# Southeast Planning Review and Adjustment Committee / Comité de révision de la planification de la Commission du Sud-Est

Wednesday, September 23, 2026 / Le mercredi 23 septembre, 2026

## Staff Report / Rapport du personnel

**Subject / Objet** : Conditional Use / Usage conditionnel

**File number / Numéro du fichier** 26-1388

**From / De** :

Sam Gerrand
Planner / Agent d'aménagement

**Reviewed by / Révisé par :**

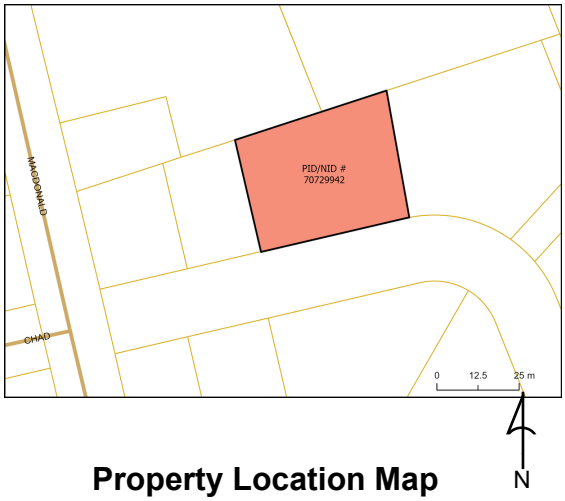
Lori Bickford
Planning Manager/Planner / Gestionnaire de planification/Urbaniste

## General Information / Information générale

**Applicant / Requérant :**
Wesley Michaud

**Landowner / Propriétaire :**
W&K Properties

**Proposal / Demande :**
Conditional Use application to permit a new 5 unit multiple unit dwelling. / *Demande d'usage conditionnel visant à permettre une nouvelle habitation multifamiliale de 5 unités.*




**Property Location Map**
**Carte de localisation du terrain**

Subject Property / Proprieté en question

## Site Information /Information du site

**PID / NID:** 70729942

**Lot Size / Grandeur du lot:** 1736m2

**Location / Endroit :**
Dundee Drive, Town of Salisbury / Village de Salisbury

**Current Use / Usage présent :**
Vacant

**Zoning / Zonage :**
Town Center (TC)

**Future Land Use Designation / Désignation de l'utilisation future du sol :**

**Surrounding Use & Zoning / Usage des environs & Zonage :**
Town Center and Residential Serviced / *Centre-ville et résidentiel desservis*

**Municipal Servicing / Services municipaux:**
Municipal sanitary sewer is available at Dundee Drive. A private well is proposed for water servicing. /

**Access-Egress / Accès/Sortie :**

Access is provided by Dundee Drive / *L'accès à la propriété se fait par la promenade Dundee.*

**Policies / Politiques**

**Statements of Public Interest / *Déclarations d'intérêt public***

SP1 Promote efficient development and land use patterns that are in the best interests of the Province, local governments and residents of the Province in the long-term / *Favoriser l'aménagement efficace et les modes d'utilisation des terres qui sont dans l'intérêt supérieur à long terme de la province, de ses gouvernements locaux et de ses résidents.*

SP2 Promote a range of housing options such as size, type, density and design throughout communities. / *Favoriser l'utilisation d'une gamme d'options relatives aux logements, notamment en ce qui a trait à la taille, au type, à la densité et à la conception de ceux-ci dans l'ensemble des communautés*

**Municipal Plan / *Plan municipal***

4.4.2 It is a policy to create a Town Centre zone in which to permit high density residential development within the Town Centre subject to terms and conditions imposed by the Planning Review and Adjustment Committee. When considering the imposition of terms and conditions the following shall be considered, but not limited to*: / Il est établi comme politique de créer une zone Centre-ville dans laquelle une densité résidentielle élevée est permise, sous réserve des modalités et conditions imposées par le Comité de révision de la planification. Lors de l'examen de l'imposition de modalités et conditions, les éléments suivants doivent être pris en considération, sans toutefois s'y limiter :*

*a)* the location and access to off-street parking and the design of the parking lot layout*; / l'emplacement du stationnement hors rue, son accès et la conception de son aménagement;*
*b)* provisions for the preservation of the existing landscape by minimizing tree and soil removal*; / les dispositions visant à préserver le paysage existant en minimisant l'enlèvement des arbres et du sol;*
*c)* buffering from adjacent properties*; / le tamponnage vis-à-vis des propriétés adjacentes;*
*d)* drainage*; and / le drainage*
*e)* water supply assessment */ l'évaluation de l'approvisionnement en eau.*

**Zoning and/or Subdivision Regulation / Réglementations de zonage et/ou de lotissement**

**7 Town Center Zone / *Zone centre-ville***
7.1 Permitted Uses / *Usages permis*
d) The following uses are permitted subject to such terms and conditions as may be imposed by the Planning Review and Adjustment committee*: / Les usages suivants sont permis sous réserve des modalités et conditions pouvant être imposées par le Comité de révision de la planification :*
*i) multiple unit dwelling / habitation multifamiliale*
7.2 Zone requirements / *Exigences de la zone*
d) All residential multiple unit dwellings require a water study by a New Brunswick licensed engineer. */ Toutes les habitations multifamiliales exigent une étude de l'eau réalisée par un ingénieur titulaire d'une licence au Nouveau-Brunswick.*

**Internal Consultation & External Consultation / Consultations internes et externes**

**Municipal Comments**
The municipality was contacted for comments and confirmed that the Town of Salisbury is aware of the project from the previous rezoning application. The Town also confirmed that the subdivision application and creation of the public street (Dundee Drive) which provides access to the property has been completed. / *La municipalité a été contactée afin de recueillir ses commentaires et a confirmé que la Ville de Salisbury est au courant du projet en raison de la demande de rezonage antérieure. La Ville a également confirmé que la demande de lotissement et la création de la rue publique (promenade Dundee) donnant accès à la propriété ont été complétées.*

**Discussion**

The subject property is on the edge of Salisbury's Town Center. To the east are a cluster of institutional uses such as the elementary to high schools, and municipal offices, with the rest of the Town Center behind. To the west are primarily residential uses. / *La propriété en question est située en bordure du centre-ville de Salisbury. À l'est se trouve un ensemble d'usages institutionnels, notamment l'école secondaire, l'école élémentaire et les bureaux municipaux, tandis que le reste du centre-ville se situe au-delà. À l'ouest, le secteur est principalement composé d'usages résidentiels.*

In 2024, the property was rezoned to the Village Center zone (now called Town Center) to permit higher density residential development. The proposal at this time included the extension of Dundee Drive as a public street and the creation of five lots for multiple unit dwellings. The amendments to the by-laws included one condition: / *En 2024, la propriété a été rezonée à la zone Centre-village (aujourd'hui appelée Centre-ville) afin de permettre un développement résidentiel de plus haute densité. La proposition à ce moment-là prévoyait le prolongement de la promenade Dundee en rue publique ainsi que la création de cinq lots destinés à des habitations multifamiliales. Les modifications aux arrêtés comportaient une condition :*

*That the permitted main uses are limited to single unit dwelling, two unit dwelling, semidetached dwelling or a multiple unit dwelling subject to terms and conditions imposed by the Planning Review and Adjustment Committee. / Que les usages principaux permis soient limités à une habitation unifamiliale, une habitation bifamiliale, une habitation jumelée ou une habitation multifamiliale, sous réserve des modalités et conditions imposées par le Comité de révision de la*

*planification.*

This condition intended to recognize that while the zoning of the property is Town Center, the use is limited to residential as it was not considered desirable to have other commercial uses permitted in the Town Center at this location. To reflect this intention, the future land use designation of the property remained residential through the recent Municipal Plan and Zoning By-law consolidation process (2025). / *Cette condition visait à reconnaître que, bien que la propriété soit zonée Centre-ville, l'usage devait demeurer strictement résidentiel, car il n'était pas jugé souhaitable de permettre d'autres usages commerciaux dans ce secteur particulier du Centre-ville. Pou refléter cette intention, la désignation d'usage futur de la propriété est demeurée résidentielle lors du récent processus de consolidation du Plan municipal et de l'Arrêté de zonage (2025).*

Currently, the applicant proposes a five unit multiple unit dwelling on the the subject property. This is a permitted use on the property as allowed by the 2024 rezoning application (by-law No. 51-4) which remains in effect; however, in accordance with the condition imposed through that rezoning process, new multiple unit dwellings are subject to terms and conditions of the Planning Review and Adjustment Committee (PRAC). The conditional use application is not to debate whether or not the land use is appropriate at the subject property, but rather to allow the PRAC to evaluate projects on a case-by-case basis, ensure design standards are met, and impose any reasonable terms and conditions the Committee sees fit. / *À l'heure actuelle, le requérant propose une habitation multifamiliale de cinq unités sur la propriété en question. Il s'agit d'un usage permis sur la propriété en vertu de la demande de rezonage de 2024 (Arrêté no 51-4) qui demeure en vigueur. Cependant, conformément à la condition imposée dans le cadre de ce processus de rezonage, les nouvelles habitations multifamiliales sont assujetties aux modalités et conditions du Comité de révision de la planification (CRP). La demande d'usage conditionnel ne vise pas à déterminer si l'utilisation du territoire est appropriée pour la propriété en question, mais plutôt à permettre au CRP d'évaluer les projets au cas par cas, de veiller au respect des normes de conception et d'imposer toute modalité ou condition raisonnable qu'il juge appropriée.*

The Municipal Plan provides policy language to guide the Committee in evaluating projects that involve multiple unit dwellings. The key items to consider are: a) the location and access to offstreet parking and the design of the parking lot layout; b) provisions for the preservation of the existing landscape by minimizing tree and soil removal; c) buffering from adjacent properties; d) drainage; and e) water supply assessment. / *Le Plan municipal fournit des énoncés de politique pour orienter le Comité dans l'évaluation des projets comportant des habitations multifamiliales. Les principaux éléments à considérer sont : a) l'emplacement et l'accès su stationnement hors rue ainsi que la conception de son aménagement; b) les dispositions prévues pour préserver le paysage existant en minimisant l'enlèvement des arbres et du sol; c) le tamponnement vis-à-vis des propriétés adjacentes; d) le drainage; e) l'évaluation de l'approvisionnement en eau.*

The five unit building provides seven parking stalls (meeting the required 1.25 parking ratio), four of which are within interior garages. Where the building abuts residential properties at the rear and side of the lot, the developer intends to maintain existing vegetation to maintain some separation between the subject property and the abutting residential properties. The application includes stamped civil drawings detailing the servicing, stormwater management, drainage, and sediment and erosion control plan for the project. A water study is also supplied and confirms that water supply is adequate for the proposed use. / *L'immeuble de 5 unités offre sept espaces de stationnement, ce qui respecte le ratio exigé de 1,25 espace par unité, dont quatre sont situés dans des garages intérieurs. Aux endroits où le bâtiment jouxte des propriétés résidentielles à l'arrière et sur le côté du lot, le promoteur prévoit maintenir la végétation existante afin de conserver une certaine séparation entre la propriété en question et les propriétés résidentielles contiguës. La demande*

*comprend des dessins de génie civil estampillés détaillant les services, la gestion des eaux pluviales, le drainage ainsi que le plan de contrôle des sédiments et de l'érosion pour le projet. Une étude d'eau sur l'approvisionnement en eau est également fournie et confirme que l'approvisionnement est suffisant pour l'usage proposé.*

All other requirements of the by-law in terms of building design and lot requirements (i.e. setbacks, lot coverage, parking) are met. */ Toutes les autres exigences de l'arrêté en matière de conception du bâtiment et d'exigences de lot (p. ex. marges de retrait, couverture du lot, stationnement) sont respectées.*

**Public Notice / Avis public**

Public notices were sent to landowners within 60m of the property on September 9th, 2026. / *Des avis publics ont été envoyés aux propriétaires dans un rayon de 60 mètres de la propriété le 9 septembre 2026.*

**Legal Authority / Autorité légale**

Conditional Uses: / *Usages conditionnels :*

*53(3) In prescribing the purposes for which land, buildings and structures in a zone may be used, a zoning by-law may: ...En prescrivant les fins auxquelles des terrains, des bâtiments et des constructions dans une zone quelconque peuvent être affectés, l'arrêté de zonage peut prévoir l'une quelconque des dispositions suivantes :*

*(c) prescribe particular purposes ... / y désigner des fins particulières :*

*(i) in respect of which the advisory committee or regional service commission, subject to subsection (5), may impose terms and conditions, and / pour lesquelles le comité consultatif ou la commission de services régionaux peut, sous réserve du paragraphe (5), imposer des modalités et des conditions,*

*(ii) that may be prohibited by the advisory committee or regional service commission if compliance with the terms and conditions imposed under subparagraph (i) cannot reasonably be expected. / que peuvent interdire le comité consultatif ou la commission de services régionaux lorsqu'il apparaît raisonnable de s'attendre qu'il ne sera pas satisfait aux modalités et aux conditions imposées en vertu du sous-alinéa (i).*

The Community Planning Act also provides parameters for the PRAC when imposing conditions: */ La Loi sur l'urbanisme établit également les paramètres dont doit tenir compte le CRP lors de l'imposition de conditions :*

*53(4) Terms and conditions imposed under paragraph (3)(c) shall be limited to those considered necessary by the advisory committee or regional service commission to protect: / Les modalités et les conditions imposées en vertu de l'alinéa (3)c) se limitent à celles que le comité consultatif ou la commission de services régionaux juge nécessaires pour protéger :*

*(a) properties within the zone or in abutting zones, or / soit les biens situés dans la zone ou dans des zones y attenantes;*
*(b) the health, safety and welfare of the general public. / soit la santé, la sécurité et le bien-être*

*du grand public.*

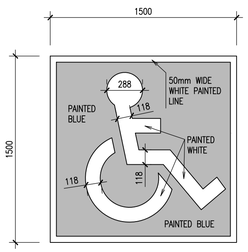
**Recommendation / Recommandation**

Staff respectfully recommend that the SE PRAC approve the conditional use application for a 5 unit multiple unit dwelling on the property known as PID 70729942 subject to the following conditions: / *Le personnel recommande respectueusement que le Comité de révision de la planification du Sud-Est approuve la demande d'usage conditionnel visant une habitation multifamiliale de cinq unités sur la propriété connue sous le NID 70729942, sous réserve des conditions suivantes :*

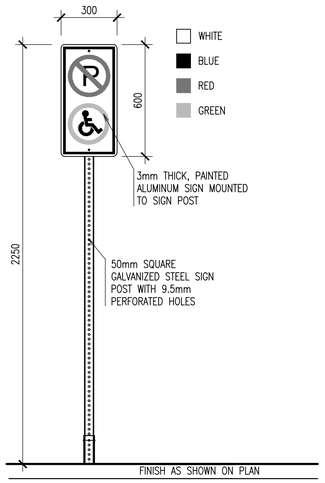
(1) That the development shall be in general conformity with the submitted site plan and floor plans. / *Que l'aménagement soit généralement conforme au plan de localisation et aux plans d'étage soumis.*

**Note:** This report was written in English and translated to a bilingual document. Where a conflict exists between the two languages, the language the report was written shall prevail. / ***Note**: ce rapport a été rédigé en anglais et traduit en version bilingue. En cas de conflit entre les deux langues, la langue dans laquelle le rapport a été rédigé a préséance.*

**NOTE:**
DETAILS ARE DRAWN IN METRIC. DIMENSIONS ARE IN mm.




3 BF PARKING SYMBOL
SCALE: NTS




**NOTE:**
- SIGN POST BASE TO BE DRIVEN INTO GROUND AS PER APPROVED METHOD.
- SHOP DRAWINGS TO BE SUBMITTED FOR APPROVAL.

2 BF PARKING SIGN
SCALE: NTS

SITE PLAN DISCLAIMER

PID: 70729942

THIS SITE PLAN IS BASED ON SITE INFORMATION PROVIDED BY THE CLIENT OR FOUND ON A PUBLIC DOMAIN AND IS A GRAPHICAL REPRESENTATION WHICH APPROXIMATES THE SIZE, CONFIGURATION, AND LOCATION OF FEATURES. THIS PLAN IS NOT INTENDED TO BE USED FOR LEGAL DESCRIPTIONS OR TO CALCULATE EXACT DIMENSIONS OR AREAS. UNKNOWN FACTORS MAY AFFECT THE FUNCTIONALITY OF THIS SITE PLAN, INCLUDING EXISTING TOPOGRAPHY, SERVICE EASEMENTS, SOIL CONDITIONS, ETC. EXISTING SITE CONDITIONS TO BE VERIFIED BY CONTRACTOR PRIOR TO PROCEEDING WITH WORK.

PROPERTY BOUNDARY OBTAINED FROM A SURVEY DATED JULY 17, 2024 BY DON-MORE SURVEYS & ENGINEERING LTD. ALL MEASUREMENTS TO BE CONFIRMED ON SITE PRIOR TO COMMENCING WORK. ALL BUILDING SETBACKS TO ADHERE TO THE LOCAL PLANNING AREA BYLAWS.

EXISTING GRADES AND CONTOURS OBTAINED FROM GEONB PROVINCIAL MAPPING SITE (2018). CONTRACTOR TO CONFIRM GRADING WITH EXISTING CONDITIONS PRIOR TO STARTING THE WORK.

| SUMMARY | |
|---|---|
| LOT DATA | |
| PID | 70729942 |
| ADDRESS | DUNDEE DRIVE, SALISBURY, NB |
| LOT AREA | 1,736.5m² |
| CURRENT ZONING | VILLAGE CENTER |
| FRONT YARD SETBACK | 12m |
| REAR YARD SETBACK | 7.6m |
| SIDE YARD SETBACK | 4.6m |
| BUILDING AREA RATIO (MAX 50%) | 28% |
| PARKING | |
| REQUIRED PARKING PER UNIT | 1.25 |
| TOTAL REQUIRED PARKING | 7 |
| TOTAL PROPOSED PARKING | 7 (4 GARAGE + 3 SURFACE) |
| BUILDING | |
| BUILDING AREA | 486.6m² |
| STOREYS | 1 |
| BUILDING HEIGHT | Xm |
| MAX ALLOWABLE HEIGHT | 15m |
| CONSTRUCTION | COMBUSTIBLE |
| TOTAL RESIDENTIAL UNITS | 5 (1 BARRIER FREE) |

1 SITE PLAN
SCALE: 1:150m

1:150 0 3 6 15m

Polyline Designs INC.

BUILDING AND SITE DESIGN SERVICES

MONCTON OFFICE
506.850.3630
melissa@polylinedesigns.ca

SUSSEX OFFICE
506.434.1157
kelly@polylinedesigns.ca

WWW.POLYLINEDESIGNS.CA

GENERAL NOTES:

1. THE CONTRACTOR IS HELD RESPONSIBLE TO VERIFY ALL DIMENSIONS, THEIR RELATIONSHIP TO EXISTING SITE CONDITIONS AND THE PROPOSED WORK INTENDED FOR INSTALLATION PRIOR TO COMMENCING OR INSTALLING THE WORK. REPORT ANY DISCREPANCIES THAT MAY AFFECT THE WORK TO THE CONSULTANT FOR REVISION PRIOR TO PROCEEDING. ALL WORK INSTALLED SHALL BE DEEM AS BEING VERIFIED BY THE CONTRACTOR AND BECOMES THE CONTRACTOR'S SOLE RESPONSIBILITY FOR CORRECTNESS.
2. THE DRAWINGS AND SPECIFICATIONS ARE NOT INTENDED TO DEPICT EACH AND EVERY CONDITION OR DETAIL OF CONSTRUCTION. AS THE KNOWLEDGEABLE PARTY IN THE FIELD, THE CONTRACTOR IS IN THE BEST POSITION TO VERIFY THAT ALL CONSTRUCTION IS COMPLETED IN A MANNER WHICH WILL PROVIDE A WATERTIGHT STRUCTURE. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ENSURING THE WATERTIGHT INTEGRITY OF THE STRUCTURE.
3. PERFORM ALL WORK TO THE LATEST EDITION OF THE NATIONAL BUILDING CODE OF CANADA, 2020 EDITION.
4. DRAWINGS ARE THE INTELLECTUAL PROPERTY OF POLYLINE DESIGNS INC. AND ALL COPYRIGHT IS RESERVED.
5. THIS DRAWING MAY NOT BE USED IN WHOLE OR IN PART FOR ANY PROJECT OTHER THAN THAT DESIGNATED HEREIN.
6. ALL REQUIRED PERMITS MUST BE OBTAINED BY OWNER PRIOR TO ANY CONSTRUCTION.
7. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO BECOME FAMILIAR WITH AND UNDERSTAND THE NATURE AND EXTENT OF THE WORK TO BE EXECUTED. ALL WORK AND INCIDENTAL ITEMS NOT PARTICULARLY IDENTIFIED, BUT WHICH, WHETHER IN TEMPORARY OR PERMANENT WORKS, MUST EVIDENTLY BE REQUIRED BY THE NATURE OF THE WORKS SHALL BE CONSIDERED INCLUDED IN THE WORK. ON SUBMISSION OF THE BID, IT SHALL BE UNDERSTOOD THAT THIS HAS BEEN DONE AND PROVISION FOR ALL RISKS, INCIDENTAL ITEMS, AND CONTINGENCIES ARE INCLUDED IN THE CONTACT PRICE.

| Rev. | Date | Description |
|---|---|---|
| | | |
| | | |
| | | |

Stamp:

**DRAFT**
July 16, 2026

**5 UNIT APARTMENT BUILDING - PHASE 3**

LOT XX-X DUNDEE DRIVE
SALISBURY, NEW BRUNSWICK

Drawing Title:

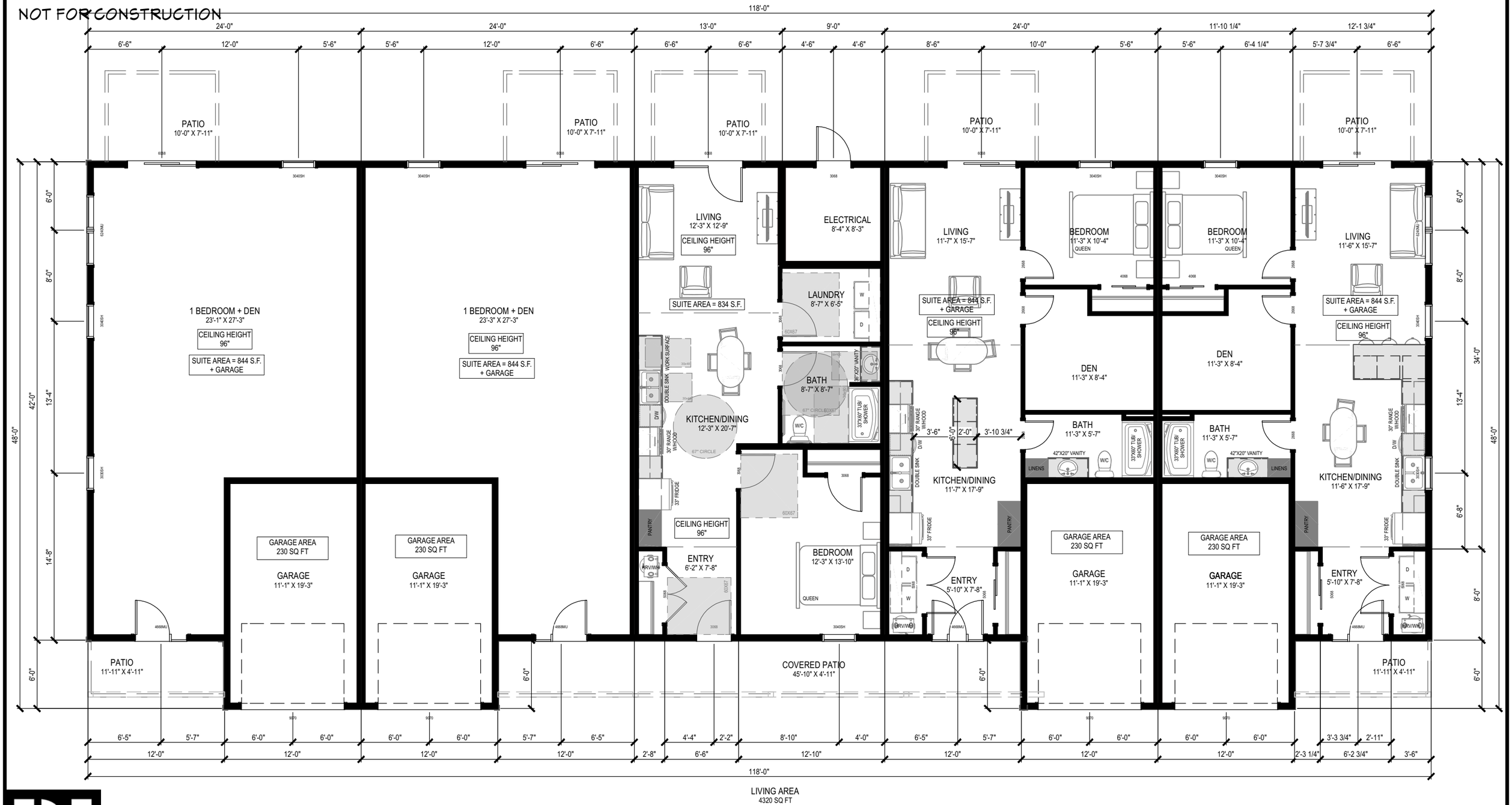
ARCHITECTURAL SITE PLAN / DETAILS

Drawn By: RB/MD
Scale: AS SHOWN
Project No: 24-265
Date: JULY 2026

L1.0
REV 0

FILE NAME: 260716 Dundee Drive Phase 3 Site Plan.dwg PLOT DATE: July 16, 2026 PAPER SIZE: ANSI Expand D (34.00 X 22.00 Inches)

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION



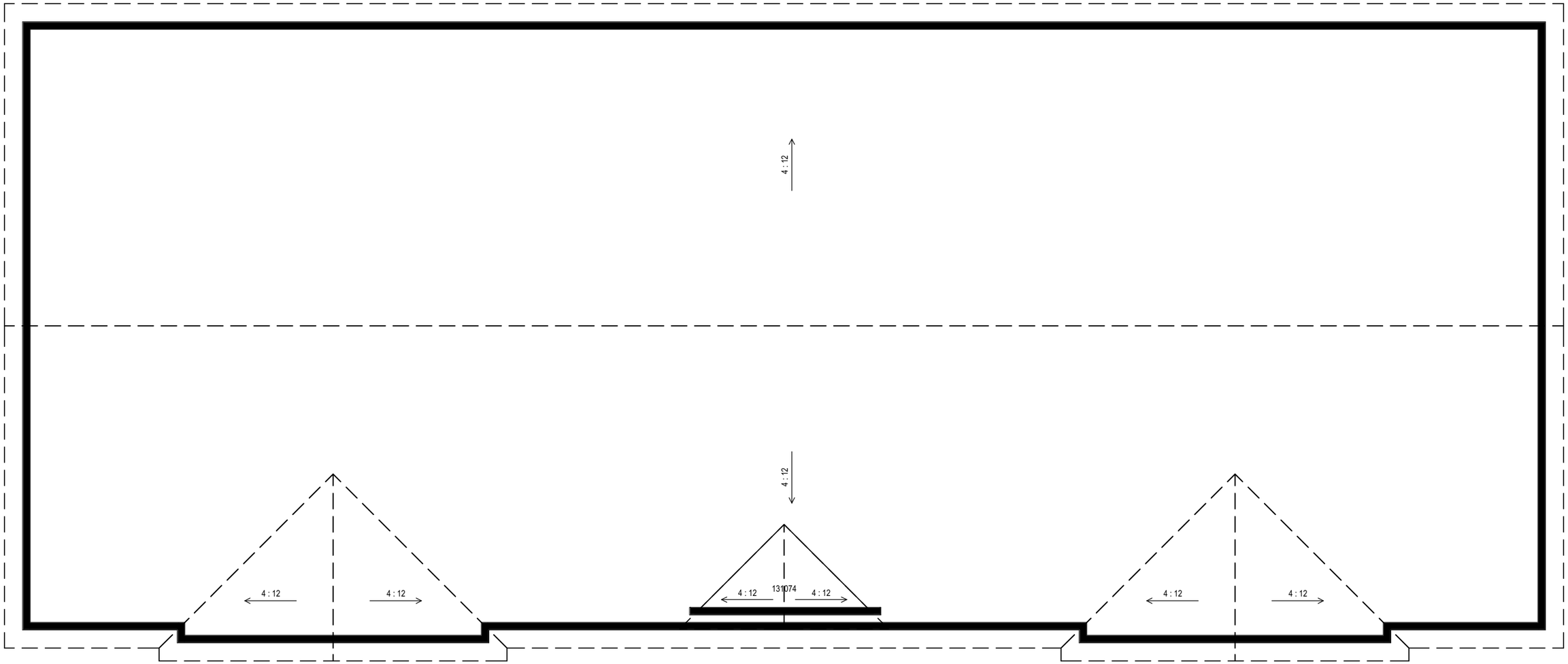

# 1st Floor

SCALE = 1/8" = 1'-0"
11" x 17"

**1 STOREY, 5 UNIT APARTMENT BUILDING**
**DUNDEE DRIVE, SALISBURY, NB**
July 17, 2026
DRAFT #2

Polyline Designs Inc.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION




# Roof Plan

Polyline Designs Inc.

SCALE = 1/8" = 1'-0"
11" x 17"

**1 STOREY, 5 UNIT APARTMENT BUILDING**
**DUNDEE DRIVE, SALISBURY, NB**
July 17, 2026
DRAFT #2

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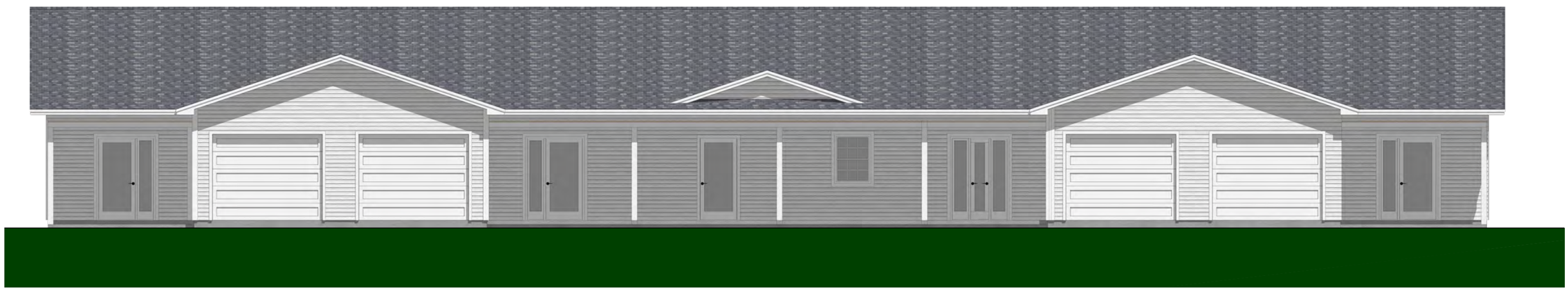
NOT FOR CONSTRUCTION



# Exterior Elevation Front

Polyline Designs Inc.

SCALE = 1/8" = 1'-0"
11" x 17"

**1 STOREY, 5 UNIT APARTMENT BUILDING**
**DUNDEE DRIVE, SALISBURY, NB**
July 17, 2026
DRAFT #2

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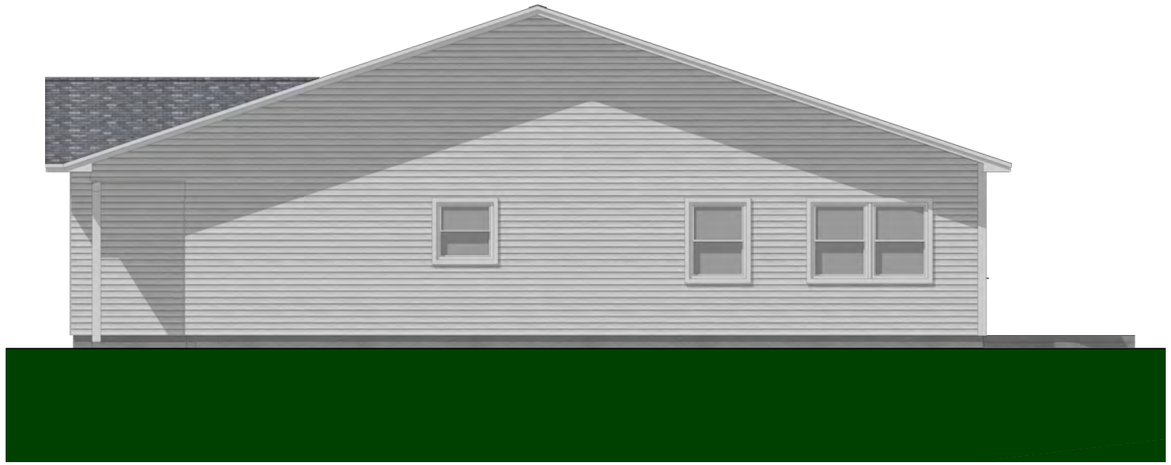
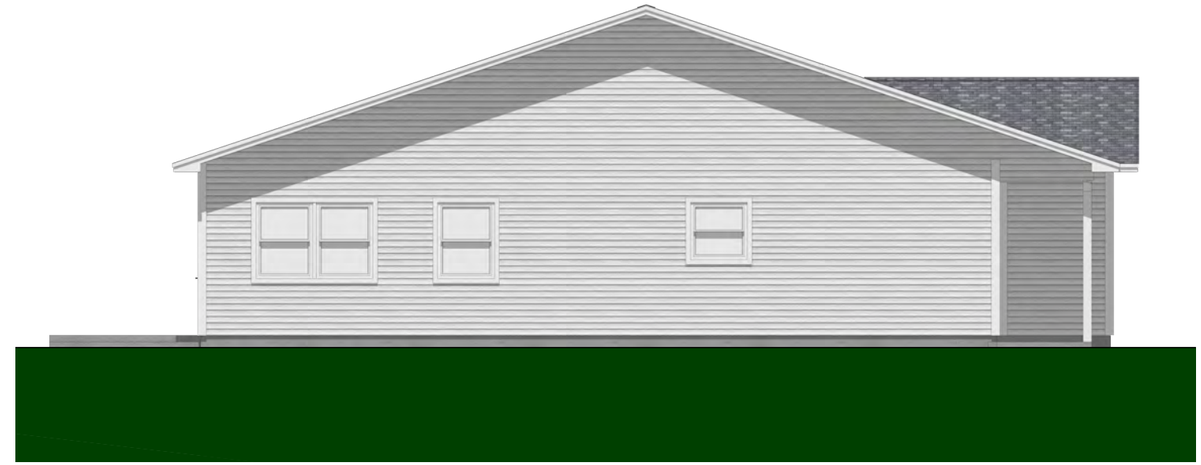
NOT FOR CONSTRUCTION



## Exterior Elevation Right



## Exterior Elevation Left

## Exterior Elevation Rear

Polyline Designs Inc.

SCALE = 1/8" = 1'-0"
11" x 17"

**1 STOREY, 5 UNIT APARTMENT BUILDING**
**DUNDEE DRIVE, SALISBURY, NB**
July 17, 2026
DRAFT #2

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

Polyline Designs Inc.

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11" x 17"

**1 STOREY, 5 UNIT APARTMENT BUILDING**
**DUNDEE DRIVE, SALISBURY, NB**
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NOT FOR CONSTRUCTION

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11" x 17"

**1 STOREY, 5 UNIT APARTMENT BUILDING**
**DUNDEE DRIVE, SALISBURY, NB**
July 17, 2026
DRAFT #2

**506.433.4427 (Sussex)**
**506.652.7358 (Saint John)**
**info@dmse.ca**
**www.dmse.ca**

DON - MORE
SURVEYS &
ENGINEERING LTD.

Ref: 23382ESP2-DesignReport-R2
Oct 8th, 2024

Trevor Douthwright
Manager, Infrastructure & Public Works
56 Douglas Street,
Salisbury, NB E4J 3E3

Via E-Mail: works@salisburynb.ca

# DUNDEE DRIVE - TOWN OF SALISBURY

Don-More Surveys & Engineering Ltd. (Don-More) has been engaged to provide surveying and engineering services related to the development of a street extension and five townhouses located on PID 00816140.

The parcel is currently an undeveloped property and is mostly trees. The property is located at the end of Dundee Drive, off of Macdonald Road in Salisbury, NB. The project's full development will consist of the extension of Dundee Drive to connect MacDonald Road and the development of five townhouse buildings with a total of 34 units.

**Water Servicing**

The units will be serviced by on-site wells and as such this is considered to be outside the scope of this report.

**Sanitary Servicing**

The existing 200mm Ø sanitary line in Dundee Drive will be extended through the development to service the new units. The existing manhole located at the end of Dundee Drive is far off level and in high flow situations, solids are pooling on the uphill side of the structure. This structure will be removed from the existing line, inspected and if the structure is still serviceable, will be re-installed prior to the new sanitary line being installed.

The new sanitary line will be an extension of the existing 200mm Ø line. Three new sanitary manholes will be installed.

The new units will be serviced by individual 100mm Ø laterals connected to the main at a minimum slope of 2%.

The development was modelled using a population of 119 persons (3.5 persons per unit).

This results in an average daily flow of 45220 liters per day with a peak flow 2.418 liters per second.

This new flow was then compared to the existing length of pipe at the end of Dundee Drive. This last section of existing pipe is a 200mm Ø pipe at 1.1% slope. This has a theoretical capacity of 34 liters per second. The new flow would represent 4% of this theoretical flow.

See appendix A for additional calculations.

**Stormwater Analysis**

The existing site today is mostly wooded and slopes south towards Dundee Drive. There are minor swales at the south end of the site that direct sheet flow from the site into the roadside ditches adjacent to Dundee Drive.

The development of the site will result in a change of land use to more impervious surfaces. The new road through the site will have roadside ditches. Lots on the upper side (north and east of the new road), will be graded so the entire lot area drains to the roadside ditch. Lots on the lower side (south and west of the new road), will be graded so the front half of the lot drains to the roadside ditch, and the rear portion of the lot continues to sheet drain to the south of the site.

The roadside ditches will act as retention ponds for the development. The culverts under the driveways will be equipped with Inlet Control Devices (ICD's), to slow down the rate of flow in the ditches. The connection of the new ditch to the existing ditch on Dundee will also incorporate a berm with a control device in it to slow down the release of the water from the roadside ditch.

**Stormwater Modelling**

Stormwater modelling was completed using HydroCAD V10.00 software using the USDA Natural Resources Conservation Service method (formerly the SCS method). Time of Concentration was calculated using the Curve Number/Lag Method which utilizes an overall CN value as well as the average land slope and hydraulic length. An antecedent moisture condition of 2 or average normal conditions was used. Rainfall data was modelled based on Moncton-NB data and using a 2hr and 24-hour Chicago storm distribution using a total rainfall of 140 mm for a 1:100 year 24-hour event, and 84 mm total rainfall for a 1:5 year 24-hour event.

In determining the curve numbers for the various catchment areas we need to consider soil groups and land uses. The site was modelled as USCS soil class "B" which characterizes the

soil with moderate infiltration rates when thoroughly wetted, and consists of sand and silt. Soil classes were chosen based on a visual inspection of various parts of the site during initial excavation.

The land uses and any upstream area that would direct water onto the development site were identified for the site. Once the catchment areas were defined, curve numbers were calculated. Land uses and catchment areas can be found on sheet C5 for both pre and post-development. The pre-development catchment areas are identified by A.# and post-development catchment areas are identified by B.#. Full calculations and results are shown in Appendix B, only key findings will be highlighted here.

### Pre-Development Analysis

The pre-development condition is considered to be the state of the land before any construction takes place. Today the property is an undeveloped wooded lot. The elevation change over the site ranges from 18.50m at rear to 16.50m in the front. The catchment area consists of the property and the upstream drainage area.

| Pre-Development Catchments | | | |
|---|---|---|---|
| **Area Label** | **Area (m2)** | **CN** | **Tc(min)** |
| A.1 | 14,847 | 65 | 17.5 |

### Post-Development Analysis

The post-development sub catchment is identical in size to that of the pre catchment.The post development changes in the land uses of the site is enough to control the peak flows below the pre-development levels. See the table below for the summary.

| Post-Development Catchments | | | |
|---|---|---|---|
| **Area Label** | **Area (m2)** | **CN** | **Tc(min)`** |
| B.1 | 3,679 | 73 | 5.0 |
| B.2 | 3,454 | 75 | 5.0 |
| B.3 | 2,638 | 79 | 5.0 |
| B.4 | 2,501 | 80 | 5.0 |
| B.5 | 2,573 | 78 | 5.0 |
| TOTAL | 14,847 | % IMPERVIOUS | 38.02% |

## Results of Stormwater Management

Following the results of the storm water model, we find there is no negative impact on peak flows. To ensure this, the undeveloped property must be upgraded with topsoil and sod / hydroseed. Moreso, the recent modification made on the number of units will decrease the percentage of imperviousness in the stormwater calculation, hence impact the post development  results positively.

A summary table of the resulting balanced flows can be found below. For additional details please refer to Appendix B and the design drawings.

| Resulting Peak Flow Summary Table | | |
|---|---|---|
| **Return Period** | **Pre-Development** | **Post-Development** |
| **1:5 yr (m3/s)** | 0.0384 | 0.0348 |
| **1:100 yr (m3/s)** | 0.1617 | 0.0440 |

## Closing

We trust this is sufficient for your present needs. Please feel free to contact the undersigned at 506.652.7258 or at@dmse.ca for any additional information or clarification.

Yours truly,

Don-More Surveys & Engineering

# Appendix A

Supplementary Sanitary Calculation

## Sanitary Calculations Project 23382 Wes Michaud

**Proposed Development**

| | | | |
|---|---|---|---|
| Units | 34 | Units | |
| Population | 119 | Persons | (at 3.5 persons/unit) |
| Site area | 14,847 | m² | |

**Peak daily domestic flow**

PDF=P q M / 86.4 + I A

| | | |
|---|---|---|
| | | Notes: |
| PDF | | Peak Design flow including extraneous flows (l/s) |
| P | 0.119 | Design population in thousands |
| q | ***380*** | Average daily domestic flow (380 L/cap.day) ***(Updated May 2022)*** |
| M | 4.222 | Peaking factor (Using Harman Equation) |
| I | 0.140 | Peak extraneous flow (L/s.ha) |
| A | 1.485 | Tributary area (ha) |
| Average Daily Flow (new building) | 45220 | l/day |
| **Peak Flow (new building)** | **2.418** | **l/s** |

**% of existing pipe capacity**

| | | |
|---|---|---|
| Pipe size (diameter) | 200 | mm |
| Pipe slope | 1.1 | % |
| Manning's 'n' | 0.013 | |
| Pipe Capacity | 34 | l/s |
| % of existing pipe capacity contributed by development | 7.03% | |

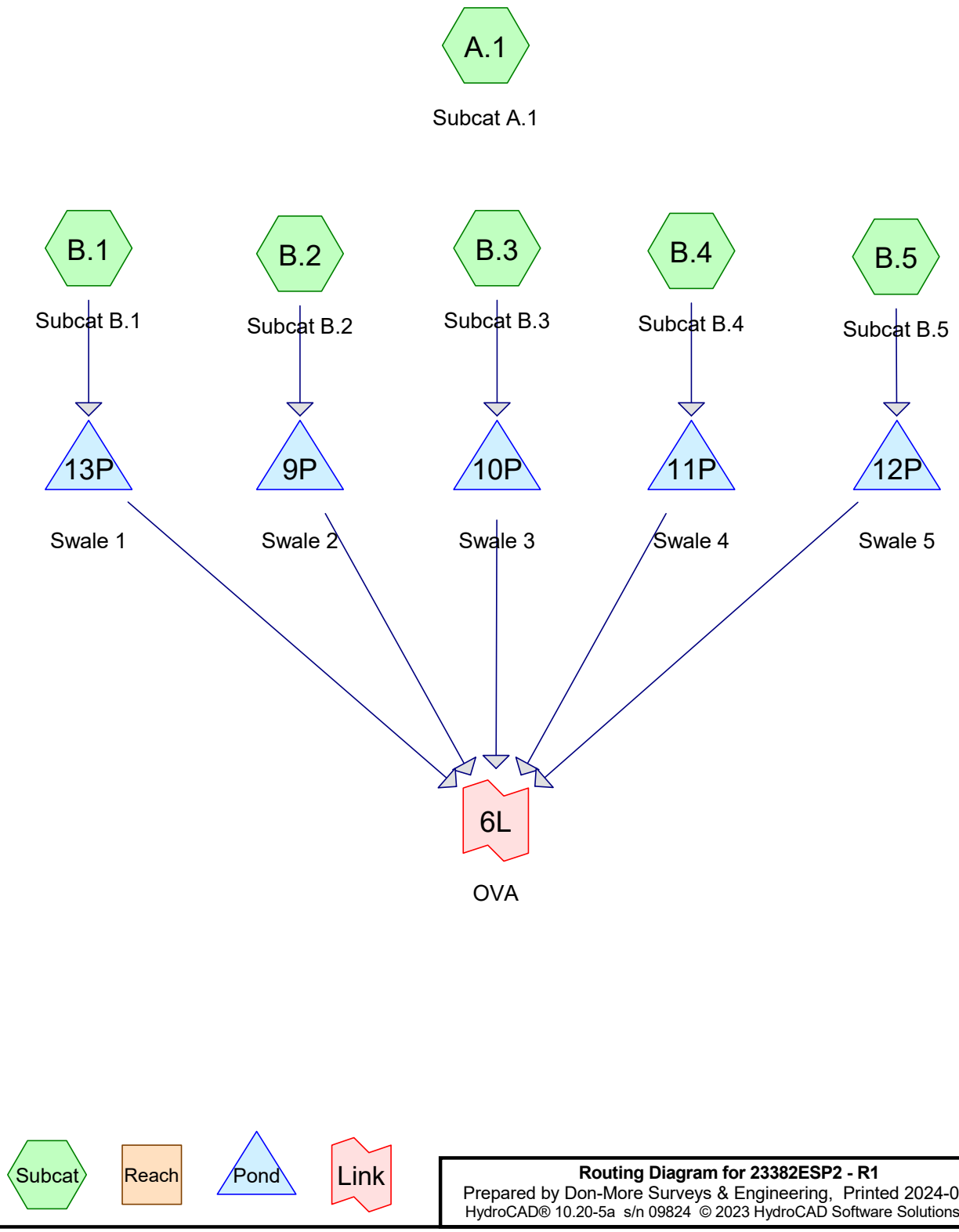
Pipe velocity

Q=aV

| | | |
|---|---|---|
| Q | 2.418 | l/s |
| pipe diameter | 200 | mm |
| V= | 0.077 | m/s |

# Appendix B

Supplementary Storm Calculation




**Routing Diagram for 23382ESP2 - R1**
Prepared by Don-More Surveys & Engineering, Printed 2024-09-27
HydroCAD® 10.20-5a s/n 09824 © 2023 HydroCAD Software Solutions LLC

## Summary for Subcatchment A.1: Subcat A.1

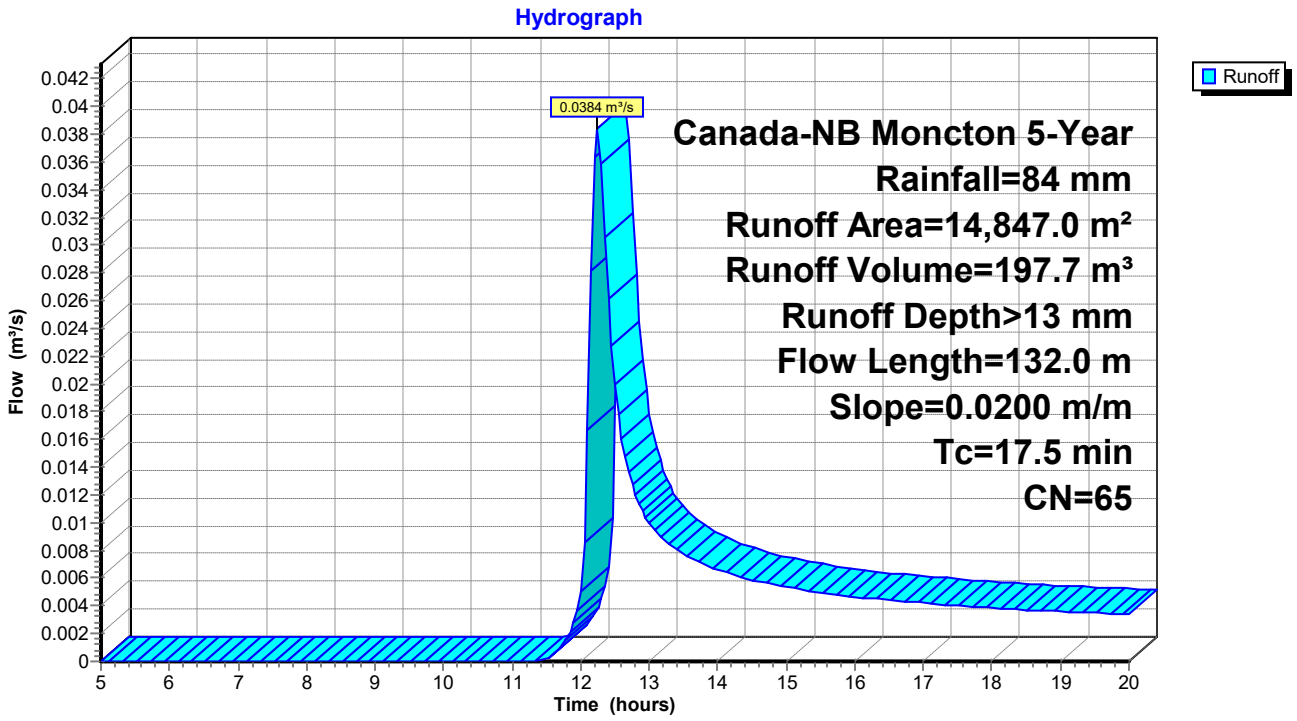
Runoff = 0.0384 m³/s @ 12.25 hrs, Volume= 197.7 m³, Depth> 13 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 5-Year Rainfall=84 mm

| Area (m²) | CN | Description |
|---|---|---|
| 14,847.0 | 65 | Woods/grass comb., Fair, HSG B |
| 14,847.0 | | 100.00% Pervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 17.5 | 132.0 | 0.0200 | 0.13 | | **Lag/CN Method,** |

## Subcatchment A.1: Subcat A.1



## Summary for Subcatchment B.1: Subcat B.1

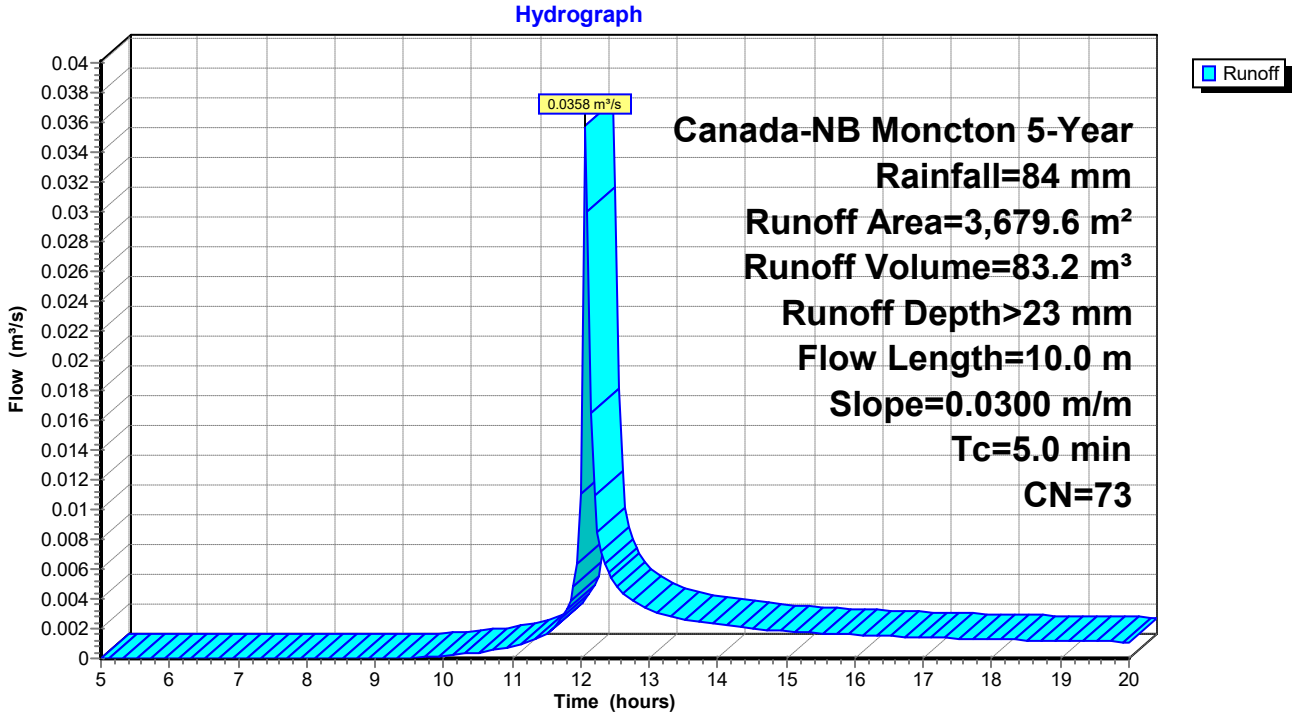
Runoff = 0.0358 m³/s @ 12.07 hrs, Volume= 83.2 m³, Depth> 23 mm
Routed to Pond 13P : Swale 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 5-Year Rainfall=84 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,455.4 | 61 | >75% Grass cover, Good, HSG B |
| 418.7 | 98 | Paved parking, HSG B |
| 141.6 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 1,148.8 | 65 | Woods/grass comb., Fair, HSG B |
| 3,679.6 | 73 | Weighted Average |
| 2,675.0 | | 72.70% Pervious Area |
| 1,004.6 | | 27.30% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.5 | 10.0 | 0.0300 | 0.11 | | **Lag/CN Method,** |
| 1.5 | 10.0 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.1: Subcat B.1



## Summary for Subcatchment B.2: Subcat B.2

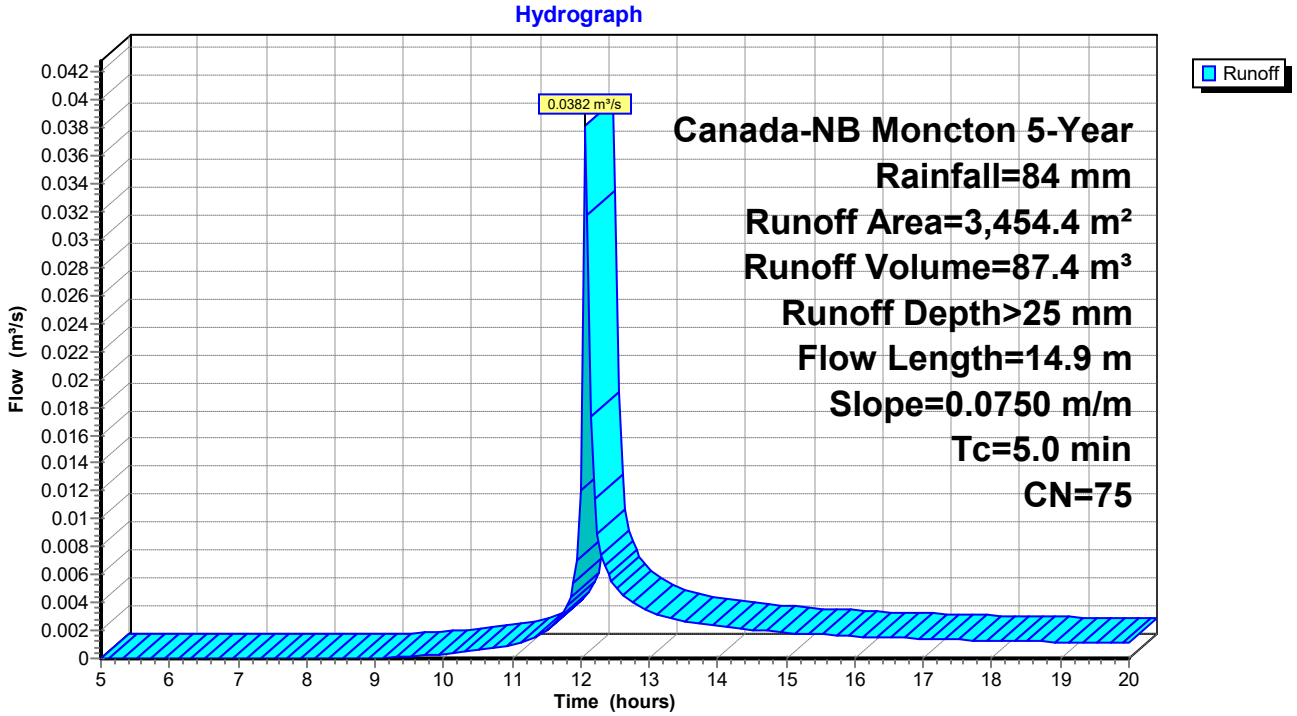
Runoff = 0.0382 m³/s @ 12.07 hrs, Volume= 87.4 m³, Depth> 25 mm
Routed to Pond 9P : Swale 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 5-Year Rainfall=84 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,403.2 | 61 | >75% Grass cover, Good, HSG B |
| 449.2 | 98 | Paved parking, HSG B |
| 374.0 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 713.0 | 65 | Woods/grass comb., Fair, HSG B |
| 3,454.4 | 75 | Weighted Average |
| 2,303.2 | | 66.67% Pervious Area |
| 1,151.2 | | 33.33% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.2 | 14.9 | 0.0750 | 0.21 | | **Lag/CN Method,** |
| 1.2 | 14.9 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.2: Subcat B.2



## Summary for Subcatchment B.3: Subcat B.3

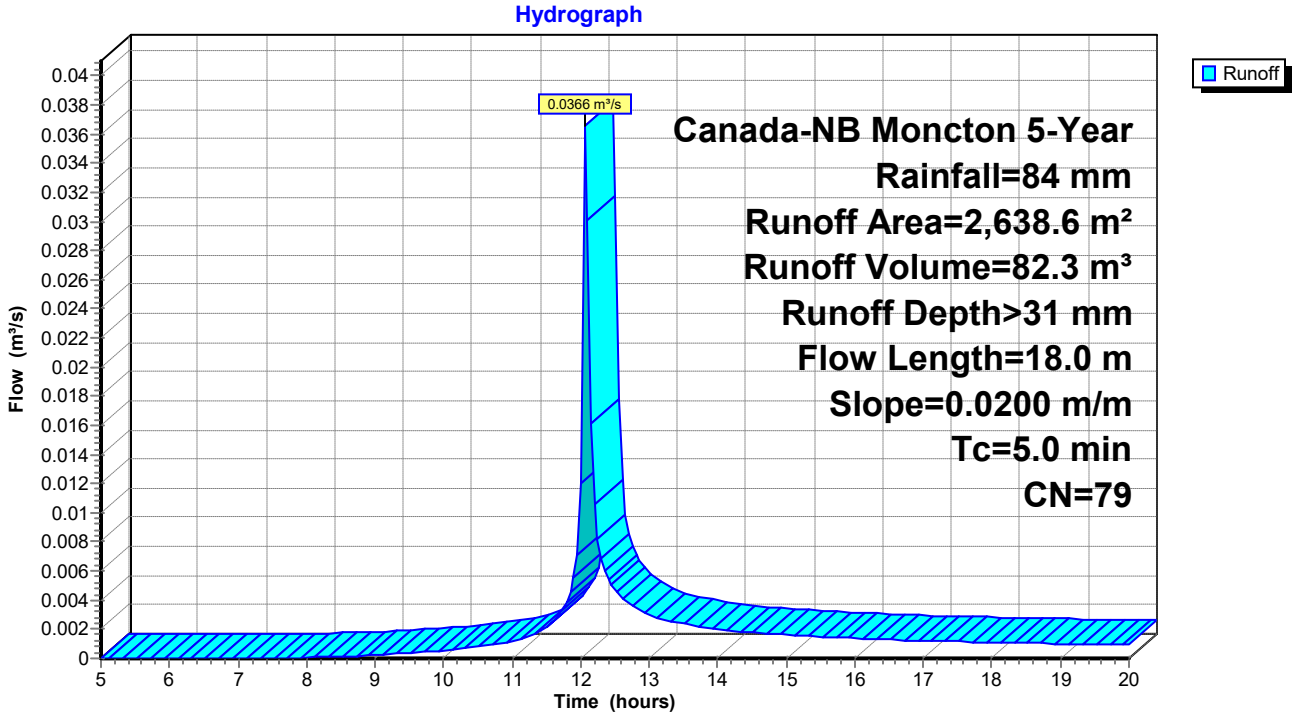
Runoff = 0.0366 m³/s @ 12.07 hrs, Volume= 82.3 m³, Depth> 31 mm
Routed to Pond 10P : Swale 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 5-Year Rainfall=84 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,023.6 | 61 | >75% Grass cover, Good, HSG B |
| 497.8 | 98 | Paved parking, HSG B |
| 359.3 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 242.8 | 65 | Woods/grass comb., Fair, HSG B |
| 2,638.6 | 79 | Weighted Average |
| 1,446.0 | | 54.80% Pervious Area |
| 1,192.6 | | 45.20% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 2.4 | 18.0 | 0.0200 | 0.12 | | **Lag/CN Method,** |
| 2.4 | 18.0 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.3: Subcat B.3



## Summary for Subcatchment B.4: Subcat B.4

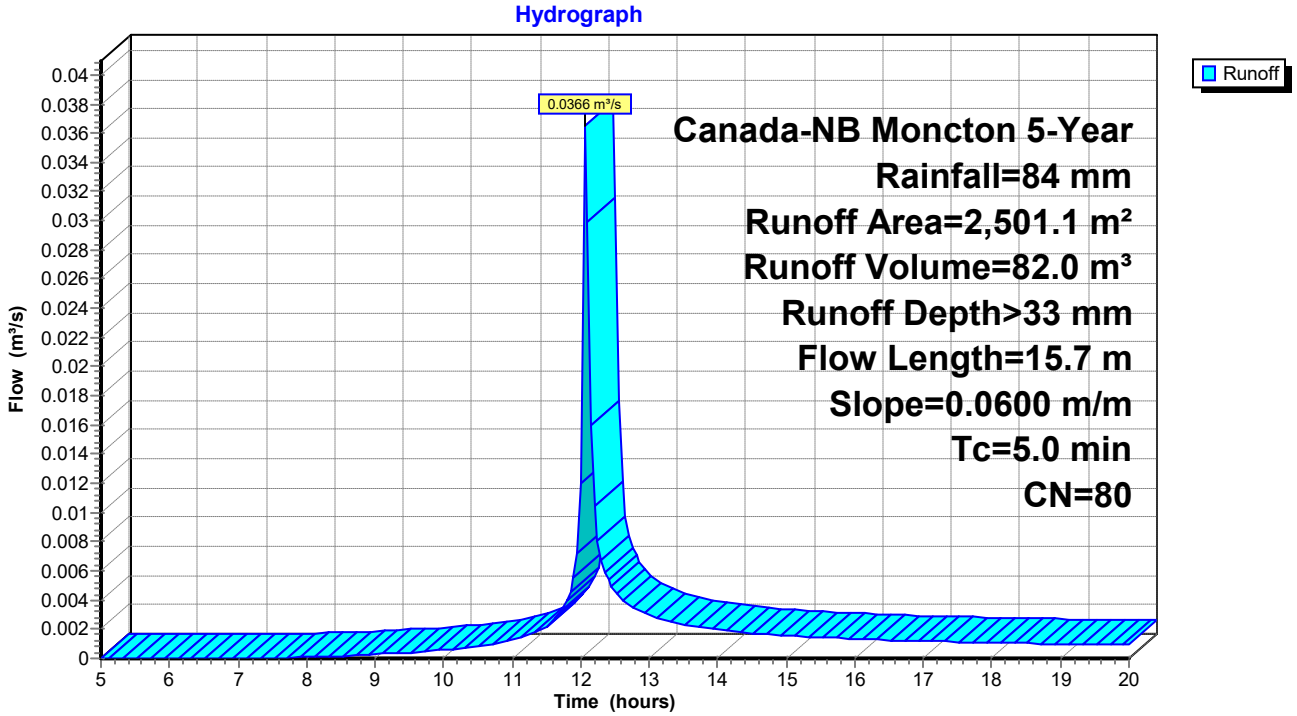
Runoff = 0.0366 m³/s @ 12.07 hrs, Volume= 82.0 m³, Depth> 33 mm
Routed to Pond 11P : Swale 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 5-Year Rainfall=84 mm

| Area (m²) | CN | Description |
|---|---|---|
| 920.7 | 61 | >75% Grass cover, Good, HSG B |
| 497.9 | 98 | Paved parking, HSG B |
| 367.5 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 199.9 | 65 | Woods/grass comb., Fair, HSG B |
| 2,501.1 | 80 | Weighted Average |
| 1,304.4 | | 52.15% Pervious Area |
| 1,196.8 | | 47.85% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.2 | 15.7 | 0.0600 | 0.22 | | **Lag/CN Method,** |
| 1.2 | 15.7 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.4: Subcat B.4



## Summary for Subcatchment B.5: Subcat B.5

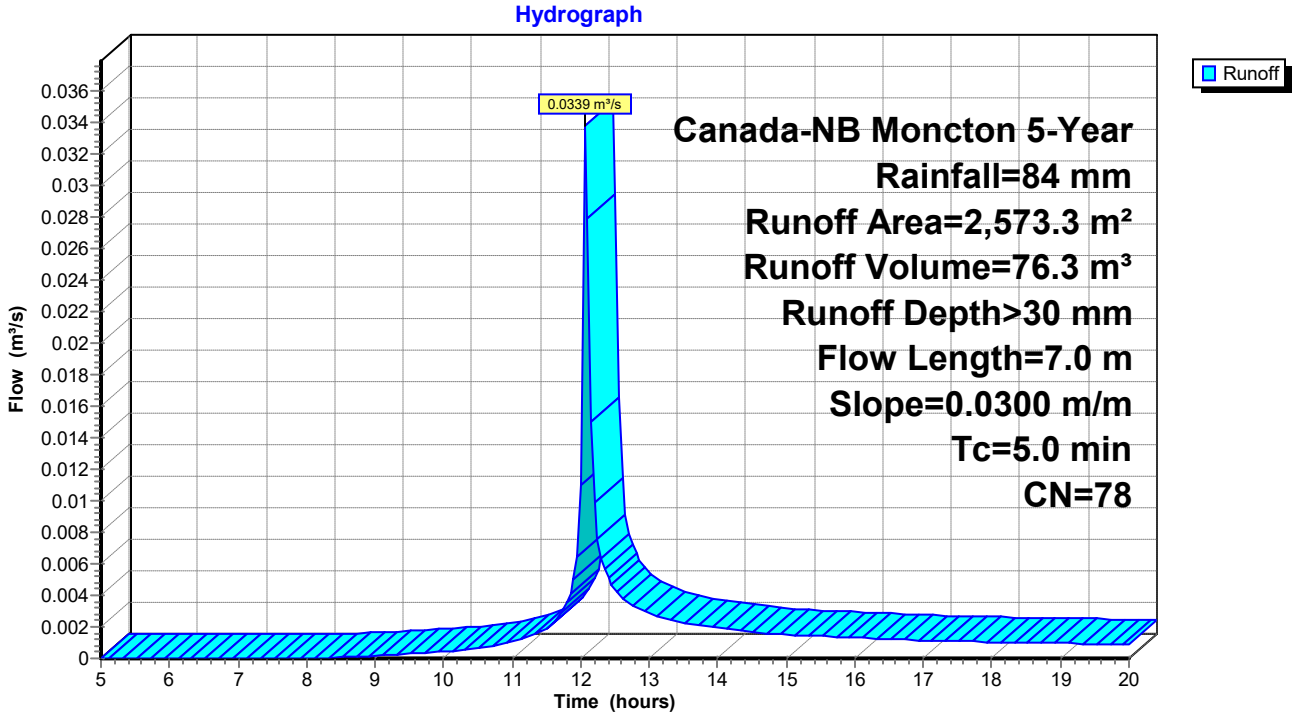
Runoff = 0.0339 m³/s @ 12.07 hrs, Volume= 76.3 m³, Depth> 30 mm
Routed to Pond 12P : Swale 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 5-Year Rainfall=84 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,089.0 | 61 | >75% Grass cover, Good, HSG B |
| 466.7 | 98 | Paved parking, HSG B |
| 236.8 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 265.7 | 65 | Woods/grass comb., Fair, HSG B |
| 2,573.3 | 78 | Weighted Average |
| 1,473.1 | | 57.25% Pervious Area |
| 1,100.2 | | 42.75% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.0 | 7.0 | 0.0300 | 0.12 | | **Lag/CN Method,** |
| 1.0 | 7.0 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.5: Subcat B.5



## Summary for Pond 9P: Swale 2

Inflow Area = 3,454.4 m², 33.33% Impervious, Inflow Depth > 25 mm for 5-Year event
Inflow = 0.0382 m³/s @ 12.07 hrs, Volume= 87.4 m³
Outflow = 0.0057 m³/s @ 12.44 hrs, Volume= 87.3 m³, Atten= 85%, Lag= 22.3 min
Primary = 0.0057 m³/s @ 12.44 hrs, Volume= 87.3 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.390 m @ 12.44 hrs Surf.Area= 108.0 m² Storage= 16.6 m³

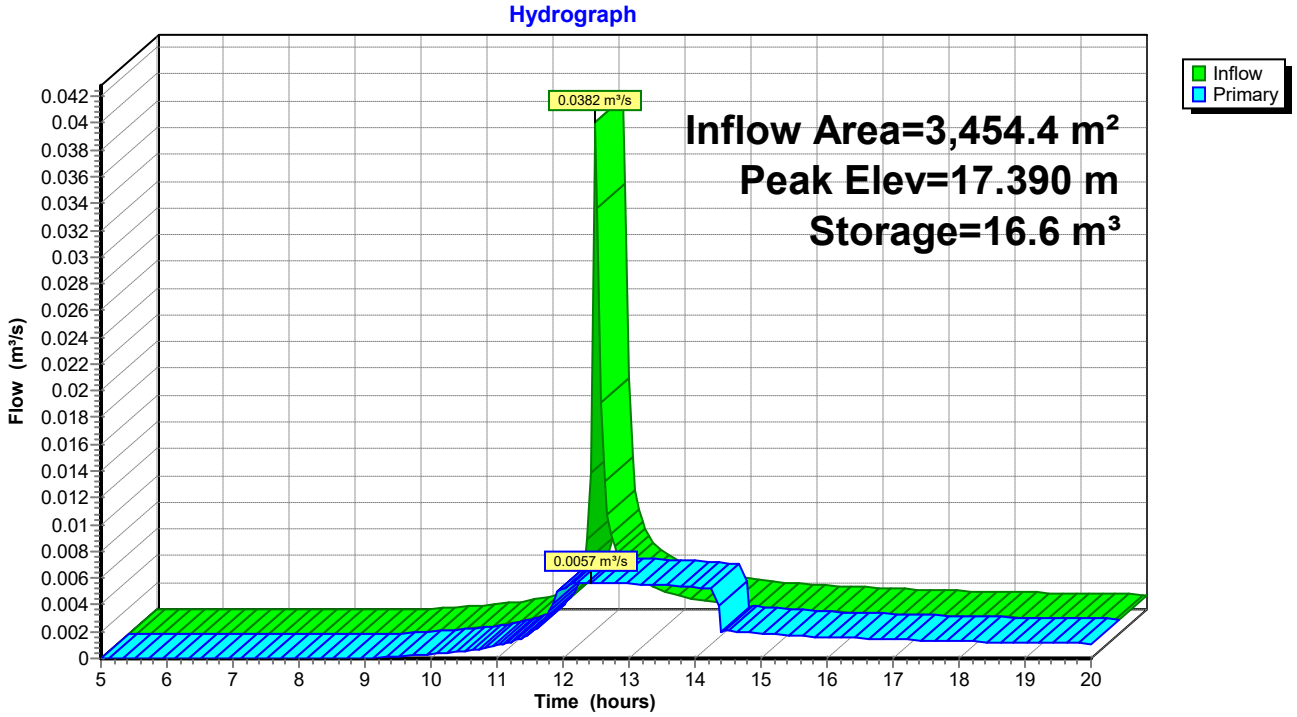
Plug-Flow detention time= 17.3 min calculated for 87.3 m³ (100% of inflow)
Center-of-Mass det. time= 16.9 min ( 852.0 - 835.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.180 m | 116.2 m³ | **0.75 mW x 67.03 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.190 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0057 m³/s @ 12.44 hrs HW=17.390 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0057 m³/s @ 2.88 m/s)

### Pond 9P: Swale 2



## Summary for Pond 10P: Swale 3

Inflow Area = 2,638.6 m², 45.20% Impervious, Inflow Depth > 31 mm for 5-Year event
Inflow = 0.0366 m³/s @ 12.07 hrs, Volume= 82.3 m³
Outflow = 0.0044 m³/s @ 12.55 hrs, Volume= 82.1 m³, Atten= 88%, Lag= 29.2 min
Primary = 0.0044 m³/s @ 12.55 hrs, Volume= 82.1 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.380 m @ 12.55 hrs Surf.Area= 129.3 m² Storage= 18.3 m³

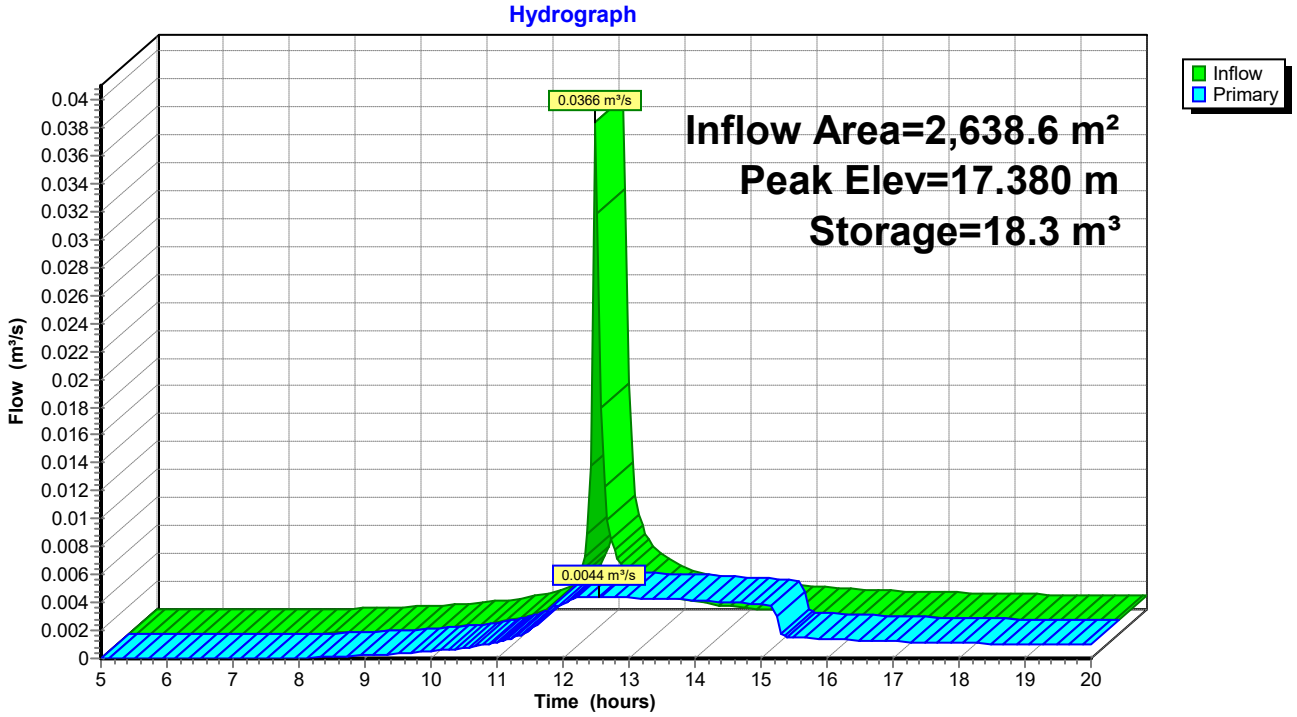
Plug-Flow detention time= 27.9 min calculated for 82.1 m³ (100% of inflow)
Center-of-Mass det. time= 27.3 min ( 848.6 - 821.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.190 m | 146.4 m³ | **0.75 mW x 84.90 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.650 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0044 m³/s @ 12.55 hrs HW=17.380 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0044 m³/s @ 2.23 m/s)

### Pond 10P: Swale 3



## Summary for Pond 11P: Swale 4

Inflow Area = 2,501.1 m², 47.85% Impervious, Inflow Depth > 33 mm for 5-Year event
Inflow = 0.0366 m³/s @ 12.07 hrs, Volume= 82.0 m³
Outflow = 0.0049 m³/s @ 12.46 hrs, Volume= 81.9 m³, Atten= 87%, Lag= 23.9 min
Primary = 0.0049 m³/s @ 12.46 hrs, Volume= 81.9 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.639 m @ 12.46 hrs Surf.Area= 106.3 m² Storage= 16.9 m³

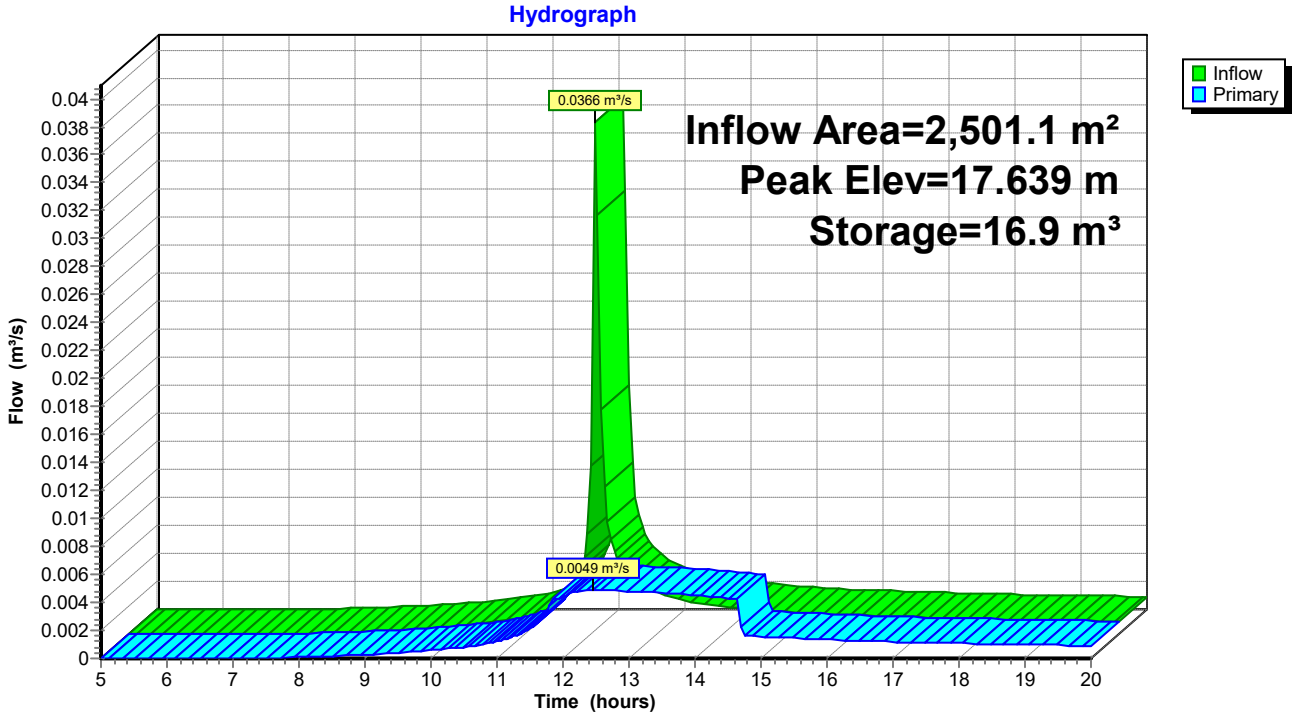
Plug-Flow detention time= 21.2 min calculated for 81.6 m³ (100% of inflow)
Center-of-Mass det. time= 20.8 min ( 838.6 - 817.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.420 m | 111.9 m³ | **0.75 mW x 64.50 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.750 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0049 m³/s @ 12.46 hrs HW=17.639 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0049 m³/s @ 2.47 m/s)

### Pond 11P: Swale 4



## Summary for Pond 12P: Swale 5

Inflow Area = 2,573.3 m², 42.75% Impervious, Inflow Depth > 30 mm for 5-Year event
Inflow = 0.0339 m³/s @ 12.07 hrs, Volume= 76.3 m³
Outflow = 0.0041 m³/s @ 12.55 hrs, Volume= 76.2 m³, Atten= 88%, Lag= 29.3 min
Primary = 0.0041 m³/s @ 12.55 hrs, Volume= 76.2 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 16.931 m @ 12.55 hrs Surf.Area= 79.9 m² Storage= 17.3 m³

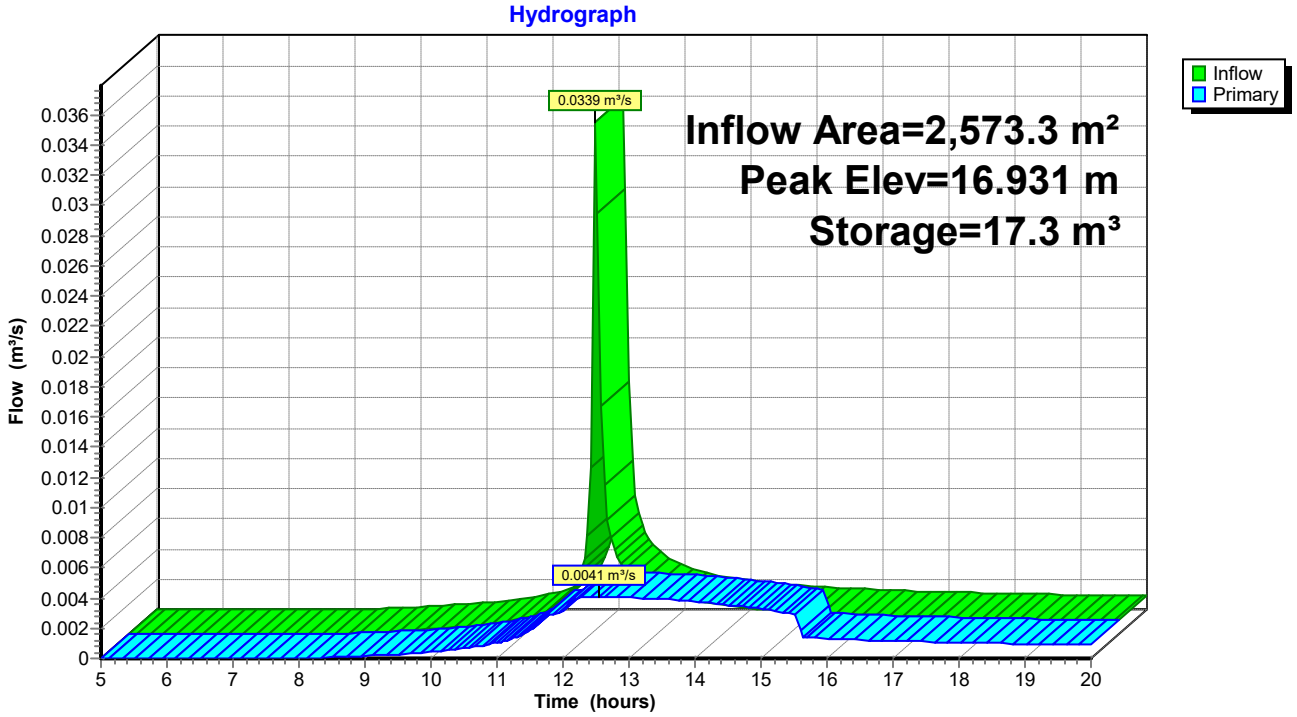
Plug-Flow detention time= 29.6 min calculated for 76.2 m³ (100% of inflow)
Center-of-Mass det. time= 29.1 min ( 854.0 - 824.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 16.610 m | 67.2 m³ | **0.75 mW x 38.01 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.290 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0041 m³/s @ 12.55 hrs HW=16.931 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0041 m³/s @ 2.09 m/s)

### Pond 12P: Swale 5



## Summary for Pond 13P: Swale 1

Inflow Area = 3,679.6 m², 27.30% Impervious, Inflow Depth > 23 mm for 5-Year event
Inflow = 0.0358 m³/s @ 12.07 hrs, Volume= 83.2 m³
Outflow = 0.0162 m³/s @ 12.16 hrs, Volume= 82.5 m³, Atten= 55%, Lag= 5.7 min
Primary = 0.0162 m³/s @ 12.16 hrs, Volume= 82.5 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.399 m @ 12.16 hrs Surf.Area= 38.7 m² Storage= 6.3 m³

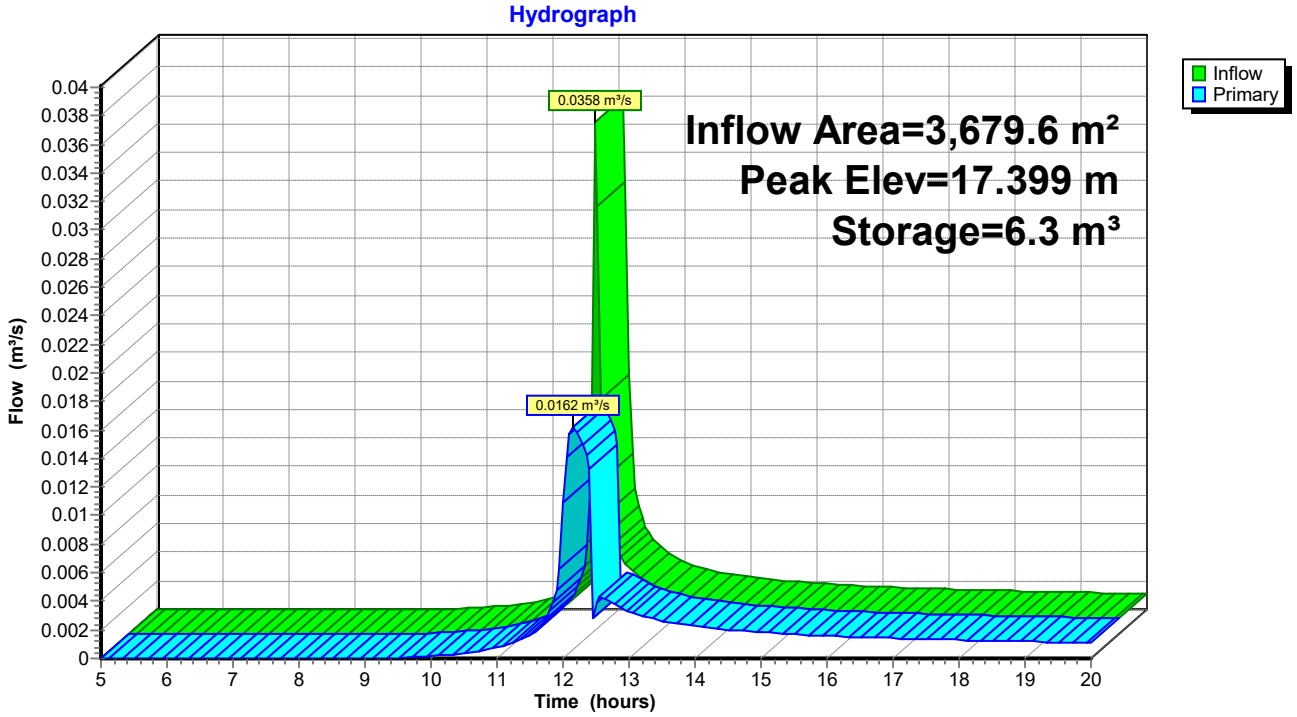
Plug-Flow detention time= 5.2 min calculated for 82.5 m³ (99% of inflow)
Center-of-Mass det. time= 2.0 min ( 843.8 - 841.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.170 m | 40.7 m³ | **0.75 mW x 22.30 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.750 m | **100 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0161 m³/s @ 12.16 hrs HW=17.395 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0161 m³/s @ 2.05 m/s)

### Pond 13P: Swale 1

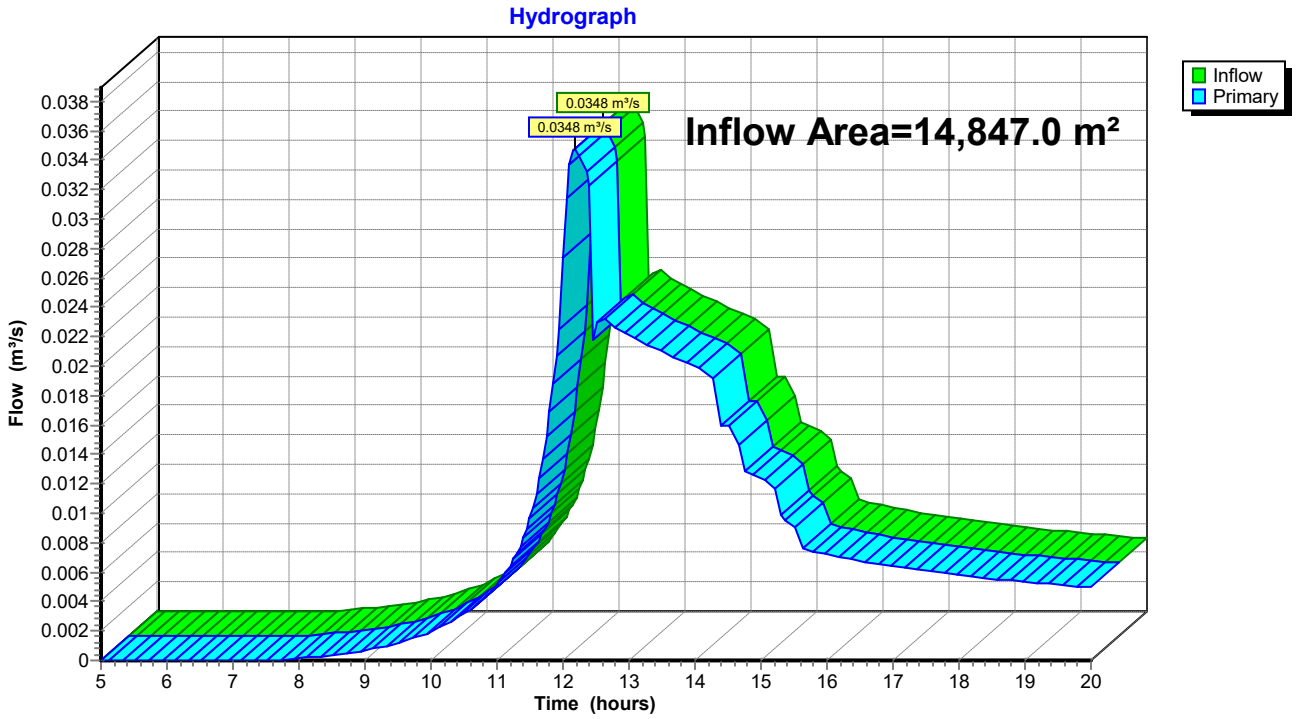


## Summary for Link 6L: OVA

Inflow Area = 14,847.0 m², 38.02% Impervious, Inflow Depth > 28 mm for 5-Year event
Inflow = 0.0348 m³/s @ 12.18 hrs, Volume= 409.9 m³
Primary = 0.0348 m³/s @ 12.18 hrs, Volume= 409.9 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Link 6L: OVA



## Summary for Subcatchment A.1: Subcat A.1

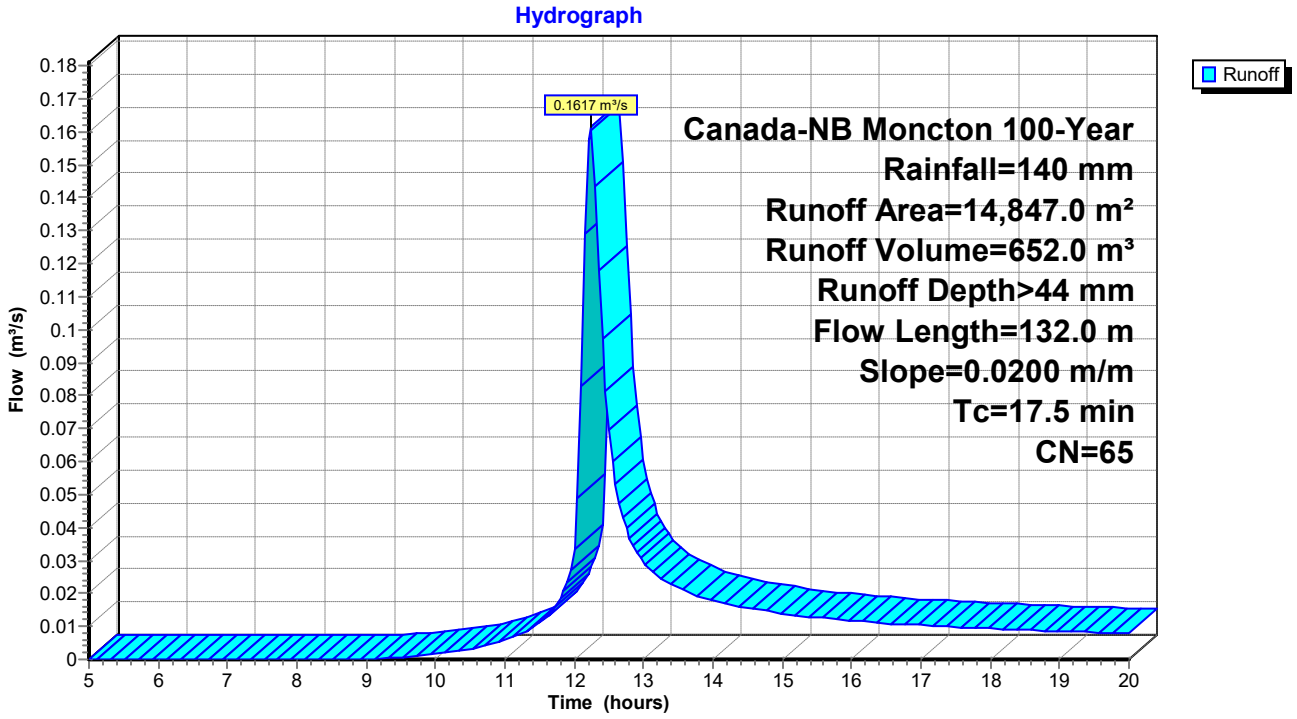
Runoff = 0.1617 m³/s @ 12.23 hrs, Volume= 652.0 m³, Depth> 44 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 100-Year Rainfall=140 mm

| Area (m²) | CN | Description |
|---|---|---|
| 14,847.0 | 65 | Woods/grass comb., Fair, HSG B |
| 14,847.0 | | 100.00% Pervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 17.5 | 132.0 | 0.0200 | 0.13 | | **Lag/CN Method,** |

## Subcatchment A.1: Subcat A.1



## Summary for Subcatchment B.1: Subcat B.1

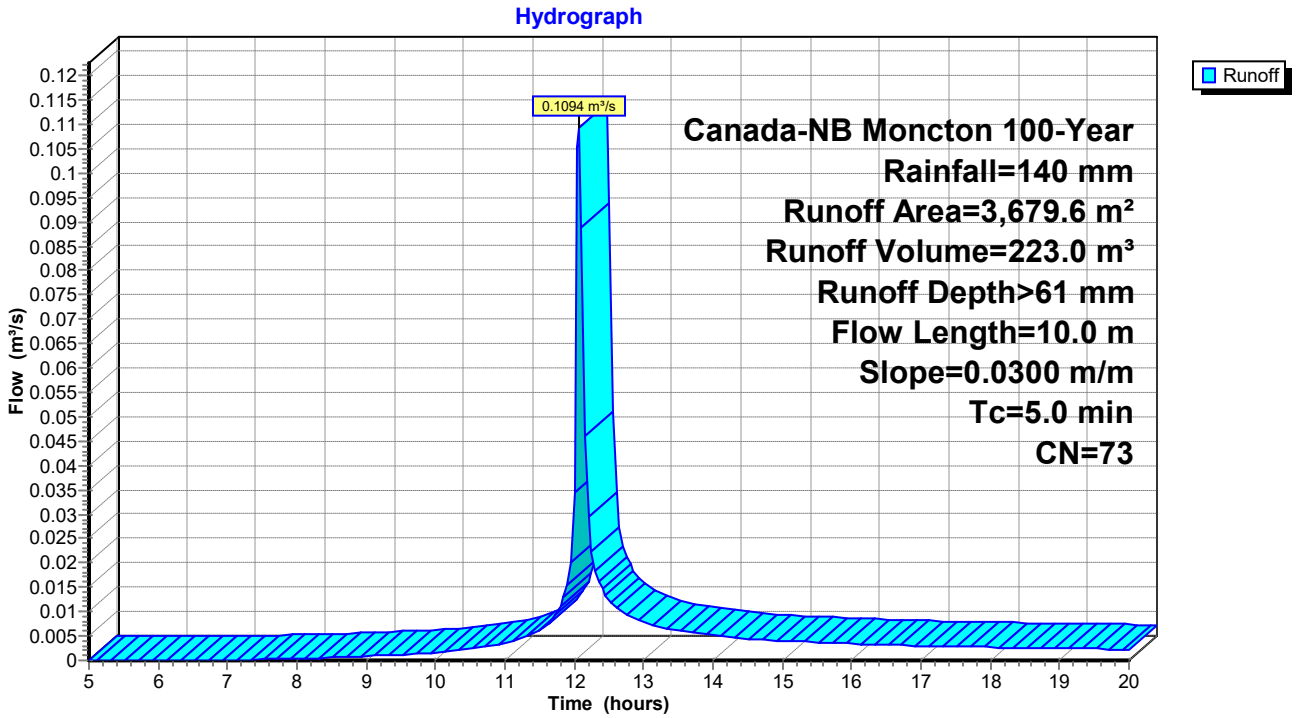
Runoff = 0.1094 m³/s @ 12.07 hrs, Volume= 223.0 m³, Depth> 61 mm
Routed to Pond 13P : Swale 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 100-Year Rainfall=140 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,455.4 | 61 | >75% Grass cover, Good, HSG B |
| 418.7 | 98 | Paved parking, HSG B |
| 141.6 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 1,148.8 | 65 | Woods/grass comb., Fair, HSG B |
| 3,679.6 | 73 | Weighted Average |
| 2,675.0 | | 72.70% Pervious Area |
| 1,004.6 | | 27.30% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.5 | 10.0 | 0.0300 | 0.11 | | **Lag/CN Method,** |
| 1.5 | 10.0 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.1: Subcat B.1



## Summary for Subcatchment B.2: Subcat B.2

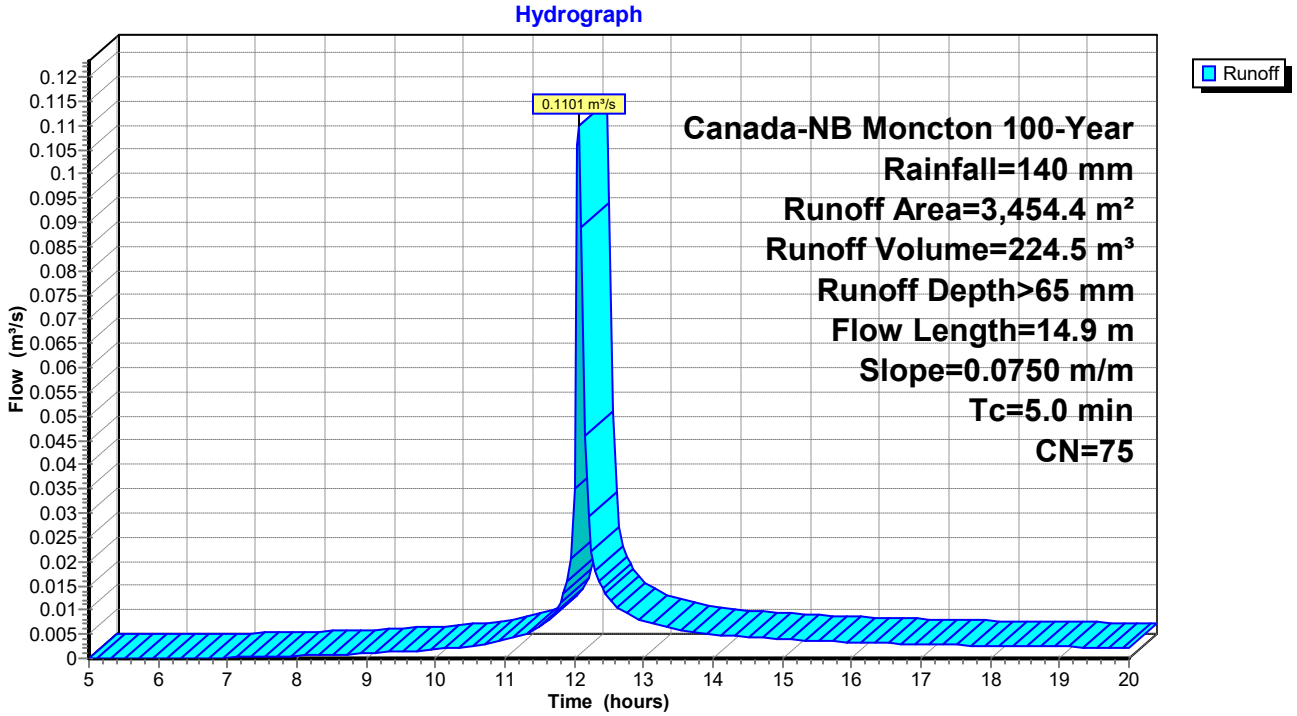
Runoff = 0.1101 m³/s @ 12.07 hrs, Volume= 224.5 m³, Depth> 65 mm
Routed to Pond 9P : Swale 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 100-Year Rainfall=140 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,403.2 | 61 | >75% Grass cover, Good, HSG B |
| 449.2 | 98 | Paved parking, HSG B |
| 374.0 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 713.0 | 65 | Woods/grass comb., Fair, HSG B |
| 3,454.4 | 75 | Weighted Average |
| 2,303.2 | | 66.67% Pervious Area |
| 1,151.2 | | 33.33% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.2 | 14.9 | 0.0750 | 0.21 | | **Lag/CN Method,** |
| 1.2 | 14.9 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.2: Subcat B.2



## Summary for Subcatchment B.3: Subcat B.3

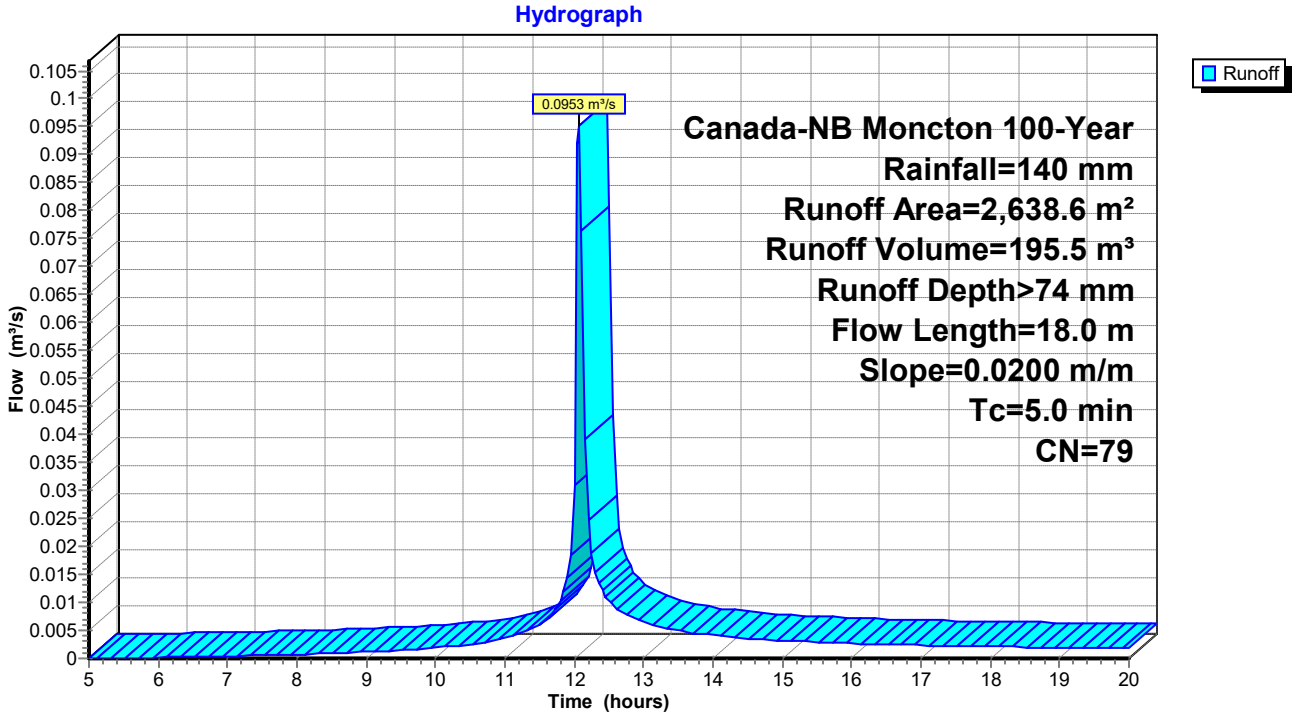
Runoff = 0.0953 m³/s @ 12.06 hrs, Volume= 195.5 m³, Depth> 74 mm
Routed to Pond 10P : Swale 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 100-Year Rainfall=140 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,023.6 | 61 | >75% Grass cover, Good, HSG B |
| 497.8 | 98 | Paved parking, HSG B |
| 359.3 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 242.8 | 65 | Woods/grass comb., Fair, HSG B |
| 2,638.6 | 79 | Weighted Average |
| 1,446.0 | | 54.80% Pervious Area |
| 1,192.6 | | 45.20% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 2.4 | 18.0 | 0.0200 | 0.12 | | **Lag/CN Method,** |
| 2.4 | 18.0 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.3: Subcat B.3



## Summary for Subcatchment B.4: Subcat B.4

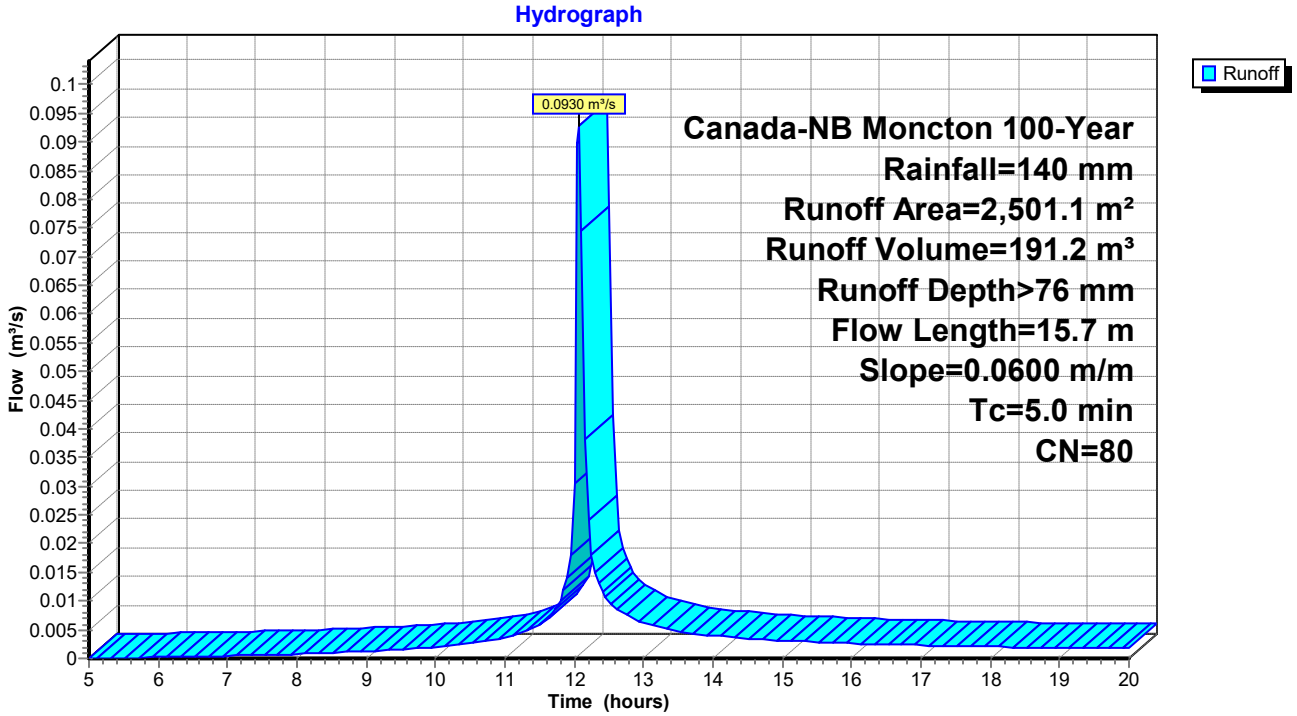
Runoff = 0.0930 m³/s @ 12.06 hrs, Volume= 191.2 m³, Depth> 76 mm
Routed to Pond 11P : Swale 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 100-Year Rainfall=140 mm

| Area (m²) | CN | Description |
|---|---|---|
| 920.7 | 61 | >75% Grass cover, Good, HSG B |
| 497.9 | 98 | Paved parking, HSG B |
| 367.5 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 199.9 | 65 | Woods/grass comb., Fair, HSG B |
| 2,501.1 | 80 | Weighted Average |
| 1,304.4 | | 52.15% Pervious Area |
| 1,196.8 | | 47.85% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.2 | 15.7 | 0.0600 | 0.22 | | **Lag/CN Method,** |
| 1.2 | 15.7 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.4: Subcat B.4



## Summary for Subcatchment B.5: Subcat B.5

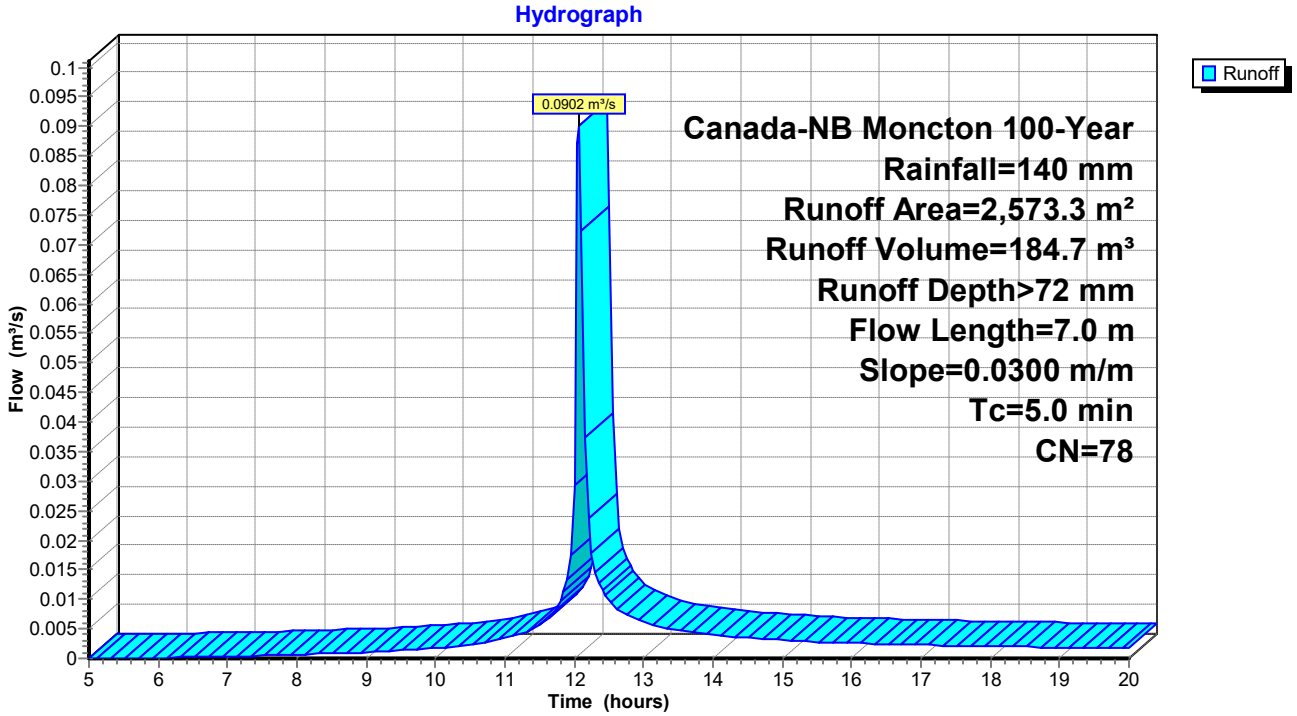
Runoff = 0.0902 m³/s @ 12.06 hrs, Volume= 184.7 m³, Depth> 72 mm
Routed to Pond 12P : Swale 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Canada-NB Moncton 100-Year Rainfall=140 mm

| Area (m²) | CN | Description |
|---|---|---|
| 1,089.0 | 61 | >75% Grass cover, Good, HSG B |
| 466.7 | 98 | Paved parking, HSG B |
| 236.8 | 89 | Paved roads w/open ditches, 50% imp, HSG B |
| 515.1 | 98 | Roofs, HSG B |
| 265.7 | 65 | Woods/grass comb., Fair, HSG B |
| 2,573.3 | 78 | Weighted Average |
| 1,473.1 | | 57.25% Pervious Area |
| 1,100.2 | | 42.75% Impervious Area |

| Tc (min) | Length (meters) | Slope (m/m) | Velocity (m/sec) | Capacity (m³/s) | Description |
|---|---|---|---|---|---|
| 1.0 | 7.0 | 0.0300 | 0.12 | | **Lag/CN Method,** |
| 1.0 | 7.0 | Total, Increased to minimum Tc = 5.0 min | | | |

## Subcatchment B.5: Subcat B.5



## Summary for Pond 9P: Swale 2

Inflow Area = 3,454.4 m², 33.33% Impervious, Inflow Depth > 65 mm for 100-Year event
Inflow = 0.1101 m³/s @ 12.07 hrs, Volume= 224.5 m³
Outflow = 0.0065 m³/s @ 13.31 hrs, Volume= 215.0 m³, Atten= 94%, Lag= 74.9 min
Primary = 0.0065 m³/s @ 13.31 hrs, Volume= 215.0 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.763 m @ 13.31 hrs Surf.Area= 213.8 m² Storage= 76.5 m³

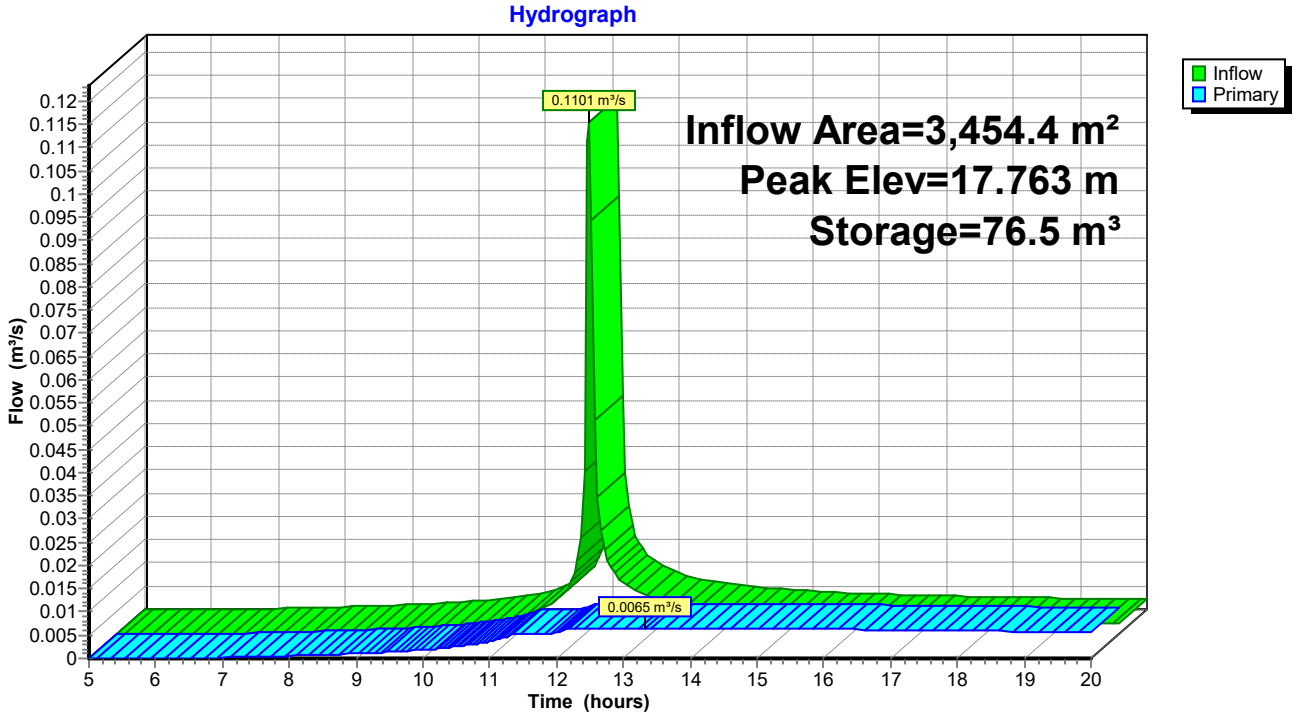
Plug-Flow detention time= 113.7 min calculated for 214.2 m³ (95% of inflow)
Center-of-Mass det. time= 97.4 min ( 901.0 - 803.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.180 m | 116.2 m³ | **0.75 mW x 67.03 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.190 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0065 m³/s @ 13.31 hrs HW=17.763 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0065 m³/s @ 3.31 m/s)

### Pond 9P: Swale 2



## Summary for Pond 10P: Swale 3

Inflow Area = 2,638.6 m², 45.20% Impervious, Inflow Depth > 74 mm for 100-Year event
Inflow = 0.0953 m³/s @ 12.06 hrs, Volume= 195.5 m³
Outflow = 0.0052 m³/s @ 13.38 hrs, Volume= 177.4 m³, Atten= 95%, Lag= 79.2 min
Primary = 0.0052 m³/s @ 13.38 hrs, Volume= 177.4 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.667 m @ 13.38 hrs Surf.Area= 230.8 m² Storage= 70.0 m³

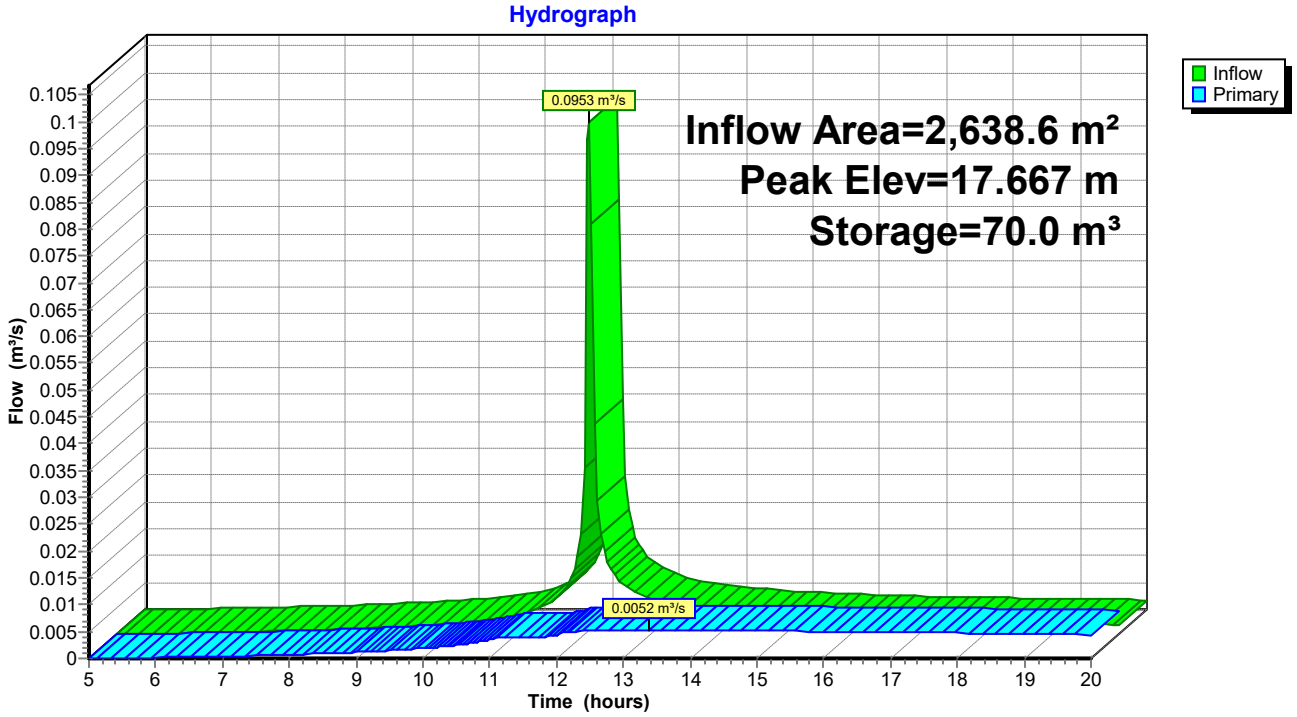
Plug-Flow detention time= 129.9 min calculated for 177.4 m³ (91% of inflow)
Center-of-Mass det. time= 96.1 min ( 888.1 - 792.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.190 m | 146.4 m³ | **0.75 mW x 84.90 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.650 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0052 m³/s @ 13.38 hrs HW=17.667 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0052 m³/s @ 2.65 m/s)

### Pond 10P: Swale 3



## Summary for Pond 11P: Swale 4

Inflow Area = 2,501.1 m², 47.85% Impervious, Inflow Depth > 76 mm for 100-Year event
Inflow = 0.0930 m³/s @ 12.06 hrs, Volume= 191.2 m³
Outflow = 0.0057 m³/s @ 13.15 hrs, Volume= 189.1 m³, Atten= 94%, Lag= 64.8 min
Primary = 0.0057 m³/s @ 13.15 hrs, Volume= 189.1 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.953 m @ 13.15 hrs Surf.Area= 192.1 m² Storage= 63.7 m³

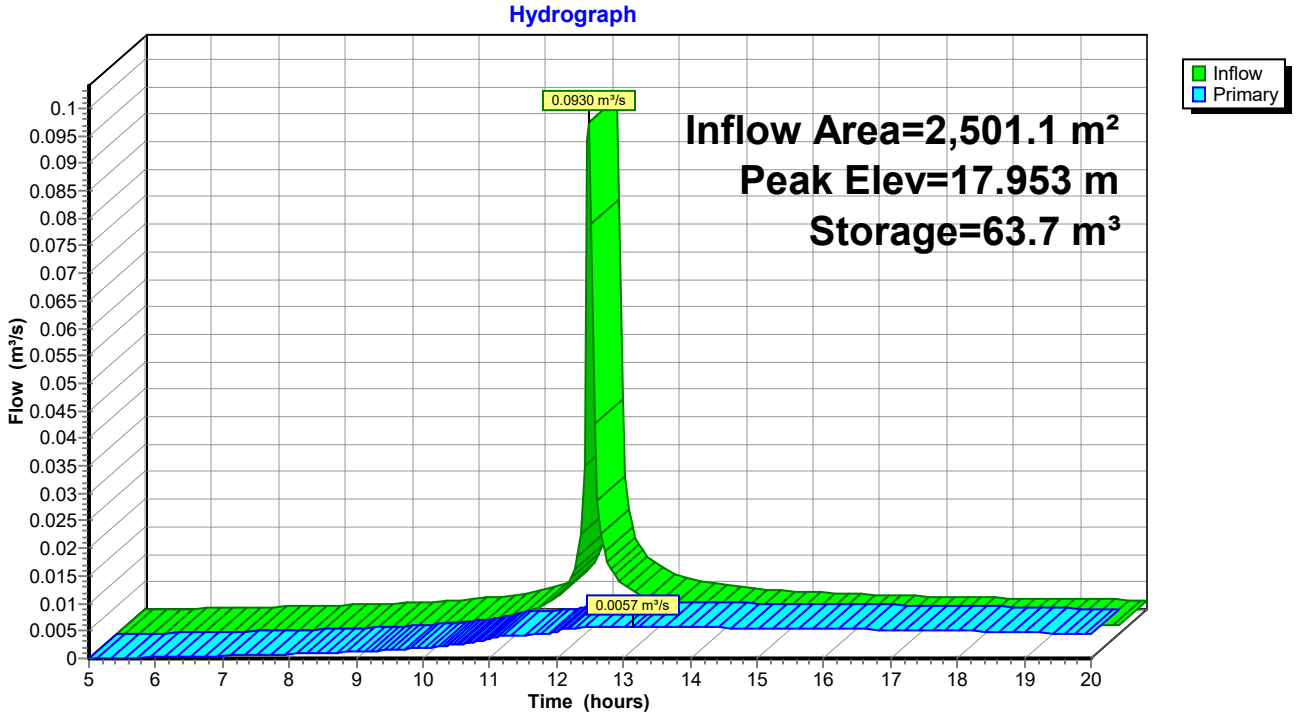
Plug-Flow detention time= 101.0 min calculated for 189.1 m³ (99% of inflow)
Center-of-Mass det. time= 96.4 min ( 885.4 - 789.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.420 m | 111.9 m³ | **0.75 mW x 64.50 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.750 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0057 m³/s @ 13.15 hrs HW=17.953 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0057 m³/s @ 2.89 m/s)

### Pond 11P: Swale 4



## Summary for Pond 12P: Swale 5

Inflow Area = 2,573.3 m², 42.75% Impervious, Inflow Depth > 72 mm for 100-Year event
Inflow = 0.0902 m³/s @ 12.06 hrs, Volume= 184.7 m³
Outflow = 0.0053 m³/s @ 13.25 hrs, Volume= 170.9 m³, Atten= 94%, Lag= 71.0 min
Primary = 0.0053 m³/s @ 13.25 hrs, Volume= 170.9 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.352 m @ 13.25 hrs Surf.Area= 152.4 m² Storage= 66.0 m³

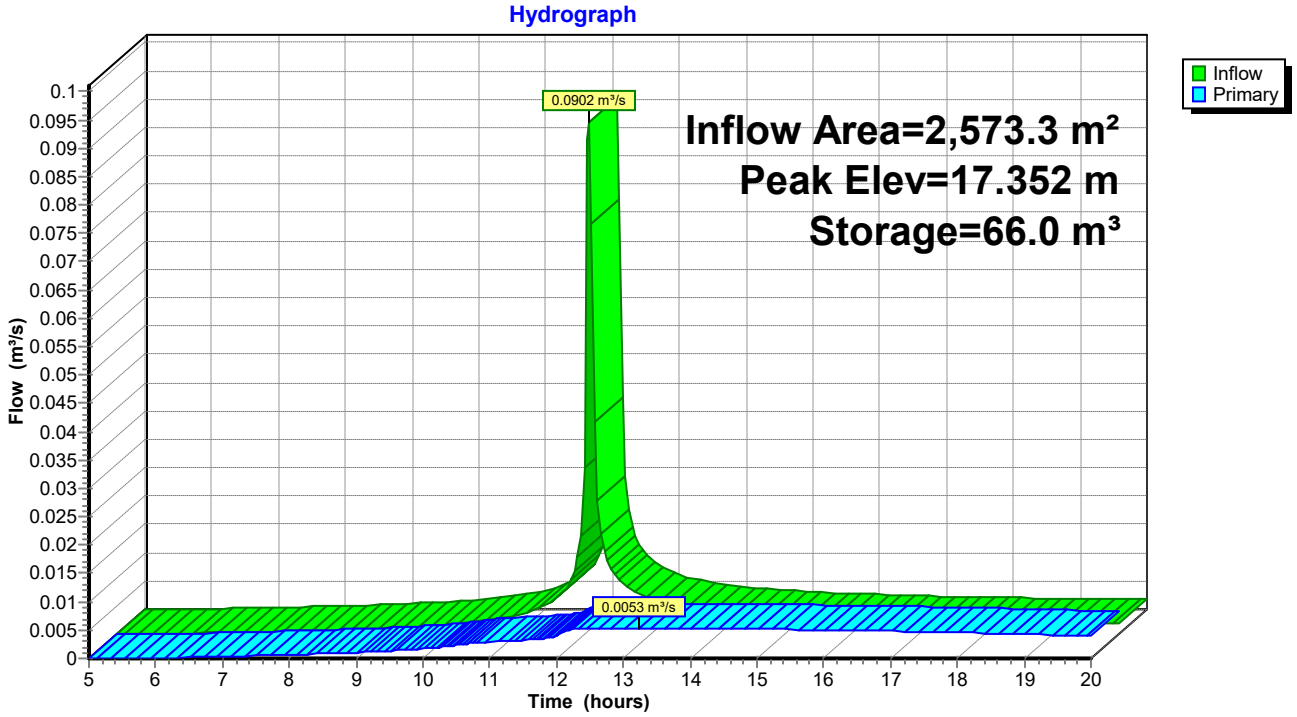
Plug-Flow detention time= 124.0 min calculated for 170.9 m³ (93% of inflow)
Center-of-Mass det. time= 96.3 min ( 891.2 - 795.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 16.610 m | 67.2 m³ | **0.75 mW x 38.01 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.290 m | **50 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0053 m³/s @ 13.25 hrs HW=17.352 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0053 m³/s @ 2.71 m/s)

### Pond 12P: Swale 5



## Summary for Pond 13P: Swale 1

Inflow Area = 3,679.6 m², 27.30% Impervious, Inflow Depth > 61 mm for 100-Year event
Inflow = 0.1094 m³/s @ 12.07 hrs, Volume= 223.0 m³
Outflow = 0.0219 m³/s @ 12.26 hrs, Volume= 223.8 m³, Atten= 80%, Lag= 11.7 min
Primary = 0.0219 m³/s @ 12.26 hrs, Volume= 223.8 m³
Routed to Link 6L : OVA

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.903 m @ 12.26 hrs Surf.Area= 92.9 m² Storage= 39.1 m³

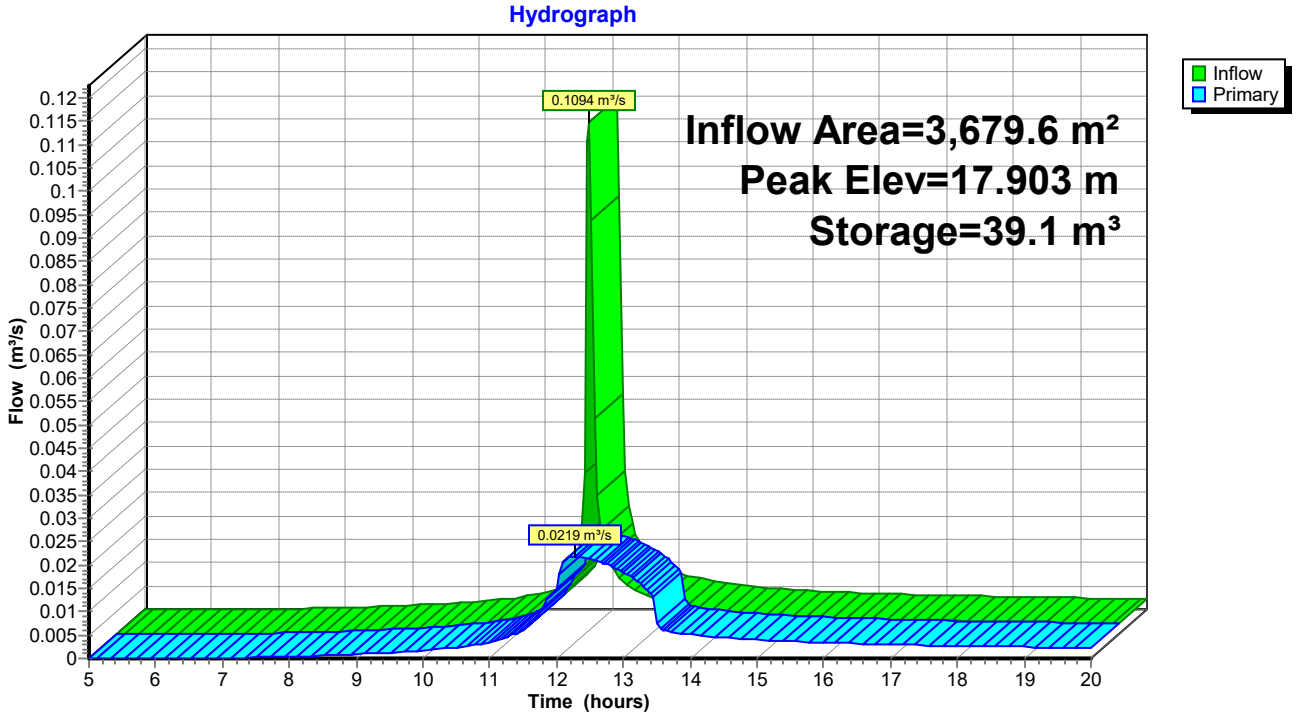
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 8.6 min ( 817.6 - 809.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 17.170 m | 40.7 m³ | **0.75 mW x 22.30 mL x 0.75 mH Prismatoid Z=2.0** |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 16.750 m | **100 mm Vert. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.0219 m³/s @ 12.26 hrs HW=17.902 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.0219 m³/s @ 2.79 m/s)

### Pond 13P: Swale 1

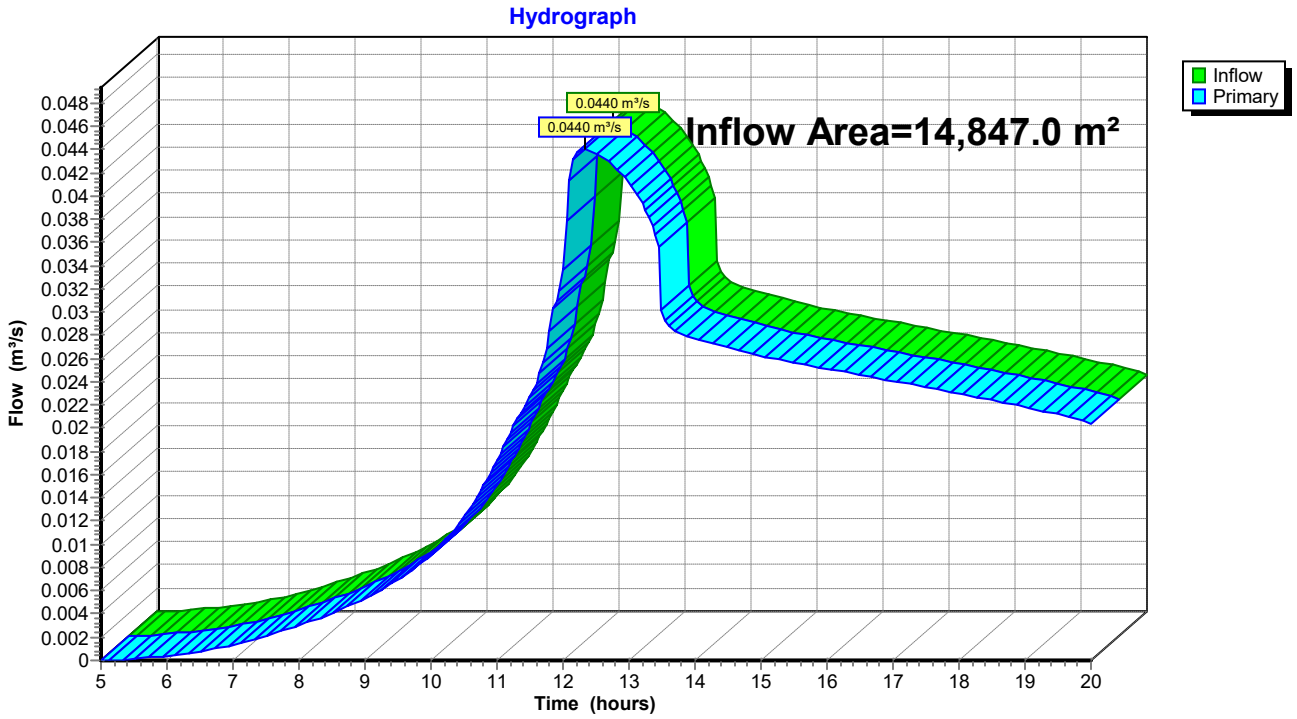


## Summary for Link 6L: OVA

Inflow Area = 14,847.0 m², 38.02% Impervious, Inflow Depth > 66 mm for 100-Year event
Inflow = 0.0440 m³/s @ 12.33 hrs, Volume= 976.3 m³
Primary = 0.0440 m³/s @ 12.33 hrs, Volume= 976.3 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Link 6L: OVA



**CRAIG HYDROGEOLOGIC INC.**

*Groundwater and Soil Contamination*
*Groundwater Protection*
*Resource Development*
*Site Remediation*
*Site Professional*

# MICHAUD CAPITAL CORPORATION
# BRAEMAR LOT APARTMENT BUILDING 3

## PW 2026
## WSSA REPORT
## 24 HOUR PUMP TEST

## SALISBURY, NB

## August, 2026

Prepared for: **Michaud Capital Corp.**
Atten: Dr. Wes Michaud
221 Main Street, Unit 1
Sussex, NB
E4E 0M3

Prepared by: **Craig HydroGeoLogic Inc.**
479 Maces Bay Road
Maces Bay, N.B.
E5J 1T39
Phone: 506-659-3064

Date: August 29, 2026

# MICHAUD CAPITAL CORPORATION
# BRAEMAR LOT APARTMENT BUILDING 3

## PW 2026
## WSSA REPORT
## 24 HOUR PUMP TEST

## SALISBURY, NB

**August 2026**

## INTRODUCTION

Craig HydroGeoLogic Inc. was retained by Dr. Wes Michaud of Michaud Capital Corp. to conduct pump testing on a potential groundwater supply well (PW 2026 in this report) as specified in the EIA Water Supply Source Assessment Guidelines (April 2017) prescribed by the New Brunswick Department of Environment and Local Government (NBDELG). The pump testing is part of the approval process which is required for Michaud Capital Corp. to obtain an approval to construct and operate the groundwater supply well to provide water for a proposed residential apartment building (Building 3, Braemar Lot) in Salisbury, NB.

This report presents the results of the pump test and conclusions and recommendations based on the results of the pump test. This report was prepared by Craig HydroGeoLogic Inc. for the clients, Dr. Wes Michaud and Michaud Capital Corp., and the report presents the results of pump testing a groundwater supply sourced from a production wells (PW 2026). The groundwater produced from the production well is intended to be the water supply for a six-unit apartment building proposed to be built on PID 70729942 (Building 3, Braemar Lot) located in Salisbury, NB.

The report is based on the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. For example, but not limited to,

interpolation between boreholes is an accepted industry practice, however, actual subsurface conditions may vary from that interpolated and such variation could impact observations, discussions, conclusions and recommendations in the report. Professional judgments expressed herein are based on the facts currently available within the existing data, scope of work, budget and schedule. The material and information in the report reflect Craig HydroGeoLogic Inc.'s best judgment in light of the information available at the time of report preparation. Any use which a third party makes of this report, or any reliance on or decision(s) to be made based on this report are the responsibility of the third party(ies). Craig HydroGeoLogic Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

## SCOPE

The scope of the assessment is as follows:

1. To conduct a 24-hour pump test on the proposed water supply well (PW 2026) as specified in the EIA Water Supply Source Assessment guidelines prescribed by the New Brunswick Department of Environment and Local Government, and;
2. To produce a report with the findings of the pump testing and recommendations with regard to the development/operation of the proposed groundwater supply.

## SITE DESCRIPTION

## LOCATION

Michaud Capital Corp. is proposing a residential apartment development on PID 70729942. The property is in Salisbury, NB, east of McDonald Road and north of the end of Dundee Drive. The property is referred to as the Braemar Lot, and this pump test is for

a groundwater supply for Building 3. Buildings 1 and 2 are supplied by existing wells which are already approved.

## EXISTING DEVELOPMENT/OPERATION

PID 70729942 is under development with a constructed access road. Building 2 is under construction on the southern side of the road at the west end across from PID 70729942 and Building 1 is complete and occupies the southern portion along the access road, south of Building 2. The site is surrounded on the north, west and south sides by existing residential development and, on the east side is a large school. All the surrounding properties are serviced by private wells but have a municipal sewage system.

## REQUIRED WATER QUANTITY

As mentioned above, a six-unit apartment building is proposed which will have six 1-bedroom units. The design water demand for private residential or recreational homes is prescribed in Appendix D of the New Brunswick Technical Guidelines for On-site Sewage Disposal Systems as follows:

**Appendix D – Estimated Daily Sewage Flows**
**Residential Facility/Peak Flow (LPD)**

1-bedrom unit / 750 Liters per day (LPD)
2-bedrom unit / 1022 Liters per day (LPD)
3-bedrom unit / 1365 Liters per day (LPD)
4-bedrom unit / 1705 Liters per day (LPD)
Each additional bedroom Unit / 350 Liters per day (LPD)

Using the applicable design number, for a one-bedroom unit the total water demand per day is 750 LPD. For the six unit building the total daily water demand is 6*750 = 4,500 L/day (0.69 igpm or 3.13 l/min over 24 hours).

Peak demand is estimated using the average daily water requirement made up over two hours. The peak demand rate for the six-unit building is, therefore; 4500/120 = 37.5 liters/minute or 8.25 igpm. . The peak demand only occurs for a short period of time (2 hours) each day, and the well can replenish its supplies during periods of lesser use over a 24-hour period

Based on the average daily water requirement of 4,500 LPD (4.5 $m^3$/day), an EIA would not be required as the trigger is 50 $m^3$/day and the site is within an incorporated area (Salisbury). Using the updated NB Environment design water requirements, the total water demand for the three identical six-unit apartment buildings would be 13.5 $m^3$/day, well below the EIA trigger.

# SITE DESCRIPTION

## General

The location of the proposed production well (PW 2026) and the two observation wells (OW1 and OW2) are shown in Figure 1. The existing land use in the general area is residential and institutional. The existing development in the area relies on private wells but has a municipal sewage system.

Based on the most recent site visit (August 18, 2026) and the existing land use in the area, the potential contamination of ground water resources by previous land uses does not appear to be an issue for the new development. The land on which the exploration well is located was undeveloped until recently, as it is currently under development.

## Geology and Hydrogeology

A 100-metre radius well log search of the NB Environment Well Log Database was conducted around PID 70729942 on August 3, 2026. The well log search provided a total of eight well logs. Copies of the eight well logs are provided in Appendix 1, at the back of this report. The search radius was not increased beyond 100 metres so as to try and focus on the area of the proposed apartment building and proposed water supply well as much as possible.

**Geology:** The overburden in the general area of the site is a brown clay till. According to the well logs in the area the till ranges from 0.61 to 15.2 metres (2 to 50 feet) in thickness. The overburden is not used as a water source in the local area, and it is the bedrock that forms the local aquifer. The bedrock in the area is mapped as Late Carboniferous age sedimentary rocks which form the Salisbury Formation. The rock is composed of reddish mudstone, siltstone, and sandstone. There are some conglomerate and minor thin coal seams that may also be present.

**Hydrogeology:** A 100-metre search of the NBDELG well log database was conducted around PID 70729942. A total of eight well logs were returned.

Table 1: 100 Metres Search Radius

| **Well Depth (feet)** | **Estimated Yield (igpm)** | **Depth to Bedrock (feet)** | **Casing Length (feet)** |
|---|---|---|---|
| Average: 169.1 | Average: 16.4 | Average: 19.4 | Average: 68.0 |
| Median: 180 | Median: 8 | Median: 18 | Median: 48.5 |
| Minimum: 80 | Minimum: 4 | Minimum: 2 | Minimum: 30 |
| Maximum: 220 | Maximum: 50 | Maximum: 50 | Maximum: 145 |

As can be seen from the above information contained in Table 1, the eight well logs found in the database for wells in this area have an average depth of 169.1 feet with an estimated average yield of approximately 16.4 igpm. The average estimated yield of 16.4 igpm and the observed median yield of 8 igpm are greater than the typical domestic well instantaneous needs of approximately 3 igpm. The minimum yield observed was 4 igpm, observed in one well with a depth of 188 feet. The maximum yield observed in the well logs was 50 igpm observed in a well with a depth of 180 feet. A summary of the individual well log data is attached to this report in Appendix 1.

As outlined above, the required water quantity for Building 3 is an average daily flow of 0.69 igpm (3.13 L/min) with a peak design flow of 8.25 igpm (37.5 L/min). A test well (PW 2026) was drilled on PID 70729942 on July 27, 2026. The well is 260 feet in depth and has an estimated safe yield of 10 igpm, its location shown in Figure 2 as PW 2026.

**NB Environment Well Water Chemistry Database:** A search of the NB Environment well chemistry database was conducted for a radius of 200 metres around PID 70729942 on August 8, 2026. The precise locations of the wells from which the ground water chemistry was obtained are not available due to right to privacy considerations for the

**Table 2**

CDWQG = Canadian Drinking Water Quality Guideline

## NBDOE Groundwater Chemistry Database

| Parameter | ALK_T (mg/L) | Al (mg/L) | As (µg/L) | B (mg/L) | Ba (mg/L) | Br (mg/L) | COND (µSIE/cm) | Ca (mg/L) | Cd (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| | 230 | 0.025 | 1.5 | 0.04 | 0.142 | 0.1 | 966 | 31.4 | 0.5 |
| | 238 | 0.039 | 1.5 | 0.029 | 0.058 | 0.124 | 853 | 5.64 | 0.5 |
| | 231 | 0.43 | 1.5 | 0.045 | 0.021 | 0.1 | 631 | 1.75 | 0.5 |
| | 178 | 0.025 | 1.5 | 0.021 | 0.771 | 0.108 | 1240 | 144 | 0.5 |
| | 239 | 0.36 | 1.5 | 0.043 | 0.013 | 0.1 | 531 | 1.1 | 0.5 |
| | 186 | 0.03 | 1.5 | 0.023 | 0.046 | 0.1 | 923 | 4.33 | 0.5 |
| **Mean** | **217.0** | **0.15** | **1.5** | **0.034** | **0.175** | **0.1** | **857** | **31.4** | **0.5** |
| **CDWQG** | | **MAC = 2.9** | **MAC = 10** | **MAC = 5** | **MAC = 2** | | | | **MAC = 7** |

| Parameter | Cl (mg/L) | Cr (µg/L) | Cu (µg/L) | E_coli P/A (P/A) | F (mg/L) | Fe (mg/L) | HARD (mg/L) | K (mg/L) | Mg (mg/L) |
|---|---|---|---|---|---|---|---|---|---|
| | 159 | 14 | 10 | Ab | 0.416 | 0.048 | 97.5 | 2.2 | 4.62 |
| | 106 | 35 | 11 | Ab | **1.93** | **0.338** | 16 | 1.1 | 0.46 |
| | 31.3 | 14 | 34 | Ab | **4.19** | **0.245** | 5.11 | 0.5 | 0.18 |
| | **269** | 13 | 10 | Ab | 0.197 | **0.194** | 442 | 2.6 | 20 |
| | 5.57 | 10 | 10 | Ab | **1.96** | **0.323** | 3.16 | 0.5 | 0.1 |
| | 167 | 10 | 10 | Ab | 1.14 | **0.142** | 12 | 0.972 | 0.288 |
| **Mean** | **123.0** | **16** | **14** | | **1.64** | **0.215** | **96.0** | **1.31** | **4.27** |
| **CDWQG** | **AO = 250** | **MAC = 50** | **MAC = 1000** | | **MAC = 1.5** | **MAC = 0.1** | | . | |

MAC = Maximum Acceptable Concentration

AO = Aesthetic Objective

**Table 2**

CDWQG = Canadian Drinking Water Quality Guideline

## NBDOE Groundwater Chemistry Database

| Parameter | Mn (mg/L) | NO2 (mg/L) | NO3 (mg/L) | NOX (mg/L) | Na (mg/L) | PH (pH) | Pb (µg/L) | SO4 (mg/L) | Sb (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| | **0.27** | 0.05 | 0.2 | 0.25 | 180 | 8.11 | 1 | 8.74 | 1 |
| | **0.072** | 0.05 | 0.05 | 0.05 | 186 | 8.42 | 1 | 17.4 | 1 |
| | **0.033** | 0.05 | 0.05 | 0.05 | 146 | 8.97 | 3.3 | 39.3 | 1 |
| | **0.52** | 0.05 | 0.74 | 0.79 | 59 | 7.96 | 1 | 10 | 1 |
| | 0.014 | 0.05 | 0.05 | 0.05 | 129 | 9.13 | 1.2 | 25.2 | 1 |
| | **0.034** | 0.05 | 0.05 | 0.062 | **214** | 8.55 | 1 | 10.4 | 1 |
| **Mean** | **0.157** | **0.05** | **0.19** | **0.21** | **152.33** | **8.52** | **1.4** | **18.51** | **1.0** |
| **CDWQG** | **AO <0.02 MAC 0.12** | **MAC = 10** | **MAC = 10** | **MAC = 10** | **AO = 200** | **7.0-10.5** | **MAC = 5** | **AO = 500** | **MAC = 6** |

| Parameter | Se (µg/L) | TC-P/A (P/A) | TURB (NTU) | Tl (µg/L) | U (µg/L) | Zn (µg/L) | TDS (mg/L) |
|---|---|---|---|---|---|---|---|
| | 1.5 | Ab | 0.79 | 1 | 13 | 5 | 526 |
| | 1.5 | Ab | **8.2** | 1 | 5.6 | 10 | 462 |
| | 1.6 | **Pr** | **116** | 1 | 2.3 | 30 | 363 |
| | 1.5 | Ab | **1.5** | 1 | 7.7 | 6 | 616 |
| | 1.5 | Ab | **14** | 1 | 3.8 | 5 | 308 |
| | 1.5 | Ab | **3.1** | 1 | 6.3 | 5 | 510 |
| **Mean** | **1.5** | | **23.9** | **1** | **6.5** | **10** | **464** |
| **CDWQG** | | | **<1.0** | | **MAC = 20** | **AO = 5000** | |

MAC = Maximum Acceptable Concentration

AO = Aesthetic Objective

property owners. The results from the data available in the NB Environment database are provided in Table 2 which follows. A total of six sample records were provided for inorganic chemistry as a result of the database search. The average value of the measured result and the Guidelines for Canadian Drinking Water Quality, February, 2024 (GCDWQ) are included in the table for comparison purposes. Any parameter which exceeds the GCDWQ concentration is bolded and shaded for ease of recognition in the data table.

Out of the six well chemistry records available, one well exceeded the GCDWQ for chloride of 250 mg/L with measured concentrations of 269 mg/L. One other chemistry records exceeded the GCDWQ for sodium of 200 mg/L with measured concentrations of 214 mg/L. Waters containing elevated concentrations of chloride and sodium should not be consumed or used for cooking; however, they can be used for bathing. Higher than normal levels of sodium chloride would likely cause corrosion and shorten the life of plumbing, hot water heaters and any appliances that come in contact with the water. Treatment options for removing sodium and chloride include reverse osmosis and distillation. Such units are available from local suppliers and installers. Alternatively, water with elevated concentrations of sodium chloride can be replaced with bottled water for drinking and cooking.

Out of the six chemistry records available, three samples had elevated concentrations of fluoride (1.93, 1.96, and 4.19 mg/L) compared to the GCDWQ of 1.5 mg/L. Fluoride occurs naturally in minerals and soils. According to the Guidelines for Canadian Drinking Water Quality, sixth edition, 1996, the optimum concentration of fluoride in drinking water for the reduction of dental caries is 1.0 mg per liter. The appearance of dental fluorosis (mottling of teeth) may be objectionable at fluoride concentrations above 1.5 mg per liter. The US EPA has a health-based criteria for fluoride of 4.0 mg/L and a secondary criterion of 2.0 mg/L for cosmetic effects as referenced above for the Canadian Drinking Water Guideline. One exceedance of 4.19 mg/L exceeds the 4.0 mg/L health-based criteria. The other four do not. The US EPA criterion is based on 70 years of exposure. Elevated fluoride concentrations can be treated with reverse osmosis or other treatment systems in

order to provide water for drinking or cooking. The water is suitable for bathing. Bottled water can be used to replace this water for drinking or cooking if desired.

Elevated concentrations of iron and manganese are common in many groundwater aquifers in New Brunswick, and some elevated concentrations are found in the data for this bedrock aquifer in this general location. Out of the six chemistry sample results available, five exceeded the guideline for iron (MAC 0.1 mg/L), and five samples exceeded the aesthetic guideline for manganese (AO <0.02 mg/L). Such elevated concentrations are normally due to natural conditions within the aquifer. The applicable GCDWQ for iron and manganese discussed above are aesthetic objectives. Iron and manganese can cause staining of plumbing fixtures and laundry and may be associated with smells imparted to the water. Manganese also has a Maximum Acceptable Concentration (MAC) which is based on human health, and two of the five observed manganese esthetic exceedances were greater than the GCDWQ MAC for manganese of 0.12 mg/L with concentrations of 0.27 and 0.52 mg/L being measured. Iron and manganese can usually be readily removed by commercial water treatment systems at the hardness observed in this water. Water treatment equipment suppliers in NB have experience with removing iron and/or manganese from domestic water supplies.

A total of five out of the six chemistry records available had elevated turbidity present in the samples. The elevated levels of turbidity may be related to the relative newness of the wells, and they may not have had sufficient time, or use, to clear naturally. The water samples in the database are provided from the water well testing certificates which are provided by the well drilled immediately after the well has been drilled. As a result, the majority of the analytical results come from new wells. Most new wells clear naturally with time and use. At levels in excess of 5 NTUs turbidity may become noticeable to consumers and therefore, objectionable. The turbidity may be the result of elevated concentrations of iron and or manganese or the presence of particulate in the water.

**Microbiological Results:** A total of six sample results were available in the data set for E. coli analysis. Out of these results, no well had a detection of E. coli. A total of six

sample results were available for total coliform analysis and out of these six results, one well had a detection of total coliform. Total coliforms are natural soil bacteria and are commonly present in private well water systems, particularly associated with elevated turbidity. Such detections are usually easily treated and corrected by shock chlorination of the wells and associated plumbing systems.

In general terms the groundwater chemistries found in the NBDELG database are not unusual for this area and reflect natural aquifer conditions. All other parameters measured, other than those specifically discussed above, had concentrations below the GCDWQ .

## SURFACE WATER

**Surface Streams:** The site is located within the developed area of Salisbury, NB, and local drainage is controlled by ditches and storm sewers. There are no surface waters located within 60 m of the test property. The Petitcodiac River is located approximately 420 metres southwest of the site at its closest point.

**GWUDI Assessment:**

**Step 1: GWUDI Screening** (NB Protocol)

1. **In a sensitive setting**: The location of the well PW 2026 is shown in Figure 1 The production well (PW 2026) is cased to 11.6 metres (38 feet) below the ground surface and the well log does not indicate any significant accumulations of sand and/or gravel which extend below the water table in the area. The well is not in a sensitive setting.
2. **In proximity to surface water:** Ground water wells are considered to be in proximity to surface water if they are within 60 metres. The closest surface water is at least approximately 400 metres from PW 2026.
3. **Improper well construction:** The wells is new and constructed by licensed well drillers. PW 2026 is cased to 11.6 metres (38 feet) depth below the ground surface.
4. **Water quality indicative of surface water:** The water quality samples collected during the pump test did not indicate surface water. The microbiology sample had a low-level detection of Total Coliform (normal soil bacteria) and were non-detect for E. coli.

Based on the above GWUDI screening, well PW 2026 screens out under the New Brunswick protocol.

# FIELD TESTING PROGRAM

## Antecedent and Pump Test Period Weather

The temperatures and precipitation amount for the weather immediately before and during the pump test are provided below in Table 3. The data source is Environment Canada; the closest operating station is Moncton/Greater Moncton Romeo Leblanc Intl A (Temp Data and Precipitation Data) NB. In Table 3 the time period of the pump test and recovery is shaded.

**Table 3: Antecedent and Test Period Weather**

| Date | Max. Temp. C | Min. Temp. C | Avg. Temp. C | Total Precip. mm |
|---|---|---|---|---|
| August 8, 2026 | 27.4 | 15.6 | 21.5 | Trace |
| August 9, 2026 | 27.1 | 18.9 | 23.0 | 19.5 |
| August 10, 2026 | 28.3 | 17.8 | 23.1 | 0.0 |
| August 11, 2026 | 25.2 | 15.6 | 20.4 | 4.7 |
| August 12, 2026 | 26.4 | 14.0 | 20.2 | 0.02 |
| August 13, 2026 | 25.3 | 13.5 | 19.4 | 6.2 |
| August 14, 2026 | 22.7 | 12.8 | 17.8 | Trace |
| August.15, 2026 | 24.3 | 12.2 | 18.3 | 0.0 |
| August 16, 2026 | 21.7 | 10.7 | 16.2 | 0.0 |
| August 17, 2026 | 22.7 | 13.7 | 18.3 | 2.8 |
| August.18, 2026 | 22.6 | 16.1 | 19.4 | 7.8 |
| August.19, 2026 | 27.1 | 19.2 | 23.2 | 4.8 |

As can be seen in the above Table 3 there was some precipitation one day before the start of the pump test recorded at the Weather Station. During the actual pump test and recovery precipitation was recorded at the Weather Station, but at the test site there was no observed precipitation during the pump test or the period of recovery. Based on the above information it seems unlikely that groundwater recharge from precipitation significantly impacted ground water levels during the pump test and recovery periods.

## Field Testing Program

One new test well (PW 2026) was drilled on site at the location shown in Figure 1 and the well log is provided in Appendix 1, at the back of this report. PW 2026 was identified as having good potential for water supply development based on estimated safe yield and location. Two existing wells on site were used as observation wells, OW1 and OW2, the locations of which are also shown in Figure 1.

PW 2026 (tag 0073819) is a six-inch diameter well drilled on July 7, 2026. The well is 79.2 metres (260 feet) in depth, cased to 11.6 metres (38 feet) and the well driller estimated a safe yield of 10 igpm. OW1 (tag 0068692) is a six-inch diameter well drilled on November 30, 2023. The well is 87.5 metres (287 feet) in depth, cased to 32.0 metres (105 feet) and the well driller estimated a safe yield of 4 igpm. OW2 (tag 0071484) is a six-inch diameter well drilled on September 30, 2025. The well is 76.2 metres (250 feet) in depth, cased to 30.5 metres (100 feet) and the well driller estimated a safe yield of 22 igpm. OW1 is 118 metres (387.1 feet) from well PW 2026, OW2 is located approximately 47 metres (154.2 feet from PW 2026.

## Field Testing

Well PW 2026 was the production well that was pumped for the 24-hour pump test. The wells, OW1 and OW2 were used as observation wells. The water levels in PW 2026 were measured manually. Recording pressure transducers was installed in OW1 and OW2 on the morning of August 18, 2026, prior to the start of the pump test. Water levels were recorded by the pressure transducers every five minutes during the pump test and recovery period. The pressure transducers remained in the wells until they were retrieved on the afternoon of August 19, 2026, following the completion of the pump test and recovery. In order to actively track the associated drawdown caused by pump testing PW 2026, the water levels in the observation wells were also measured manually every hour during the pumping phase of the test.

The initial static level in each well was measured prior to installing the pressure transducers. The initial static level in PW 2026 was -8.93 m below the top of casing (BTOC), in OW1 the initial static was -8.31 m BTOC, and in OW2 the initial static was -8.39 m BTOC.

Well PW 2026 was pump tested for 24 hours starting on August 18, 2026 and extending into August 19, 2026. The pump intake was set at approximately 72.8 metres (239 feet) BTOC. In well PW 2026, pumping was started at 9:40 am , August 18 at a flow rate of 45.5 L/min (10 igpm). This rate was reduced at approximately 63 minutes into the test when the flow was set to at 37.5 L/min (8.25 igpm). This was done to stabilize the drawdown at what was predicted to be a more sustainable rate. A water quality sample was collected from PW 2026 on August 18, 2026.

It is the Top of Casing that is used as the reference point for all groundwater level measurements during the pump test and recovery period.

The well coordinates are as follows:

| | | PID |
|---|---|---|
| PW 2026 | 46° 01.4764'N, 065° 02.5768'W | 70729942 |
| OW1 | 46° 01.4479'N, 065° 02.5072'W | 70729967 |
| OW2 | 46° 01.4583'N, 065° 02.5672'W | 70729975 |

**Water Quality Testing**

Well PW 2026 was pump tested for 24 hours starting on August 18, 2026 and extending into August 19, 2026. A microbiological and an inorganic potable water chemistry sample was collected from PW 2026 on August 18, 2026. The water samples collected during this pump test were analyzed at RPC laboratories in Moncton and Fredericton, NB. The analytical results from the analysis of these samples are provided below. The laboratory certificates are provided in Appendix 2 at the back of this report.

**Inorganic Results:** The general inorganic chemistry, trace metal, and microbiological analytical results for the groundwater samples collected during the pump test are provided in Tables 4 and 5 which follows. In Table 4 (inorganic parameters) any parameter that exceeds the Guideline Canada Drinking Water Quality (GCDWQ ) is bolded and shaded for ease of recognition.

As can be seen in Table 4 all the inorganic chemistry and trace metal parameters measured met the New Brunswick Drinking Water Quality Guidelines except for iron and turbidity.

Elevated concentrations of iron are common in many groundwater aquifers in New Brunswick and iron has an elevated concentration in the sample collected during the pump test. The measured result of 0.1 mg/L exceeded the AO 0.1 mg/L guideline Such elevated concentrations are normally due to natural conditions within the aquifer. The above GCDWQ for iron is an aesthetic objectives. Iron can cause staining of plumbing fixtures and laundry and may be associated with smells imparted to the water. The elevated turbidity observed is expected to reduce to acceptable levels with time and further pumping.

Table 4: Major inorganic ion chemistry for the groundwater sample from Well during 24-hour pump test, Salisbury WSSA.

| | | | | | Guidelines |
|---|---|---|---|---|---|
| Sample ID | PW 2026 | | | | Canadian Drinking Water Quality Guidelines |
| Sample Date | Aug 18, 2026 | | | | |
| Sodium (mg/L) | 137 | | | | AO ≤200 |
| Potassium (mg/L) | 0.67 | | | | |
| Calcium (mg/L) | 1.27 | | | | |
| Magnesium (mg/L) | 0.06 | | | | |
| Alkalinity (as $CaCO_3$) (mg/L) | 260 | | | | |
| Chloride (mg/L) | 28.0 | | | | AO ≤250 |
| Sulphate (mg/L) | 15 | | | | AO ≤500 |
| Nitrate + Nitrite (as N) (mg/L) | <0.05 | | | | MAC 10.0 |
| Iron (mg/L) | **0.11** | | | | AO ≤0.1 |
| Manganese (mg/L) | 0.015 | | | | AO ≤0.02<br>MAC 0.12 |
| Aluminum (mg/L) | 0.087 | | | | |
| Antimony (mg/L) | <0.0001 | | | | MAC 0.006 |
| Arsenic (mg/L) | <0.001 | | | | MAC 0.01 |
| Barium (mg/L) | 0.024 | | | | MAC 2.0 |
| Boron (mg/L) | 0.039 | | | | MAC 5.0 |
| Cadmium (mg/L) | <0.00001 | | | | MAC 0.007 |
| Chromium (mg/L) | <0.001 | | | | MAC 0.05 |
| Copper (mg/L) | <0.001 | | | | MAC ≤2.0<br>AO ≤ 1.0 |
| Fluoride (mg/L) | 0.97 | | | | MAC 1.5 |
| Lead mg/L) | 0.0002 | | | | MAC 0.005 |
| Selenium (mg/L) | <0.001 | | | | MAC 0.05 |
| Uranium (mg/L) | 0.0052 | | | | MAC 0.02 |
| Zinc (mg/L) | <0.001 | | | | |
| pH | 9.1 | | | | |
| Turbidity (NTU) | **15.6** | | | | 1 |
| Conductivity (µS/cm) | 555 | | | | |
| Colour TCU | 28.0 | | | | |
| Hardness (calc) mg/l as $CaCO_3$ | 3.4 | | | | |

AO = Aesthetic Objective

MAC = Maximum Acceptable Concentration

**Microbiology Results**

A microbiological sample was collected from the production well for analysis. The results of these are provided below. The laboratory certificate is provided in the Appendix.

**Table 5: Microbiology Results**

| Well | Date and Time (d-m-y) | E. coli | Total Coliform |
|---|---|---|---|
| Current Pump Test Results | | | |
| | | | |
| PW 2026 | 18-8-26 | 0 | 2 |
| | | | |

As can be seen in Table 5 above, there were no detections of E. coli and a low-level detection of Total Coliforms in the microbiological sample. Total coliforms are natural soil bacteria and are commonly present in private well water systems, particularly associated with elevated turbidities. Such detections are usually easily treated by shock chlorination of the wells and associated plumbing systems. It is possible that the detection of Total Coliforms in the water sample may be a result of the installation of the pumping system for the pump test.

## Field Pump Testing

A 24-hour pump test for Well PW 2026 was started at 9:40 am on August 18, 2026, and conducted until 9:40 am, August 19, 2026, when the pump was turned off and the water level allowed to recover. Pumping was started at an initial flow rate of 45.5 L/min (10 igpm). This rate was reduced at approximately 63 minutes into the test when the flow was stabilized at 37.5 L/min (8.25 igpm). Following completion of the 24 hours of pumping the well was allowed to recover. A water quality sample was collected from PW 2026 on August 18, 2026.

## Aquifer Parameters PW 2026

The arithmetic plot of the drawdown and recovery curve for Well PW 2026 is shown in Figure 2. The log plot of the drawdown and recovery curve for Well PW 2026 is provided in Figure 3 which also shows the trend line for the analysis carried out below. The analytical method reference is C.W. Fetter, 1994: Applied Hydrogeology, Macmillan College Publishing Company Inc. Pages 214 – 241. It is the Jacob straight line method that was used.

During the 24-hour pump test the total drawdown was 22.94 metres.

## PW 2026 Transmissivity

$T=2.3Q / 4\pi\Delta s = 0.183Q / \Delta s$

where $Q = 8.25$ igpm $= 37.5$ L/min $= 54.0$ $m^3$/day

and $\Delta s = 5.8$ from the slope of the trend line shown in Figure 3

Then $T = (0.183*54.0) / 5.8 = 1.7$ $m^2$/day

Based on the Jacob straight line method the aquifer transmissivity is estimated at 1.7 $m^2$/day, indicating a hydraulic conductivity of approximately 0.025 m/day (b = 67.7 metres). The results can be considered within the normal range for the bedrock aquifer as is found in the local area and is in general agreement with the parameters determined during the 2024 and 2025 site pump tests. The specific capacity is estimated at approximately 0.36 igal (1.63 liters) per metre of drawdown. Upon shutdown of the pump test, the wells recovery was monitored. Well PW 2026 recovered to 88% of the total drawdown after 180 minutes of recovery.

PW 2026 was pump tested at 37.5 L/minute in order to see any associated drawdown in OW1 and OW2. In fact, the average water demand over 24 hours is predicted to be 3.13 L/minute for the proposed Apartment building (see Required Water Quantity). We can derive a trend line for a constant pumping rate (Q) of 3.13 L/minute using the following.

For PW 2026

$T=2.3Q / 4\pi\Delta s = 0.183Q / \Delta s$
rearranging we get

$\Delta s = 0.183Q / T$

where Q = 3.13 L/minute = 4.5 $m^3$/day = 0.69 igpm
and using T = 1.7 $m^2$/day
Therefore $\Delta s$ = 0.48 metres

We can construct a trend line of this slope as is shown in Figure .3. Based on this trend line, at the 100-day (144,000 min) mark with negligible recharge, well PW 2026 would have approximately 2.9 metres of drawdown.

Figure 5 shows the residual drawdown plotted against the ratio of t/t'. The plot indicates an approach to zero drawdown at a positive intercept which is greater than 4, possibly

indicating that some recharge water reached the aquifer during the pumping period. The $\Delta s$ from the trend line showing is 9.6, which yields a T = 1.0 $m^2$/day.

The observed water level fluctuations in OW1 are shown in Figure 5. The initial static level in OW1 was -8.3056 metres Below Top of Casing (BTOC). In OW1 the maximum drawdown observed during the pump test was 3.17 metres. It is clear from the irregularities in the plotted drawdown line in Figure 5 that OW1 is also being influenced to a lesser extent by other pumping wells in the neighborhood. The observed water level fluctuations in OW2 are shown in Figure 6. The initial static in OW1 was -8.306 metres BTOC. In OW2 the maximum drawdown observed during the pump test is 11.39 metres; however, that drawdown is observed at approximately 10:15 pm on the evening of August 18, during the pump test. Based on the drawdown shown in Figure 6 it is apparent that another well in the immediate area started to pump at approximately 10:15 pm and continued to approximately 11 pm and then stopped, allowing OW2 to recover from its influence. It is known that Building 1 has a storage tank which automatically refiles when its water levels drop to about 75% and refills. It is hypothesized that this is what is observed in OW2 during that time period. The drawdown in OW2 that can be attributed to the pumping in PW 2026 is shown at the end of the pump test in Figure 6 and is 8.38 metres.

The distance drawdown relationship for PW 2026, OW1, and OW2 is shown in Figure 7 and the predicted zero radius is approximately 630 metres with Well PW 2026 being pumped at 8.25 igpm constantly for 24 hours.

## DISCUSSION

**Water Chemistry:** The analytical results of the groundwater sample collected from PW 2026 during the pump test are provided in Tables 4 and 5. All parameters measured meet drinking water guidelines with the exception of iron, and turbidity. It is expected that the elevated level of iron and turbidity will decrease to acceptable levels with further time and pumping as the vast majority of most wells will clear naturally. It is recommended that an additional sample be collected from PW 2026 after it has been connected to the building plumbing system and run for a day or so at a low pumping rate (<1 igpm) to try and facilitate clearing of the well water.

**Water Quantity:** Well PW 2026 was pumped at a minimum rate of 37.5 L/min (8.25 igpm) for 24 hours during the pump test. Wells PW 2026, OW1 and OW2 had measured drawdowns of approximately -22.94, -3.17 and -8.38 metres after the pumping portion of the test ended.

As outlined in the section on Required Water Quantity, the proposed apartment building will require a total water flow of 4,500 liters per day (4.5 $m^3$/day, 3.13 L/min, or 0.69 igpm). The total daily flow of 3.13 L/min or 0.69 igpm is well within the capacity of PW 2026. The peak design flow for the apartment building is 37.5 L/min (8.25 igpm). This flow can be obtained from PW 2026 (assuming approval for a maximum pumping rate of 37.5 L/min (8.25 igpm)). These numbers are suggested for planning purposes at this stage of the project. Any such water system design should be conducted by a qualified engineer with experience in designing such systems.

These design numbers are used for the design flow estimation plan for the maximum number of users, a condition that is relatively unusual. In any event, based on the pump test results, PW 2026 has sufficient capacity to provide adequate water for the proposed project.

**PW 2026 Average Daily Water Demand:** Well PW 2026 was pumped at a minimum of 37.5 L/min (8.25 igpm) for 24 hours in order to assess the impacts on water levels in the aquifer at that rate. In fact, as outlined above, the average water demand for PW 2026 over a 24-hour period is estimated to be 0.69 igpm (3.13 L/min) providing water to the apartment building. We can derive a trend line for a pumping rate (Q) of 3.13 L/minute (0.69 igpm) as shown in Figure 3. Based on this trend line, at the 100-day (144,000 min) mark with negligible recharge, well PW 2026 would have approximately 2.9 metres of drawdown.

**Potential Drawdown Impacts on Adjacent Wells**: During the pump test the impact of pumping PW 2026 at a minimum rate of 37.5 L/min (max. drawdown -22.94 metres) was a maximum drawdown in OW1 of -3.171 metres after 24 hours and in OW2 a maximum drawdown of 8.38 metres after 24 hours. Based on the projections for pumping PW 2026 at the average daily demand rate shown in Figure 4, the projected drawdown at 1440 minutes (one day) would be approximately <1 metres in PW 2026. For PW 2026 the ratio of drawdown pumping at 37.5 L/min compared to the drawdown predicted pumping at a rate of 3.13L/min is approximately = 0.08. Based on this we can predict that pumping PW 2026 at the average daily demand rate outlined above would induce approximately 0.08 * 8.38 = 0.67 metres of drawdown in OW2 after 1440 minutes or one day. Pumping in PW 2026 at 8.25 igpm, combined with some storage in the pressure tank would not be constant. There would be periods of recovery throughout the day and recharge to the aquifer will occur periodically. Therefore the actual drawdown in OW2 would be less than the 0.67 metres predicted. The actual drawdown in OW1 will be similarly reduced from that observed.

**Potential for Saltwater Intrusion:** Given the distance of the proposed development from the seacoast, saltwater intrusion is not considered to be a factor at this site. Groundwater recharge between the site and the seacoast would rule out any intrusion occurring over such distances.

## CONCLUSIONS AND RECOMMENDATIONS

Based on the above information relating to water quantity it is concluded that Well PW 2026:

1. Has sufficient potential ground water resources for the intended use, and;

2. Will not aggravate any existing or create new water supply problems.

The inorganic water quality sample collected during the pump test did not indicate any potential water quality problems with the exception of perhaps iron and turbidity It is recommended that an additional sample be collected from PW 2026 after it has been connected to the building plumbing system and run for a day or so at a low pumping rate (< 1 igpm) to try and facilitate clearing of the well water. The measured concentrations of any problem parameters can be further assessed at that time.

Based on the above, it is recommended that well PW 2026 be approved for an average 24-hour pumping rate of 0.69 igpm (3.13 L/min ) with a peak pumping rate of 8.25 igpm (37.5 L/min) for no more than 120 minutes a day.

Report Prepared by:

**Craig HydroGeoLogic Inc.**

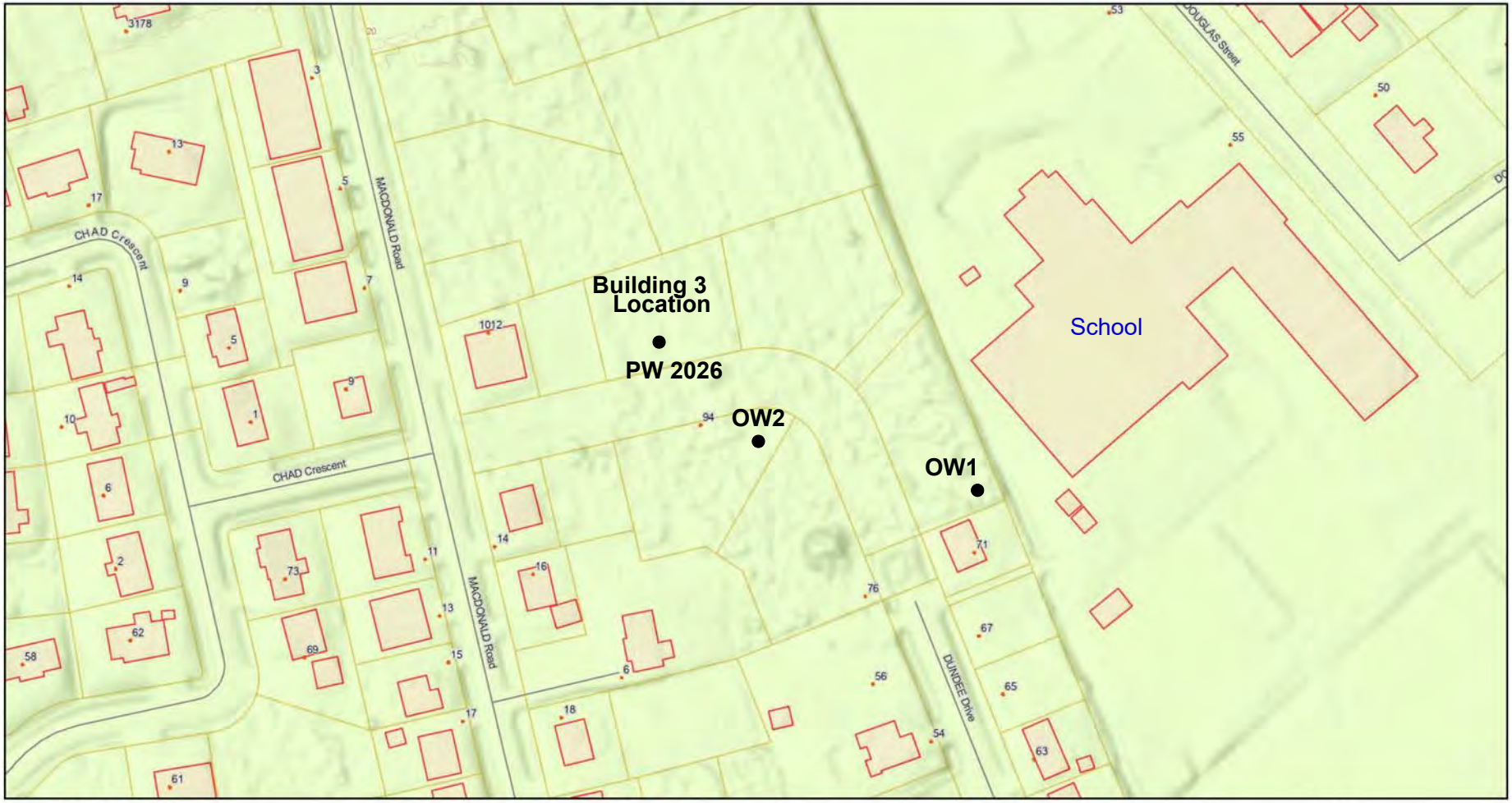
REGISTERED PROFESSIONAL GEOSCIENTIST
Province of New Brunswick
M5229
H. Douglas Craig
Signature
30-8-26
Date
Province du Nouveau-Brunswick
GÉOSCIENTIFIQUE IMMATRICULÉ

Douglas Craig, M.Sc., P. Geo.

Hydrogeologist

**Figure 1**

# GeoNB Map Viewer




2026-08-03, 1:52:08 p.m.

- Civic Addresses
- parcels
- Buildings

Year of Photography

- Regional Service Commissions
- Large Scale

Hillshade / Ombrage

238

49

1:1,257

0 0.01 0.03 0.06 mi

0 0.03 0.05 0.1 km

Department of Environment and Local Government / Ministère de l'Environnement et des Gouvernements locaux, Service New Brunswick / Service Nouveau-Brunswick, Service New Brunswick

This map is a graphical representation which approximates the size, configuration and location of features. This map is not intended to be used for legal descriptions or to calculate exact dimensions or area.

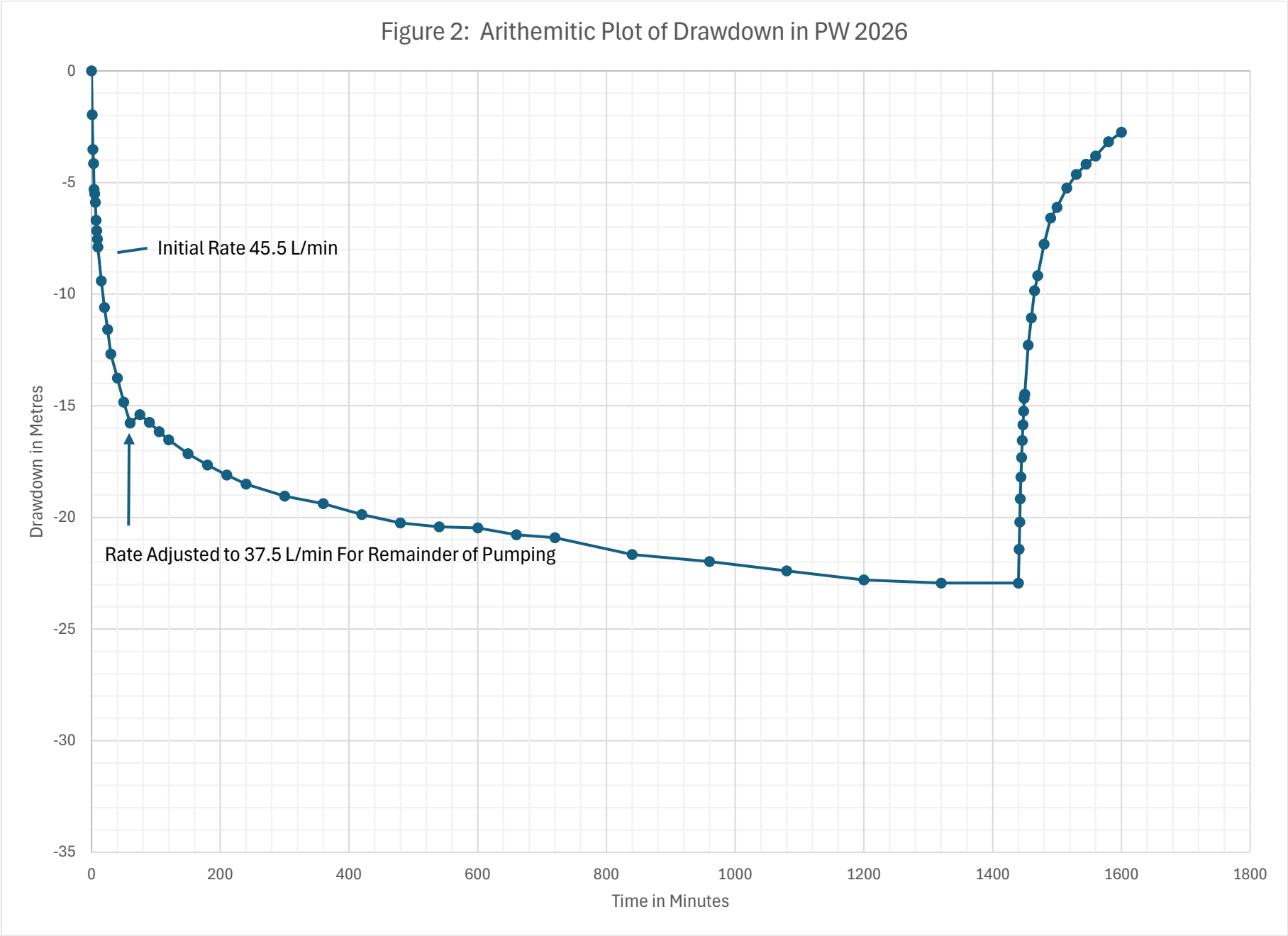


Figure 2: Arithemitic Plot of Drawdown in PW 2026
Initial Rate 45.5 L/min
Rate Adjusted to 37.5 L/min For Remainder of Pumping
Drawdown in Metres
Time in Minutes
0
-5
-10
-15
-20
-25
-30
-35
0
200
400
600
800
1000
1200
1400
1600
1800

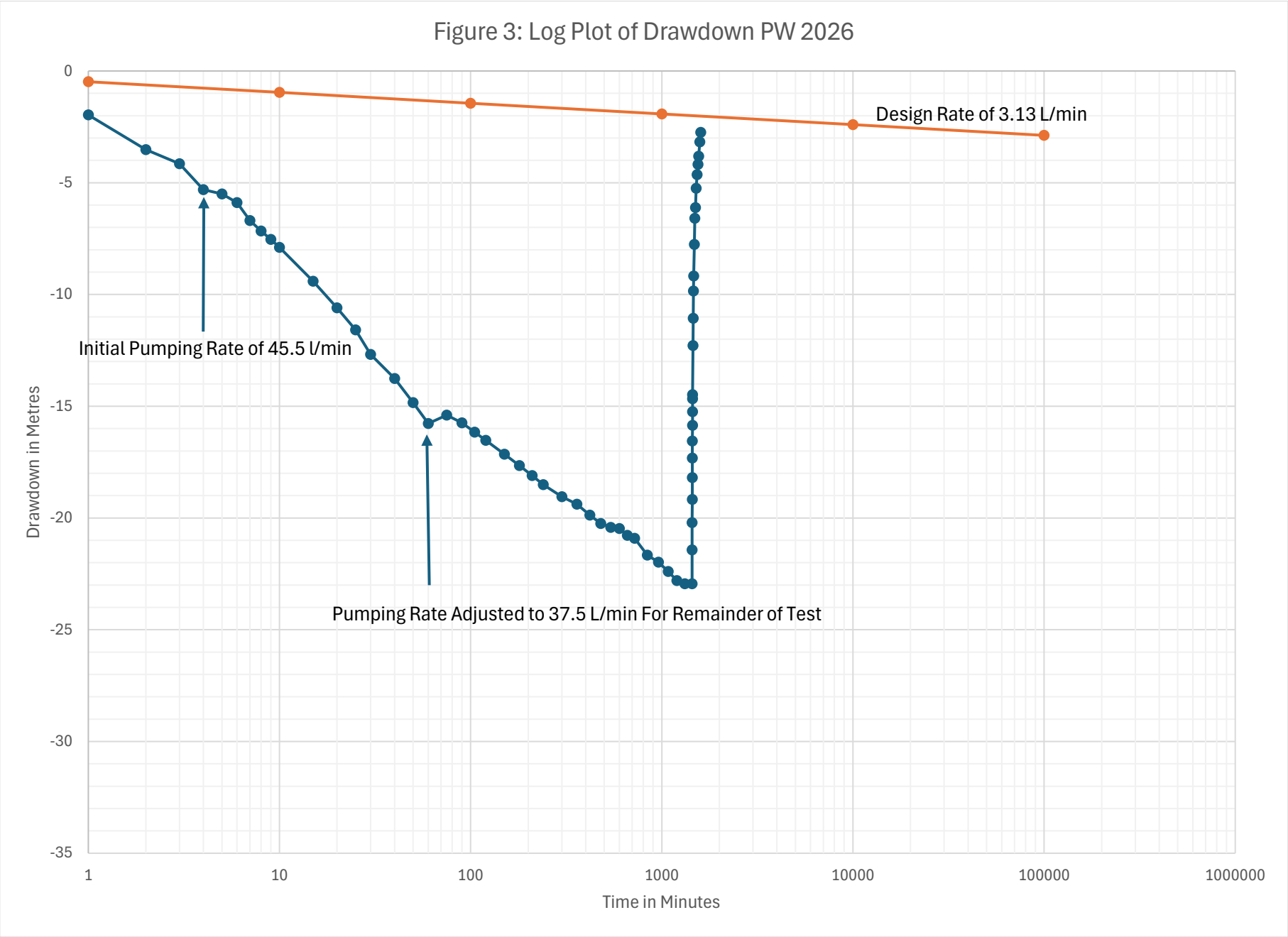


Figure 3: Log Plot of Drawdown PW 2026
Design Rate of 3.13 L/min
Initial Pumping Rate of 45.5 l/min
Pumping Rate Adjusted to 37.5 L/min For Remainder of Test
Drawdown in Metres
Time in Minutes
0
-5
-10
-15
-20
-25
-30
-35
1
10
100
1000
10000
100000
1000000

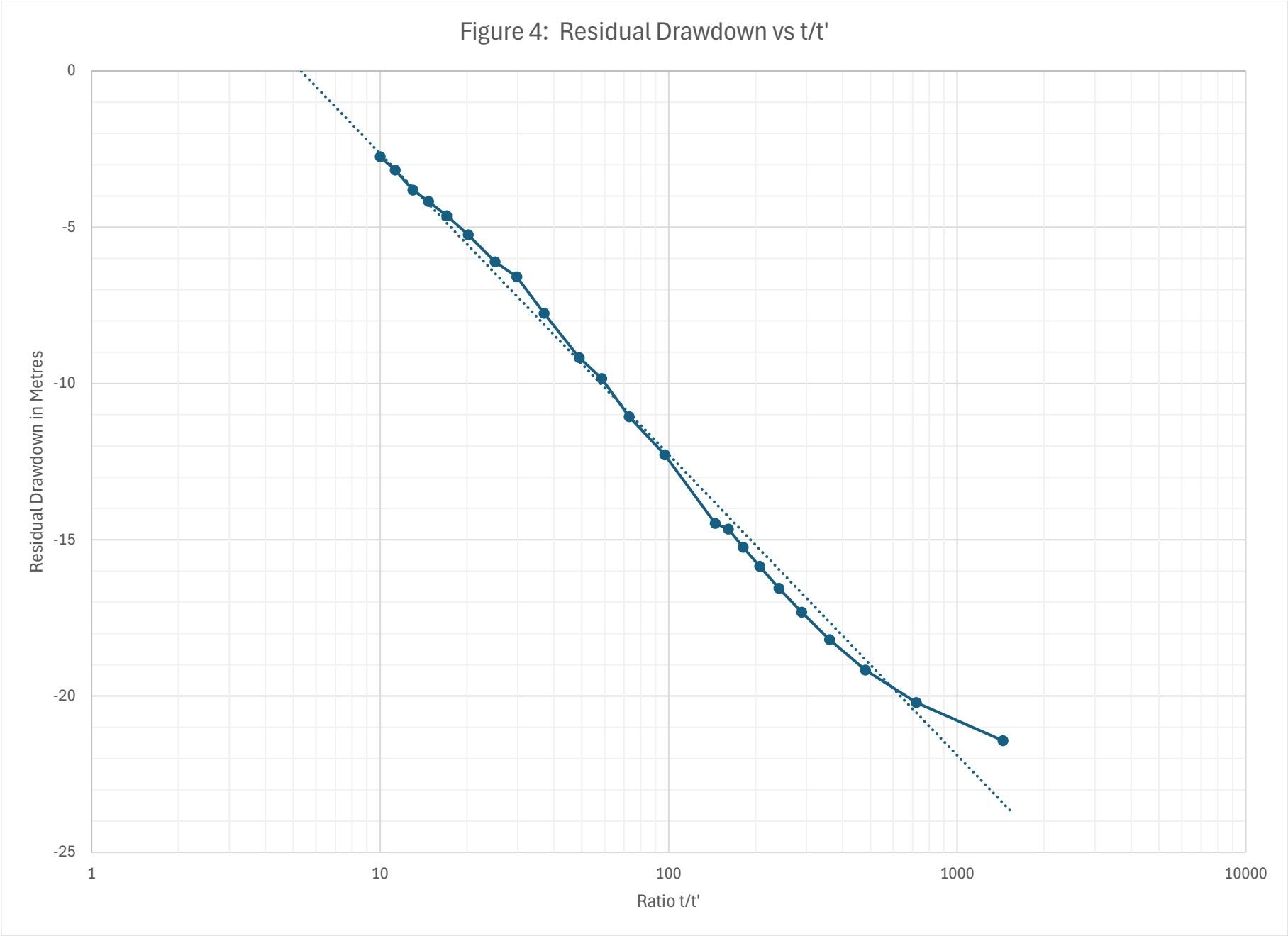


Figure 4: Residual Drawdown vs t/t'
0
-5
-10
-15
-20
-25
Residual Drawdown in Metres
1
10
100
1000
10000
Ratio t/t'

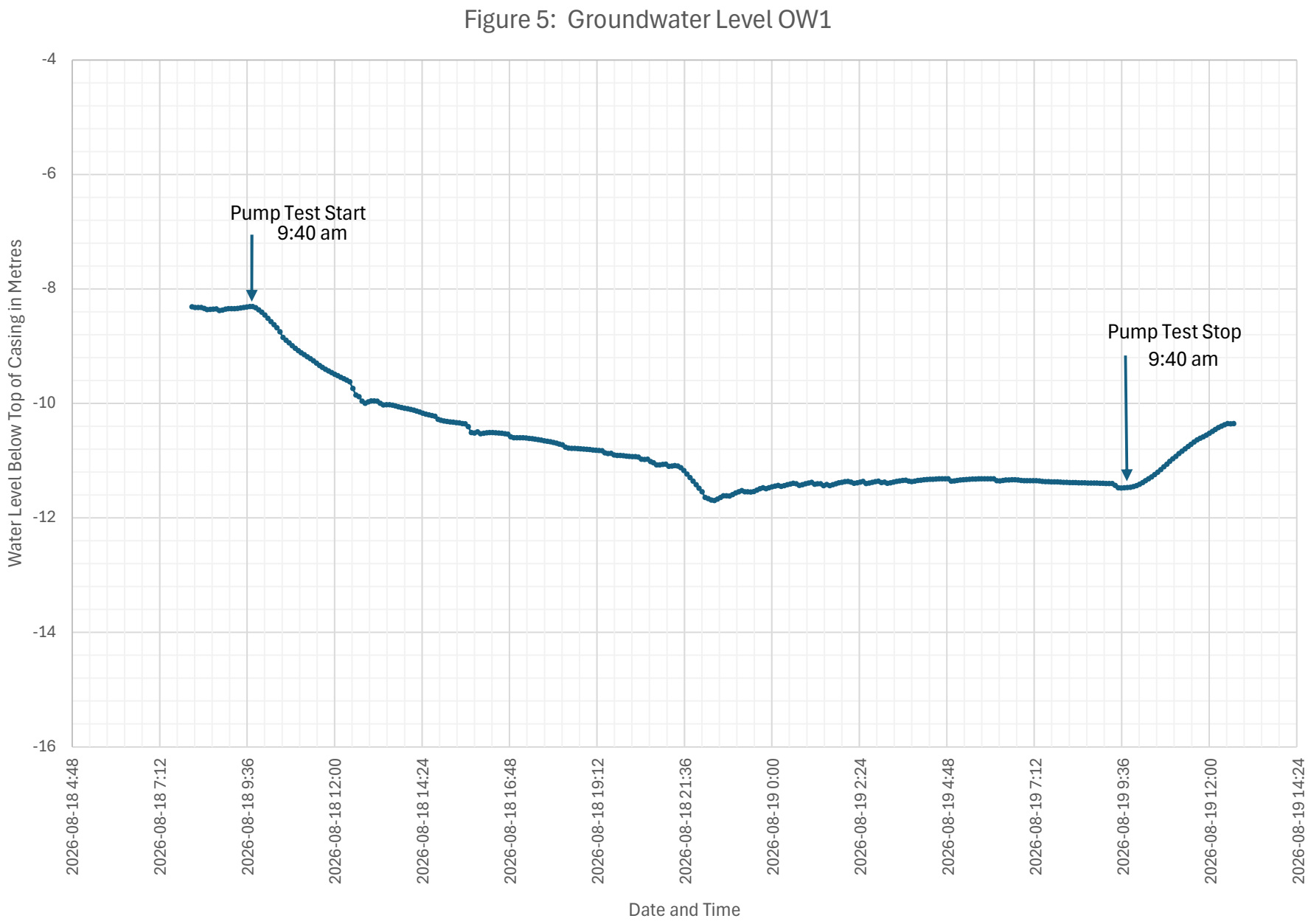
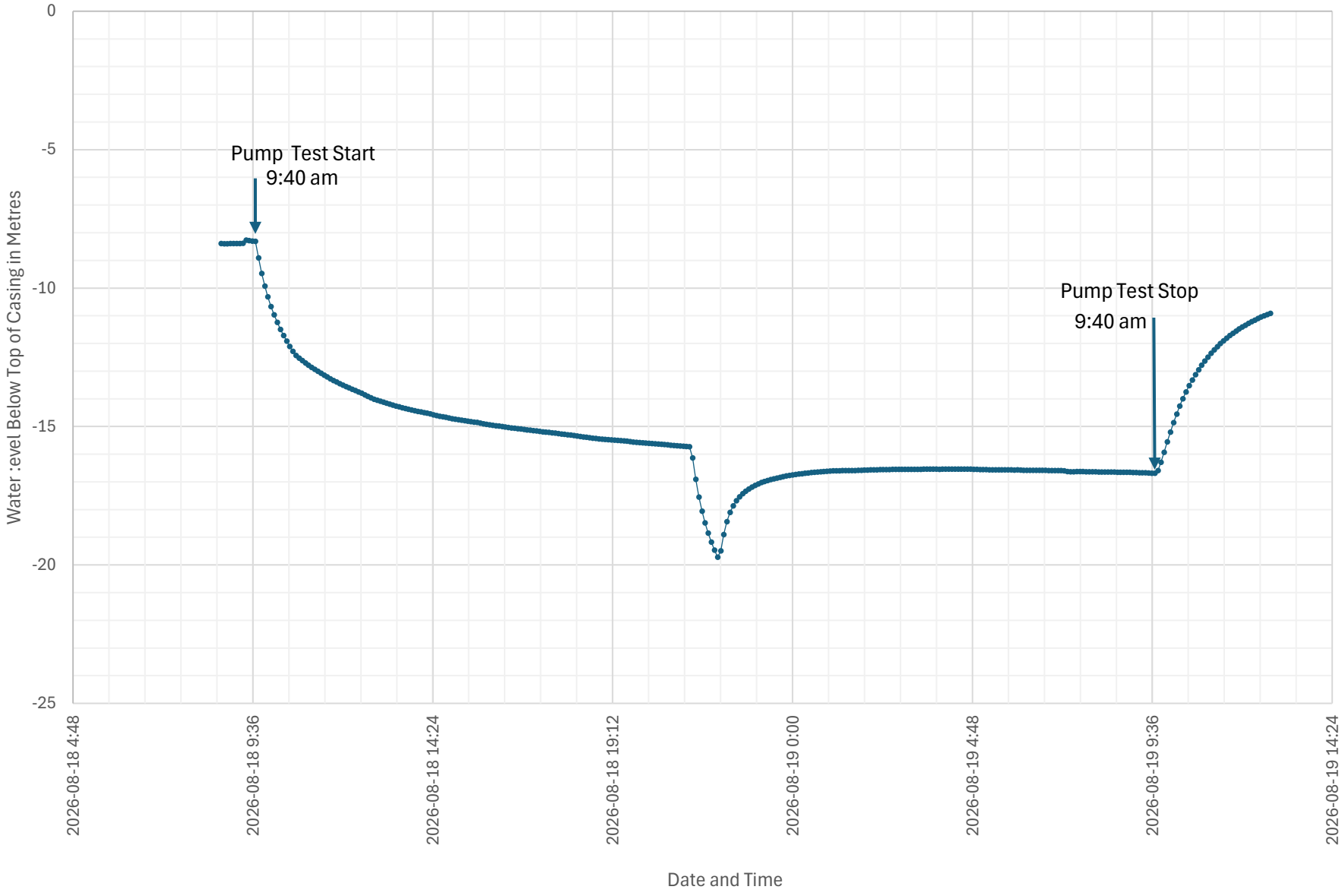


Figure 5: Groundwater Level OW1
Pump Test Start
9:40 am
Pump Test Stop
9:40 am
Water Level Below Top of Casing in Metres
-4
-6
-8
-10
-12
-14
-16
2026-08-18 4:48
2026-08-18 7:12
2026-08-18 9:36
2026-08-18 12:00
2026-08-18 14:24
2026-08-18 16:48
2026-08-18 19:12
2026-08-18 21:36
2026-08-19 0:00
2026-08-19 2:24
2026-08-19 4:48
2026-08-19 7:12
2026-08-19 9:36
2026-08-19 12:00
2026-08-19 14:24
Date and Time

Figure 6: Groundwater Level OW2



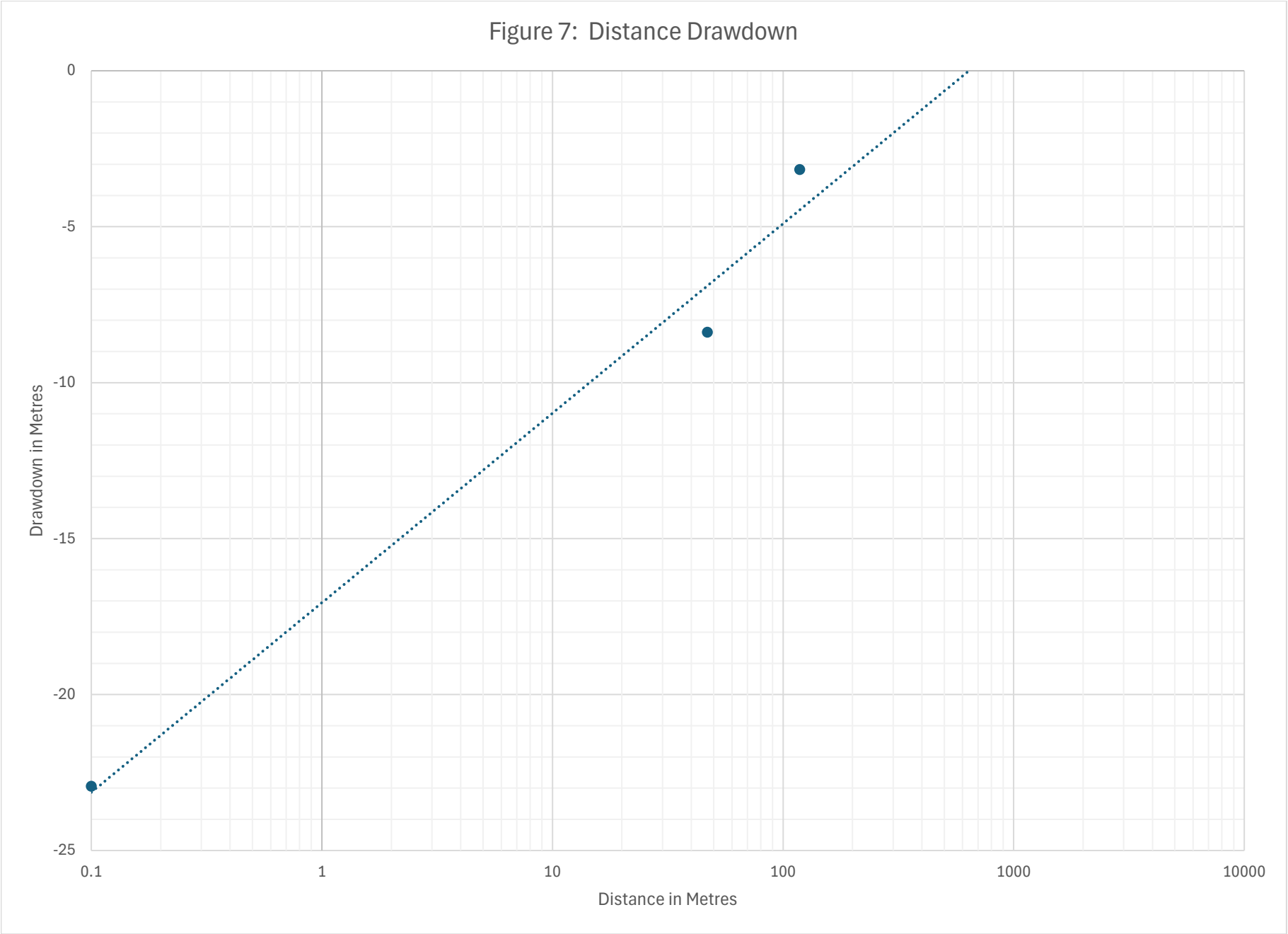


Figure 7: Distance Drawdown
0
-5
-10
-15
-20
-25
Drawdown in Metres
0.1
1
10
100
1000
10000
Distance in Metres

# Appendix 1

# Well Logs

New Nouveau Brunswick

# ENVIRONMENT & LOCAL GOVERNMENT

# WATER WELL DRILLER'S REPORT

61670

**OFFICE USE ONLY**
FIELD NO
HEALTH CODE
LAB NO
HEALTH OFFICE
EVENT NO
SAMPLE RECEIVED DATE (YR MO DAY)
SAMPLE RECEIVED BY

**TESTING VOUCHER INFORMATION** — **MANDATORY FOR WATER TEST**
SEE BACK FOR DETAILS **PLEASE PRINT**
INFORMATION INCLUDED HEREIN SHOULD BE THE WELL OWNER AT TIME OF SAMPLING
FIRST NAME LAST NAME
ADDRESS (MAIL RESULTS TO)
CITY/TOWN/VILLAGE PROV POSTAL CODE
DAYTIME PHONE FAX NO
TEL NO
SAMPLE COLLECTED YR MO DAY HR MIN AM PM

**DO YOU NEED A SAMPLE FOR YOUR MORTGAGE?**
**IF YOU WISH THE RESULTS TO BE RELEASED TO A MORTGAGE INSTITUTION PLEASE INCLUDE THE FOLLOWING CONTACT INFORMATION:** **SEE BACK FOR DETAILS**
ATTENTION OF
TEL NO FAX NO
SIGNATURE OF WELL OWNER

**WAS THE COST OF THIS WELL FINANCED BY NB HOUSING?** YES ☐ NO ☑

**WELL / WATER USE:**
INDUSTRIAL ☐ ABANDONED ☐ DOMESTIC ☑
EXPLORATORY ☐ MUNICIPAL ☐ MONITORING ☐
HEAT PUMP ☐ OBSERVATION ☐ OTHER ☐

**TYPE OF WORK COMPLETED:** NEW WELL ☑ DEEPENED ☐
OTHER

**METHOD:**
CABLE TOOL ☐ ROTARY ☑ OTHER

**CASING INSTALLED:**
LENGTH OF CASING ABOVE GROUND 2 FT 0 IN
STEEL 6" DIAM FROM 0 FT TO 38 FT
PVC IN DIAM FROM FT TO FT
SLOTTED IN DIAM FROM FT TO FT
SCREENS: TYPE SLOT SIZE
IN DIAM FROM FT TO FT
DRIVE SHOE YES ☑ NO ☐

**SETBACKS:** SEE BACK FOR DETAILS
SEPTIC TANK (1) N/A FT
SEPTIC TANK (2) FT FIELD (2) FT FIELD (1) N/A FT
*RIGHT OF WAY OF ANY PUBLIC ROAD ☑ (1) + 150 ROAD (2)
CENTER OF ROAD ☑ (1) (2)
SETBACKS MEASURED ✓ (NEW CONSTRUCTION)
APPROXIMATE SETBACKS AS INDICATED BY HOMEOWNER (EXISTING CONST.)

**FLOWING WELL?** YES ☐ NO ☑ IF YES-RATE igpm (approx)

**AQUIFER TEST:** METHOD AIR ☑ BAILER ☐ PUMP ☐
INITIAL WATER LEVEL: 50 FT BELOW TOP OF CASING
PUMPING RATE 10 igpm DURATION 1 hrs 20 min
FINAL WATER LEVEL 70 FT. BELOW TOP OF CASING
**ESTIMATED SAFE YIELD:** 10 igpm

**WELL GROUTED?** YES ☐ NO ☑
FROM FT TO FT GROUT TYPE:
DRILLING FLUIDS USED: YES ☐ NO ☑
TYPE

P.I.D. NO. 70729942
WELL I.D. NO. 73819

**WELL OWNER INFORMATION**
INFORMATION INCLUDED HEREIN SHOULD BE THE WELL OWNER AT TIME OF DRILLING
FIRST NAME Midhaud LAST NAME CAPITAL CORP
ADDRESS
CITY/TOWN/VILLAGE PROVINCE POSTAL CODE
WELL LOCATION. SAME AS ABOVE OR
CIVIC NUMBER STREET NAME MACDONALD ROAD
CITY/TOWN/VILLAGE Salisbury N.B
WELL PAID FOR BY PROVINCIAL DEPT OF
WELL ON RESERVE? YES ☐ NO ☑
WELL ALREADY TAGGED? YES ☐ NO ☑
OLD WELL ID

**DRILLER'S LOG***

| FROM (FT) | TO (FT) | COLOUR | ROCK TYPE |
|---|---|---|---|
| GROUND LEVEL | 10 | brown | TILL |
| 10 | 20 | red | TILL |
| 20 | 74 | brown | mudstone |
| 74 | 80 | brown | Silt Stone |
| 80 | 100 | brown | Conglomerate |
| 100 | 220 | red | Shale |
| 220 | 260 | red | Sandstone |

IF INSUFFICIENT SPACE PLEASE USE ADDITIONAL SHEETS

TOTAL WELL DEPTH: 260 FT DEPTH TO BEDROCK: 20' FT
WATER BEARING 1 1/2 igpm AT 74 FT 2 1/2 igpm AT 100 FT
FRACTURE ZONES 3 9 igpm AT 188 FT 4 igpm AT FT

**PUMP INSTALLATION:** INSTALLED ☐ NOT INSTALLED ☑
PUMP INTAKE SETTING. (Recommended) FT BELOW TOP OF CASING
**PUMP TYPE:** SUBMERSIBLE ☑ JET ☐ TURBINE ☐
OTHER
WELL DISINFECTED? YES ☑ NO ☐
TYPE Ch Pellets

DRILLER'S COMMENTS
DRILLING COMPANY: Bill Kyte Well Drilling
COMPLETION DATE: 26 9 27 (YR MO DAY)
LICENSE NO. 309

G.P.S. (OPTIONAL)

I CERTIFY THAT THE WELL HEREIN DESCRIBED HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE WATER WELL REGULATION UNDER THE NEW BRUNSWICK CLEAN WATER ACT.

Signature of Driller: Tom MacEachern
Signature of Helper: Matt Dunn/Cody MacLean

WHITE - NB DENV
BLUE - Homeowner / Vouche
YELLOW - Homeowner
PINK - Drilling Company

**KEEP THIS REPORT WITH YOU IMPORTANT DOCUMENTS**

New Nouveau Brunswick

**ENVIRONMENT & LOCAL GOVERNMENT**

# WATER WELL DRILLER'S REPORT

62135

| OFFICE USE ONLY | HEALTH CODE | LAB NO | SAMPLE RECEIVED DATE |
|---|---|---|---|
| FIELD NO | HEALTH OFFICE | EVENT NO | YR MO DAY |

SAMPLE RECEIVED BY

**TESTING VOUCHER INFORMATION** **MANDATORY FOR WATER TEST**
SEE BACK FOR DETAILS **PLEASE PRINT**
INFORMATION INCLUDED HEREIN SHOULD BE THE WELL OWNER AT TIME OF SAMPLING

FIRST NAME LAST NAME

ADDRESS (MAIL RESULTS TO)

CITY/TOWN/VILLAGE PROV POSTAL CODE

DAYTIME PHONE FAX NO

TEL NO SAMPLE COLLECTED YR MO DAY HR MIN AM PM

**DO YOU NEED A SAMPLE FOR YOUR MORTGAGE?** **SEE BACK FOR DETAILS**

**IF YOU WISH THE RESULTS TO BE RELEASED TO A MORTGAGE INSTITUTION PLEASE INCLUDE THE FOLLOWING CONTACT INFORMATION:**

ATTENTION OF

TEL NO FAX NO

SIGNATURE OF WELL OWNER

**WAS THE COST OF THIS WELL FINANCED BY NB HOUSING?** YES ☐ NO ☑

**WELL / WATER USE:**
INDUSTRIAL ☐ ABANDONED ☐ DOMESTIC ☑
EXPLORATORY ☐ MUNICIPAL ☐ MONITORING ☐
HEAT PUMP ☐ OBSERVATION ☐ OTHER ☐

**TYPE OF WORK COMPLETED:** NEW WELL ☑ DEEPENED ☐
OTHER

**METHOD:**
CABLE TOOL ☐ ROTARY ☑ OTHER

**CASING INSTALLED:**
LENGTH OF CASING ABOVE GROUND 2 FT 0 IN
STEEL 6" DIAM FROM 0 FT TO 100 FT
PVC IN DIAM FROM FT TO FT
SLOTTED IN DIAM FROM FT TO FT
SCREENS: TYPE SLOT SIZE
IN DIAM FROM FT TO FT
DRIVE SHOE ☑ YES ☐ NO

**SETBACKS:** SEE BACK FOR DETAILS
SEPTIC TANK (1) N/A FT
SEPTIC TANK (2) +200 FT FIELD (2) +200 FT FIELD (1) N/A FT
*RIGHT OF WAY OF ANY PUBLIC ROAD ☐ (1) ROAD (2)
CENTER OF ROAD ☑ (1) 66 (2)
SETBACKS MEASURED (NEW CONSTRUCTION)
APPROXIMATE SETBACKS AS INDICATED BY HOMEOWNER (EXISTING CONST.)

**FLOWING WELL?** YES ☐ NO ☑ IF YES-RATE igpm (approx)

**AQUIFER TEST:** METHOD AIR ☐ BAILER ☐ PUMP ☐
INITIAL WATER LEVEL 30 FT BELOW TOP OF CASING
PUMPING RATE 20 igpm DURATION 1 hrs min
FINAL WATER LEVEL 40 FT. BELOW TOP OF CASING
**ESTIMATED SAFE YIELD:** 22 igpm

**WELL GROUTED?** YES ☐ NO ☑
FROM FT TO FT GROUT TYPE:
DRILLING FLUIDS USED: YES ☐ NO ☑
TYPE

| P.I.D. NO. | WELL I.D. NO. |
|---|---|
| 00816540 | 71484 |

**WELL OWNER INFORMATION**
INFORMATION INCLUDED HEREIN SHOULD BE THE WELL OWNER AT TIME OF DRILLING

FIRST NAME LAST NAME
Michaud CAPITAL CORP

ADDRESS

CITY/TOWN/VILLAGE PROVINCE POSTAL CODE

WELL LOCATION. SAME AS ABOVE OR
CIVIC NUMBER STREET NAME
SADUNDEE DRIVE

CITY/TOWN/VILLAGE WELL PAID FOR BY PROVINCIAL DEPT OF
SALISBURY

WELL ON RESERVE? YES ☐ NO ☑ WELL ALREADY TAGGED? YES ☐ NO ☑ OLD WELL ID

**DRILLER'S LOG***

| FROM (FT) | TO (FT) | COLOUR | ROCK TYPE |
|---|---|---|---|
| GROUND LEVEL | 80 | brown | TILL |
| 80 | 206 | red | Shale |
| 206 | 215 | red | Sandstone |
| 215 | 250 | red | Shale |

IF INSUFFICIENT SPACE PLEASE USE ADDITIONAL SHEETS

TOTAL WELL DEPTH: 250 FT DEPTH TO BEDROCK: 80 FT
WATER BEARING 1 12 igpm AT 184 FT 2 igpm AT FT
FRACTURE ZONES 3 igpm AT FT 4 igpm AT FT

**PUMP INSTALLATION:** INSTALLED ☐ NOT INSTALLED ☑
PUMP INTAKE SETTING. (Recommended) 200 FT BELOW TOP OF CASING
**PUMP TYPE:** SUBMERSIBLE ☑ JET ☐ TURBINE ☐
OTHER
WELL DISINFECTED? YES ☑ NO ☐
TYPE Ch pellets

DRILLER'S COMMENTS

DRILLING COMPANY: Bill Kyte Well Drilling
COMPLETION DATE: 25 09 30 (YR MO DAY) LICENSE NO. 309

**G.P.S.** (OPTIONAL)

I CERTIFY THAT THE WELL HEREIN DESCRIBED HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE WATER WELL REGULATION UNDER THE NEW BRUNSWICK CLEAN WATER ACT.

Signature of Driller: Tom MacEachern
Signature of Helper: MATT DUNN / Cody MACLEAN

WHITE - NB DENV
BLUE - Homeowner / Voucher
YELLOW - Homeowner
PINK - Drilling Company

**KEEP THIS REPORT WITH YOUR IMPORTANT DOCUMENTS**

New Nouveau Brunswick

# ENVIRONMENT & LOCAL GOVERNMENT

# WATER WELL DRILLER'S REPORT

00048068

| OFFICE USE ONLY | HEALTH CODE | LAB NO | SAMPLE RECEIVED DATE |
|---|---|---|---|
| FIELD NO | HEALTH OFFICE | EVENT NO | YR MO DAY |

SAMPLE RECEIVED BY

**TESTING VOUCHER INFORMATION** **MANDATORY FOR WATER TEST**

SEE BACK FOR DETAILS **PLEASE PRINT**

INFORMATION INCLUDED HEREIN SHOULD BE THE WELL OWNER AT TIME OF SAMPLING

FIRST NAME LAST NAME

ADDRESS (MAIL RESULTS TO)

CITY/TOWN/VILLAGE PROV POSTAL CODE

DAYTIME PHONE FAX NO

TEL NO SAMPLE COLLECTED YR MO DAY HR MIN AM PM

**DO YOU NEED A SAMPLE FOR YOUR MORTGAGE?** **SEE BACK FOR DETAILS**

**IF YOU WISH THE RESULTS TO BE RELEASED TO A MORTGAGE INSTITUTION PLEASE INCLUDE THE FOLLOWING CONTACT INFORMATION:**

ATTENTION OF

TEL NO FAX NO

SIGNATURE OF WELL OWNER

**WAS THE COST OF THIS WELL FINANCED BY NB HOUSING?** YES ☐ NO ☑

**WELL / WATER USE:**

INDUSTRIAL ☐ ABANDONED ☐ DOMESTIC ☑
EXPLORATORY ☐ MUNICIPAL ☐ MONITORING ☐
HEAT PUMP ☐ OBSERVATION ☐ OTHER ☐

**TYPE OF WORK COMPLETED:** NEW WELL ☑ DEEPENED ☐

OTHER

**METHOD:**

CABLE TOOL ☐ ROTARY ☑ OTHER

**CASING INSTALLED:**

LENGTH OF CASING ABOVE GROUND 2 FT IN

STEEL 6" Diam From 0 FT TO 105 FT

PVC IN DIAM FROM FT TO FT

SLOTTED IN DIAM FROM FT TO FT

SCREENS: TYPE SLOT SIZE

IN DIAM FROM FT TO FT

DRIVE SHOE ☑ YES ☐ NO

**SETBACKS:** SEE BACK FOR DETAILS

SEPTIC TANK (1) N/I FT

SEPTIC TANK (2) N/I FT FIELD (2) N/I FT FIELD (1) N/I FT

*RIGHT OF WAY OF ANY PUBLIC ROAD ☐ (1) ROAD (2)

CENTER OF ROAD ☑ (1) 100 (2)

SETBACKS MEASURED (NEW CONSTRUCTION)

APPROXIMATE SETBACKS AS INDICATED BY HOMEOWNER (EXISTING CONST.)

**FLOWING WELL?** YES ☐ NO ☑ IF YES-RATE igpm (approx)

**AQUIFER TEST:** METHOD AIR ☑ BAILER ☐ PUMP ☐

INITIAL WATER LEVEL 25 FT BELOW TOP OF CASING

PUMPING RATE 5 igpm DURATION 1 hrs 0 min

FINAL WATER LEVEL 70 FT. BELOW TOP OF CASING

**ESTIMATED SAFE YIELD:** 4 igpm

**WELL GROUTED?** YES ☐ NO ☑

FROM FT TO FT GROUT TYPE:

DRILLING FLUIDS USED: YES ☐ NO ☑

TYPE

| P.I.D. NO. | WELL I.D. NO. |
|---|---|
| 00816140 | 68692 |

**WELL OWNER INFORMATION**

INFORMATION INCLUDED HEREIN SHOULD BE THE WELL OWNER AT TIME OF DRILLING

FIRST NAME LAST NAME
Michaud Capital Corp

ADDRESS
25 Chad Cres

CITY/TOWN/VILLAGE PROVINCE POSTAL CODE
Salisbury NB E4J 3N1

WELL LOCATION, SAME AS ABOVE OR
CIVIC NUMBER STREET NAME
6 Brarmar Dr

CITY/TOWN/VILLAGE WELL PAID FOR BY PROVINCIAL DEPT OF
Salisbury

WELL ON RESERVE? YES ☐ NO ☐ WELL ALREADY TAGGED? YES ☐ NO ☐ OLD WELL ID

DRILLER'S LOG*

| FROM (FT) | TO (FT) | COLOUR | ROCK TYPE |
|---|---|---|---|
| GROUND LEVEL | 82 | Brown | Till |
| 82 | 110 | Red | Claystone |
| 110 | 157 | Red | Sandstone |
| 157 | 170 | Brown | Conglomerate |
| 170 | 287 | Red | Shale |

IF INSUFFICIENT SPACE PLEASE USE ADDITIONAL SHEETS

TOTAL WELL DEPTH: 287 FT DEPTH TO BEDROCK: 82 FT

WATER BEARING 1 3/4 igpm AT 127 FT 2 3/4 igpm AT 135 FT

FRACTURE ZONES 3 1/2 igpm AT 157 FT 4 2 igpm AT 178 FT

**PUMP INSTALLATION:** INSTALLED ☐ NOT INSTALLED ☑

PUMP INTAKE SETTING. (Recommended) 260 FT BELOW TOP OF CASING

**PUMP TYPE:** SUBMERSIBLE ☑ JET ☐ TURBINE ☐

OTHER

WELL DISINFECTED? YES ☑ NO ☐

TYPE Ch Pellets

DRILLER'S COMMENTS

29 DEC

DRILLING COMPANY: Bill Kyte Well Drilling

COMPLETION DATE: 23 11 30 (YR MO DAY) LICENSE NO. 309

G.P.S. (OPTIONAL)

I CERTIFY THAT THE WELL HEREIN DESCRIBED HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE WATER WELL REGULATION UNDER THE NEW BRUNSWICK CLEAN WATER ACT.

Signature of Driller: Tom MacEachern

Signature of Helper: Mike Arnold

WHITE - NB DENV
BLUE - Homeowner / Voucher
YELLOW - Homeowner
PINK - Drilling Company

**KEEP THIS REPORT WITH YOUR IMPORTANT DOCUMENTS**

WM Salsbury Apt Building #3

100 meter radius around PID 70729942

| **Well Depth** (Feet) | **Estimated Yield** (igpm) | **Depth to Bedrock** (Feet) | **Casing Length** (Feet) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| 188 | 4 | 30 | 53 |
| | 8 | | |
| 80 | 20 | 2 | 40 |
| 160 | 20 | 10 | 132 |
| 180 | 50 | 2 | 145 |
| 160 | 30 | 50 | 60 |
| 185 | 6 | 25 | 40 |
| 180 | 5 | 20 | 30 |
| 220 | 5 | 16 | 44 |
| | | | |
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| | | | |
| **Well Depth** (Feet) | **Estimated Yield** (igpm) | **Depth to Bedrock** (Feet) | **Casing Length** (Feet) |

| | | | | | |
|---|---|---|---|---|---|
| Median | 180 | 8 | 18 | 48.5 | Median |
| average | 169.1 | 16.4 | 19.4 | 68.0 | AVERAGI |
| max | 220 | 50 | 50 | 145 | max |
| min | 80 | 4 | 2 | 30 | min |
| count | 8 | | | | |

New Nouveau Brunswick

**Environment**

Report Number **84**

# Well Driller's Report

Date printed 8/3/2026

Drilled by

| Well Use | Work Type | Drill Method | Work Completed |
|---|---|---|---|
| Drinking Water, Domestic | New Well | Cable Tool | 01/18/2003 |

## Casing Information

Casing above ground

Drive Shoe Used?

| Well Log | Casing Type | Diameter | From | End | Slotted? |
|---|---|---|---|---|---|
| 84 | Steel | 6 inch | 0ft | 53ft | |

## Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Bailer | 0ft | 0 igpm | 0hr | 0ft | 4 igpm | No | 0 igpm |

(BTC - Below top of casing)

## Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Bleach (Javex)

Qty 0 ig

Pump Installed
N/A

Intake Setting (BTC)
0ft

## Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 84 | 0ft | 30ft | Brown | Overburden |
| 84 | 30ft | 40ft | Red | Shale |
| 84 | 40ft | 100ft | Brown | Shale |
| 84 | 100ft | 150ft | Brown and red | Shale |
| 84 | 150ft | 188ft | Mix | Conglomerate and Shale |

Overall Well Depth
188ft

Bedrock Level
30ft

## Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 84 | 90ft | 1 igpm |
| 84 | 160ft | 1.5 igpm |
| 84 | 170ft | 1.5 igpm |

## Setbacks

| Well Log | Distance | Setback From |
|---|---|---|
| 84 | 100ft | Right of any Public Way Road |

New Nouveau Brunswick

**Environment**

Report Number **41408**

# Well Driller's Report

Date printed 8/3/2026

Drilled by

| Well Use | Work Type | Drill Method | Work Completed |
|---|---|---|---|
| Drinking Water, Domestic | New Well | Rotary | 11/09/2021 |

| Casing Information | Casing above ground | Drive Shoe Used? |
|---|---|---|
| There is no casing information. | | |

## Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Air | 0ft | 0 igpm | 0hr | 0ft | 8 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

## Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Bleach (Javex)

Qty 0 ig

Pump Installed
Submersible
Intake Setting (BTC)
85ft

## Driller's Log

There is no rock layer information.

Overall Well Depth
0ft

Bedrock Level
0ft

## Water Bearing Fracture Zone

There is no water bearing fracture zone information.

## Setbacks

There is no Setback information.

New Nouveau Brunswick

**Environment**

Report Number **42009**

# Well Driller's Report

Date printed 8/3/2026

Drilled by

| Well Use | Work Type | Drill Method | Work Completed |
|---|---|---|---|
| Drinking Water, Domestic | New Well | Rotary | 06/10/2019 |

| Casing Information | | Casing above ground | | Drive Shoe Used? | |
|---|---|---|---|---|---|
| Well Log | Casing Type | Diameter | From | End | Slotted? |
| 42009 | Steel | 6 inch | 0ft | 40ft | |

Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Air | 10ft | 20 igpm | 1hr | 10ft | 20 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Chlorine pellets
Qty 0 ig

Pump Installed
Submersible
Intake Setting (BTC)
70ft

Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 42009 | 0ft | 2ft | Brown | Topsoil |
| 42009 | 2ft | 18ft | Grey | Sandstone |
| 42009 | 18ft | 30ft | Brown | Clay |
| 42009 | 30ft | 70ft | Grey | Sandstone |
| 42009 | 70ft | 80ft | Brown | Clay |

Overall Well Depth
80ft

Bedrock Level
2ft

Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 42009 | 70ft | 20 igpm |

Setbacks

| Well Log | Distance | Setback From |
|---|---|---|
| 42009 | 60ft | Septic Tank |
| 42009 | 80ft | Leach Field |
| 42009 | 200ft | Right of any Public Way Road |
| 42009 | 230ft | Center of road |

Setbacks measured 15

New Nouveau Brunswick

**Environment**

Report Number **48693**

# Well Driller's Report

Date printed 8/3/2026

| Drilled by | | | |
|---|---|---|---|
| Well Use | Work Type | Drill Method | Work Completed |
| Drinking Water, Domestic | New Well | Rotary | 06/21/2023 |

| Casing Information | | Casing above ground | | | Drive Shoe Used? |
|---|---|---|---|---|---|
| Well Log | Casing Type | Diameter | From | End | Slotted? |
| 48693 | Steel | 6 inch | 0ft | 132ft | |

## Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Air | 50ft | 20 igpm | 1hr | 50ft | 20 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

## Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Chlorine pellets
Qty 0 ig

Pump Installed
Submersible
Intake Setting (BTC)
0ft

## Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 48693 | 0ft | 10ft | Brown | Clay |
| 48693 | 10ft | 30ft | Grey | Sandstone |
| 48693 | 30ft | 40ft | Brown | Clay |
| 48693 | 40ft | 95ft | Grey | Sandstone |
| 48693 | 95ft | 98ft | Grey | Clay |
| 48693 | 98ft | 130ft | Brown | Clay |
| 48693 | 130ft | 160ft | Brown | Sandstone |

Overall Well Depth
160ft

Bedrock Level
10ft

## Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 48693 | 150ft | 20 igpm |

## Setbacks

| Well Log | Distance | Setback From |
|---|---|---|
| 48693 | 75ft | Septic Tank |
| 48693 | 90ft | Leach Field |
| 48693 | 300ft | Center of road |

New Nouveau Brunswick

**Environment**

Report Number **49600**

# Well Driller's Report

Date printed 8/3/2026

| Drilled by | | | |
|---|---|---|---|
| Well Use | Work Type | Drill Method | Work Completed |
| Drinking Water, Domestic | New Well | Rotary | 07/04/2024 |

## Casing Information

Casing above ground

Drive Shoe Used?

| Well Log | Casing Type | Diameter | From | End | Slotted? |
|---|---|---|---|---|---|
| 49600 | Steel | 6 inch | 0ft | 145ft | |

## Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Air | 80ft | 50 igpm | 1hr | 80ft | 50 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

## Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Chlorine pellets
Qty 0 ig

Pump Installed
Submersible
Intake Setting (BTC)
140ft

## Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 49600 | 0ft | 2ft | Brown | Topsoil |
| 49600 | 2ft | 6ft | Brown | Sand |
| 49600 | 6ft | 10ft | Grey | Sandstone |
| 49600 | 10ft | 20ft | Brown | Clay |
| 49600 | 20ft | 24ft | Grey | Clay |
| 49600 | 24ft | 40ft | Grey | Sandstone |
| 49600 | 40ft | 55ft | Brown | Clay |
| 49600 | 55ft | 70ft | Brown | Sandstone |
| 49600 | 70ft | 95ft | Brown | Clay |
| 49600 | 95ft | 120ft | Grey | Sandstone |
| 49600 | 120ft | 140ft | Brown | Clay |
| 49600 | 140ft | 180ft | Grey | Sandstone |

Overall Well Depth
180ft

Bedrock Level
2ft

## Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 49600 | 170ft | 50 igpm |

## Setbacks

| Well Log | Distance | Setback From |
|---|---|---|
| 49600 | 80ft | Septic Tank |
| 49600 | 100ft | Leach Field |
| 49600 | 100ft | Center of road |

New Nouveau Brunswick

**Environment**

Report Number **49758**

# Well Driller's Report

Date printed 8/3/2026

| Drilled by | | | |
|---|---|---|---|
| Well Use | Work Type | Drill Method | Work Completed |
| Drinking Water, Domestic | New Well | Rotary | 12/21/2020 |

| Casing Information | | Casing above ground | | Drive Shoe Used? | |
|---|---|---|---|---|---|
| Well Log | Casing Type | Diameter | From | End | Slotted? |
| 49758 | Steel | 6 inch | 0ft | 60ft | |

Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Air | 40ft | 30 igpm | 1hr | 40ft | 30 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Chlorine pellets
Qty 0 ig

Pump Installed
Submersible
Intake Setting (BTC)
170ft

Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 49758 | 0ft | 50ft | Brown | Clay |
| 49758 | 50ft | 120ft | Grey | Sandstone |
| 49758 | 120ft | 140ft | Brown | Clay |
| 49758 | 140ft | 160ft | Grey | Sandstone |

Overall Well Depth
160ft

Bedrock Level
50ft

Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 49758 | 150ft | 30 igpm |

Setbacks

| Well Log | Distance | Setback From |
|---|---|---|
| 49758 | 140ft | Septic Tank |
| 49758 | 150ft | Leach Field |
| 49758 | 100ft | Center of road |

Setbacks measured 50

New Nouveau Brunswick

**Environment**

Report Number **90327500**

# Well Driller's Report

Date printed 8/3/2026

Drilled by

| Well Use | Work Type | Drill Method | Work Completed |
|---|---|---|---|
| Drinking Water, Domestic | New Well (NEW WELL) | Rotary (ROTARY) | 07/07/1995 |

## Casing Information

Casing above ground

Drive Shoe Used?

| Well Log | Casing Type | Diameter | From | End | Slotted? |
|---|---|---|---|---|---|
| 90327500 | Unknown | 6 inch | 0ft | 40ft | |

## Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Air | 0ft | 6 igpm | 1hr | 20ft | 6 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

## Well Grouting

There is no Grout information.

Drilling Fluids Used
Foam

Disinfectant
Chlorine Pucks

Qty 6.0 ig

Pump Installed
N/A

Intake Setting (BTC)
150ft

## Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 90327500 | 0ft | 25ft | Brown | Overburden |
| 90327500 | 25ft | 100ft | Brown | Shale |
| 90327500 | 100ft | 160ft | Red | Shale |
| 90327500 | 160ft | 175ft | Brown | Sandstone |
| 90327500 | 175ft | 185ft | Brown | Shale |

Overall Well Depth
185ft

Bedrock Level
25ft

## Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 90327500 | 100ft | 1 igpm |
| 90327500 | 165ft | 5 igpm |

## Setbacks

There is no Setback information.

New Nouveau Brunswick

**Environment**

Report Number **90957800**

# Well Driller's Report

Date printed 8/3/2026

| Drilled by | | | |
|---|---|---|---|
| Well Use | Work Type | Drill Method | Work Completed |
| Drinking Water, Domestic | New Well (NEW WELL) | Cable Tool (CABLE TOOL) | 12/15/1997 |

| Casing Information | | Casing above ground | | Drive Shoe Used? | |
|---|---|---|---|---|---|
| Well Log | Casing Type | Diameter | From | End | Slotted? |
| 90957800 | Steel | 6 inch | 0ft | 30ft | |

## Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Bailer | 0ft | 5 igpm | 1hr | 40ft | 5 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

## Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
Chlorine Pucks
Qty 10.0 ig

Pump Installed
N/A
Intake Setting (BTC)
0ft

## Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 90957800 | 70ft | 180ft | Brown | Shale |
| 90957800 | 0ft | 20ft | Grey and purple | Overburden |
| 90957800 | 20ft | 50ft | Brown | Shale |
| 90957800 | 50ft | 70ft | Red | Shale |

Overall Well Depth
180ft

Bedrock Level
20ft

## Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 90957800 | 160ft | 3 igpm |
| 90957800 | 120ft | 2 igpm |

## Setbacks

There is no Setback information.

New Nouveau Brunswick

**Environment**

Report Number **92088400**

# Well Driller's Report

Date printed 8/3/2026

| Drilled by | | | |
|---|---|---|---|
| Well Use | Work Type | Drill Method | Work Completed |
| Drinking Water, Domestic | New Well | | 08/27/2001 |

| Casing Information | | Casing above ground | | | Drive Shoe Used? |
|---|---|---|---|---|---|
| Well Log | Casing Type | Diameter | From | End | Slotted? |
| 92088400 | Steel | 6 inch | 0ft | 44ft | |

Aquifer Test/Yield

| Method | Initial Water Level (BTC) | Pumping Rate | Duration | Final Water Level (BTC) | Estimated Safe Yield | Flowing Well? | Rate |
|---|---|---|---|---|---|---|---|
| Bailer | 30ft | 0 igpm | 1hr | 120ft | 5 igpm | No | 0 igpm |

*(BTC - Below top of casing)*

Well Grouting

There is no Grout information.

Drilling Fluids Used
None

Disinfectant
N/A

Qty 0 ig

Pump Installed
N/A

Intake Setting (BTC)
140ft

Driller's Log

| Well Log | From | End | Colour | Rock Type |
|---|---|---|---|---|
| 92088400 | 100ft | 220ft | Brown and grey | Shale |
| 92088400 | 0ft | 16ft | EMPTY VALUE | Overburden |
| 92088400 | 16ft | 35ft | Red | Shale |
| 92088400 | 35ft | 100ft | Brown | Shale |

Overall Well Depth
220ft

Bedrock Level
16ft

Water Bearing Fracture Zone

| Well Log | Depth | Rate |
|---|---|---|
| 92088400 | 90ft | 1 igpm |
| 92088400 | 205ft | 3 igpm |

Setbacks

There is no Setback information.

# Appendix 2

# Ground Water Chemistries

115A Harrisville Blvd
Moncton, NB E1H 3T3
Canada
Tel: 506.855.6472
www.rpc.ca

# Certificate of Analysis

Craig HydroGeoLogic Inc.
479 Maces Bay Road
Maces Bay, NB E5J 1T3

***Report ID:*** *26-028130-MICRO_MB*
***Report Date:*** *2026-08-19*

**Attention:** Doug Craig
**Project:** 26-028130
**Location:** Salisbury NB WM

**Sample Received:** 2026-08-18
**Client Job Number:** n/a
**PO No.:** n/a

## Microbiological Examination of Water

| | | RPC Sample ID | 26-028130-1-1 |
|---|---|---|---|
| | | Client Sample ID | PW 2026 |
| | | Matrix | Water |
| | | Date/Time Sampled | 2026-08-18 10:40:00 |
| **Analyte** | **Units** | **RL** | |
| Total Coliforms | MPN/100mL | - | 2 |
| E. coli | MPN/100mL | - | 0 |

Michael Lawlor
Microbiology

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# Certificate of Analysis

Craig HydroGeoLogic Inc.
479 Maces Bay Road
Maces Bay, NB E5J 1T3

***Report ID:*** *26-028130-MICRO_MB*
***Report Date:*** *2026-08-19*

**Attention:** Doug Craig
**Project:** 26-028130
**Location:** Salisbury NB WM

**Sample Received:** 2026-08-18
**Client Job Number:** n/a
**PO No.:** n/a

## Methods

| Test | RPC SOP |
|---|---|
| Total Coliforms and E. coli | MICRO10 |

## Report Information

This report relates only to the sample(s) and information provided to the laboratory.

Reported results are expressed on an as-received basis.

Legend:
RL = Reporting Limit; MAC = Maximum Allowable Concentration; MPN = Most Probable Number; cfu = Colony-Forming Unit;
gc = genomic copies; ug/L = micrograms per liter; P = present; A = absent; pp = presumptive positive; E = Estimate;
ND = Not Detected; OG = Overgrown; TNTC = Too Numerous to Count

## Summary of Date Analyzed:

| RPC Sample ID | Test / Analysis | Date Extracted | Date Analyzed |
|---|---|---|---|
| 26-028130-1-1 | Total Coliforms and E. coli | - | 2026-08-18 |

## SUMMARY OF RESULTS FOR PROJECT: 26-028130

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Canada
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| | |
|---|---|
| **Date Sampled** | 2026-08-18 |
| **Client Sample ID** | PW 2026 |
| **Client Name** | Craig HydroGeoLogic Inc. / Doug Craig |
| **Client Address** | 479 Maces Bay Road Maces Bay, NB E5J 1T3 |
| **Phone** | |
| **Email** | dcraig@craighydrogeologic.ca |

A sample was received for drinking water inorganic testing. Maxiumum Acceptable Concentrations (MAC) and Aesthetic Objectives (AO) from Guidelines for Canadian Drinking Water Quality are included in the report. Some of the analytes are not listed in this document. These analytes are included as part of the overall water characterization. If analysis has not been carried out for microbiological organisms (specifically coliform and E. coli), it is recommended that this should be completed before drinking the water.

### Maximum Acceptable Concentrations (MAC)

**None of the analytes exceed Maximum Acceptable Concentrations.**

### Aesthetic Objectives (AO)

**! – One or more of the analytes exceed an Aesthetic Objective. These guidelines relate to taste or appearance. While AO exceedances are potentially unpleasant, they do not cause adverse health effects.**

| Client Sample ID | Analyte | Comparison (result vs. guide) |
|---|---|---|
| PW 2026 | Iron | 0.11 mg/L > 0.1 mg/L |

**For more information, refer to the link below:**
https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html.

Brannen Burhoe

Brannen Burhoe
Inorganic Analytical Services

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www.rpc.ca

# Certificate of Analysis

Craig HydroGeoLogic Inc.
479 Maces Bay Road
Maces Bay, NB E5J 1T3

**Report ID:** 26-028130-IAS
**Report Date:** 2026-08-27

**Attention:** Doug Craig
**Project:** 26-028130
**Location:** Salisbury NB WM

**Sample Received:** 2026-08-18
**Client Job Number:** n/a
**PO No.:** n/a

## Analysis of Potable Water

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | RPC Sample ID | 26-028130-1-2 |
| | | | | | Client Sample ID | PW 2026 |
| | | | | | Date Sampled | 2026-08-18 |
| Analyte | Units | RL | MAC | AO | Alert | |
| Alkalinity (as $CaCO_3$) | mg/L | 20 | - | - | - | 260 |
| Carbon - Total Organic | mg/L | 0.5 | - | - | - | 0.8 |
| Chloride | mg/L | 0.5 | - | 250 | - | 28.0 |
| Colour | TCU | 5 | - | 15 | - | < 5 |
| Conductivity | µS/cm | 1 | - | - | - | 555 |
| Fluoride | mg/L | 0.05 | 1.5 | - | - | 0.97 |
| Nitrate+Nitrite (as N) | mg/L | 0.05 | 10 | - | - | < 0.05 |
| pH | Units | - | - | - | - | 9.1 |
| r-Silica ($SiO_2$) | mg/L | 0.1 | - | - | - | 8.0 |
| Sulfate | mg/L | 1 | - | 500 | - | 15 |
| Turbidity | NTU | 0.1 | - | - | - | 15.6 |
| **Calculated Parameters** | - | - | - | - | - | -- |
| Hardness (as $CaCO_3$) | mg/L | 0.2 | - | - | - | 3.4 |
| TDS (calc) | mg/L | - | - | 500 | - | 349 |
| Saturation pH (5°C) | Units | - | - | - | - | 9.2 |
| Langelier Index (5°C) | - | - | - | - | - | -0.07 |

RL = Reporting Limit; MAC = Maximum Acceptable Concentration; AO = Aesthetic Objective

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# Certificate of Analysis

Craig HydroGeoLogic Inc.
479 Maces Bay Road
Maces Bay, NB E5J 1T3

**Report ID:** 26-028130-IAS
**Report Date:** 2026-08-27

**Attention:** Doug Craig
**Project:** 26-028130
**Location:** Salisbury NB WM

**Sample Received:** 2026-08-18
**Client Job Number:** n/a
**PO No.:** n/a

## Analysis of Metals in Potable Water

| | | | | | RPC Sample ID | 26-028130-1-2 |
|---|---|---|---|---|---|---|
| | | | | | Client Sample ID | PW 2026 |
| | | | | | Date Sampled | 2026-08-18 |
| **Analyte** | **Units** | **RL** | **MAC** | **AO** | **Alert** | |
| Aluminum | mg/L | 0.001 | 2.9 | - | - | 0.087 |
| Antimony | mg/L | 0.0001 | 0.006 | - | - | < 0.0001 |
| Arsenic | mg/L | 0.001 | 0.01 | - | - | < 0.001 |
| Barium | mg/L | 0.001 | 2 | - | - | 0.024 |
| Boron | mg/L | 0.001 | 5 | - | - | 0.039 |
| Cadmium | mg/L | 0.00001 | 0.007 | - | - | < 0.00001 |
| Calcium | mg/L | 0.05 | - | - | - | 1.27 |
| Chromium | mg/L | 0.001 | 0.05 | - | - | < 0.001 |
| Copper | mg/L | 0.001 | 2 | 1 | - | < 0.001 |
| Iron | mg/L | 0.02 | - | 0.1 | ! | **0.11** |
| Lead | mg/L | 0.0001 | 0.005 | - | - | 0.0002 |
| Lithium | mg/L | 0.0001 | - | - | - | 0.0101 |
| Magnesium | mg/L | 0.01 | - | - | - | 0.06 |
| Manganese | mg/L | 0.001 | 0.12 | 0.02 | - | 0.015 |
| Molybdenum | mg/L | 0.0001 | - | - | - | 0.0057 |
| Nickel | mg/L | 0.001 | - | - | - | < 0.001 |
| Phosphorous | mg/L | 0.02 | - | - | - | 0.02 |
| Potassium | mg/L | 0.02 | - | - | - | 0.67 |
| Selenium | mg/L | 0.001 | 0.05 | - | - | < 0.001 |
| Sodium | mg/L | 0.5 | - | 200 | - | 137 |
| Strontium | mg/L | 0.001 | 7 | - | - | 0.025 |
| Thallium | mg/L | 0.0001 | - | - | - | < 0.0001 |
| Uranium | mg/L | 0.0001 | 0.02 | - | - | 0.0052 |
| Vanadium | mg/L | 0.001 | - | - | - | < 0.001 |
| Zinc | mg/L | 0.001 | - | 5 | - | < 0.001 |

RL = Reporting Limit; MAC = Maximum Acceptable Concentration; AO = Aesthetic Objective

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# Certificate of Analysis

Craig HydroGeoLogic Inc.
479 Maces Bay Road
Maces Bay, NB E5J 1T3

**Report ID:** 26-028130-IAS
**Report Date:** 2026-08-27

**Attention:** Doug Craig
**Project:** 26-028130
**Location:** Salisbury NB WM

**Sample Received:** 2026-08-18
**Client Job Number:** n/a
**PO No.:** n/a

## Methods

| Test | RPC SOP |
|---|---|
| Alkalinity (as $CaCO_3$) | IAS-M43 |
| Analysis of Metals in Water | IAS-M01/IAS-M29 |
| Chloride | IAS-M44 |
| Colour | IAS-M55 |
| Conductivity | IAS-M04 |
| Ion Chromatography | IAS-M39 |
| Nitrate+Nitrite (as N) | IAS-M48 |
| pH | IAS-M03 |
| r-Silica | IAS-M46 |
| Sulfate | IAS-M45 |
| Total Organic Carbon | IAS-M57 |
| Turbidity | IAS-M06 |

## Report Information

This report relates only to the sample(s) and information provided to the laboratory.

Reported results are expressed on an as-received basis.

SOP = Standard Operating Procedure

# Appendix 3

# Field Results

**Craig HydroGeoLogic Inc.**
Office Phone: 506-659-3064
Doug Craig Cell: 506-333-2844
dcraig@craighydrogeologic.ca

**Pump and Recovery Test Data**
**Field Sheet**

Project: PW 2026 Client: WM

Well ID: PW 2026 Well Diameter: 6"

Location: Salisbury Reference Pt. For Measurement: TOC

Static Level: _____ Date: _____ Final Level: 29.3 Date: _____

*******Record Unit of Measurement******** 10th of inch

| Time | Elapsed Time (min) | Depth to Water | Drawdown | Pumping Rate | Time Since Start |
|---|---|---|---|---|---|
| 940 | 0 | 29.3 | | 12 impg | 0 hr |
| | 1 | 35.75 | | 11 impg | |
| | 2 | 40.83 | | | |
| | 3 | 42.90 | | | |
| | 4 | 46.70 | | 10 impg | |
| | 5 | 47.35 | | | |
| | 6 | 48.60 | | | |
| | 7 | 51.25 | | | |
| | 8 | 52.80 | | | |
| | 9 | 54.03 | | | |
| 950 | 10 | 55.17 | | | |
| 55 | 15 | 60.17 | | | |
| 1000 | 20 | 64.05 | | | |
| 5 | 25 | 67.30 | | | |
| 10 | 30 | 70.09 | | | |
| 20 | 40 | 74.45 | | 10 impg | |
| 30 | 50 | 77.96 | | | |
| 10 40 | 60 | 81.03 | | | 1.0 hr |
| 55 | 75 | 79.82 | | 8 ¾ gpm @ 10:43 am | |
| 11 10 | 90 | 80.95 | | | 1.5 hr |
| 25 | 105 | 82.37 | | | |
| 40 | 120 | 83.50 | | | 2.0 hr |
| 12 10 | 150 | 85.50 | | 8 ¼ impg | 2.5 hr |
| 12 40 | 180 | 87.80 | | | 3 0 hr |
| 1 10 | 210 | 88.70 | | | 3.5 hr |

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Doug Craig Cell: 506-333-2844

**Pump and Recovery Test Data**
**Field Sheet**

Project:_____ Client:_____

Well ID: 0072819 Well Diameter:_____

Location:_____ Reference Point For Measurement:_____

Static Level:_____ Date:_____ Final Level:_____ Date:_____

*********Record Unit of Measurement**********

| Time | Elapsed Time (min) | Depth to Water | Drawdown | Pumping Rate | Time Since Start |
|---|---|---|---|---|---|
| 140 | 240 | 90.03 | | | 4 hr |
| 240 | 300 | 91.79 | | | 5 hr |
| 340 | 360 | 92.89 | | | 6 hr |
| 440 | 420 | 94.48 | | | 7 hr |
| 540 | 480 | 95.72 | | | 8 hr |
| 640 | 540 | 96.28 | | | 9 hr |
| 740 | 600 | 96.46 | | | 10 hr |
| 840 | 660 | 97.45 | | | 11 hr |
| 940 | 720 | 97.90 | | | 12 hr |
| 1140 | 840 | 100.35 | | | 14 hr |
| 340 | 960 | 101.40 | | | 16 hr |
| 540 | 1080 | 102.76 | | | 18 hr |
| 740 | 1200 | 104.10 | | | 20 hr |
| 940 | 1320 | 104.55 | | | 22 hr |
| | 1440 | 104.55 | | | 24 hr |
| | | | | | |
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| | | | | | |

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Office Phone: 506-659-3064
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dcraig@craighydrogeologic.ca

Recovery

**Pump and Recovery Test Data**
**Field Sheet**

Project:_____ Client: WM

Well ID: PW 2026 Well Diameter: 6"

Location: Salisbury Reference Pt. For Measurement: TOC.

Static Level:_____ Date:_____ Final Level:_____ Date:_____

*********Record Unit of Measurement**********

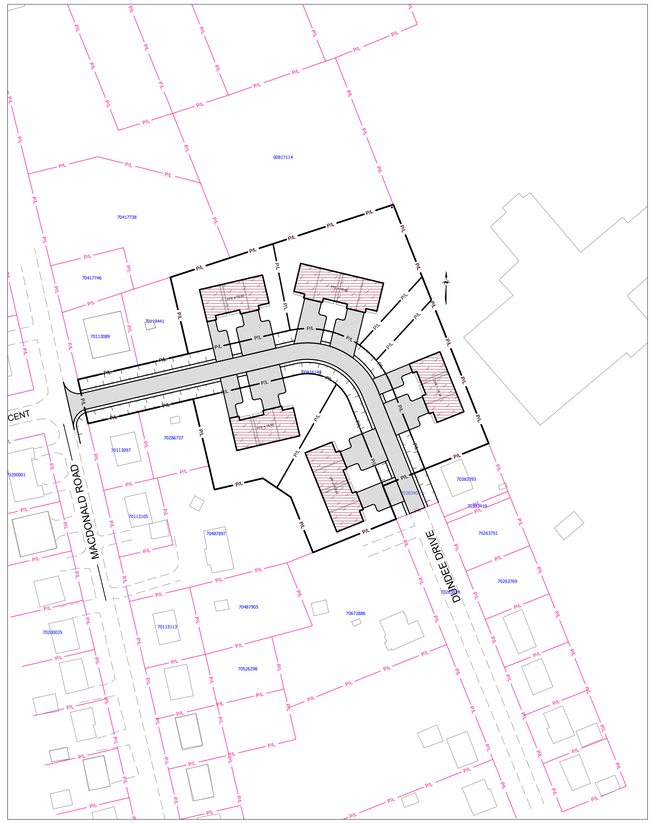
| Time | Elapsed Time (min) | Depth to Water | Drawdown | Pumping Rate | Time Since Start |
|---|---|---|---|---|---|
| 9:40 | 0 | 104.55 | | | 0 hr |
| 9:41 | 1 | 99.60 | | | |
| 9 42 | 2 | 95.60 | | | |
| 9 43 | 3 | 92.20 | | | |
| 9 44 | 4 | 89.00 | | | |
| 9 45 | 5 | 86.10 | | | |
| 9 46 | 6 | 83.60 | | | |
| 9 47 | 7 | 81.30 | | | |
| 9 48 | 8 | 79.30 | | | |
| 9 49 | 9 | 77.40 | | | |
| 9 50 | 10 | 76.80 | | | |
| 9 55 | 15 | 69.60 | | | |
| 10 00 | 20 | 65.60 | | | |
| 10 05 | 25 | 61.60 | | | |
| 10 10 | 30 | 59.40 | | | |
| 10 20 | 40 | 54.75 | | | |
| 10 30 | 50 | 50.90 | | | |
| 10 40 | 60 | 49.35 | | | 1.0 hr |
| 10 55 | 75 | 46.50 | | | |
| 11 10 | 90 | 44.50 | | | 1.5 hr |
| 11 25 | 105 | 43.00 | | | |
| 11 40 | 120 | 41.80 | | | 2.0 hr |
| 12 10 | 150 | 39.70 | | | 2.5 hr |
| 12 40 | 180 | 38.30 | | | 3 0 hr |
| 1 10 | 210 | | | | 3.5 hr |
| 1 40 | | | | | |

Send Doug a photo of data an hour into recovery to plot recovery time - Jamie

A portion of the water level data for the observation wells was recorded using data logging pressure transducers. As a result, that field data is in electronic format. If you desire the electronic files, please contact the report issuer.

# WES MICHAUD - DUNDEE DRIVE

## SALISBURY - WESTMORLAND COUNTY, NB




## DRAWING LIST


C1 COVER SHEET/ SITE PLAN

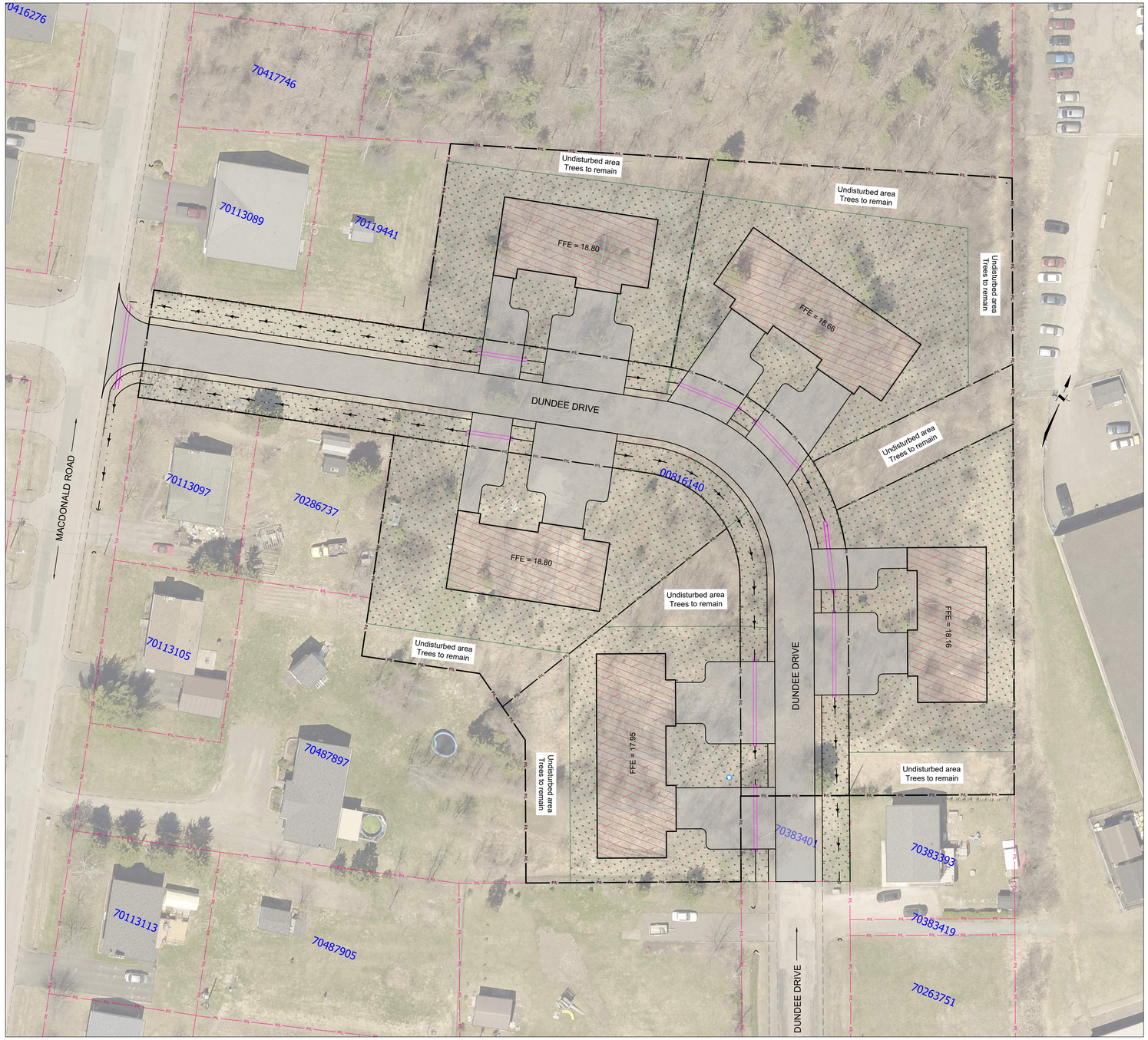
C2 GRADING PLAN PHASE 1

C3 SERVICING PLAN AND PROFILE PHASE 1

C4 CROSS SECTIONS

C5 STORM WATER MANAGEMENT PLAN

C6 EROSION & SEDIMENTATION CONTROL PLAN


DON-MORE SURVEYS & ENGINEERING LTD.

REGISTERED PROFESSIONAL ENGINEER
province of New Brunswick
province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ
M5990
Andrew K. Toole
Signature
2024-10-08
Date

- ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE TOWN OF SALISBURY GENERAL SPECIFICATIONS, LATEST REVISION.
- ALL ELEVATIONS ARE GEODETIC BASED ON SERVICE NEW BRUNSWICK ACTIVE CONTROL UTILIZING GEOID MODEL CGVD2013.
- THE APPROXIMATE LOCATION OF KNOWN INFRASTRUCTURE IS SHOWN ON THE PLANS BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. HOWEVER, THE CONSULTANT ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION.
- CONTRACTOR TO CONFIRM HORIZONTAL LOCATION AND VERTICAL ELEVATION OF ALL EXISTING SERVICES PRIOR TO COMMENCING WORK. CONTRACTOR TO IMMEDIATELY REPORT ANY DISCREPANCIES TO THE ENGINEER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BECOME FAMILIAR WITH AND UNDERSTAND THE NATURE AND EXTENT OF THE WORK TO BE EXECUTED, THE NATURE OF THE SOIL, SURFACE WATER DRAINAGE, THE GENERAL FORM OF THE SURFACE OF THE GROUND, AND GENERALLY OF ALL MATTERS WHICH CAN IN ANY WAY INFLUENCE THE CONSTRUCTION OF THIS PROJECT.
- ALL REQUIRED PERMITS MUST BE OBTAINED IN ADVANCE OF CONSTRUCTION.
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NEW BUILDING AREAS

NEW ASPHALT AREAS

NEW CONCRETE AREAS

NEW GRAVEL AREAS

NEW GRASS AREAS

NEW WOODED AREAS

REVISION:

| No. | DATE Y/M/D | DESCRIPTION |
|---|---|---|
| 2 | 2024-10-08 | ISSUED FOR REVIEW |
| 1 | 2024-09-27 | ISSUED FOR REVIEW |

DWG: 23382ESP2 — DATED: 2024-08-30

DESIGNED BY: A. Toole

DRAWN BY: S. Danbaba

CHECKED BY: A. Toole

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE

Scale: Horizontal 1:400 Vertical N/A

SCALE: 1:250 METRIC

5 4 3 2 1 0 5 10 15

CLIENT: WES MICHAUD

PROJECT: DUNDEE DRIVE

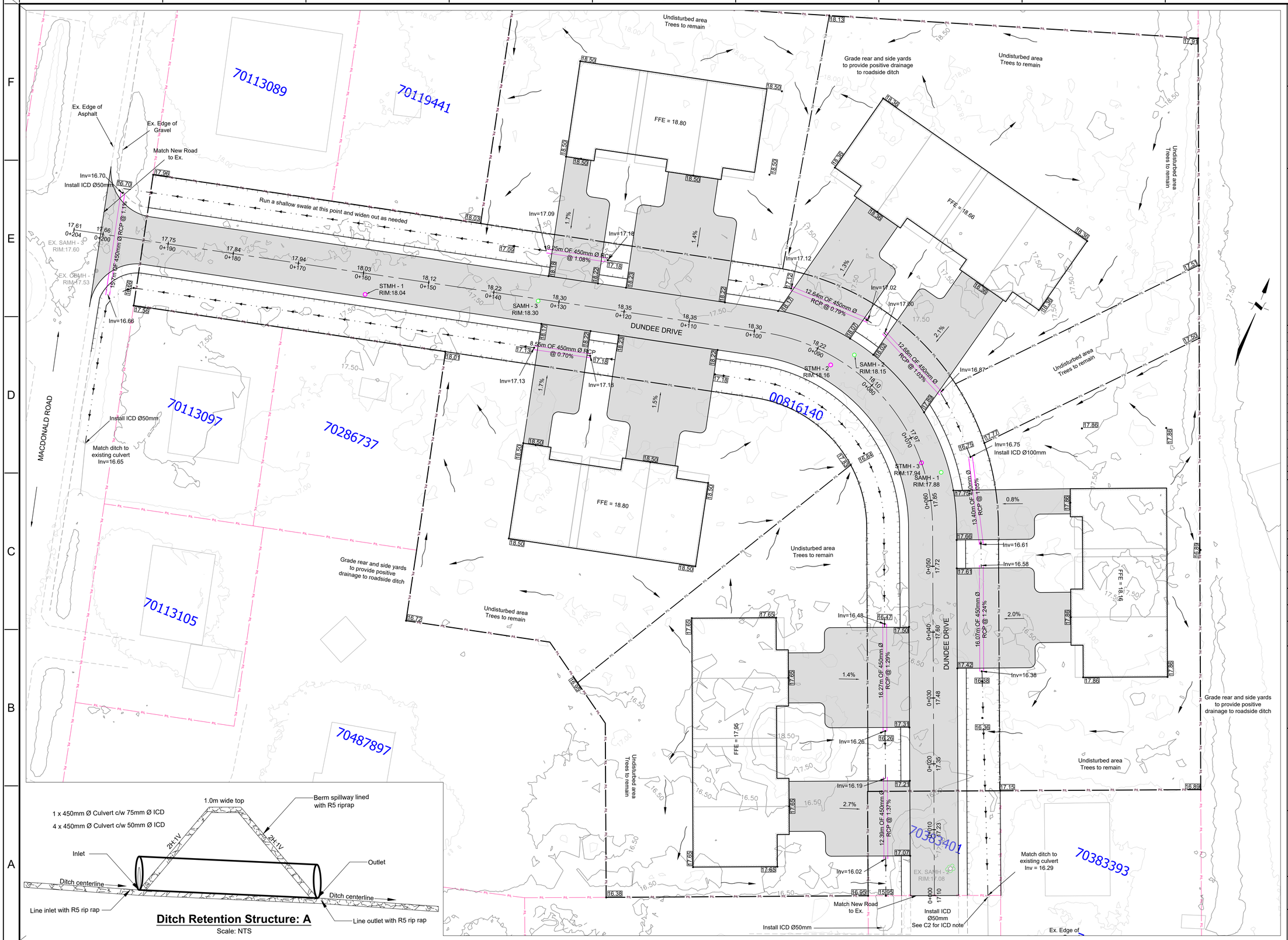
TITLE: COVER SHEET

SHEET C1 of 6

ISSUE: ISSUED FOR REVIEW

DATE OF: 2024-10-08

REV # 2




**DON-MORE SURVEYS & ENGINEERING LTD.**

REGISTERED PROFESSIONAL ENGINEER
province of New Brunswick
M5990
Andrew K. Toole
Signature
2024-10-08
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

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- CONTRACTOR TO ENSURE PROPER EROSION AND SEDIMENTATION CONTROL METHODS ARE USED TO CONTROL SITE RUNOFF DURING CONSTRUCTION.

| LEGEND | NEW | EXISTING |
|---|---|---|
| EDGE OF PAVEMNET | | |
| CURB | | |
| SURFACE PROFILE | | |
| TOP OF SLOPE | | |
| SWALE / DITCH | | |
| SPOT ELEVATION | ● 6.68 | +8.71 |
| BUILDING | | |
| SIDEWALK | | |
| PARKING MARKING | | |
| PROPERTY BOUNDARY | PL | CULVERT |
| PROPERTY LINE | PL | HEADWALL |
| EASEMENT | | FENCE |
| CURB & DRIVEWAY CUT | | CATCH BASIN |
| FLOW ARROW | | SIDEWALK |
| GRADE ARROW | | PHASE BNDY |

REVISION:

| No. | DATE Y/M/D | DESCRIPTION |
|---|---|---|
| 2 | 2024-10-08 | ISSUED FOR REVIEW |
| 1 | 2024-09-27 | ISSUED FOR REVIEW |

DWG: 23382ESP2 — DATED: 2024-08-30

DESIGNED BY: A. Toole
DRAWN BY: S. Danbaba
CHECKED BY: A. Toole

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE

Scale: Horizontal 1:250 Vertical N/A

SCALE: 1:250 METRIC

CLIENT: WES MICHAUD

PROJECT: DUNDEE DRIVE

TITLE: GRADING PLAN

SHEET C2 of 6

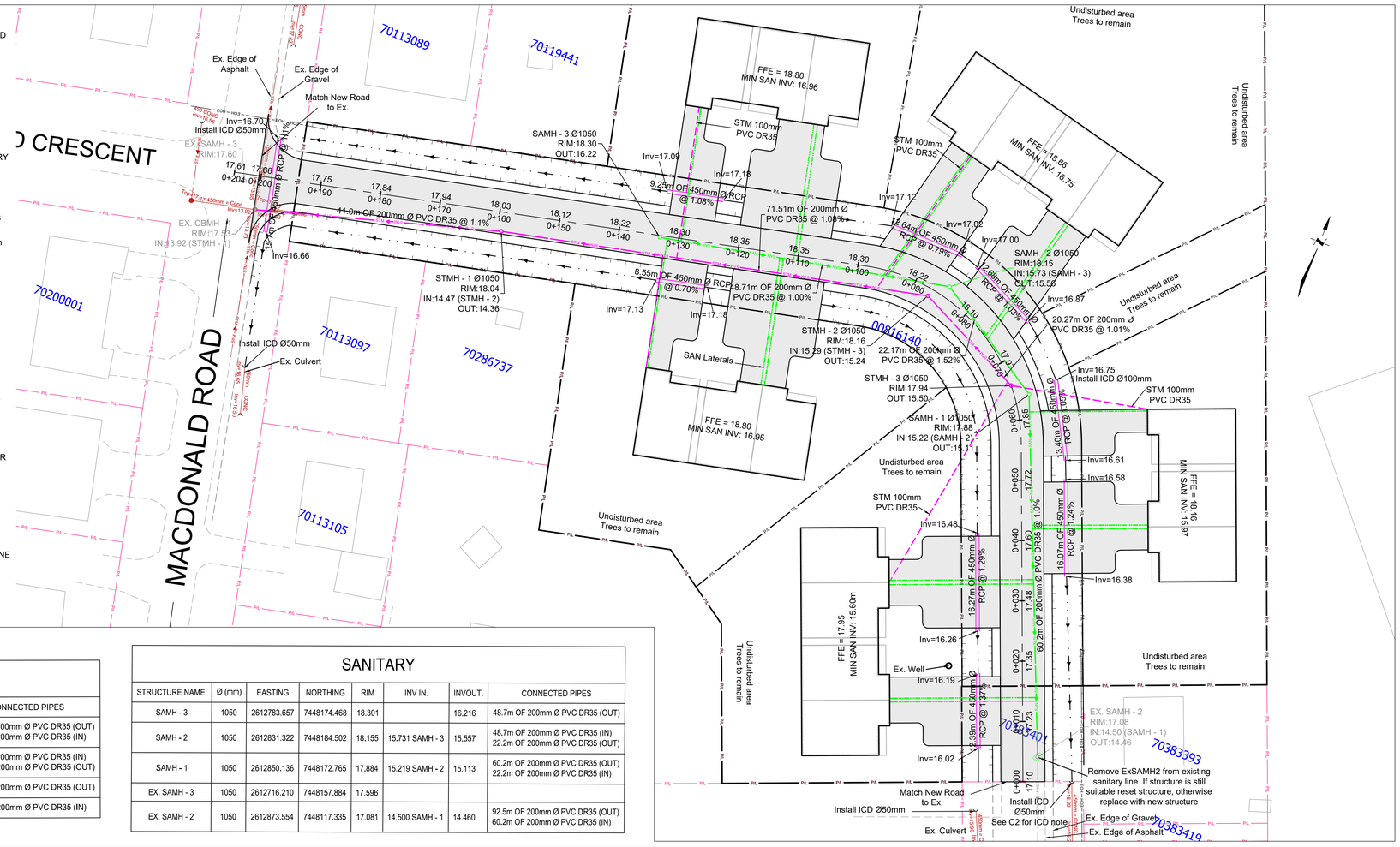
ISSUE: ISSUED FOR REVIEW
DATE OF: 2024-10-08
REV # 2

## STORM

1. ALL STORM PIPE TO BE IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS AND OF THE DIAMETER NOTED ON THE DRAWINGS.
2. STORM LATERALS TO BE 100mmØ PVC DR35 (WHITE) IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. CATCH BASIN LATERALS TO BE 200MMØ PVC DR35 AT MINIMUM 2.0% UNLESS OTHERWISE DIRECTED BY ENGINEER.
4. ALL JOINTS TO BE BELL AND SPIGOT TYPE WITH RUBBER GASKETS TO CSA A257.3.
5. ALL STORM MANHOLES TO BE PRE-CAST TO CSA A257.4 AND ASTM C478 OF THE DIAMETER NOTED ON THE DRAWINGS OR BASED ON MANUFACTURER'S RECOMMENDATIONS.
6. ALL MANHOLES TO BE 1050Ø UNLESS OTHERWISE NOTED.
7. ALL STORM MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS.
8. ALL STORM MANHOLE FRAMES AND COVERS TO BE CAST IRON TO ASTM A48, CLASS 30 B AS PER TOWN OF SALISBURY SPECIFICATIONS.
9. ALL CATCH BASINS TO BE OF THE TYPE SPECIFIED IN THE CATCH BASIN SCHEDULE AND INSTALLED IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS. CATCH BASINS TO BE EQUIPPED WITH INLET CONTROL.
10. ALL CATCH BASINS AND STORM MANHOLES TO HAVE MINIMUM 100mm GRADE RING AND 12mm RUBBER RISER BETWEEN FRAME & CONCRETE COVER.
11. ALL STORM STUBS TO BE PLUGGED/CAPPED. LOCATION TO BE MARKED WITH A 38mm X 89mm WOOD STAKE FROM INVERT OF PIPE TO 300mm BELOW FINISH GRADE.
12. ONLY FOUNDATION DRAIN TO BE CONNECTED TO THE NEW STORM.

## SANITARY

1. ALL SANITARY PIPE TO BE IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS AND OF THE DIAMETER NOTED ON THE DRAWINGS.
2. SANITARY LATERALS TO BE 100mmØ PVC DR35 (GREEN) IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. ALL JOINTS TO BE IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS.
4. ALL SANITARY MANHOLES TO BE PRE-CAST TO CSA A257.4 AND ASTM C478 OF THE DIAMETER NOTED ON THE DRAWINGS OR BASED ON MANUFACTURER'S RECOMMENDATIONS.
5. ALL MANHOLES TO BE 1050Ø UNLESS OTHERWISE NOTED.
6. ALL SANITARY MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF SALISBURY SPECIFICATIONS.
7. ALL STORM MANHOLE FRAMES AND COVERS TO BE CAST IRON TO ASTM A48, CLASS 30 AS PER TOWN OF SALISBURY SPECIFICATIONS.
8. ALL SANITARY MANHOLES TO HAVE MINIMUM 100mm RISER BETWEEN FRAME & CONCRETE COVER. TOP RISER TO BE MADE OF RUBBER.
9. ALL SANITARY STUBS TO BE PLUGGED/CAPPED. LOCATION TO BE MARKED WITH A 38mm X 89mm WOOD STAKE FROM INVERT OF PIPE TO 300mm BELOW FINISH GRADE.
10. CONTRACTOR SHALL PLACE RIGID FOAM INSULATION (AS PER TOWN OF SALISBURY SPECIFICATIONS) AT DIRECTION OF ENGINEER BETWEEN THE SANITARY LINE AND ANY CROSSING PIPES WHERE THE SEPARATION IS LESS THAN 450mm, OR, OVER THE SANITARY LINE WHERE DEPTH OF COVER IS LESS THAN 1.5m.
11. CONTRACTOR IS RESPONSIBLE FOR TESTING OF SANITARY MAINS TO THE TOWN OF SALISBURY STANDARDS.

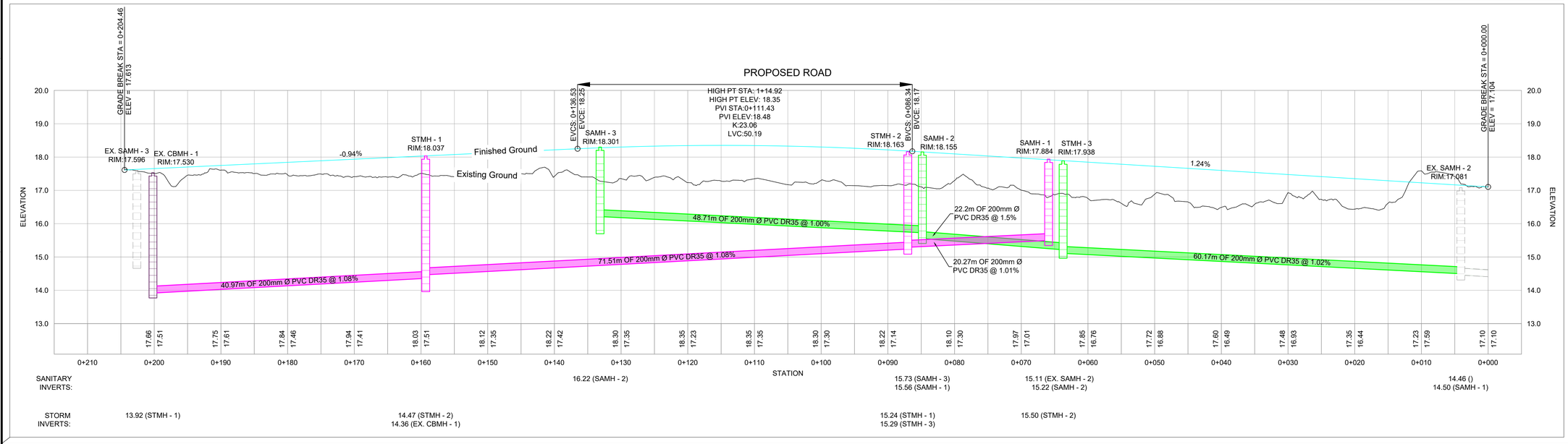



## STORM

| STRUCTURE NAME: | Ø (mm) | EASTING | NORTHING | RIM | INV IN. | INVOUT. | CONNECTED PIPES |
|---|---|---|---|---|---|---|---|
| STMH - 2 | 1050 | 2612828.543 | 7448181.766 | 18.163 | 15.295 STMH - 3 | 15.241 | 71.5m OF 200mm Ø PVC DR35 (OUT)<br>20.3m OF 200mm Ø PVC DR35 (IN) |
| STMH - 1 | 1050 | 2612758.852 | 7448165.734 | 18.037 | 14.469 STMH - 2 | 14.361 | 71.5m OF 200mm Ø PVC DR35 (IN)<br>41.0m OF 200mm Ø PVC DR35 (OUT) |
| STMH - 3 | 1050 | 2612846.831 | 7448173.015 | 17.938 | | 15.500 | 20.3m OF 200mm Ø PVC DR35 (OUT) |
| EX. CBMH - 1 | 1050 | 2612719.577 | 7448154.071 | 17.530 | 13.920 STMH - 1 | | 41.0m OF 200mm Ø PVC DR35 (IN) |

## SANITARY

| STRUCTURE NAME: | Ø (mm) | EASTING | NORTHING | RIM | INV IN. | INVOUT. | CONNECTED PIPES |
|---|---|---|---|---|---|---|---|
| SAMH - 3 | 1050 | 2612783.657 | 7448174.468 | 18.301 | | 16.216 | 48.7m OF 200mm Ø PVC DR35 (OUT) |
| SAMH - 2 | 1050 | 2612831.322 | 7448184.502 | 18.155 | 15.731 SAMH - 3 | 15.557 | 48.7m OF 200mm Ø PVC DR35 (IN)<br>22.2m OF 200mm Ø PVC DR35 (OUT) |
| SAMH - 1 | 1050 | 2612850.136 | 7448172.765 | 17.884 | 15.219 SAMH - 2 | 15.113 | 60.2m OF 200mm Ø PVC DR35 (OUT)<br>22.2m OF 200mm Ø PVC DR35 (IN) |
| EX. SAMH - 3 | 1050 | 2612716.210 | 7448157.884 | 17.596 | | | |
| EX. SAMH - 2 | 1050 | 2612873.554 | 7448117.335 | 17.081 | 14.500 SAMH - 1 | 14.460 | 92.5m OF 200mm Ø PVC DR35 (OUT)<br>60.2m OF 200mm Ø PVC DR35 (IN) |




DON-MORE SURVEYS & ENGINEERING LTD.

REGISTERED PROFESSIONAL ENGINEER Province of New Brunswick
M5990
Andrew K. Toole
Signature
Andrew Toole
2024-10-08
Date
Province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

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| LEGEND | NEW | EXISTING |
|---|---|---|
| SANITARY MAIN | SAN NYS | ESAN NYES |
| SANITARY LATERAL | | |
| WATER MAIN | DW | EW |
| WATER LATERAL | | |
| STORM MAIN | | |
| STORM LATERAL | | |
| CULVERT | | |
| UTILITY OVER HEAD | OH | EOH |
| NATURAL GAS | GAS | EGAS |
| UTILITY UNDERGROUND | UG | EUG |
| PROPERTY BOUNDARY | PL | PL |

REVISION:

| No. | DATE Y/M/D | DESCRIPTION |
|---|---|---|
| 2 | 2024-10-08 | ISSUED FOR REVIEW |
| 1 | 2024-09-27 | ISSUED FOR REVIEW |

DWG: 23382ESP2 — DATED: 2024-08-30

DESIGNED BY: A. Toole
DRAWN BY: S. Danbaba
CHECKED BY: A. Toole

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE

Scale: Horizontal 1:400 Vertical 1:50

SCALE: 1:250 METRIC

CLIENT: WES MICHAUD

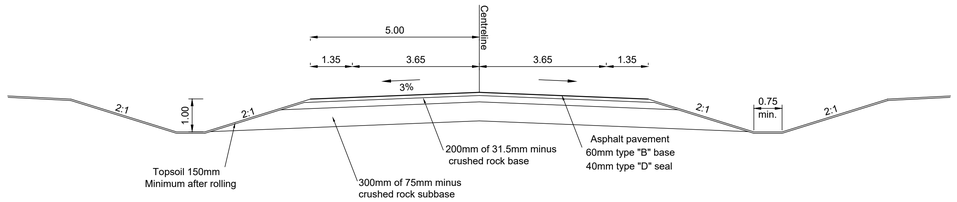
PROJECT: DUNDEE DRIVE

TITLE: SERVICING PLAN & PROFILE

SHEET C3 of 6

ISSUE: ISSUED FOR REVIEW — REV # 2

DATE OF: 2024-10-08

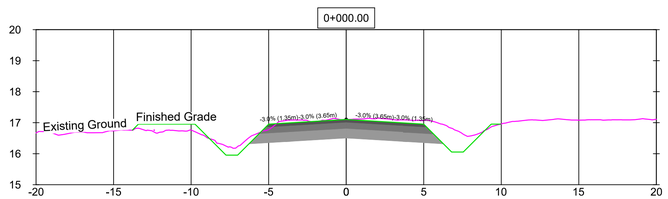


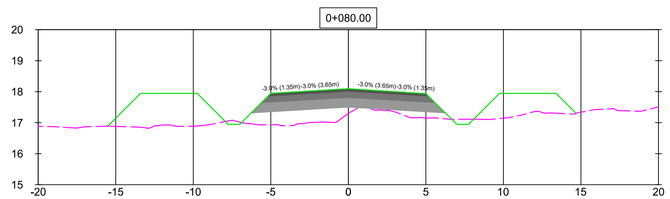

## Typical road section

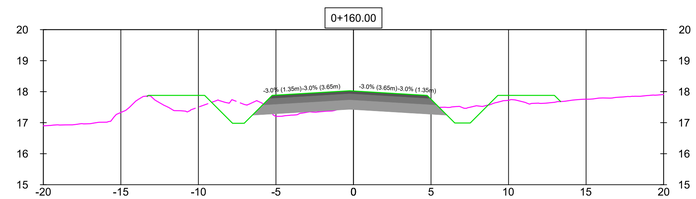
Scale: NTS

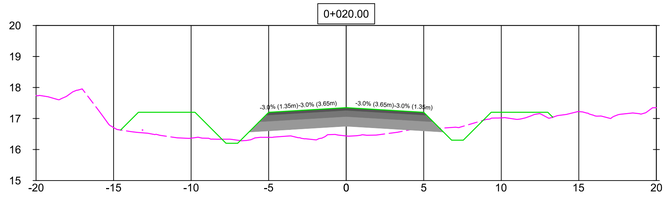
## Notes:

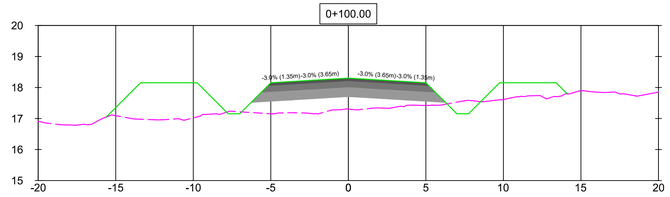
1. To tie the typical section to existing swales, widen out as needed.
2. Ditches to be finished with 150mm of topsoil and hydroseeded.
3. Asphalt crown to be carried to centreline of culvert.
4. Gravel driveways to match to edge of gravel shoulder.
5. Asphalt driveways to match to edge of asphalt.

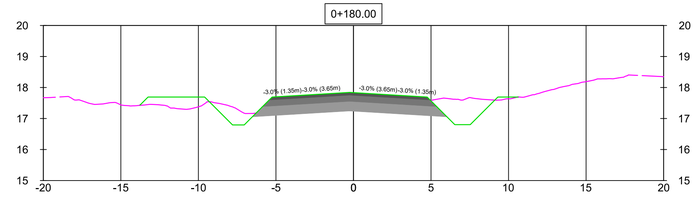


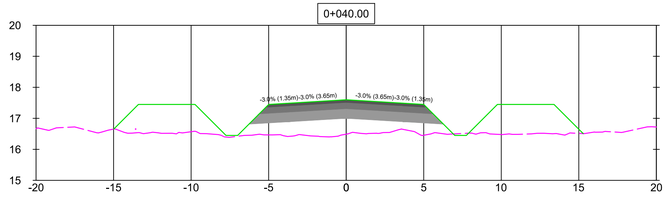



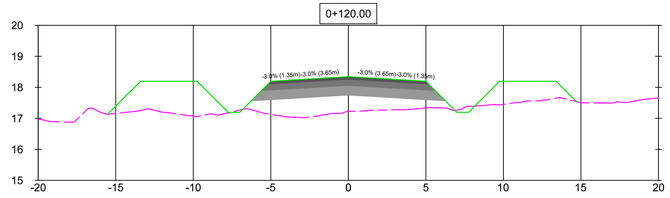



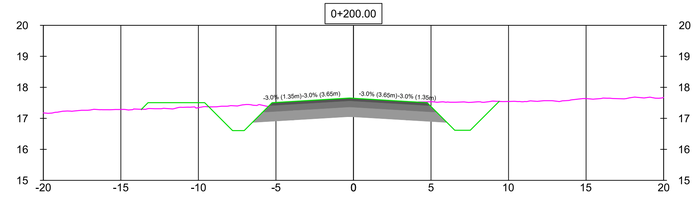



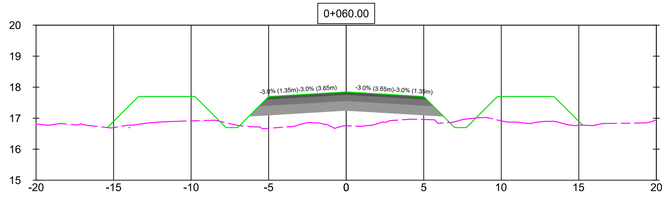



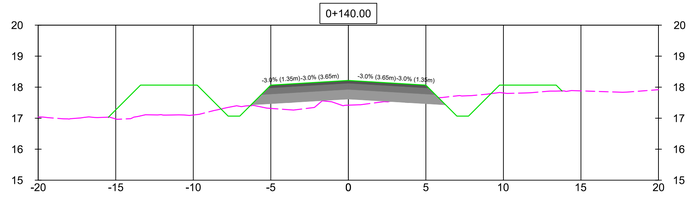




DON-MORE SURVEYS & ENGINEERING LTD.

REGISTERED PROFESSIONAL ENGINEER
province of New Brunswick
M5990
Andrew K. Toole
Signature
2024-10-08
Date
province du Nouveau-Brunswick
INGÉNIEUR IMMATRICULÉ

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|---|---|---|
| 2 | 2024-10-08 | ISSUED FOR REVIEW |
| 1 | 2024-09-27 | ISSUED FOR REVIEW |

DWG: 23382ESP2 — DATED: 2024-08-30

DESIGNED BY: A. Toole
DRAWN BY: S. Danbaba
CHECKED BY: A. Toole

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE

Scale:
Horizontal 1:200 Vertical 1:100

SCALE: 1:200 METRIC
4 3 2 1 0 4 8 12

CLIENT:
WES MICHAUD

PROJECT:
DUNDEE DRIVE

TITLE:
CROSS SECTIONS

SHEET C4 of 6

ISSUE:
ISSUED FOR REVIEW
DATE OF: 2024-10-08

REV #
2

## STORMWATER MANAGEMENT NOTES

STORM WATER MODELED USING HYDROCAD V10.00 SOFTWARE, USING THE USDA NATURAL RESOURCES CONSERVATION SERVICE METHOD (FORMALLY SCS).

1. WORK COMPLETED IN ACCORDANCE WITH THE CITY OF MONCTON STORM DRAINAGE DESIGN CRITERIA MANUAL, MARCH 7, 2016 VERSION.
2. 2 AND 24HR CHICAGO STORM DISTRIBUTION USED.
   - 100 YEAR STORM (24HR) - TOTAL RAINFALL: 140mm
   - 5 YEAR STORM (24HR) - TOTAL RAINFALL: 84mm
3. IA/S RATIO = 0.2
4. ANTECEDENT MOISTURE CONDITION = 2 (AVERAGE (NORMAL) CONDITIONS)
5. PRE-DEVELOPMENT CATCHMENT DRAINAGE BOUNDARIES MATCH POST-DEVELOPMENT BOUNDARIES.

## USSCS METHOD HYDROLOGIC SOIL GROUP CLASSIFICATION

A. SOIL GROUP A: VERY LOW RUNOFF POTENTIAL AND VERY HIGH INFILTRATION RATE, CONSISTENT WITH WELL DRAINED SAND AND GRAVEL.

**B. SOIL GROUP B: MODERATE RUNOFF POTENTIAL AND INFILTRATION RATE, CONSISTENT WITH SAND AND SILT.**

C. SOIL GROUP C: HIGH RUNOFF POTENTIAL AND LOW INFILTRATION RATE, CONSISTENT WITH CLAY AND SAND.

D. SOIL GROUP D: VERY HIGH RUNOFF POTENTIAL AND VERY LOW INFILTRATION RATE, CONSISTENT WITH SATURATED CLAYS AND HIGH WATER TABLES.

PRE DEVELOPMENT CATCHMENT AREAS (A.#)

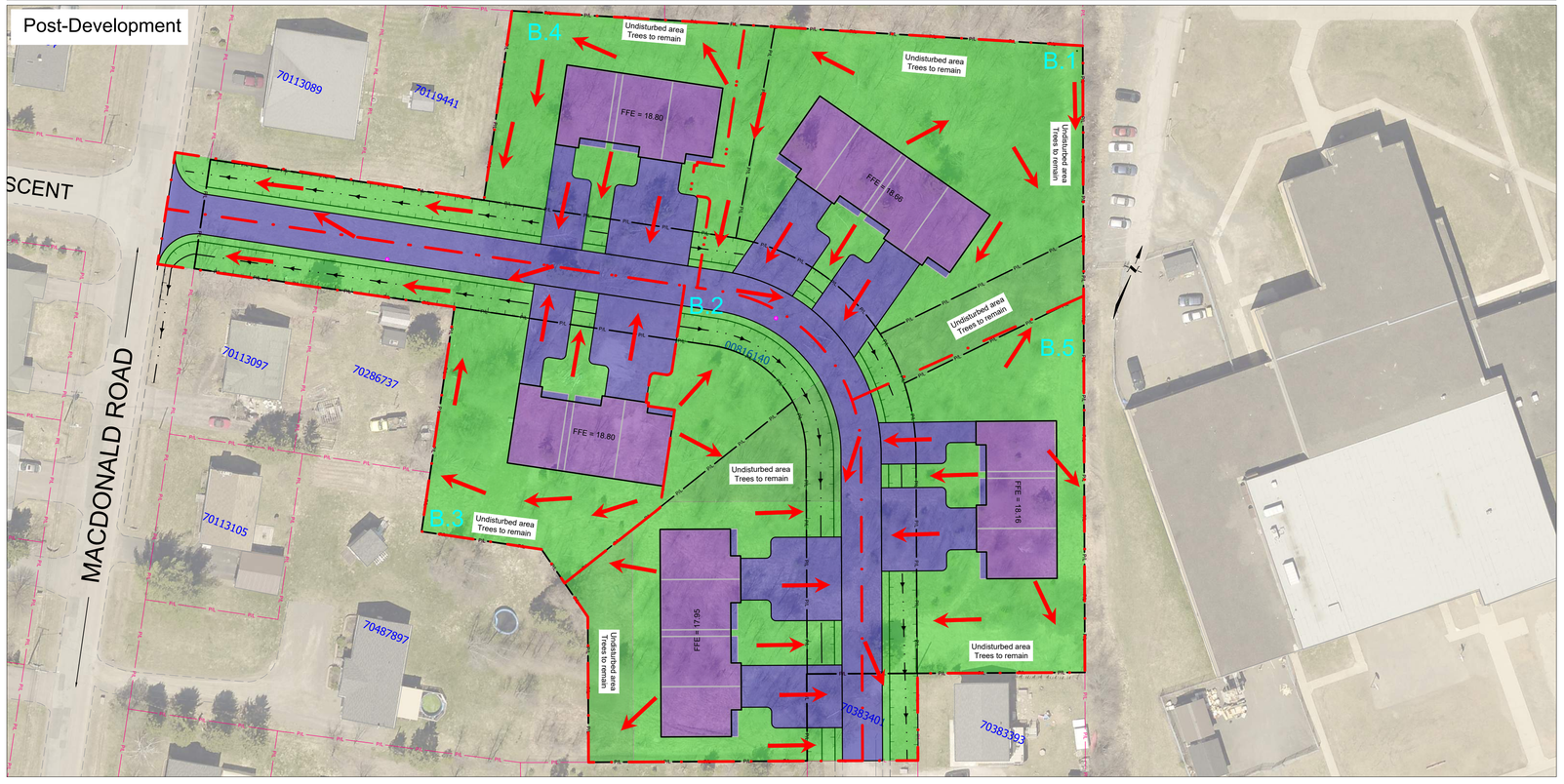
| CATCHMENT ID | AREA ($m^2$) | CN | TC (min) |
|---|---|---|---|
| A.1 | 14847 | 65 | 17.500 |

POST DEVELOPMENT CATCHMENT AREAS (B.#)

| CATCHMENT ID | AREA ($m^2$) | CN | TC (min) |
|---|---|---|---|
| B.1 | 3679 | 73 | 5.000 |
| B.2 | 3,454 | 75 | 5.000 |
| B.3 | 2638 | 79 | 5.000 |
| B.4 | 2,501 | 80 | 5.000 |
| B.5 | 2,573 | 78 | 5.000 |
| TOTAL | 14,847 | % IMPERVIOUS | 38.02% |

PEAK FLOW SUMMARY

| RAIN EVENT | PRE | POST W/O SWM | POST W/ SWM |
|---|---|---|---|
| 1:5 YR ($m^3/s$) | 0.0384 | 0.1811 | 0.0348 |
| 1:100 YR ($m^3/s$) | 0.1617 | 0.4980 | 0.0440 |

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province of New Brunswick
M5990
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Signature
Andrew Toole
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| LAND USE | PRE | POST |
|---|---|---|
| ASPHALT | | |
| GRASS | | |
| GRAVEL | | |
| ROOF | | |
| WOODS | | |
| WETLAND | | |
| ¿LOTS | | |
| SUBCATCHMENT | | |
| SUBCATCHMENT ID | A.# | B.# |
| FLOW DIRECTION | | |
| APPROX. 5YR FLOOD | 5 YR | 5 YR |
| APPROX. 100YR FLOOD | 100 YR | 100 YR |

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DWG: 23382ESP2 DATED: 2024-08-30

DESIGNED BY: A. Toole
DRAWN BY: S. Danbaba
CHECKED BY: A. Toole

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE

Scale: Horizontal 1:250 Vertical N/A

SCALE: 1:250 METRIC 5 4 3 2 1 0 5 10 15

CLIENT: WES MICHAUD

PROJECT: DUNDEE DRIVE

TITLE: STORMWATER MANAGEMENT PLAN

SHEET C5 of 6

ISSUE: ISSUED FOR REVIEW
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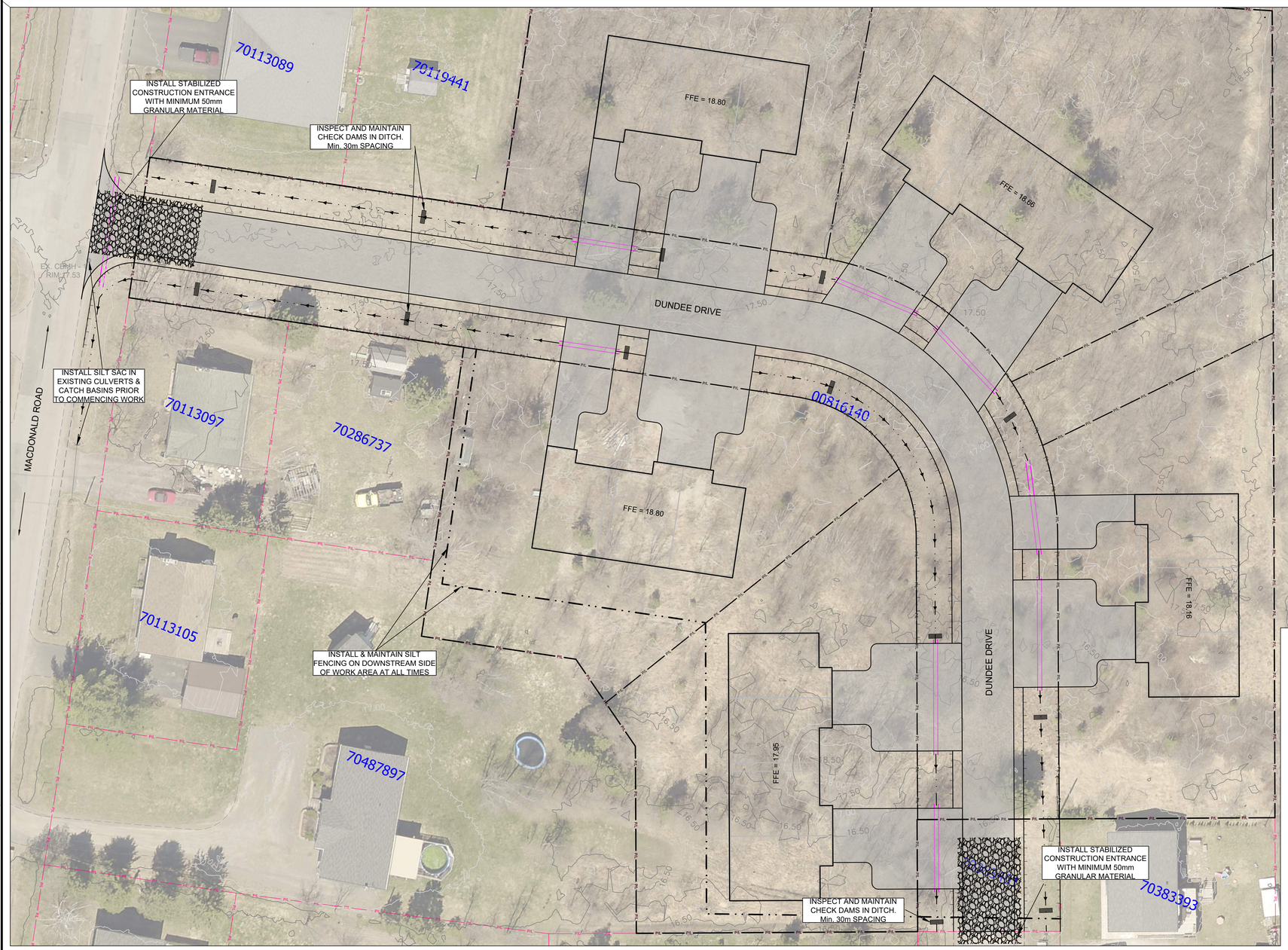
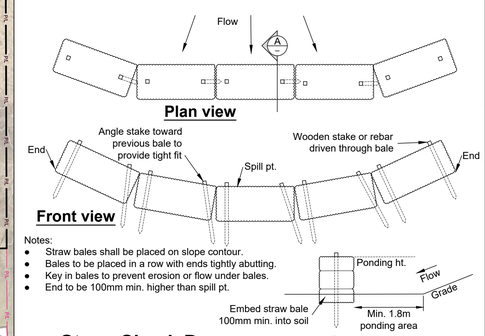
REV # 2




## Straw Check Dam

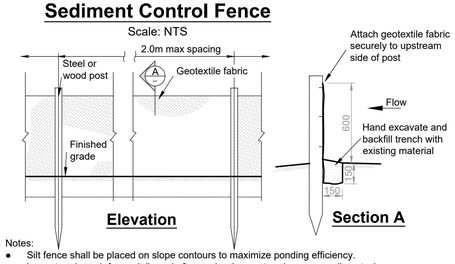
Scale: NTS




Notes:
- Straw bales shall be placed on slope contour.
- Bales to be placed in a row with ends tightly abutting.
- Key in bales to prevent erosion or flow under bales.
- End to be 100mm min. higher than spill pt.

## Sediment Control Fence

Scale: NTS




Notes:
- Silt fence shall be placed on slope contours to maximize ponding efficiency.
- Inspect and repair fence daily and after each rain event and remove sediment when accumulated silt reached 200mm depth.
- Removed sediment shall be deposited to an area which will not contribute sediment off-site.

## EROSION AND SEDIMENT CONSTRUCTION SCHEDULE

1. CLEAR SITE WHERE REQUIRED. DO NOT GRUB.
2. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES SUCH AS SILT FENCE, CHECK DAMS AND OTHER MEASURES.
3. INSTALL SILT SACS IN ALL DOWN STREAM CULVERTS WITHIN 30 METERS OF CONSTRUCTION ENTRANCE.
4. COMPLETE GRUBBING. GRUB ONLY THE AREAS REQUIRED.
5. COMPLETE MASS EXCAVATION AND DITCH CONSTRUCTION.
6. COMPLETE ROAD WORK. STABILIZE EXPOSED SOIL TO PREVENT EROSION. SUBJECT TO RAINFALL FORECASTS, EXPOSED SOIL MAY REQUIRE TARPING, INCLUDING STOCK PILE AREAS.
7. COMPLETE ROAD AND DITCH AREA CONSTRUCTION, INSTALL TOPSOIL AND SOD OR HYDROSEED ANY REMAINING AREAS.

## EROSION AND SEDIMENT CONTROL GENERAL NOTES

1. CONSTRUCTION ACTIVITY TO BE CARRIED OUT BASED ON THE PRINCIPLE THAT PREVENTION OF SEDIMENT LADEN RUN-OFF IS THE FOCUS RATHER THAN RELYING ON TREATMENT AT OUTFALL. THIS IS TO BE ACCOMPLISHED BY MINIMIZING EXPOSED SOIL. ONCE EXCAVATION HAS BEGUN IN A PARTICULAR AREA, THE WORK IS TO BE COMPLETED IN THAT AREA, INCLUDING FINAL GRADING AND STABILIZATION.
2. TRIBUTARY STORMWATER FROM SITE TO BE DIRECTED TO SEDIMENTATION CONTROL DEVICES AT ALL TIMES DURING CONSTRUCTION.
3. COVER AND STABILIZE EXPOSED SURFACES WITH HAY, MULCH, WOOD CHIPS OR IMPERMEABLE MEMBRANE (SUCH AS A TARP) AS REQUIRED TO PREVENT SEDIMENT RUN-OFF. MAINTAIN COVERAGE THROUGHOUT CONSTRUCTION PERIOD.
4. CONTRACTOR TO LEAVE SEDIMENTATION CONTROL MEASURES IN SERVICE UNTIL ENGINEER OR THE MUNICIPALITY REQUESTS THAT THEY BE TAKEN OUT OF SERVICE.
5. CONTRACTOR TO HAVE ADDITIONAL SILT FENCE, BAILED HAY, HAY AND/OR MULCH ON SITE FOR MAINTENANCE AND INSTALLATION OF ADDITIONAL MEASURES AS REQUIRED.
6. ALL EXPOSED SURFACES TO BE STABILIZED WITH HAY OR MULCH ON AN ON-GOING BASIS. IT WILL NOT BE ACCEPTABLE TO LEAVE EXPOSED SURFACES TO THE END OF THE JOB AND STABILIZE ALL EXPOSED SURFACES AS ONE LARGE JOB.
7. ALL EXPOSED AREAS NOT FINISHED WITH ASPHALT, GRAVEL, SOD OR RIPRAP TO BE HYDROSEEDED.
8. ALL WORKS TO BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF THE NEW BRUNSWICK DEPARTMENT OF THE ENVIRONMENT AND THE Municipality.
9. CONTRACTOR TO INSPECT SEDIMENT CONTROL STRUCTURES AND MAKE NECESSARY REPAIRS WEEKLY AND BEFORE AND AFTER ALL RAINFALL EVENTS EXCEEDING 10mm.
10. CONTRACTOR TO OBTAIN COPIES OF ALL NECESSARY PERMITS REQUIRED TO PERFORM WORKS AND SHALL COMPLY WITH ALL PERMIT REQUIREMENTS AND CONDITIONS.
11. THE SEDIMENT AND EROSION CONTROL MEASURES OUTLINED ON THIS PLAN ARE RECOMMENDATIONS ONLY. DEPENDING ON SITE CONDITIONS DURING CONSTRUCTION, ADDITIONAL MEASURES MAY BE REQUIRED.

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LEGEND:

| | |
|---|---|
| SILT FENCE | |
| CHECK DAM | |
| HEADWALL | |
| CULVERT | |
| SWALE / DITCH | |
| RUMBLE STRIP | |

REVISION:

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SCALE: 1:250 METRIC
5 4 3 2 1 0 5 10 15

CLIENT:
WES MICHAUD

PROJECT:
DUNDEE DRIVE

TITLE:
EROSION AND SEDIMENTATION CONTROL PLAN

SHEET C6 of 6

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