



Functional Servicing Report for:

**McFarlane Health  
535 Main Street North  
Mount Forest, Wellington North**

**GMBP File: 321056**

**September 2024**



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**FUNCTIONAL SERVICING REPORT****535 MAIN STREET NORTH****MOUNT FOREST, WELLINGTON NORTH****SEPTEMBER 2024**

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**1. INTRODUCTION**

GM BluePlan Engineering Limited has been retained by McFarlane Health to prepare a Functional Servicing Report to support a Site Plan Agreement (SPA) for a proposed dental office to be located at 535 Main Street North in Mount Forest (the "Subject Property"). The intent of this report is to demonstrate that the proposed development will be adequately serviced and will have no detrimental impact to surrounding lands. This report will address the engineering related items as received from the Township of Wellington North and the County of Wellington during the pre-consultation process.

**2. SITE INFORMATION**

The Subject Property is approximately 0.48 hectares in size (1.19 acres) and located at the north end of Main Street in Mount Forest, immediately adjacent to Young's Home Hardware. The property has frontage of 29.48m on Main Street North, which is the Connecting Link portion of Highway 6, and is wholly located within Wellington North. The property, along with the immediately adjacent property to the north was previously used for an RV sales and service centre. We understand that the proposed use will be for a dental office.

Appendix 'A' shows the site's location and Appendix 'B' shows the site and grading plans.

**3. SITE SERVICING**

As the Subject Property is located within the Mount Forest settlement boundary, it will be fully serviced by municipal sanitary and water. These are further discussed below.

**3.1 Water Service**

The municipal watermain in this area consists of a 300mm diameter main and is located on the east side of Main Street in the boulevard opposite the Subject Property. There is a 150mm diameter water service extended across Main Street to the adjacent Home Hardware, however the Township have indicated that this is not available for servicing the Subject Property. As a result, it will be necessary to directionally bore a water service under Main Street and connect to the water main opposite.

It is proposed to install a 50mm water service complete with curb stop on the Subject Property and saddle with live tap into the watermain in the opposite boulevard. Final sizing of the water service will be determined by the building designer.

**3.2 Sanitary Service**

Wellington North has a gravity sanitary sewer system installed within Mount Forest however it does not extend as far north on Main Street as this property. Wellington North will not permit septic systems within the urban boundary and that connection to the municipal system will be required. Currently, the gravity system ends at the intersection of Main Street and Mount Forest Drive, approximately 220m south of the Subject Property. Properties north of this point use low pressure pumped sanitary systems to direct sewage to the gravity system

via an existing small diameter municipal forcemain located in the east boulevard of Main Street. The connection point for the forcemain is the existing sanitary manhole located at Mount Forest Drive.

It is proposed to service the Subject Property through the use of an on-site pumping station, provisionally sized as an E/One Sewer Systems grinder pump station model #DH272. The on-site pump station will discharge through a 32mm diameter pressure pipe and connect to the existing municipal forcemain in the opposite boulevard of Main Street. Installation of the pressure pipe will be by directional bore. The pump station will also include an E/One "Uni-Lateral" kit installed at property line which includes a shut-off valve and check valve.

During pre-consultation it was noted that investigation into the capacity of the existing municipal forcemain would be required prior to connection. GM BluePlan have completed an analysis of the forcemain and conclude that it has sufficient capacity to permit this additional connection. The full analysis is provided under separate cover titled "Sewage pumping station and forcemain capacity assessment" and is appended to this report.

#### 4. STORM DRAINAGE

The site generally slopes from front to back, with a well-defined swale along the south property boundary between the subject property and Young's Home Hardware. Runoff from Main Street appears to be largely contained with a roadside ditch and drains generally towards Coral Lea Drive to the north. A site inspection revealed a drainage swale along the back of the property (west boundary) adjacent to 150 Coral Lea Drive, which is located within a drainage easement at the back of the Subject Property and drains to the north. The post-development site will retain the pre-development drainage patterns and runoff will be directed to the back of the site to be collected by the existing drainage swale.

The Subject Property currently consists largely of hard-packed gravel parking areas. The total amount of gravel area on the site is approximately 4,300 m<sup>2</sup>. The entire parcel measures 4,833 m<sup>2</sup> in size, which equates to a pre-development imperviousness of 89%. Post-development, the site is intended to have landscaped (pervious) area totalling approximately 1,000 m<sup>2</sup>. It has been calculated that the post-development site will have an overall imperviousness of 79%, less than pre-development. As a consequence, no quantity control is proposed for the Subject Property.

Runoff from the site will be directed to the existing drainage swale located at the west end of the site. The swale drains overland to the north and is heavily vegetated. The swale will provide a satisfactory measure of quality control prior to discharge and no further controls are proposed.

The Rational Method was used to calculate the peak runoff draining through the southern swale and rip-rap outlet channel. Storm peak intensities of 139 mm/hour and 383 mm/hour were used for the 5-year and 100-year design storm events, respectively. The peak runoff through the swale south of the proposed building was calculated at two locations; at the building inline with the door and near the outlet by the parking lot, to ensure the swale conveyed the 100-year storm. The swale has a capacity of 0.227 m<sup>3</sup>/s with a peak flow of 0.048 m<sup>3</sup>/s at the door and a capacity of 0.348 m<sup>3</sup>/s with a peak flow of 0.128 m<sup>3</sup>/s near the parking lot.

The rip-rap outlet channel from the parking lot has a design capacity of 0.34 m<sup>3</sup>/s which will convey the 5-year storm event with a calculated peak runoff of 0.17 m<sup>3</sup>/s and contain 73% of the 100-year storm event with a calculated runoff of 0.46 m<sup>3</sup>/s. The remaining flow from the 100-year will safely sheetflow across the rear grass areas towards the existing drainage swale along the west boundary. The Catchment Area Figures and design calculations are enclosed in Appendix C.

#### 5. UTILITIES

It was noted during the site visit that overhead electrical servicing currently exists at the front of the property, and it is assumed that this can be utilized to service the proposed building. Both gas and telecom services are also indicated at the front of the subject property on the road drawings received from the Township.

## 6. ENTRANCE

The existing entrance onto Main Street is proposed to remain and be used by the Dental Office. It will be slightly reconfigured to meet the requirements of the MTO and to ensure it is entirely contained within the frontage of the Subject Property. The existing culvert will be replaced with a new 525mm diameter HDPE culvert, approximately 18.0 m in length.

## 7. MISCELLANEOUS SITE DETAILS

Other site details will be provided as follows:

- a. Snow storage will be located at the back of the lot on the grassed area beyond the parking.
- b. Waste bin location is shown on the site plan and will be fenced.
- c. Landscaping has been shown on the site plan.
- d. Lighting will be provided by building wall-packs only. No photometric plan is required
- e. A letter of opinion from a traffic engineer is provided under separate cover.

## 8. SUMMARY

In summary, the foregoing adequately demonstrates that the proposed Dentist Office on the Subject Property is achievable, can be adequately serviced, can be developed according to Township standards, and will have no detrimental impact to surrounding lands.

Municipal services are available and are of sufficient capacity, and other utilities such as electrical and telecom are similarly available along the frontage of the site. Stormwater runoff can be fully contained within the site and directed to the west to be collected by an existing drainage swale. The developed lot can be graded to generally comply with the Township's standards.

All of which is respectfully submitted.

GM BLUEPLAN ENGINEERING LIMITED

Per:

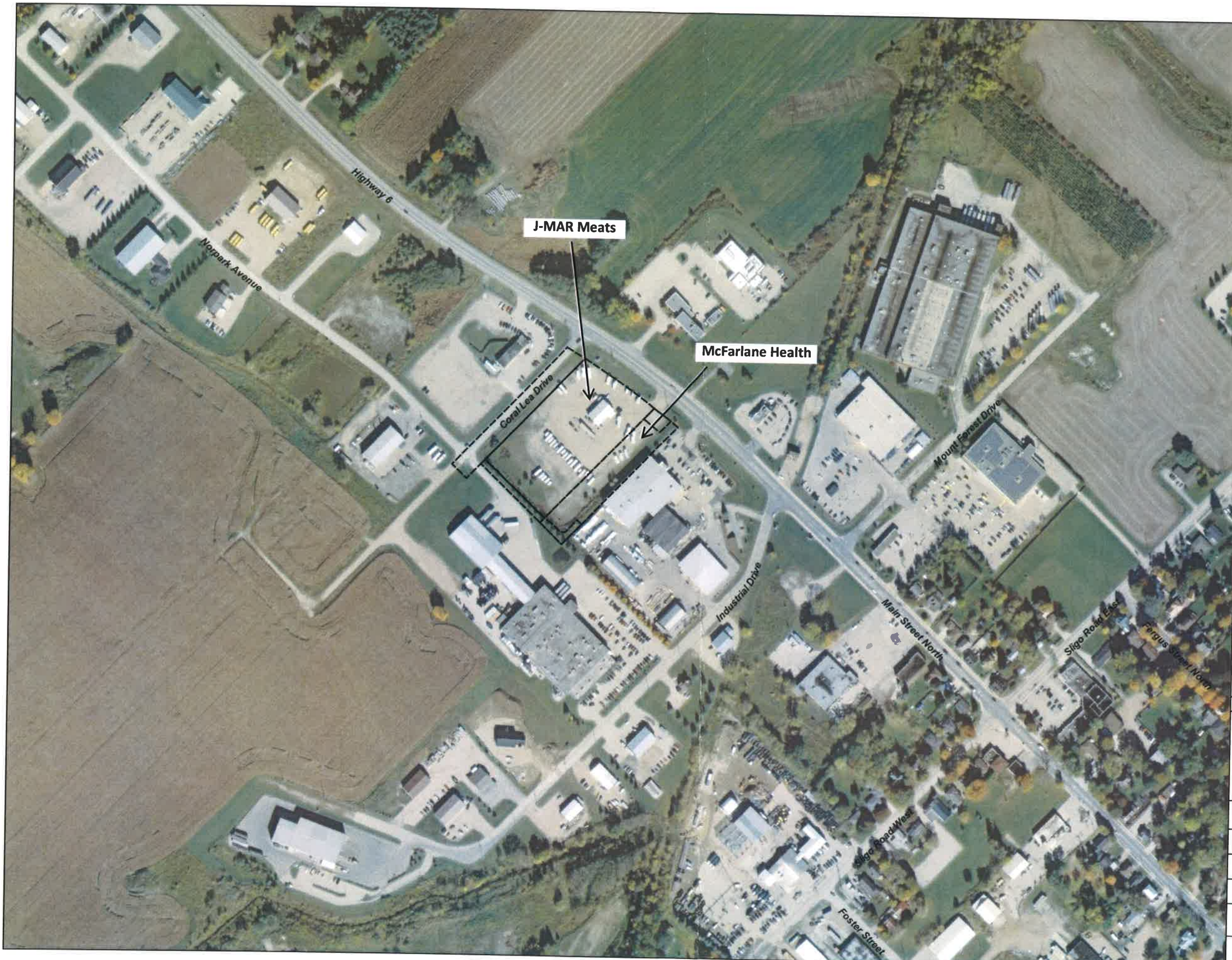
Brian Fritz, P.Eng.



**APPENDIX A  
SITE LOCATION**

**APPENDIX B**  
**SITE AND GRADING PLANS**





Legend



THE POSITION OF FIELD LINES, CONCRETE, RETAINING, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES BEFORE STARTING WORK. THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGES TO THESE.

NO	DATE	REVISION DESCRIPTION	CHKD



GUELPH | OWEN SOUND | LISTOWEL | KITCHENER | LONDON | HAMILTON |  
 875 WALLACE AVENUE, NORTH LISTOWEL, ON N4V 1J6  
 TEL: 519-291-8300 www.blueplan.ca

**McFarlane Health**  
 Township of Wellington North

Site Location

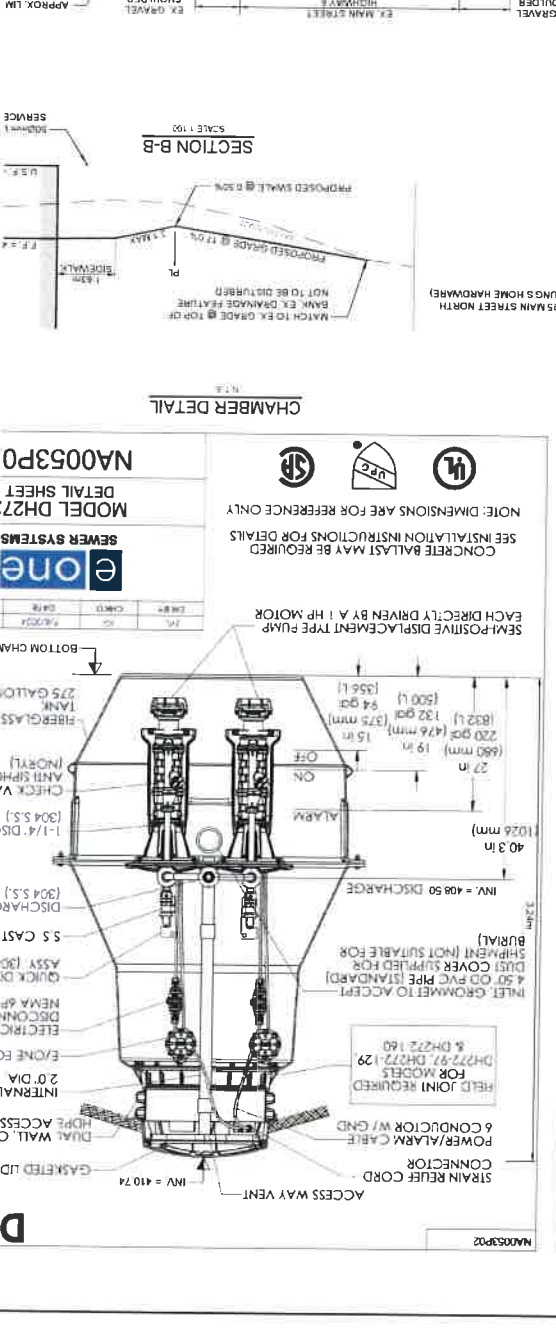
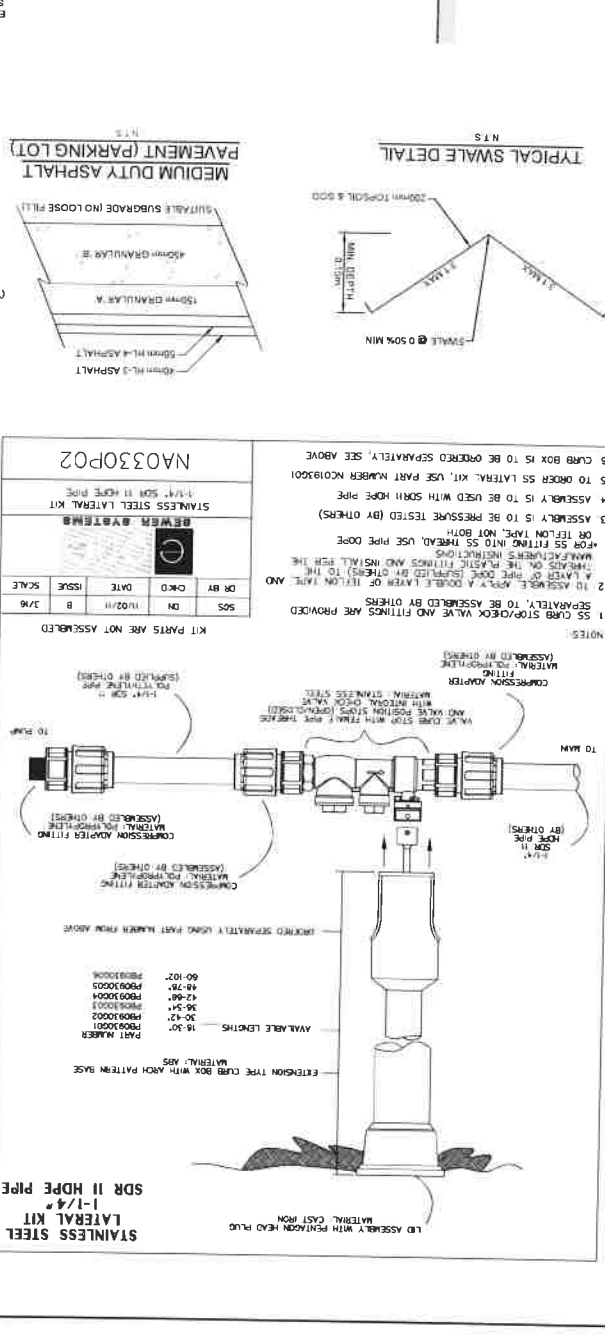
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- GENERAL NOTES**
1. ALL WORK AND MATERIAL TO BE COMPLETED AND CONFORM TO THE MOST CURRENT MUNICIPAL ORDINANCES AND SPECIFICATIONS. SEE TABLE 2 OF M.S. TO BE SUBMITTED TO THE TOWNSHIP WITH A MINIMUM OF 2 WEEKS PRIOR TO START OF CONSTRUCTION.
  2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
  3. A PRECONSTRUCTION MEETING IS REQUIRED BETWEEN THE OWNER, ENGINEER AND CONTRACTOR TOWNSHIP STAFF AND TOWNSHIP CONSULTING ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION.
  4. 96 HOUR NOTICE MUST BE GIVEN TO THE TOWNSHIP OPERATIONS DEPARTMENT PRIOR TO ANY CONSTRUCTION WITHIN THE TOWNSHIP ROAD ALLOWANCE.
  5. THE LOCATION AND EXTENT OF UTILITIES UNDERGROUND UTILITIES TO BE IDENTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL BE MARKED FOR A RANGE OF 0.6 METERS (2 FT) FROM LOCATION ON THESE PLANS AND LOCATED PROVIDED.
  6. CONTRACTOR SHALL SUBMIT PROOF OF INSURANCE AND MSIB CLEARANCE CERTIFICATE TO THE TOWNSHIP PRIOR TO START OF CONSTRUCTION.
  7. OWNER'S ENGINEER IS TO PROVIDE INSPECTION SERVICES DURING THE INSTALLATION OF THE WORKS AND THEIR CONTRACTOR TO PROVIDE CLEARANCE OF ANY REQUIRING INSPECTIONS TO ALLOW FOR THE COMPLETION OF THE WORKS.
  8. ALL TEMPORARY TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT ONTARIO TRAFFIC MANUAL BOOK 7 AND MUST BE SUBMITTED TO THE TOWNSHIP PRIOR TO THE START OF CONSTRUCTION.
  9. GEOTECHNICAL CONSULTANT SHALL BE RETAINED TO CONDUCT NECESSARY INSPECTIONS AND TESTING DURING CONSTRUCTION OF THE WORKS TO ENSURE PROPER PLACEMENT OF MATERIALS AND ADEQUATE COMPACTION.
  10. THE OWNER SHALL RECTIFY ALL EXISTING DISTURBED AREAS TO THE ORIGINAL CONDITION OR BETTER AND EXISTING MUNICIPAL SOIL EVIDENCE DURING CONSTRUCTION SHALL BE RESTORED WITHIN 200mm MIN. TOPSOIL AND SOIL UPON COMPLETION OF THE PROJECT UNLESS NOTED OTHERWISE.
  11. ALL PROPERTY BARS TO BE REINFORCED AND REPLACED BY O.S. AT THE OWNER'S EXPENSE IF REMOVED DURING CONSTRUCTION.
  12. TREE PLANTINGS SHALL BE INSTALLED AT MIN. 300mm ON PRIVATE SIDE OF PROPERTY LINE AS PER STANDARD DRAWING 101 OR AS SHOWN ON THE DRAWINGS.
  13. ALL EXISTING LIGHTING SHALL CONFORM WITH ZONING BY-LAW SECTION 6.8 AND BE DARK SKY COMPLIANT DIRECTED ONTO THE SITE AND SHALL NOT INTERFERE WITH THE ADJACENT PROPERTIES.
  14. OWNER TO SUBMIT UTILITY DESIGN TO THE TOWNSHIP FOR APPROVAL. OWNER'S ENGINEER TO REVIEW UTILITY DESIGN PRIOR TO SUBMISSION TO TOWNSHIP.
  15. RIP-RAP SHALL BE CLASS R-50 AS PER THE PROVISIONS OF SPSS MUNI 1004 AND PLACED ON TERRACE 270R OR APPROVED EQUIVALENT GEOTEXTILE.
- RESURFACE AND SEWAGE CONTROL**
1. SEWAGE AND SEWAGE CONTROL MEASURES ARE TO BE INSTALLED WHERE NECESSARY TO MINIMIZE THE OPPORTUNITY FOR WATER Borne SEWAGE TO BE TRANSPORTED FROM THE SITE TO THE ADJACENT PROPERTIES.
  2. ALL EROSION AND SEDIMENT CONTROL AND TEMPORARY MUD MATS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING OR EXCAVATING.
  3. REGION AND SEWAGE CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION AND CONDUCT INSPECTIONS ONCE EVERY TWO (2) WEEKS AND AFTER EACH SIGNIFICANT STORM EVENT. A SIGNIFICANT STORM EVENT IS DEFINED AS A MINIMUM OF 25mm OF RAIN IN ANY 24 HOUR PERIOD. THE INSPECTIONS AND MAINTENANCE OF THE TEMPORARY SEWAGE AND EROSION CONTROL MEASURES SHALL CONTINUE UNTIL THEY ARE NO LONGER REQUIRED AND AT WHICH TIME THEY SHALL BE REMOVED AND ALL DISTURBED AREAS REINSTATED PROPERLY.
  4. ALL CONSTRUCTION VEHICLES MUST ENTER AND EXIT THE SITE THROUGH APPROVED CONSTRUCTION ACCESS ONLY.
  5. THE CONTRACTOR SHALL KEEP ALL PUBLIC ROADSWAY FREE OF DEBRIS DURING THE CONSTRUCTION PERIOD. ANY MATERIAL TRACKED FROM THE SITE SHALL BE PROMPTLY REMOVED FROM THE ROADWAY AT THE CONTRACTOR'S EXPENSE.
  6. DUST SUPPRESSION IS TO BE PROVIDED AS REQUIRED OR AS DIRECTED BY THE TOWNSHIP.
- SITE WORKS**
1. BOULEVARDS TO HAVE A MINIMUM 200mm TOPSOIL AND SOIL.
  2. ALL FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS. GEOTECHNICAL TESTING SHALL BE COMPLETED BY THE SOILS CONSULTANT WITH RESULTS PROVIDED TO THE TOWNSHIP.
  3. SUBGRADE TO BE PROOF ROLLED CERTIFIED BY THE GEOTECHNICAL CONSULTANT PRIOR TO THE TOWNSHIP STAFF.
  4. GRANULAR COURSES TO BE COMPACTED TO 100% SPMD.
  5. ALL GRANULAR AND ASPHALT MATERIALS AND PLACEMENT TO BE IN ACCORDANCE WITH SPSS 310.314 AND 1010 ON OTHERWISE SPECIFIED.
  6. CONCRETE SIDEWALK SHALL BE PLACED AT A MIN. 2% GRADE SLOPED TOWARDS THE ASPHALT REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.
  7. CONCRETE CURB TO BE AS PER SPSS 600.110.
  8. MAXIMUM SLOPE OF ASPHALT TO BE 5%.
- SEWAGING**
1. HORIZONTAL DIRECTIONAL DRILLING TO BE COMPLETED AS PER SPSS MUNI 450. ALL UTILITIES LOCATED, DAYLIGHTED AND THE ELEVATIONS RECORDED AND IT CONFORM THERE WILL BE NO INFLUENCE ON THE LOCATION OF THE SEWAGE AND WATER MAINS.
  2. HORIZONTAL DIRECTIONAL DRILLING TO BE COMPLETED AS PER SPSS MUNI 450. ALL UTILITIES LOCATED, DAYLIGHTED AND THE ELEVATIONS RECORDED AND IT CONFORM THERE WILL BE NO INFLUENCE ON THE LOCATION OF THE SEWAGE AND WATER MAINS.

- WATER SERVICES**
1. WATER INSTALLATION IS REQUIRED FROM THE TOWNSHIP'S ENVIRONMENTAL SERVICES DEPARTMENT PRIOR TO INSTALLATION OF WATER SERVICE. WATER MAINS TO BE DEPARTED FROM THE ENVIRONMENTAL SERVICES DEPARTMENT PRIOR TO THE INSTALLATION OF WATER SERVICE. TOWNSHIP ENGINEER TO PROVIDE A MINIMUM OF 2 WEEKS NOTICE OF WATER MAINS TO BE DEPARTED FROM THE ENVIRONMENTAL SERVICES DEPARTMENT PRIOR TO THE INSTALLATION OF WATER SERVICE.
  2. ALL TESTING SHALL FOLLOW THE MOST CURRENT VERSIONS OF AWWA C651 DIRECTIONAL WATER MAINS MATERIALS SPECIFICATION PROCEDURE AUGUST 1, 2002 (TOWNSHIP REGULATION 1700) AND TOWNSHIP MUNICIPAL SERVICES STANDARDS. WATER MAINS COMMISSIONING PLAN IS TO BE PROVIDED TO THE TOWNSHIP FOR APPROVAL WITH A MINIMUM OF 2 WEEKS PRIOR TO ANY WATER SERVICE CONSTRUCTION. ONLY TOWNSHIP LICENSED OPERATIONS SHALL OPERATE VALVES AND PIPES.
  3. HORIZONTAL DIRECTIONAL DRILLING TO BE COMPLETED AS PER SPSS MUNI 450. ALL UTILITIES LOCATED, DAYLIGHTED AND THE ELEVATIONS RECORDED AND IT CONFORM THERE WILL BE NO INFLUENCE ON THE LOCATION OF THE SEWAGE AND WATER MAINS.
  4. SEPARATION DISTANCES BETWEEN SEWAGE AND WATER MAINS AND OTHER SERVICES AND WATER SERVICES SHALL BE AS PER M.E.C.P. PROCEDURE 1-41 IN GENERAL. 2.5M HORIZONTAL SEPARATION BETWEEN PARALLEL WATER MAINS AND VERTICAL SEPARATION AT CROSSINGS WHERE THE WATER MAINS ARE UNDER THE SEWAGE MAINS. THE SEWER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP.
  5. ALL WATER SERVICES SHALL HAVE A MINIMUM COVER OF 200mm.
  6. WATER SERVICES TO BE BEHIND AND COVER IN APPROVED SAND CONFORMING WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.
  7. WATER SERVICE TO BE 300mm DIA. TYPE 'K' CONCRETE OR CROSS-LINKED POLYETHYLENE (PEX) CONFORMING TO AWWA C900. WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.
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- SEWAGE SERVICES**
1. SEWAGE SERVICES TO BE 200mm DIA. TYPE 'K' CONCRETE OR CROSS-LINKED POLYETHYLENE (PEX) CONFORMING TO AWWA C900. SEWAGE MAINS SHALL BE INSTALLED IN ACCORDANCE WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.
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- SEWAGE SERVICES (CONTINUED)**
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  12. SEWAGE SERVICES TO BE 200mm DIA. TYPE 'K' CONCRETE OR CROSS-LINKED POLYETHYLENE (PEX) CONFORMING TO AWWA C900. SEWAGE MAINS SHALL BE INSTALLED IN ACCORDANCE WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.
  13. SEWAGE SERVICES TO BE 200mm DIA. TYPE 'K' CONCRETE OR CROSS-LINKED POLYETHYLENE (PEX) CONFORMING TO AWWA C900. SEWAGE MAINS SHALL BE INSTALLED IN ACCORDANCE WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.
  14. SEWAGE SERVICES TO BE 200mm DIA. TYPE 'K' CONCRETE OR CROSS-LINKED POLYETHYLENE (PEX) CONFORMING TO AWWA C900. SEWAGE MAINS SHALL BE INSTALLED IN ACCORDANCE WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.
  15. SEWAGE SERVICES TO BE 200mm DIA. TYPE 'K' CONCRETE OR CROSS-LINKED POLYETHYLENE (PEX) CONFORMING TO AWWA C900. SEWAGE MAINS SHALL BE INSTALLED IN ACCORDANCE WITH SPSS 1001 AND TO BE PLACED TO 300mm ABOVE THE TOP OF PIPE.



1. ALL WORK AND MATERIAL TO BE COMPLETED AND CONFORM TO THE MOST CURRENT MUNICIPAL ORDINANCES AND SPECIFICATIONS. SEE TABLE 2 OF M.S. TO BE SUBMITTED TO THE TOWNSHIP WITH A MINIMUM OF 2 WEEKS PRIOR TO START OF CONSTRUCTION.

2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.

3. A PRECONSTRUCTION MEETING IS REQUIRED BETWEEN THE OWNER, ENGINEER AND CONTRACTOR TOWNSHIP STAFF AND TOWNSHIP CONSULTING ENGINEER PRIOR TO THE START OF ANY CONSTRUCTION.

4. 96 HOUR NOTICE MUST BE GIVEN TO THE TOWNSHIP OPERATIONS DEPARTMENT PRIOR TO ANY CONSTRUCTION WITHIN THE TOWNSHIP ROAD ALLOWANCE.

5. THE LOCATION AND EXTENT OF UTILITIES UNDERGROUND UTILITIES TO BE IDENTIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL BE MARKED FOR A RANGE OF 0.6 METERS (2 FT) FROM LOCATION ON THESE PLANS AND LOCATED PROVIDED.

6. CONTRACTOR SHALL SUBMIT PROOF OF INSURANCE AND MSIB CLEARANCE CERTIFICATE TO THE TOWNSHIP PRIOR TO START OF CONSTRUCTION.

7. OWNER'S ENGINEER IS TO PROVIDE INSPECTION SERVICES DURING THE INSTALLATION OF THE WORKS AND THEIR CONTRACTOR TO PROVIDE CLEARANCE OF ANY REQUIRING INSPECTIONS TO ALLOW FOR THE COMPLETION OF THE WORKS.

8. ALL TEMPORARY TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT ONTARIO TRAFFIC MANUAL BOOK 7 AND MUST BE SUBMITTED TO THE TOWNSHIP PRIOR TO THE START OF CONSTRUCTION.

9. GEOTECHNICAL CONSULTANT SHALL BE RETAINED TO CONDUCT NECESSARY INSPECTIONS AND TESTING DURING CONSTRUCTION OF THE WORKS TO ENSURE PROPER PLACEMENT OF MATERIALS AND ADEQUATE COMPACTION.

10. THE OWNER SHALL RECTIFY ALL EXISTING DISTURBED AREAS TO THE ORIGINAL CONDITION OR BETTER AND EXISTING MUNICIPAL SOIL EVIDENCE DURING CONSTRUCTION SHALL BE RESTORED WITHIN 200mm MIN. TOPSOIL AND SOIL UPON COMPLETION OF THE PROJECT UNLESS NOTED OTHERWISE.

11. ALL PROPERTY BARS TO BE REINFORCED AND REPLACED BY O.S. AT THE OWNER'S EXPENSE IF REMOVED DURING CONSTRUCTION.

12. TREE PLANTINGS SHALL BE INSTALLED AT MIN. 300mm ON PRIVATE SIDE OF PROPERTY LINE AS PER STANDARD DRAWING 101 OR AS SHOWN ON THE DRAWINGS.

13. ALL EXISTING LIGHTING SHALL CONFORM WITH ZONING BY-LAW SECTION 6.8 AND BE DARK SKY COMPLIANT DIRECTED ONTO THE SITE AND SHALL NOT INTERFERE WITH THE ADJACENT PROPERTIES.

14. OWNER TO SUBMIT UTILITY DESIGN TO THE TOWNSHIP FOR APPROVAL. OWNER'S ENGINEER TO REVIEW UTILITY DESIGN PRIOR TO SUBMISSION TO TOWNSHIP.

15. RIP-RAP SHALL BE CLASS R-50 AS PER THE PROVISIONS OF SPSS MUNI 1004 AND PLACED ON TERRACE 270R OR APPROVED EQUIVALENT GEOTEXTILE.

**RESURFACE AND SEWAGE CONTROL**

1. SEWAGE AND SEWAGE CONTROL MEASURES ARE TO BE INSTALLED WHERE NECESSARY TO MINIMIZE THE OPPORTUNITY FOR WATER Borne SEWAGE TO BE TRANSPORTED FROM THE SITE TO THE ADJACENT PROPERTIES.

2. ALL EROSION AND SEDIMENT CONTROL AND TEMPORARY MUD MATS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING OR EXCAVATING.

3. REGION AND SEWAGE CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION AND CONDUCT INSPECTIONS ONCE EVERY TWO (2) WEEKS AND AFTER EACH SIGNIFICANT STORM EVENT. A SIGNIFICANT STORM EVENT IS DEFINED AS A MINIMUM OF 25mm OF RAIN IN ANY 24 HOUR PERIOD. THE INSPECTIONS AND MAINTENANCE OF THE TEMPORARY SEWAGE AND EROSION CONTROL MEASURES SHALL CONTINUE UNTIL THEY ARE NO LONGER REQUIRED AND AT WHICH TIME THEY SHALL BE REMOVED AND ALL DISTURBED AREAS REINSTATED PROPERLY.

4. ALL CONSTRUCTION VEHICLES MUST ENTER AND EXIT THE SITE THROUGH APPROVED CONSTRUCTION ACCESS ONLY.

5. THE CONTRACTOR SHALL KEEP ALL PUBLIC ROADSWAY FREE OF DEBRIS DURING THE CONSTRUCTION PERIOD. ANY MATERIAL TRACKED FROM THE SITE SHALL BE PROMPTLY REMOVED FROM THE ROADWAY AT THE CONTRACTOR'S EXPENSE.

6. DUST SUPPRESSION IS TO BE PROVIDED AS REQUIRED OR AS DIRECTED BY THE TOWNSHIP.

**SITE WORKS**

1. BOULEVARDS TO HAVE A MINIMUM 200mm TOPSOIL AND SOIL.

2. ALL FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS. GEOTECHNICAL TESTING SHALL BE COMPLETED BY THE SOILS CONSULTANT WITH RESULTS PROVIDED TO THE TOWNSHIP.

3. SUBGRADE TO BE PROOF ROLLED CERTIFIED BY THE GEOTECHNICAL CONSULTANT PRIOR TO THE TOWNSHIP STAFF.

4. GRANULAR COURSES TO BE COMPACTED TO 100% SPMD.

5. ALL GRANULAR AND ASPHALT MATERIALS AND PLACEMENT TO BE IN ACCORDANCE WITH SPSS 310.314 AND 1010 ON OTHERWISE SPECIFIED.

6. CONCRETE SIDEWALK SHALL BE PLACED AT A MIN. 2% GRADE SLOPED TOWARDS THE ASPHALT REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.

7. CONCRETE CURB TO BE AS PER SPSS 600.110.

8. MAXIMUM SLOPE OF ASPHALT TO BE 5%.

**SEWAGING**

1. HORIZONTAL DIRECTIONAL DRILLING TO BE COMPLETED AS PER SPSS MUNI 450. ALL UTILITIES LOCATED, DAYLIGHTED AND THE ELEVATIONS RECORDED AND IT CONFORM THERE WILL BE NO INFLUENCE ON THE LOCATION OF THE SEWAGE AND WATER MAINS.

2. HORIZONTAL DIRECTIONAL DRILLING TO BE COMPLETED AS PER SPSS MUNI 450. ALL UTILITIES LOCATED, DAYLIGHTED AND THE ELEVATIONS RECORDED AND IT CONFORM THERE WILL BE NO INFLUENCE ON THE LOCATION OF THE SEWAGE AND WATER MAINS.

**APPENDIX C**  
**SWALE & OUTLET CHANNEL CATCHMENT**  
**AREAS AND DESIGN CALCULATIONS**

**McFarlane Dentist, Mount Forest**

**SWALE SOUTH OF BUILDING LINED UP WITH DOOR**

PEAK FLOW RATE - RATIONAL METHOD

$C = 0.42$  runoff coefficient (roof/asp 0.95 x 38% imp) + (grass 0.10 x 62%)

$A = 0.1067$  ha

$i = 383$ mm/hr (100-yr)

$Q = 0.048$  m<sup>3</sup>/s

Manning's Equation = 195mm depth at 0.42 m/s

**SWALE SOUTH NEAR PARKING LOT**

PEAK FLOW RATE - RATIONAL METHOD

$C = 0.60$  runoff coefficient (roof/asp 0.95 x 58% imp) + (grass 0.10 x 42%)

$A = 0.1997$  ha

$i = 383$ mm/hr (100-yr)

$Q = 0.128$  m<sup>3</sup>/s

Manning's Equation = 270mm depth at 0.52 m/s

**RIP-RAP OUTLET CHANNEL**

PEAK FLOW RATE - RATIONAL METHOD

$C = 0.73$  runoff coefficient (roof/asp 0.95 x 74% imp) + (grass 0.10 x 26%)

$A = 0.588$  ha

$i = 139$ mm/hr (5-yr)

$Q = 0.167$  m<sup>3</sup>/s

Design Channel conveys 5-year storm

**RIP-RAP OUTLET CHANNEL**

PEAK FLOW RATE - RATIONAL METHOD

$C = 0.73$  runoff coefficient (roof/asp 0.95 x 74% imp) + (grass 0.10 x 26%)

$A = 0.588$  ha

$i = 383$ mm/hr (100-yr)

$Q = 0.460$  m<sup>3</sup>/s

Design Channel conveys 73% of 100-year storm

**MANNING'S EQUATION**

**South Swale Design (Door X-section)**

Manning's n : n = 0.035  
Bottom Width: W = 0.01  
Depth of Flow: d = 0.35  
Side Slopes: Ss = 3 :1  
Channel Slope: Sc = 0.0050 m/m  
Top Width: Tw = 2.11 m  
Sectional Area: A = 0.371 m<sup>2</sup>  
Wetted Perimeter: P = 2.22 m  
Hydraulic Radius: R = 0.167 m  
Flow: Q = 0.227 m<sup>3</sup>/s  
Velocity: V = 0.612 m/s

**South Swale Design (X-section at outlet)**

Manning's n : n = 0.035  
Bottom Width: W = 0.01  
Depth of Flow: d = 0.41  
Side Slopes: Ss = 3 :1  
Channel Slope: Sc = 0.0050 m/m  
Top Width: Tw = 2.47 m  
Sectional Area: A = 0.5084 m<sup>2</sup>  
Wetted Perimeter: P = 2.60 m  
Hydraulic Radius: R = 0.195 m  
Flow: Q = 0.346 m<sup>3</sup>/s  
Velocity: V = 0.680 m/s

**Outlet Channel Design**

Manning's n : n = 0.035  
Bottom Width: W = 2.5  
Depth of Flow: d = 0.150  
Side Slopes: Ss = 3 :1  
Channel Slope: Sc = 0.0110 m/m  
Top Width: Tw = 3.4 m  
Sectional Area: A = 0.4425 m<sup>2</sup>  
Wetted Perimeter: P = 3.45 m  
Hydraulic Radius: R = 0.128 m  
Flow: Q = 0.337 m<sup>3</sup>/s  
Velocity: V = 0.762 m/s