Working together with our community

Public Hearings Committee – May 03, 2022

Subject: ZNPL2022062 – An application has been received to amend the Zoning By-law to permit an animal hospital as a site-specific provision to the Agricultural (A) Zoning of the subject property. J H Cohoon Engineering Limited on behalf of Eric Elver and Dr. Emily Zakrajsek has put forth the application affecting the lands described as 522 Talbot Road/Highway 3.

Report Number: CD 22-034
Division: Community Development
Department: Planning
Purpose: For Information

Recommendation(s):

THAT Report CD 22-034, Public Hearing report for ZNPL2022062, be received for information;

AND THAT any comments received as part of the statutory public meeting be considered in a future recommendation staff report.

Executive Summary:

An application has been received to amend the Zoning By-law to permit an animal hospital on the subject property in the Agricultural (A) Zone.

This report is being presented as part of the statutory public meeting required by the *Planning Act* and describes the proposed application and includes an overview of the relevant policies and regulations that will be evaluated as part of a future comprehensive recommendation report. A subsequent report will be brought forward containing a recommendation for Council consideration.

Discussion:

Public Meeting Details:

A public meeting is a statutory requirement in accordance with the *Planning Act*, and is intended to allow members of the public to submit written or oral comments in relation to the proposed development. Additionally, any person may make written submissions at any time prior to County Council making its final decision on the application.

Site Characteristics:

As shown in the figure below, the subject lands are located east of the intersection of Highway 3 and Schafer Side Road in the Geographic Township of Middleton The area of the subject lands is approximately 6.46 acres (2.62 ha), with approximately 217.3 metres of frontage on Talbot Road (Highway 3). The subject lands are occupied by a single detached residence, two sheds as accessory structures, and two paddocks.

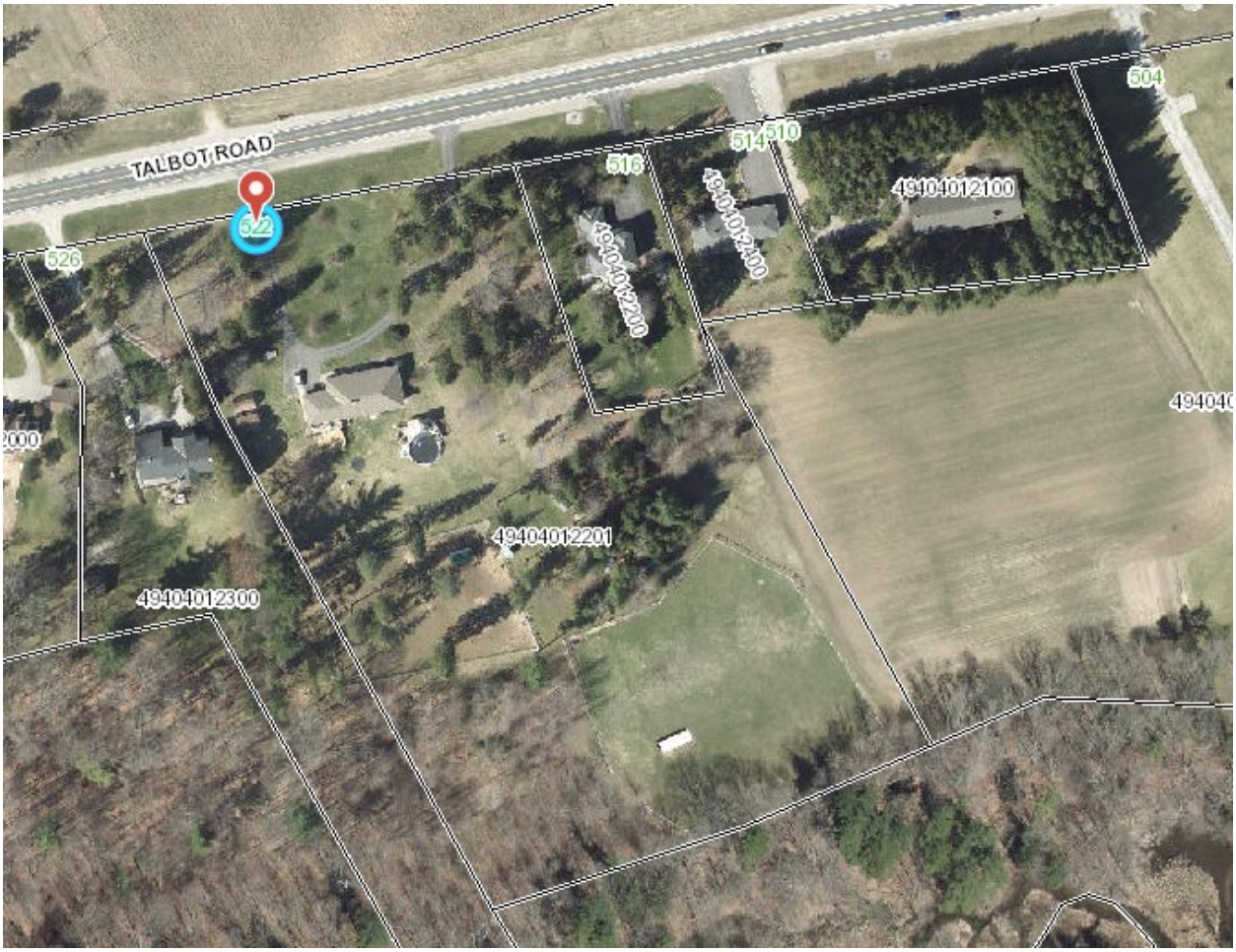


Figure 01. Aerial view of the subject lands and surrounding areas

Proposal Summary:

The applicant is proposing to construct a 224 square metre (2400 square foot) animal hospital for domestic pets and farm animals. According to the submitted floor plan, the animal hospital will contain a reception area, two exam rooms, an x-ray room, surgery room, four kennel cages, storage area, and two equine stalls. Ten parking spaces and one (1) barrier free parking space are proposed in accordance with the Zoning By-Law of Norfolk County. No overnight stay of animals is being proposed for the site.

The Planning Justification report acknowleges significant woodlands and Hazard Land areas are Natural Heritage System (NHS) features identified in the Official Plan of Norfolk County located on a portion of, and to the south of, the subject site. The report describes how the proposed use will not intersect with, or negatively impact, these NHS features. The applicant's report states that the proposed use will be sited on the portion of the lands zoned and designated Agricultural, however no prime agricultural area is proposed to be removed from the subject lands. Soil class records show that that the entire subject lands are Class 2 Soils, which are considered Prime Agricultural soils. The applicant has also stated that the proposed use will not raise, house, or keep livestock and therefore would not be defined as a *livestock facility;* no manure storage facilities are proposed on the subject property thereby conforming with the intent of the Minimum Distance Seperation Guidelines set by the Ontario Ministry of Agriciltural, Food and Rural Affairs (OMAFRA).

The owner has emphasized the immediate benefit this use will create for the nearby and surrounding community regarding domestic and farm animal care. This use will enable the owners to hire more staff and address a service gap for large animal veterinary care in- and adjacent to- Norfolk County.

To facilitate the proposal, the following site specific provision is proposed to be added to the zoning of the front portion of the property:

1. In addition to the permitted uses in the Agricultural (A) zone, an animal hospital of 224 sq. m. will be permitted.

For the Proposed Zoning By-law, a maximum of 230 sq. m. for the building is included in case there are site conditions or if flexibility is needed due to the actual construction (alleviate the need for any minor variance).

In support of the current application, the applicant has submitted the following:

- Planning Justification Report;
- Conceptual Site Plan;
- Floor Plans;
- Building Elevations;
- Survey;
- Storm Water Management Report, and;
- Traffic Impact Brief
- A letter from the Forestry Operations Division

All submission materials are available in Attachments C through J.

Planning Considerations:

The subject lands are characterized by dual designations and zoning, with the northern half of the parcel being zoned and designated p“Agricultural” and the southern portion

being zoned and designated “Hazard Land”. The proposed use will take place on the portion of the subject lands zoned and designated “Agricultural”. There is an overlay of significant woodlands on the perimeter of the subject lands.

A summary of planning considerations including applicable provincial policy, Official Plan policy, and zoning provisions is summarized in Appendix A.

Consultation:

Notice Provisions:

Pursuant to the requirements of the *Planning Act R.S.O. 1990, C. P. 13 (“Planning Act”)*, a notice of the statutory public meeting was posted on the subject lands 20 days in advance of the Public Meeting. Notifications were mailed to neighbours 120 m of the subject lands on April 2, 2022; and a yellow notification sign was posted on the site on March 15, 2022.

Technical Analysis / Circulation Comments:

The application has been circulated to various internal departments and external agencies for review and comments. The technical circulation comments are included in Attachment B to this report.

Development Engineering has noted that the technical components, such as a Functional Servicing Report / Brief, a potential revised Stormwater Management report and drawing; and the Traffic Impact Brief will be further reviewed at the Site Plan application stage. The Agreements and Development coordinator has recommended a Holding (H) provision be placed on the property until the Owner has provided: complete accepted engineering drawings, performance securities and entered into a development agreement that has been executed and registered on title. While these are typical items part of a site plan and given that most agricultural sites are exempt from site plan, since this is an added use it may be considered in this instance. Norfolk Fire has requested that adequate access is provided for fire department apparatus.

All technical comments will be analyzed and a summary will be provided within the recommendation report.

Regard for Public Input:

A neighbor requested a drawings of the proposed building and have not submitted any comments at the time of writing this report.

This report is being presented as part of the statutory public meeting and any public comments received will be considered in the future recommendation report.

Preliminary Review:

Key Items		Preliminary Review
Natural Heritage (EIS)		A portion of the subject lands contains significant woodlands. Section 3.5.2. of the Official Plan requires that for any development on lands within or adjacent (10 m plus the dripline) to significant woodlands complete an Environmental Impact Study (EIS) to demonstrate that will be no negative impacts on the natural features of the woodlands and the ecological functions that sustain them. The proponent has received a letter from the Forestry Operations Division supervisor recommending that Norfolk County waive any requirement for the owner to undertake an Environmental Impact Study. The southern portion of the property is designated/zoned Hazard Lands.No new development or site alteration is permitted within areas zoned and designated Hazard Lands, however no development is proposed on this Natural Heritage System feature.
Jobs / Employment		The proposed development will provide employment to at least one person.
Hazard Lands		The subject lands are partially zoned and designated Hazard Lands. No development is proposed on hazard lands.
Agricultural		Although the subject lands are partially zoned and designated Agricultural, it functions as a residential lot with a single detached dwelling. The applicant indicates that the specific location of the proposal is not currently used for nor conducive to agricultural production and is separated from surrounding agricultural use. The proposed use will help fill a service gap for farm animals.

Strategic Plan Linkage:

This report aligns with the 2019-2022 Council Strategic Priority "Foster Vibrant, Creative Communities".

Explanation: The proposed development will support the surrounding residential and agricultural communities.

Conclusion:

The purpose of this report is to summarize the planning application proposal, provide the comments received from applicable departments and agencies, summarize comments received from member of the public, and to provide general information in relation to the overall application.

A detailed recommendation report, responding to any outstanding matters, including those brought forward by members of the public, will be submitted to Norfolk County Council at a future meeting

Attachments:

Map A Neighbourhood Context / Key Map
Map B Existing Official Plan Map
Map C Proposed Zoning Bylaw Amendment Map
Map D Conceptual Plan

Attachment A Planning Considerations and Applicable Policy and Zoning Provisions
Attachment B Consultation: Department/Agency Technical Comments
Attachment C Planning Justification Report;
Attachment D Conceptual Site Plan;
Attachment E Floor Plans;
Attachment F Building Elevations;
Attachment G Survey;
Attachment H Storm Water Management Report;
Attachment I Traffic Impact Brief, and;
Attachment J Letter from Forestry Operations Division
Attachment K Draft Zoning By-Law

Approved By:
Brandon Sloan, BES, MCIP, RPP
General Manager

Prepared By:
Hannelore Yager, MSc. Pl.
Junior Planner

MAP A

ZNPL2022062

CONTEXT MAP

Geographic Township of MIDDLETON

Legend

- Subject Lands
- Lands Owned

2020 Air Photo

3/1/2022

N

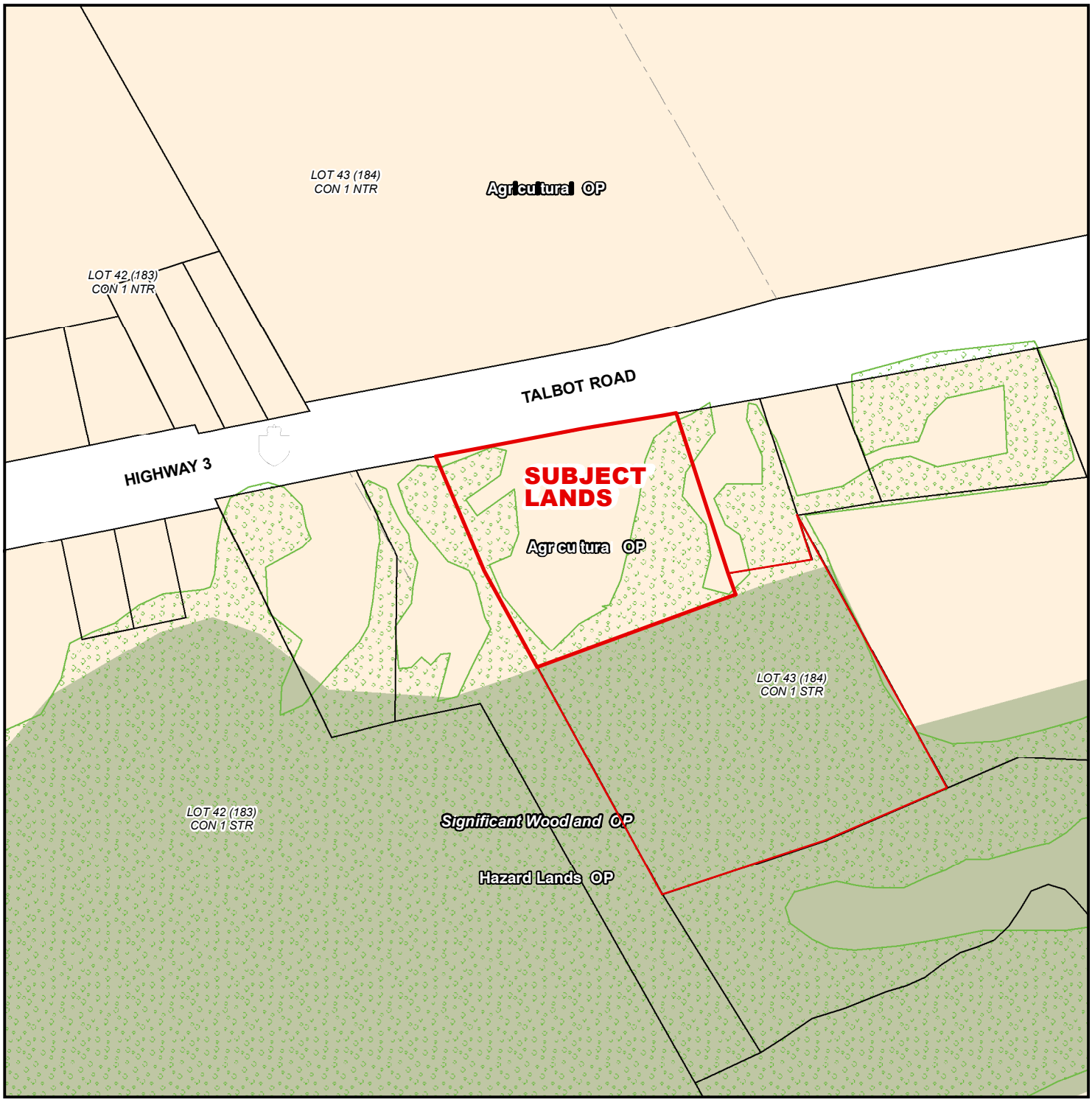
40 20 0 40 80 120 160 Meters

MAP B

ZNPL2022062

OFFICIAL PLAN MAP

Geographic Township of MIDDLETON



Legend

- Subject Lands
- Lands Owned

Official Plan Designations

- Agricultural
- Hazard Lands
- Significant Woodland

3/1/2022

N

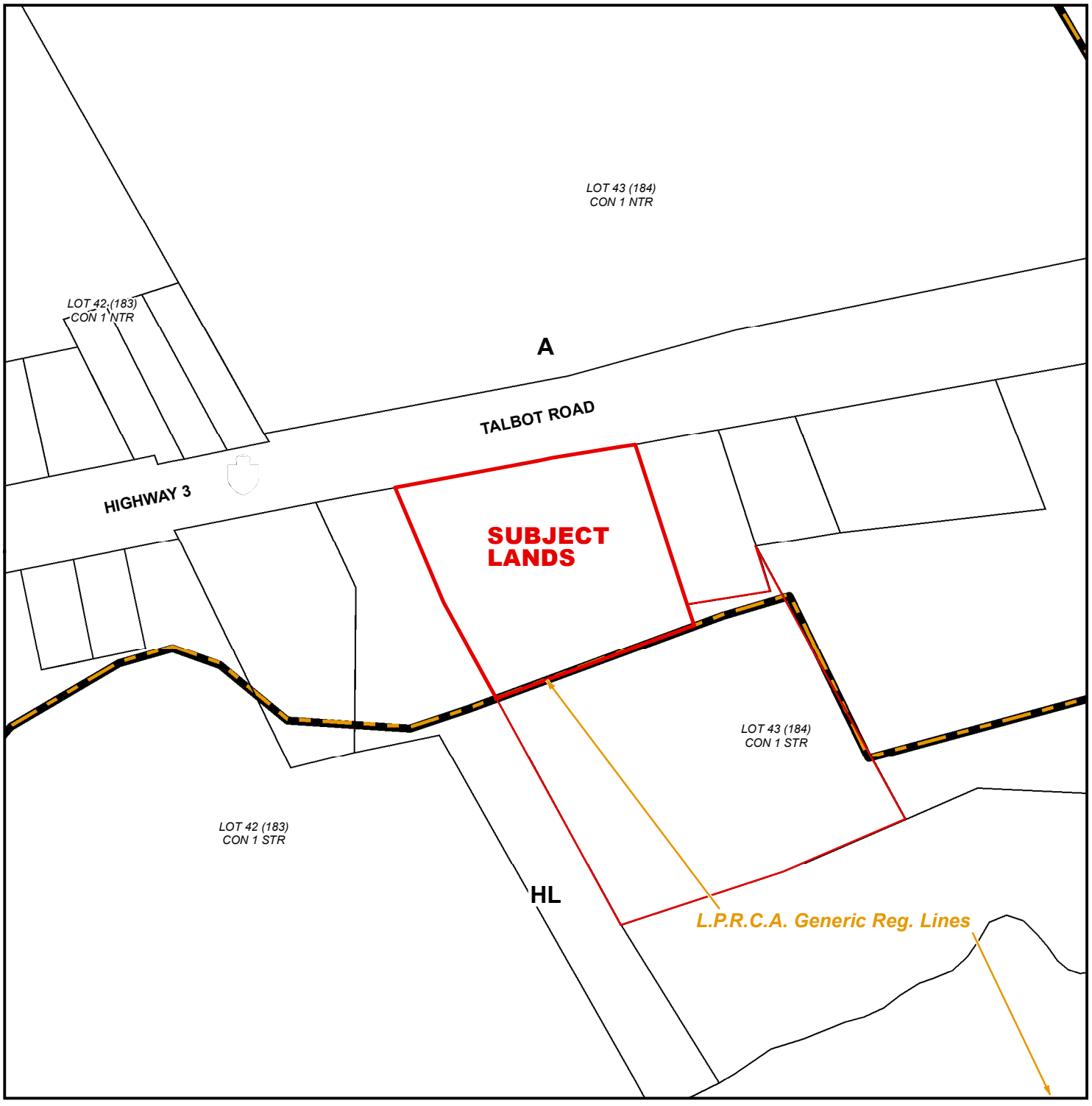
20 10 0 20 40 60 80 Meters

MAP C

ZNPL2022062

PROPOSED ZONING BY-LAW AMENDMENT MAP

Geographic Township of MIDDLETON



LEGEND

- Subject Lands
- Lands Owned
- LPRCA Generic RegLines

ZONING BY-LAW 1-Z-2014

(H) - Holding

A - Agricultural Zone

HL - Hazard Land Zone

From: A

To: A with Special Provision

3/1/2022

N

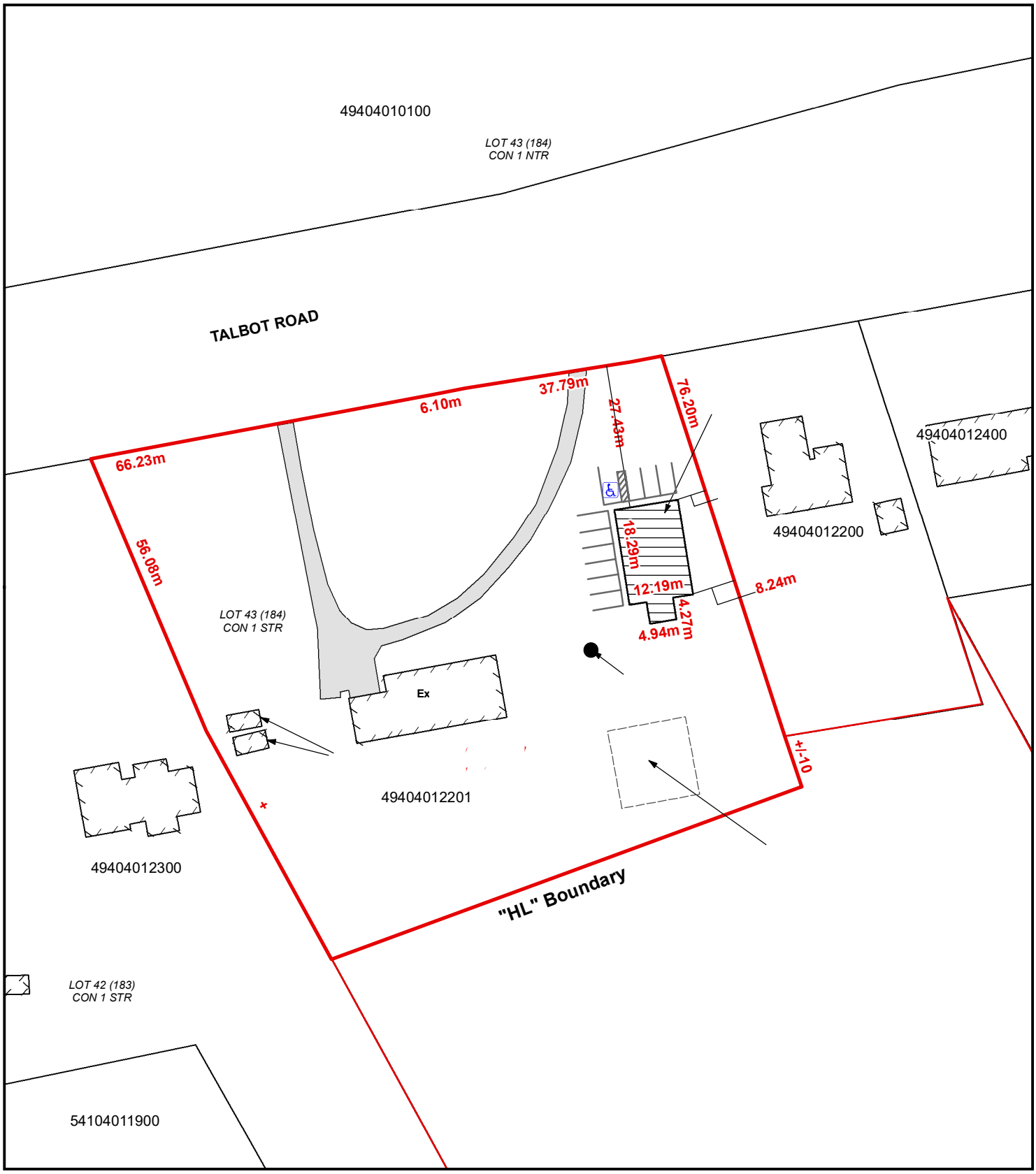
20 10 0 20 40 60 80 Meters

MAP D

ZNPL2022062

CONCEPTUAL PLAN

Geographic Township of MIDDLETON



Legend

- Subject Lands
- Lands Owned

3/1/2022

N

9.5 4.75 0 9.5 19 28.5 38 Meters

Attachment A Planning Considerations and Applicable Policy and Zoning Provisions

Provincial Policy Statement, 2020 Considerations

Section 2 of the Planning Act outlines those land use matters that are of provincial interest and for which all county planning decisions shall have regard. The provincial interests that apply to development on this site are:

1. the protection of the agricultural resources of the Province;
2. the orderly development of safe and healthy communities;
3. the adequate provision and distribution of educational, health, social, cultural and recreational facilities; and
4. the appropriate location of growth and development.

Provincial Policy Statement Considerations

The Provincial Policy Statement, 2020 (PPS) provides policy direction on matters of provincial interest related to land use planning and development, which is intended to be complemented by local policies addressing local interests. The PPS promotes healthy, livable and safe communities through the efficient use of land throughout the Province of Ontario. The PPS directs municipalities to focus their growth within settlement areas where full municipal services are available.

Section 1: Building Healthy Communities of the PPS promotes the building of strong, healthy communities and includes policies about avoiding development and land use patterns which may cause environmental or public health and safety concerns.

Section 1.1.4.1. indicates that “Ontario’s rural areas have diverse population levels, natural resources, geographies and physical characteristics, and economies. Across rural Ontario, local circumstances vary by region”. Further, section 1.1.4.1 states “Healthy, integrated and viable rural areas should be supported by:

a) building upon rural character, and leveraging rural amenities and assets;
b) promoting regeneration, including the redevelopment of brownfield sites;
c) accommodating an appropriate range and mix of housing in rural settlement areas;
d) encouraging the conservation and redevelopment of existing rural housing stock on rural lands;
e) using rural infrastructure and public service facilities efficiently;
f) promoting diversification of the economic base and employment opportunities through goods and services, including value-added products and the sustainable management or use of resources;
g) providing opportunities for sustainable and diversified tourism, including leveraging historical, cultural, and natural assets;
h) conserving biodiversity and considering the ecological benefits provided by nature; and
i) providing opportunities for economic activities in prime agricultural areas, in accordance with policy 2.3.

Planning comment: In providing a needed service to agricultural and rural communities, the proposed animal hospital will leverage rural assets and create employment opportunities. Further, this development will support agricultural businesses which rely on the health of their livestock.

Section 2.3.1 identifies that “Prime agricultural areas shall be protected for long-term use for agriculture.” Section 2.3.6.1 identifies that Non-Agricultural Uses in Prime Agricultural Areas, such as limited non-residential uses, provided key criteria are met. These include: the proposed use complies with the minimum distance separation formulae; there is an identified need within the planning horizon provided for in policy 1.1.2 for additional land to accommodate the proposed use; alternative locations have been evaluated and there are no reasonable alternative locations which avoid prime agricultural areas and there are no reasonable alternative locations in prime agricultural areas with lower priority agricultural lands. Section 2.3.6.2 identifies that “Impacts from any new or expanding non-agricultural uses on surrounding agricultural operations and lands are to be mitigated to the extent feasible.

Planning comment: The agent has indicated in their Planning Justification Report that the proposed use will meet minimum distance separation formulae requirements. Remaining spaces on the subject lands contain Natural Heritage System features, which include Hazard Lands, and thus are not suitable alternatives. The subject lands are a residential lot in the agricultural area. As such, the proposed use does not remove land from a productive and viable agricultural parcel. Instead, the use will enhance the viability of surrounding agricultural parcels in Norfolk County. It is the opinion of staff that the proposed use meets this section of the Provincial Policy Statement.

A detailed evaluation of the application against the applicable policies of the Provincial Policy Statement will be included in a future comprehensive report.

Official Plan Considerations

Existing Land Use Designation: “Agricultural”, “Hazard Lands”

Natural Heritage System Features: Significant Woodlands, Hazard Lands

Section 7.2 includes specific criteria that must be addressed when contemplating further development within a designated Agricultural Area. A Planning Rationale Report, completed by the Angrish Group was submitted in support of the proposed development. This justification focused on policies describing requirements for “Agriculture-related commercial and industrial uses that are clearly supportive of and directly related to agricultural operations” in section 7.2.2.d). Table 1 outlines these considerations.

Table 1: Official Plan Policy Identified in the Planning Justification Report

Policy Section	Policy Area
7.2.2.d)	Agricultural-related commercial and industrial uses Must be clearly supportive of and directly related to agricultural operations
i)	the use must be justified on the basis of being required near to the farm operation
ii)	the proposed use is directly related to farm operations in the area and provides direct products and/or services to farm operations as a primary activity;
iii)	the proposed use shall be compatible with and not hinder surrounding agricultural operations;
iv)	the proposed use shall be appropriate to available rural services, such as road access, private water and waste water services, utilities, fire protection and other public services;
v)	the proposed use maintains the agricultural character of the area;
vi)	the proposed use meets all applicable provincial emission, noise, water and wastewater standards and receives all relevant environmental approvals
vii)	the cumulative impact of multiple agriculture-related uses in prime agricultural areas should be limited and not undermine the agricultural nature of the area;
viii)	the location of the proposed use shall provide for minimum sight distances from the access points in either direction along a County road;
ix)	the proposed use shall be located and designed to mitigate potential adverse impacts, including noise impacts, on adjacent residential and other incompatible uses by buffering measures such as landscaping, berming and building setback and layout;
x)	the proposed use shall not be permitted in Provincially Significant Wetlands or Hazard Lands identified on Schedules “B” or Table 1 of Section 3.5(Natural Heritage Systems) to this Plan
xi)	the proposed use shall not be permitted in or on adjacent land to the Natural Heritage Features identified on Schedule “C” and/or Tables 1 and 2 or on Schedule “G” and Table 6 of the Lakeshore Special Policy Area Secondary Plan, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, in accordance with the policies of Section 3.5 (Natural Heritage Systems) and Section 11 (Lakeshore Special Policy Area Secondary Plan) of this Plan;
xii)	the proposed use shall be subject to a Zoning By-law Amendment
xiii)	the proposed use shall be subject to site plan control, where warranted and as appropriate, in accordance with the policies of Section 9.6.5 (Site Plan Control) of this Plan.

Section 3.5. outlines Norfolk County priorities regarding Natural Heritage Features. Natural Heritage Features include Hazard Lands as designated and described in section 7.3. – which states “development on Hazard Lands which would aggravate or contribute to the hazard shall not be permitted”. Section 3.5.2. describes other Natural Heritage Features, which include Significant Woodlands. Section 3.5. stresses that “these features shall be protected for the long-term and given due consideration in the development, redevelopment and alteration of land within the identified areas”.

Section 3.5.2. identifies that Natural Heritage Features shall be subject to the policies of the underlying land use designation, and “Development or site alteration proposed in, or adjacent to, a Natural Heritage Feature shall be subject to the completion of an Environmental Impact Study, in accordance with Section 9.7.1 (Environmental Impact Study) of this Plan. Lands adjacent to significant woodlands are identified to be 10 metres plus the dripline.

Planning comment: The proposed use is not anticipated to intersect with lands designated Hazard Lands. However, the majority of the subject lands intersect with Significant Woodlands, a Natural Heritage Feature. Planning staff identified during a pre-consultation meeting held in September of 2021 that a future application would require the proponent to consult with the Forestry Department, request a site visit and confirm whether this significant woodland is within the proposed development area. Confirmation of woodlands’ presence would require a permit to remove any trees and the potential for an Environmental Impact Statement. The Forestry Operations supervisor has since completed a site visit and provided a letter concluding that due to the quantity, type and arrangement of trees do not constitute a significant woodland or natural area as intended through the designation in the Official Plan. Specifically, the trees identified are non-native species that have likely been planted for ornamental or landscaping purposes. The letter concludes with a recommendation that Norfolk County waive any requirement for an Environmental Impact Study, pursuant to section 3.5.2. an 9.7.1 of the Official Plan.

A detailed evaluation of the application against the applicable policies will be included in a future comprehensive report.

Zoning By-Law Considerations

Existing Zoning: “Agricultural Zone (A)”, “Hazard Land Zone (HL)”.

Uses permitted in the “Hazard Land Zone (HL)” do not include new buildings or structures unless they are a dock, pier or wharf.

Section 12.1.1. outlines uses permitted in the “Agricultural Zone (A)” as outlined in the Zoning By-law, include single detached dwelling and animal kennel.

Proposed Zoning: “Agricultural Zone (A)” with a special provision to permit an animal hospital.

Animal hospital is defined as “the premises of a veterinarian where animals are treated or kept for treatment”.

Section 4.9. outlines requirements for the Number of Parking spaces. Subsection g) states for an *animal hospital,* 1 parking space for every 25 square metres of usable floor area is required. Section 4.3.3. Minimum Number and Type of Accessible Parking Spaces identifies that for 1 – 25 parking spaces required, 1 Type A Accessible Parking space is required.

Planning comment: The submission states that 10 parking spaces and 1 accessible parking space is proposed, in accordance with section 4.9 and 4.3.3 of the Zoning By-Law.

Attachment B Consultation: Department/Agency Technical Comments

Development Engineering

1. All plans, reports and studies identified are to be submitted at the time of Site plan application.
2. Full Development Engineering comments will be provided at time of Site Plan submission.
3. A Functional Servicing Report / Brief (FSR) was not submitted with the Zoning change application. At the time of Site Plan submission Norfolk County will be looking for confirmation of existing + proposed water and wastewater usage on-site. The FSR must also confirm that the existing well and proposed septic systems are adequate to support the development.
4. In review of the Preliminary Stormwater Management proposal, there are proposed Infiltration systems designed in the proposed parking lot. Parking Lot infiltration systems are not consistent with Norfolk County Standards or the MOEE Stormwater Management Planning and Design Manual. At future Site Plan submission Norfolk County may require a revised Stormwater Management report and drawings to meet Norfolk County Design Criteria.
5. As per Norfolk County's Integrated Sustainable Master Plan (ISMP), Development Engineering would typically require a Traffic Impact Study or Brief (TIS) for similar proposals on County Roads. As this proposal falls within MTO jurisdiction, the requirement for a TIS including the scope will be determined by MTO. Any upgrades or modifications to the entrance must be approved by the MTO.

Building Department
The building department has reviewed the proposal and has NO comments or conditions.

Fire Department
Norfolk Fire has reviewed the application and have the following comments:

- Ensure adequate access is provided for fire department apparatus

Zoning Administrators
No comments from zoning.

Geographic Information Systems (GIS)

Reviewed – No Comment

Eastlink

Eastlink does not have any concern with this project.

Economic Development

No comment.

Accessibility and Special Projects

No concerns or comments from Accessibility at this time.

Agreements and Development:

Recommend that a Holding (H) provision on your land zoning be placed on the property until the Owner has provided complete accepted engineering drawings, performance securities and entered into a development agreement that has been executed and registered on title.

THE ANGRISH GROUP
156 Charing Cross Street, Brantford, ON N3R2J4

Planning Justification Report

522 Talbot Road, Delhi, Norfolk County

Prepared For: Emily Zakrajsek
Prepared By: The Angrish Group
February 15, 2022

Table of Contents

1. Introduction

The Planning Justification Report (PJR) has been prepared by The Angrish Group for the property municipally known as 522 Talbot Road, Delhi, Norfolk County.

A Zoning By-Law Amendment is proposed to allow the use of the property for a small scale veterinary clinic. An accessory building of approximately 224 sq.mt (2400 sq. ft.) will be constructed on the lands for the clinic which will be operated by the property owner and at least one other employee. The veterinary clinic will cater to the agricultural community as well as local residents by treating both farm animals and domesticated pets.

The PJR will provide an analysis of the provincial and municipal planning framework and provide a professional planning opinion related to the proposed Zoning By-Law Amendment Application required for the proposed veterinary clinic use in an agricultural area of the County.

2. Location and Description of Subject Lands

The subject lands are described Part Lot 184 Con STR Middleton, Part 1 of 37R-9093 and are located at 522 Talbot Road, Delhi, Norfolk County.

The subject lands are approximately 6.5 acres (2.6 hectares) in size with a frontage of 110 meters (360 feet) on Talbot Street.

The lands contain a single detached dwelling and accessory structures in the form of two small sheds.

The property is located on the south side of Talbot Street, north of Old Mill Road and outside the Urban Boundary of Delhi. The lands are within the agricultural area of the County.

There are single detached dwellings located immediately to the east and west side of the property and agricultural farms located to the north and south.

The southern portion of the property is located within the regulation limit of Long Point Conservation Authority due to the presence of Hazard Lands. Additionally, there are Significant Woodlands on the property.

Map 1 below shows the location of the property and the surrounding land uses.

Map 1: Location of Subject Lands

3. Proposal

The application proposes a veterinary clinic to be allowed on the subject lands to serve the local residential and farming community. The accessory building of approximately 224 sq.mt (2400 sq. ft.) will be constructed on the lands for the small scale clinic which will be operated by the property owner and at least one other employee. The veterinary clinic will serve farm animals as well as domesticated animals from the local community. The existing driveway will be utilized for the proposed use and no overnight stay of animals is being proposed for the site.

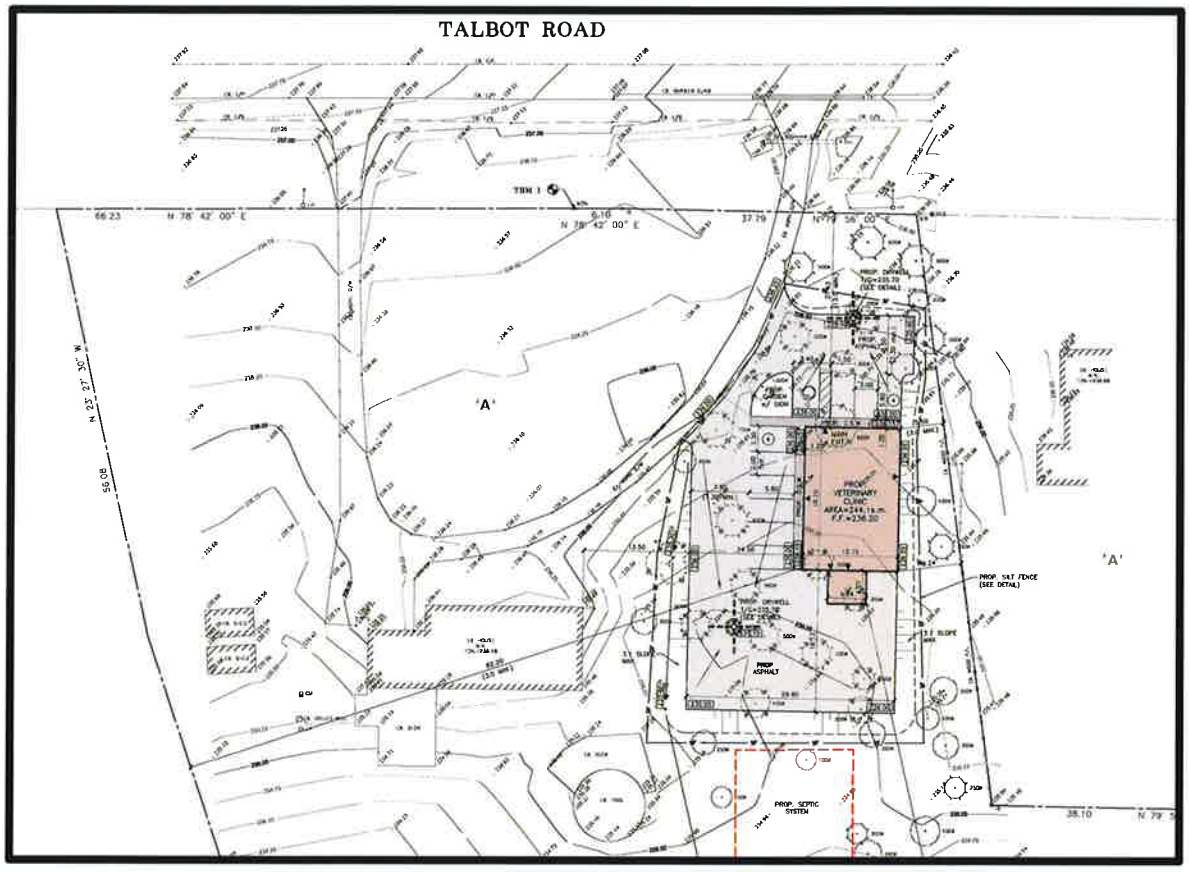
The subject lands are located within the Prime Agricultural Area of Norfolk County. The lands are currently designated Agricultural and Hazard Lands in the Norfolk County Official Plan (2018) (the "Official Plan") zoned Agricultural (A) and Hazard Lands (HL) in the Norfolk County Zoning By-Law 1-Z-14. The municipal policy framework allows diversified agricultural uses that support the local farming community.

The proposed use will comply with the regulations of the Zoning By-Law.

A pre-consultation meeting with County staff was held on September 23, 2021 to discuss the proposed use. Staff noted that since a portion of the lands are within Significant Woodlands, Forestry Department will need to confirm the presence and the extent of the woodland boundaries. The proposed building is located outside the natural heritage features and it is our understanding that the Forestry Staff has confirmed there will be no negative impacts.

A Site Development Plan is included in the application submission and is noted in Map 2 below.

Map 2: Proposed Site Development Plan



A total of 10 parking spaces will be provided on site in addition to one (1) barrier-free parking space in accordance with the regulations of the Zoning By-Law. The proposed building will comply with the regulations of the Zoning By-Law.

It is proposed to amend the Zoning By-Law 1-Z-14 from the current Agricultural (A) Zone to Special Provision Agricultural (A-xxx) Zone to allow a veterinary clinic as a permitted use.

A Site Plan Control Application will also be submitted for the development of this site.

4. The Policy Context

The application is subject to the provisions of the Planning Act, as amended. All Planning Act applications are evaluated to ensure that the proposal is consistent with the Provincial Policy Statement (2020) and is in conformity with the Official Plan. This section demonstrates that the proposed application is consistent with, and conform to, the applicable provincial and local planning policy framework.

4.1. Provincial Policy Statement (2020)

The Provincial Policy Statement, 2020 (PPS) is issued in accordance with Section 3 of the Planning Act and came into effect on May 1, 2020. Section 3 of the Planning Act requires that decisions affecting planning matters "shall be consistent with" the PPS.

The PPS provides policy direction on matters of provincial interest related to land use planning and development in Ontario and sets the policy foundation for regulating the development and use of land. The PPS encourages strong communities, a clean and healthy environment and a strong economy and highlights that long-term prosperity, human and environmental health and social well-being should take precedence over short-term considerations.

The subject property is located within the Prime Agricultural Area of Norfolk County. The lands are designated as Agricultural and Hazard Lands in the Official Plan. The property is serviced by private water and sanitary services. The property is not being farmed. The proposed use is very small scale in nature and supports the local agricultural community. The proposed building will be located outside the hazard lands, hence protecting the natural heritage features.

It is my professional opinion that the proposal is consistent with the Provincial Policy Statement (2020).

4.2. Guidelines on Permitted Uses in Agricultural Areas

Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) released the Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas. These guidelines assist in interpreting the policies in the Provincial Policy Statement (PPS) on the uses that are permitted in prime agricultural areas. The intent of PPS and these guidelines is to allow uses in prime agricultural areas that ensure settlement areas remain the focus of growth and development and ensures that prime agricultural areas are protected.

The subject lands are not actively used for agricultural. The lands and the immediate surrounding properties contain mainly rural residential uses. No prime agricultural area will be taken out of production for the proposed veterinary clinic.

The proposed building will be located outside the hazard lands, hence protecting the natural heritage features.

The use is compatible with the surrounding agricultural uses as it will provide support and care of farm animals along with providing services to the domesticated animals. The proposed use will not create any land use conflicts and will provide direct and valuable services to the local agricultural community. The use of the property for a small scale veterinary clinic will diversify the rural economy by providing employment.

While a veterinary clinic is considered as an on-farm diversified use in the guidelines, the "on-farm diversified uses provisions in the PPS do not apply to small residential lots in the prime agricultural area". The subject lands contain a residential use in an agricultural area. Hence the detailed assessment of an on-farm diversified use is not conducted for the proposed use.

It is my professional opinion that the proposal meets the policy direction noted in the Guidelines on Permitted Uses in Ontario's Prime Agricultural Areas.

4.3. Official Plan (2018)

The Official Plan was adopted by County Council in 2006 with the five-year review completed in 2018. The Official Plan was approved by the Ministry of Municipal Affairs and Housing on October 5, 2018. The Official Plan provides a framework of objectives and strategies, land use designations and policies intended to guide the future growth and development in the County which will result in strong, balanced, sustainable, and complete communities.

The subject property is designated Agricultural and Hazard Lands in the Official Plan. An excerpt from the Land Use Schedule B with the location of the property is shown on Map 3 below.

Section 7.2 of the Official Plan provides policies for Agricultural Designation. The policies allow agricultural related commercial and industrial uses subject to a number of criteria (7.2.2.d).

i. *The proposed use for a veterinary clinic will provide support to the agricultural community.*
ii. *The use is proposed in the agricultural area of the County and provides direct services to surrounding farms.*
iii. *The subject lands contain a residential use and are not farmed. The proposed use will be compatible with the surrounding agricultural operations.*

iv. *The lands front on a municipal road and a new septic system will be installed for the proposed building.*

Map 2: Official Plan

v. *The proposed use will maintain the agricultural character of the area by providing direct services to the local community.*
vi. *There will be no negative impact on any municipal infrastructure.*
vii. *The proposed veterinary clinic serving farm animals will not undermine the agricultural area of the County.*
viii. *Technical information will be provided to support this application.*
ix. *There will be no negative impact on the surrounding residences. There are adequate buffers in terms of existing trees and setbacks provided from the building to mitigate any impacts. No noise is expected to be generated for providing care for the animals. No overnight stay is being proposed. The parking to the building will be located away from the existing residences.*
x. *The proposed building will be located outside the natural heritage features and it is our understanding that the Forestry Staff has confirmed there will be no negative impacts on the woodlot on the property.*
xi. *The proposed building is located outside the natural heritage features.*

xii. *A site-specific Zoning By-Law Amendment is being proposed to allow the use of the property for a veterinary clinic.*
xiii. *A Site Plan Control Application will be submitted.*

It is my professional opinion that the proposed applications conform with the policies of Norfolk County Official Plan.

4.1. Minimum Distance Separation Guidelines

Minimum Distance Separation (MDS) Guidelines is prepared by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and represents the Minimum Distance Separation Formulae as defined in the Provincial Policy Statement, 2014 (PPS). The MDS Document is a land use planning tool with the intent to prevent land use conflicts and minimize nuisance complaints from odour.

While MDS setbacks are an important and effective tool for dealing with nuisance issues related to odour, these do not eliminate all potential odour complaints.

MDS I formula determines setbacks between proposed new development and existing livestock facilities and MDS II formula determines setbacks between proposed new, enlarged or renovated livestock facilities and other existing or approved development.

The subject lands are located in Prime Agricultural Area of Norfolk County and are designated Agricultural and Hazard Lands in the Official Plan. In accordance with the MDS Guidelines, the proposed veterinary clinic will not raise, house or keep livestock and is not considered as a livestock facility as defined in these guidelines. There are no manure storage facilities proposed on the subject property.

As per Guideline #35, the proposed use will not generate high human occupancy or activity generating more traffic to the agricultural area. however, this will support the local livestock operations by providing a service closer to the farms. There are no specific provisions in the County's Official Plan or Zoning By-Law that provides directions on applicability of MDS in such scenarios.

It is my professional opinion that based on the review of Minimum Distance Separation (MDS) Guidelines, the proposal conforms to the general intent of the guidelines and that MDS shall not apply for the proposed veterinary clinic.

4.2. Zoning By-Law

The lands are zoned in part Agricultural (A) and Hazard Lands (HL) in Norfolk County Zoning By-Law 1-Z-2014.

An amendment to the Zoning By-Law is required to allow a veterinary clinic on subject lands.

5. Summary and Recommendations

The proposed application for a Zoning By-Law Amendment is requested to allow a veterinary clinic. An accessory building of approximately 224 sq.mt (2400 sq. ft.) will be constructed on the lands for the small scale clinic which will be operated by the property owner and at least one other employee. The veterinary clinic will serve farm animals as well as domesticated animals from the local community. The existing driveway will be utilized for the proposed use and no overnight stay of animals is being proposed for the site. The proposal meets the policy direction and provides direct services to agricultural area of the County.

It is my professional opinion that the proposed application is

- consistent with the Provincial Policy Statement;
- conforms with the policies of the Norfolk County Official Plan; and
- complies with the regulations of the Norfolk County Zoning By-Law 1-Z-2014.

The proposed Zoning By-Law Amendment Application represents good land use planning, and it is requested to the Council of the Norfolk County that the application be approved.

Respectfully Submitted,

TAG – The Angrish Group

Ruchika Angrish, MPlan, B.Tech, MCIP, RPP
Co-Founder

CC: J.H. Cohoon Engineering Ltd.

I hereby certify that this Planning Justification Report was prepared by a Registered Professional Planner, within the meaning of the Ontario Professional Planners' Institute Act, 1994.

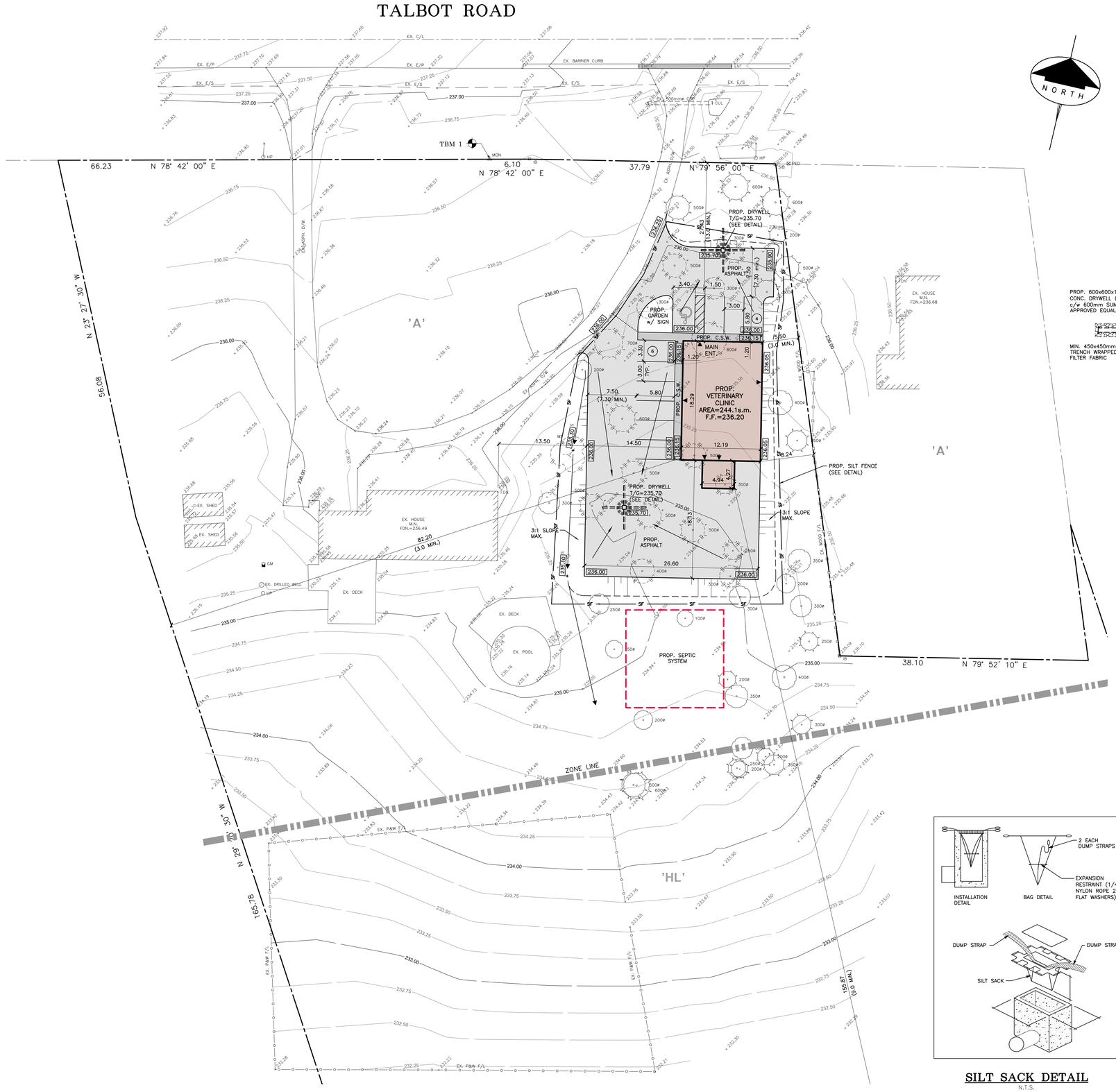
RUCHIKA ANGRISH
REGISTERED PROFESSIONAL PLANNER
R.P.P.

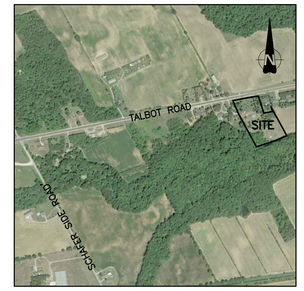
I hereby certify that this plan/report was prepared by a Registered Professional Planner, within the meaning of the Ontario Professional Planners Institute Act 1994.

Feb 15, 2022
Date

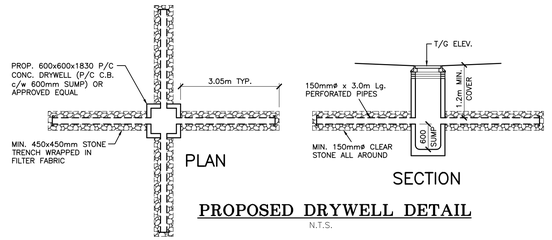
Ruchika Angrish
Registered Professional Planner

February 15, 2022





KEY PLAN



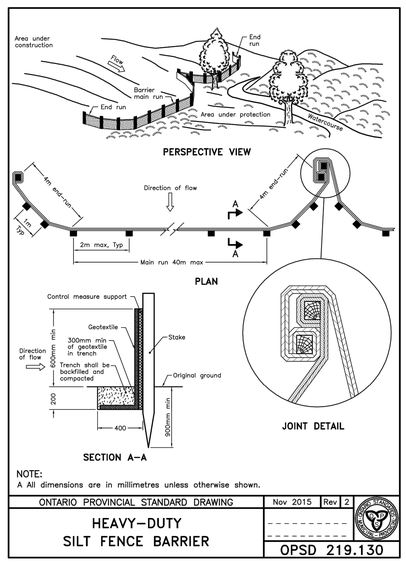
PROPOSED DRYWELL DETAIL
N.T.S.

SITE STATISTICS

ITEM	*PROPOSAL*	*ZONING BYLAW REQUIREMENTS*
ZONING CATEGORY	A-xx (REZONE)	A
LOT AREA (sq. m.)	26,145	2000
LOT FRONTAGE (m)	110.12	30.00 MIN.
GROUND FLOOR AREA (sq. m.)	244.1	N/A
STREET SETBACK (m)	27.43	13.00 MIN.
REAR YARD (m)	155.87	9.00 MIN.
SIDE YARD (m)	5.50 & 82.20	3.00 MIN.
NUMBER OF PARKING SPACES	10	10
NUMBER OF BARRIER FREE PARKING SPACES	1	1
PARKING STALL DIMENSIONS (m)	3.00 x 5.80	3.00 x 5.80
BARRIER FREE PARKING STALL DIMENSIONS (m)	4.90 x 5.50	4.90 x 5.50 (TYPE 'A')
BUILDING HEIGHT (m)	4.50	11.00 MAX.

* CALCULATION IS BASED ON 1 PARKING SPACE FOR EVERY 25sq.m. OF USABLE FLOOR AREA.

SILT SACK DETAIL
N.T.S.



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
HEAVY-DUTY SILT FENCE BARRIER		OPSD 219.130

LEGEND:

- EXISTING ELEVATIONS
- PROPOSED ELEVATIONS
- PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE
- EX. TREES
- EX. TREES TO BE REMOVED
- SILTATION FENCE
- SILT SACK AS SHOWN

NOTES:

1. ALL ELEVATIONS SHOWN ARE METRIC.
2. BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (ie. SIDEYARDS, SETBACKS, REARYARDS ETC.)
3. THE SILTATION & EROSION CONTROL (SEC) MEASURES ILLUSTRATED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENT. SITE CONDITIONS MAY REQUIRE ADDITIONAL MEASURES WHICH WILL BE IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.
4. ALL SEC MEASURES ARE TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. OWNER/CONTRACTOR TO MAINTAIN EROSION CONTROL MEASURES THROUGHOUT SITE UNTIL A COMPLETE GRASS/VEGETATION COVER IS ACHIEVED.
6. ONLY AT THE DIRECTION OF THE ENGINEER ARE THE SEC MEASURES TO BE REMOVED.
7. SITE WORKS ARE TO BE STAGED IN SUCH A MANNER THAT EROSION WILL BE MINIMIZED, AND THE CONSULTANT MUST PROVIDE CONFIRMATION THAT ALL APPROVED SILTATION AND EROSION CONTROL FACILITIES HAVE BEEN INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING, EXCAVATION OR DEMOLITION.
8. CLEARING AND GRUBBING OF THE SITE SHOULD BE KEPT TO A MINIMUM AND VEGETATION REMOVED ONLY IN ADVANCE OF IMMEDIATE CONSTRUCTION.
9. STOCKPILES OF EARTH OR TOPSOIL ARE TO BE LOCATED AND PROTECTED TO MINIMIZE ENVIRONMENTAL INTERFERENCE. EROSION CONTROL FENCING IS TO BE INSTALLED AROUND THE BASE OF ALL STOCKPILES.
10. THE OWNER IS RESPONSIBLE TO ENSURE THE MUNICIPAL ROADWAYS ARE CLEANED OF ALL SEDIMENTS FROM VEHICULAR TRACKING ETC. TO AND FROM THE SITE, AT THE END OF EACH WORKDAY.
11. ALL DISTURBED AREAS, NOT INCLUDED IN THE CONSTRUCTION ZONE, ARE TO BE TOPSOILED AND SEEDED IMMEDIATELY AFTER COMPLETION OF AREA GRADING.
12. ALL EXISTING AND PROPOSED CATCHBASINS ON THE SUBJECT PROPERTY, PLUS ANY CATCHBASINS WITHIN THE INFLUENCE OF RUNOFF FROM THE SITE, ARE TO BE PROTECTED WITH FILTER CLOTH OR APPROVED EQUIVALENT.

T.B.M. No. 1 ELEV. = 0m (GEO)
TOP NUT OF FIRE HYDRANT AT INTERSECTION AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY

J.H. COHOON ENGINEERING LIMITED
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
TEL. (519) 753-2656 FAX. (519) 753-4263 www.cohooneng.com

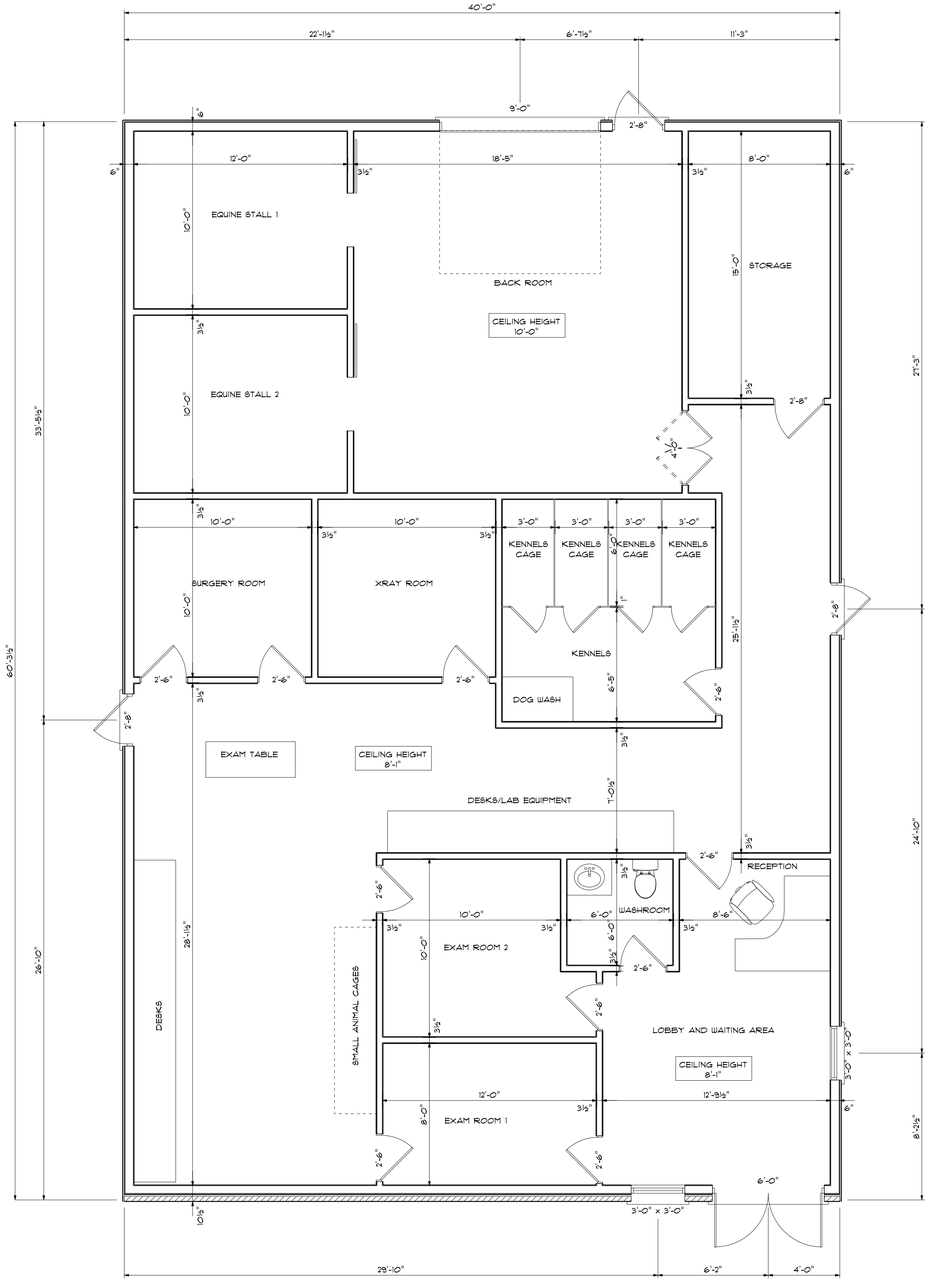
PROJECT:

PROPOSED VETERINARY CLINIC
522 TALBOT ROAD, DELHI
NORFOLK COUNTY

CLIENT:
JOE'S CARPENTRY

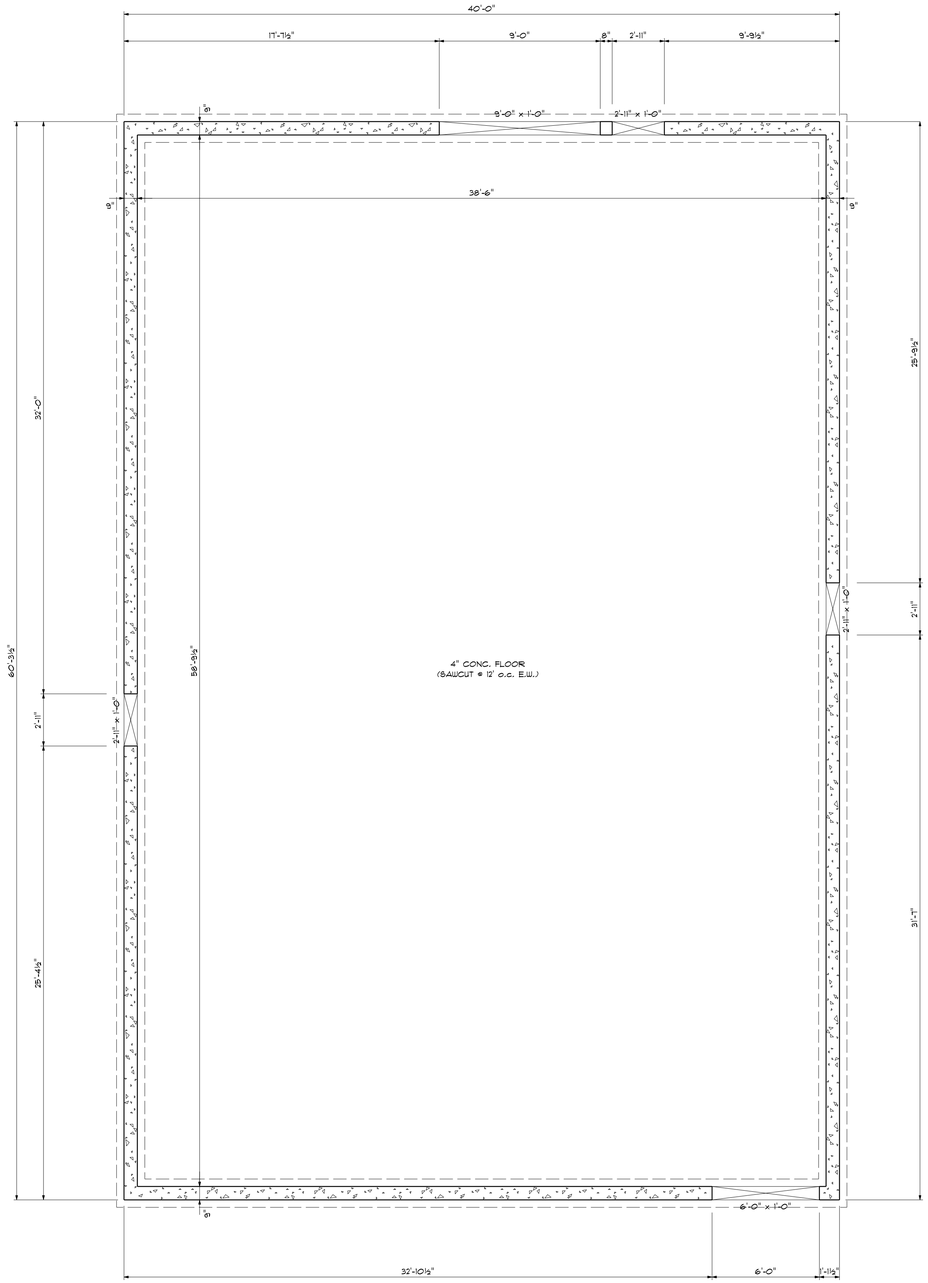
SITE DEVELOPMENT PLAN

DESIGN:	R.W.P.	SCALE:	1:300
DRAWN:	S.L.M./K.P.B.	JOB No:	15135
CHECKED:	R.W.P.		
SHEET:	1 of 1	DWG. No:	15135-1
DATE:	FEB. 11/22		



MAIN FLOOR PLAN - DRAFT 1

SCALE: 1/4" = 1'-0"



FOUNDATION PLAN - DRAFT 1

SCALE: 1/4" = 1'-0"

GENERAL NOTES

- CONTRACTOR TO CHECK & VERIFY ANY DISCREPENCIES BEFORE CONSTRUCTION BEGINS.
- DRAWINGS ARE TO BE READ AND NOT TO BE SCALED
- ALL CONSTRUCTION, MATERIALS & EQUIP. TO ADHERE TO LATEST EDITION OF O.B.C. & LOCAL BY-LAWS.
- ALL FOOTINGS TO BEAR ON UNDISTURBED SOIL TO LOCAL FROST LEVELS (4'-0" MIN. BELOW GRADE)
- REFER TO PLANS, X-SECTIONS & DETAILS FOR ALL TYP. CONSTRUCTION DETAILS AND NOTES.
- 1 1/2" MIN. CONC. REBAR COVERAGE
- MIN. CONC. STRENGTH (28 DAY) - 20 MPa (3000 psi)
- STEEL STRENGTH - 400 MPa (60 ksi)
- ASSUMED SOIL BEARING CAPACITY - 1570 psf
- CONSTRUCTION SEQUENCING:
  BACKFILL INTERIOR OF BUILDING W/COMPACTED SAND
  BACKFILL TO BE PLACED IN 1ft (30cm) LIFTS EVENLY AROUND STRUCTURE.
  COMPACT BACKFILL TO 95% STANDARD PROCTOR.
- ROOF TRUSSES & GIRDERS DESIGNED BY TRUSS MANUF.
- PROVIDE TEMPORARY BRACING FOR ALL COLUMNS UNTIL FINAL BRACING INSTALLATION COMPLETE.

DESIGN NOTES

DESIGN DATA LOCATION: SIMCOE

GROUND SNOW LOAD:	1.3 KPA (27.2 psf)
SPECIFIED SNOW LOAD:	1.12 KPA (23.4 psf)
DEAD LOAD:	0.48 KPA (10 psf)
WIND LOAD (1/50):	0.45 KPA (9.4 psf)

1/2" PERIMETER EXPANSION JOINT FOR POURED CONC. SLABS
1/4" CONTROL JOINTS @ 20' O.C. E.W. IN POURED CONC. SLABS
ALL WOOD No. 2 SPRUCE OR BETTER
ALL BOLTS GALVANIZED STEEL

MAX. BRICK LINTEL SPANS
4" BRICK/STONE O.B.C. 9.20.5.2.

BL-1	4" V x 3 1/2" H x 1/4" T	8'-2"
BL-2	5" V x 3 1/2" H x 5/16" T	10'-1"
BL-3	6" V x 3 1/2" H x 7/16" T	11'-7"
BL-4	6" V x 3 1/2" H x 1/2" T	12'-4"

STAIR INFO.

RISE:	MAX. 7 7/8"
RUN:	MIN. 8 1/4"
TREAD:	MIN. 9 1/4"
NOSING:	MAX. 1"
HEADROOM:	MIN. 6'-5"
UNIFORM RISE/RUN	

LEGEND

	SOLID BEARING
BB	BB FOR GIRDER
PL	POINT LOAD
S.J.	SINGLE JOIST
D.J.	DOUBLE JOIST
T.J.	TRIPLE JOIST
D.C.J.	DOUBLE CEILING JOIST

STRUCTURAL NOTES

1. ALL EXTERIOR & INTERIOR LINTELS TO BE MIN. (2) PLY 2x10 C/U 2x4 DRYWALL NAILER & PLYWOOD FILLERS BETWEEN EACH PLY, UNLESS NOTED OTHERWISE.
2. ALL NOTCHING & DRILLING OF FRAMING MEMBERS TO CONFORM TO NATIONAL & LOCAL BUILDING CODES.
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REVISIONS

No.	DATE	DESCRIPTION
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DESIGNER DISCLAIMER

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3. HVAC STRUCTURAL REQUIREMENTS TO BE VERIFIED AND MET ON SITE WITH THE HVAC INSTALLER.

PLAN AREAS

FINISHED BASEMENT	* 2,400 sq.ft.
MAIN FLOOR PLAN	* ---- sq.ft.
UPPER FLOOR PLAN	* ---- sq.ft.
OPEN TO BELOW	* ---- sq.ft.
TOTAL FINISHED AREA (NOT INCLUDING O.T.B.)	* ---- sq.ft.
GARAGE	* ---- sq.ft.
COVERED PORCH	* ---- sq.ft.
LOT COVERAGE	* 2,400 sq.ft. (222.95m2)

PROPOSED RESIDENCE FOR

JOE'S CARPENTRY
522 TALBOT RD.

PROJECT NUMBER

2115-08

djDESIGN
Architectural • Energy • HVAC
Phone: (519) 539-9987
E-mail: plans@djdesign.ca
Website: www.djdesign.ca
378 Hunter Street
Woodstock, ON.
N4S 4G2

THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE ONTARIO BUILDING CODE TO DESIGN THE WORK SHOWN

QUALIFICATION INFORMATION
REQUIRED UNLESS DESIGN IS EXEMPT UNDER 2.17.5.1. OF THE BUILDING CODE

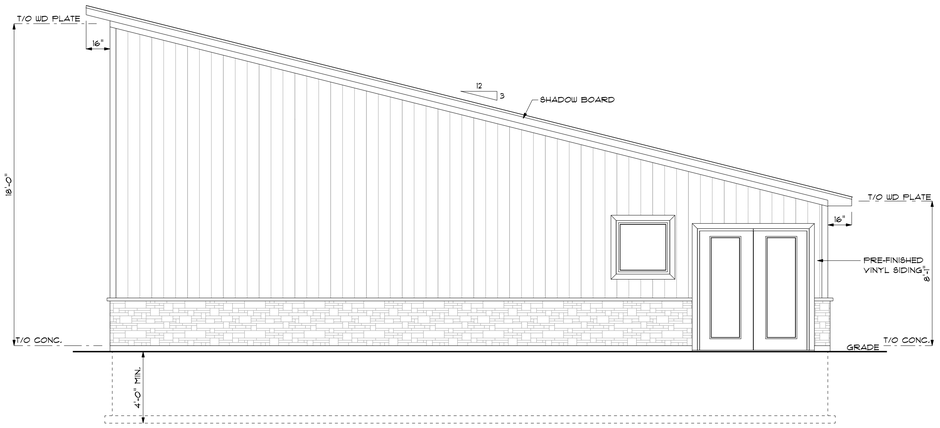
DEREK JUKEMA — 21759
NAME — BCIN

SIGNATURE

FLOOR PLAN

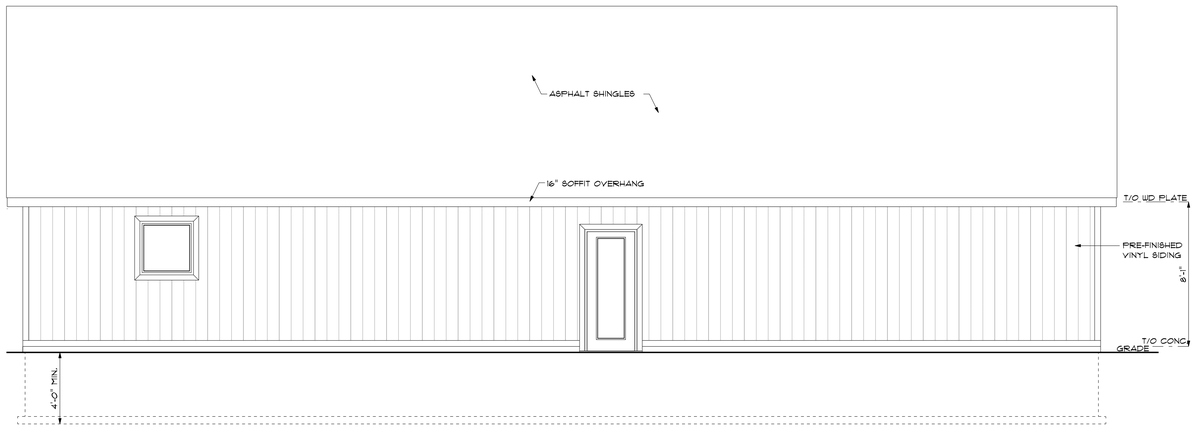
scale: 1/4" = 1'-0"
date: 2021-08-18
drawn by: LD
designed by: LD
checked by: ATW

A-2



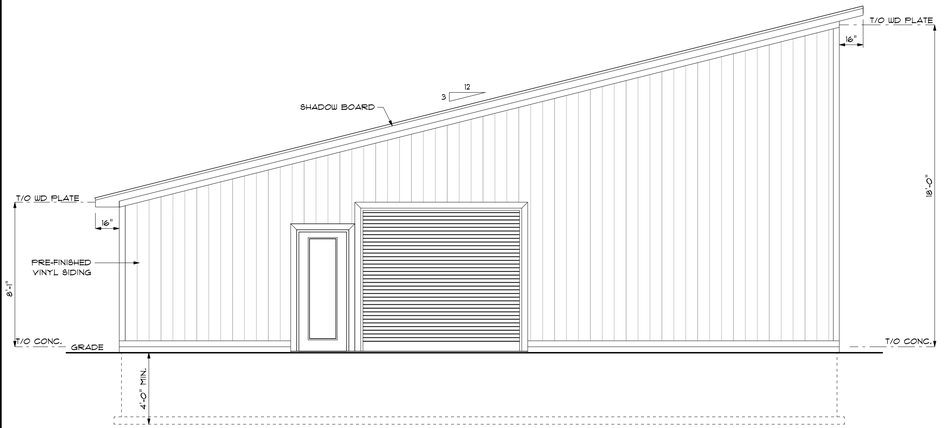
FRONT ELEVATION - DRAFT 1

SCALE: 1/4" = 1'-0"



RIGHT ELEVATION - DRAFT 1

SCALE: 1/4" = 1'-0"



REAR ELEVATION - DRAFT 1

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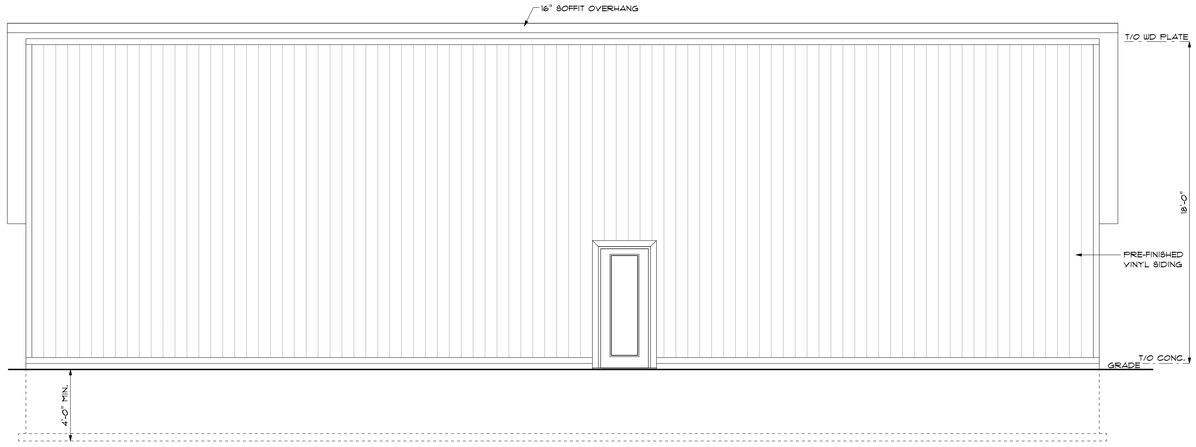

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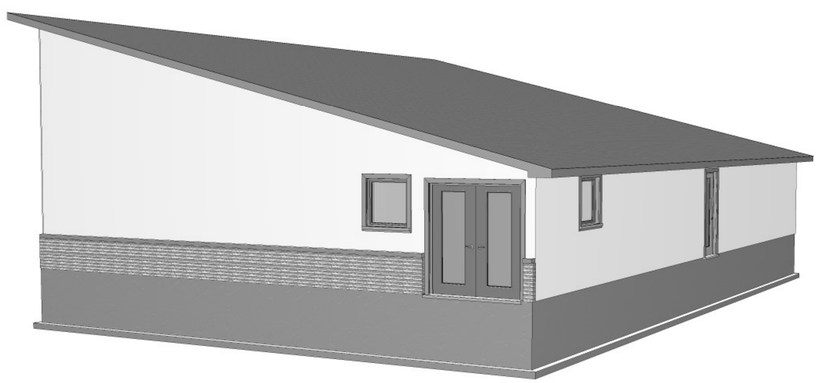

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	BB FOR GIRDER
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PROPOSED RESIDENCE FOR

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QUALIFICATION INFORMATION
REQUIRED UNLESS DESIGN IS EXEMPT UNDER 2.17.5.1. OF THE BUILDING CODE

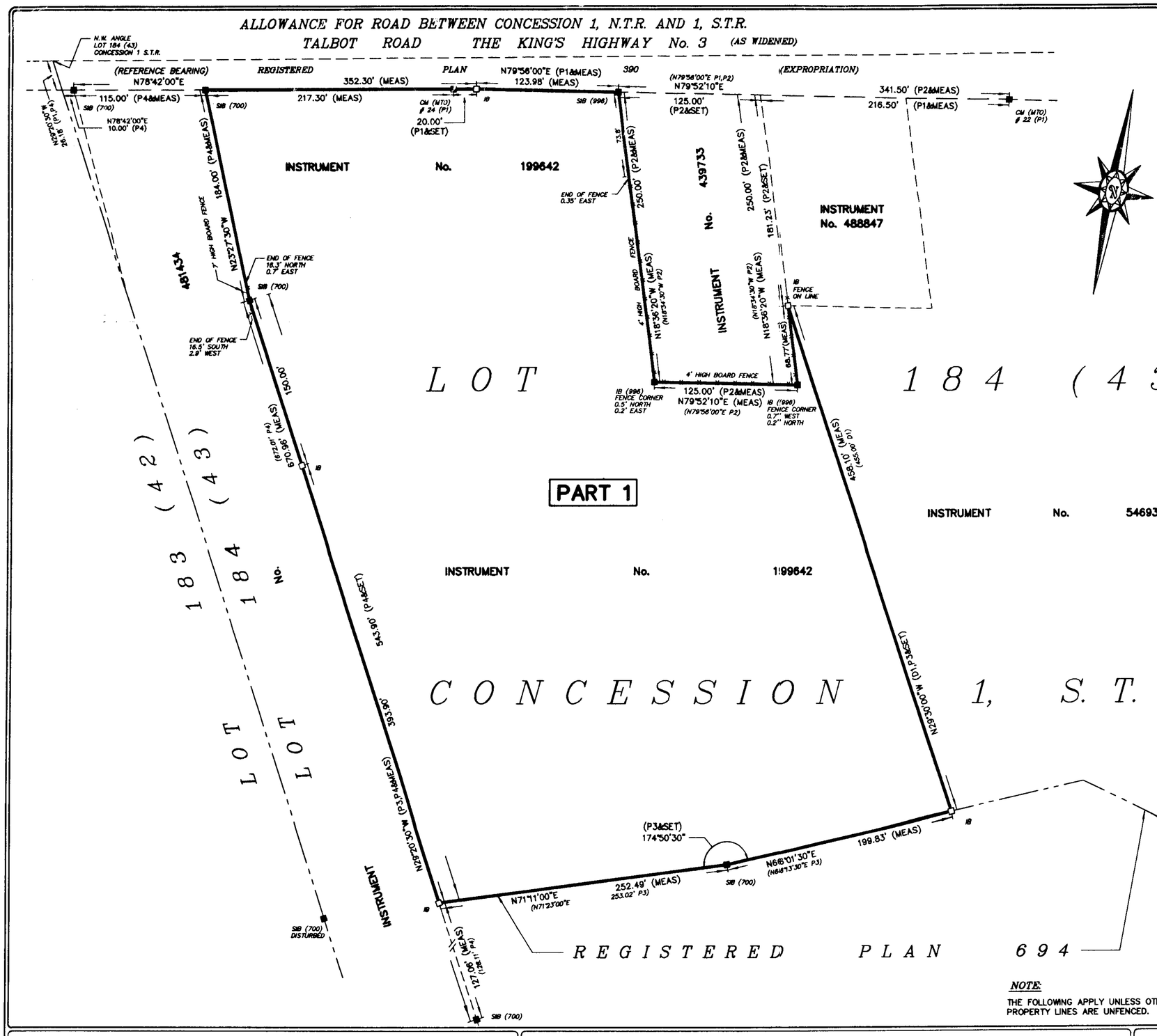
DEREK JUKEMA — 21759
NAME — BCIN

SIGNATURE

ELEVATION

scale:	1/4" = 1'-0"
date:	2021-08-18
drawn by:	LD
designed by:	LD
checked by:	ATW

A-1



I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE REGISTRY ACT.

DATED June 9, 2004

R. C. DIXON
ONTARIO LAND SURVEYOR

PLAN 37R- 9093

RECEIVED AND DEPOSITED

DATED Jun 10, 2004

LAND REGISTRAR FOR THE REGISTRY DIVISION OF NORFOLK (No. 37)

SCHEDULE

PART	PART LOT	CONCESSION	INSTRUMENT	AREA (Ac.)
1	184 (43)	1, S.T.R.	199642	6.462

PLAN OF SURVEY
OF PART OF
LOT 184 (43)
CONCESSION 1
SOUTH OF TALBOT ROAD
IN THE GEOGRAPHIC
TOWNSHIP OF MIDDLETON
IN
NORFOLK COUNTY

SCALE: 1" = 60'

30 0 90 FEET

JEWITT AND DIXON LTD.

IMPERIAL NOTE:

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

BEARING REFERENCE

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHERLY LIMIT OF THE ALLOWANCE FOR ROAD BETWEEN CONCESSIONS 1, N.T.R. AND 1, S.T.R. (TALBOT ROAD, THE KING'S HIGHWAY No. 3) AS WIDENED BY AND SHOWN ON REGISTERED PLAN 390, BEING N78°42'00"E.

NOTE:

THE FOLLOWING APPLY UNLESS OTHERWISE NOTED: ALL BUILDING TIES ARE PERPENDICULAR TO PROPERTY LINES. PROPERTY LINES ARE UNFENCED. FENCES ARE ON LINE. ALL HEDGE, BUSH AND TREE DIMENSIONS ARE TO CENTERLINE.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT, AND THE REGISTRY ACT, AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 14TH DAY OF MAY, 2004.

DATED: JUNE 1, 2004

R. C. DIXON
ONTARIO LAND SURVEYOR

LEGEND

1" X 1" X 48" STANDARD IRON BARS	SHOWN	SIB	
5/8" X 5/8" X 24" IRON BARS	SHOWN	IB	
CONCRETE MONUMENT	SHOWN	CM	
LOT LINES	SHOWN		
DEED LINES	SHOWN		
FENCE LINES	SHOWN		
ROAD LINES	SHOWN		
FOUND IRON BARS SHOWN	PLANTED IRON BARS SHOWN		
MINISTRY OF TRANSPORTATION OF ONTARIO	SHOWN	(MTO)	

JEWITT AND DIXON LTD.	SHOWN	(700)
J. B. DODD, O.L.S.	SHOWN	(998)
REGISTERED PLAN 390	SHOWN	(P1)
PLAN BY H.V. JEWITT, O.L.S. DATED MAY 29, 1961	SHOWN	(P2)
REGISTERED PLAN 694	SHOWN	(P3)
PLAN OF SURVEY BY H.V. JEWITT, O.L.S. DATED OCTOBER 15, 1970 (M-9-58,59)	SHOWN	(P4)
INSTRUMENT No. 546933	SHOWN	(D1)

JEWITT AND DIXON LTD.
ONTARIO LAND SURVEYORS
R.R.1, SIMCOE, ONTARIO, N3Y 4J9
(51 PARK ROAD)
PHONE: (519) 426-0842 FAX: (519) 426-1034
E-mail: surveyors@amtelecom.net

F.W.	R.C.S.
BOOK	M-24-52,53
CALC.	M.V.L.
PLAN	M.V.L.
CHECK	R.C.D.
CLIENT	RAPAI
JOB No.	04-138

P04 03 A7862

PROPOSED COMMERCIAL DEVELOPMENT
PRELIMINARY STORMWATER MANAGEMENT

MN 522 Talbot Road
Delhi, Ontario
Norfolk County

Prepared By:

J.H. Cohoon Engineering Limited
440 Hardy Road, Unit 1
Brantford, Ontario
N3T 5L8
Phone (519) 753-2656
Fax (519) 753-4263

Job: 15135

February 2022

STORM SEWERS & APPURTENANCES

Storm Sewers

The site is intended to be serviced with an internal drywell system to handle all storm events up to and including the 100-year storm events.

The overall stormwater management system is to be consistent with the current policies of the County of Norfolk which require reduction in the post development flows to below the pre-development rates for all storm events up to and including the 100-year event. In this case, the existing area is without storm sewers so an internal series of drywells in being proposed.

The proposed development is significant greater impervious areas and as such, conventional stormwater management techniques are required to be implemented.

Pre-Development Hydrologic Modeling Parameters

MIDUSS modeling software was used to establish pre-development runoff rates for the site. The affected site is approximately 0.131 hectares in size with the flow direction being extremely flat but is directed towards the rear of the property. The existing topography slope is approximately 2.5+/-%.

Post Development Conditions

The proposed concept plan includes the following:

- A proposed veterinary clinic completes with the required parking areas resulting in an overall 96.8% impervious on the site being increased from the 0% impervious surfaces in the pre-development condition to a 96.8% impervious condition.

For the purposes of this report, 97% has been utilized in the hydrologic modeling for the overall development to represent the proposed development.

Modelling Results – Quantity Control

Stormwater flows were calculated using MIDUSS modeling software. Norfolk County IDF parameters were used to generate rainfall for sizing of the SWM facility in accordance with Norfolk County Development Engineering Standards.

Peak flow reduction will be achieved through on-site detention in an effort minimize the potential for downstream flooding and erosion. Post development surface water runoff will be controlled to existing pre-development levels for the

2, 5, 10, 25, 50- and 100-year storm events (as possible). The results of the Miduss modeling have been included within Appendix 'D' of this report and can be summarized as follows:

Table 1 – Peak Flow Rates

Storm Event	Pre-Development Peak Flow (m^3/sec)	Post Development Peak Flow No SWM (m^3/sec)	Post Development Peak Flow with SWM
2 Year	0.002	0.024	0.004
5 Year	0.013	0.033	0.010
10 Year	0.023	0.038	0.015
25 Year	0.036	0.045	0.020
50 Year	0.046	0.050	0.024
100 Year	0.053	0.056	0.028

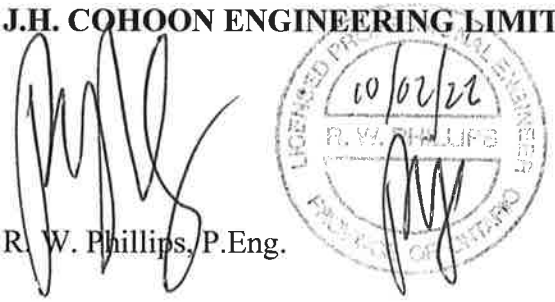
Peak flow reduction will be achieved by utilizing drywells within the parking area that will infiltrate into the existing sand / gravel subsoil.

We have illustrated on the enclosed preliminary grading and servicing plan. (Included within Appendix 'C' of this report).

The proposed stormwater management system includes the provision for a minor system designed to accommodate the 5-year storm event.

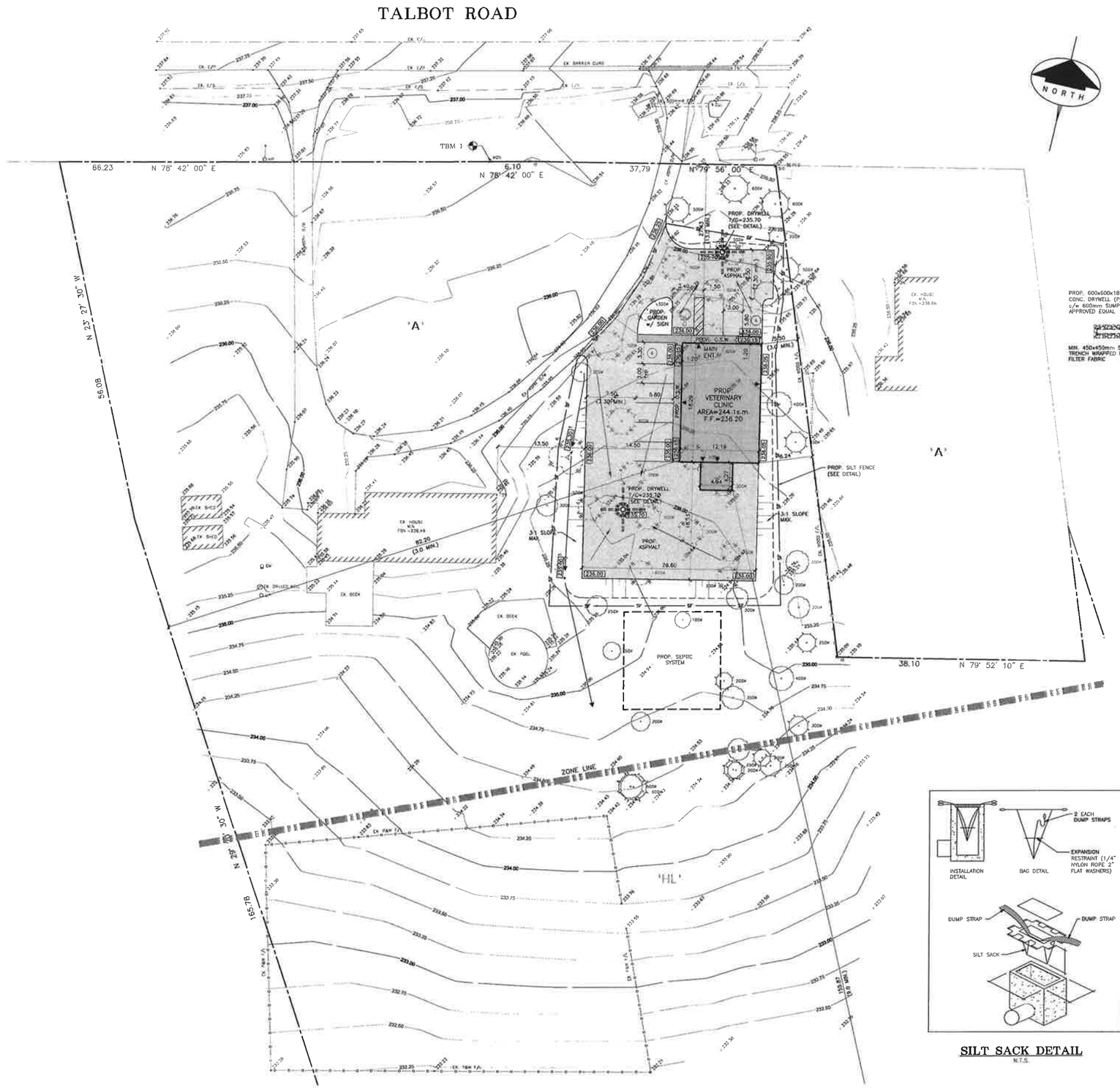
Report Prepared By:

J.H. COHOON ENGINEERING LIMITED

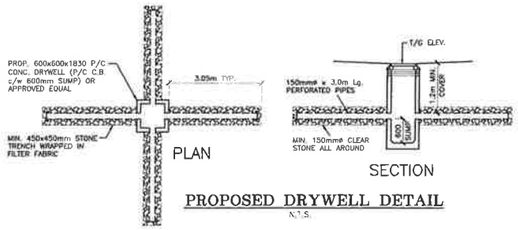


R. W. Phillips, P.Eng.

Appendix 'A'
Development Proposal as prepared by
J H Cohoon Engineering Drawing 15135-1



KEY PLAN



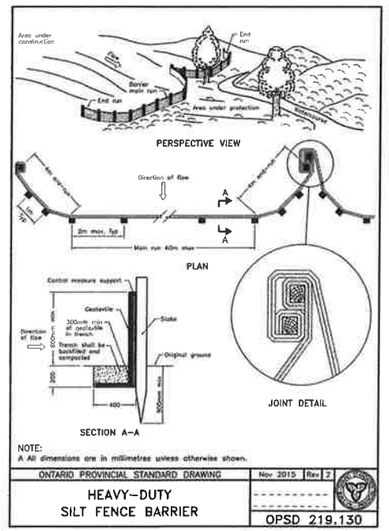
PROPOSED DRYWELL DETAIL
N.T.S.

SITE STATISTICS

ITEM	PROPOSAL	ZONING BYLAW REQUIREMENTS
ZONING CATEGORY	A-xx (REZONE)	A
LOT AREA (sq. m.)	26,145	2000
LOT FRONTAGE (m)	110.12	30.00 MIN.
GROUND FLOOR AREA (sq. m.)	244.1	N/A
STREET SETBACK (m)	27.43	13.00 MIN.
REAR YARD (m)	155.87	9.00 MIN.
SIDE YARD (m)	5.50 & 82.20	3.00 MIN.
NUMBER OF PARKING SPACES	10	10
NUMBER OF BARRIER FREE PARKING SPACES	1	1
PARKING STALL DIMENSIONS (m)	3.00 x 5.80	3.00 x 5.80
BARRIER FREE PARKING STALL DIMENSIONS (m)	4.90 x 5.50	4.90 x 5.50 (TYPE 'A')
BUILDING HEIGHT (m)	4.50	11.00 MAX.

* CALCULATION IS BASED ON 1 PARKING SPACE FOR EVERY 25sq.m. OF USABLE FLOOR AREA.

SILT SACK DETAIL
N.T.S.



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
HEAVY-DUTY SILT FENCE BARRIER		OPSD 219.130

LEGEND:

- EXISTING ELEVATIONS
- 200.00 PROPOSED ELEVATIONS
- 200.00 PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE
- EX. TREES
- EX. TREES TO BE REMOVED
- SF SILTATION FENCE
- SILT SACK AS SHOWN

NOTES:

1. ALL ELEVATIONS SHOWN ARE METRIC.
2. BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (ie. SIDEYARDS, SETBACKS, REARYARDS ETC.)
3. THE SILTATION & EROSION CONTROL (SEC) MEASURES ILLUSTRATED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENT. SITE CONDITIONS MAY REQUIRE ADDITIONAL MEASURES WHICH WILL BE IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.
4. ALL SEC MEASURES ARE TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. OWNER/CONTRACTOR TO MAINTAIN EROSION CONTROL MEASURES THROUGHOUT SITE UNTIL A COMPLETE GRASS/VEGETATION COVER IS ACHIEVED.
6. ONLY AT THE DIRECTION OF THE ENGINEER ARE THE SEC MEASURES TO BE REMOVED.
7. SITE WORKS ARE TO BE STAGED IN SUCH A MANNER THAT EROSION WILL BE MINIMIZED, AND THE CONSULTANT MUST PROVIDE CONFIRMATION THAT ALL APPROVED SILTATION AND EROSION CONTROL FACILITIES HAVE BEEN INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING, EXCAVATION OR DEMOLITION.
8. CLEARING AND GRUBBING OF THE SITE SHOULD BE KEPT TO A MINIMUM AND VEGETATION REMOVED ONLY IN ADVANCE OF IMMEDIATE CONSTRUCTION.
9. STOCKPILES OF EARTH OR TOPSOIL ARE TO BE LOCATED AND PROTECTED TO MINIMIZE ENVIRONMENTAL INTERFERENCE. EROSION CONTROL FENCING IS TO BE INSTALLED AROUND THE BASE OF ALL STOCKPILES.
10. THE OWNER IS RESPONSIBLE TO ENSURE THE MUNICIPAL ROADWAYS ARE CLEANED OF ALL SEDIMENTS FROM VEHICULAR TRACKING ETC. TO AND FROM THE SITE, AT THE END OF EACH WORKDAY.
11. ALL DISTURBED AREAS, NOT INCLUDED IN THE CONSTRUCTION ZONE, ARE TO BE TOPSOILED AND SEEDED IMMEDIATELY AFTER COMPLETION OF AREA GRADING.
12. ALL EXISTING AND PROPOSED CATCHBASINS ON THE SUBJECT PROPERTY, PLUS ANY CATCHBASINS WITHIN THE INFLUENCE OF RUNOFF FROM THE SITE, ARE TO BE PROTECTED WITH FILTER CLOTH OR APPROVED EQUIVALENT.

T.B.M. No. 1 ELEV. = 0m (GEO)
TOP NUT OF FIRE HYDRANT AT INTERSECTION AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY

J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
TEL. (519) 753-2656 FAX. (519) 753-4263 www.cohooneng.com

PROJECT:
PROPOSED VETERINARY CLINIC
522 TALBOT ROAD, DELHI
NORFOLK COUNTY

CLIENT:
JOE'S CARPENTRY

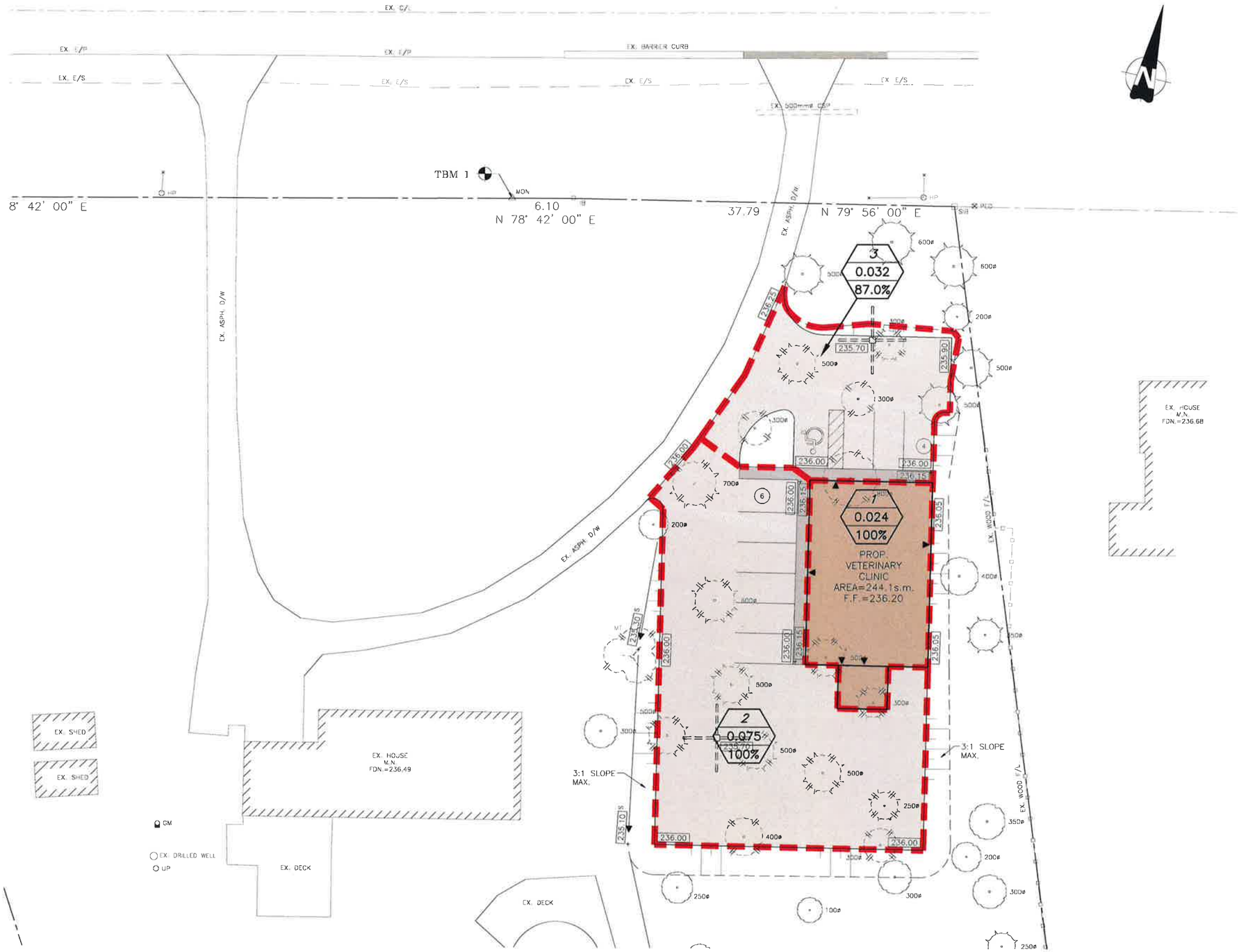
SITE DEVELOPMENT PLAN

DESIGN:	R.W.P.	SCALE:	1:300
DRAWN	S.L.M./K.P.B.	JOB No:	15135
CHECKED:	R.W.P.		
SHEET:	1 of 1	DWG. No:	15135-1
DATE:	FEB. 11/22		

Appendix 'B'

MIDUSS COMPUTER SIMULATION RESULTS

TALBOT ROAD



LEGEND

STORM DRAINAGE BOUNDARY

1
0.53
35.0

- STORM DRAINAGE NUMBER
- STORM AREA IN HECTARES
- % IMPERVIOUS

POST DEVELOPMENT STORM DRAINAGE AREAS

PROPOSED VETERINARY CLINIC
522 TALBOT ROAD DELHI

J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
BRANTFORD

CLIENT: JOE'S CARPENTRY JOB: 15135
SCALE: 1:400

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"     1500.000   Max. Hydrograph"
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"      529.711   Coefficient A"
"        4.501   Constant B"
"        0.745   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
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"             Maximum intensity            69.337    mm/hr"
"             Total depth                  32.583    mm"
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" 33          CATCHMENT 101"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          101   No description"
"        0.000   % Impervious"
"        0.131   Total Area"
"       21.129   Flow length"
"        2.500   Overland Slope"
"        0.131   Pervious Area"
"       21.129   Pervious length"
"        2.500   Pervious slope"
"        0.000   Impervious Area"
"       21.129   Impervious length"
"        2.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.002     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.131      0.000      0.131      hectare"
"             Time of concentration  23.324     1.946      23.324     minutes"
"             Time to Centroid       91.571     0.000      91.571     minutes"
"             Rainfall depth         32.583     32.583     32.583     mm"
"             Rainfall volume        42.68      0.00       42.68      c.m"
"             Rainfall losses        30.249     32.583     30.249     mm"
"             Runoff depth           2.334      0.000      2.334      mm"
"             Runoff volume          3.06       0.00       3.06       c.m"
"             Runoff coefficient     0.072      0.000      0.072      "
```

```
"              Maximum flow           0.002      0.000      0.002      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"             4   Add Runoff "
"                    0.002     0.002     0.000     0.000"
" 38           START/RE-START TOTALS 101"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                        0.131    hectare"
"              Total Impervious area                       0.000    hectare"
"              Total % impervious                          0.000"
" 19           EXIT"
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"      583.017   Coefficient A"
"        3.007   Constant B"
"        0.703   Exponent C"
"        0.400   Fraction R"
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"            1   Equal length"
"            2   Horton equation"
"          101   No description"
"        0.000   % Impervious"
"        0.131   Total Area"
"       21.129   Flow length"
"        2.500   Overland Slope"
"        0.131   Pervious Area"
"       21.129   Pervious length"
"        2.500   Pervious slope"
"        0.000   Impervious Area"
"       21.129   Impervious length"
"        2.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.013     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.131      0.000      0.131      hectare"
"             Time of concentration  12.444     1.735      12.444     minutes"
"             Time to Centroid       91.114     89.474     91.114     minutes"
"             Rainfall depth         44.904     44.904     44.904     mm"
"             Rainfall volume        58.82      0.00       58.82      c.m"
"             Rainfall losses        33.604     2.000      33.604     mm"
"             Runoff depth           11.301     42.904     11.301     mm"
"             Runoff volume          14.80      0.00       14.80      c.m"
"             Runoff coefficient     0.252      0.000      0.252      "
```

```
"              Maximum flow           0.013      0.000      0.013      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"             4   Add Runoff "
"                    0.013     0.013     0.000     0.000"
" 38           START/RE-START TOTALS 101"
"             3   Runoff Totals on EXIT"
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"              Total Impervious area                       0.000    hectare"
"              Total % impervious                          0.000"
" 19           EXIT"
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"      670.324   Coefficient A"
"        3.007   Constant B"
"        0.703   Exponent C"
"        0.400   Fraction R"
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"        0.000   Impervious Area"
"       21.129   Impervious length"
"        2.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.023     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.131      0.000      0.131      hectare"
"             Time of concentration  10.669     1.641      10.669     minutes"
"             Time to Centroid       93.377     89.115     93.377     minutes"
"             Rainfall depth         51.629     51.629     51.629     mm"
"             Rainfall volume        67.63      0.00       67.63      c.m"
"             Rainfall losses        34.081     2.000      34.081     mm"
"             Runoff depth           17.548     49.629     17.548     mm"
"             Runoff volume          22.99      0.00       22.99      c.m"
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```

```
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"             4   Add Runoff "
"                   0.023     0.023     0.000     0.000"
" 38           START/RE-START TOTALS 101"
"             3   Runoff Totals on EXIT"
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"              Total % impervious                          0.000"
" 19           EXIT"
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"      721.533   Coefficient A"
"        2.253   Constant B"
"        0.679   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          127.011    mm/hr"
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"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"         101   No description"
"        0.000   % Impervious"
"        0.131   Total Area"
"       21.129   Flow length"
"        2.500   Overland Slope"
"        0.131   Pervious Area"
"       21.129   Pervious length"
"        2.500   Pervious slope"
"        0.000   Impervious Area"
"       21.129   Impervious length"
"        2.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.036     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.131      0.000      0.131      hectare"
"             Time of concentration  9.093      1.528      9.093      minutes"
"             Time to Centroid       97.045     88.972     97.045     minutes"
"             Rainfall depth         63.151     63.151     63.151     mm"
"             Rainfall volume        82.73      0.00       82.73      c.m"
"             Rainfall losses        34.738     2.000      34.738     mm"
"             Runoff depth           28.413     61.151     28.413     mm"
"             Runoff volume          37.22      0.00       37.22      c.m"
"             Runoff coefficient     0.450      0.000      0.450      "
```

```
"              Maximum flow           0.036      0.000      0.036      c.m/sec"
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"             4   Add Runoff "
"                    0.036     0.036     0.000     0.000"
" 38           START/RE-START TOTALS 101"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                        0.131    hectare"
"              Total Impervious area                       0.000    hectare"
"              Total % impervious                          0.000"
" 19           EXIT"
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"     1500.000   Max. Hydrograph"
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"            1   Chicago storm"
"      766.038   Coefficient A"
"        1.898   Constant B"
"        0.668   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
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"          101   No description"
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"        0.131   Total Area"
"       21.129   Flow length"
"        2.500   Overland Slope"
"        0.131   Pervious Area"
"       21.129   Pervious length"
"        2.500   Pervious slope"
"        0.000   Impervious Area"
"       21.129   Impervious length"
"        2.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.046     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.131      0.000      0.131      hectare"
"             Time of concentration  8.313      1.463      8.313      minutes"
"             Time to Centroid       97.861     88.885     97.861     minutes"
"             Rainfall depth         71.090     71.090     71.090     mm"
"             Rainfall volume        93.13      0.00       93.13      c.m"
"             Rainfall losses        35.051     2.000      35.051     mm"
"             Runoff depth           36.038     69.090     36.038     mm"
"             Runoff volume          47.21      0.00       47.21      c.m"
"             Runoff coefficient     0.507      0.000      0.507      "
```

```
"              Maximum flow           0.046      0.000      0.046      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"             4   Add Runoff "
"                    0.046     0.046     0.000     0.000"
" 38           START/RE-START TOTALS 101"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                        0.131    hectare"
"              Total Impervious area                       0.000    hectare"
"              Total % impervious                          0.000"
" 19           EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                              Version 2.25  rev. 473"
"               MIDUSS created                                      February-07-10"
"          10   Units used:                                             ie METRIC"
"               Job folder:                                        C:\swm\15135"
"               Output filename:                                     pre100.out"
"               Licensee name:                                              Bob"
"               Company                                                      "
"               Date & Time last used:                  18/06/2021 at 2:07:55 PM"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"      801.041   Coefficient A"
"        1.501   Constant B"
"        0.657   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity           155.782    mm/hr"
"             Total depth                  78.830    mm"
"           6   005hyd   Hydrograph extension used in this file"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"      801.041   Coefficient A"
"        1.501   Constant B"
"        0.657   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity           155.782    mm/hr"
"             Total depth                  78.830    mm"
"           6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"         101   No description"
"        0.000   % Impervious"
"        0.131   Total Area"
"       21.129   Flow length"
"        2.500   Overland Slope"
"        0.131   Pervious Area"
"       21.129   Pervious length"
"        2.500   Pervious slope"
"        0.000   Impervious Area"
"       21.129   Impervious length"
"        2.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
```

```
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                     0.053     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.131      0.000      0.131      hectare"
"             Time of concentration  7.832      1.408      7.832      minutes"
"             Time to Centroid       98.451     88.849     98.451     minutes"
"             Rainfall depth         78.830     78.830     78.830     mm"
"             Rainfall volume        103.27     0.00       103.27     c.m"
"             Rainfall losses        35.397     2.000      35.397     mm"
"             Runoff depth           43.433     76.830     43.433     mm"
"             Runoff volume          56.90      0.00       56.90      c.m"
"             Runoff coefficient     0.551      0.000      0.551      "
"             Maximum flow           0.053      0.000      0.053      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                     0.053     0.053     0.000     0.000"
" 38          START/RE-START TOTALS 101"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                        0.131    hectare"
"             Total Impervious area                       0.000    hectare"
"             Total % impervious                          0.000"
" 19          EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                              Version 2.25  rev. 473"
"               MIDUSS created                                      February-07-10"
"          10   Units used:                                             ie METRIC"
"               Job folder:                                        C:\swm\15135"
"               Output filename:                                       pst2.out"
"               Licensee name:                                              Bob"
"               Company                                                      "
"               Date & Time last used:                  18/06/2021 at 2:26:50 PM"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"      529.711   Coefficient A"
"        4.501   Constant B"
"        0.745   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity            69.337    mm/hr"
"             Total depth                  32.583    mm"
"           6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"         101   No description"
"      100.000   % Impervious"
"        0.024   Total Area"
"        5.217   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"        5.217   Pervious length"
"        1.200   Pervious slope"
"        0.024   Impervious Area"
"        5.217   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.005     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.024      0.024      hectare"
"             Time of concentration  12.559     1.048      1.048      minutes"
"             Time to Centroid       85.921     89.815     89.815     minutes"
"             Rainfall depth         32.583     32.583     32.583     mm"
"             Rainfall volume        0.00       7.82       7.82       c.m"
"             Rainfall losses        30.249     2.000      2.000      mm"
"             Runoff depth           2.334      30.583     30.583     mm"
"             Runoff volume          0.00       7.34       7.34       c.m"
"             Runoff coefficient     0.000      0.939      0.939      "
```

```
"             Maximum flow           0.000      0.005      0.005      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.005     0.005     0.000     0.000"
" 51          PIPE DESIGN"
"         0.005   Current peak flow    c.m/sec"
"         0.013   Manning 'n'"
"         1.000   Diameter    metre"
"         1.000   Gradient   %"
"              Depth of flow                 0.033    metre"
"              Velocity                      0.594    m/sec"
"              Pipe capacity                 2.398    c.m/sec"
"              Critical depth                0.037    metre"
" 53          ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"                    0.005     0.005     0.005     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"              Maximum flow                  0.005    c.m/sec"
"              Hydrograph volume             7.340    c.m"
"                    0.005     0.005     0.005     0.005"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.005     0.000     0.005     0.005"
" 33          CATCHMENT 102"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          102   No description"
"      100.000   % Impervious"
"        0.075   Total Area"
"       14.423   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"       14.423   Pervious length"
"        1.200   Pervious slope"
"        0.075   Impervious Area"
"       14.423   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.014     0.000     0.005     0.005 c.m/sec"
"              Catchment 102          Pervious   Impervious Total Area "
"              Surface Area           0.000      0.075      0.075      hectare"
"              Time of concentration  23.117     1.929      1.929      minutes"
"              Time to Centroid       91.438     89.815     89.815     minutes"
"              Rainfall depth         32.583     32.583     32.583     mm"
"              Rainfall volume        0.00       24.44      24.44      c.m"
"              Rainfall losses        30.249     2.000      2.000      mm"
"              Runoff depth           2.334      30.583     30.583     mm"
```

```
"            Runoff volume          0.00       22.94      22.94      c.m"
"            Runoff coefficient     0.000      0.939      0.939      "
"            Maximum flow           0.000      0.014      0.014      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.014     0.014     0.005     0.005"
" 51         PIPE DESIGN"
"       0.014   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                 0.056    metre"
"            Velocity                      0.840    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.066    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.014     0.014     0.014     0.005 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.019    c.m/sec"
"            Hydrograph volume            30.277    c.m"
"                   0.014     0.014     0.014     0.019"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               "
"            Maximum flow                  0.019    c.m/sec"
"            Hydrograph volume            30.277    c.m"
"                   0.014     0.019     0.014     0.000"
" 51         PIPE DESIGN"
"       0.019   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                 0.063    metre"
"            Velocity                      0.914    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.075    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.014     0.019     0.019     0.000 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.019    c.m/sec"
"            Hydrograph volume            30.277    c.m"
"                   0.014     0.019     0.019     0.019"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.014     0.000     0.019     0.019"
" 33         CATCHMENT 3"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"           3   No description"
"      87.000   % Impervious"
```

```
"        0.032   Total Area"
"        8.000   Flow length"
"        1.200   Overland Slope"
"        0.004   Pervious Area"
"        8.000   Pervious length"
"        1.200   Pervious slope"
"        0.028   Impervious Area"
"        8.000   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.005     0.000     0.019     0.019 c.m/sec"
"             Catchment 3            Pervious   Impervious Total Area "
"             Surface Area           0.004      0.028      0.032      hectare"
"             Time of concentration  16.232     1.355      1.522      minutes"
"             Time to Centroid       87.846     89.815     89.793     minutes"
"             Rainfall depth         32.583     32.583     32.583     mm"
"             Rainfall volume        1.36       9.07       10.43      c.m"
"             Rainfall losses        30.249     2.000      5.672      mm"
"             Runoff depth           2.334      30.583     26.911     mm"
"             Runoff volume          0.10       8.51       8.61       c.m"
"             Runoff coefficient     0.072      0.939      0.826      "
"             Maximum flow           0.000      0.005      0.005      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.005     0.005     0.019     0.019"
" 56          DIVERSION"
"            0   Node number"
"        0.000   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow         0.005    c.m/sec"
"             Volume of diverted flow       8.611    c.m"
"             DIV00000.005hyd"
"             Major flow at 0"
"                    0.005     0.005     0.000     0.019 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.019    c.m/sec"
"             Hydrograph volume            30.277    c.m"
"                    0.005     0.005     0.000     0.019"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                "
"             Maximum flow                  0.019    c.m/sec"
"             Hydrograph volume            30.277    c.m"
"                    0.005     0.019     0.000     0.000"
" 56          DIVERSION"
"            2   Node number"
```

```
"        0.004   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow          0.015    c.m/sec"
"             Volume of diverted flow       11.548    c.m"
"             DIV00002.005hyd"
"             Divert to Infiltration 0.015cms"
"                     0.005     0.019     0.004     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    999"
"           6   Combine "
"         999   Node #"
"               "
"             Maximum flow                  0.004    c.m/sec"
"             Hydrograph volume            18.729    c.m"
"                     0.005     0.019     0.004     0.004"
" 40          HYDROGRAPH   Confluence    999"
"           7   Confluence "
"         999   Node #"
"               "
"             Maximum flow                  0.004    c.m/sec"
"             Hydrograph volume            18.729    c.m"
"                     0.005     0.004     0.004     0.000"
" 38          START/RE-START TOTALS 999"
"           3   Runoff Totals on EXIT"
"             Total Catchment area                      0.131    hectare"
"             Total Impervious area                     0.127    hectare"
"             Total % impervious                       96.824"
" 19          EXIT"
```

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                              Version 2.25  rev. 473"
"                MIDUSS created                                      February-07-10"
"           10   Units used:                                             ie METRIC"
"                Job folder:                                        C:\swm\15135"
"                Output filename:                                        pst5.out"
"                Licensee name:                                               Bob"
"                Company                                                       "
"                Date & Time last used:                  18/06/2021 at 2:24:53 PM"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"      583.017   Coefficient A"
"        3.007   Constant B"
"        0.703   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity            92.454    mm/hr"
"             Total depth                  44.904    mm"
"            6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          101   No description"
"      100.000   % Impervious"
"        0.024   Total Area"
"        5.217   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"        5.217   Pervious length"
"        1.200   Pervious slope"
"        0.024   Impervious Area"
"        5.217   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                     0.006     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.024      0.024      hectare"
"             Time of concentration  6.701      0.934      0.934      minutes"
"             Time to Centroid       87.587     89.474     89.474     minutes"
"             Rainfall depth         44.904     44.904     44.904     mm"
"             Rainfall volume        0.00       10.78      10.78      c.m"
"             Rainfall losses        33.604     2.000      2.000      mm"
"             Runoff depth           11.301     42.904     42.904     mm"
"             Runoff volume          0.00       10.30      10.30      c.m"
"             Runoff coefficient     0.000      0.955      0.955      "
```

```
"              Maximum flow           0.000      0.006      0.006      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"             4   Add Runoff "
"                     0.006     0.006     0.000     0.000"
" 51           PIPE DESIGN"
"         0.006   Current peak flow    c.m/sec"
"         0.013   Manning 'n'"
"         1.000   Diameter    metre"
"         1.000   Gradient   %"
"              Depth of flow                 0.037    metre"
"              Velocity                      0.648    m/sec"
"              Pipe capacity                 2.398    c.m/sec"
"              Critical depth                0.043    metre"
" 53           ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"                     0.006     0.006     0.006     0.000 c.m/sec"
" 40           HYDROGRAPH   Combine    2"
"             6   Combine "
"             2   Node #"
"                 "
"              Maximum flow                  0.006    c.m/sec"
"              Hydrograph volume            10.297    c.m"
"                     0.006     0.006     0.006     0.006"
" 40           HYDROGRAPH Start - New Tributary"
"             2   Start - New Tributary"
"                     0.006     0.000     0.006     0.006"
" 33           CATCHMENT 102"
"             2   Rectangular"
"             1   Equal length"
"             2   Horton equation"
"           102   No description"
"       100.000   % Impervious"
"         0.075   Total Area"
"        14.423   Flow length"
"         1.200   Overland Slope"
"         0.000   Pervious Area"
"        14.423   Pervious length"
"         1.200   Pervious slope"
"         0.075   Impervious Area"
"        14.423   Impervious length"
"         1.200   Impervious slope"
"         0.250   Pervious Manning 'n'"
"        35.000   Pervious Max.infiltration"
"         5.000   Pervious Min.infiltration"
"         0.500   Pervious Lag constant (hours)"
"         7.500   Pervious Depression storage"
"         0.015   Impervious Manning 'n'"
"         0.000   Impervious Max.infiltration"
"         0.000   Impervious Min.infiltration"
"         0.500   Impervious Lag constant (hours)"
"         2.000   Impervious Depression storage"
"                     0.019     0.000     0.006     0.006 c.m/sec"
"              Catchment 102          Pervious   Impervious Total Area "
"              Surface Area           0.000      0.075      0.075      hectare"
"              Time of concentration  12.334     1.719      1.719      minutes"
"              Time to Centroid       91.015     89.474     89.474     minutes"
"              Rainfall depth         44.904     44.904     44.904     mm"
"              Rainfall volume        0.00       33.68      33.68      c.m"
"              Rainfall losses        33.604     2.000      2.000      mm"
"              Runoff depth           11.301     42.904     42.904     mm"
```

```
"            Runoff volume          0.00       32.18      32.18      c.m"
"            Runoff coefficient     0.000      0.955      0.955      "
"            Maximum flow           0.000      0.019      0.019      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.019     0.019     0.006     0.006"
" 51         PIPE DESIGN"
"       0.019   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                0.064    metre"
"            Velocity                     0.917    m/sec"
"            Pipe capacity                2.398    c.m/sec"
"            Critical depth               0.076    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.019     0.019     0.019     0.006 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                 0.025    c.m/sec"
"            Hydrograph volume           42.475    c.m"
"                   0.019     0.019     0.019     0.025"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               "
"            Maximum flow                 0.025    c.m/sec"
"            Hydrograph volume           42.475    c.m"
"                   0.019     0.025     0.019     0.000"
" 51         PIPE DESIGN"
"       0.025   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                0.073    metre"
"            Velocity                     0.998    m/sec"
"            Pipe capacity                2.398    c.m/sec"
"            Critical depth               0.087    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.019     0.025     0.025     0.000 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                 0.025    c.m/sec"
"            Hydrograph volume           42.475    c.m"
"                   0.019     0.025     0.025     0.025"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.019     0.000     0.025     0.025"
" 33         CATCHMENT 3"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"           3   No description"
"      87.000   % Impervious"
```

```
"        0.032   Total Area"
"        8.000   Flow length"
"        1.200   Overland Slope"
"        0.004   Pervious Area"
"        8.000   Pervious length"
"        1.200   Pervious slope"
"        0.028   Impervious Area"
"        8.000   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.008     0.000     0.025     0.025 c.m/sec"
"             Catchment 3            Pervious   Impervious Total Area "
"             Surface Area           0.004      0.028      0.032      hectare"
"             Time of concentration  8.660      1.207      1.489      minutes"
"             Time to Centroid       88.403     89.474     89.433     minutes"
"             Rainfall depth         44.904     44.904     44.904     mm"
"             Rainfall volume        1.87       12.50      14.37      c.m"
"             Rainfall losses        33.604     2.000      6.108      mm"
"             Runoff depth           11.301     42.904     38.796     mm"
"             Runoff volume          0.47       11.94      12.41      c.m"
"             Runoff coefficient     0.252      0.955      0.864      "
"             Maximum flow           0.001      0.007      0.008      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.008     0.008     0.025     0.025"
" 56          DIVERSION"
"            0   Node number"
"        0.000   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow         0.008    c.m/sec"
"             Volume of diverted flow      12.415    c.m"
"             DIV00000.005hyd"
"             Divert to Infiltration 0.015 cms"
"                    0.008     0.008     0.000     0.025 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume            42.475    c.m"
"                    0.008     0.008     0.000     0.025"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                "
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume            42.475    c.m"
"                    0.008     0.025     0.000     0.000"
" 56          DIVERSION"
"            2   Node number"
```

```
"         0.010   Overflow threshold"
"         1.000   Required diverted fraction"
"             0   Conduit type; 1=Pipe;2=Channel"
"              Peak of diverted flow          0.015    c.m/sec"
"              Volume of diverted flow        9.255    c.m"
"              DIV00002.005hyd"
"              Divert to Infiltration 0.015cms"
"                      0.008     0.025     0.010     0.000 c.m/sec"
" 40           HYDROGRAPH   Combine    999"
"             6   Combine "
"           999   Node #"
"                 "
"              Maximum flow                   0.010    c.m/sec"
"              Hydrograph volume             33.220    c.m"
"                      0.008     0.025     0.010     0.010"
" 40           HYDROGRAPH   Confluence    999"
"             7   Confluence "
"           999   Node #"
"                 "
"              Maximum flow                   0.010    c.m/sec"
"              Hydrograph volume             33.220    c.m"
"                      0.008     0.010     0.010     0.000"
" 38           START/RE-START TOTALS 999"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                      0.131    hectare"
"              Total Impervious area                     0.127    hectare"
"              Total % impervious                       96.824"
" 19           EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                              Version 2.25  rev. 473"
"               MIDUSS created                                      February-07-10"
"          10   Units used:                                             ie METRIC"
"               Job folder:                                          C:\swm\15135"
"               Output filename:                                        pst10.out"
"               Licensee name:                                                Bob"
"               Company                                                         "
"               Date & Time last used:                  18/06/2021 at 2:22:59 PM"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"      670.324   Coefficient A"
"        3.007   Constant B"
"        0.698   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity           107.682    mm/hr"
"             Total depth                  52.991    mm"
"            6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          101   No description"
"      100.000   % Impervious"
"        0.024   Total Area"
"        5.217   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"        5.217   Pervious length"
"        1.200   Pervious slope"
"        0.024   Impervious Area"
"        5.217   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.007     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.024      0.024      hectare"
"             Time of concentration  5.644      0.879      0.879      minutes"
"             Time to Centroid       91.666     89.139     89.139     minutes"
"             Rainfall depth         52.991     52.991     52.991     mm"
"             Rainfall volume        0.00       12.72      12.72      c.m"
"             Rainfall losses        34.172     2.000      2.000      mm"
"             Runoff depth           18.819     50.991     50.991     mm"
"             Runoff volume          0.00       12.24      12.24      c.m"
"             Runoff coefficient     0.000      0.962      0.962      "
```

```
"             Maximum flow           0.000      0.007      0.007      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                   0.007     0.007     0.000     0.000"
" 51          PIPE DESIGN"
"         0.007   Current peak flow    c.m/sec"
"         0.013   Manning 'n'"
"         1.000   Diameter    metre"
"         1.000   Gradient    %"
"             Depth of flow                 0.040    metre"
"             Velocity                      0.679    m/sec"
"             Pipe capacity                 2.398    c.m/sec"
"             Critical depth                0.046    metre"
" 53          ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"                   0.007     0.007     0.007     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.007    c.m/sec"
"             Hydrograph volume            12.238    c.m"
"                   0.007     0.007     0.007     0.007"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                   0.007     0.000     0.007     0.007"
" 33          CATCHMENT 102"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          102   No description"
"      100.000   % Impervious"
"        0.075   Total Area"
"       14.423   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"       14.423   Pervious length"
"        1.200   Pervious slope"
"        0.075   Impervious Area"
"       14.423   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                   0.022     0.000     0.007     0.007 c.m/sec"
"             Catchment 102          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.075      0.075      hectare"
"             Time of concentration  10.390     1.618      1.618      minutes"
"             Time to Centroid       94.305     89.144     89.144     minutes"
"             Rainfall depth         52.991     52.991     52.991     mm"
"             Rainfall volume        0.00       39.74      39.74      c.m"
"             Rainfall losses        34.172     2.000      2.000      mm"
"             Runoff depth           18.819     50.991     50.991     mm"
```

```
"            Runoff volume          0.00       38.24      38.24      c.m"
"            Runoff coefficient     0.000      0.962      0.962      "
"            Maximum flow           0.000      0.022      0.022      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                  0.022     0.022     0.007     0.007"
" 51         PIPE DESIGN"
"       0.022   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                 0.068    metre"
"            Velocity                      0.961    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.082    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                  0.022     0.022     0.022     0.007 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.030    c.m/sec"
"            Hydrograph volume            50.481    c.m"
"                  0.022     0.022     0.022     0.030"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               "
"            Maximum flow                  0.030    c.m/sec"
"            Hydrograph volume            50.481    c.m"
"                  0.022     0.030     0.022     0.000"
" 51         PIPE DESIGN"
"       0.030   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                 0.078    metre"
"            Velocity                      1.045    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.094    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                  0.022     0.030     0.030     0.000 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.030    c.m/sec"
"            Hydrograph volume            50.481    c.m"
"                  0.022     0.030     0.030     0.030"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                  0.022     0.000     0.030     0.030"
" 33         CATCHMENT 3"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"           3   No description"
"      87.000   % Impervious"
```

```
"        0.032   Total Area"
"        8.000   Flow length"
"        1.200   Overland Slope"
"        0.004   Pervious Area"
"        8.000   Pervious length"
"        1.200   Pervious slope"
"        0.028   Impervious Area"
"        8.000   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.009     0.000     0.030     0.030 c.m/sec"
"             Catchment 3            Pervious   Impervious Total Area "
"             Surface Area           0.004      0.028      0.032      hectare"
"             Time of concentration  7.295      1.136      1.458      minutes"
"             Time to Centroid       92.572     89.140     89.320     minutes"
"             Rainfall depth         52.991     52.991     52.991     mm"
"             Rainfall volume        2.20       14.75      16.96      c.m"
"             Rainfall losses        34.172     2.000      6.182      mm"
"             Runoff depth           18.819     50.991     46.809     mm"
"             Runoff volume          0.78       14.20      14.98      c.m"
"             Runoff coefficient     0.355      0.962      0.883      "
"             Maximum flow           0.001      0.008      0.009      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.009     0.009     0.030     0.030"
" 56          DIVERSION"
"            0   Node number"
"        0.000   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow         0.009    c.m/sec"
"             Volume of diverted flow      14.979    c.m"
"             DIV00000.005hyd"
"             Divert to Infiltration 0.015 cms"
"                    0.009     0.009     0.000     0.030 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.030    c.m/sec"
"             Hydrograph volume            50.481    c.m"
"                    0.009     0.009     0.000     0.030"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                "
"             Maximum flow                  0.030    c.m/sec"
"             Hydrograph volume            50.481    c.m"
"                    0.009     0.030     0.000     0.000"
" 56          DIVERSION"
"            2   Node number"
```

```
"         0.015   Overflow threshold"
"         1.000   Required diverted fraction"
"             0   Conduit type; 1=Pipe;2=Channel"
"              Peak of diverted flow          0.015    c.m/sec"
"              Volume of diverted flow        8.767    c.m"
"              DIV00002.005hyd"
"              Divert to Infiltration 0.015cms"
"                      0.009     0.030     0.015     0.000 c.m/sec"
" 40           HYDROGRAPH   Combine    999"
"             6   Combine "
"           999   Node #"
"                 "
"              Maximum flow                   0.015    c.m/sec"
"              Hydrograph volume             41.714    c.m"
"                      0.009     0.030     0.015     0.015"
" 40           HYDROGRAPH   Confluence    999"
"             7   Confluence "
"           999   Node #"
"                 "
"              Maximum flow                   0.015    c.m/sec"
"              Hydrograph volume             41.714    c.m"
"                      0.009     0.015     0.015     0.000"
" 38           START/RE-START TOTALS 999"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                      0.131    hectare"
"              Total Impervious area                     0.127    hectare"
"              Total % impervious                       96.824"
" 19           EXIT"
```

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                              Version 2.25  rev. 473"
"                MIDUSS created                                      February-07-10"
"           10   Units used:                                             ie METRIC"
"                Job folder:                                          C:\swm\15135"
"                Output filename:                                        pst25.out"
"                Licensee name:                                                Bob"
"                Company                                                         "
"                Date & Time last used:                  18/06/2021 at 2:20:57 PM"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"      721.533   Coefficient A"
"        2.253   Constant B"
"        0.679   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          127.011    mm/hr"
"             Total depth                 63.151    mm"
"            6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          101   No description"
"      100.000   % Impervious"
"        0.024   Total Area"
"        5.217   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"        5.217   Pervious length"
"        1.200   Pervious slope"
"        0.024   Impervious Area"
"        5.217   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.008     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.024      0.024      hectare"
"             Time of concentration  4.896      0.823      0.823      minutes"
"             Time to Centroid       94.790     88.972     88.972     minutes"
"             Rainfall depth         63.151     63.151     63.151     mm"
"             Rainfall volume        0.00       15.16      15.16      c.m"
"             Rainfall losses        34.738     2.000      2.000      mm"
"             Runoff depth           28.413     61.151     61.151     mm"
"             Runoff volume          0.00       14.68      14.68      c.m"
"             Runoff coefficient     0.000      0.968      0.968      "
```

```
"             Maximum flow           0.000      0.008      0.008      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.008     0.008     0.000     0.000"
" 51          PIPE DESIGN"
"         0.008   Current peak flow    c.m/sec"
"         0.013   Manning 'n'"
"         1.000   Diameter    metre"
"         1.000   Gradient   %"
"              Depth of flow                 0.043    metre"
"              Velocity                      0.714    m/sec"
"              Pipe capacity                 2.398    c.m/sec"
"              Critical depth                0.050    metre"
" 53          ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"                    0.008     0.008     0.008     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"              Maximum flow                  0.008    c.m/sec"
"              Hydrograph volume            14.676    c.m"
"                    0.008     0.008     0.008     0.008"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.008     0.000     0.008     0.008"
" 33          CATCHMENT 102"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          102   No description"
"      100.000   % Impervious"
"        0.075   Total Area"
"       14.423   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"       14.423   Pervious length"
"        1.200   Pervious slope"
"        0.075   Impervious Area"
"       14.423   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.026     0.000     0.008     0.008 c.m/sec"
"             Catchment 102          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.075      0.075      hectare"
"             Time of concentration  9.013      1.514      1.514      minutes"
"             Time to Centroid       97.001     88.972     88.972     minutes"
"             Rainfall depth         63.151     63.151     63.151     mm"
"             Rainfall volume        0.00       47.36      47.36      c.m"
"             Rainfall losses        34.738     2.000      2.000      mm"
"             Runoff depth           28.413     61.151     61.151     mm"
```

```
"            Runoff volume          0.00       45.86      45.86      c.m"
"            Runoff coefficient     0.000      0.968      0.968      "
"            Maximum flow           0.000      0.026      0.026      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.026     0.026     0.008     0.008"
" 51         PIPE DESIGN"
"       0.026   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                 0.074    metre"
"            Velocity                      1.010    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.089    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.026     0.026     0.026     0.008 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.035    c.m/sec"
"            Hydrograph volume            60.539    c.m"
"                   0.026     0.026     0.026     0.035"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               "
"            Maximum flow                  0.035    c.m/sec"
"            Hydrograph volume            60.539    c.m"
"                   0.026     0.035     0.026     0.000"
" 51         PIPE DESIGN"
"       0.035   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                 0.084    metre"
"            Velocity                      1.099    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.102    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.026     0.035     0.035     0.000 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.035    c.m/sec"
"            Hydrograph volume            60.539    c.m"
"                   0.026     0.035     0.035     0.035"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.026     0.000     0.035     0.035"
" 33         CATCHMENT 3"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"           3   No description"
"      87.000   % Impervious"
```

```
"        0.032   Total Area"
"        8.000   Flow length"
"        1.200   Overland Slope"
"        0.004   Pervious Area"
"        8.000   Pervious length"
"        1.200   Pervious slope"
"        0.028   Impervious Area"
"        8.000   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.011     0.000     0.035     0.035 c.m/sec"
"             Catchment 3            Pervious   Impervious Total Area "
"             Surface Area           0.004      0.028      0.032      hectare"
"             Time of concentration  6.328      1.063      1.405      minutes"
"             Time to Centroid       95.549     88.972     89.399     minutes"
"             Rainfall depth         63.151     63.151     63.151     mm"
"             Rainfall volume        2.63       17.58      20.21      c.m"
"             Rainfall losses        34.738     2.000      6.256      mm"
"             Runoff depth           28.413     61.151     56.895     mm"
"             Runoff volume          1.18       17.02      18.21      c.m"
"             Runoff coefficient     0.450      0.968      0.901      "
"             Maximum flow           0.001      0.010      0.011      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.011     0.011     0.035     0.035"
" 56          DIVERSION"
"            0   Node number"
"        0.000   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow         0.011    c.m/sec"
"             Volume of diverted flow      18.206    c.m"
"             DIV00000.005hyd"
"             Divert to Infiltration 0.015 cms"
"                    0.011     0.011     0.000     0.035 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.035    c.m/sec"
"             Hydrograph volume            60.539    c.m"
"                    0.011     0.011     0.000     0.035"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                "
"             Maximum flow                  0.035    c.m/sec"
"             Hydrograph volume            60.539    c.m"
"                    0.011     0.035     0.000     0.000"
" 56          DIVERSION"
"            2   Node number"
```

```
"        0.020   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow          0.015    c.m/sec"
"             Volume of diverted flow        8.957    c.m"
"             DIV00002.005hyd"
"             Divert to Infiltration 0.015cms"
"                     0.011     0.035     0.020     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    999"
"           6   Combine "
"         999   Node #"
"               "
"             Maximum flow                   0.020    c.m/sec"
"             Hydrograph volume             51.582    c.m"
"                     0.011     0.035     0.020     0.020"
" 40          HYDROGRAPH   Confluence    999"
"           7   Confluence "
"         999   Node #"
"               "
"             Maximum flow                   0.020    c.m/sec"
"             Hydrograph volume             51.582    c.m"
"                     0.011     0.020     0.020     0.000"
" 38          START/RE-START TOTALS 999"
"           3   Runoff Totals on EXIT"
"             Total Catchment area                      0.131    hectare"
"             Total Impervious area                     0.127    hectare"
"             Total % impervious                       96.824"
" 19          EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                              Version 2.25  rev. 473"
"               MIDUSS created                                      February-07-10"
"           10  Units used:                                            ie METRIC"
"               Job folder:                                        C:\swm\15135"
"               Output filename:                                      pst50.out"
"               Licensee name:                                              Bob"
"               Company                                                       "
"               Date & Time last used:                  18/06/2021 at 2:18:22 PM"
" 31          TIME PARAMETERS"
"       10.000  Time Step"
"      180.000  Max. Storm length"
"     1500.000  Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"      766.038  Coefficient A"
"        1.898  Constant B"
"        0.668  Exponent C"
"        0.400  Fraction R"
"      180.000  Duration"
"        1.000  Time step multiplier"
"             Maximum intensity          141.545    mm/hr"
"             Total depth                 71.090    mm"
"           6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"         101   No description"
"      100.000  % Impervious"
"        0.024  Total Area"
"        5.217  Flow length"
"        1.200  Overland Slope"
"        0.000  Pervious Area"
"        5.217  Pervious length"
"        1.200  Pervious slope"
"        0.024  Impervious Area"
"        5.217  Impervious length"
"        1.200  Impervious slope"
"        0.250  Pervious Manning 'n'"
"       35.000  Pervious Max.infiltration"
"        5.000  Pervious Min.infiltration"
"        0.500  Pervious Lag constant (hours)"
"        7.500  Pervious Depression storage"
"        0.015  Impervious Manning 'n'"
"        0.000  Impervious Max.infiltration"
"        0.000  Impervious Min.infiltration"
"        0.500  Impervious Lag constant (hours)"
"        2.000  Impervious Depression storage"
"                    0.009     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.024      0.024      hectare"
"             Time of concentration  4.476      0.788      0.788      minutes"
"             Time to Centroid       95.767     88.885     88.885     minutes"
"             Rainfall depth         71.090     71.090     71.090     mm"
"             Rainfall volume        0.00       17.06      17.06      c.m"
"             Rainfall losses        35.051     2.000      2.000      mm"
"             Runoff depth           36.038     69.090     69.090     mm"
"             Runoff volume          0.00       16.58      16.58      c.m"
"             Runoff coefficient     0.000      0.972      0.972      "
```

```
"             Maximum flow           0.000      0.009      0.009      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                   0.009     0.009     0.000     0.000"
" 51          PIPE DESIGN"
"         0.009   Current peak flow    c.m/sec"
"         0.013   Manning 'n'"
"         1.000   Diameter    metre"
"         1.000   Gradient    %"
"             Depth of flow                 0.046    metre"
"             Velocity                      0.738    m/sec"
"             Pipe capacity                 2.398    c.m/sec"
"             Critical depth                0.053    metre"
" 53          ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"                   0.009     0.009     0.009     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.009    c.m/sec"
"             Hydrograph volume            16.582    c.m"
"                   0.009     0.009     0.009     0.009"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                   0.009     0.000     0.009     0.009"
" 33          CATCHMENT 102"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          102   No description"
"      100.000   % Impervious"
"        0.075   Total Area"
"       14.423   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"       14.423   Pervious length"
"        1.200   Pervious slope"
"        0.075   Impervious Area"
"       14.423   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                   0.029     0.000     0.009     0.009 c.m/sec"
"             Catchment 102          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.075      0.075      hectare"
"             Time of concentration  8.239      1.450      1.450      minutes"
"             Time to Centroid       97.822     88.885     88.885     minutes"
"             Rainfall depth         71.090     71.090     71.090     mm"
"             Rainfall volume        0.00       53.32      53.32      c.m"
"             Rainfall losses        35.051     2.000      2.000      mm"
"             Runoff depth           36.038     69.090     69.090     mm"
```

```
"            Runoff volume          0.00       51.82      51.82      c.m"
"            Runoff coefficient     0.000      0.972      0.972      "
"            Maximum flow           0.000      0.029      0.029      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.029     0.029     0.009     0.009"
" 51         PIPE DESIGN"
"       0.029   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient   %"
"            Depth of flow                 0.078    metre"
"            Velocity                      1.044    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.094    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.029     0.029     0.029     0.009 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.039    c.m/sec"
"            Hydrograph volume            68.399    c.m"
"                   0.029     0.029     0.029     0.039"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               "
"            Maximum flow                  0.039    c.m/sec"
"            Hydrograph volume            68.399    c.m"
"                   0.029     0.039     0.029     0.000"
" 51         PIPE DESIGN"
"       0.039   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient   %"
"            Depth of flow                 0.089    metre"
"            Velocity                      1.135    m/sec"
"            Pipe capacity                 2.398    c.m/sec"
"            Critical depth                0.108    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                   0.029     0.039     0.039     0.000 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                  0.039    c.m/sec"
"            Hydrograph volume            68.399    c.m"
"                   0.029     0.039     0.039     0.039"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.029     0.000     0.039     0.039"
" 33         CATCHMENT 3"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"           3   No description"
"      87.000   % Impervious"
```

```
"        0.032   Total Area"
"        8.000   Flow length"
"        1.200   Overland Slope"
"        0.004   Pervious Area"
"        8.000   Pervious length"
"        1.200   Pervious slope"
"        0.028   Impervious Area"
"        8.000   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.012     0.000     0.039     0.039 c.m/sec"
"             Catchment 3            Pervious   Impervious Total Area "
"             Surface Area           0.004      0.028      0.032      hectare"
"             Time of concentration  5.785      1.018      1.363      minutes"
"             Time to Centroid       96.437     88.885     89.431     minutes"
"             Rainfall depth         71.090     71.090     71.090     mm"
"             Rainfall volume        2.96       19.79      22.75      c.m"
"             Rainfall losses        35.051     2.000      6.297      mm"
"             Runoff depth           36.038     69.090     64.793     mm"
"             Runoff volume          1.50       19.23      20.73      c.m"
"             Runoff coefficient     0.507      0.972      0.911      "
"             Maximum flow           0.001      0.011      0.012      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.012     0.012     0.039     0.039"
" 56          DIVERSION"
"            0   Node number"
"        0.000   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow         0.012    c.m/sec"
"             Volume of diverted flow      20.734    c.m"
"             DIV00000.005hyd"
"             Divert to Infiltration 0.015 cms"
"                    0.012     0.012     0.000     0.039 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.039    c.m/sec"
"             Hydrograph volume            68.399    c.m"
"                    0.012     0.012     0.000     0.039"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                "
"             Maximum flow                  0.039    c.m/sec"
"             Hydrograph volume            68.399    c.m"
"                    0.012     0.039     0.000     0.000"
" 56          DIVERSION"
"            2   Node number"
```

```
"         0.024   Overflow threshold"
"         1.000   Required diverted fraction"
"             0   Conduit type; 1=Pipe;2=Channel"
"              Peak of diverted flow          0.015    c.m/sec"
"              Volume of diverted flow        8.955    c.m"
"              DIV00002.005hyd"
"              Divert to Infiltration 0.015cms"
"                      0.012     0.039     0.024     0.000 c.m/sec"
" 40           HYDROGRAPH   Combine    999"
"             6   Combine "
"           999   Node #"
"                 "
"              Maximum flow                   0.024    c.m/sec"
"              Hydrograph volume             59.444    c.m"
"                      0.012     0.039     0.024     0.024"
" 40           HYDROGRAPH   Confluence    999"
"             7   Confluence "
"           999   Node #"
"                 "
"              Maximum flow                   0.024    c.m/sec"
"              Hydrograph volume             59.444    c.m"
"                      0.012     0.024     0.024     0.000"
" 38           START/RE-START TOTALS 999"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                      0.131    hectare"
"              Total Impervious area                     0.127    hectare"
"              Total % impervious                       96.824"
" 19           EXIT"
```

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                              Version 2.25  rev. 473"
"                MIDUSS created                                      February-07-10"
"           10   Units used:                                             ie METRIC"
"                Job folder:                                          C:\swm\15135"
"                Output filename:                                       pst100.out"
"                Licensee name:                                                Bob"
"                Company                                                         "
"                Date & Time last used:                  18/06/2021 at 2:09:26 PM"
" 31          TIME PARAMETERS"
"       10.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"      801.041   Coefficient A"
"        1.501   Constant B"
"        0.657   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity           155.782    mm/hr"
"             Total depth                  78.830    mm"
"            6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          101   No description"
"      100.000   % Impervious"
"        0.024   Total Area"
"        5.217   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"        5.217   Pervious length"
"        1.200   Pervious slope"
"        0.024   Impervious Area"
"        5.217   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.010     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.024      0.024      hectare"
"             Time of concentration  4.217      0.758      0.758      minutes"
"             Time to Centroid       0.000      88.849     88.849     minutes"
"             Rainfall depth         78.830     78.830     78.830     mm"
"             Rainfall volume        0.00       18.92      18.92      c.m"
"             Rainfall losses        78.830     2.000      2.000      mm"
"             Runoff depth           0.000      76.830     76.830     mm"
"             Runoff volume          0.00       18.44      18.44      c.m"
"             Runoff coefficient     0.000      0.975      0.975      "
```

```
"             Maximum flow           0.000      0.010      0.010      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                   0.010     0.010     0.000     0.000"
" 51          PIPE DESIGN"
"         0.010   Current peak flow    c.m/sec"
"         0.013   Manning 'n'"
"         1.000   Diameter    metre"
"         1.000   Gradient    %"
"             Depth of flow                 0.048    metre"
"             Velocity                      0.760    m/sec"
"             Pipe capacity                 2.398    c.m/sec"
"             Critical depth                0.055    metre"
" 53          ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"                   0.010     0.010     0.010     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.010    c.m/sec"
"             Hydrograph volume            18.439    c.m"
"                   0.010     0.010     0.010     0.010"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                   0.010     0.000     0.010     0.010"
" 33          CATCHMENT 102"
"            2   Rectangular"
"            1   Equal length"
"            2   Horton equation"
"          102   No description"
"      100.000   % Impervious"
"        0.075   Total Area"
"       14.423   Flow length"
"        1.200   Overland Slope"
"        0.000   Pervious Area"
"       14.423   Pervious length"
"        1.200   Pervious slope"
"        0.075   Impervious Area"
"       14.423   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                   0.032     0.000     0.010     0.010 c.m/sec"
"             Catchment 102          Pervious   Impervious Total Area "
"             Surface Area           0.000      0.075      0.075      hectare"
"             Time of concentration  7.763      1.396      1.396      minutes"
"             Time to Centroid       98.408     88.849     88.849     minutes"
"             Rainfall depth         78.830     78.830     78.830     mm"
"             Rainfall volume        0.00       59.12      59.12      c.m"
"             Rainfall losses        35.397     2.000      2.000      mm"
"             Runoff depth           43.433     76.830     76.830     mm"
```

```
"            Runoff volume          0.00       57.62      57.62      c.m"
"            Runoff coefficient     0.000      0.975      0.975      "
"            Maximum flow           0.000      0.032      0.032      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                  0.032     0.032     0.010     0.010"
" 51         PIPE DESIGN"
"       0.032   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                0.081    metre"
"            Velocity                     1.074    m/sec"
"            Pipe capacity                2.398    c.m/sec"
"            Critical depth               0.099    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                  0.032     0.032     0.032     0.010 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                 0.043    c.m/sec"
"            Hydrograph volume           76.062    c.m"
"                  0.032     0.032     0.032     0.043"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               "
"            Maximum flow                 0.043    c.m/sec"
"            Hydrograph volume           76.062    c.m"
"                  0.032     0.043     0.032     0.000"
" 51         PIPE DESIGN"
"       0.043   Current peak flow    c.m/sec"
"       0.013   Manning 'n'"
"       1.000   Diameter    metre"
"       1.000   Gradient    %"
"            Depth of flow                0.093    metre"
"            Velocity                     1.168    m/sec"
"            Pipe capacity                2.398    c.m/sec"
"            Critical depth               0.113    metre"
" 53         ROUTE Zero Route"
"        0.00   Zero Route Reach length   ( metre)"
"                  0.032     0.043     0.043     0.000 c.m/sec"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               "
"            Maximum flow                 0.043    c.m/sec"
"            Hydrograph volume           76.062    c.m"
"                  0.032     0.043     0.043     0.043"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                  0.032     0.000     0.043     0.043"
" 33         CATCHMENT 3"
"           2   Rectangular"
"           1   Equal length"
"           2   Horton equation"
"           3   No description"
"      87.000   % Impervious"
```

```
"        0.032   Total Area"
"        8.000   Flow length"
"        1.200   Overland Slope"
"        0.004   Pervious Area"
"        8.000   Pervious length"
"        1.200   Pervious slope"
"        0.028   Impervious Area"
"        8.000   Impervious length"
"        1.200   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       35.000   Pervious Max.infiltration"
"        5.000   Pervious Min.infiltration"
"        0.500   Pervious Lag constant (hours)"
"        7.500   Pervious Depression storage"
"        0.015   Impervious Manning 'n'"
"        0.000   Impervious Max.infiltration"
"        0.000   Impervious Min.infiltration"
"        0.500   Impervious Lag constant (hours)"
"        2.000   Impervious Depression storage"
"                    0.014     0.000     0.043     0.043 c.m/sec"
"             Catchment 3            Pervious   Impervious Total Area "
"             Surface Area           0.004      0.028      0.032      hectare"
"             Time of concentration  5.451      0.980      1.328      minutes"
"             Time to Centroid       97.002     88.849     89.484     minutes"
"             Rainfall depth         78.830     78.830     78.830     mm"
"             Rainfall volume        3.28       21.95      25.23      c.m"
"             Rainfall losses        35.397     2.000      6.342      mm"
"             Runoff depth           43.433     76.830     72.489     mm"
"             Runoff volume          1.81       21.39      23.20      c.m"
"             Runoff coefficient     0.551      0.975      0.920      "
"             Maximum flow           0.002      0.012      0.014      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.014     0.014     0.043     0.043"
" 56          DIVERSION"
"            0   Node number"
"        0.000   Overflow threshold"
"        1.000   Required diverted fraction"
"            0   Conduit type; 1=Pipe;2=Channel"
"             Peak of diverted flow         0.014    c.m/sec"
"             Volume of diverted flow      23.196    c.m"
"             DIV00000.005hyd"
"             Divert to Infiltration 0.015 cms"
"                    0.014     0.014     0.000     0.043 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                "
"             Maximum flow                  0.043    c.m/sec"
"             Hydrograph volume            76.062    c.m"
"                    0.014     0.014     0.000     0.043"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                "
"             Maximum flow                  0.043    c.m/sec"
"             Hydrograph volume            76.062    c.m"
"                    0.014     0.043     0.000     0.000"
" 56          DIVERSION"
"            2   Node number"
```

```
"         0.028   Overflow threshold"
"         1.000   Required diverted fraction"
"             0   Conduit type; 1=Pipe;2=Channel"
"              Peak of diverted flow          0.015    c.m/sec"
"              Volume of diverted flow        8.904    c.m"
"              DIV00002.005hyd"
"              Divert to Infiltration 0.015cms"
"                      0.014     0.043     0.028     0.000 c.m/sec"
" 40           HYDROGRAPH   Combine    999"
"             6   Combine "
"           999   Node #"
"                 "
"              Maximum flow                   0.028    c.m/sec"
"              Hydrograph volume             67.158    c.m"
"                      0.014     0.043     0.028     0.028"
" 40           HYDROGRAPH   Confluence    999"
"             7   Confluence "
"           999   Node #"
"                 "
"              Maximum flow                   0.028    c.m/sec"
"              Hydrograph volume             67.158    c.m"
"                      0.014     0.028     0.028     0.000"
" 38           START/RE-START TOTALS 999"
"             3   Runoff Totals on EXIT"
"              Total Catchment area                      0.131    hectare"
"              Total Impervious area                     0.127    hectare"
"              Total % impervious                       96.824"
" 19           EXIT"
```

J.H. COHOON ENGINEERING LIMITED

CONSULTING ENGINEERS
440 Hardy Road, Unit #1, Brantford, ON N3T 5L8
Tel: (519) 753-2656 Fax: (519) 753-4263
www.cohooneng.com

15135

February 11, 2022

Norfolk County
Environmental and Infrastructure Services Division
185 Robinson St., Suite 200
Simcoe, Ontario
N3Y 5L6

Attention: Mr. Tim Dickhout
Project Manager, Development

Re: Proposed Veterinary Clinic
MN 522 Talbot Road
Delhi, Ontario
Norfolk County
Traffic Considerations

Dear Sir:

In response to request from the owner of the property, Mr. E. Elver, our firm has reviewed the traffic impacts of the proposed development to be located at MN 522 Talbot Road, Delhi, Ontario, Norfolk County.

The re-zoning amendment application relating to this property relates only to the additional of the proposed veterinary clinic to the list of proposed uses within the agricultural zone on this site. The proposal is to construct a small 245.5 sq.m. vet clinic on the subject lands. The proposed site development has been included within Appendix 'A' of this report.

Existing Transportation Network

The subject property is located on the south side of Talbot Road west of the main village of Delhi, Ontario. The attached aerial photograph and the key plan presented within Figure No. 1, illustrates the existing transportation network in the area.

The current zoning for the site is 'AGR' – Agricultural Zone Category which is consistent with the proposal with the exception of not permitting the veterinary clinic as a proposed use. The proposed site works includes the creation of an on-site parking lot on the north and west side of the proposed building. A land use plan illustrating the existing land uses in the area has been included within Appendix 'B' of this report.

Figure No. 1
Key Plan

Development Proposal

In consideration of the impacts of the traffic generated on the subject property and utilizing the ITE manual for trip generations during the peak hours, we have estimated the following trip generations for this site during the peak hours noting that the ITE manual for trip generations for this use is not identified. We have estimated the peak trips to and from this site as follows:

Vet Clinic	= Approximately 5 to 10 trips per unit for the peak pm hour

In review of the requirements for the typical TIS report, a full TIS is usually only required when the trip generation exceed 75 peak hour vehicles generated. As such, a traffic brief is being proposed in support of this application.

The site is intended to operate without any impacts to the existing road network with the following comments:

Parking
The proposed parking on this site includes the construction of a surface parking area that is located on the north and west sides of the building. It is proposed that 8 parking spaces with an additional accessible space are being constructed to service the proposed veterinary clinic.

It is our opinion that as a result of the incorporation of the 9 parking spaces is sufficient in this application as the site exceeds the requirements for an animal hospital which requires 1 space for 25 sq.m. (as per the Norfolk County Zoning Bylaw.

Site Access
The proposed site plan has been reviewed with consideration of access for all types of vehicles on this property. The proposal is to utilize the existing entrance as it appears to meet all the requirements for this type of entrance (Visibility, and maneuverability). The location of the existing entrance would not have any impact on the operation of the municipal rights-of-way.

Conclusions:
The findings of our analysis of the site complete with considerations of the overall development are as follows:

- The development proposal to redevelop the subject property to allow for a veterinary clinic (approximately 245.5 sq.m.)
- The access to the site is intended to be a full movement driveway onto Talbot Road.
- A total of 9 parking spaces are being proposed on the site
- The development is going to generate only 5-10 peak pm hour movements as a result of the increased development
- The anticipated increased traffic from the development would be considered insignificant as it relates to the overall capacity of existing infrastructure in the area.

I trust that this information will be sufficient to allow the re-zoning application to proceed.

Yours truly,

J.H. COHOON ENGINEERING LIMITED

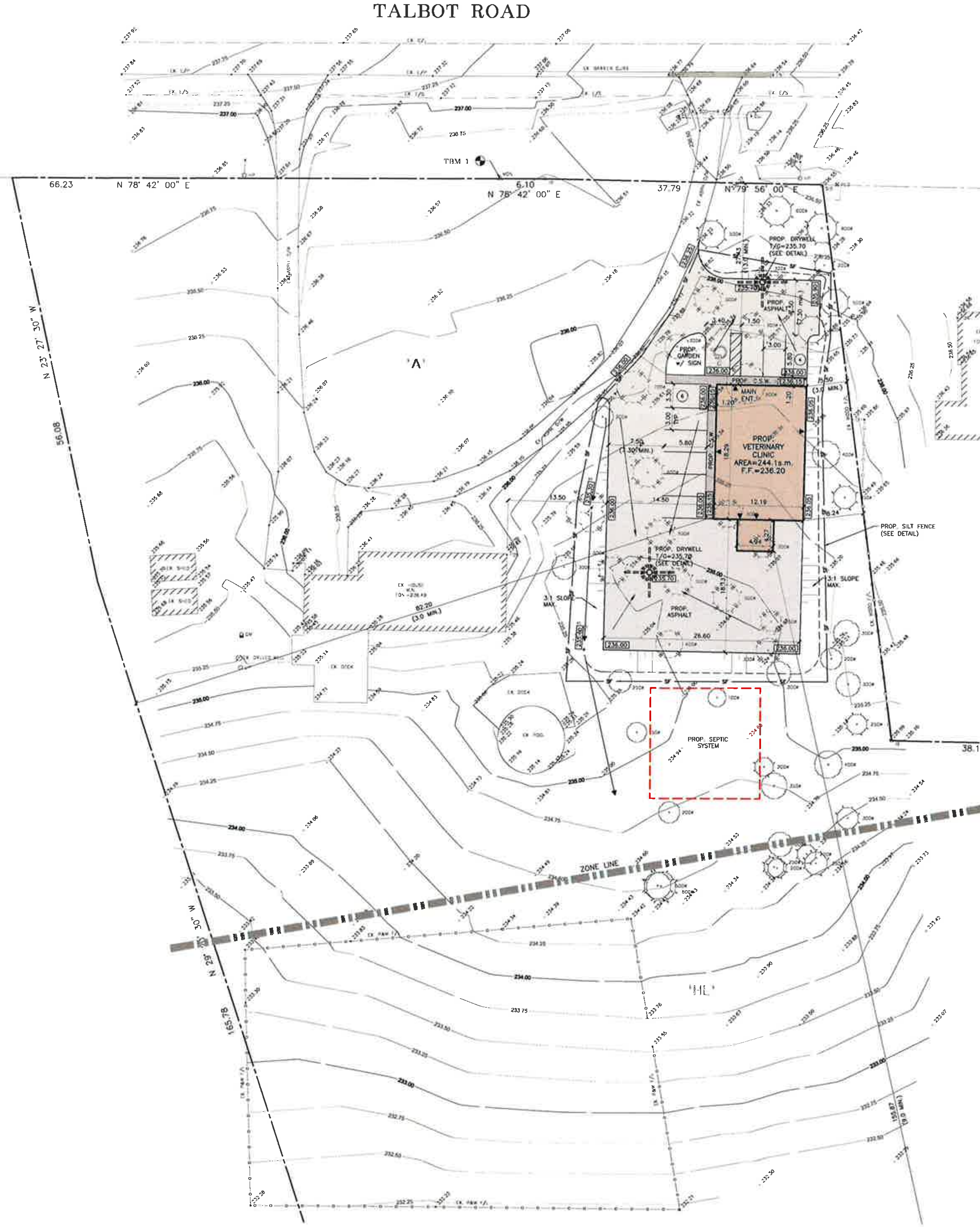
R.W. Phillips, P.Eng.

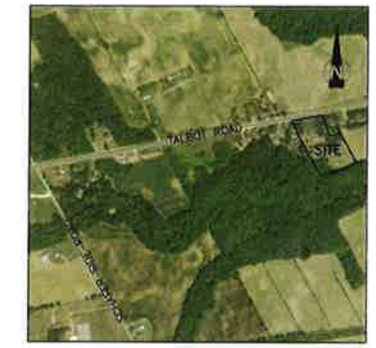
Appendix 'A'

J H Cohoon Engineering Limited – Site Development Plan

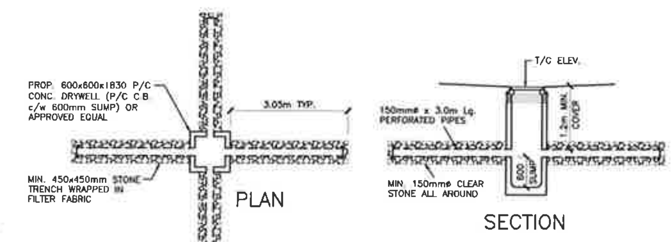
J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 Hardy Road, Unit #1, Brantford, ON N3T 5L8
Tel: (519) 753-2656 Fax: (519) 753-4263
www.cohooneng.com

Appendix 'B'
Land Use Aerial Photo of Subject Area





KEY PLAN

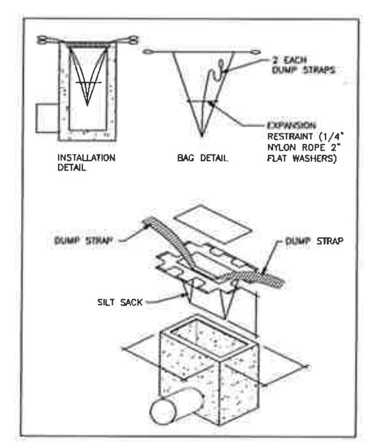


PROPOSED DRYWELL DETAIL
N.T.S.

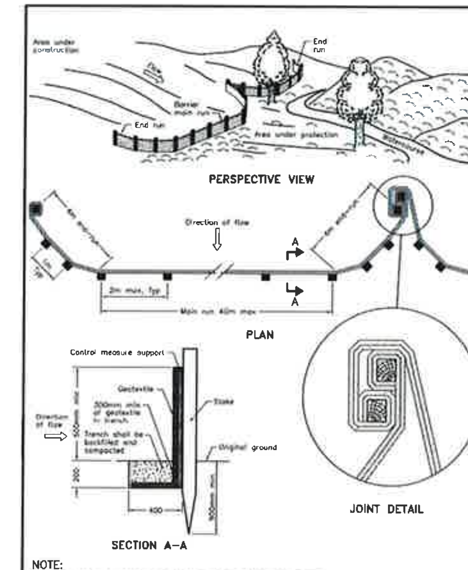
SITE STATISTICS

ITEM	*PROPOSAL*	*ZONING BYLAW REQUIREMENTS*
ZONING CATEGORY	A-xx (REZONE)	A
LOT AREA (sq. m.)	26,145	2000
LOT FRONTAGE (m)	110.12	30.00 MIN.
GROUND FLOOR AREA (sq. m.)	244.1	N/A
STREET SETBACK (m)	27.43	13.00 MIN.
REAR YARD (m)	155.87	9.00 MIN.
SIDE YARD (m)	5.50 & 82.20	3.00 MIN.
NUMBER OF PARKING SPACES	10	10
NUMBER OF BARRIER FREE PARKING SPACES	1	1
PARKING STALL DIMENSIONS (m)	3.00 x 5.80	3.00 x 5.80
BARRIER FREE PARKING STALL DIMENSIONS (m)	4.90 x 5.50	4.90 x 5.50 (TYPE 'A')
BUILDING HEIGHT (m)	4.50	11.00 MAX.

* CALCULATION IS BASED ON 1 PARKING SPACE FOR EVERY 25sq.m. OF USABLE FLOOR AREA.



SILT SACK DETAIL
N.T.S.



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2015 | Rev 2

HEAVY-DUTY SILT FENCE BARRIER

OPSD 219.130

LEGEND:

- EXISTING ELEVATIONS
- PROPOSED ELEVATIONS
- PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE
- EX. TREES
- EX. TREES TO BE REMOVED
- SILTATION FENCE
- SILT SACK AS SHOWN

NOTES:

1. ALL ELEVATIONS SHOWN ARE METRIC.
2. BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (ie. SIDEYARDS, SETBACKS, REARYARDS ETC.)
3. THE SILTATION & EROSION CONTROL (SEC) MEASURES ILLUSTRATED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENT. SITE CONDITIONS MAY REQUIRE ADDITIONAL MEASURES WHICH WILL BE IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.
4. ALL SEC MEASURES ARE TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. OWNER/CONTRACTOR TO MAINTAIN EROSION CONTROL MEASURES THROUGHOUT SITE UNTIL A COMPLETE GRASS/VEGETATION COVER IS ACHIEVED.
6. ONLY AT THE DIRECTION OF THE ENGINEER ARE THE SEC MEASURES TO BE REMOVED.
7. SITE WORKS ARE TO BE STAGED IN SUCH A MANNER THAT EROSION WILL BE MINIMIZED, AND THE CONSULTANT MUST PROVIDE CONFIRMATION THAT ALL APPROVED SILTATION AND EROSION CONTROL FACILITIES HAVE BEEN INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING, EXCAVATION OR DEMOLITION.
8. CLEARING AND GRUBBING OF THE SITE SHOULD BE KEPT TO A MINIMUM AND VEGETATION REMOVED ONLY IN ADVANCE OF IMMEDIATE CONSTRUCTION.
9. STOCKPILES OF EARTH OR TOPSOIL ARE TO BE LOCATED AND PROTECTED TO MINIMIZE ENVIRONMENTAL INTERFERENCE. EROSION CONTROL FENCING IS TO BE INSTALLED AROUND THE BASE OF ALL STOCKPILES.
10. THE OWNER IS RESPONSIBLE TO ENSURE THE MUNICIPAL ROADWAYS ARE CLEANED OF ALL SEDIMENTS FROM VEHICULAR TRACKING ETC. TO AND FROM THE SITE, AT THE END OF EACH WORKDAY.
11. ALL DISTURBED AREAS, NOT INCLUDED IN THE CONSTRUCTION ZONE, ARE TO BE TOPSOILED AND SEEDED IMMEDIATELY AFTER COMPLETION OF AREA GRADING.
12. ALL EXISTING AND PROPOSED CATCHBASINS ON THE SUBJECT PROPERTY, PLUS ANY CATCHBASINS WITHIN THE INFLUENCE OF RUNOFF FROM THE SITE, ARE TO BE PROTECTED WITH FILTER CLOTH OR APPROVED EQUIVALENT.

T.B.M. No. 1 ELEV. = 0m (GEO)
TOP NUT OF FIRE HYDRANT AT INTERSECTION AS SHOWN

NO.	REVISION	DATE (MM/DD/YY)	BY

J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
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PROJECT:
PROPOSED VETERINARY CLINIC
522 TALBOT ROAD, DELHI
NORFOLK COUNTY

CLIENT:
JOE'S CARPENTRY

SITE DEVELOPMENT PLAN

DESIGN:	R.W.P.	SCALE:	1:300
DRAWN:	S.L.M./K.P.B.	JOB No:	15135
CHECKED:	R.W.P.		
SHEET:	1 of 1	DWG. No:	15135-1
DATE:	FEB. 11/22		

Norfolk County
Operations
591 Norfolk Street, South
Simcoe, Ontario N3Y 4K1
519-426-5870
www.norfolkcounty.ca

February 24, 2022

Attention: Norfolk County Planning Department
Re: Review of Significant Woodland at 522 Talbot Rd., Delhi, Ontario. (Roll number 3310494040122010000)

This letter is in regards to a review of the designation of Significant Woodland in Norfolk County's Official Plan on a property located at 522 Talbot Rd. in Delhi, Ontario.

I have had an opportunity to attend the site on Wednesday, November 17, 2021, for the purpose of evaluating the accuracy of the Significant Woodland mapping as it pertains to the subject property.

In my opinion, the quantity and arrangement of trees on the property, in the location of the proposed development, does not constitute a woodland or natural area as intended through the designation of Significant Woodland in Norfolk County's Official Plan. The site is sparsely treed and the majority of the land is maintained as a lawn area.

The trees contained on the property include white spruce (*Picea glauca*), blue spruce (*Picea pungens*), crab apple (*malus sp.*), sugar maple (*Acer saccharum*), Norway spruce (*Picea abies*) and black oak (*Quercus velutina*). Most trees are non-native species and all can reasonably be considered to have been planted for ornamental or landscape purposes.

For this reason, I would recommend that Norfolk County waive any requirement for the owner of the land to undertake an Environmental Impact Study, pursuant to Section 3.5.2 and 9.7.1 of the Norfolk County Official Plan, with respect to the proposed development.

I can be contacted directly for any further information.

Regards,

Adam Biddle
Supervisor, Forestry
Operations Division
Simcoe, Ontario, Canada
519-426-5870 x. 2224

Fig. 1. Photo taken on Nov. 17, 2021, looking east on the property towards the neighbouring property to the east (proposed development area).

Fig. 2. Photo taken on Nov. 17, 2021, looking northeast on the property towards the neighbouring property to the east and Highway 3 (proposed development area).

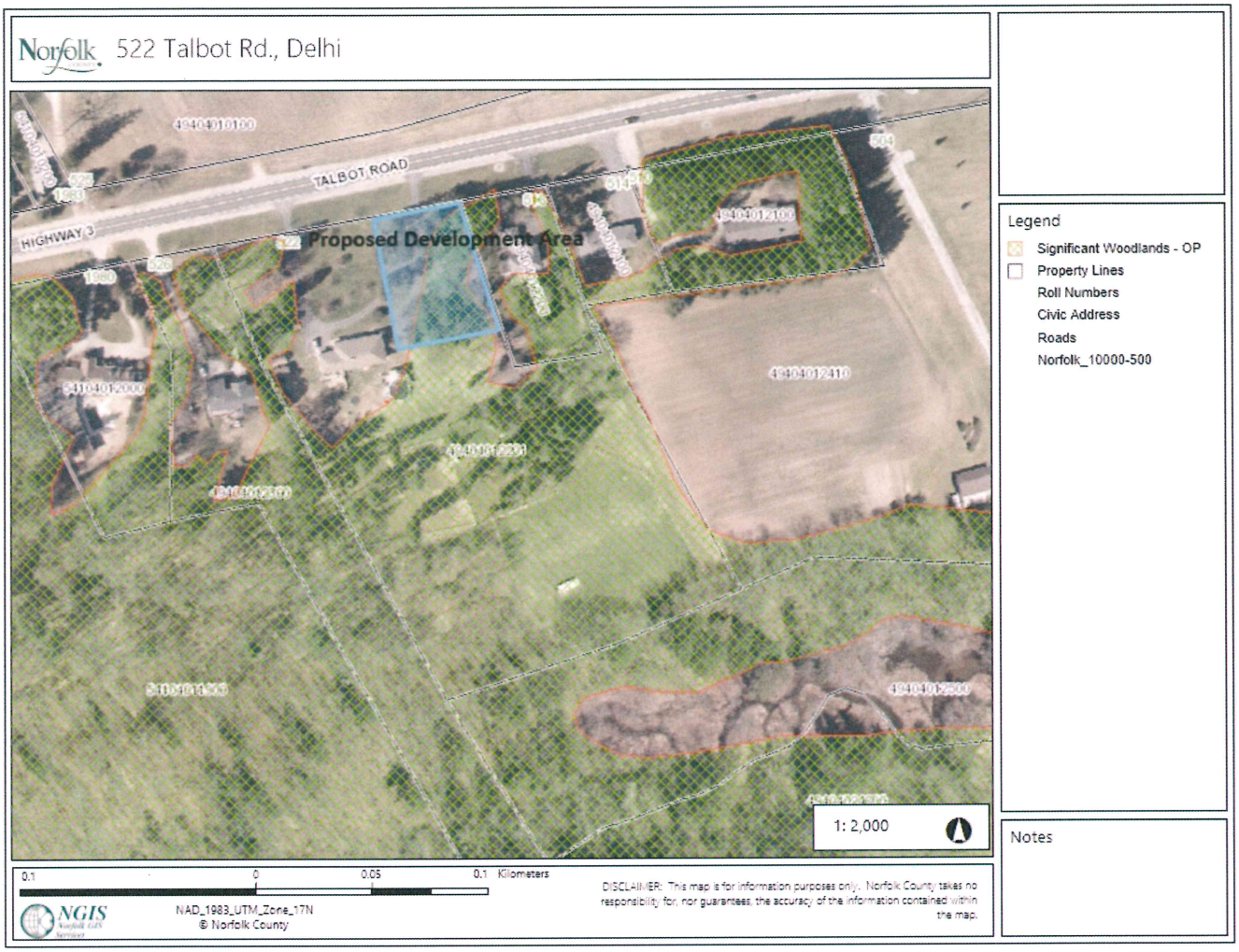


Fig. 3. Aerial view of property with "Significant Woodland" overlay. Approximate location of proposed development area highlighted in blue.

The Corporation of Norfolk County

By-Law __-Z-2022

Being a By-Law to Amend Zoning By-Law 1-Z-2014, as amended, for property described as Part Lot 184, Concession 1 STR, Geographic Township of Midleton, Norfolk County in the Name of Eric Elver and Dr. Emily Zakrajsekeric.

WHEREAS Norfolk Council is empowered to enact this By-Law, by virtue of the provisions of Section 34 and 36(1) (Holding) of the *Planning Act, R.S.O. 1990, CHAPTER P.13*, as amended;

AND WHEREAS this By-Law conforms to the Norfolk County Official Plan.

NOW THEREFORE the Council of The Corporation of Norfolk County hereby enacts as follows:

1. That Schedule A of By-Law 1-Z-2014, as amended, is hereby further amended by changing the zoning of the subject lands identified on Map A (attached to and forming part of this By-Law) from Agricultural *Zone* (A) to Agricultural *Zone* with a holding (A(H)).

2. That Schedule A of By-Law 1-Z-2014, as amended, is hereby further amended by delineating the lands identified as the subject lands on Map A (attached to and forming part of this By-Law) as having reference to Subsection 14.___;

3. That Subsection 14 Special Provisions is hereby further amended by adding the following:

   14._____ In addition to the uses *permitted* in the Agricultural (A) *Zone,* an animal hospital of 230 sq. m. shall be permitted.

4. That the holding (H) provision of this By-Law shall be removed upon the registration of a site plan and entering into a development agreement that has been executed and registered on title to the satisfaction of Norfolk County.

5. That the effective date of this By-Law shall be the date of passage thereof.

ENACTED AND PASSED this date day of month, 2022.

Mayor

County Clerk

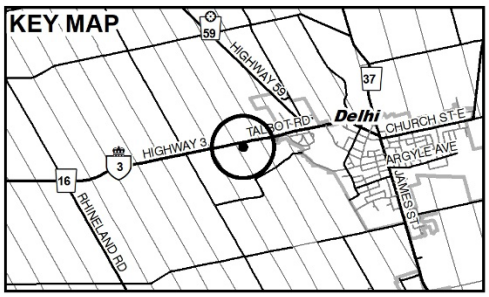
MAP A

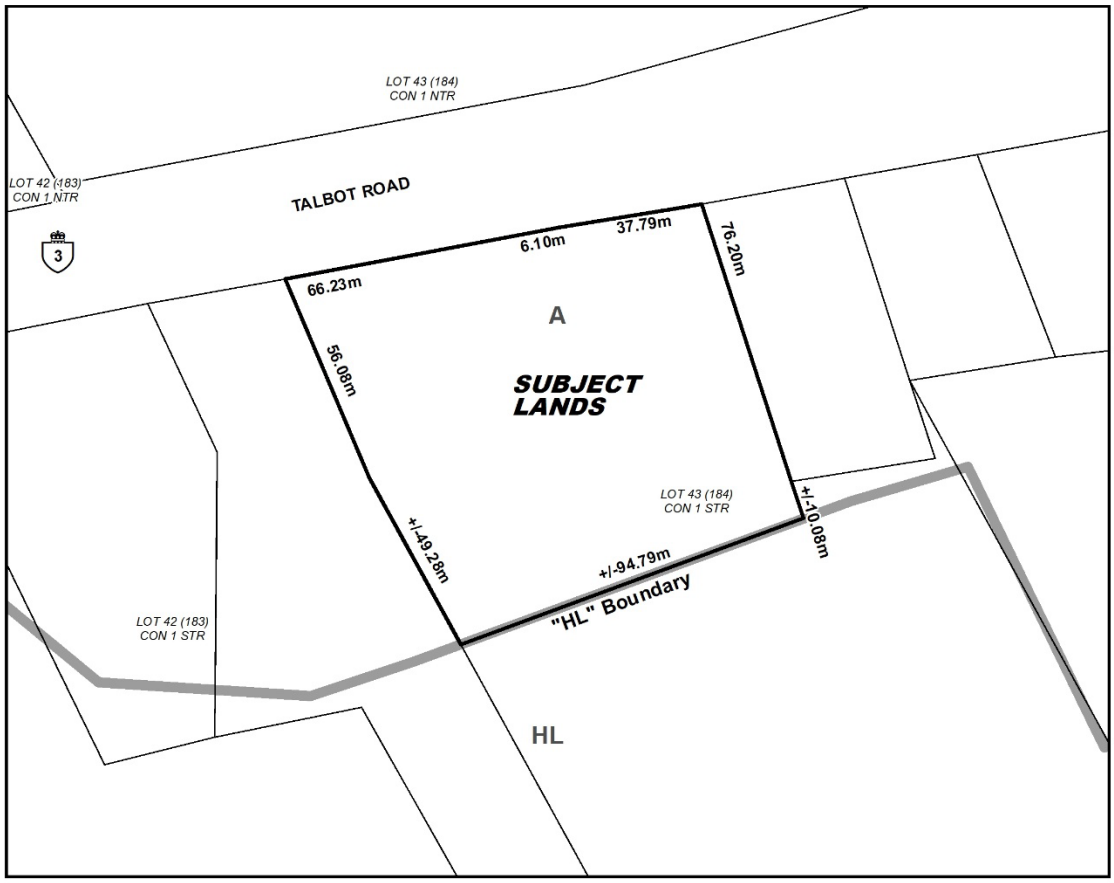
ZONING BY-LAW AMENDMENT

NORFOLK COUNTY

In the Geographic Township of

MIDDLETON





LEGEND

Subject Lands

From: A

To: A with Special Provision

ZONING BY-LAW 1-Z-2014

(H) - Holding

A - Agricultural Zone

HL - Hazard Land Zone

N

1:1,500

10 5 0 10 20 30 40 Meters

This is MAP A to Zoning By-law _____ Passed the __day of _____.

MAYOR

CLERK

Explanation of the Purpose and Effect of

By-Law __-Z-2022

This By-Law affects a parcel of land described as Part Lot 184, Concession 1 STR, Geographic Township of Midleton, Norfolk County, located at 522 Talbot Road.

The purpose of this By-Law is to change the zoning on the subject lands to permit an animal hospital to service farm animals and domestic pets to a maximum size of 230 square metres.

1. A site plan application is required to address the comments received during the circulation. A holding “(H)” provision is being placed on the zoning on the subject lands to ensure the appropriate development agreement is executed and registered on title to the satisfaction of Norfolk County.

Applicant ERIC ELVER AND DR. EMILY ZAKRAJSEK
File Number ZNPL2022062
Report Number CD 22-034
Assessment Roll Number 3310494040122010000