 .6336E+	00	.000	.0000E+00	
				mnn		
ROUTING RESULT:	S 	AREA (ha) 60.35	(cms)	(hrs)	R.V. (mm)	
INFLOW >02: (PROUTFLOW<03: (CI		AREA (ha) 60.35 60.35	6.516 1.234	1.917 2.583	33.805 33.805	
OVERFLOW<04: (P)	NDOVR)	60.35 .00	.000	.000	. 000	
, •	TOTAL NUMB CUMULATIVE PERCENTAGE	ER OF SIMULA TIME OF OVE OF TIME OVE	TED OVER RFLOWS RFLOWING	FLOWS = (hours)= (%)=	0 .00 .00	
			M (*	O4 3 . 4	18.940	
	TIME SHIFT	W REDUCTION OF PEAK FLO	ra -	(min)=	64.00	
.1	MAXIMUM S	TORAGE USE	D	(ha.m.)=	,1268E+01	
005:0014						
************	*******	*******	*******	******	********	*******
* * POST 6 - STREET B						
*				******	,,	*******
DESIGN STANDHYD 05:POST6 DT= 1.0	) Area O I Tota	(ha)= 1 Imp(%)=	6.00 26.00	Dir. Con	n.(%)=	9.00
				ous (i)		
Surface Area	(ha)=	1.56	4.	44		
Surface Area Dop. Storage Average Slope Length Mannings n	= (mm) = (	.80 1.50	1. 1.	50 50		
Length	(m) =	200.00	40.	00		
mannangs n	=	.013	.2			
Max.off.Inten. ove: Storage Coeff. Unit Hyd. Tpea! Unit Hyd. peak	(mm/hr)= r (min)	186.56 3.00	66. 12.	00		
Storage Coeff.	(min) =	2.67 (i	.i) 11. 12.	73 (ii)		
Unit Hyd, Tpeak Unit Hyd, peak	k (min)= (cms)=	.40	12.	10		
		.27		51	*TOTALS*	(111)
PEAK FLOW TIME TO PEAK	(cms) = (hrs) =	1.50	1.	67	.584 1.650	
TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL BUNGER CORFEIG	= (mm) = (mm)	72.16 72.96	25. 72.	95 96	30.109 72.962	
RUNOFF COEFFIC	IENT =	.99		36	.413	
(i) CN PROCE	DURE SELEC	TED FOR PERV	ious Los	SES:		
$CH^* = 6$ : (ii) TIME STE	2.0 Ia P (DT) SHO	= Dep. Stora ULD BE SMALI	ige (Abo ,EROREÓ	ve) UAL		
	STORAGE C	OEFFICIENT.				
(111) PEAK FLO	. IVIBO NOT	THOUSUR BAS		24111		

```
POST DEVELOPMENT FROM SITE
 | ADD HYD (PSTDEV) | ID: NHYD
                                                    (hrs) (mm)
2.58 33.81
.00 .00
1.65 30.11
1.52 39.32
                                                                    (cms)
.000
.000
                                   (ha)
60.35
                                            (cms)
                 ID1 03:CHTRL
                                                                          **DRY**
                 +ID2 04:PNDOVR
                                    6.00
                                             .000
                 FID3 05:POST6
                 +ID4 06:3MAJ
                                     .97
                                             .473
                                                                     .000
                                                                     . 000
                                  67.32
                 SUM 07:PSTDEV
                                            1.344
                                                     2.48 33.55
   NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
NSTORM= 1
# 1=CH100.STM
006:0002-----
            -----
                   | Filename: H:\SMMHYM~1\09056D~1\CH100.STM
n| Comments: 100 YEAR CHICAGO 4 HOUR DESIGN STORM DIS
  READ STORM
          83.90 mml
              TIME
                      RATN |
                              TIME
                                      BATH (
                                                 TIME
                                                         RATN
                                                                   TIME
                                                                          RAIN
              TIME RAIN |
hrs mm/hr |
.17 4.500 |
.33 5.050 |
.50 5.820 |
.67 6.830 |
.63 8.410 |
1.00 11.070 |
                               hrs mm/hr |
1.17 16.860 |
1.33 41.070 |
1.50 205.920 |
1.67 54.560 |
1.83 29.170 |
2.00 19.280 |
                                                       mm/hr
14.830
                                                 hrs
2.17
                                                                   hrs
3,17
                                                                          mm/hr
6,600
                                                 2.17
2.33
2.50
2.67
                                                       12.120
10.310
9.020
8.030
7.240
                                                                          6.100
5.660
5.280
4.980
                                                                   3.67
006; 0003-----
  EXTERNAL AREA - DONLY DRIVE
_
 01:DONLY DT= 1.00 |
| DESIGN STANDHYD
                         Area (ha) = 18.70
Total Imp(%) = 35.00 Dir. Conn.(%) = 10.00
                                             PERVIOUS (1)
                               IMPERVIOUS
     Surface Area
                       (ha) =
                                               12.16
     Dep. Storage
Average Slope
Length
Mannings n
                       (mm) =
(%) =
(m) =
                                   .80
1,50
                                                1.50
                                 353,08
                                   .013
                                                .250
                                205,92
4.00
3.61 (ii)
4.00
.30
     Max.eff.Inten. (mm/hr) =
                                              104.98
                                               11.00
11.16 (ii)
11.00
.10
     over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                             *TOTALS*
2.583 (iii)
1.617
     PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (num)=
TOTAL RAINFALL (num)=
RUNOFF COEFFICIENT =
                                  .98
1,50
83,10
                                                              39.926
83.902
                                 83,90
,99
                                               83.90
       (1) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:
     CN* = 62.0 Ia = Dep. Storage (Above)

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

(iii) PEAK PLOW DOES NOT INCLUDE BASEFLOW IF ANY.
EXTERNAL AREA - CEMETARY
_
                        Area (ha) =
Ia (mm) =
U.H. Tp(hrs) =
                                        9,74
1,500
,500
                                                  Curve Number (CN)=62.00 # of Linear Res.(N)= 3.00
  DESIGN HASHYD |
02:CEM DT= 1.00 |
```

```
PEAK FLOW
                                           .508 (i)
      TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                         2.083
                                        28.520
       (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
006:0005-----
  POST 2 - STREET A, F, AND B
 DESIGN STANDHYD |
03:POST 2 DT= 1.00 |
                                 Area (ha) = 7.49
Total Imp(\$) = 52.00 Dir. Conn.(\$) = 16.00
                                        IMPERVIOUS
                                                           PERVIOUS (1)
       Surface Area
                             (ha)=
                                             3,89
                                                              3.60
1.50
      Dep. Storage
Average Slope
Length
Mannings n
                             (mn) =
(%) =
(m) =
                                             .80
1.50
                                                               1.50
                                          223.46
                                                             40.00
                                             .013
                                                               .250
      Max.eff.Inten.(mm/hr) = over (min)
Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =
                                          205.92
                                                            170.66
                                            3.00
2.75 (ii)
3.00
                                                                     (11)
                                                                               *TOTALS*
1.458 (iii)
1.533
46.976
83.902
.560
                                           .66
1.50
83.10
83.90
      PEAK FLOW (cms)=
TIME TO FEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
         (i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CR* = 62.0 Ia = Dep. Storage (Above)
(11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
       (111) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
  FOST 3 - STREETS B, F AND H MAJOR STAYS ON STREET B, MINOR GOES TO FOND ALONG STREET II
 DESIGN STANDHYD | 04:POST3 DT= 1.00 |
                                 Area (ha)= 5.20
Total Imp(%)= 54.00 Dir. Conn.(%)= 16.00
                                        IMPERVIOUS
                                                          PERVIOUS (i)
                              (ha)=
                                            2.81
.80
1.50
                                                              2.39
1.50
1.50
       Surface Area
       Dep. Storage
Average Slope
                             = (mm) =
                                          186.19
       Length
Mannings n
                              (m) =
                                                             40.00
                                                              .250
                                             .013
      Max.eff, Inten. (mm/hr) =
                                          205.92
                                                           188.89
      over (min)
Storage Coeff. (min)
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                             2.00
2.46 (11)
                                                               8.00
                                                              8,43 (ii)
                                             2.00
                                                              8.00
                                              .49
                                                                . 14
                                                                               *TOTALS*
                                                                                1,073 (iii)
1,517
47,740
       PEAK FLOW
                                               . 47
                                                                . 78
       TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                            1.50
83.10
83.90
                                                              1.58
         (i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:
      CH* = 62.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DF) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
006:0007-----
  TotalHyd 04:POST3
                                 Average inlet capacities {CINLET} = Number of inlets in system (NINLET) = Total minor system capacity = Total major system storage [TMJSTO] =
                                                                                        .400 (cms)
                                                                                        . 400
                                                                                                (cms)
                                                                                            0. (cu.m.)
                        ID: NHYD
                                             AREA
                                                         OPEAK
                                                                      TPEAK
                                                                                  R.V.
                                                                                                 DWF
                                              (ha)
5.20
                                                                                 (mm)
47.740
                                                                       (hrs)
1,517
                                                         1.073
      TOTAL HYD.
                        04:POST3
                                                                                                 .000
                                             1.28
                                                          .673
.400
                                                                      1,517
1,383
                                                                                                 .000
      NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
POST 1 - STREETS A, H, I, J AND E
 | UBSIGN STANDHYD |
| 09:INLET2 DT= 1.00 |
                                 Area {ha}= 10.24
Total Imp{%}= 40.00 Dir. Conn.{%}= 12.00
                                                          PERVIOUS (1)
                                        IMPERVIOUS
      Surface Area
Dep, Storage
Average Slope
Length
Mannings n
                             (ha) =
(mm) =
(%) =
(m) =
                                                             6.14
1.50
1.50
40.00
      Max.eff.Inten.(mm/hr)=
      over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
                                                             10.00
10.10 (ii)
10.00
                                            3.00
3.02 (ii)
3.00
```

.744

Unit Hyd Opeak (cms)=

```
Unit Hyd. peak (cms)=
                                                         .37
                                                                             .11
                                                                                               *TOTALS*
1.568 (111)
1.533
41.951
83.902
.500
         PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (RUN)=
TOTAL RAINFALL (RUN)=
RUNOFF COEFFICIENT =
                                                                          1.27
1.62
36.34
83.90
        PEAK FLOW
TIME TO PEAK
RUNOFF VOLUME
                                                      .67
1.50
83.10
83.90
         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 62.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SHALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 INLET ONE - EXT AREAS, POST 2 AND MINOR POST 3
 | ADD HYD (INLET1) | ID: NHYD
                                                                     OPEAK
                                                                                  TPEAK
                                                                                  TPEAK R.V. (hrs) (mm) 1.62 39.93 2.08 28.52 1.53 46.98 1.38 47.74 1.53 41.95
                                                      (ha)
18.70
9.74
7.49
3.92
10.24
                                                                                                          (cms)
.000
.000
.000
.000
                                                                     (cms)
2.583
.508
1.458
.400
1.568
                          ID1 01:DONLY
+ID2 02:CEM
+ID3 03:POST 2
+ID4 05:3MIN
+ID5 08:INLET2
                            SUM 07:INLET1
     NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
    INLET TWO (FUTURE) - POST 4 - STREETS P, Q AND R
                                       Area (ha)= 5.72
Total Imp(8)= 45.00 Dir. Conn.(8)= 15.00
   DESIGN STANDHYD
    DESIGN STANDHYD (
09:INLET3 DT= 1.00 |
                                                IMPERVIOUS
                                                                      PERVIOUS (i)
        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                   2.57
.80
1.50
195.28
                                   (ha) =
(mm) =
(%) =
(m) =
                                                                          3.15
1.50
1.50
40.00
                                                   205.92
3.00
2.53 (i1)
3.00
.42
        Max.eff.Inten.(mm/hr)=
        over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                          9.00
9.27 (ii)
9.00
.12
                                                                                               *TOTALS*
                                                                                                 1.024 (iii)
1.533
                                                    .48
1.50
83.10
83.90
        PEAK FLOW
                                  (cms)=
                                                                             .74
        TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                          83.90
                                                                            .45
           (i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        (1) THE STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(111) PEAK PLOW DOES NOT INCLUDE BASEFLON IF AMY.
006:0011-----
DESIGN STANDHYD
       SWM DT≃ 1.00 |
                                      Area (ha)= 4.23
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00
   01:SWM
                                                IMPERVIOUS
                                                                      PERVIOUS (i)
        Surface Area
                                    (ha)=
                                                                          2.12
        Dep. Storage
Average Slope
Length
Mannings n
                                   (mm) =
(%) =
(m) =
                                                      .80
1.50
                                                                            1.50
                                                                         40.00
                                                   167.93
                                                     .013
                                                                         56.77
12.00
11.96 (ii)
12.00
        Max.eff.Inten.(mm/hr)=
                                                   205.92
        over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                      2.00
2.31 (ii)
2.00
.51
                                                                                              *TOTALS*
1.292 (iii)
1.500
55.811
83.902
        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                    1.19
1.50
83.10
                                                                         28.52
83.90
                                                    83.90
.99
           (i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN* = 62.0 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.
006:0012-----
  TOTAL INFLOW TO POND INLET1, INLET2, INLET3 AND SWM AREA
| ADD HYD (PNDIN ) | ID: NHYD
                                                      (ha)
5.72
50.09
                                                                                                         (cms)
.000
.000
                                                                                 (hrs)
1.53
1.60
                                                                                            (mm)
44.29
39.79
55.81
                                                                    (cms)
                         ID1 09:INLET3
+ID2 07:INLET1
+ID3 01:SWM
```

NDIN 60 OT INCLUDE:	BASEFICO  OUTLING  OU	WS IF /  STORM STO	ANY.  tep =  GE TABLI OUTFLOW (cms) 2.44 508 942 1.223 1.528 1.528 2.000 .000  TEAK (hrs) 1.517 2.467 (hours) (win) (ha.m.) Dir. Cor OUS (i) 1.500 000  Dir. Cor OUS (i) 1.500 000 000 000 000 000 000 000 000 000	1.0 min.  E ===== STORM (ha.m. 7485E+	GGE h.) -00 -00 -00 -01 -01 -01 -01 -01 -01 -01	
Requested Reguested Regues	OUTLFOW STOPAGE STOPAGE 00021-000 00021-000 00021-000 00021-000 00021-00000 00021-00000 00021-00000 00021-00000 00021-00000 00021-00000 00021-00000 00021-00000 00021-00000 00021-000000 00021-000000 00021-0000000 00021-0000000000	EAK	tep =  GE TABLI OUTFLOW (cms) 274 468 942 1.528 1.528 2.044 2.572 000  TPEAK (hrs) (hours) (min) .	1.0 min.  B ===== STORA (ha.m. 7485E+ 8718E+ 9986E+ 1129E+ 1263E+ 1263E+ 1261E+ 1542E+ 1687E+	9,000	
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
AREA (ha) 60.04 60.04 .00 RUMBER OF SI TIVE TIME OF TAGE OF TIME FLOW REDI HIFT OF PEAN M STORAGE  Area (ha) Fotal Imp(8)  IMPERVI )= 1.5 )= 200.6 = .01 )= 205.6	QP (c 6. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	EAK mms) 021 6597 020 000 D OVERIL CLOWS LOWING [Qout/(	TPEAK (hrs) 1.517 2.467 .000 (hours) - (hours)	R. (w 41.3 41.3 41.3 41.3 41.3 41.3 41.3 41.3	V. mah (46 46 46 46 46 46 46 46 46 46 46 46 46 4	*****
RUMBER OF SI TIVE TIME OF TAGE OF TIME  FLOW REDE HIFT OF PEAN M STORAGE  Area (ha) Total Imp(%)    IMPERVI)  = 1.5  = 2.00.6  = .01  = 205.6  = 3.6  = 3.6  = 3.5  = 83.5  =	INULATE FO OVER FOUR FOR THE FORE FORE FOR THE FORE FORE FORE FOR THE FORE FORE FORE FORE FORE FORE FORE FOR	.00 .00 [Qout/().00 .00 ]	(hours): (%): (%): (in)(%): (min): (ha.m.): (ha.m.): (ha.m.): (ha.m.): (in)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n	* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	446 466 000 0 0 0 1 1 0 1 1 9.00 9.00	*****
RUMBER OF SI TIVE TIME OF TAGE OF TIME  FLOW REDE HIFT OF PEAN M STORAGE  Area (ha) Total Imp(%)    IMPERVI)  = 1.5  = 2.00.6  = .01  = 205.6  = 3.6  = 3.6  = 3.5  = 83.5  =	INULATE FO OVER FOUR FOR THE FORE FORE FOR THE FORE FORE FORE FOR THE FORE FORE FORE FORE FORE FORE FORE FOR	.00 .00 [Qout/().00 .00 ]	(hours): (%): (%): (in)(%): (min): (ha.m.): (ha.m.): (ha.m.): (ha.m.): (in)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n	* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9.00 9.00 9.00 9.00 9.00	*****
RUMBER OF SI TIVE TIME OF TAGE OF TIME  FLOW REDE HIFT OF PEAN M STORAGE  Area (ha) Total Imp(%)  IMPERVI) = 1.5 = 2.0 = 2.0 = .0   = 2.5   = 3.6   = 3.6   = 3.5   = 83.5   = 83.5   = 83.5   ELECTED FOR IA = Dep. E	INULATE FO OVER FOUR FOR THE FORE FORE FOR THE FORE FORE FORE FOR THE FORE FORE FORE FORE FORE FORE FORE FOR	.00 .00 [Qout/().00 .00 ]	(hours): (%): (%): (in)(%): (min): (ha.m.): (ha.m.): (ha.m.): (ha.m.): (in)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n)(n	* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9.00	*****
Area (ha) Total Imp(%)  IMPERVI)  = 1.5 = 200.6 = .00  = 205.6   3.6 = 3.6 = 3.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5 = 83.5	UCTION K FLOW USED 26 COUS 66 COUS 66 COUS 66 COUS 66 COUS 67 (ii) 30 COUS 67 (iii) 30 COUS	(Qout/() 	Qin](%)* (min)* (ha.m.)*	= 21.15 = 57.0 =.1473E+0 	9,00 9,00	*****
Area (ha)  Total Imp(%)  IMPERV)  1.5  1.5  1.5  200.6  2.5  3.6  3.6  3.6  3.7  3.8  3.8  3.8  3.8  3.8  3.8  3.8	5 6 6 90 90 90 90 90 90 90 90 90 90 90 90 90	.00 I PERVIO 1.5 40.0 25 40.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0	Dir. Cor OUS (i) 44 50 50 00 78 00 75 (ii) 10 66 66 67 90 39	*TOTAL .75 1.63 37.20 83.90	9,00	*****
Area (ha)  Total Imp(%)  IMPERV)  1.5  1.5  1.5  200.6  2.5  3.6  3.6  3.6  3.7  3.8  3.8  3.8  3.8  3.8  3.8  3.8	5 6 6 90 90 90 90 90 90 90 90 90 90 90 90 90	.00 I PERVIO 1.5 40.0 25 40.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0	Dir. Cor OUS (i) 44 50 50 00 78 00 75 (ii) 10 66 66 67 90 39	*TOTAL .75 1.63 37.20 83.90	9,00	*****
Area (ha) Total Imp(%)    IMPERVI	*******  26  10US  56  30  50  13  92  90  11  30  10  10  90  90  PERVIO'Storage	.00 .00 r PERVICE 1.5 40.0 2.5 85.7 11.0 1.6 32.6 83.9	Dir. Cot OUS (i) 44 50 50 00 78 00 78 00 10 66 65 99 39	*TOTAL .75 1.63 37.20	9,000 S*4 4 (iiii) 3 5 2	*****
Area (ha) Total Imp(%)    IMPERVI	*******  26  10US  56  30  50  13  92  90  11  30  10  10  90  90  PERVIO'Storage	.00 .00 r PERVICE 1.5 40.0 2.5 85.7 11.0 1.6 32.6 83.9	Dir. Cot OUS (i) 44 50 50 00 78 00 78 00 10 66 65 99 39	*TOTAL .75 1.63 37.20	9,000 S*4 4 (iiii) 3 5 2	*****
Area (halarea (halare	)= 6 )= 26 IOUS 56 90 50 13 92 90 91 11 30 50 10 10 90 PERVIO Storage	.00 I PERVIO 4.4.1.5.1.6.25.85.7.11.0.7.11.0.7.11.0.6.32.6.83.93	Dir. Cor OUS (i) 44 50 50 00 50 78 00 75 (ii) 00 10 66 67 90 39	*TOTAL 75 1.63 37.20	9,00 S* 4 (iii) 3 5 5	
Area (halarea (halare	)= 6 )= 26 IOUS 56 90 50 13 92 90 91 11 30 50 10 10 90 PERVIO Storage	.00 I PERVIO 4.4.1.5.1.6.25.85.7.11.0.7.11.0.7.11.0.6.32.6.83.93	Dir. Cor OUS (i) 44 50 50 00 50 78 00 75 (ii) 00 10 66 67 90 39	*TOTAL 75 1.63 37.20	9,00 S* 4 (iii) 3 5 5	
IMPERVI)	TOUS 56 50 50 50 13 92 90 11 11 30 10 10 90 90 PERVIO' STORAGE	9ERVIG 4.4 1.5 1.5 40.0 .25 85.7 11.0 10.7 11.0 .32.6 83.9 .3	OUS (i) 44 50 50 60 78 00 77 10 66 66 67 90 39	*TOTAL .75 1.63 37.20 83.90	S* 4 (iii) 3 5 2	
IMPERVI)	TOUS 56 50 50 50 13 92 90 11 11 30 10 10 90 90 PERVIO' STORAGE	9ERVIG 4.4 1.5 1.5 40.0 .25 85.7 11.0 10.7 11.0 .32.6 83.9 .3	OUS (i) 44 50 50 60 78 00 77 10 66 66 67 90 39	*TOTAL .75 1.63 37.20 83.90	S* 4 (iii) 3 5 2	
IMPERVI)	TOUS 56 50 50 50 13 92 90 11 11 30 10 10 90 90 PERVIO' STORAGE	9ERVIG 4.4 1.5 1.5 40.0 .25 85.7 11.0 10.7 11.0 .32.6 83.9 .3	OUS (i) 44 50 50 60 78 00 77 10 66 66 67 90 39	*TOTAL .75 1.63 37.20 83.90	S* 4 (iii) 3 5 2	
)= 205.5 )= 3.6 )= 3.6 )= 3.6 )= 3.5 )= 83.1 = 83.5 = 63.5 = 63.5 ELECTED FOR Ia = Dep. 5 SHOULD BE SHOULD BE	92 000 57 (ii) 00 11 30 50 10 90 99 PERVIO Storage	1.5 40.0 .25 85.7 11.0 10.7 11.0 .6 32.6 83.9	50 50 50 78 00 75 (ii) 00 10 66 65 67 90 39	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= 205.5 )= 3.6 )= 3.6 )= 3.6 )= 3.5 )= 83.1 = 83.5 = 63.5 = 63.5 ELECTED FOR Ia = Dep. 5 SHOULD BE SHOULD BE	92 000 57 (ii) 00 11 30 50 10 90 99 PERVIO Storage	40.0 .25 85.7 11.0 10.7 11.0 .1 .6 32.6 83.9	00 50 78 00 75 (ii) 00 10 66 65 67 90 39	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= 205.5 )= 3.6 )= 3.6 )= 3.6 )= 3.5 )= 83.1 = 83.5 = 63.5 = 63.5 ELECTED FOR Ia = Dep. 5 SHOULD BE SHOULD BE	92 000 57 (ii) 00 11 30 50 10 90 99 PERVIO Storage	.25 85.7 11.0 10.7 11.0 .1 .6 32.6 83.9	50 78 00 75 (ii) 00 10 66 65 67 90	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= .3 )= 1.5 )= 83.1 )= 83.5 = .5 ELECTED FOR IA = Dep. 5 SHOULD BE. 5	30 50 10 90 99 PERVIO Storage	.6 1.6 32.6 83.9 .3	66 65 67 90 39	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= .3 )= 1.5 )= 83.1 )= 83.5 = .5 ELECTED FOR IA = Dep. 5 SHOULD BE. 5	30 50 10 90 99 PERVIO Storage	.6 1.6 32.6 83.9 .3	66 65 67 90 39	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= .3 )= 1.5 )= 83.1 )= 83.5 = .5 ELECTED FOR IA = Dep. 5 SHOULD BE. 5	30 50 10 90 99 PERVIO 3torage	.6 1.6 32.6 83.9 .3	66 65 67 90 39	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= .3 )= 1.5 )= 83.1 )= 83.5 = .5 ELECTED FOR IA = Dep. 5 SHOULD BE. 5	30 50 10 90 99 PERVIO 3torage	.6 1.6 32.6 83.9 .3	66 65 67 90 39	.75 1.63 37.20 83.90	4 (iii) 3 5 2	
)= 1.5 )= 83.1 )= 83.9 = .9 ELECTED FOR IA = Dep. 5 SHOULD BE 5	50 10 90 99 PERVIO Storage SMALLER	1.6 32.6 83.9 .3	65 67 90 39	1.63 37.20 83.90	3 5 2	
ELECTED FOR Ia = Dep, S SHOULD BE S	PERVIO Storage SMALLER	US LOSS		83.90	2	
ELECTED FOR Ia = Dep, S SHOULD BE S	PERVIO Storage SMALLER	US LOSS		.44	3	
Ia = Dep. S SHOULD BE S	Storage SMALLER	US LOSS				
SHOULD BE S	MALLER	(Abov	SES; ve)			
	.MT.	OR EQU	UAL			
NOT INCLUDE	BASEF	LOW IF	ANY,			
*********	*****	******	******		******	******
ITE						
						*****
NHYD ARE	- A -	OPFAK	TPEAK	вV.	D₩F	
ha	±)	(cms)	(hrs)	(mm)	(cms)	
TRL 60.	.04	1.697	2.47	41.35	.000	**DRY**
OST6 6, MAJ 1.	.00 .00 .28	.754 673	1.63	.00 37.21 47.74	.000	
STDEV 67.				71.10	.000	
OT INCLUDE E						
						******
IOTES	*****	*****		******	*****	******
otes	at 09	:19:53				
70TES 	at 09	:19:53				

4.23

1.292

1.50





Decou Sub

Date:

Dec-09 By:

TGS

Project #: 09056

Page

Determine Permanent Pool Volume

		Incr	
Contour	Area	Vol	
(m)	(m2)	(m3)	
213.25	637	0	
213.7	895	344.7	344.7
213.9	1299	219.4	564.1
214.5	1952	975.3	1539.4



Project #:

DECOU

Date:

Dec 23/09 By:

Dec 23/09 09-056

SYMHYMO RESULTS 2-year event

Page

TGS

1) Forebay Design: Settling

Equation 4.5

Dist= sqrt(r\*Qp/Vs)

Dist = forebay length

r = length to width of forebay

Qp = peak flow rate from pond during quality storm Vs= target settling velocity, recommended at 0.0003 m/s

Given

r=

2

Target 2:1

0.207

Qp = Vs=

0.0003

Dist=

37 m

2) Forebary Design: Dispersion Length

Equation 4.6

Dist = 8\*Q/(d\*Vf)

Dist = forebay length

Q= inlet flow rate for quality storm

d= depth of perm pool

Vf = desired velocity in forebay (<0.5m/s)

Inlet 1 (Ext, Cem, P Post2 and M		Q= d= Vf=	1.27 1.25 0.5	SYMHYMO results	to pond for 2-year event
		dist=	16 m		
Inlet 3 (Post 4) (Future)	Given	Q= d= Vf=	0.211 1.25 0.5	SYMHYMO results	to pond for 2-year event
		dist=	3		

3) Forebay Design: Bottom Width

Equation 4.7

Width=Dist/8



Project #:

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09-056

Date:

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\_By: Page TGS

Given

Dist=

37

width=

5

4) Forebay Design: Cleanout Frequency

Table 6.3 of SWM Planning and Design Manual

35% Impervious

0.6 m3/ha, annual sediment loading

55% Impervious

1.9 m3/ha, annual sediment loading

Reference Calculation of Impervious areas spreadsheet for this development==> 47% impervious for contributing area to pond

Therefore extrapolate

41%

0.99 m3/ha

Total site area, excluding external contributing area

28.7 ha

Sediment Accummulation

28.413 m3/year

Target Removal eff. For normal protection

70%

Anticipate Accumulation

19.8891 m3/year

Clean Frequency

10 year

Total Anticipated Accumulation

198.891 m3



Project #:

Decou Road Sub

Date:

Dec-09 09056 \_\_By: \_\_Page TGS

SWM Facility Outlet Sizing

Reference SWMHYMO Results, discharge from the pond during the 100 year storm 1.697 cms

Reference SWMHYO Results, peak flow from POST6 during 5-year event (corresponds to typical storm sewer design storm)

0.221 cms

Therefore design outlet storm for

1.918 cms

### Solve for Velocity and Flow

 Mannings n
 0.013

 Diameter
 0.825 m

 Slope
 2.00%

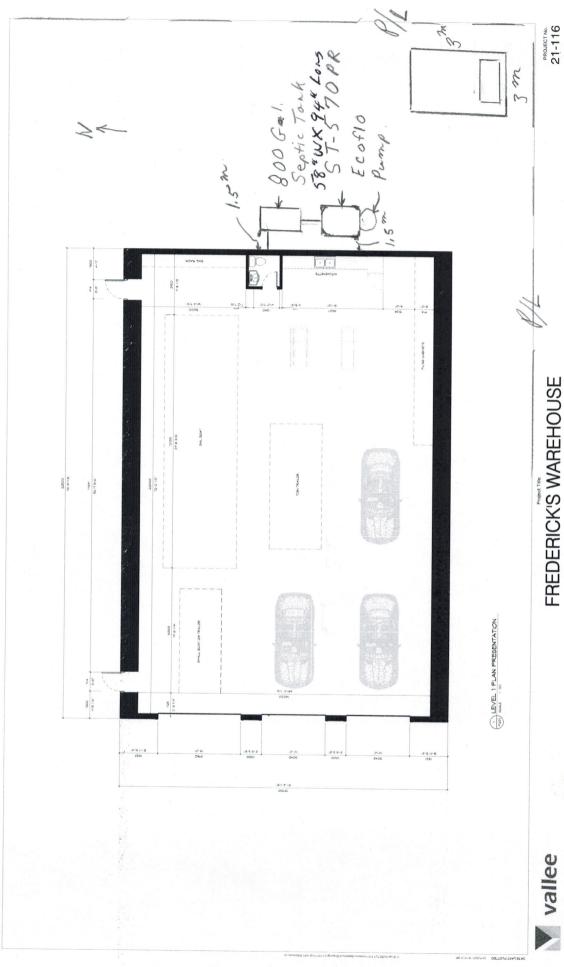
 Hydraulic R
 0.20625 m

 C/S Area
 0.53456162 m2

V 3.80 m/s Q 2.03001 cms 2030.01 L/s

### **APPENDIX B**

**Sanitary Septic System Design** 



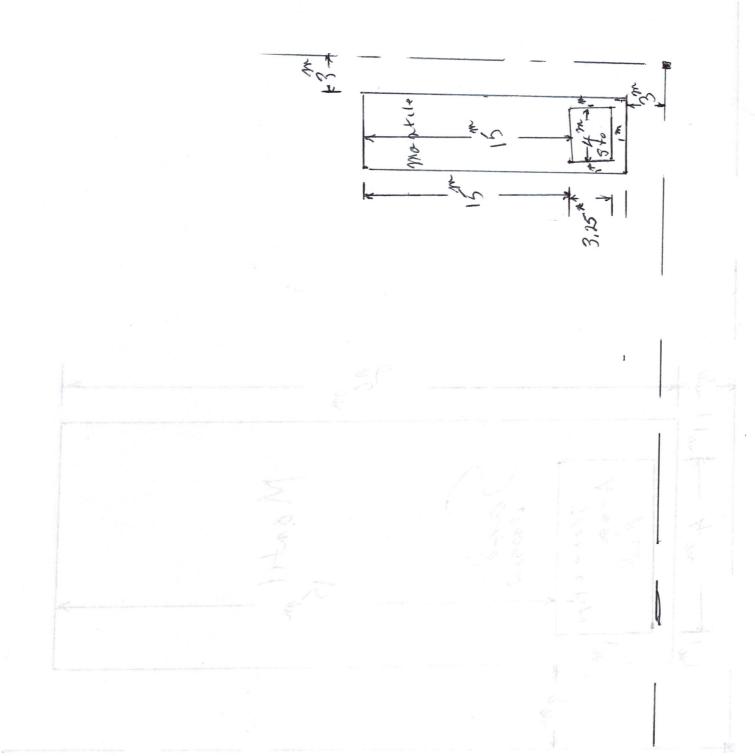
21-116
Drawing Title PRESENTATION PLANS P201

SIMCOE, ONTARIO, CANADA,

Consulting Engineers, Architects & Planners

G. DOUGLAS VALLEE LIMITED

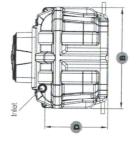
2 TALBOT STREET NORTH SIMCOE ONTARIO N3Y 4W3 (519) 426-6270



# ECOFLO Polyethylene Watertight tank bottom



Hydraulic capacity with demand dose         1,755 L/d         STB-570PR         STB-570PR           Hydraulic capacity with time dose         2,200 L/d         Amount (11° 1)		CONTROL SECTION OF THE PROPERTY OF THE PROPERT			
vith demand dose         1,755 L/d           vith time dose         2,200 L/d           x         3,380 mm (11' 1)           c         2,000 mm (6' 7")           tom         D           height         E           t height         E           t height         E           t height         E		STB-570P	STB-570PR	STB-730P	STB-730PR
vith time dose         2,200 L/d           &         3,380 mm (11' 1)           &         2,000 mm (6' 7")           tom         0           theight         6           theight         6           theight         6           theight         6	Hydraulic capacity with demand dose		5 L/d	2.250 L/d	L/d
(A) 3,380 mm (11' 1) (B) 2,000 mm (6' 7") (C)	Hydraulic capacity with time dose	2,20	p/1 0	2,810 L/d	P/J
tom (6' 7")  tom (0)  height (1)  t height (1)  height (1)  theight (1)  hof litering medium (1,200 kg (2,640 lb))	Length	3,380 m	nm (11' 1)	4,130 mm (13' 7")	(13' 7")
tom b b c c c c c c c c c c c c c c c c c			ım (6' 7")	2,050 mm (6' 9")	n (6' 9")
height © theight	Height		1,850 m		
theight by theight by the filtering medium (2,640 lb)	Inlet height from bottom		1,260 m	ım (4' 2")	
theight had filtering medium 1,200 kg (2,640 lb)		6	76 m	m (3")	
1,200 kg (2,640 lb)			1,240 m	Im (4' 1")	
	Riser height allowed		No risers	sallowed	
	Weight Includes internal components and filtering medium	1,200 kg	(2,640 lb)	1,415 kg (3,120 lb)	3,120 lb)
Dosing volume – 870 L	Dosing volume	***************************************	870 L	-	1,120 L
Total emergency storage capacity — 4,370 L	Total emergency storage capacity	*****	4,370 L	-	6,030 L

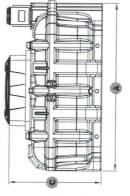


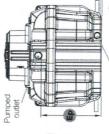
Pumped water outlet

Ø 25 mm (1") nominal

**Gravity water outlet** Ø 100 mm (4") nominal

Water inlet Ø 100 mm (4") nominal





# **TYPICAL INSTALLATIONS**

### Demand-dose influent

Gravity discharge to Type A or B dispersal bed, or shallow buried trench

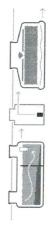


Pumped discharge to Type A or B dispersal bed, or shallow buried trench



### Time-dose influent

Gravity discharge to Type A or B dispersal bed, or shallow buried trench



Pumped discharge to Type A or B dispersal bed, or shallow buried trench



## Table 8.2.1.6.A. Minimum Clearances for Treatment Units

Forming Part of Sentence 8.2.1.6.(1)

Item	Column 1	Column 2
	Object	Minimum Clearance, m
-	Structure	1.5
2.	Well	15
65	Lake	15
4.	Pond	15
5.	Reservoir	15
6.	River	15
7.	Spring	15
89	Stream	15
ص ق	Property Line	3

(2) Except as provided in Sentences 8.2.1.4.(1) and (2), a distribution pape shall not be located closer than the minimum horizontal distances set out in Table 8.2.1.6.B. and these distances shall be increased when required by Sentence 8.7.4.2.(11).

Sentence 8.2.1.6.(2)
Objectives: OE, OH2.1, OH5
Functional Statements: F110, F12
Intent:
Same as Sentence 8.2.1.4.(1).

## Table 8.2.1.6.B. Minimum Clearances for Distribution Piping

Forming Part of Sentence 8.2.1.6.(2)

Item	Column 1	Column 2
	Object	Minimum Clearance, m
-	Structure	5
2.	Well with a watertight casing to a depth of at least 6 m	15
3.	Any other well	30
4.	Lake	15
5.	Pond	15
.9	Reservoir	15
7.	River	15
œ	Spring not used as a source of <i>potable</i> water	15
9.	Stream	15
10.	Property Line	C

(3) Except as provided in Sentences 8.2.1.4(1) and (2), a holding tank shall not be located closer than the minimum horizontal distances set out in Table 8.2.1.6.C.

Sentence 8.2.1.6.(3)
Objectives: OE, OH2.1, OH5
Functional Statement: F110
Intent:
Same as Sentence 8.2.1.4.(1),

### **APPENDIX C**

Domestic Water Demand Calculations FUS Calculations Norfolk ISMP Map



Subject: Fredericks Warehouse

Date: By: 1/11/2022

Project #: 21-116 Page NLB

Industrial

### **Average Daily Demand**

0.4 ha Site Area Zoning of Land Industrial

Equiv. Population Density 120 ppl/ha

Equiv. Population 48

0.45 m³/capita/day Av. Daily Demand Per Capita

21.60 m<sup>3</sup>/day Average Daily Demand

0.25 l/s

Site Area 0.4 ha

Zoning of Land Equiv. Population Density 120 ppl/ha

48

Equiv. Population

Av. Daily Demand Per Capita 0.45 m<sup>3</sup>/capita/day

Maximum Daily Demand Peaking Factor 2.25

Maximum Daily Demand 48.60 m<sup>3</sup>/day

0.56 l/s

### **Maximum Hourly Demand**

0.4 ha Site Area Industrial Zoning of Land

Equiv. Population Density 120 ppl/ha

Equiv. Population 48

0.45 m³/capita/day Av. Daily Demand Per Capita

Maximum Hourly Demand Peaking Factor 2

Maximum Hourly Demand 1.80 m³/hour 0.50 l/s



Subject: Fredericks Warehouse

Date: Jan-22
Project #: 21-116

By: NLB Page: 1

### Warehouse #1

### 1) <u>Fire Flow Requirement</u>

 $F_1 = 220C(A^{1/2})$  (L/min)

C= 1.5 Construction coefficient for wood frame construction

A= 353.0 Floor Area m<sup>2</sup> = main floor area

= 353.0 Fire Area m<sup>2</sup> = main floor area (no second floor)

 $F_1 = 6200 \text{ L/min}$ 

 $F_1$ = 6000 L/min (Round to the nearest 1,000 l/min)

### 2) <u>Occupancy</u>

Occupancy Type: Combustible
Reduction: 0%
Surcharge: 0%

 $F_2 = F_1 + (F_1 * Reduction/Surcharge)$  (L/min)

F<sub>2</sub>= 6000 L/min

### 3) <u>Sprinkler System</u>

Sprikler System: Not Applicable (assumed no sprinkler system in service)

Reduction: 0%

 $F_3 = F_2 * Reduction$  (L/min)

 $F_3 = 0 L/min$ 

### 4) Seperation

<u>Location</u>	<u>Direction</u>	Distance (m)	<u>Surcharge</u>	Se	eparation Surch	arges
Front	West	9999.0	0%	0	to 3m	25%
Side	North	9999.0	0%	3.	.1m to 10m	20%
Side	South	11.6	15%	10	0.1m to 20m	15%
Rear	East	9999.0	0%	20	0.1 to 30m	10%
		Total:	15%	30	0.1 to 45m	5%

F4=(TOTAL)\*F2 (L/min)  $\mathbf{F_4} = \mathbf{900} \mathbf{L/min}$ 

### **Total Fire Flow**

$F=F_2-F_3+F_4$	=	6900 L/min	_
	=	7000 L/min	(Round to the nearest 1,000 I/min)
	=	116.7 L/s	

Notes: 1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire

Underwriters Survey, 1999

2) 9999 denotes either the nearest building > 45m away or a fire wall is provided



Subject: Fredericks Warehouse

Date: <u>Jan-22</u> Project #: <u>21-116</u>

Page:

By: NLB ge: 2

### Warehouse #2

### 1) <u>Fire Flow Requirement</u>

 $F_1 = 220C(A^{1/2})$  (L/min)

C= 1.5 Construction coefficient for wood frame construction

A= 353.0 Floor Area m<sup>2</sup> = main floor area

= 353.0 Fire Area m<sup>2</sup> = main floor area (no second floor)

 $F_1 = 6200 \text{ L/min}$ 

 $F_1$ = 6000 L/min (Round to the nearest 1,000 l/min)

### 2) <u>Occupancy</u>

Occupancy Type: Combustible Reduction: 0% Surcharge: 0%

 $F_2 = F_1 + (F_1 * Reduction/Surcharge)$  (L/min)

F<sub>2</sub>= 6000 L/min

### 3) <u>Sprinkler System</u>

Sprikler System: Not Applicable (assumed no sprinkler system in service)

Reduction: 0%

 $F_3 = F_2 * Reduction$  (L/min)

 $F_3 = 0 L/min$ 

### 4) Seperation

<u>Location</u>	<u>Direction</u>	Distance (m)	<u>Surcharge</u>	_	Separation Surcl	harges
Front	West	9999.0	0%		0 to 3m	25%
Side	North	11.6	15%		3.1m to 10m	20%
Side	South	40.6	5%		10.1m to 20m	15%
Rear	East	9999.0	0%		20.1 to 30m	10%
		Total:	20%		30.1 to 45m	5%

F4=(TOTAL)\*F2 (L/min)  $F_4$ = 1200 L/min

### **Total Fire Flow**

$F=F_2-F_3+F_4$	=	7200 L/min	_
	=	7000 L/min	(Round to the nearest 1,000 I/min)
	=	116.7 L/s	

Notes: 1) All calculations and factors from Part 2 "Water Supply for Public Fire Protection" by the Fire

Underwriters Survey, 1999

2) 9999 denotes either the nearest building > 45m away or a fire wall is provided

