Planning Department Development Application Form

Complete Application

A complete development application consists of the following:

1. A completed, signed, and notarized application form
2. Supporting information adequate to illustrate your proposal as indicated in **Section H** of this application form
3. Written authorization from the registered owner of the subject lands where the applicant is not the owner as per Section N
4. Cash, debit, credit or cheque payable to Norfolk County in the amount set out in the user fees By-Law that will be accepted and deposited once the application has been deemed complete.

Pre-Submission Consultation:

Norfolk County requires a Pre-Consultation Meeting for all applications; however, minor applications may be exempted depending on the nature of the proposal. The purpose of a Pre-Consultation Meeting is to provide the applicant with an opportunity to present the proposed application, discuss potential issues, and for the Norfolk County and Agency staff to identify the application requirements. Application requirements, as detailed in the Pre-Consultation Meeting Comments, are valid for one year after the meeting date.

Development Application Process

Once an application has been deemed complete by a Planner, Norfolk County staff will circulate the application to adjacent landowners, public agencies, and internal departments for comment. The time involved in application processing varies depending on its complexity, acceptability to the other agencies, and statutory Planning Act decision time-frames.

Payment is required once your application is deemed complete. Pre-payments will not be accepted.

Norfolk County collects personal information submitted through this form under the Municipal Freedom of Information and Protection Act's authority. Norfolk County will use this information for the purposes indicated or implied by this form. You can direct questions about collecting personal information to Norfolk GIS Services at NorfolkGIS@norfolkcounty.ca.

Additional studies required for the complete application shall be at the applicant's sole expense. Sometimes, peer reviews may be necessary to review particular studies at the applicant's expense. In these caseds, Norfolk County staff will select the company to complete the peer review.

Norfolk County will refund the original fee if applicants withdraw their applications before circulation. If Norfolk County must recirculate your drawings, there will be an additional fee. If Norfolk County must do more than three reviews of engineering drawings due to revisions by the owner or failure to revise engineering drawings as requested, Norfolk County will charge an additional fee. Full refunds are only available before Norfolk County has circulated the application.

Notification Sign Requirements

For public notification, Norfolk County will provide you with a sign to indicate the intent and purpose of your development application. It is your responsibility to:

1. Post one sign per frontage in a conspicuous location on the subject lands.
2. Ensure one sign is posted at the front of the subject lands at least three feet above ground level and not on a tree.
3. Notify the Planner when the sign is in place.
4. Maintain the sign until the development application is finalized and, after that, remove it.

Contact Us

For additional information or assistance completing this application, please contact a Planner at 519-426-5870 or 519-875-4485 extension 1842 or planning@norfolkcounty.ca. Please submit the completed application and fees to the attention of the Planning Department at 185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6.

For Office Use Only:

File Number	_____	Public Notice Sign	_____
Related File Number	_____	Application Fee	_____
Pre-consultation Meeting	_____	Conservation Authority Fee	_____
Application Submitted	_____	Well & Septic Info Provided	_____
Complete Application	_____	Planner	_____

Check the type of planning application(s) you are submitting.

- ☐ Official Plan Amendment
- ☐ Zoning By-Law Amendment
- ☐ Temporary Use By-law
- ☐ Draft Plan of Subdivision/Vacant Land Condominium
- ☐ Condominium Exemption
- ☒ Site Plan Application
- ☐ Extension of a Temporary Use By-law
- ☐ Part Lot Control
- ☐ Cash-in-Lieu of Parking
- ☐ Renewable Energy Project or Radio Communication Tower

Please summarize the desired result of this application (for example, a special zoning provision on the subject lands to include additional use(s), changing the zone or official plan designation of the subject lands, creating a certain number of lots, or similar)

Amendment for the previously approved site plan application for exterior die pad expansion.

Property Assessment Roll Number: 403 025 02715

A. Applicant Information

Name of Owner Toyotetsu Canada Inc. c/ Ed Bilopavlovic

Address 88 Park Road

Town and Postal Code Simcoe, N3Y 4J9

Phone Number 519 428 6502

Cell Number 519 428 6502

Email ebilopavic@ttna.com

Name of Applicant Same as above

Address

Town and Postal Code

Phone Number

Cell Number

Email

Name of Agent G Douglas Vallee Limited

Address 2 Talbot St. N

Town and Postal Code Simcoe, N3Y 3W4

Phone Number 519 426 6270

Cell Number

Email cameroncluett@gdvallee.ca

Unless otherwise directed, Norfolk County will forward all correspondence and notices regarding this application 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):
   WINDHAM CON 14 PT LOTS 3 AND 4 37R-9427 PARTS 1 AND 2 PT PARTS 3 AND 4

   Municipal Civic Address: 88 Park Road, Simcoe

   Present Official Plan Designation(s): PROTECTED INDUSTRIAL

   Present Zoning: GENERAL INDUSTRIAL ZONE (MG)

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:
   MANUFACTURING

4. Please describe **all existing** buildings or structures on the subject lands and whether they will 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 the 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:
   REFER TO APPLICATION DRAWING SET

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:
   REFER TO APPLICATION DRAWING SET

7. Are any existing buildings on the subject lands designated under the *Ontario 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:
   2007

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

Note: Please complete all that apply.

1. Please explain what you propose to do on the subject lands/premises which makes this development application necessary:
   Construct exterior concrete slabs for tool die storage.

   _____

   _____

   _____

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? ☐ Yes ■ No If yes, describe its effect:

   _____

   _____

   _____

4. Does the requested amendment remove the subject land from an area of employment? ☐ Yes ■ No If yes, describe its effect:

   _____

   _____

   _____

5. Does the requested amendment alter, replace, or delete a policy of the Official Plan? ☐ Yes ■ 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):

   _____

   _____

   _____

6. Description of land intended to be severed in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Proposed final lot size (if boundary adjustment): _____
   If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: _____

   _____

   Description of land intended to be retained in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Buildings on retained land: _____
7. Description of proposed right-of-way/easement:
   Frontage: _____
   Depth: _____
   Width: _____
   Area: _____
   Proposed use: _____
8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

   _____

9. **Site Information**	**Zoning**	**Proposed**
Please indicate unit of measurement, for example: m, m^2 or %		
Lot frontage		398
Lot depth		409
Lot width		305
Lot area		16.2ha
Lot coverage		37%
Front yard	6m	82m
Rear yard	9m	56m
Left Interior side yard	3m	33m
Right Interior side yard	3m	25.8m
Exterior side yard (corner lot)	6m	95m
Landscaped open space	N/A	N/A
Entrance access width		no change
Exit access width		no change
Size of fencing or screening		no change
Type of fencing		no change

10. Building Size

Number of storeys		no change
Building height		no change
Total ground floor area		no change
Total gross floor area		62,611m2
Total useable floor area		

11. Off Street Parking and Loading Facilities

Number of off street parking spaces	See approved Minor Variance
Number of visitor parking spaces	See approved Minor Variance
Number of accessible parking spaces	See approved Minor Variance
Number of off street loading facilities	See approved Minor Variance

12. Residential (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe: _____

Type	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 example: play facilities, underground parking, games room, or swimming pool):

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: 1

Number of buildings proposed: 1

Is this a conversion or addition to an existing building? ☐ Yes ☒ No

If yes, describe:

No change ot the building under this amendment.

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

_____

_____

_____

Seating Capacity (for assembly halls or similar): _____

Total number of fixed seats: _____

Describe the type of business(es) proposed: Manufacturing

Total number of staff proposed initially: 1223

Total number of staff proposed in five years: 1223

Maximum number of staff on the largest shift: 400

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? ■ Yes ☐ No ☐ Unknown
   If yes, specify the uses (for example: gas station or petroleum storage):
   Existing manufacturing plant.
2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites?☐ Yes ☐ No ■ 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? ☐ Yes ■ No

E. Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*? ■ Yes ☐ 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? ☐ Yes ■ 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? ☐ Yes ■ 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 150
   Wooded area
   ☐ On the subject lands or ■ within 500 meters – distance 21
   Municipal Landfill
   ☐ On the subject lands or ☐ within 500 meters – distance _____
   Sewage treatment plant or waste stabilization plant
   ☐ On the subject lands or ☐ within 500 meters – distance _____
   Provincially significant wetland (class 1, 2 or 3) or other environmental feature
   ☐ On the subject lands or ■ within 500 meters – distance 140
   Floodplain
   ☐ On the subject lands or ☐ within 500 meters – distance _____
   Rehabilitated mine site
   ☐ On the subject lands or ☐ within 500 meters – distance _____
   Non-operating mine site within one kilometre
   ☐ On the subject lands or ☐ within 500 meters – distance _____
   Active mine site within one kilometre
   ☐ 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 _____
   Erosion
   ☐ On the subject lands or ☐ within 500 meters – distance _____
   Abandoned gas wells
   ☐ On the subject lands or ☐ 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? ☒ Yes ☐ No

   If yes, how many people are employed on the subject lands?

   1223 IN 3 SHIFTS

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

In addition, the following additional plans, studies and reports, including but not limited to, **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 Plan applications will require the following supporting materials:

1. Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format
2. Letter requesting that the Holding be removed (if applicable)
3. A cost estimate prepared by the applicant's engineer
4. An estimate for Parkland dedication by a certified land appraiser
5. Property Identification Number (PIN) printout

Standard condominium exemptions will require the following supporting materials:

☐ 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 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 site plan approval, 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, to disclose the registration of all transfer(s) of land and/or 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

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.

Edward Bilopavlovic (TTCA) Digitally signed by Edward Bilopavlovic (TTCA) Date: 2024.09.03 11:17:41 -04'00' — 09/03/2024

Owner/Applicant Signature — Date

M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We Toyotetsu Canada Inc. c/o Ed Bilopavlovic am/are the registered owner(s) of the lands that is the subject of this application.

I/We authorize G. Douglas Vallee Limited to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

Edward Bilopavlovic (TTCA) Digitally signed by Edward Bilopavlovic (TTCA) Date: 2024.09.03 11:18:02 -04'00' — 09/03/2024

Owner — Date

Owner — Date

N. Declaration

I, Cameron Cluett of Tilsonburg, ON

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*.

Declared before me at:

NORFOLK COUNTY

Owner/Applicant Signature

In TOWN OF SIMCOE

This 9TH day of SEPTEMBER

A.D., 2024

A Commissioner, etc.

ELDON FRASER DARBYSON,
a Commissioner, etc., Province of Ontario,
for G. Douglas Vallee Limited.
Expires August 21, 2027.

vallee

Consulting Engineers,
Architects & Planners

September 18, 2024

Norfolk County
Planning
Community Development Division
12 Gilbertson Drive
Simcoe, ON N3Y 3N3

Attention: **Mohammad Alam, MPL, MUD, RPP, MCIP**
Supervisor, Development Planning

Reference: **Site Plan Amendment Application**
TTCA Outdoor Concrete Pads
Simcoe, Norfolk County
Project No. 24-088

Please find the enclosed revised documents for Site Plan Amendment Application at Toyotetsu Canada, Inc. (TTCA) at 88 Park Road in Simcoe, ON. The intent of this application is to incorporate exterior concrete pads at the existing plant facility.

Design drawings that were previously submitted on September 9, 2024 have been revised as per comments received from the County. It should be noted that the current design drawings (Rev 2) reflect existing conditions on the site. A former construction entrance at the north end of the site to Fourteenth Street, which appears on aerial imagery and Google Street View, is no longer in place as it was removed following completion of the Phase 7-10 works.

A Stormwater Management Brief has been included in this submission as requested by the County.

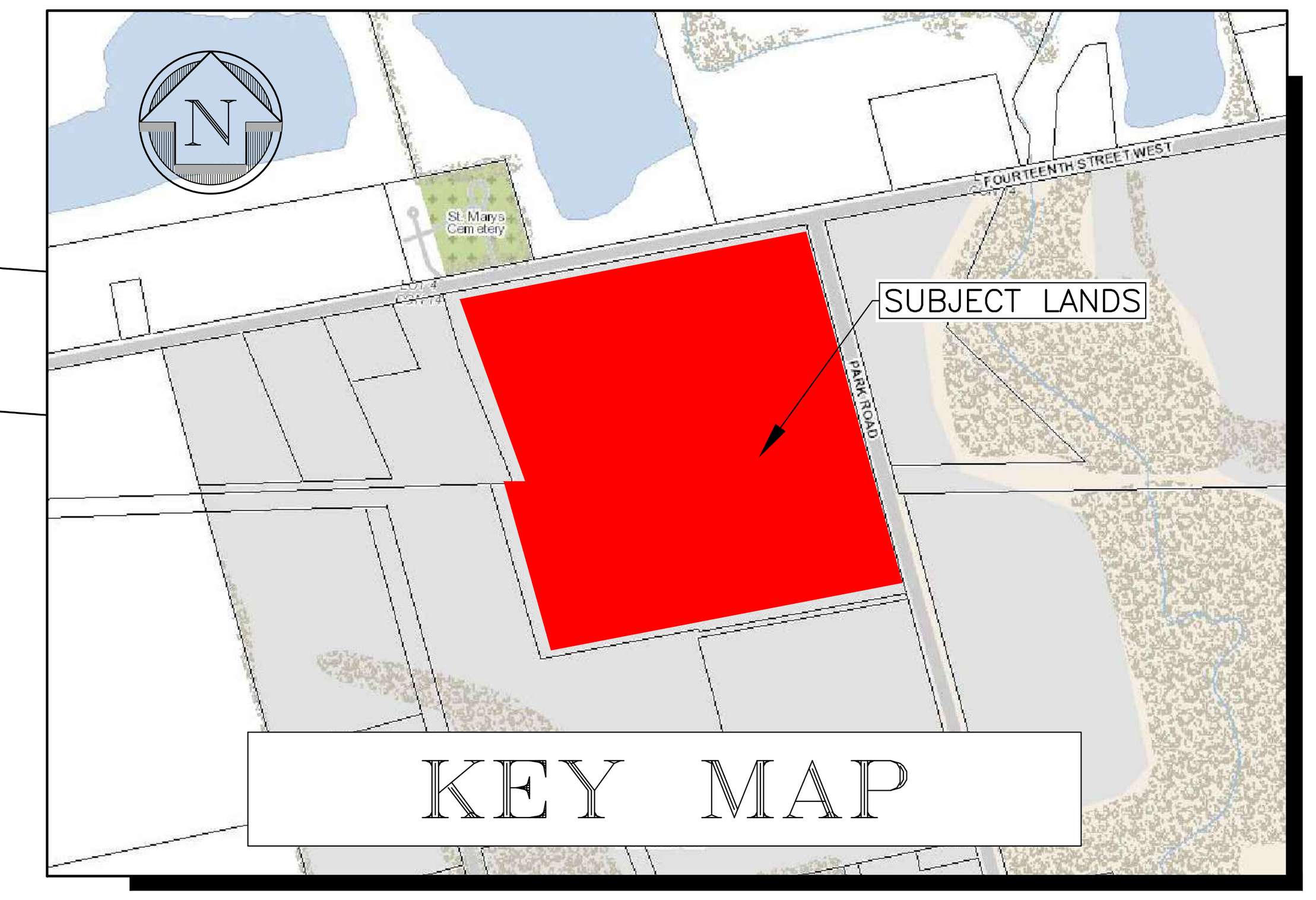
The construction of these exterior concrete pads is extremely time sensitive for TTCA and their plant operations. We understand that a building permit is not required for this work. Therefore, it is the intent of TTCA to move forward with construction immediately, and possibly prior to approval of this application. Norfolk County's efforts to expedite this approval will be appreciated.

Respectfully submitted,

Cameron Cluett, P.Eng.
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects and Planners

H:\Projects\2024\24-088 TTCA Outdoor Die Storage Pads\Agency\Site Plan Amendment\24-088 Site Plan Amendment Cover Letter.docx

C: Edward Bilopavlovic (TTCA)
Encl. Site Plan Amendment Application Form
Site Plan Design Drawings C100, C101 – Rev 2 – 2024.09.18
Stormwater Management Brief – 2024.09.18



REV. No.	DATE	REVISION
0	AUG 22/24	ISSUED FOR SITE PLAN AMENDMENT APPLICATION
1	SEPT 09/24	ISSUED FOR CONTRACTOR PRICING
2	SEPT 18/24	REVISED PER COUNTY COMMENTS

NOTE:
THE CONTRACTOR IS CAUTIONED THAT ALL OF THE EXISTING UTILITIES ARE NOT INDICATED ON THIS DRAWING. THE CONTRACTOR MUST ARRANGE FOR LOCATES FROM EACH AREA UTILITY COMPANY PRIOR TO ANY CONSTRUCTION OR EXCAVATION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES INCLUDING THOSE NOT INDICATED ON THIS DRAWING. G. DOUGLAS VALLEE LTD. CANNOT ACCEPT RESPONSIBILITY FOR DAMAGE TO ANY EXISTING UTILITY WHICH MAY OR MAY NOT BE INDICATED ON THIS DRAWING.

ALL WORK, MATERIALS AND PROCESSES TO CONFORM TO NORFOLK COUNTY STANDARDS AND SPECIFICATIONS

SURVEY INFORMATION

TOPOGRAPHIC SURVEY: COMPLETED BY G. DOUGLAS VALLEE LIMITED ON JUNE 10, 2024

LEGAL DESCRIPTION: WINDHAM CONCESSION 14 PT LOTS 3 AND 4, 37R-9427 PARTS 1 AND 2, PT PARTS 3 AND 4.

BENCHMARKS

CAUTION: BENCHMARKS ESTABLISHED ON SEPTEMBER 17, 2024. CURRENT BENCHMARKS DO NOT MATCH BENCHMARKS FROM PREVIOUS SITE PLAN AMENDMENTS

BM #1 — TOP OF LARGE NOZZLE OF FIRE HYDRANT ON BOULEVARD TO NORTHEAST OF ROUNDABOUT. ELEV. 228.28m

BM #2 — TOP OF LARGE NOZZLE OF FIRE HYDRANT 26.79m FROM NORTHEAST CORNER OF TTCA BUILDING. ELEV. 227.54m

BM #3 — TOP OF LARGE NOZZLE OF FIRE HYDRANT 58.79m FROM NORTHWEST CORNER OF TTCA BUILDING. ELEV. 227.44m

APPLICANT INFORMATION

TOYOTETSU (TOYOTETSU CANADA INC.)
NAME: EDWARD BILOPAVLOVIC
TELEPHONE NUMBER: 519-428-6502
ADDRESS: 88 PARK ROAD, SIMCOE, ONTARIO

DRAWING LIST

G. DOUGLAS VALLEE LIMITED DRAWINGS

24-088-C100 OVERALL SITE PLAN
24-088-C101 SITE PLAN AND GRADING PLAN

SUBMISSION DRAWING

NOT TO BE USED FOR CONSTRUCTION

SCALE: 10 30 50
HORIZONTAL : 1:1000

DO NOT SCALE DRAWINGS, CALL FOR ANY CLARIFICATIONS THAT ARE REQUIRED, FIELD VERIFY AT ALL BUILT CONDITIONS

ALL DRAWINGS ARE TO BE READ IN COLOUR
ORIGINAL PAGE SIZE ARCH 'D' - 24" x 36"

EXISTING CONDITIONS LEGEND

- PROPERTY LINE
- EXISTING BUILDING
- PROPOSED CONCRETE
- EXISTING RIPRAP
- EXISTING ACCESS
- EXISTING FLUSH ACCESS
- EXISTING MAN DOOR

PARKING SUMMARY TABLE

USAGE	Application	Required	Proposed	Total Spaces Provided
Manufacturing, Offices and Common Areas	ANPLE2013096	402	(with 4 accessible spaces)	402
Manufacturing, Offices and Common Areas	SPPL2018243	402	23	558
Manufacturing, Offices and Common Areas	SPPL2021226/ANPL2021154	491	~~(addition of 66 spaces)~~ not constructed	~~624~~
Accessible Parking	ANPLE2013096	9	reduced to 4	4
Accessible Parking	SPPL2018243	4	Add 1 (total of 5 spaces)	3 Type A 2 Type B
Accessible Parking	SPPL2021226/ANPL2021154	5	3	4 Type A 4 Type B
Existing Standard Parking Spaces Provide				558
Required Accessible Parking Spaces up to				5
Existing Accessible Parking Spaces Provid				8

NOTE: It is unclear when the additional parking was approved through site plan control. However, parking requirements have been

Consulting Engineers, Architects & Planners

G. DOUGLAS VALLEE LIMITED
2 TALBOT STREET NORTH
SIMCOE, ONTARIO N3Y 3W4
(519) 426-6270

Stamp
LICENCED PROFESSIONAL ENGINEER
2024-09-18
C.CLUETT
100214735
PROVINCE OF ONTARIO

Project Title
TOYOTETSU DIE PADS
SITE PLAN AMENDMENT
SIMCOE
NORFOLK COUNTY

Drawing Title
OVERALL SITE PLAN

Designed by : CJC	Drawn By : CJC
Checked by : JTI	Date Started : JULY 2024
Drawing Scale : 1:1000	Drawing No. C100
Project No. 24-088	

DATE LAST PLOTTED : September 18, 2024
FILE PATH: h:\Projects\2024\24-088 ttca outdoor die storage pads\Drawings\Civil\02-production drawings\24-088 C101 SITE PLAN AND GRADING PLAN.dwg

REV. No.	DATE	REVISION
0	AUG 22/24	ISSUED FOR SITE PLAN AMENDMENT APPLICATION
1	SEPT 09/24	ISSUED FOR CONTRACTOR PRICING
2	SEPT 18/24	REVISED PER COUNTY COMMENTS

NOTE:
THE CONTRACTOR IS CAUTIONED THAT ALL OF THE EXISTING UTILITIES ARE NOT INDICATED ON THIS DRAWING. THE CONTRACTOR MUST ARRANGE FOR LOCATES FROM EACH AREA UTILITY COMPANY PRIOR TO ANY CONSTRUCTION OR EXCAVATION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES INCLUDING THOSE NOT INDICATED ON THIS DRAWING. G. DOUGLAS VALLEE LTD. CANNOT ACCEPT RESPONSIBILITY FOR DAMAGE TO ANY EXISTING UTILITY WHICH MAY OR MAY NOT BE INDICATED ON THIS DRAWING.

ALL WORK, MATERIALS AND PROCESSES TO CONFORM TO NORFOLK COUNTY STANDARDS AND SPECIFICATIONS

SURVEY INFORMATION

TOPOGRAPHIC SURVEY: COMPLETED BY G. DOUGLAS VALLEE LIMITED ON JUNE 10, 2024

LEGAL DESCRIPTION: WINDHAM CONCESSION 14 PT LOTS 3 AND 4, 37R-9427 PARTS 1 AND 2, PT PARTS 3 AND 4.

BENCHMARKS

CAUTION: BENCHMARKS ESTABLISHED ON SEPTEMBER 17, 2024. CURRENT BENCHMARKS DO NOT MATCH BENCHMARKS FROM PREVIOUS SITE PLAN AMENDMENTS

BM #1 — TOP OF LARGE NOZZLE OF FIRE HYDRANT ON BOULEVARD TO NORTHEAST OF ROUNDABOUT. ELEV. 228.28m

BM #2 — TOP OF LARGE NOZZLE OF FIRE HYDRANT 26.79m FROM NORTHEAST CORNER OF TTCA BUILDING. ELEV. 227.54m

BM #3 — TOP OF LARGE NOZZLE OF FIRE HYDRANT 58.79m FROM NORTHWEST CORNER OF TTCA BUILDING. ELEV. 227.44m

APPLICANT INFORMATION

TOYOTETSU (TOYOTETSU CANADA INC.)
NAME: EDWARD BILOPAVLOVIC
TELEPHONE NUMBER: 519-428-6502
ADDRESS: 88 PARK ROAD, SIMCOE, ONTARIO

DRAWING LIST

G. DOUGLAS VALLEE LIMITED DRAWINGS

24-088-C100 OVERALL SITE PLAN
24-088-C101 SITE PLAN AND GRADING PLAN

SUBMISSION DRAWING

NOT TO BE USED FOR CONSTRUCTION

SCALE: 4 12 20
HORIZONTAL : 1:400

DO NOT SCALE DRAWINGS, CALL FOR ANY CLARIFICATIONS THAT ARE REQUIRED, FIELD VERIFY AT ALL BUILT CONDITIONS

ALL DRAWINGS ARE TO BE READ IN COLOUR ORIGINAL PAGE SIZE ARCH 'D' - 24" x 36"

vallee
Consulting Engineers, Architects & Planners

G. DOUGLAS VALLEE LIMITED
2 TALBOT STREET NORTH
SIMCOE, ONTARIO N3Y 3W4
(519) 426-6270

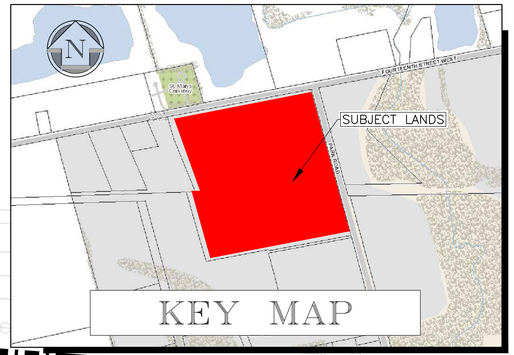
Stamp

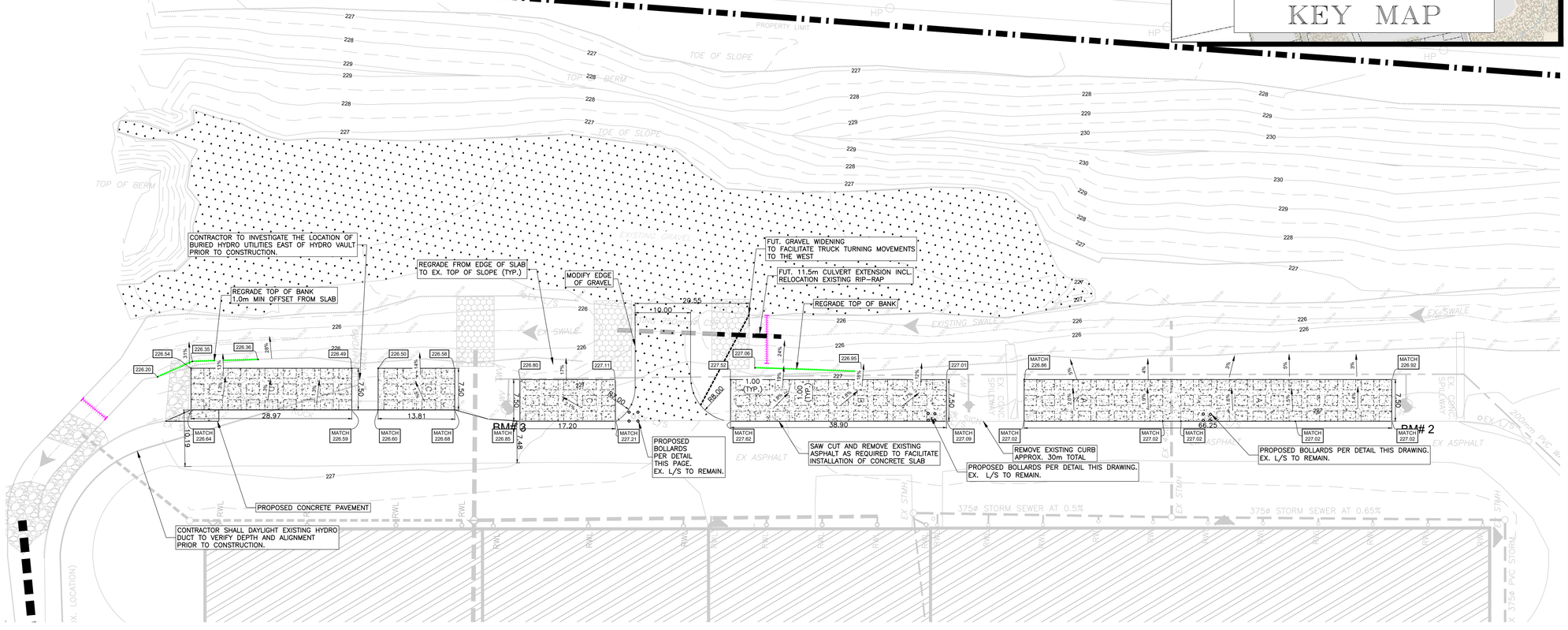
LICENCED PROFESSIONAL ENGINEER
2024-09-18
C.CLUETT
100214735
PROVINCE OF ONTARIO

Project Title
TOYOTETSU DIE PADS
SITE PLAN AMENDMENT
SIMCOE
NORFOLK COUNTY

Drawing Title
SITE PLAN & GRADING PLAN

Designed by : CJC	Drawn By : CJC
Checked by : JTI	Date Started : JULY 2024
Drawing Scale : 1:400	Drawing No. C101
Project No. 24-088	





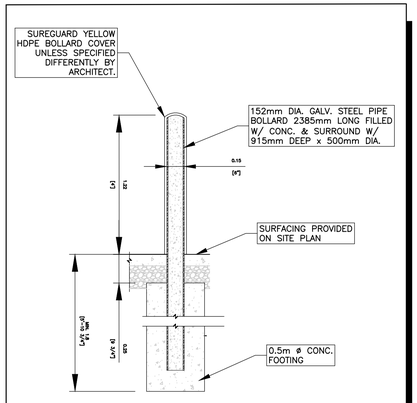
NOTES:

1. REFER TO DRAWING S100 FOR CONCRETE SLAB DESIGN.
2. GENERAL CONTRACTOR TO COORDINATE ALL WORK WITHIN THE SITE WITH NORFOLK COUNTY AND OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM LOCAL AUTHORITIES. EXECUTE ALL WORK AS PER NORFOLK COUNTY REQUIREMENTS.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL BENCHMARKS, ELEVATIONS, DIMENSIONS AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE ENGINEER.
4. AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES. REPORT ANY DISCREPANCY TO THE ENGINEER IMMEDIATELY.
5. REGRADED AREAS TO BE ESTABLISHED WITH BERMUDA GRASS EXCEPT WERE RIPRAP IS NOTED.
6. COORDINATE WITH STRUCTURAL PLANS FOR CONCRETE SLAB DESIGN AND GRANULAR BASE THICKNESS.
7. ANY EXCESS MATERIAL GENERATED FROM EXCAVATIONS SHALL REMAIN ON-SITE. EXPORTING OF SOIL TO AN OFF-SITE LOCATION IS NOT PERMITTED.
8. EXCESS MATERIAL CAN BE STOCKPILED ON-SITE AT THE EXISTING STOCKPILE NORTH OF THE WORKING AREA.

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DESIGN AND PROVISION OF ALL SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED TO PROTECT THE WORK SITE OR THE ADJACENT LANDS, REGARDLESS OF THE SOURCE OR ORIGIN OF EROSION OR SEDIMENTS. IF THE ENGINEER IS NOT SATISFIED WITH THE EXTENT OF THE MEASURES TAKEN, THE ENGINEER MAY DIRECT THAT ADDITIONAL CONTROLS BE PUT IN PLACE.

   THE ENGINEER'S REQUIREMENTS FOR SEDIMENT AND EROSION CONTROL SHALL BE CONSIDERED ABSOLUTE MINIMUMS. THE ULTIMATE RESPONSIBILITY TO ENSURE THAT THE MEASURES ARE ADEQUATE SHALL LIE SOLELY ON THE CONTRACTOR. ANY DAMAGE RESULTING FROM FAILURE OF THESE MEASURES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. PROTECT ALL EXPOSED SURFACES AND CONTROL ALL RUNOFF DURING CONSTRUCTION.
3. ALL EROSION CONTROL MEASURES TO BE IN PLACE UNTIL RESTORATION IS COMPLETE.
4. MAINTAIN EROSION CONTROL MEASURES DURING CONSTRUCTION.
5. ALL COLLECTED SEDIMENT TO BE DISPOSED OF AT AN APPROVED LOCATION.
6. MINIMIZE AREA DISTURBED DURING CONSTRUCTION.
7. PREVENT WIND-BLOWN DUST.



TYP. BOLLARD DETAIL
N.T.S.

LEGEND

- PROPERTY LINE
- 247.20 — PROPOSED GROUND ELEVATION
- 247.20 — EXISTING GROUND ELEVATION
- 246.2 — EXISTING GROUND CONTOUR (VALLEE SURVEY 2024)
- PROPOSED STRAW BALE FLOW CHECK DAM AS PER OPSD 219.180
- EX./PROPOSED TOP OF SLOPE
- PROPOSED CONCRETE SLAB
- A — DIE PAD A – 2.25m X 1.83m (59)
- B — DIE PAD B – 2.54m X 1.83m (32)
- C — DIE PAD C – 2.44m X 1.83m (27)
- D — DIE PAD D – 2.33m X 1.83m (27)

DATE LAST PLOTTED: September 18, 2024 FILE PATH: N:\Projects\2024\24-088 tico outdoor die storage pads\Drawings\Civil\02-production drawings\24-088 C101 SITE PLAN AND GRADING PLAN.dwg

vallee

Consulting Engineers,
Architects & Planners

September 18, 2024

Toyotetsu Canada Inc.
88 Park Road
Simcoe, Ontario
N3Y 4J9

Attention: **Ed Bilopavlovic**

Reference: **Stormwater Management Brief**
Site Plan Amendment Application – Outdoor Concrete Pads
Simcoe, Norfolk County
Project No. 24-088

Introduction

This Stormwater Management Brief has been prepared to accompany the Site Plan Amendment Application that was submitted by G. Douglas Vallee Limited (Vallee) on behalf of Toyotetsu Canada Inc. (TTCA). The intent of the application is to incorporate exterior concrete pads at the existing TTCA facility located at 88 Park Road in Simcoe, Ontario (the 'Site').

The Stormwater Management Report dated August 6, 2021 by Vallee is the most recent report for the Site and was prepared for the Phase 7-10 Site Plan Amendment. The 2021 report concluded the Phase 7-10 design proposed an overall impervious area on the site which was less than the assumed amount from the original stormwater management design from the Judd Industrial Park/Toyotetsu Site SWM Report dated May 30, 2006. The 2006 report assumed 80% impervious area for the Site whereas the total Site impervious area from the Phase 7-10 design was only 69%.

Proposed Development

The proposed work under the current Amendment Application consists of constructing five (5) exterior concrete pads on the north side of the Site. The total area of all five proposed concrete pads is 0.124ha and the resulting increase in impervious area to the Site is 0.111ha; 0.013ha of proposed concrete pads is located on an existing impervious surface.

The total Site area is 16.2ha, therefore the proposed concrete pads increase the amount of impervious surface area by 0.69%. Therefore, the post-development impervious area is approximately 70% of the Site, which is still less than the assumed 80% impervious area from the 2006 SWM design. An increase in impervious area of 0.69% is considered negligible and the conclusions from the 2021 SWM report remain valid.

Erosion and Sediment Control

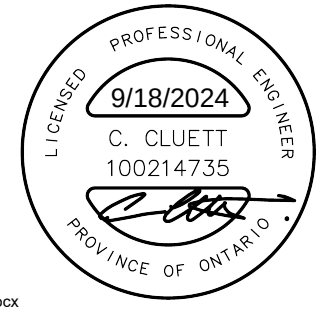
During construction, the contractor is required to protect the work area and all adjacent lands from sediment and erosion regardless of the source to the satisfaction of all applicable parties. The measures installed by the contractor are to remain in place until such time as there is no further threat of damage at completion of the development and once all vegetation is established. Proposed erosion control measures to be implemented during construction are shown on Drawing C101 – Site Plan and Grading Plan, which is included in the Site Plan Amendment Application. The measures include, at an absolute minimum, silt fencing around the work area and straw bales in the existing ditch downstream of the work area.

Conclusions and Recommendations

This Stormwater Management Brief describes how the existing conditions of the Site and the proposed development described in the current Site Plan Amendment Application are within the assumptions of the original stormwater management design for the Judd Industrial Park/Toyotetsu Site from 2006.

It is recommended that this report be provided to Norfolk County in support of the Site Plan Amendment Application for the proposed development.

Respectfully submitted,



Cameron Cluett, P.Eng.
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects and Planners

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Encl.

- Stormwater Management Report Toyotetsu Office and Plant Expansion Phase 7-10 (August 6, 2021)

Drawing List Submitted with Site Plan Amendment Application
24-088-C100 – Overall Site Plan
24-088-C101 – Site Plan & Grading Plan

vallee

Consulting Engineers, Architects & Planners

August 6, 2021

Toyotetsu Canada Inc.
88 Park Road
Simcoe, Ontario
N3Y 4J9

Attention: Mr. Ed Bilopavlovic

Dear Mr. Bilopavlovic:

Reference: Storm Water Management Report
Toyotetsu Office and Plant Expansion Phase 7-10
Simcoe – Norfolk County
Our File 20-102

1.0 Introduction

This Storm Water Management Report has been prepared in support of the site plan approval application to accommodate the expansion of operations at the operating industrial business located at the corner of Park Road and Fourteenth Street West in Simcoe Ontario. The scope of the proposed work is to provide approximately 701m^2 of additional training facility, 455m^2 of additional office space, 11,135m^2 of plant space, and an additional 66 asphalt parking spaces.

It is critical to ensure that the proposed construction can be accommodated by the originally designed stormwater management system. This report demonstrates that the designed system can indeed accommodate the proposed changes.

2.0 Pre-Development

Review of our 2006 stormwater management (SWM) model for Toyotetsu Canada Inc. original Site Plan Application reveals that the stormwater pond was designed with the parameters provided in Table 1 and 2 below. The SWMHYMO output from the 2006 SWM report for this model is included in Appendix A.

Table 1
2006 SWMHYMO Model Input – Pre-Development

Parameter	Toyotetsu	Undeveloped
Area (ha)	16.2 ha	8.3 ha
Total Impervious (TIMP)	80%	44%
Cross-Connected (XIMP)	50%	36%

Table 2 Visual Otthymo Model Input – Pre-Development	
Parameter	**Building Site Parking Site**
Area (ha)	24.5ha
Hydrologic Soil Group	AB
Curve Number	70
IA (mm)	7.2
Time of Concentration (Airport)	95 minutes
Average Slope (%)	0.3%

The pre-development target release rates, and the pond's design volume, established in the original 2006 SWM report, are provided in Table 3 below. All future development within Judd Industrial Park will need to ensure that the SWM facility can continue to accommodate these original target discharge rates.

Table 3 - Judd Industrial Park Storm Pond Targets	
Storm Event	**Pond Peak Discharge (cms)**
2	0.177
5	0.265
10	0.344
25	0.450
50	0.548
100	0.690
Storage Provided (ha.m.)	1.516

3.0 Post-Development

The proposed work includes a training facility addition, a concrete pad, an office addition, and a plant expansion. As a result, the rear swale on the property is proposed to be rerouted and box culverts are proposed to facilitate driveway crossings. The proposed swale is sized to convey the 100-year storm at a 0.74 m flow depth. The box culverts provide a 0.9 m high opening and are demonstrated to allow the 100-year storm event pass at a peak depth of 0.64 m flow depth. Flow calculations for these are provided in Appendix B. This calculation is also provided in a Storm Sewer Design Sheet Format in Appendix B to satisfy the site plan application requirements.

Once the storm water has been conveyed from the site, it will enter the Judd Industrial Park's SWM facility. The 100-year design flow from the TTCA portion of the park to the SWM pond was 5.69 m^3/s. In the proposed development the flow remains below this designed peak flow, reaching only 4.71 m^3/s in the 100-year event.

Additionally, the post-development conditions of the SWM facility cannot exceed the pre-development release rates, or the available storage in the existing pond as outlined in Table 3.

A Visual Otthymo computer model was used to simulate the sub-watershed under post-development conditions. The simulations were conducted using the 4-hour Chicago Distribution Norfolk County design storm of the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storm events. The output of the Visual OTTHYMO simulation is provided in Appendix C.

The Toyotetsu site was originally modelled at 80% impervious (see Table 1 and Appendix A) with of 50% directly connected. The proposed development will bring the Toyotetsu site up to 69% impervious and 52% directly connected.

Table 4 summarizes the results of the post-development simulation and demonstrates that the Judd Industrial Park SWM facility will remain within its pre-development release conditions and not exceed available storage under the proposed Toyotetsu development.

Table 4 - Judd Industrial Park Storm Pond Impact

	Pre-Development Target*		Post-Development	
Storm Event	Pond Peak Out Flow (cms)	Pond Storage Provided (ham)	Pond Peak Out Flow (cms)	Pond Storage Required (ham)
2	0.177	1.5159	0.048	0.4648
5	0.265	1.5159	0.066	0.7119
10	0.344	1.5159	0.143	0.8523
25	0.450	1.5159	0.266	0.9991
50	0.548	1.5159	0.368	1.1008
100	0.690	1.5159	0.471	1.1940

** As per Judd Industrial Park / Toyotetsu Site SWM Report dated May 30, 2006*

In the post-development condition, all 2-year through 100-year storm events have release rates from the pond that are below the established pre-development rates. The pond also provides a storage volume well in excess of what will be utilized in the 100-year storm event: 1.19 ha.m. required compared to 1.52 ha.m provided.

4.0 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 at completion of the development and once all vegetation is established. Shown on Drawing 20-102 C100 are measures that are to be put into place as an absolute minimum, these include silt fence, mud mat, and filter cloth on catch basins.

9.0 Proposed SWM Plan Summary

The following summarizes the proposed SWM Plan for the proposed development as analyzed by this report:

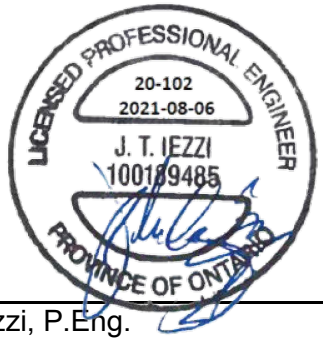
- Impervious area remains below original modelling parameters.
- Directly connected is nominally inline with original modeling parameters.
- SWM facility is shown to continue to operate within the pre-development targets.
- Swale and box culvert sizing shows adequate capacity for conveyance to the SWM facility.
- Erosion Control Measures as shown on the Drawing 20-102 C102 must remain in place until the development of the site is complete.

10.0 Recommendations

It is recommended that this report be provided to the Norfolk County in support of the application for site plan approval of the proposed development.

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

Yours truly,



Jamie L.S. Smith, P.Eng. M.Sc.
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects and Planners

John T. Iezzi, P.Eng.
G. DOUGLAS VALLEE LIMITED
Consulting Engineers, Architects and Planners

H:\Projects\2020\20-102 TTCA Office Expansion Phase 9\Design\Civil\20-102 Stormwater Report.docx

List of Figures – Submitted Site Plan Drawing Set
Drawing 20-102-C100 – Site Plan and Erosion & Sediment Control Plan
Drawing 20-102-C101 – Site Grading and Servicing Plan

List of Appendices
Appendix A: 2006 Pre-Development and Designed SWMHYMO Model Output
Appendix B: Swale and Culvert Sizing, & Storm Sewer Design Sheet
Appendix C: Post-Development Visual Otthymo Model Output

Appendix A

2006 Pre-Development and Designed SWMHYMO Model Output

```
 $$$$$ W   W  H   H  H   H  Y   Y  H   H   OOO        999    999  ==========
 $     W W W  H H H  HH  H   Y Y   H H H  O   O      9   9  9   9
 $$$$$ W W W  HHHHH  H H H    Y    HHHHH  O   O  ##  9   9  9   9  Ver. 4.02
     $  WW WW  H   H  H  HH    Y    H   H  O   O       9999   9999  July 1999
 $$$$$  W W   H   H  H   H    Y    H   H   OOO           9         9  ==========
                                                      9   9  9   9  # 3568969
      StormWater Management HYdrologic Model          999    999  ==========

 ************************************************************************
 ********** SWMHYMO-99 Ver/4.02 **********
 ******* A single event and continuous hydrologic simulation model *******
 *******     based on the principles of HYMO and its successors     *******
 *******               OTTHYMO-83 and OTTHYMO-89.                   *******
 ************************************************************************
 ******* Distributed by: J.F. Sabourin and Associates Inc.          *******
 *******               Ottawa, Ontario: (613) 727-5199            *******
 *******               Gatineau, Quebec: (819) 243-6858           *******
 *******               E-Mail: swmhymo@jfsa.Com                   *******
 ************************************************************************

 ************************************************************************
 ******* Licensed user: G. Douglas Vallee Limited                   *******
 *******              Simcoe              SERIAL#:3568969         *******
 ************************************************************************

 ************************************************************************
 *******          ++++++ PROGRAM ARRAY DIMENSIONS ++++++          *******
 *******          Maximum value for ID numbers  :    10           *******
 *******          Max. number of rainfall points:  15000          *******
 *******          Max. number of flow points    :  15000          *******
 ************************************************************************


 ********************   D E T A I L E D   O U T P U T   ********************
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 * Output filename: D:\DATA\Projects\06-046-2\PRE.out                     *
 * Summary filename: D:\DATA\Projects\06-046-2\PRE.sum                    *
 * User comments:                                                        *
 * 1:_____________________________________________________________       *
 * 2:_____________________________________________________________       *
 * 3:_____________________________________________________________       *
 ************************************************************************

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**#*************************************************************************
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*#  Date        : 04-27-2006
*#  Modeller    : [TGS]
*#  Company     : G. Douglas Vallee Limited
*#  License #   : 3568969
*#*************************************************************************
************************************************************************
**
**
* PREDEVELOPMENT
**
**
************************************************************************

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    NSTORM=   1
           #  1=CH2.STM
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             hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
             .17  3.250 |  1.17  8.940 |  2.17  8.150 |  3.17  4.390
             .33  3.560 |  1.33 16.920 |  2.33  7.010 |  3.33  4.110
             .50  3.960 |  1.50 78.820 |  2.50  6.200 |  3.50  3.890
             .67  4.520 |  1.67 21.890 |  2.67  5.590 |  3.67  3.660
             .83  5.310 |  1.83 13.000 |  2.83  5.110 |  3.83  3.510
            1.00  6.550 |  2.00  9.880 |  3.00  4.720 |  4.00  3.350

--------------------------------------------------------------------------------
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**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
************************************************************************
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| 01:PREDEV DT= 1.00|   Ia      (mm)=    1.500  # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    1.580

    Unit Hyd Qpeak  (cms)=      .592

    PEAK FLOW       (cms)=      .177 (i)
    TIME TO PEAK    (hrs)=     3.783
    RUNOFF VOLUME    (mm)=     9.791
    TOTAL RAINFALL   (mm)=    39.385
    RUNOFF COEFFICIENT   =      .248

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

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**
* RUN MODEL FOR ALL OTHER STORM EVENTS
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*#  Date        : 04-27-2006
*#  Modeller    : [TGS]
*#  Company     : G. Douglas Vallee Limited
*#  License #   : 3568969
*#*************************************************************************
************************************************************************
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**
* PREDEVELOPMENT
**
**
************************************************************************
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             hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
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             .33  3.650 |  1.33 21.620 |  2.33  7.700 |  3.33  4.220
             .50  4.040 |  1.50 112.370|  2.50  6.680 |  3.50  3.960
             .67  4.670 |  1.67 27.760 |  2.67  5.948 |  3.67  3.730
             .83  5.610 |  1.83 15.750 |  2.83  5.390 |  3.83  3.530
            1.00  7.110 |  2.00 11.430 |  3.00  4.930 |  4.00  3.350

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**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
************************************************************************
---------------------
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| 01:PREDEV DT= 1.00|   Ia      (mm)=    1.500  # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    1.580

    Unit Hyd Qpeak  (cms)=      .592

    PEAK FLOW       (cms)=      .265 (i)
    TIME TO PEAK    (hrs)=     3.583
    RUNOFF VOLUME    (mm)=    14.162
    TOTAL RAINFALL   (mm)=    46.476
    RUNOFF COEFFICIENT   =      .292

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

--------------------------------------------------------------------------------
002:0004----------------------------------------------------------------------
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**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
************************************************************************
--------------------------------------------------------------------------------
002:0002----------------------------------------------------------------------
  ** END OF RUN :  2

************************************************************************




---------------------
| START             |  Project dir.: D:\DATA\Projects\06-046-2\
---------------------  Rainfall dir.: D:\DATA\Projects\06-046-2\
    TZERO =   .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 003
    NSTORM=   1
           #  1=CH10.STM
--------------------------------------------------------------------------------
003:0002----------------------------------------------------------------------
*#*************************************************************************
*#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
*#  Date        : 04-27-2006
*#  Modeller    : [TGS]
*#  Company     : G. Douglas Vallee Limited
*#  License #   : 3568969
*#*************************************************************************
************************************************************************
**
**
* PREDEVELOPMENT
**
**
************************************************************************
--------------------------------------------------------------------------------
003:0002----------------------------------------------------------------------
---------------------
| READ STORM        |    Filename: D:\DATA\Projects\06-046-2\CH10.STM
| Ptotal= 56.08 mm  |    Comments: 10 YEAR CHICAGO 4 HOURS DESIGN DISTRIBUT
---------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	3.580	1.17	11.510	2.17	10.310	3.17	5.050
.33	3.990	1.33	25.320	2.33	8.660	3.33	4.700
.50	4.500	1.50	133.600	2.50	7.520	3.50	4.394
.67	5.210	1.67	32.000	2.67	6.650	3.67	4.146
.83	6.270	1.83	19.730	2.83	5.380	3.83	3.910
1.00	8.000	2.00	12.954	3.00	5.490	4.00	3.632

```
003:0003----------
**********
**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
**********
---------------------
| DESIGN NASHYD     |   Area     (ha)=   24.50   Curve Number    (CN)=70.00
| 01:PREDEV DT= 1.00 |   Ia       (mm)=   1.500   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=   1.580

     Unit Hyd Qpeak  (cms)=      .592

     PEAK FLOW       (cms)=      .344 (i)
     TIME TO PEAK    (hrs)=     3.533
     RUNOFF VOLUME    (mm)=    18.229
     TOTAL RAINFALL   (mm)=    56.083
     RUNOFF COEFFICIENT  =      .325

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

----------
003:0004----------
**********
**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
**********
----------
003:0002----------
----------
003:0002----------
  ** END OF RUN :   3

**********
```

```
---------------------
| START             |   Project dir.: D:\DATA\Projects\06-046-2\
---------------------   Rainfall dir.: D:\DATA\Projects\06-046-2\
    TZERO =    .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 004
    NSTORM=   1
           #  1=CH25.STM
----------
004:0002----------
*#**********
*#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
*#  Date        : 04-27-2006
*#  Modeller    : [TGS]
*#  Company     : G. Douglas Vallee Limited
*#  License #   : 3560969
*#**********
**********
**
**
* PREDEVELOPMENT
**
**
**********
----------
004:0002----------
---------------------
| READ STORM        |   Filename: D:\DATA\Projects\06-046-2\CH25.STM
| Ptotal= 66.02 mm  |   Comments: 25 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTI
---------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	4.500	1.17	13.670	2.17	12.320	3.17	6.270
.33	4.980	1.33	27.690	2.33	10.440	3.33	5.000
.50	5.613	1.50	158.850	2.50	9.144	3.50	5.840
.67	6.450	1.67	35.080	2.67	8.150	3.67	5.180
.83	7.700	1.83	20.600	2.83	7.390	3.83	4.900
1.00	9.700	2.00	15.240	3.00	6.780	4.00	4.650

```
----------
004:0003----------
**********
**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
**********
---------------------
| DESIGN NASHYD     |   Area     (ha)=   24.50   Curve Number    (CN)=70.00
| 01:PREDEV DT= 1.00 |   Ia       (mm)=   1.500   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=   1.580

     Unit Hyd Qpeak  (cms)=      .592

     PEAK FLOW       (cms)=      .450 (i)
     TIME TO PEAK    (hrs)=     3.550
     RUNOFF VOLUME    (mm)=    24.032
     TOTAL RAINFALL   (mm)=    66.023
     RUNOFF COEFFICIENT  =      .364

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

----------
004:0004----------
**********
```

```
**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
**********
----------
004:0002----------
----------
004:0002----------
----------
004:0002----------
  ** END OF RUN :   4

**********
```

```
---------------------
| START             |   Project dir.: D:\DATA\Projects\06-046-2\
---------------------   Rainfall dir.: D:\DATA\Projects\06-046-2\
    TZERO =    .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 005
    NSTORM=   1
           #  1=CH50.STM
----------
005:0002----------
*#**********
*#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
*#  Date        : 04-27-2006
*#  Modeller    : [TGS]
*#  Company     : G. Douglas Vallee Limited
*#  License #   : 3560969
*#**********
**********
**
**
* PREDEVELOPMENT
**
**
**********
----------
005:0002----------
---------------------
| READ STORM        |   Filename: D:\DATA\Projects\06-046-2\CH50.STM
| Ptotal= 72.96 mm  |   Comments: 50 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTI
---------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.17	3.990	1.17	14.270	2.17	12.620	3.17	5.790
.33	4.450	1.33	33.900	2.33	10.390	3.33	5.330
.50	5.080	1.50	186.560	2.50	8.890	3.50	4.980
.67	5.970	1.67	44.810	2.67	7.800	3.67	4.650
.83	7.290	1.83	23.440	2.83	6.960	3.83	4.370
1.00	9.530	2.00	16.260	3.00	6.300	4.00	4.140

```
----------
005:0003----------
**********
**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
**********
---------------------
| DESIGN NASHYD     |   Area     (ha)=   24.50   Curve Number    (CN)=70.00
| 01:PREDEV DT= 1.00 |   Ia       (mm)=   1.500   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=   1.580

     Unit Hyd Qpeak  (cms)=      .592

     PEAK FLOW       (cms)=      .548 (i)
     TIME TO PEAK    (hrs)=     3.450
     RUNOFF VOLUME    (mm)=    28.321
     TOTAL RAINFALL   (mm)=    72.962
     RUNOFF COEFFICIENT  =      .388

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

----------
005:0004----------
**********
**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
**********
----------
005:0002----------
----------
005:0002----------
----------
003:0002----------
----------
005:0002----------
  ** END OF RUN :   5

**********
```

```
---------------------
| START             |   Project dir.: D:\DATA\Projects\06-046-2\
---------------------   Rainfall dir.: D:\DATA\Projects\06-046-2\
    TZERO =    .00 hrs on        0
    METOUT=   2 (output = METRIC)
    NRUN  = 006
    NSTORM=   1
           #  1=CH100.STM
----------
006:0002----------
*#**********
*#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
```

```
*#  Date          : 04-27-2006
*#  Modeller      : [TGS]
*#  Company       : G. Douglas Vallee Limited
*#  License #     :  3568969
**********************************************************************
**
**
* PREDEVELOPMENT
**
**
**********************************************************************
----------------------------------------------------------------------
006:0002----------------------------------------------------------------
---------------------
| READ STORM        |     Filename: D:\DATA\Projects\06-046-2\CH100.STM
| Ptotal=  83.90 mm |     Comments: 100 YEAR CHICAGO 4 HOUR DESIGN STORM DIS
---------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .17   4.500 |   1.17  16.860 |   2.17  14.830 |   3.17   6.500
               .33   5.050 |   1.33  41.070 |   2.33  12.120 |   3.33   6.100
               .50   5.820 |   1.50 205.920 |   2.50  10.310 |   3.50   5.660
               .67   6.830 |   1.67  54.560 |   2.67   9.020 |   3.67   5.280
               .83   8.410 |   1.83  29.170 |   2.83   8.030 |   3.83   4.980
              1.00  11.070 |   2.00  19.280 |   3.00   7.240 |   4.00   4.700

----------------------------------------------------------------------
006:0003----------------------------------------------------------------
**********************************************************************
**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
**********************************************************************
----------------------
| DESIGN NASHYD      |   Area    (ha)=   24.50   Curve Number   (CN)=70.00
| 01:PREDEV DT= 1.00 |   Ia      (mm)=    1.500  # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    1.500

     Unit Hyd Qpeak  (cms)=      .592

     PEAK FLOW       (cms)=      .690 (i)
     TIME TO PEAK    (hrs)=     3.433
     RUNOFF VOLUME    (mm)=    35.502
     TOTAL RAINFALL   (mm)=    83.902
     RUNOFF COEFFICIENT   =      .423

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

----------------------------------------------------------------------
006:0004----------------------------------------------------------------
**********************************************************************
**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
**********************************************************************
----------------------------------------------------------------------
006:0002----------------------------------------------------------------
----------------------------------------------------------------------
006:0002----------------------------------------------------------------
----------------------------------------------------------------------
006:0002----------------------------------------------------------------
----------------------------------------------------------------------
006:0002----------------------------------------------------------------
----------------------------------------------------------------------
006:0002----------------------------------------------------------------
      FINISH
----------------------------------------------------------------------
**********************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
  Simulation ended on 2006-04-27     at 15:10:56
======================================================================
```

```
2     Metric units
*#*************************************************************************
*#  Project Name: [JUDD PARK TOYOTETSU]    Project Number: [06-046]
*#  Date        : 04-27-2006
*#  Modeller    : [TGS]
*#  Company     : G. Douglas Vallee Limited
*#  License #   :  3560969
*#*************************************************************************
**********************************************************************
**
**
* PREDEVELOPMENT
**
**
**********************************************************************
START                TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
                     ["CH2.STM"]
*%-----------------|-------------------------------------------------------|
READ STORM           STORM_FILENAME=["STORM.001"]
*%-----------------|-------------------------------------------------------|
**********************************************************************
**
**
* DETERMINE PREDEVELOPMENT HYDROGRAPH
**
**
**********************************************************************
DESIGN NASHYD        ID=[1], NHYD=["PREDEV"], DT=[1.0]min, AREA=[24.5](ha),
                     DWF=[0](cms), CN/C=[70], TP=[1.58]hrs,
                     RAINFALL=[  ,   ,   ,   ](mm/hr), END=-1
*%-----------------|-------------------------------------------------------|
**********************************************************************
**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
**********************************************************************
*%-----------------|-------------------------------------------------------|
START                TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[2]
                     ["CH5.STM"]
*%-----------------|-------------------------------------------------------|
START                TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[3]
                     ["CH10.STM"]
*%-----------------|-------------------------------------------------------|
START                TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[4]
                     ["CH25.STM"]
*%-----------------|-------------------------------------------------------|
START                TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[5]
                     ["CH50.STM"]
*%-----------------|-------------------------------------------------------|
START                TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[6]
                     ["CH100.STM"]
*%-----------------|-------------------------------------------------------|
FINISH
```

```
2     Metric units
*#*************************************************************************
*#  Project Name: (JUDD PARK TOYOTETSU)     Project Number: (06-046)
*#  Date        : 04-27-2006
*#  Modeller    : (TGS)
*#  Company     : G. Douglas Vallee Limited
*#  License #   :  3568969
*#*************************************************************************
**********************************************************************
**
**
* POST DEVELOPMENT
**
**
**********************************************************************
START                 TZERO=[0.0],  METOUT=[2],  NSTORM=[1],  NRUN=[1]
                      ["CH2.STM"]
*$-------------------|-----------------------------------------------------|
READ STORM            STORM_FILENAME=["STORM.001"]
*$-------------------|-----------------------------------------------------|
**********************************************************************
**
**
* DETERMINE POST DEVELOPMENT HYDROGRAPHS
**
**
**********************************************************************
**
**
* TOYOTETSU SITE 16.2 HA
**
**
**********************************************************************
DESIGN STANDHYD       ID=[1], NHYD=["TOYOTA"], DT=[1]min, AREA=[16.2](ha),
                      XIMP=[0.50], TIMP=[0.8], DWF=[0](cms), LOSS=[2], CN=[70],
                      SLOPE=[1.0](%), RAINFALL=[ , , , , ](mm/hr), END=-1
*$-------------------|-----------------------------------------------------|
**********************************************************************
**
**
* FUTURE DEVELOPMENT
**
**
**********************************************************************
DESIGN STANDHYD       ID=[2], NHYD=["FUTURE"], DT=[1]min, AREA=[6.3](ha),
                      XIMP=[0.36], TIMP=[0.44], DWF=[0](cms), LOSS=[2], CN=[70],
                      SLOPE=[1.0](%), RAINFALL=[ , , , , ](mm/hr), END=-1
*$-------------------|-----------------------------------------------------|
ADD HYD               IDsum=[3], NHYD=["PONDIN"], IDs to add=[1,2]
*$-------------------|-----------------------------------------------------|
**********************************************************************
**
**
* ROUTE THROUGH RESERVOIR
**
**
**********************************************************************
ROUTE RESERVOIR       IDout=[4],   NHYD=["PNDOUT"],  IDin=[3],
                      RDT=[1](min),
                            TABLE of [ OUTFLOW-STORAGE ] values
                                        (cms) - (ha-m)
                                       [   0.0 ,   0.0 ]
                                       [ 0.015594, 0.01311]
                                       [ 0.022053, 0.02721]
                                       [ 0.02701, 0.04384]
                                       [ 0.031188, 0.06962]
                                       [ 0.03487, 0.109735]
                                       [ 0.038195, 0.164385]
                                       [ 0.041258, 0.23378]
                                       [ 0.044107, 0.318125]
                                       [ 0.046783, 0.414825]
                                       [ 0.049313, 0.517235]
                                       [ 0.05172, 0.621395]
                                       [ 0.068023, 0.72729]
                                       [ 0.120989, 0.834905]
                                       [ 0.214911, 0.944225]
                                       [ 0.319742, 1.055235]
                                       [ 0.440468, 1.16792]
                                       [ 0.57516, 1.282265]
                                       [ 0.722529, 1.398255]
                                       [ 0.881496, 1.515875]
                                       [   -1   ,   -1   ]  (max twenty pts)
                            IDovf=[5], NHYDovf=["PNDOVR"]
*$-------------------|-----------------------------------------------------|
*$-------------------|-----------------------------------------------------|
**********************************************************************
**
**
* RUN MODEL FOR ALL OTHER STORM EVENTS
**
**
**********************************************************************
*$-------------------|-----------------------------------------------------|
START                 TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[2]
                      ["CH5.STM"]
*$-------------------|-----------------------------------------------------|
START                 TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[3]
                      ["CH10.STM"]
*$-------------------|-----------------------------------------------------|
START                 TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[4]
                      ["CH25.STM"]
*$-------------------|-----------------------------------------------------|
START                 TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[5]
                      ["CH50.STM"]
*$-------------------|-----------------------------------------------------|
START                 TZERO=[0.0]hrs or date,  METOUT=[2],  NSTORM=[1],  NRUN=[6]
                      ["CH100.STM"]
*$-------------------|-----------------------------------------------------|
FINISH
```

```
==================================================================================
 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO       999    999  =========
 S       W W W  MM MM  H   H   Y Y   MM MM  O   O     9   9  9   9
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O ##  9   9  9   9 Ver. 4.02
     S   W W   M   M  H   H    Y    M   M  O   O      9999   9999 July 1999
 SSSSS   W W   M   M  H   H    Y    M   M   OOO          9      9 =========
                                                     9   9  9   9 # 3560969
      StormWater Management HYdrologic Model          999    999  =========

**********************************************************************
************************* SWMHYMO-99 Ver/4.02 ************************
*******  A single event and continuous hydrologic simulation model  *******
*******     based on the principles of HYMO and its successors     *******
*******                OTTHYMO-83 and OTTHYMO-89.                  *******
**********************************************************************
******* Distributed by:  J.F. Sabourin and Associates Inc.         *******
*******                  Ottawa,  Ontario: (613) 727-5199          *******
*******                  Gatineau, Quebec: (819) 243-6858          *******
*******                  E-Mail: swmhymo@jfsa.Com                  *******
**********************************************************************

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++ Licensed user: G. Douglas Vallee Limited                   +++++++
+++++++                Simcoe                  SERIAL#:3560969     +++++++
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

**********************************************************************
*******            ++++++ PROGRAM ARRAY DIMENSIONS ++++++          *******
*******            Maximum value for ID numbers   :     10         *******
*******            Max. number of rainfall points:  15000          *******
*******            Max. number of flow points     :  15000         *******
**********************************************************************

*** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) ***
***------------------------------------------------------------------***
***     ID:  Hydrograph IDentification numbers, (1-10).              ***
***   NHYD:  Hydrograph reference numbers, (6 digits or characters). ***
***   AREA:  Drainage area associated with hydrograph, (ac.) or (ha.). ***
***  QPEAK:  Peak flow of simulated hydrograph, (ft^3/s) or (m^3/s). ***
*** TpeakDate_hh:mm is the date and time of the peak flow.           ***
***   R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).    ***
***   R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).    ***
***      *:  see WARNING or NOTE message printed at end of run.      ***
***     **:  see  ERROR  message printed at end of run.              ***
**********************************************************************
**********************************************************************

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

**********************************************************************

*********************    S U M M A R Y   O U T P U T    *********************
**********************************************************************
*      DATE: 2006-05-11      TIME: 13:40:22      RUN COUNTER: 000192       *
**********************************************************************
* Input   filename: D:\DATA\Projects\06-046-2\POST.DAT                 *
* Output  filename: D:\DATA\Projects\06-046-2\POST.out                 *
* Summary filename: D:\DATA\Projects\06-046-2\POST.sum                 *
* User comments:                                                       *
* 1:___________________________________________________________________*
* 2:___________________________________________________________________*
* 3:___________________________________________________________________*
**********************************************************************

#*********************************************************************
#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
#  Date         : 04-27-2006
#  Modeller     : [TGS]
#  Company      : G. Douglas Vallee Limited
#  License #    :  3560969
#*********************************************************************
RUN:COMMAND#
001:0001--------------------------------------------------------------
    START
     [TZERO =     .00 hrs on        0]
     [METOUT=   2     (1=imperial, 2=metric output)]
     [NSTORM=   1 ]
     [NRUN  =   1 ]
001:0002--------------------------------------------------------------
    READ STORM
     Filename = STORM.001
     Comment  = 2 YEAR CHICAGO 4 HOUR DESIGN STORM DISTRIBUTION
     [SDT=10.00:SDUR=   4.00:PTOT=  39.39]
001:0003---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     01:TOYOTA     16.20    1.588 No_date    1:32   28.43 .722
     [XIMP=.50:TIMP=.80]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
001:0004---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     02:FUTURE      8.30     .584 No_date    1:31   20.85 .529
     [XIMP=.36:TIMP=.44]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
001:0005---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ADD HYD             01:TOYOTA     16.20    1.588 No_date    1:32   28.43  n/a
                     +  02:FUTURE      8.30     .584 No_date    1:31   20.85  n/a
     [DT= 1.00]  SUM=   03:PONDIN     24.50    2.166 No_date    1:32   25.86  n/a
001:0006---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ROUTE RESERVOIR ->  03:PONDIN     24.50    2.166 No_date    1:32   25.86  n/a
     [RDT= 1.00] out<-  04:PNDOUT     24.50     .051 No_date    4:21   25.86  n/a
            overflow <= 05:PNDOVR       .00     .000 No_date    0:00     .00  n/a
    [MxStoUsed=.5709E+00, TotOvfVol=.0000E+00, N-Ovf=    0, TotDurOvf=    0.hrs
 ** END OF RUN :    1

**********************************************************************

RUN:COMMAND#
002:0001--------------------------------------------------------------
    START
     [TZERO =     .00 hrs on        0]
     [METOUT=   2     (1=imperial, 2=metric output)]
     [NSTORM=   1 ]
     [NRUN  =   2 ]
#*********************************************************************
#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
#  Date         : 04-27-2006
#  Modeller     : [TGS]
#  Company      : G. Douglas Vallee Limited
#  License #    :  3560969
#*********************************************************************
002:0002--------------------------------------------------------------
    READ STORM
     Filename = STORM.001
     Comment  = 5 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTION
     [SDT=10.00:SDUR=   4.00:PTOT=  48.48]
002:0003---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     01:TOYOTA     16.20    2.485 No_date    1:32   36.38 .750
     [XIMP=.50:TIMP=.80]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
002:0004---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     02:FUTURE      8.30     .892 No_date    1:31   27.16 .560
     [XIMP=.36:TIMP=.44]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
002:0005---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ADD HYD             01:TOYOTA     16.20    2.485 No_date    1:32   36.38  n/a
                     +  02:FUTURE      8.30     .892 No_date    1:31   27.16  n/a
     [DT= 1.00]  SUM=   03:PONDIN     24.50    3.361 No_date    1:31   33.25  n/a
002:0006---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ROUTE RESERVOIR ->  03:PONDIN     24.50    3.361 No_date    1:31   33.25  n/a
     [RDT= 1.00] out<-  04:PNDOUT     24.50     .077 No_date    4:13   33.25  n/a
            overflow <= 05:PNDOVR       .00     .000 No_date    0:00     .00  n/a
    [MxStoUsed=.7425E+00, TotOvfVol=.0000E+00, N-Ovf=    0, TotDurOvf=    0.hrs
 ** END OF RUN :    2

**********************************************************************

RUN:COMMAND#
003:0001--------------------------------------------------------------
    START
     [TZERO =     .00 hrs on        0]
     [METOUT=   2     (1=imperial, 2=metric output)]
     [NSTORM=   1 ]
     [NRUN  =   3 ]
#*********************************************************************
#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
#  Date         : 04-27-2006
#  Modeller     : [TGS]
#  Company      : G. Douglas Vallee Limited
#  License #    :  3560969
#*********************************************************************
003:0002--------------------------------------------------------------
    READ STORM
     Filename = STORM.001
     Comment  = 10 YEAR CHICAGO 4 HOURS DESIGN DISTRIBUTION
     [SDT=10.00:SDUR=   4.00:PTOT=  56.08]
003:0003---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     01:TOYOTA     16.20    3.116 No_date    1:32   43.19 .770
     [XIMP=.50:TIMP=.80]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
003:0004---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     02:FUTURE      8.30    1.102 No_date    1:31   32.70 .583
     [XIMP=.36:TIMP=.44]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
003:0005---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ADD HYD             01:TOYOTA     16.20    3.116 No_date    1:32   43.19  n/a
                     +  02:FUTURE      8.30    1.102 No_date    1:31   32.70  n/a
     [DT= 1.00]  SUM=   03:PONDIN     24.50    4.194 No_date    1:31   39.63  n/a
003:0006---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ROUTE RESERVOIR ->  03:PONDIN     24.50    4.194 No_date    1:31   39.63  n/a
     [RDT= 1.00] out<-  04:PNDOUT     24.50     .148 No_date    4:06   39.63  n/a
            overflow <= 05:PNDOVR       .00     .000 No_date    0:00     .00  n/a
    [MxStoUsed=.8597E+00, TotOvfVol=.0000E+00, N-Ovf=    0, TotDurOvf=    0.hrs
 ** END OF RUN :    3

**********************************************************************

RUN:COMMAND#
004:0001--------------------------------------------------------------
    START
     [TZERO =     .00 hrs on        0]
     [METOUT=   2     (1=imperial, 2=metric output)]
     [NSTORM=   1 ]
     [NRUN  =   4 ]
#*********************************************************************
#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
#  Date         : 04-27-2006
#  Modeller     : [TGS]
#  Company      : G. Douglas Vallee Limited
#  License #    :  3560969
#*********************************************************************
004:0002--------------------------------------------------------------
    READ STORM
     Filename = STORM.001
     Comment  = 25 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTION
     [SDT=10.00:SDUR=   4.00:PTOT=  66.02]
004:0003---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     01:TOYOTA     16.20    3.932 No_date    1:31   52.25 .791
     [XIMP=.50:TIMP=.80]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
004:0004---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    DESIGN STANDHYD     02:FUTURE      8.30    1.374 No_date    1:31   40.23 .609
     [XIMP=.36:TIMP=.44]
     [SLP=1.00:DT= 1.00]
     [LOSS= 2 :CN= 70.0]
004:0005---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ADD HYD             01:TOYOTA     16.20    3.932 No_date    1:31   52.25  n/a
                     +  02:FUTURE      8.30    1.374 No_date    1:31   40.23  n/a
     [DT= 1.00]  SUM=   03:PONDIN     24.50    5.306 No_date    1:31   48.18  n/a
004:0006---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
    ROUTE RESERVOIR ->  03:PONDIN     24.50    5.306 No_date    1:31   48.18  n/a
     [RDT= 1.00] out<-  04:PNDOUT     24.50     .257 No_date    4:02   48.18  n/a
```

```
          overflow <= 05:PNDOVR      .00      .000 No_date     0:00      .00  n/a
    [MxStoUsed=.9867E+00, TotOvfVol=.0000E+00, N-Ovf=     0, TotDurOvf=    0.hrs
  ** END OF RUN :   4

*******************************************************************************



 RUN:COMMAND#
 005:0001-------------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2     (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   5 ]
#*******************************************************************************
#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
#  Date        : 04-27-2006
#  Modeller    : [TGS]
#  Company     : G. Douglas Vallee Limited
#  License #   :  3560969
#*******************************************************************************
 005:0002-------------------------------------------------------------------------
     READ STORM
      Filename = STORM.001
      Comment  = 50 YEAR CHICAGO 4 HOUR DESIGN DISTRIBUTION
      [SDT=10.00:SDUR=    4.00:PTOT=  72.96]
 005:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     DESIGN STANDHYD     01:TOYOTA     16.20     4.070 No_date     1:31   58.67 .804
      [XIMP=.50:TIMP=.80]
      [SLP=1.00:DT= 1.00]
      [LOSS= 2 :CN= 70.0]
 005:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     DESIGN STANDHYD     02:FUTURE      8.30     1.707 No_date     1:30   45.66 .626
      [XIMP=.36:TIMP=.44]
      [SLP=1.00:DT= 1.00]
      [LOSS= 2 :CN= 70.0]
 005:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     ADD HYD             01:TOYOTA     16.20     4.870 No_date     1:31   58.67  n/a
                    +    02:FUTURE      8.30     1.707 No_date     1:30   45.66  n/a
      [DT= 1.00]  SUM=   03:PONDIN     24.50     6.562 No_date     1:31   54.26  n/a
 005:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     ROUTE RESERVOIR -> 03:PONDIN     24.50     6.562 No_date     1:31   54.26  n/a
      [RDT= 1.00] out<- 04:PNDOUT     24.50      .335 No_date     3:21   54.26  n/a
           overflow <= 05:PNDOVR       .00      .000 No_date     0:00     .00  n/a
     [MxStoUsed=.1076E+01, TotOvfVol=.0000E+00, N-Ovf=     0, TotDurOvf=    0.hrs
  ** END OF RUN :   5

*******************************************************************************



 RUN:COMMAND#
 006:0001-------------------------------------------------------------------------
     START
      [TZERO =    .00 hrs on        0]
      [METOUT=   2     (1=imperial, 2=metric output)]
      [NSTORM=   1 ]
      [NRUN  =   6 ]
#*******************************************************************************
#  Project Name: [JUDD PARK TOYOTETSU]     Project Number: [06-046]
#  Date        : 04-27-2006
#  Modeller    : [TGS]
#  Company     : G. Douglas Vallee Limited
#  License #   :  3560969
#*******************************************************************************
 006:0002-------------------------------------------------------------------------
     READ STORM
      Filename = STORM.001
      Comment  = 100 YEAR CHICAGO 4 HOUR DESIGN STORM DISTRIBUTION
      [SDT=10.00:SDUR=    4.00:PTOT=  83.90]
 006:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     DESIGN STANDHYD     01:TOYOTA     16.20     5.690 No_date     1:31   68.90 .821
      [XIMP=.50:TIMP=.80]
      [SLP=1.00:DT= 1.00]
      [LOSS= 2 :CN= 70.0]
 006:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     DESIGN STANDHYD     02:FUTURE      8.30     1.978 No_date     1:30   54.46 .649
      [XIMP=.36:TIMP=.44]
      [SLP=1.00:DT= 1.00]
      [LOSS= 2 :CN= 70.0]
 006:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     ADD HYD             01:TOYOTA     16.20     5.690 No_date     1:31   68.90  n/a
                    +    02:FUTURE      8.30     1.978 No_date     1:30   54.46  n/a
      [DT= 1.00]  SUM=   03:PONDIN     24.50     7.662 No_date     1:31   64.01  n/a
 006:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
     ROUTE RESERVOIR -> 03:PONDIN     24.50     7.662 No_date     1:31   64.01  n/a
      [RDT= 1.00] out<- 04:PNDOUT     24.50      .491 No_date     2:56   64.01  n/a
           overflow <= 05:PNDOVR       .00      .000 No_date     0:00     .00  n/a
     [MxStoUsed=.1210E+01, TotOvfVol=.0000E+00, N-Ovf=     0, TotDurOvf=    0.hrs
 006:0002-------------------------------------------------------------------------
     FINISH
-------------------------------------------------------------------------------
*******************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
   Simulation ended on 2006-05-11     at 13:48:23
-------------------------------------------------------------------------------
```

Appendix B

Swale and Culvert Sizing, & Storm Sewer Design Sheet

vallee
Consulting Engineers, Architects & Planners

Subject: TTCA Culvert Sizing
Date: Aug 6 2021 By: JLS
Project #: 20-102 Page 1 OF 1

	A	B	C
Norfolk 100 Year Storm	801.041	1.501	0.657
Material:	PVC/concrete		
Mannigns Roughness n:	0.013		

North West Drainage Area			
Pervious Area C	0.25		
Impervious Area C	0.95		
Pervious Area	3.0786	ha	
Impervious Area	3.5533	ha	
Weighted C	0.63		
Time of Concentration	5	min	*as per NCDC*
100 Year Rainfall	234	mm/hr	
Design Flow	2696	L/s	
Box Culvert Width	1.8	m	
Box Culvert Height	0.9	m	
Box Culvert Slope	0.35%		
Capacity	3304	L/s	
% of Design Capacity	82%		
Max Velocity	2.0	m/s	
100 Year flow Depth in Culvert	0.64	m	
Distance to Soffit	0.26	m	

vallee
Consulting Engineers, Architects & Planners

Subject: TTCA Swale Sizing
Date: Aug 6 2021 By: JLS
Project #: 20-102 Page 1 OF 1

	A	B	C
5 Year Storm	583.017	3.007	0.703
100 Year Storm	801.041	1.501	0.657

	Imp.	Area	
C1	0.25	3.079	ha
C2	0.95	3.553	ha
CA	4.15		
Time of Concentration	5	minutes	
5 Year Rainfall	135	mm/hr	
5 Des. Flow	1555	L/s	
100 Year Rainfall	234	mm/hr	
100 Des. Flow	2697	L/s	

Mannings Formula Trapezoid - 5 Year @ .35%

Flow Height (m)	**0.3981**	
Flow Target (cu. m / s)	1.56	5 Year flow
Base Width (m)	2	
Side Slope	0.2	
Wetted Perimeter (m)	4.52	
Area (sq. m)	1.59	
Mannings Roughness (n)	0.03	
Slope (m/m)	0.35%	
Flow (cu. m / s)	1.56	
Velocity (m / s)	0.98	

Mannings Formula Trapezoid - 100 Year @ .35%

Flow Height (m)	**0.7442**	
Flow Target (cu. m / s)	2.70	100 Year flow
Base Width (m)	1	
Side Slope	0.33	
Wetted Perimeter (m)	5.71	
Area (sq. m)	2.42	
Mannings Roughness (n)	0.03	
Slope (m/m)	0.35%	
Flow (cu. m / s)	2.70	
Velocity (m / s)	1.11	Bermuda Grass: **OK**

100 Year Swale Geometry

Min. Full width Top to Top	**5.51**	**m**
Min. Swale Depth	**0.74**	**m**
Bottom Width	**1.0**	**m**

STORM SEWER DESIGN SHEET

	A	B	C
10 Year Storm	670.324	3.007	0.698
100 Year Storm	801.041	1.501	0.657

Pipe Material: PVC/concrete

n: 0.013 (PVC 450mm AND LESS)

n: 0.013 (CONCRETE IN EXCESS OF 450mm)

Project: 20-102 - TTCA Plant Expansion

Municipality: Simcoe - Norfolk County

Date 6-Aug-21

Designed by JLS

Checked by JTI

Sheet of : 1 of 1

	Location		Area				Individ.	Cumulative	Time			Sewer Design						
Area	From	To	C= 0.25	C= 0.95	C= 0.9	Avg. C	C*A	C*A	of Concentration	Rainfall	2.778*I*A*C	Box Width	Box Height	Slope	Cap	Des Q % of Cap	Vel	Length	Time
			ha	ha	ha		ha	ha	min	mm/hr	L/s	m	m	%	L/s	%	m/s	m	min
NW	Prop. Swale (10 Year)	Judd Drive SWMP	3.079	3.553	0.000	0.625	4.145	4.145	5.0	157	1807.0	1.8	0.9	0.35%	3304	55%	2.0	9	0.1
NW	Prop. Swale (100 Year)	Judd Drive SWMP	3.079	3.553	0.000	0.625	4.145	4.145	5.0	234.2	2696.6	1.8	0.9	0.35%	3304	82%	2.0	9	0.1

Appendix C
Post-Development Visual Otthymo Model Output

```
**************************************
** SIMULATION:100yr 4hr 10min Chicago **
**************************************
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0490      0.5172
                          0.0160     0.0131    |   0.0520      0.6214
                          0.0220     0.0272    |   0.0680      0.7273
                          0.0270     0.0438    |   0.1290      0.8349
                          0.0310     0.0696    |   0.2150      0.9442
                          0.0350     0.1097    |   0.3200      1.0550
                          0.0380     0.1644    |   0.4400      1.1680
                          0.0410     0.2338    |   0.5750      1.2820
                          0.0440     0.3181    |   0.7230      1.3980
                          0.0470     0.4148    |   0.8810      1.5160

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0008)     24.500      5.629      1.33      64.02
   OUTFLOW: ID= 1 (  0005)     24.500      0.471      3.92      64.01

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.36
                  TIME SHIFT OF PEAK FLOW         (min)=155.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.1940

--------------------------------------------------------------------------------
**************************************
** SIMULATION:10yr 4hr 10min Chicago **
**************************************
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.0490      0.5172
                          0.0160     0.0131    |   0.0520      0.6214
                          0.0220     0.0272    |   0.0680      0.7273
                          0.0270     0.0438    |   0.1290      0.8349
                          0.0310     0.0696    |   0.2150      0.9442
                          0.0350     0.1097    |   0.3200      1.0550
                          0.0380     0.1644    |   0.4400      1.1680
                          0.0410     0.2338    |   0.5750      1.2820
                          0.0440     0.3181    |   0.7230      1.3980
                          0.0470     0.4148    |   0.8810      1.5160

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

```
   INFLOW : ID= 2 (  0008)     24.500      3.564      1.33      39.23
   OUTFLOW: ID= 1 (  0005)     24.500      0.143      4.08      39.22

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.00
                  TIME SHIFT OF PEAK FLOW         (min)=165.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8523

--------------------------------------------------------------------------------
************************************
** SIMULATION:25yr 4hr 10min Chicago **
************************************
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0490      0.5172
                         0.0160     0.0131   |   0.0520      0.6214
                         0.0220     0.0272   |   0.0680      0.7273
                         0.0270     0.0438   |   0.1290      0.8349
                         0.0310     0.0696   |   0.2150      0.9442
                         0.0350     0.1097   |   0.3200      1.0550
                         0.0380     0.1644   |   0.4400      1.1680
                         0.0410     0.2338   |   0.5750      1.2820
                         0.0440     0.3181   |   0.7230      1.3980
                         0.0470     0.4148   |   0.8810      1.5160

                                   AREA     QPEAK     TPEAK       R.V.
                                   (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0008)     24.500      4.339      1.33      48.75
   OUTFLOW: ID= 1 (  0005)     24.500      0.266      4.08      48.74

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.13
                  TIME SHIFT OF PEAK FLOW         (min)=165.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.9991

--------------------------------------------------------------------------------
************************************
** SIMULATION:2yr 4hr 10min Chicago **
************************************
--------------------
| RESERVOIR(  0005)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0490      0.5172
                         0.0160     0.0131   |   0.0520      0.6214
                         0.0220     0.0272   |   0.0680      0.7273
                         0.0270     0.0438   |   0.1290      0.8349
                         0.0310     0.0696   |   0.2150      0.9442
```

0.0350	0.1097	0.3200	1.0550
0.0380	0.1644	0.4400	1.1680
0.0410	0.2338	0.5750	1.2820
0.0440	0.3181	0.7230	1.3980
0.0470	0.4148	0.8810	1.5160

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0008)	24.500	2.053	1.33	21.43
OUTFLOW: ID= 1 (0005)	24.500	0.048	4.25	21.42

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.34
TIME SHIFT OF PEAK FLOW (min)=175.00
MAXIMUM STORAGE USED (ha.m.)= 0.4648

****
** SIMULATION:50yr 4hr 10min Chicago **
****

RESERVOIR(0005) / IN= 2---> OUT= 1 / DT= 5.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0490	0.5172
	0.0160	0.0131	0.0520	0.6214
	0.0220	0.0272	0.0680	0.7273
	0.0270	0.0438	0.1290	0.8349
	0.0310	0.0696	0.2150	0.9442
	0.0350	0.1097	0.3200	1.0550
	0.0380	0.1644	0.4400	1.1680
	0.0410	0.2338	0.5750	1.2820
	0.0440	0.3181	0.7230	1.3980
	0.0470	0.4148	0.8810	1.5160

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0008)	24.500	5.004	1.33	56.39
OUTFLOW: ID= 1 (0005)	24.500	0.368	4.00	56.38

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.36
TIME SHIFT OF PEAK FLOW (min)=160.00
MAXIMUM STORAGE USED (ha.m.)= 1.1008

****
** SIMULATION:5yr 4hr 10min Chicago **
****

RESERVOIR(0005)	OVERFLOW IS OFF

| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0490	0.5172
0.0160	0.0131	0.0520	0.6214
0.0220	0.0272	0.0680	0.7273
0.0270	0.0438	0.1290	0.8349
0.0310	0.0696	0.2150	0.9442
0.0350	0.1097	0.3200	1.0550
0.0380	0.1644	0.4400	1.1680
0.0410	0.2338	0.5750	1.2820
0.0440	0.3181	0.7230	1.3980
0.0470	0.4148	0.8810	1.5160

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0008)	24.500	2.893	1.33	32.04
OUTFLOW: ID= 1 (0005)	24.500	0.066	4.25	32.03

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.27
TIME SHIFT OF PEAK FLOW (min)=175.00
MAXIMUM STORAGE USED (ha.m.)= 0.7119
