

Memorial Park Master Plan

Municipality of Meaford

**R.J. Burnside & Associates Limited
3 Ronell Crescent
Collingwood ON L9Y 4J6 CANADA**

**October 2021
300043326.0000**

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	Municipality of Meaford

Record of Revisions

Revision	Date	Description
0	January 28, 2020	Initial Draft Submission to Municipality of Meaford
1	May 19, 2020	Final Submission to Municipality of Meaford
2	July 6, 2020	Revisions to Submission to Municipality of Meaford
3	October 4, 2021	Revised Final Submission to Municipality of Meaford

R.J. Burnside & Associates Limited

Report Prepared By:



Tricia Radburn, M.Sc. (PI), MCIP, RPP
Senior Environmental Planner
TR:sd/js

Co-Author:



Jessica Harbourne
Civil Technologist

Report Reviewed By:



Shawn Watters, O.A.L.A
Project Manager
SW:sd/js

Executive Summary

Memorial Park (the Park) is a 13 ha (32 ac) property with 468 m of Georgian Bay shoreline. The beach is the only sandy public beach in the Municipality of Meaford (Municipality). The Park has been an important recreational area for Meaford residents and visitors since 1953, when the majority of the property was dedicated to the Town of Meaford from the Moore family for two dollars. The dedication included some covenants such as the lands could only be used as a Public Park and the Municipality shall maintain public street access to the Moore property to the east. Since that time, campgrounds and other recreational amenities have been added by past and present Municipal Governments and volunteer service organizations but the Park remains fundamentally a public recreational space.

This Master Plan is a culmination of policy review, public consultation, landscape architecture and engineering activities. This Master Plan was developed through a series of steps, as follows:

- An inventory of existing facilities and servicing and an analysis of deficiencies.
- Development of several high-level Park plan options.
- Consultation with key interest groups and Stakeholders, adjacent property owners and tenants and the general public.
- Review and analysis of Park Policies, Building Code requirements, General Park Guidelines and Best Practices.
- Refinement of the high-level Park plans into a Master Plan, considering public comments and guidance documents.

Existing Conditions

Of the Park's 13 ha (32 ac), 6.9 ha (17 ac) are developed for the campgrounds and other Park services. The remainder of the property is naturalized with formal and informal trails throughout the forested areas. The Park's facilities include:

- Park Office
- Workshop and Woodshed
- Kin Hall
- Beach Pavilion
- Beach Lookout Platform (now removed)
- Beach Washroom Facilities
- Upper and Lower Campground Washroom Facilities
- Recreational facilities, including
 - Mini-golf course
 - Beach playground
 - Upper Campground Horseshoe pits
 - Upper Campground playground

- Upper Campground Amphitheatre and Pavilion
- Walking trails throughout the property
- Various Family Gathering and Picnic areas

Camping is available in two areas: The Lower Campground at the Waterfront and the Upper Campground in the southeastern corner of the Park property. The Park currently operates from Mid-May to Mid-October annually.

The Park is utilized by local residents as well as visitors to the Municipality. However, as the park entrance is not controlled, day-use estimates are not available. The use of the Park by campers is more easily tracked through the reservation system and fees collected.

The 2015 Municipality's Recreation and Culture Strategic Master Plan indicates that in 2014, campground utilization was at 35% for the entire five-month operating season. With only peak months considered (July-August) utilization is estimated to be about 60%. Since that time, the number of nights stayed has steadily increased. Table E1 indicates the occupancy of campsite rentals at the Park between 2014 and 2019.

Table E1-1: Campground Occupancy Between 2014 and 2019

Year	Number of Nights Stayed
2019	9,139
2018	8,450
2017	8373
2016	7253
2015	7235
2014	6590

Burnside staff visited the Park several times between the fall of 2018 and fall of 2019 to review existing conditions and gain an understanding of any deficiencies and challenges. Various facility Building Condition Assessments (BCAs), Accessibility Audits, Energy Studies and Playground Inspections completed in 2016 and 2018¹ were also reviewed.

Much of the park infrastructure and facilities are aging and outdated. Burnside staff identified the need for various general upgrades and maintenance requirements for various buildings and infrastructure.

In order to confirm priorities and identify an overall vision for moving forward, contact was made with several key stakeholders and the general public. Consultation was a key part of the Master Planning process for Memorial Park. The opinions and preferences of the Park users and various interested groups allowed the Project Team to generate four alternative design options

¹ Various BCA, Accessibility Audits and Energy Studies [CCI Group Inc.(2016)]; Various BCA and Accessibility Audits [McIntosh Perry Limited (2018)]; Playground Inspections [Parcs, 2018)].

which balance the needs of the various stakeholders and users of the Park and its facilities, and to help identify the necessary upgrades needed for the Park's various facilities.

Consultation

Meetings with interested groups and stakeholders took place in November and December 2018. Three meetings took place to gather user input and gather opinions related to the project. Meetings were conducted with:

- Adjacent landowners on November 29, 2018 at the Meaford and St. Vincent Community Hall.
- Meaford Kinsmen on December 6, 2018 at Kin Hall, Memorial Park.
- Friends of Memorial Park on December 6, 2018 at the Meaford and St. Vincent Community Hall.

The Public Meeting was held on April 15, 2019 from 6:30 p.m. to 8:30 p.m. at the Meaford and St. Vincent Community Centre Dance Hall. The meeting was arranged as a "drop-in" style session. Display boards were placed around the room and members of the Study Team were available to answer questions and discuss the project with the public (Appendix E). A formal question and answer period was also provided. A total of 166 people attended the meeting. A total of 27 comment sheets were submitted at the meeting and additional comments were submitted after the meeting via email and an online submission form on the municipality's website. Comments were initially accepted until May 6, 2019 but following several requests the comment period was extended until September 15, 2019. In total, 166 comments were received.

Future Park Vision

With existing conditions and input from key stakeholders and the public, a future vision for the public was developed. The Official Plan and Recreation and Culture Strategic Master Plan provide the overall direction and principles guiding future development and operation of the Park. However, to date, no detailed park design standards or service levels have been articulated for the Park.

The Province of Ontario provides little direction with respect to park and campground design. As such, a jurisdictional review was undertaken to identify recommendations and guidance from other provinces, agencies and jurisdictions. The best practices identified through this review are not regulated or legally required to be implemented at Memorial Park, except where noted. However, if the Park is to provide a "properly planned" and "marketable" park experience, the direction outlined in park policy documents, the recommended guidelines provide a goal to which future park planning can strive.

A vision for Memorial Park over the next twenty-five years was developed based on feedback from the public, policy direction from previous park planning efforts and analysis related to the

Park's calculated capacity.

The vision for Memorial Park is as follows:

Memorial Park offers opportunities for inspiration, health, and recreational enjoyment on the shores of Georgian Bay while protecting the natural landscape through sustainable practises for residents, visitors, and future generations.

This vision is based on the following guiding principles:

1. Memorial Park is first and foremost a public park; future changes to camping facilities and occupancy utilization should not displace public use of the park;
2. The natural sandy beach is the number one feature of the park and should remain accessible to the public. Solutions to protect against high water levels should take this into account;
3. There will be no further reduction in green space acreage (including camping areas);
4. No long-term/seasonal camping will be permitted.

Specific goals have been identified to achieve the Park vision, taking into account the guiding principles. Goals are based on park capacity calculations, park planning standards, OP and Strategic Plan policies, and include:

Goal 1: Recreational facilities will be well maintained.

Goal 2: Any facility upgrades, retrofits or new construction should be completed with consideration to the Park's capacity, the Municipality's sustainable development goals, and all Building Code and *Accessibility for Ontarians with Disabilities Act* (AODA) standards.

Goal 3: Mixed camping between tents, pop-up trailers, and larger campers should be accommodated and promoted in order to encourage family camping and retain economic accessibility for all groups.

Goal 4: Woodlands will be well-managed, protected and enhanced where possible.

This vision will be achieved through a variety of facility upgrades, efficiencies, re-development and consolidation.

Recommendations to meet the Park vision and goals are wide ranging and include minor maintenance activities as well as major facility upgrades and construction projects that can be completed over the next twenty-five years.

Key Recommendations

Five major projects are included in the recommendations, as follows:

Major Project 1: Retaining Wall

- The retaining wall along the waterfront at the Lower Campground was failing and the Municipality has taken measures to fortify the shoreline with a slope of boulders. Before this action was taken, three options to address this issue were identified:
 - Rebuild the wall at generally the same location.
 - Rebuild the wall with set-back block layers.
 - Naturalize the embankment and eliminate the retaining wall.
- Next steps are to:
 - Engage the services of a shoreline erosion engineer familiar with alternatives to “hardening” approaches
 - Re-naturalize as much of the sandy beach as possible and as soon as possible; as the beach is the number one attraction in the park, every effort should be made to preserve public access to the sandy beach.
- The layout of the Lower Campground sites, access to the beach in this area and the need for safety measures such as guard rails will depend on which solution is selected.
- Since undertaking this study, some work has been completed by the municipality to address concerns.

Major Project 2: Reconfiguration of Beachfront Space and Consolidation of Buildings

- Kin Hall is aging and is deficient with respect to accessibility. Costly retrofits would be required to upgrade this building. The expense would not provide good value, given the condition of this structure. It is recommended that Kin Hall be removed.
- A new consolidated, multi-purpose building could be constructed that incorporates the pavilion, beach washroom and Kin Hall uses into one structure.
- The multi-purpose building should accommodate beach-goers with washrooms and changerooms. A meeting room space could be used for Kinsmen meetings and event rentals. The attached pavilion could serve as a picnic area for beach visitors as well as an outdoor space for events.
- With this type of major renovation, washrooms, building access and parking will need to be upgraded to meet AODA requirements.
- The Kinsmen should be a key participant in the removal of Kin Hall and design of a consolidated multi-purpose building as they have been key users and contributors to the development of these facilities.

Major Project 3: Reconfiguration of the Upper Campground

- Any reconfiguration of the upper campground should consist only of minor adjustments. Infrastructure updates to sewer, water, and hydro should proceed as needed.

- Mixed camping (tents, pop-up trailers, and large campers) should be accommodated and promoted.
- A reconfiguration option is shown on Figure 7-1 based on the recommendations provided in Section 5.6.
- By reconfiguring the size of campsites to accommodate mixed camping, the number of campsites in the Upper Campground would be reduced from 84 to 64.
- Despite the fewer number of campsites, the overall camping experience for visitors is expected to improve. This reconfiguration includes upgrades to provide full water and sanitary services to additional sites.
- Some building infrastructure may require significant work; if so they may need to be replaced with AODA compliant structures.
- No reduction in green space or play areas should occur.
- All of the trees in the park should be managed by professional arborists to ensure a healthy forest canopy and health mature trees should not be removed to provide for larger camp sites.
- No permanent camping structures such as cabins or yurts should be provided.

Major Project 4: Reconfiguration of the Lower Campground

- The lower campground can be reconfigured to move sites back from the waterfront to improve safety and to make the waterfront physically and psychologically available to the general public.
- Increasing the size of sites is also recommended to provide an improved camping experience. Campsites will be angled to allow for improved access for larger trailers.
- These recommendations would reduce the number of campsites in the Lower Campground from 30 to 16.

Tree management in the lower campground should be the same as the rest of the park. Trees should be managed by professional arborists to ensure a healthy forest canopy; mature trees should not be removed to provide for larger camp sites.

Major Project 5: Formalizing and Upgrading the Trail and Road Network

- Maintaining the woodland area is a key priority and any work within the woodland area should be undertaken only as required to update and maintain the trail network and infrastructure in the area. No new development (e.g., campground expansion or new facilities) should occur within the woodland area.
- The trail network within the woodland should be consolidated and formalized. Informal trails should be closed and rehabilitated.
- Provide regular maintenance of all formal trails as required.
- The main trail loop should be identified and upgraded to meet AODA requirements.
- Wayfinding signage should be provided along trail routes and at trail junctions.
- Provide rest areas (ex. park benches), add amenities such as bird houses, dog “poop and scoop” disposal and bag dispenser etc.

- Further examine the potential to create a trail linkage to the south, beyond the Park to create a connection with the Georgian Trail.

A full list of recommendations, cost estimates and priorities is provided in Table 7-2 of the main document.

Next Steps

Among the key priorities is to continue to encourage interest groups such as Friends of Memorial Park and the Kinsmen to actively participate in Park upgrades. Activities that could be undertaken by these groups include fundraising, tree planting, trail maintenance, annual Park clean-ups, invasive species removal and planting of native species, developing interpretive materials etc. Fundraising to support park upgrades will be important. The Kinsmen and other groups can be approached to help with fundraising efforts.

Park and Municipal staff should meet regularly with interest groups to obtain ongoing feedback about the Park, design/coordinate volunteer projects and celebrate and appreciate volunteerism.

All projects recommended in this Master Plan will be considered within the Municipality's broader community and recreational planning and budget approval processes and will be subject to individual consideration and approval by Council.

This document should be used as a living document which will evolve as recreational needs; preferences; and priorities change. The Master Plan should be reviewed and updated every five to 10 years; each update will account for changes since the previous version and identify the course moving forward.

Table of Contents

1.0	Introduction	1
1.1	How the Master Plan was Developed	2
2.0	Existing Park Features	3
2.1	Park Overview	3
2.2	Park Users	4
2.3	Campground Use	5
2.4	Existing Park Facilities	5
2.5	Existing Park Conditions	8
2.5.1	Park Entrance	8
2.5.2	Waterfront and Beach	11
2.5.3	Campgrounds	14
2.5.4	Park-Wide Infrastructure and Servicing	21
2.5.5	Natural Environment	33
2.5.6	Potential Presence of Archaeological Resources	35
3.0	Community Engagement	35
3.1	Meetings with Interested Groups and Stakeholders	35
3.2	Camper Experience Survey	41
3.3	Preliminary Design Concepts	41
3.3.1	Concept 1: Basic Upgrade Only	41
3.3.2	Concept 2: Upgrade Waterfront and Trail Changes	41
3.3.3	Concept 3: Upgrade + Basic Campground Changes	42
3.3.4	Concept 4: Full Campground Upgrade and Expansion	42
3.4	Public Meeting	42
4.0	Park Policy, Plans and Guidelines	45
4.1	Official Plan	45
4.2	Meaford Recreation and Culture Strategic Master Plan	45
5.0	Park Design Guidelines and Industry Standards	45
5.1	Park Capacity	46
5.2	Parking Requirements	48
5.3	Accessible Parking Requirements	49
5.4	Availability of Washroom Facilities	50
5.5	Accessible Washroom Facilities	54
5.6	Campsite Sizing	55
6.0	Connection to the Georgian Trail	58
7.0	Master Plan	60
7.1	Park Vision and Goals	60
7.2	Key Recommendations	61
7.3	Priorities and Cost Estimates	64
7.4	Cost Estimates by Implementation Timeframe	85
8.0	Using this Plan	85

Tables

Table E1-1: Campground Occupancy Between 2014 and 2019	iii
Table 2-1: Travel Times by Campground Customers	4
Table 2-2: Origin of Campground Customers	4
Table 2-3: Campground Occupancy Between 2014 and 2019	5
Table 2-4: Available Parking	22
Table 2-5: Distances Between Fire Hydrants	24
Table 2-6: Existing Sanitary Sewage Flow Conditions.....	28
Table 2-7: Species at Risk Recorded in the Vicinity of Memorial Park.....	33
Table 3-1: Summary of Comments from Key Interest Groups	37
Table 3-2: Summary of Public Comments	43
Table 5-1: Beach Capacity Calculations.....	47
Table 5-2: Parking Spaces Available in Existing Lots	48
Table 5-3: Accessible Parking Spaces	49
Table 5-4: Existing Washroom Facilities.....	50
Table 5-5: Campground Washroom Facility Industry Standards/Best Practices	52
Table 5-6: Existing Washroom Facilities.....	54
Table 5-7: Recommended Number of Accessible Washroom Facilities.....	54
Table 5-8: Industry Recommendations for RV Campsite Sizes	55
Table 7-1 Number and Type of Sites in Reconfigures Campgrounds	64
Table 7-2: Key Actions	68
Table 7-3: Total Costs by Implementation Priority	85

Figures

Figure 2-1: Existing Park Features	7
Figure 2-2: Drainage Catchments Used to Assessment Drainage in Memorial Park	32
Figure 5-1: Typical Campsite Layouts	57
Figure 6-1: Potential Connection to the Georgian Trail.....	59
Figure 7-1: Master Plan.....	66
Figure 7-2: Potential Campground Layout.....	67

Appendices

Appendix A Retaining Wall Review
Appendix B Infrastructure Recommendations
Appendix C Drainage Assessment
Appendix D Forest Management Plan
Appendix E Public Consultation

1.0 Introduction

Memorial Park (the Park) is a 13 ha (32 ac) property with 468 m of Georgian Bay shoreline. The beach is the only sandy public beach in the Municipality of Meaford (Municipality). The Park has been an important recreational area for Meaford residents and visitors since 1953, when the majority of the property was dedicated to the Town of Meaford from the Moore family for two dollars. The dedication included some covenants such as the lands could only be used as a Public Park and the Municipality shall maintain public street access to the Moore property to the east. Since that time, campgrounds and other recreational amenities have been added by past and present Municipal Governments and volunteer service organizations but the Park remains fundamentally a public recreational space.

Approximately 6.9 ha (17 ac) of the Park are developed for recreational and camping uses. The remainder is wooded with several formal and informal trails running throughout. The beach is one of the Park's primary attractions for daily as well as longer term users. A portion of the beach is dog-friendly and is well-utilized by area residents. Recreational Vehicle (RV) and tent camping is available along the waterfront (Lower Campground) and in the south easterly portion of the Park (Upper Campground).

The Park is highly valued by area residents and is visited by a number of repeat and loyal campers, including the local Kinsmen Club who hold an annual "Kin Kamp" weekend. However, many of the Park's facilities have become outdated and are in need of refurbishment, upgrades and replacement. The 2015 Municipality's Recreation and Culture Strategic Master Plan (RCSMP), identified a need to improve services and recreational opportunities. Upgrades are needed to better serve Meaford residents who frequent the site for beach outings, dog walking and nature appreciation; and enhancements are needed to better serve users of the campground facilities.

Historically, the campground has generated revenue for the Municipality. The RCSMP identified that improvements are required to ensure that the campground continues to provide a quality camping experience such that revenue continues to be generated in the long-term.

The purpose of the Memorial Park Master Plan (Master Plan) is to provide a high-level guiding and visioning document, or "road map", to a future vision for the Park that maintains a balance of both public recreation and camping uses that can be self-funding, more efficient and sustainable for future generations of Park users.

All projects recommended in this Master Plan will be considered within the Municipality's broader community and recreational planning, and budget approval processes; and will be subject to individual consideration and approval by Council.

This document is intended to be implemented over a twenty-five year period. It should be used as a living document which will evolve as recreational needs, preferences, and priorities

change. The Master Plan should be reviewed and updated every five to ten years. Each update should account for changes that have occurred since the previous version and should identify any changes to recommendations based on evolving recreational priorities and demands, regulatory requirements and economic conditions.

1.1 How the Master Plan was Developed

The Master Plan is a culmination of policy review, public consultation, landscape architecture and engineering activities. This Master Plan was developed through a series of steps, as follows:

1. An inventory of existing facilities and servicing and an analysis of deficiencies.
 - Facilities were observed on site over several days between fall 2018 and fall 2019. Burnside utilized visual reviews and the Building Condition Assessments (BCAs) produced by CCI Group Inc. on March 30, 2016 and McIntosh Perry Limited on May 8, 2018 to better understand building and facility conditions. Playground Safety Inspection Certificates from 2016 and 2018 prepared by PARCS Ltd. were also reviewed. Some updates to the Park have been made since the time of these reviews. Efforts have been made to note recent changes and ongoing work; however, it is possible that some current work may not be reflected in this document.
2. Development of several high-level Park plan options.
 - Several conceptual plans were developed in order to obtain input from the public and key stakeholders such as the Kinsmen Club and Friends of Memorial Park. Each concept was designed to highlight potential options associated with the campgrounds, waterfront and woodland trail areas. The intent of the concepts was to gauge public opinion and craft an overall plan that incorporates the “best” of each preliminary conceptual plan.
3. Consultation with key interest groups, adjacent neighbours and the general public.
 - Meetings were held with three key interest groups (Friends of Memorial Park, Meaford Kinsmen and residents of the adjacent neighbourhood). These meetings were held to identify key concerns and to brainstorm ideas for future Park improvements.
 - Subsequently, a Public Meeting was held for anyone interested in future plans for the Park. The meeting was well attended, with 166 participants. Comments were initially accepted until May 6, 2019; however, due to the high volume of comments received and generally high level of interest identified, the commenting period was extended until September 15, 2019. Overall, 99 comments were received.

4. Review and analysis of Park Policies, Building Code requirements, General Park Guidelines and Best Practices.
 - These documents identify goals for the Park, known deficiencies and key elements that are of importance to be maintained. Consistency with the requirements of the *Accessibility for Ontarians with Disabilities Act* (AODA) was considered for each facility.
 - As part of this step, Burnside conducted an exercise to identify the Park's estimated maximum capacity. This estimate was used to determine the number of washrooms, parking spaces and accessible features required.
5. Refinement of the high-level Park plans into a Master Plan, considering public comments and guidance documents.
 - The Draft Master Plan was developed in consideration of the public comments received as well as the application policy and park planning guidance documents and sustainable capacity analysis.

This document describes each of these steps in further detail and identifies an overall vision and goals to guide future Park planning. A detailed list of recommendations, including priority actions is provided in Table 7-2.

2.0 Existing Park Features

2.1 Park Overview

Memorial Park (the Park) is located in the southeastern portion of the Municipality of Meaford and includes 468 m of sandy Georgian Bay (the Bay) shoreline. The Park is accessed from Grant Avenue, requiring Park users to travel through a residential neighbourhood in order to reach the Park. The Park's topography generally slopes towards the beach. Although the land is generally flat, some areas with steeper slopes are present as shown on Figure 2-1.

Of the Park's 13 ha (32 ac), 6.9 ha (17 ac) are developed for the campgrounds and other Park services. The remainder of the property is naturalized with formal and informal trails throughout the forested areas.

Camping is available in two areas: The Lower Campground at the Waterfront and the Upper Campground in the southeastern corner of the Park property. The Park currently operates from Mid-May to Mid-October annually on the following schedule:

- Prime-time season (July to August and long weekends):
 - Seven (7) days a week, from 9:00 a.m. to 9:00 p.m.
- Shoulder seasons (Mid-May, June, September and Mid-October):
 - Seven (7) days a week from 9:00 a.m. to 6:00 p.m.

The campground was originally developed with a total of 144 tent-trailer sites. The number of sites has been reduced to 114 to accommodate the increased size of today's trailers and RV's. According to a report produced by the Municipal Chief Administrative Officer (CAO) in 2017, a number of site sizes were enlarged, and the Park now has the capability to accept a trailer unit or RV up to 16.8 m (55 ft) in length².

The existing park layout is shown in Figure 2-1.

2.2 Park Users

The Park is utilized by local residents as well as visitors to the Municipality. However, as the park entrance is not controlled, day-use estimates are not available.

The use of the Park by campers is more easily tracked through the reservation system and fees collected. Based on data collected in 2017, most campers are from Ontario and travel times to the Park vary, as shown in Table 2-1 and Table 2-2.

Table 2-1: Travel Times by Campground Customers

Meaford Residents	Travelled within one (1) hour	Travelled more than one (1) hour
4%	26%	70%

Most campers are from Ontario; however, some arrive from other provinces, the U.S.A and Europe as summarized in Table 2-2.

Table 2-2: Origin of Campground Customers

Province/State/Country	# of Stays	# of Nights Stayed
Ontario	2473	6423
British Columbia	15	38
Manitoba	2	2
Alberta	2	10
Nova Scotia	1	4
Quebec	64	195
Saskatchewan	1	4
Michigan	3	3
Kentucky	1	10
Florida	1	7
New York	1	1
Germany	5	5
Total	2569	6702

² The largest site listed on the Park reservation website is 13.7 m (45 ft) in length. It is assumed that some larger trailers may extend slightly beyond the site boundaries but can be accommodated if required.

2.3 Campground Use

In the 2017 report provided from the Municipality, it was indicated that a total of 8373³ nights was stayed in the campground through 1635 client contracts. However, the number of client contracts does not equate to the total number of visitors as each contract can have varying number of persons. At that time, Park staff did not collect data on the number of visitors associated with each contract. A single contract could include a family of up to six. Staff identified that this data could be collected in the future.

In 2019, visits had increased with a total of 9,139 nights stayed. Again, the total number of visitors is unknown.

The RCSMP indicates that in 2014, campground utilization was at 35% for the entire five-month operating season. With only peak months considered (July-August) utilization is estimated to be about 60%. Since that time, the number of nights stayed has steadily increased. Table 2-3 indicates the occupancy of campsite rentals at the park between 2014 and 2019.

Table 2-3: Campground Occupancy Between 2014 and 2019

Year	Number of Nights Stayed
2019	9,139
2018	8,450
2017	8373
2016	7253
2015	7235
2014	6590

2.4 Existing Park Facilities

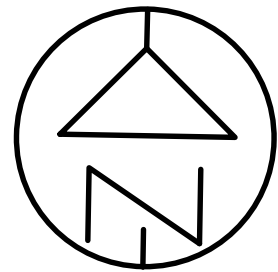
The Park's facilities include:

- Park Office
- Workshop and Woodshed
- Kin Hall
- Beach Pavilion
- Beach Lookout Platform (now removed)
- Beach Washroom Facilities
- Upper and Lower Campground Washroom Facilities
- Recreational facilities, including:
 - Mini-golf course
 - Beach playground

³ There is a discrepancy between this number and the total nights stayed listed in Table 2-2. Both numbers were provided in the same CAO report in 2017. It is assumed that the origin of some visitors was unknown and therefore unaccounted for in Table 2-2.

- Upper Campground Horseshoe pits
- Upper Campground playground
- Upper Campground Amphitheatre and Pavilion
- Walking trails throughout the property
- Various Family Gathering and Picnic areas

Existing Park facilities are shown on Figure 2-1.



CAMPSITE LEGEND

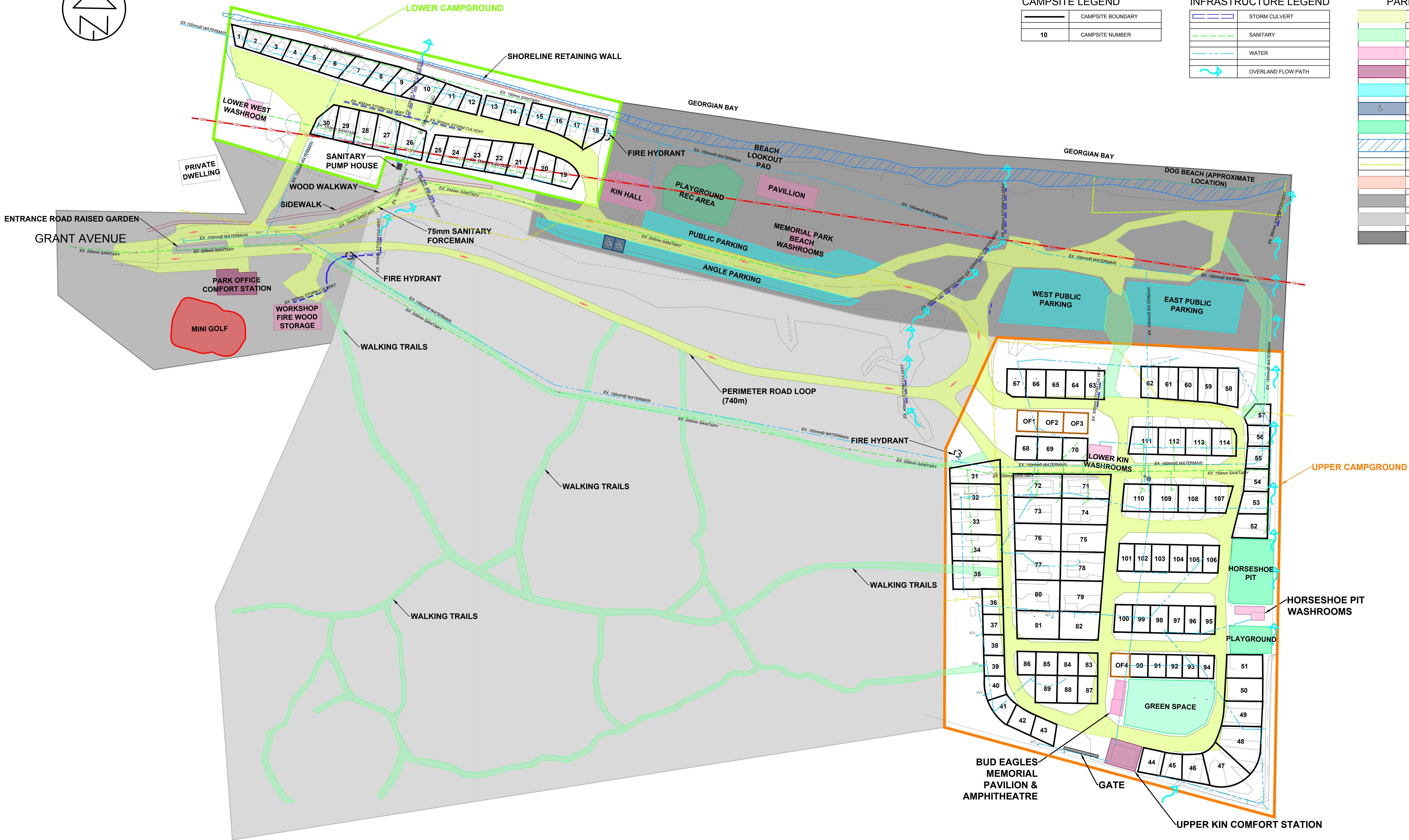
	CAMPSITE BOUNDARY
10	CAMPSITE NUMBER

INFRASTRUCTURE LEGEND

	STORM CULVERT
	SANITARY
	WATER
	OVERLAND FLOW PATH

PARK LEGEND

	ROAD WAY
	WALKING TRAILS
	BUILDINGS
	ACCESSIBLE BUILDINGS
	PARKING LOTS
	ACCESSIBLE PARKING SPOTS
	RECREATION AREAS
	BEACH FRONT AREA
	DOG BEACH
	SHORELINE RETAINING WALL
	ENTRANCE AREA
	PASSIVE RECREATION AREA
	PUBLIC BEACH AREA



- Notes
1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
 2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
 3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No.	Issue / Revision	Date	Auth.
0	ISSUED FOR CLIENT REVIEW	20/01/20	

NOT FOR CONSTRUCTION



R. J. Burnside & Associates Limited
3 Ronell Crescent
Collingwood, Ontario, L9Y 4J6
telephone (705) 446-0515
fax (705) 446-2399
web www.rjburnside.com

Client
MUNICIPALITY OF MEAFORD
21 TROWBRIDGE STREET WEST
MEAFORD, ONTARIO
N4L 1A1

Drawing Title
MEMORIAL PARK
SCHEMATIC KEY PLAN

Drawn	Checked	Designed	Checked	Date	Revision
??	??	??	??	YYMMDD	0
Project No.	300043326	Contract No.			
Scale	1:750				

Drawing No.
C-007

2.5 Existing Park Conditions

Burnside staff visited the Park several times between the fall of 2018 and fall of 2019 to review existing conditions and gain an understanding of any deficiencies and challenges. Various facility Building Condition Assessments (BCAs), Accessibility Audits, Energy Studies and Playground Inspections completed in 2016 and 2018⁴ were also reviewed. The detailed measurements and scope of these reports was not repeated herein. No existing facility drawings were available for this review and obtaining drawings prior to any detailed renovations, is suggested. Naming convention for the assets follows that of the previous reports and corresponds with the site map legend of the existing Park (Figure 2-1).

The following sections summarize existing conditions and known challenges and facility deficiencies:

2.5.1 Park Entrance

The Park Entrance is a continuation of the east end of Grant Avenue. The entrance provides visitors with their first impression of the Park. The Park Entrance features and facilities are as follows:

2.5.1.1 Entrance Garden

- A raised garden marking the end of Grant Avenue between the easterly and westerly traffic lanes introduces Park users to the Park and directs traffic along the “one-way” main access road past the Park Office that “loops through the Park and culminates at the entrance. This one-way access road provides vehicular traffic control to and from the Park.
- The entrance garden is constructed from architectural concrete blocks and is approximately 600 mm above grade. The garden wall’s foundation type and condition are unknown but since the garden wall is showing signs of failure and many sections are out of plumb, it is suggested that further analysis or investigation of this foundation is required.
- The concrete filled bollards protecting each end of the wall have been subject to significant impact in the past; some are bent and no longer offer optimum protection to the raised garden wall. There is no curb between the roadway pavement and the grass strip beside the garden wall.



⁴ Various BCA, Accessibility Audits and Energy Studies [CCI Group Inc.(2016)]; Various BCA and Accessibility Audits [McIntosh Perry Limited (2018)]; Playground Inspections [Parcs, 2018)].

- Adjacent roadway asphalt edges are failing and the grass surrounding the planter is distressed possibly due to poor drainage and/or vehicular and pedestrian traffic. The wall may act as a “pinch point” for pedestrians walking beside the road when traffic is present.
- There is no lighting within the garden space at present.

2.5.1.2 Park Office and Accessible Washrooms

- The Park Office was constructed in 1989, according to the BCA. The Park Office is located near the entrance to the Park on the south side of the entrance road. The building is a simple wood framed structure and appears to be in good condition having no structural issues of concern as noted in the BCA.
- Pedestrian access to the Park Office is delineated by asphalt pavement and concrete walks, but the Office door is not outfitted with barrier free power operated doors. Exterior columns around the perimeter of the building are not offset far from the exterior walls of the building, which could limit barrier-free travel around the building in the areas covered by the building soffit. Once inside the office there is a lowered counter area to offer barrier-free service.
- It was also noted that there was no protection between vehicles that pull up beside the office and pedestrians travelling along the building. Concrete barrier curbs, bollards or other protection devices between the vehicular traffic lane and the pedestrian access routes would provide pedestrian protection in selected areas.
- The Park Office offers 2 gender specific washroom and shower facilities located on the east side of the Park Office. The washroom and shower facility are of the same construction vintage as the Park Office, and there does not appear to be any structural issues with this section of the building. The washroom facility showers were recently enhanced to incorporate wider access for barrier free use.
- Concrete pathways to the accessible washroom are obstructed by trip hazards such as doorsteps and uneven/rutted pathways and blocked by a large icebox. The width of the concrete pathway could be a limiting factor for barrier free access, as well, the grading at the south end of the concrete walkway is too steep and parking access is very limited. There is no signage to identify the Park's available AODA compliant facilities, and a review of the current lighting may reveal that additional lighting is necessary.



2.5.1.3 Workshop and Woodshed

- The workshop is relatively new, constructed in 2014, but is not a fully finished structure. The structure consists of wood framing with a common truss roof system and exterior metal cladding. The floor of the building is a poured concrete slab.
- The roof structure extends from the building to cover the exterior firewood storage facility. The storage facility has two sides enclosed by a wooden fence, a sheet metal covered ceiling and the walls beside the main storage area are plywood clad. There is no concrete slab within the firewood storage facility, nor was there any ceiling lighting observed in this area.
- On the north side of the building, close to the road, there is a gravel area which is used for parking. However, there was no markings or signage directing people to wood pickup or parking facilities.
- The main workshop area is not fitted with any overhead cranes or lifting devices, thus being used for storage and minor equipment repair and maintenance only. Heating and washroom facilities were not observed within the workshop.
- The ceiling of the workshop is covered with a polyethylene vapour barrier, however, there has been no insulation placed above it and the walls are covered with partial depth exposed foam insulation.
- We highly recommend that doors be left open if any vehicles or machines are running while in the workshop to mitigate the effects of exhaust fumes inside the building.
- No bollards exist on either side of the overhead doors, which, if installed, would offer some protection against exterior vehicle impact.



2.5.1.4 Mini-golf Course

- The 18-hole mini-golf course is located in the wooded area behind the Park Office.
- The course is aging and is in need of general upgrading.
- This area is under tree cover. Existing infrastructure for lighting is present but rarely used as the park office closes at 9 p.m. and mini-golf is not permitted past 8:30 p.m.
- The pathways between the various mini-golf holes are natural ground and not covered with a material such as stone dust, paving or concrete that would provide a suitable walkway surface during all weather conditions. The existing surface is not accessible.
- Parking in this area is shared with the Park Office and is limited.



2.5.2 Waterfront and Beach

The waterfront and beach area are the Park's primary attractions. The Park's beach stretches approximately 468 m along the shores of Georgian Bay, and the shoreline consists of sand and beach stone. The Park's campers and Day Visitors can utilize the beach and green spaces, offering treed areas and picnic tables, adjacent to the beach. The east side of the beach is designated as a Dog Beach.

The beach is open to the public. There is currently no lifeguard on duty and no designated swimming area, such as a buoy line to keep watercraft out.

Facilities associated with the waterfront and beach are listed and described as follows:

2.5.2.1 Kin Hall

- Kin Hall was first constructed in 1979 and had major renovations completed in 1987.
- The local Kinsmen have been instrumental in raising funds for the construction and maintenance of this building and multiple others throughout the Park. The building is used regularly for Kinsmen meetings.
- The building was also rented in 2019 for private forest school (non-municipal) programming.
- The building is a two-storey structure with a footprint of 215 sq.m (2320 sq.ft). The building is partially wood framed with some structural steel framing on the lower level. The upper level of Kin Hall has steel siding and the lower level is concrete block veneer or block load bearing structure.
- There are stairs located on the exterior of the building to access the upper level, that are constructed of wood and open to the elements creating a maintenance issue due to the constant exposure to the elements. The design loading of the exterior stairs is unknown but should be confirmed as the stairs could be used as a "viewing area" and an exit pathway.
- The exterior gardens constructed with perimeter block walls appear to be in good condition.
- The lower floor area serves as a gathering area and is partially open to the surroundings. The exposed steel structure appears to be in good condition in this area. The lower level of Kin Hall features an enclosed kitchen area. This area has been used by private vendors in the past, but no business has been operating from this kitchen in several years.
- There was a small metal canopy/awning over a lower level window that is unstable and unsafe due to its condition and the type of fasteners used to attach the canopy to the block



wall of the building. Since the time of Burnside's staff visit, we have received verbal indication that the awning has been removed.

- There is evidence of roof drainage issues from the upper roof near the entrance, water flowing over the upper walls, causing moisture damage.
- The entrance pavement and concrete slabs are not level with the threshold that pose a tripping hazard.
- It is noted that there is no elevator or other AODA approved access within Kin Hall to access the upper level. This limits accessibility to the upper floor.
- The BCA report and AODA report both noted that the Kin Hall did not meet minimum AODA requirements for a public building. This lack of accessibility limits the municipality's use of the space.

2.5.2.2 Beach Pavilion

- The Beach Pavilion is a heavy timber knee braced column structure with perimeter wood beams. The roof is a gable style roof with extended roof overhangs at the gable ends of the building constructed from lumber roof trusses. The trusses have nailed plywood gussets at the joints that were observed to have some weathering but appear to be performing satisfactorily. The roof cladding is sheet steel on lumber purlins and is in good condition.
- The heavy timber components were recently replaced along with the concrete floor slab. The floor connects the Pavilion to the Beach Washroom and serves as a walkway to the Beach Lookout Pad.
- The current lighting consists of basic incandescent lighting located down the center of the interior roof line and its adequacy should be confirmed.



2.5.2.3 Beach Washrooms

- This 70 sq.m (750 sq.ft) Beach Washroom building was constructed in 1958 and consists of public washrooms and a service room. The building's roof structure is metal cladding on conventional sloped wood framing rafters and tie members. The exterior material is vinyl siding and wood siding at the gable ends, both of which are in good condition with only the wood siding requiring new paint. There is no ceiling in the service area of the building.
- A new concrete sidewalk and wide slab area exists on the west side of the building in front of the access doors, which connects with the existing sidewalk along the side of the building and leads to the outdoor Pavilion.
- The washroom interior is basic with painted concrete block walls and a painted floor slab.
- An AODA report, prepared previously through a separate study, indicates that these washroom facilities are partially compliant with today's standards, but many details and fixtures require upgrading to be fully compliant, including exterior door widths. There are no shower facilities within the washroom, nor are there any full-size change tables for infants and dedicated "change-room" facilities.



2.5.2.4 Beach Playground

- The Beach Playground is located central to Kin Hall and the Beach Pavilion. The playground equipment includes swings, slides, see-saws, track-rides and a climbing gym. The surface of the playground was noted as being pea stone in the playground inspection report completed in April 2018. However, it is understood through verbal comment from the Municipality that this has since been replaced with engineered wood fibre.



2.5.2.5 Beach Lookout Pad

- Until August 2019, a beach lookout pad was located north of the beach Pavilion but was impacted by the highwater levels of Georgian Bay (the Bay) and had to be removed.
- Access to the lookout pad was delineated by a walkway from the Pavilion.
- Given the continued high water levels, there is no immediate plan to reconstruct this feature. If water levels lower in the future, the Municipality may consider conducting detailed studies to determine how accessible beach access can be provided.



2.5.2.6 Dog Beach

- The east end of the beach is generally identified as the “Dog Beach” and is used by local residents and campers for dog walking and play.
- The area is not a designated off-leash park and there is no clear fencing or signage to denote the boundaries of the Dog Beach.

2.5.3 Campgrounds

According to the Park campsite reservation web page there are currently 114 campsites available to reserve in the Park. All 114 sites are equipped with a 30-amp hydro service and have direct access to municipal water. Of these sites 87 are also equipped with sanitary sewer services. The sites differ in classification based on their level of servicing.

Based on their location, size and level of servicing, a number of the available sites are considered “Premium Sites”. A Premium Site is defined as a site that is in a favourable location within the campground and is larger in size. These sites also provide the following amenities:

- Hydro hookup
- Water hookup
- Sewer hookup

Most of the Premium Sites also provide the following amenities:

- Picnic table
- Be within Wi-Fi range
- Be pet friendly
- Fire ring
- Cement pad for picnic table
- Hedges and trees for increased privacy

Each campsite, based on its level of servicing, size and location, is grouped under 1 of 4 classifications. Each classification and number of sites allocated to each classification is as follows:

- Waterfront: 18
- Premium: 37
- Full Service: 32 (including three overflow campsites and seven group campsites)
- Hydro/water: 27

Of the 114 campsites noted above, three campsites are allocated as “overflow campsites”, where only two of the three are booked at any one time due to the layout and access difficulties of the sites. In addition, there are seven campsites allocated as “group campsites” which are adjacent sites that can be booked together, upon request.

2.5.3.1 Lower Campground

- The Lower Campground consists of 30 full-service campsites in the north west quadrant of the Park. 18 of the 30 campsites are located along the waterfront, bordering on the retaining wall, with the balance (12) located on the south side of the Lower Campsite access road. The sites are relatively small and measure between 38-41 m² based on aerial photography.
- The Lower West Washroom services this area.
- The campground is separated from the water by a retaining wall. Due to the high Bay levels at the time this document was written, there is no usable beach in this area. Water presently extends up to the retaining wall and there is no suitable access from the top of the retaining wall to the beach.

Retaining Wall

- The existing gravity block retaining wall located in the Lower Campground consists of interlocking prefabricated concrete blocks placed directly on an original ground sandy base. The wall extends approximately 150 m eastward from the west limits of the Park.
- Natural stone of various sizes had been placed on the water side of the retaining wall at the time of its construction, estimated to be in the early 1980's. At the time of the retaining wall installation, the water level in the Bay was lower than current levels. Additional natural stone may have been placed at different times since the original construction, although the records are not complete.
- Increased water levels and increased exposure to more aggressive wave action has resulted in the loss of soil support below the concrete blocks.
- It is believed that the concrete blocks were placed directly on a sand bedding, likely the original natural beach. This material is relatively fine grained and easily mobilized by the water. As the water levels and waves impact the wall, the waves draw material supporting the blocks from under the blocks.
- Rising water levels and storm events damaged the retaining wall and the wall failed, limiting the use of waterfront campsites (#1-18).
- At the time of Burnside's visit, no guardrails existed along the wall and the wall height exceeds 1,000 mm over much of its length⁵. This presents a Health and Safety hazard for campers and vehicles parked in campsites #1-18. Beyond a temporary safety fence which was recently erected, there are no permanent safety features to prevent vehicles from backing up too close to the retaining wall edge or to prevent pedestrian missteps and falls.
- A detailed review of the retaining wall is presented in Appendix A.
- Since Burnside's visit, the Municipality has completed work to address problems with the retaining wall. None of the work undertaken has been inspected by Burnside; however, details about the rehabilitation can be found in Appendix A.



⁵ This height triggers the need for a guard or railing in accordance with the OBC.

Lower West Washrooms

- The Lower West Washroom is located in the south west corner of the Upper Campground on the south side of the Lower Campsite access road, across from campsite #30. According to the BCA, this washroom facility was constructed in 1978. The exterior walls of the washroom are ribbed architectural concrete block and the roof is a wood framed gable style with steel sheet roof cladding.
- The exterior of the building has significant masonry joint step cracks in several walls, and the cause is presently unknown without further investigation. It is unknown if the structure is reinforced with vertical reinforcing in the masonry cores or contains horizontal masonry joint wire reinforcing for crack control.
- This building is not compliant with current AODA standards, as per the BCA and AODA reports.



2.5.3.2 Upper Campground

The Upper Campground includes 84 campsites of different sizes and levels of servicing. The area includes 3 washroom facilities, recreational areas such as Horseshoe Pits and a Playground, and green space complete with an Amphitheatre and Pavilion for public and family gatherings.

The 84 campsites within the Upper Campground are divided into the following classifications:

- 25 Premium
- 32 Full Service (including seven group sites and three overflow sites)
- 27 Hydro and Water Serviced

Many of the existing campsites are small and difficult to access with large trailers. Most of the sites are currently designed such that trailers must be backed into the site rather than being sites designed to allow trailers to pull straight through. Pull-through sites are a much easier and preferred site layout.

The Upper Campground is currently accessible to all vehicles entering the Park. Due to the narrow roads and challenges maneuvering large trailers through the area, it may be preferable to limit vehicle access to only those who are registered campers.

Lower Kin Washrooms

- The Lower Kin Washrooms are located at the North end of the Lower Campground, adjacent to campsites #70 and #111. The building is a simple structure, 45 sq.m (480 sq.ft)., constructed in 1970, containing a men's and women's washroom, and a storage room. Exterior walls are concrete block clad with a painted wood type paneling, which is showing signs of deterioration. The roof is wood framed with asphalt shingles. Access to the washroom facility is a concrete walk along the front of the building beside the gravel campground road. The building appears to be in sound structural condition.
- On the interior of the building is a ceramic tile floor, painted block walls and a painted ceiling. The washrooms are not ventilated or heated and there is no hot water. The washroom stalls are accessible as barrier-free but are not fully compliant to today's AODA standards.



Upper Kin Comfort Station

- This is a relatively new building, constructed in 2013 with a 73 sq.m (786 sq.ft) footprint. The structure contains two gender specific washrooms, three separate non-gender specific shower rooms, a laundry room and two service rooms. This is an above grade structure framed with wood walls and gable-end style common wood trusses with sheet steel roof cladding. The wall cladding is vinyl siding. The interior walls are finished wood wall panels, exposed concrete floors, and sheet steel ceiling panels. The building has ventilation and propane based hot water. Overall, the entire structure is in good condition.
- Exterior landscaping poses an issue to access to the building. A boulder and the propane tank are located on the south side of the building, no access doors are on this side of the building but block the perimeter concrete paved path.
- The AODA report completed for this building shows the washrooms and showers are close to being fully compliant for barrier-free access.



Horseshoe Pit Washrooms

- The Horseshoe Pit Washrooms are located at the Horseshoe Pit on the east side of the Upper Campground. The building was constructed in 1995 and contains two gender specific washrooms. The building exterior consists of split faced architectural concrete blocks with a gable styled shingled roof. Interior walls are painted block walls with ceramic tiled floors and a painted wood ceiling.
- The structure is in good condition; however, the north exterior wall is



damp and has what could be moss/mold growth on it, which likely can be easily cleaned.

- AODA reports show that doorways within the building are narrow and the stalls are small, making barrier-free access more challenging and the entrance walkway does not fully connect with the roadway making access difficult.

Bud Eagles Memorial Pavilion and Amphitheatre

- The Bud Eagles Memorial Pavilion and Amphitheatre is located on the south end of the Upper Campground, across the campground road from the Upper Kin Washroom. The structure is a wood framed outdoor stage and covered area containing some picnic tables. The roof of the structure is sheet steel clad. This area is most utilized during Memorial the Kinsmen's "Kin Kamp" weekend.



- Although there was no BCA report completed for this structure, the initial exterior review indicated that it is in good condition, however further examination below the stage area is required to determine if there is any material degradation, possibly due to moisture and the amount of ventilation available to reduce moisture content in the wood structure. It is also unknown to what load capacity the stage floor has been designed.
- There is currently no railing along the front edge of the stage area. OBC 9.8.8.1 does not exclude stages from having a guard (although there are some exclusions for school stages). Some upgrades to include a railing may be warranted. It may be possible to upgrade the front edge to incorporate a railing with glass panel infill. Some discussion with the local building department for a ruling on this issue may be warranted.
- There is anecdotal evidence to suggest that electrical upgrades may be required as there have been multiple reports of blown breakers if too many outlets are used simultaneously.

Upper Campground Playground

- The Upper Campground Playground is located on the east side of the Upper Campground at the Horseshoe Pits and Horseshoe Pit Washroom. The playground offers swings, a climber with slides and another play apparatus.



2.5.4 Park-Wide Infrastructure and Servicing

The Park is serviced by a network of infrastructure, including parking facilities, roadways, sanitary sewers, watermain, sanitary forcemain, and electricity which is further discussed in the following sections.

2.5.4.1 Parking

- There are both formal and informal areas for parking. During busy times the campground sites and activity areas experience parking capacity and circulation conflicts. Parking spaces are not delineated and therefore the parking lots are significantly underutilized. The overflow parking spills over onto the grassed areas and creates potential pedestrian-vehicular conflicts and damage to the natural environment.
- There are two accessible parking spaces (opposite Kin Hall), but the pathways to these spots are obstructed by trip hazards such as doorsteps and uneven and/or rutted pathways. In general, there is a lack of dedicated accessible parking spaces throughout the Park.
- Survey information was gathered, and an approximate area was determined for each of the four parking lots in Memorial Park. The area totals 2891m² and is broken down into the four parking lot areas as follows:

Table 2-4: Available Parking

Parking Lot Name	Parking Lot Size (m²)	Existing parking spaces available
Kin Hall Parking	587m ²	29
Angle Parking Across from Kin Hall	623m ²	31
West Public Parking Lot	878m ²	44
East Public Parking Lot	803m ²	40

If properly utilized the existing parking areas provide the following capacities⁶:

- Kin Hall Parking – 29 standard spaces including two accessible parking spaces.
- Angle Parking across from Kin Hall – 31 standard spaces including two accessible parking spaces.
- West Public Parking – 44 standard spaces including two accessible parking spaces.
- East Public Parking – 40 standard spaces including two accessible parking spaces.
- This equates to a total of 144 standard spaces including eight accessible spaces if the existing parking areas are utilized efficiently.

2.5.4.2 Roadway Network

- The road is generally a one-way network with the only entrance/ exit being located at the east end of Grant Avenue. The perimeter loop around the Park is 740 m in length and the lane width varies from 3.5 m to 5.0 m. The narrower portions of the lanes are not wide enough for motorists, towed trailers and RVs to share space side-by-side with pedestrians and cyclists.
- The existing curves in the road and the tight corners at intersections make it difficult for the newer, longer RVs and trailers to maneuver throughout the Park.
- The road is constructed primarily of gravel. It is only paved at locations with a higher potential for erosion such as steep slopes, high-traffic areas found at intersections, and the areas adjacent to buildings, washrooms and beach parking.
- Trees and overhanging branches obstruct sightlines for motorists and pedestrians/ cyclists crossing roads, primarily at intersections, and at the makeshift openings along the adjacent forests.

2.5.4.3 Trails

- The walking and hiking trails in the Park are an important and popular recreational feature for those camping and visiting the Park. Currently, there is a network of both informal and formal trails within the Park. The formal trails were created by the Park staff and are maintained as such to keep them safe and attractive for users. Informal footpaths have

⁶ The value of Standard Spaces was based on providing a passenger vehicle 20m² of parking and manoeuvring room, and accessible parking was based on values from the Ontario Building Code

been created overtime by users, and are largely not maintained by Park staff, and their use may have unintended ecological impacts. There is currently approximately 498 m of formalized trails throughout the wooded area, and 626 m of informal footpaths within the existing trail network.

- The trails are not formally used for winter activities such as snow shoeing or cross-country skiing.
- Trails crossing the main road are not signed. The unmaintained footpaths are generally steeper and used primarily by cyclists. There is a concern with the unmaintained trails being obstructed by large boulders, trees and exposed roots, and the ends of steel culverts. The concrete sidewalk within the Lower Campground area is situated level with the road surface, not delineated from traffic by a painted line or another marker. The roads lack adequate illumination especially at potential conflict locations such as intersections and road/ trail crossings.
- There is an existing wood walkway adjacent to the road surface not far from the Park Entrance. If this ramp is intended as a barrier free path of travel, slopes under a 1:12 gradient should be considered along with handrails for guidance. Wood materials in close proximity to the soil surface will deteriorate and may require more frequent maintenance to provide a safe and sturdy walking surface.
- The Georgian Trail, which runs from Meaford to the Collingwood, is located to the south of Memorial Park. There is no direct connection between the trails in Memorial Park and the Georgian Trail; however, there is potential to create a connection, adding to the existing trail network and providing greater options for park users.

2.5.4.4 Potable Water Infrastructure

Site Overview

All 114 campsites, six washroom buildings and Kin Hall are connected to municipal water that is fed from Grant Avenue, located at the entrance to the Park. The existing watermain network is not looped. Existing records indicate that the distribution system is 17 to 60 years old and the total length of watermain is 2,442 m. Although the Park operates at maximum occupancy during peak periods there are no recent concerns with water quality.

Existing utilities are presented on Drawing D-1, included in Appendix B.

Fire Protection

The Master Servicing Plan (2015) indicates that the available fire flow within the Park is in the range of 20 L/s. This value is considered inadequate as it is less than the Municipality's requirement of 38 L/s during maximum day demand plus fire flow conditions. The low flow rate is a likely result of the older and smaller diameter pipes and as such the existing watermains are not sized to give adequate fire protection.

There are two fire hydrants located within the Park. One hydrant is situated on the pedestrian trail near the Park Office/ Comfort Station, but landscape boulders and waste containers are obstructing the visibility and access to this hydrant. The second hydrant is located on the east side of the upper campground. There are no fire hydrants within the lower campground and beach area.

The Town Standard requires a maximum distance of 150 m between hydrants in residential areas however typical industry standards for campgrounds indicate that no recreational vehicle / camping space or public building is to be beyond 90 m from a fire hydrant, measured along the internal and/ or external roadway system. Based on this requirement, the Park does not currently have a suitable number of fire hydrants to provide adequate fire protection.

The table below summarizes the measured distances from each site to the closest Park fire hydrant.

Table 2-5: Distances Between Fire Hydrants

Fire Hydrant (FH) Locations	Distance Measured from Site to Closest Hydrant (Approximate)			
	Lower Park Area			Upper Park Area
	Kin Hall/ Campsites	Beach Area	Beach Washrooms / Pavilion	Upper Kin Comfort Station / Campsites
FH1 – Park Office/ Comfort Station	222 m	x	x	x
FH2 - Upper Campground	x	152 m	160 m	196 m

Lower Campground and Beach Area

The oldest watermain is located within the lower campground and beach area. The majority of watermain infrastructure was installed in 1955 and 1968 and is approaching the end of its expected service life. The watermain range in size from 100 mm diameter for a majority of the network with short sections of 150 mm diameter. The total length of pipe is 1,227 m. Water service sizes are 12.5 mm and 19 mm in diameter. Although there is no record of material type, the older, smaller diameter watermain is expected to be cast iron which is the material of the connecting pipes along Grant Avenue. The 150 mm diameter watermain is polyvinyl chloride (PVC) and is located at the east end of the site (beach area). It was installed in 2003 with the upgrades in the upper campground area.

The watermain infrastructure provides servicing within the lower campground area to all 30 campsites, Kin Hall and three washroom buildings (including showers at the Park Comfort Station). A water-meter chamber is located at the west end of the site and another at the east end.

There are concerns that the integrity of the existing watermain located behind the shoreline break wall (west end of the site) could be compromised due to the shoreline erosion as well as the impact it may have on the sanitary sewer which is located within 3 m to the north. Any shifting or failure of the sanitary sewer may impact the stability of the watermain. As a result, the area should be monitored regularly until such time the shoreline is properly stabilized and detailed inspections of the sanitary sewer and watermain conditions are carried out.

Upper Campground

The Upper Campground area was more recently upgraded in 2003 with 100 mm and 150 mm diameter PVC watermain which service all 84 campsites and three washroom buildings (including showers at the Upper Kin Comfort Station). The watermain extends westerly (along the south side of the perimeter road loop) and connects to the cast iron watermain located at the Park entrance. The total length of this watermain is 1,215 m. There is no record of size or material type for the water lines that service the campsites.

Opinion on Future Upgrades

A Technical Memorandum dated January 28, 2020 (included in Appendix B) was prepared to provide general recommendations for water infrastructure and servicing upgrades. However, a more detailed assessment is needed beyond the scope of a master plan study to confirm the current demands of the existing infrastructure and to evaluate the impact any reconfiguration of campsites within the Park will have on the network. This can be accomplished by undertaking a detailed feasibility study/ water modelling analysis to confirm any assumptions made with existing conditions and to devise design options for upgrading and/ or replacing components of the distribution system.

2.5.4.5 Wastewater Infrastructure

Site Overview

Wastewater infrastructure is shown on Drawing D-1, included in Appendix B.

The Park is currently serviced by a combination of gravity sewers and a pump station (or lift station) system. Existing records indicate that the infrastructure is 17 to 40 years old. The total length of gravity sewer is 1,130 m. Site inspections completed on August 16, 2019 and March 17, 2020 confirmed pipe sizes and material types and identified potential deficiencies in the system. All six of the washroom facilities and 87 of 114 campsites are equipped with service connections to the gravity sewers. There are no current sewer capacity or operational issues identified with the gravity sewers or pumping station.

An RV sanitary 'dump station' was previously located in the area outside the Upper Kin Kamp washroom but was removed in 2013 as it conflicted with the construction of a new shower facility. It was not restored since the area was not suitably configured for RVs to properly maneuver, park and dump. Campers are now relegated to dumping at vacant sites equipped with direct hook ups to the gravity sewer. This temporary option is not considered a long-term solution as no water is available to clean hoses and trailers often block road access while parked at the sites.

Lower Campground and Beach Area

All 30 campsites and the three washroom buildings (one with showers at the Park office) are connected to a gravity sewer that conveys the sewage to a pump station maintenance hole (or lift station) at the west end of the site. A 75 mm diameter forcemain (material unknown) then discharges the flows into the Grant Avenue gravity sewer near the entrance to the Park.

A majority of the sewer was installed in 1980 and is 552 m in length. The parts of the system that were accessible during inspections revealed that the sewers in the lower campground are made of older asbestos cement (AC) pipe material, range in size from 150 mm to 200 mm in diameter, and a steady flow of groundwater was observed flowing through maintenance holes. The infiltration suggests that there are defective sewer pipes, pipe joints and/ or service connections within the system possibly due to age, installation or maintenance issues, or tree root intrusion. No service connection records are available. A CCTV inspection will be required to confirm the condition of the pipe and identify whether any isolated repairs and/ or full replacement of the system is warranted. The maintenance holes are concrete and in good condition; however, large amounts of gravel and sludge were observed in the channels and benching. The grinder pumps in the pump station have been updated and are approximately two years old; however, the maintenance hole structure is not properly sealed, allowing for groundwater to infiltrate. As a result of a shallow groundwater table and leaks into the sewer system the sewage pump is forced to operate continuously even during periods when the Park is closed.

There are concerns with the condition of the existing sewer located behind the shoreline break wall being compromised due to its proximity to ongoing bank erosion (west end of the site). As a result, any exposure of the sewer may have a negative impact on the environment or the adjacent watermain if a pipe break or a more significant failure occurs. Records indicate that the pipe material is AC which will be more susceptible to breaking especially if exposed to undermining (compared to other more durable pipe materials such as PVC). A CCTV inspection of the sewer should be completed once the retaining structure is repaired and monitored regularly in the interim.

Upper Campground

The three washroom buildings (one with showers at the upper Kin comfort station) and 57 (of 84) campsites in the upper campground area are connected to newer 150 mm and

200 mm diameter PVC gravity sewers (installed in 2003) which outlets directly to the Grant Avenue gravity sewer. The sewer is 578 m in length. The service sizes are 100 mm and 125 mm in diameter. The maintenance holes are concrete and in good condition, however, sand and gravel materials were observed to be building up in the channels and benching, as well as, broken pieces of PVC pipe. The inspection verified that a constant flow of water is passing through the maintenance holes which indicates infiltration is occurring in the sewers. A CCTV inspection will be required to identify the areas of broken pipe; and other potential sources of infiltration in order to identify the extent and type of isolated repairs that may be required. Based on the newer year of installation, the sewers would not typically require full replacement.

There are 27 campsites that are not connected to the sanitary sewers. Unserviced Sites 36 to 51 are located at the south end of the campground near the Upper Kin Comfort Station which is connected to a gravity sewer. Although these sites are not currently serviced there appears to be an opportunity to extend the existing gravity sewer to provide them with an outlet.

Unserviced Sites 57 to 67 are located in a low-lying area at the north end of the site and cannot be connected to a gravity sewer without constructing a pump station (lift station) system.

Existing Sanitary Sewage System Flow

Gravity Sewers

The existing sewage collection system within the Park does not have any historical flow records. However, in order to estimate the capacity and adequacy of the gravity sewers for the lower and upper campground areas; calculations were completed using the following information:

1. Water usage rates from the Ontario Building Code (OBC) Regulation 332/12 - Part 8 - Table 8.2.1.3.B.
2. MECP design guidelines.
3. Park inventory data and existing drawings.
4. Meaford Engineering Standards.
5. Conservative engineering assumptions.

The detailed calculations are included in Technical Memorandum dated March 31, 2020 in Appendix B and are summarized below in Table 2.6.

Table 2-6: Existing Sanitary Sewage Flow Conditions

Pipe Diameter	Minimum Allowable Pipe Slope per MECP	Full Flow Capacity from Design Tables	Lower Campground and Beach Area		Upper Campground		Total Sewage Flow (Estimated)	% Full Pipe
			Total Calculated Flow	% Full Pipe	Total Calculated Flow	% Full Pipe		
150 mm	0.4%	9.6 L/s	2.36 L/s	24.6%	7 L/s	72.9%	9.36 L/s	45.2%
200 mm	0.4%	20.7 L/s	2.36 L/s	11.4%	7 L/s	33.8%		

Interpreting the Results from Table 2-6 for the Gravity Sewer System

Our interpretations regarding the existing gravity sewer system are as follows:

1. The 150 mm diameter sewers in the upper campground area could be approaching capacity at existing conditions. With the potential of expansion within the Park the sewers will need to be upsized to 200 mm diameter.
2. The 200 mm diameter sewers in the lower and upper campground areas are sized appropriately for existing conditions and have sufficient capacity to accept additional flows.
3. The total sewage flows generated from the lower and upper campgrounds discharge into the 200 mm gravity sewer in front of the Park office building (which outlets into the 200 mm diameter sewer on Grant Avenue). The calculations show that this sewer is only 45.2% full and could accept additional flow.
4. Infiltration can significantly be reduced by replacing all AC pipe material with PVC. This upgrade would also decrease the loading at the Wastewater Treatment Plant.

The Forcemain

The MECP minimum velocity may not be achieved in the 75 mm diameter forcemain based on the estimated flow calculated for the lower campground/beach area; however, the capacity for upgrades is available. The detailed calculations to support these conclusions are included in Technical Memorandum dated March 31, 2020 in Appendix B.

Opinion on Future Upgrades

A Technical Memorandum dated January 28, 2020 (included in Appendix B) was prepared to provide general recommendations for sanitary infrastructure and servicing upgrades to bring the system up to minimum municipal standards. However, a more detailed assessment such as a

feasibility study is needed beyond the scope of a master plan study to confirm the current demands of the existing infrastructure and to evaluate the impact any reconfiguration of campsites within the Park will have on the network.

2.5.4.6 Electrical Services

Hydro One provides power to Memorial Park utilizing four transformers, only three of which could be viewed at the time of this study. The fourth transformer is located at 181 Grant Ave. It is provided for general municipal use. Its current usage and available capacity are currently unknown. As such, further assessment should be completed if it becomes desirable to use this transformer for additional park use.

Of the three transformers observed, two are pole-mounted and one is pad-mounted.

Park Office and Waterfront Campsites

- The office area and waterfront camp sites are serviced by a 50kVA, 120/240V, single phase pole-mounted transformer located outside the limits of the Park that is also shared with nearby homes. Six poles are used to bring the overhead service to the Park Office area. There is a dedicated hydro meter near the office to provide proper billing for this portion of the Park.
- The Park Office area which includes a shower/washroom has a panelboard that not only feeds this area, but also provides underground distribution to power the Workshop, Lower Campground and Lower West Washroom. Both the Workshop and the Lower West Washroom each have their own panel board for power distribution. Panel boards are in good condition; however, further review is recommended as part of any electrical system upgrades or expansion.
- Some of the campsites offer full-service and feature RV power connection boxes. These sites obtain power from a disconnect switch located in the Lower West Washroom.
- The RV power connection boxes are old and do not appear to be protected by a Ground Fault Circuit Interrupter (GFCI) as required by the Electrical Code.



Upper Campsite

- A 167-kVA pad-mounted single phase 120/240 V transformer provides electricity for all facilities and campsites in the Upper Campground area. There is a separate hydro meter for this area and an 800A/120-240 V switchboard distributes power to the individual campsites and facility buildings.
- A switchboard and a panel board are located inside the Upper Kin Comfort Station on the south end of the Upper Campground area. The Lower Kin Washroom on the north side of the Upper Campground area has its own panel board. Panel boards are in good condition; however, further review is recommended as part of any electrical system upgrades or expansion.
- RV power connection boxes are provided for the full-service campsites. These boxes are old and do not appear to be protected by a Ground Fault Circuit Interrupter (GFCI) as required by the Electrical Code.



Kin Hall and Beach Pavilion

- Kin Hall and the Beach Pavilion are each separately metered but fed from the same pole-mounted 37.5kVA, 120/240V, single phase transformer.
- The Beach Pavilion includes a washroom building and canopy. It has two panelboards, one is located inside the building, the other outside.
- Kin Hall also has two panelboards; both are located inside on the first floor.
- Panel boards are in good condition; however, further review is recommended as part of any electrical system upgrades or expansion.

2.5.4.7 Site Drainage

- A Drainage Assessment for conducted for the entire Park and is provided in Appendix C.
- All runoff from Memorial Park ultimately outlets to Georgian Bay. Three stormwater outlets service the Park and discharge into Georgian Bay. Overland flow is the dominant drainage mechanism throughout the Park; however, some culverts, catchbasins (CBs) and drainage ditches exist to service the campsite areas. Catchment areas for the Park were delineated using contour mapping and are shown in Figure 2-2.
- A description of current drainage conditions and challenges identified in each catchment are as follows:
 - Catchment A1:
 - Runoff flows via a ditch that begins at the southeast property limits, then takes a 90 degree turn and heads along the eastern property line.
 - There is a low-lying spot that appears to collect runoff at the northeast area of the catchment.

- Catchment ultimately outlets through a 300 mm culvert on the beach towards the Bay.
- **Challenges identified:** In large rain events, the ditch does not have capacity to convey the upstream flow, water overtops the ditch and flows across the roadway and through the campsites towards the Bay.
- Catchment A2:
 - Based on the contours and site visit, this section of the Park does not have a defined outlet and runoff flows overland towards the Bay.
 - A CB complete with a 300 mm diameter lead outlet between the last row of campsites in this catchment.
 - **Challenges identified:** Runoff flows overland through walking paths and has caused erosion problems on the trails. Some of the campsites don't drain well and remain wet following storm events.
- Catchment A3:
 - Upper catchment flows overland through the treed area.
 - Overland flow reaches a system of culverts that directs drainage towards the outlet culvert into the Bay.
 - **Challenges identified:** During the field inspection it was noted that the outlet culvert was completely blocked with sand and other debris.
- Catchment A4:
 - Runoff flows overland towards the Bay.
 - No reported or observed problems.
- Catchment A5:
 - A 0.75 ha external area flows into A5.
 - Runoff flows overland towards the Bay.
 - Defined flow paths/stormwater infrastructure was not observed in this catchment.
 - No reported or observed problems.
- Catchment A6:
 - Upper catchment area flows overland.
 - CBs and culverts drain the parking lot by the Workshop/ Firewood Storage Building.
 - CBs drain the waterfront campsites and outlet in the Retaining Wall into the Bay.
 - **Challenges identified:** The southern row of waterfront campsites has poor drainage following rain events and remain wet. The Retaining Wall was failing at the time of Burnside's site visit. It was noted that this may cause problems for the outlet through the wall in the near future. Burnside staff have not inspected the recent Retaining Wall improvements and it is unclear whether the outlet has been sufficiently stabilized.

2.5.5 Natural Environment

2.5.5.1 Species at Risk

A background review for historical presence of Species at Risk was completed using publicly available sources⁷. According to records, the rare species indicated in Table 2-7 have been observed in the vicinity of the Park and may potentially be present:

Table 2-7: Species at Risk Recorded in the Vicinity of Memorial Park

Species	Status in Ontario ⁸	Key Habitat Requirements	Location of Suitable Habitat in Memorial Park
Lake Sturgeon <i>Acipenser fulvescens</i>	Threatened	Lives almost exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel. They are usually found at depths of 5 to 20 m. Known to inhabit the Great Lakes, including Georgian Bay.	May be present in the waters beyond Memorial Park. Prefers deep water and is unlikely to be present along the shoreline.
Eastern Whip-poor-Will <i>Antrostomus vociferus</i>	Threatened	Found in areas with a mix of open and forested areas, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests.	Could potentially be present in the large woodland area or along its edges.
Barn Swallow <i>Hirundo rustica</i>	Threatened	Typically nests in old barns, open rafters, bridges and large culverts.	Although no nests were observed during 2018 field visits, this species could potentially nest on structures such as the Pavilion, Woodshed, porch overhang of the Park Office and other similar open structures.

⁷ Natural Heritage Information Centre, Ontario Breeding Bird Atlas, Ontario Nature- Herpetofaunal Atlas

⁸ January 2020 status under the *Ontario Endangered Species Act*

Although no observations have been recorded, there are four bat species which have recently been listed as Endangered in Ontario. All could potentially roost within the large woodland and other treed areas.

2.5.5.2 Vegetation Composition

The following section summarizes the natural feature composition of the sections of the park identified in the Forest Management Plan (Appendix D). This plan also provides management recommendations to maintain and improve the existing conditions of these sections.

Passive Use Area

- Varying canopy cover (open grown trees to closed canopy forest).
- Many mature trees.
- Dominated by White cedar with associate species of Eastern hemlock, Sugar maple, Ironwood, Red oak and American beech.
- Some trees contain cavities that may be suitable for wildlife habitat (e.g., bat maternity roosting).
- Most of the groundlayer is without vegetation (beach) or manicured turf grass.

Lower Campground

- Open grown trees that are scattered amongst the camp sites.
- Many of the trees are mature, comprised of mainly Sugar maple with scattered Eastern hemlock and groupings of White cedar.
- Manicured turf dominates the groundlayer.

Upper Campground

- Primarily manicured turf open grown Sugar maples.
- Recent planting of shrubs and tree planting within the section has occurred, including conifer hedges.

Office and Amenity Area

- Sugar maple canopy trees scattered among the amenity uses.
- No other natural vegetation is present in this area, and the groundlayer is comprised of gravel, the mini golf course, roads and buildings.

Primary Woodlot

- Deciduous forest dominated by Sugar Maple with associates of White ash, Ironwood, American basswood, White cedar, Eastern hemlock and American beech. The understory is comprised of Sugar Maple, Ironwood, and American Beech.
- Second-growth characteristics with many of the canopy trees growing densely and are similar sizes.

- Emerald Ash Borer, Eutypella Canker (on maples) and potentially Beech Bark Disease were recorded.
- Groundlayer vegetation species typical of hardwood forests are present including Chokecherry, Sarsaparilla sp., Trilliums and Jack-in-the-pulpit as well as regenerating tree species from the canopy and subcanopy.
- Potentially provides habitat for bat species due to the dominance of maples in the woodlot, as well as the presence of cavities and snags.
- A small wetland (swamp) area is present in the southwest corner of the woodlot dominated by mature coniferous trees including Eastern hemlock and White cedar with Yellow birch and Black ash as associates.

2.5.6 Potential Presence of Archaeological Resources

- The Ministry of Culture, Tourism and Sport (MTCS) was contacted and confirmed that there are no mapped archaeological sites on the subject lands. There is an archaeological site within 500 m of the project area. It appears as though no detailed archaeological assessments have been conducted on the Park property. As such, it is not possible to rule out the possibility that archaeological resources may be present. Any areas that are not steeply sloped, heavily disturbed or permanently or semi-permanently wet may have some potential for artifacts to be found.

3.0 Community Engagement

Consultation was a key part of the Master Planning process for Memorial Park. The opinions and preferences of the Park users and various interested groups allowed the Project Team to generate four alternative design options which balance the needs of the various stakeholders and users of the Park and its facilities, and to help identify the necessary upgrades needed for the Park's various facilities.

Consultation consisted of meetings with various interest groups and Stakeholders (Section 3.1), a Public Information Centre (PIC) and a Campground Customer Satisfaction Survey.

3.1 Meetings with Interested Groups and Stakeholders

Meetings with interested groups and stakeholders took place in November and December 2018. Three meetings took place to gather user input and gather opinions related to the project. Meetings were conducted with:

- Adjacent landowners on November 29, 2018 at the Meaford and St. Vincent Community Hall.
- Meaford Kinsmen on December 6, 2018 at Kin Hall, Memorial Park.
- Friends of Memorial Park on December 6, 2018 at the Meaford and St. Vincent Community Hall.

The purpose of the meetings was to gather the opinions of the local groups who utilize the Park. The meetings were conducted in open house format. Project information was presented on display boards for attendees to review and Project Team members were available to answer questions.

In addition, there were display boards with questions as follows:

- What do you enjoy best about Memorial Park?
- Do you visit the beach? Could anything be done to improve your beach experience?
- Do you use the park trails? How could they be improved?
- Which park amenities do you use (e.g., playgrounds, snack shack, mini golf etc.)? What could be improved for these amenities?
- As an adjacent property owner, do you have concerns about living beside the Park? (only addressed to adjacent landowners).
- Do you have any additional suggestions for improving Memorial Park?

Attendees were given sticky notes and asked to answer questions where appropriate and place on appropriate display board.

Maps and aerial imagery of the Park were also provided to attendees, so that park users could indicate their feedback in relation to Park features and amenities. A comment sheet was also distributed, to collect general feedback on the project.

All feedback received from these meetings was collected, analyzed and summarized to assist with the development of the design alternatives, presented at the Public Meeting, on April 15, 2019. A summary of the feedback is captured in Table 3-1 and includes responses to the specific questions posed as well as additional general feedback that was heard throughout the meetings.

Table 3-1: Summary of Comments from Key Interest Groups

Questions/ General Discussion Topics	Feedback Received⁹	
What do you enjoy best about Memorial Park?	• Quiet beach and trails • The view of the water and trails • Dog Beach • Public Access	• The trilliums • Kayaking and paddle boarding • Hiking daily • Birdwatching • Wooded Area
Do you visit the beach? Could anything be done to improve your beach experience?	• Do not charge for parking • Day use fee for out of town visitors • Improve washrooms • Pick up the garbage along the beach • Please keep the dog beach • Limit visitor numbers on holidays and high traffic times of years	• Reduce speed limit/ install speed bumps • Improve signage • Improve picnic tables (tables left on the beach into fall) • Improve the sand • Stairs to the beach could be repaired
Do you use the Park trails? How could they be improved?	• Do not disturb the trilliums along the trail • Keep the trails clean • Maintenance needed in the winter months to reduce slipping • Manage trees to reduce falling limbs across the trails	• Mark side trails • Leave as natural as possible- do not add lighting • Improve drainage- some of the trails flood • More trails needed/expand walking trails, specifically increase number of looped trails

⁹ Bold text indicates that a comment was received more than once.

Questions/ General Discussion Topics	Feedback Received ⁹	
Which Park amenities do you use (e.g., playgrounds, snack shack, mini golf etc.)? What could be improved for these amenities?	• Kin Hall needs renovations and improvements • Provide kayak, paddleboard and bike rentals • Fix water taps on campsites • Keep horseshoe pits	• Upgrade mini-golf course • Improve the snack shack with upgrades and more open hours • Increase garbage pickup around the Park grounds • Add more child friendly play areas
As an adjacent property owner, do you have concerns about living beside the Park? (only addressed to adjacent landowners)	• Add speed bumps on Aiken and Grant Ave. to control speed of large RVs through community area • Do not add more campsites	• Address traffic and idling when RVs are waiting to check in- during busy periods RVs can be backed-up onto Grant Ave. • Grant Ave. is in poor shape due to trailers and needs to be repaired • Concern that property values may decrease if park is not well-maintained
Do you have any additional suggestions for improving Memorial Park?	• Improve availability of security and park staff • Clean-up beach /remove driftwood • Improve maintenance and upkeep (emptying garbage, cleaning of washrooms) • Repair shoreline erosion • Add small tuck shop at the office • Trim bushes around the amenities	• Have some information available regarding significant natural features, wildlife and flora and fauna • Restrict large RV's • Do not build any new permanent structures in the park • Prohibit biking off main roads (i.e., do not allow in wooded area) • Repair drainage issues that cause roads to flood

Questions/ General Discussion Topics	Feedback Received ⁹
	• Add a community bulletin in the park to post Park/community events and encourage visitors to go downtown • Add a bus stop and encourage the use of public transit to decrease traffic during busy times • Income made from camping should go back into park improvement • Add cross country skiing trails • Do not add more waterfront camp sites
Various Building	• General building updates/repair and maintenance needed • Washrooms needs upgrades
Camp Sites	• Increase use of existing campsites before adding any new ones • Campsite rates are too high • Improve power supply to allow for larger trailers • Expand alternate camping options (cabins/ yurts) • Require a 4-day minimum booking on sites • Make tent/ wilderness sites available
Parking	• No parking fees for public access on weekends
Revenue opportunities	• Revenue generated from the Park should only go back into the Park • Research the feasibility of having festivals in the Park • Have money raised from Kin Kamp weekend ear-marked for future park projects
Park Environment	• Reduce the use of concrete and add more landscaping • Use fallen trees for firewood

Questions/ General Discussion Topics	Feedback Received ⁹
General Comments	• Permanently open the sites that are currently only used on Kinsmen weekend • Do not extend sites into forested area or along the beach front • Make full beachfront available to the public • Restrict ATV access • Make Park more accessible • Keep facilities cleaner and better lit at night • Keep Kin Hall area cleaner, with more picnic tables • Expand food offerings- either in snack bar or through food trucks • Trails should be better maintained, with poison Ivy and invasive species control • Increase security/oversight of campers at night • Interior roads are too wide • Can the inland wooded area along the outer boundary of the Park be taken over from the owner?

3.2 Camper Experience Survey

The Camper Experience Survey was completed in 2018 by 607 campers who had used the campground facilities. Several questions asked respondents to rate their satisfaction with various Park features and facilities.

The results of the survey indicated general satisfaction of facilities as “Good”; however, satisfaction was lower in areas related to customer service, site upkeep and site size. Over 22% of respondents rated the “washrooms/showers” as either poor or fair. There were requests for more full-service campsites; improvements to Park washrooms and showers and general Park cleanliness; in addition to facility upgrades. Of these users, 70% look for full-service campsites.

3.3 Preliminary Design Concepts

Based on the feedback from the interest groups and campers, four preliminary design concepts were developed. Each concept included a variety of options for the campground areas, trails, parking, washrooms and waterfront. These were used for initial discussion with the general public and were on display for review at a public meeting. The intent was for the public to identify the preferred features of each concept such that the best features could be incorporated into the final Master Plan. The Preliminary Design Concepts are summarized below and shown in Appendix E.

3.3.1 Concept 1: Basic Upgrade Only

This concept included basic proposed upgrades. The retaining wall at the waterfront sites would be replaced, complete with a guardrail along the front side and waterfront campsites would remain in their current configuration. Overall drainage would be improved throughout the Park. Trails and roads would be upgraded to appropriate safety and AODA standards. Facilities to be upgraded included washrooms, mini golf, main office, Kin Hall and the pavilion. The dog beach would be maintained as is.

3.3.2 Concept 2: Upgrade Waterfront and Trail Changes

The upgrades to infrastructure and facilities noted in Concept 1, would also be included in Concept 2. This concept would also include removal of the waterfront retaining wall and relocation of some of the waterfront campsites to an area behind the Dog Park. Campsites in the upper campground would be reconfigured to include some larger and pull-through sites. Several low impacts, fit-to-field (with electrical service but no water or wastewater) cabins would also be included.

3.3.3 Concept 3: Upgrade + Basic Campground Changes

This concept would be similar to Concept 2 but would not include campsites adjacent to the Dog Park. Fewer campsites would be included overall when compared to Concept 2. This option would also include low impact cabins.

3.3.4 Concept 4: Full Campground Upgrade and Expansion

Concept 4 represents full campground upgrades and expansion. The standard facility and infrastructure upgrades will apply to this concept as well. New features include new cabins, expanded Upper Campground, formal parking areas and overall improved campground servicing. The Bog Beach will be maintained.

3.4 Public Meeting

The Public Meeting was held on April 15, 2019 from 6:30 p.m. to 8:30 p.m. at the Meaford and St. Vincent Community Centre Dance Hall. The meeting was arranged as a “drop-in” style session. Display boards were placed around the room and members of the Study Team were available to answer questions and discuss the project with the public (Appendix E). A formal question and answer period was also provided. A total of 166 people attended the meeting. A total of 27 comment sheets were submitted at the meeting and additional comments were submitted after the meeting via email and an online submission form on the municipality’s website. Comments were initially accepted until May 6, 2019 but following several requests the comment period was extended until September 15, 2019. In total, 166 comments were received. Many comments were similar to those heard during the meetings with interest groups. A summary is provided in Table 3-2.

Table 3-2: Summary of Public Comments

General Topic	Comment ¹⁰	
Public Access	• Keep all areas open to public with no reserved areas • Maintain public recreation as the Park's primary use, with camping secondary	• Open entire beach area to the public by removing all waterfront camping
Facilities and General Operations	• Washrooms need improvements and more frequent cleaning • Add more garbage cans • Improve overall maintenance and management • Improve traffic safety on Grant Ave. at Park entrance • Add a long dock to reach deeper water • Provide a "kid safe" shoreline • Add a slide, floating playground, splash pad, outdoor movie screen • Provide low impact water activities (canoeing, kayaking, paddle boarding), add boat rack and small shed, rental of boat spaces, fishing rod rentals, and fish cleaning station, high quality picnic tables and benches	• Amenities (volleyball, weather shelter, exercise equipment) • Connect Park to downtown Meaford with water taxi • Subsidize cab company for transit to downtown • Add more washroom facilities and showers • Bring back the snack bar • Some camp sites need some leveling very uneven ground for trailers
Camping	• Add more camping areas but away from waterfront • Remove waterfront sites and return waterfront to natural state with a rock wall • Do not expand the campground • Do not allow any seasonal camping	• Expand the waterfront campground and increase parking • Add more larger campsites • Limit the size of the campsites to allow only small and medium trailers

¹⁰ Bold text indicates that a comment was made more than once.

General Topic	Comment ¹⁰	
Cabins	• Do not add cabins because there is no need, they are too much to maintain, they attract vandalism and vagrants, they would disturb the woodland area	• Add cabins as an option for people without trailers
Parking	• Add parking by the dog beach • Add 3-4 accessible parking spots close to the pavilion	• Do not allow parking in waterfront areas
Park Natural Environment	• Keep Park as natural as possible • Do more to ensure the beach area is not reduced any further • Expand the trail network • Naturalize the Upper Campground	• Reduce the amount of concrete and paved areas • Naturalize behind beach with shade trees • Preserve the forest • Plant more trees
General Comments	• Reservations are becoming difficult to get (campground is too busy) • Enlarge signs for the Dog Beach or install directions along entire beach	• Add more speed bumps, lower speed limit, safety signs • Ensure camping costs are low enough to allow families with modest income to use the campground
Comments on Conceptual Plans	• Support for Concept #1 • Support for Concept #3 • Support for Concept #4	

4.0 Park Policy, Plans and Guidelines

The following plans and guidelines were used to guide the development of the Master Plan:

4.1 Official Plan

Memorial Park & Campground is zoned for open space uses within the Municipality's Official Plan (OP). One of the key objectives for Open Space lands is to "ensure that the residents of the Municipality have access to a properly planned and accessible parkland system." (Section B3.2.1).

Much of the woodlands on the property have been designated as Significant Woodlands and should be protected as such.

Section D9 of the OP outlines the Municipality's policies with respect to sustainable development. It is a policy of the Municipality to "promote the reduction in energy consumption in all Municipally-owned, maintained and operated facilities and equipment in a cost effective manner, including upgrading and retrofitting existing buildings where practical." (Section D9.2.1).

4.2 Meaford Recreation and Culture Strategic Master Plan

The Strategic Master Plan (SMP) notes that many of the buildings and facilities in Memorial Park are older and in need of upgrades or replacement. The SMP notes that "comprehensive and well-phased planning is required to maximize the marketability and use of this facility and its amenities." (Section 9.4.11). Recommendations are provided to:

- Create greater connectivity and access between the campground and the beach area.
- Develop an increased number of full-serviced sites.
- Provide additional recreational activities on-site.
- Respond to changes in demand for other types of accommodations (ex. yurts, platforms, better pull-through etc).

The SMP also describes the Municipality's Multi-Year Accessibility Plan (2014) as it related to recreational facilities and amenities. The Accessibility Plan outlines priorities to "Ensure that recreational trails and beach access routes have clear widths and signage as well as accessible amenities such as ramps," and "that public eating spaces and play spaces incorporate accessible features and designs."

5.0 Park Design Guidelines and Industry Standards

The Official Plan and Recreation and Culture Strategic Master Plan, described in Section 4.0, provide the overall direction and principles guiding future development and operation of the

Park. However, to date, no detailed park design standards or service levels have been articulated for the Park.

The Province of Ontario provides little direction with respect to park and campground design. As such, a jurisdictional review was undertaken to identify recommendations and guidance from other provinces, agencies and jurisdictions. The best practices identified through this review are not regulated or legally required to be implemented at Memorial Park, except where noted. However, if the Park is to provide a “properly planned” and “marketable” park experience, the direction outlined in park policy documents, the recommended guidelines proposed in this section provide a goal to which future park planning can strive.

5.1 Park Capacity

The first step in determining appropriate park design and servicing levels is to identify the Park’s capacity, or the maximum number of visitors who could make use of the Park at any onetime.

This capacity is used in subsequent calculations to ascertain whether the current level of servicing meets the potential Park demand and whether facilities such as washrooms, parking spaces and accessible facilities can meet capacity or need to be expanded.

Industry Best Practices

With respect to calculations of a park’s capacity, only one guidance document was found that provided some direction. The most comprehensive guideline comes out of British Columbia and is summarized in the Park Design Guidelines & Data, 2nd Edition (Province of British Columbia Ministry of Environment Lands and Parks, 1996).

At Memorial Park & Campground, the beach is the primary attraction at the Park. The “capacity” of the beach is the number of visitors who could be present on the beach at one time while enjoying a comfortable beach experience (ex. allowing sufficient spaces between visitors; the beach may be “crowded” but not uncomfortably so).

According to the B.C. guideline, a general “rule of thumb” is that, for a comfortable beach experience, visitors require at least 20 m² per person.

Memorial Park Application

Using this direction, the capacity of Memorial Park was calculated. The calculation, and the various assumptions made, are as follows:

- The beach at Memorial Park is available for both the campground users and for the public to enjoy.
- The area of the beach was calculated to encompass all lands north of the north branch of the main loop road, minus the footprint size of any buildings, parking lots and walkways within that area. This area does not include any lands in front of the Lower Campground as

the water currently reaches right to the retaining wall and waterfront camp sites in this area. This scenario is identified as “Option 1”.

- An alternate beach size was calculated based on the assumption that the retaining wall and a portion of the first row of waterfront camp sites could be removed to create an expanded beach area in front of the Lower Campground. This scenario is identified as “Option 2”. Further discussion regarding this option is provided in Section 6.0 and in Appendix A.

Under Option 1, or current conditions, the beach area is 7,666 m². If visitors were given a minimum beach area of 20 m², the maximum capacity of the beach would be approximately 384 people.

Under Option 2, assuming the creation of new public space/beach area in front of the Lower Campground, the total beach area would be 9,850m² for a capacity of 493 people.

These calculations are summarized in Table 5-1.

Table 5-1: Beach Capacity Calculations

	Beach Capacity	
	Option 1 (Existing Beach)	Option 2 (Additional Beach added in front of Lower Campground)
Beach Area	7,666m ²	9,850 m ²
Capacity	384 people at 20m ² /person	493 people at 20 m ² /person

These capacity numbers were used to provide an estimated capacity of the entire Park. This capacity assumes that all visitors are at the beach at one time. Given the number of recreation facilities available at the park (i.e., campsites, mini-golf, trails etc.) this scenario is unlikely. However, there are instances when this could occur such as a special beach event (e.g., beach bonfire or fireworks etc.). As such, these numbers are considered to be a highly conservative estimate of the Park’s overall capacity. The Park can provide a high level of service if it can meet the needs of this number of visitors.

The following sections identify the number of parking spaces, washrooms and accessible facilities required in order to service these estimated park capacities. Section 5.6 uses industry standards, rather than these capacities, to calculate recommended campsite sizes and layouts for a proposed reconfiguration of both the Upper and Lower Campgrounds.

5.2 Parking Requirements

Based on the scenarios provided in Section 5.1, up to 384 visitors in Option 1 or up to 493 visitors in Option 2 could potentially visit the beach at one time. Parking requirements to serve these numbers of visitors were calculated based on the assumption that all visitors to the beach will arrive in a car and a typical car may carry 2.8 people¹¹.

Under those conditions, the 384 visitors in Option 1 would require 137 parking spaces and the 493 visitors in Option 2 would need 176 parking spaces.

Industry Best Practices

As with park capacity calculations, the B.C. Park Design Guidelines & Data, 2nd Edition (Province of British Columbia Ministry of Environment Lands and Parks, 1996) was reviewed for reference to establish the typical size for parking spaces in public beaches and campgrounds. This document suggests that each parking space should be 20 m².

Memorial Park Application

Existing parking areas in the Park do not have clearly defined parking spaces and are not being used efficiently. In Section 2.5.4.1, calculations were provided that indicated that a total of 144 standard spaces, including 8 accessible spaces, could be provided in the existing parking areas if they were utilized efficiently. This calculation is based on the B.C. guideline and is summarized in Table 5-2: .

Table 5-2: Parking Spaces Available in Existing Lots

Total Existing Parking Area:	2891 m ²
Recommended Parking Space Size:	20 m ² /vehicle
Number of Parking Spaces Available if parking area are used efficiently:	144 parking spaces
Maximum Number of Cars Requiring Parking at One Time based on Beach Capacity:	137 (or 176 if Option 2 is selected)

These findings indicate that the existing parking areas can provide sufficient parking for 137 (Option 1 conditions) if lots used in an optimal manner. Under the Option 2 scenario, some additional new parking may be needed, according to the calculations. However, these numbers represent a very conservative estimate. In reality, many visitors to the park are campers who would park their vehicles on their campsite. In general, 144 parking spaces should be sufficient to adequately provide parking to day use visitors and campers with extra vehicles. Section 6.0

¹¹ Source: Replacement at Sunset Beach of Bridge No. 198 of SR 1172: Environment Impact Statement. Section A Part 4- Day Visitor Population Estimates

provides recommendations for formalizing parking spots and making more efficient use of existing parking areas.

5.3 Accessible Parking Requirements

Currently, the Park has two accessible parking spots located across the access road from Kin Hall.

Industry Regulations

The Province of Ontario provides guidance and regulation with respect to accessible facilities through the AODA. S.O., c.11. Ontario Regulation 191/11: Integrated Accessibility Standards Part IV) indicate that, for every 101-200 parking spaces, one space plus an additional 3% of the total number of spaces must be designated as an accessible parking spot. However, parking in the Park is divided into smaller lots, therefore AODA regulations state that 4% of the total number of spaces in each parking lot must be allotted for accessible spaces.

Memorial Park Application

Based on AODA guidance, the required number of accessible parking spaces are provided in Table 5-3. Overall, two accessible spaces are recommended in each parking lot for a total of 8 accessible spaces in the Park.

Table 5-3: Accessible Parking Spaces

	Kin Hall Parking	Angle Parking Across from Kin Hall	West Public Parking	East Public Parking
Total Number of Spaces to be delineated	29	31	44	40
Number of AODA Spaces	2	2	2	2

5.4 Availability of Washroom Facilities

Currently, there are six washroom facilities in Memorial Park, plus washrooms in the upper level of Kin Hall. Two of the six facilities offer shower services. These facilities are placed throughout the Park and serve those utilizing the public beach area, as well as those camping in the Park.

Table 5-4 lists each washroom facility, the number of water closets and the number of shower facilities currently available in the Park.

Table 5-4: Existing Washroom Facilities

Facility Name	Number of Water Closets	Number of Showers
Park Office*	3 Toilets, 1 Urinal	3
Lower West Washroom	5 Toilets, 2 Urinals	0
Memorial Park Beach Washroom	9 Toilets, 3 Urinals	0
Lower Kin Washrooms	4 Toilets, 2 Urinals	0
Horseshoe Pit Washrooms	2 Toilets, 1 Urinal	0
Upper Kin Washrooms	5 Toilets, 2 Urinals	3
Kin Hall Washrooms**	4 Toilets, 1 Urinal	0
Totals	44 Total (32 Toilets, 12 Urinals) [39 (27 Toilets, 12 Urinals) which are publicly accessible]	6

*One of the Park washrooms is a staff washroom and not accessible to the public.

**Kin Hall washrooms are generally not open to the public as Kin Hall is locked unless a meeting or event is scheduled within the building.

Industry Best Practices

With respect to the number of washrooms facilities that should be provided, a review of industry best practices yielded several different recommendations, as summarized in Table 5-5. The Ontario Building Code provides guidelines for the number of facilities required for outdoor pools but does not specifically reference campgrounds or public beaches.

The design guideline from B.C.¹² and a Campsite Bylaw No. 713 from the Regional District of Okanagan-Similkameen were identified as possible alternative references. While not strictly applicable to Ontario, these guidelines provide general industry standards. Guidelines used for reference are summarized in Table 5-5.

¹² Park Design Guidelines & Data, 2nd Edition (Province of British Columbia Ministry of Environment Lands and Parks, 1996).

Memorial Park Application

The various industry guidance documents were applied to Memorial Park to identify whether the existing number of washroom and shower facilities is sufficient to meet the Park capacity, as calculated in Section 5.1.

These various estimates indicate that, within the Park, the number of water closets in current service exceeds the minimum number recommended by various industry standards. However, the number of shower facilities currently in Memorial Park does not meet the recommended number of facilities. Nonetheless, many visitors have their own shower facilities within their trailer. A Camper Satisfaction survey conducted in 2018 did not indicate any concerns with the number of showers provided.

Based on this discussion, it is assumed that the number of water closets and shower facilities is sufficient to provide a comfortable level of service.

Table 5-5: Campground Washroom Facility Industry Standards/Best Practices

Document/Guideline	Guideline Recommendations	Memorial Park Site Capacity/Campground Size	# Water Closets Recommended Based on Guideline	# Shower Facilities Recommended Based on Guideline
Recommendations for Beach Area				
Ontario Building Code (Table 3.7.4.3.C)	- Provides guidelines for the number of facilities required for outdoor pools but do not specifically reference campgrounds or public beaches. 4 water closets are recommended per 251 to 375 people of the same sex for an outdoor pool.	The beach has a capacity of 384 people (Refer to Option 1 as described in Section 5.1).	10 total (minimum 5 per each gender).	Shower facility recommendations not provided.
B.C. Park Design Guidelines & Data, 2 nd Edition (Province of British Columbia Ministry of Environment Lands and Parks, 1996).	- For day-use beaches, 1 seat per sex per 100 people should be provided. - Showers recommended if specific water quality problems exist.	The beach has a capacity of 384 people (Refer to Option 1 as described in Section 5.1).	8 total (minimum 4 per each gender).	Showers not required.
Recommendations for Campground Areas				
Campsite Bylaw No. 713 (Okanagan-Similkameen)	Identifies water closet needs based on the number of campsites provided.	The campground has 114 sites (with potential reconfiguration to	7 Total (3 Men, 4 Women).	6 total (3 per each gender).

	• 3 water closets for Male and 4 water closets for Females are recommended for campgrounds with over 100 campsites, with 1 additional water closet for each sex for each additional 30 campsites. • 3 showers per sex is recommended for campgrounds with over 100 campsites.	reduce the number of sites to 88.		
--	---	-----------------------------------	--	--

5.5 Accessible Washroom Facilities

The Ontario Building Code requires accessible washrooms to be based on the number of water closets within the washroom building. Part 11 of the OBC further refines that washroom facilities shall be upgraded to accommodate barrier-free access based on the level of renovation completed.

Table 5-6: Existing Washroom Facilities¹³

Facility Name	Number of Water Closets	AODA Water Closets	Number of Showers	AODA Showers
Park Office	3 Toilets, 1 Urinal	1	3	1
Lower West Washroom	5 Toilets, 2 Urinals	0	0	0
Memorial Park Beach Washroom	9 Toilets, 3 Urinals	0	0	0
Lower Kin Washrooms	4 Toilets, 2 Urinals	0	0	0
Horseshoe Pit Washrooms	2 Toilets, 1 Urinal	0	0	0
Upper Kin Washrooms	5 Toilets, 2 Urinals	2	3	1
Kin Hall Washrooms	4 Toilets, 1 Urinal	0	0	0
Totals	44 Total (32 Toilets, 12 Urinals)	3 of 32 are AODA	6 Showers in the Park	2 of 6 are AODA

Table 5-7: Recommended Number of Accessible Washroom Facilities¹⁴

Accessible Washrooms (OBC Table 3.8.2.3.B.)		
Washroom Building	Number of Water Closets	Accessible Water Closets Needed
Park Office	4 (3 toilets, 1 urinal)	1
Memorial Park Beach Washroom	12 (9 toilets, 3 urinals)	2
Lower Kin Washrooms	6 (4 toilets, 2 urinals)	1

¹³ Some of the water closets and showers listed as AODA Compliant in the BCAs also include notes by CCI Group Inc. on March 30, 2016 and McIntosh Perry Ltd. on May 8, 2018, indicating that not all components of the AODA regulations were met.

¹⁴ The Lower West Washroom is recommended for removal and is therefore not included in the recommendations for accessible washrooms.

Horseshoe Pit Washrooms	3 (2 toilets, 1 urinal)	1
Upper Kin Washrooms	7 (5 toilets, 2 urinals)	1
Kin Hall Washrooms	5 (4 toilets, 1 urinal)	1

5.6 Campsite Sizing

The Park is comprised of 114 campsites, of which 87 are fully serviced (30AMP hydro, water and sewer) and 27 are serviced with hydro and water. The average size of a campsite in the Park is approximately 30 ft long x 25 ft wide¹⁵. As of January 2, 2020, the waterfront row of campsites in the Lower Campground were shortened by 4 ft – 5 ft because of safety issues associated with the current condition of the retaining wall.

Industry Standards

Several recommendations for RV campsite sizing were identified are summarized in Table 5-8.

Table 5-8: Industry Recommendations for RV Campsite Sizes

Guidance Document	Campsite Size Guidance
SunCam: Campgrounds-The Basics of Design ¹⁶	RV sites should have the following dimensions: 50 ft long x 40 ft wide (15.24 m long x 12.2 m wide)
Regional Municipality of Wood Buffalo Campground Design Standards ¹⁷	RV sites should be designed as follows: - Minimum stall size: Width - 6.0 m (19.7 ft) Length - 16.0 m (52.5 ft). - Minimum natural/landscaped buffer between stalls: 4 m. - Stalls proposed for year-round use shall be hard surfaced. - Site amenities for each stall must include a cleared 4.0 m x 4.0 m minimum activity pad and picnic table in addition to the stall.
Society for Outdoor Recreation Professionals and gorin+cohen consulting group ¹⁸	- Each site should have a hard surface, packed crushed stone and gravel, paved asphalt RV pad that is a minimum of 60' x 10' and an attached 10' x 20' patio area. - The balance of the site is open space with grass or other appropriate surface; possibly add a gravel space for parking one vehicle.

¹⁵ Based on data provided on the Memorial Park & Campground Reservation website.

¹⁶ Source: <https://s3.amazonaws.com/suncam/docs/140.pdf>

¹⁷ Source: https://www.rmwb.ca/Assets/00assets/government/municipal+departments/pdf/campground_design_standards.pdf

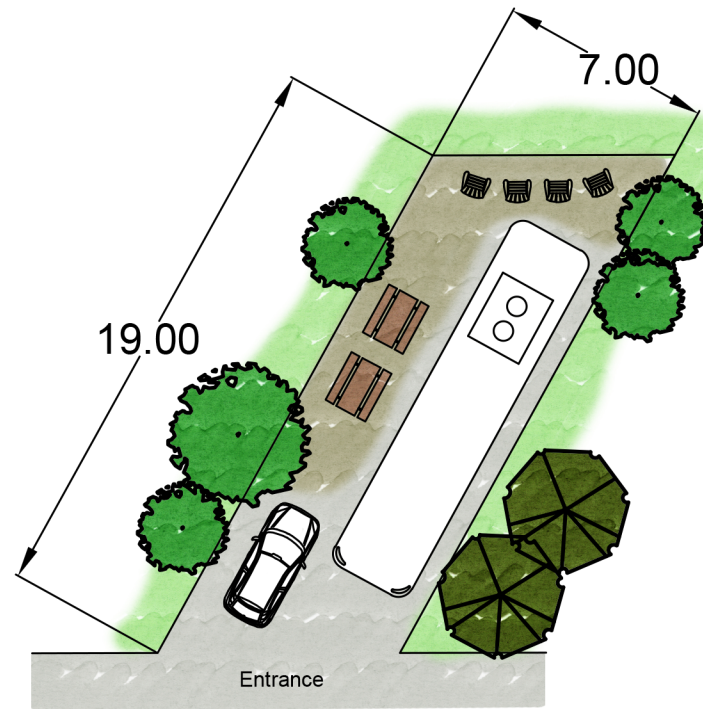
¹⁸ Source: https://www.recpro.org/assets/Library/Webinars/webinar_campgrounddesign.pdf

Memorial Park Application

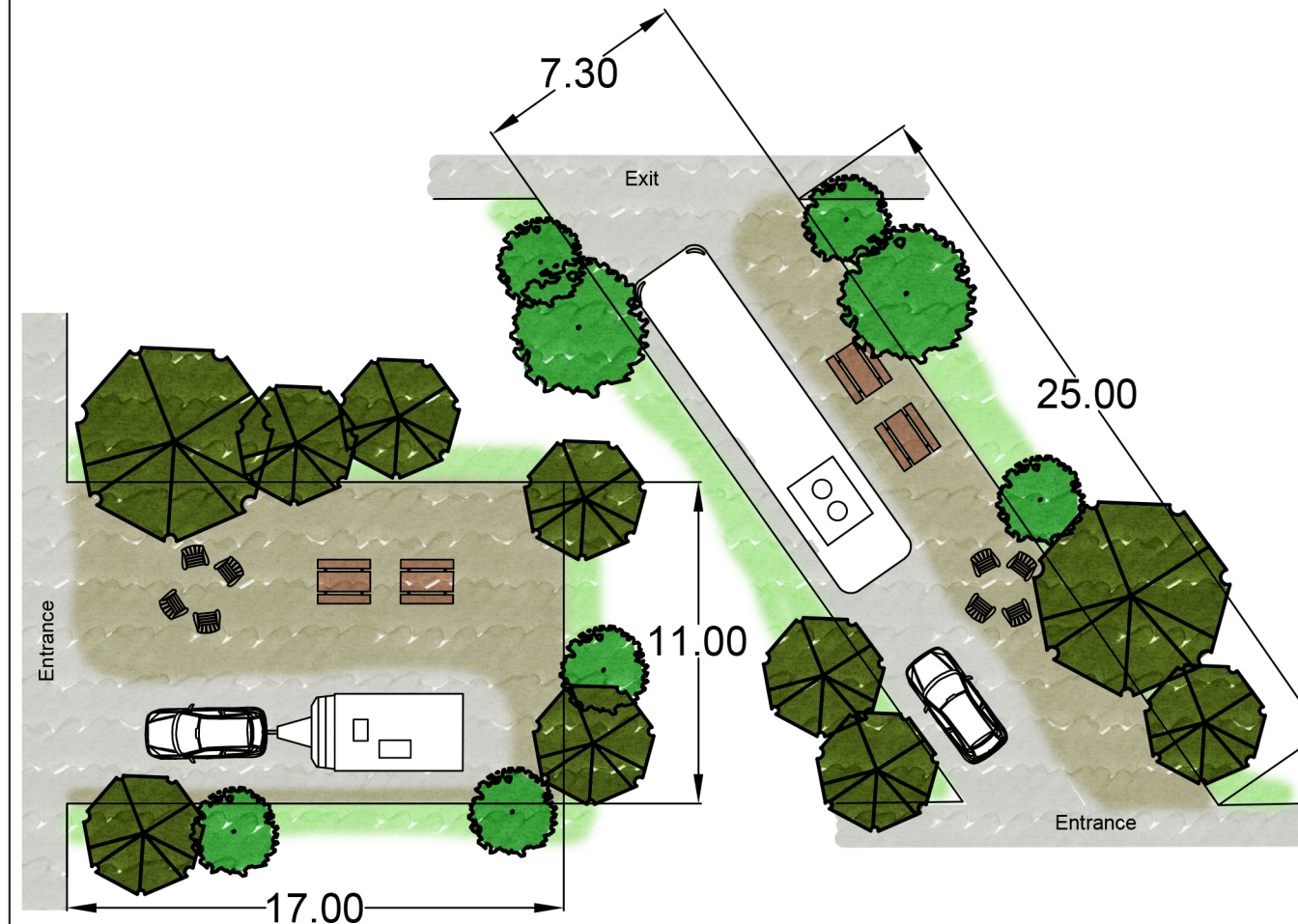
Using the guidance provided above, the following campsites sizes are recommended at Memorial Park & Campground to provide a high-quality camping experience:

- Premium Sites
 - Sites should provide an extra-large size that can accommodate trailers up to 45 ft in length with hook-up to full services.
 - Average campsite size should be approximately 50 ft in length x 40 ft in width.
 - A variety of back-in and pull-through sites of this size should be provided.
- Full-service and Waterfront Sites:
 - These sites can accommodate slightly smaller trailers, typically up to 32 ft in length x 12 ft in width with hook-up to full services.
 - Average campsite size should be approximately 40 ft in length x 30 ft in width.
- Water-only sites:
 - These sites currently exist; however, it is recommended that as many hydro and water-only sites as possible be upgraded to full-service. It is noted that, due to topography, there may be challenges in bringing full service to all sites, particularly existing sites 58-67. These remaining hydro and water-only serviced sites can be smaller in size and designed to accommodate tent and smaller tent-trailer campers.

Two optional layouts for a Full-service site are shown in Figure 5.1.

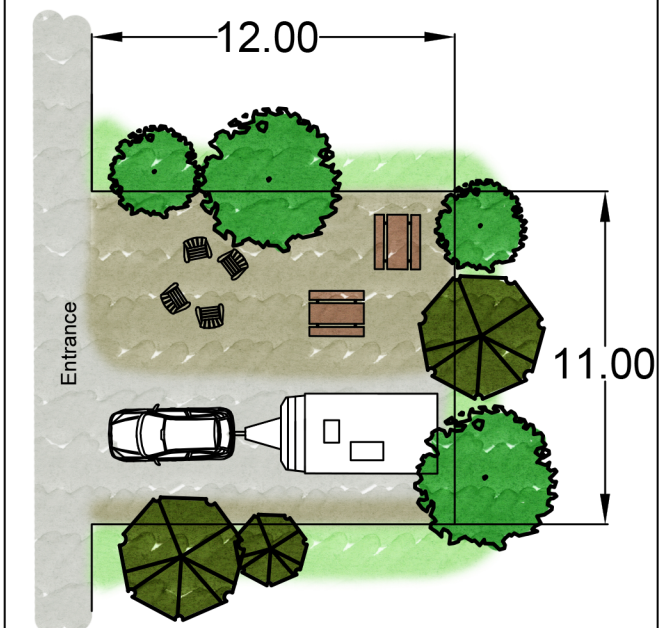


Back-in sites appropriate for full-length RV's and trailers



Back-in sites appropriate for mid-size RV's and trailers

Drive-Through sites appropriate for full-length RV's and trailers



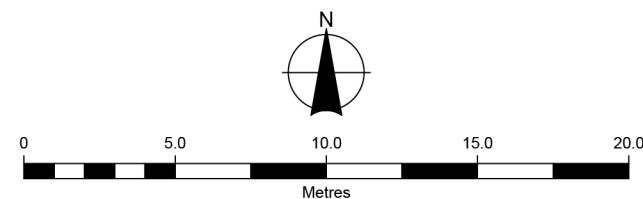
Back-in sites appropriate for small trailers and tents

TYPICAL LAYOUT -
WATERFRONT FULL SERVICE SITES

TYPICAL LAYOUT -
PREMIUM FULL SERVICE SITES

TYPICAL LAYOUT -
UPPER FULL SERVICE SITES

NOTE: DIMENSIONS ARE APPROXIMATE. EACH SITE WILL VARY SLIGHTLY IN SIZE AND ARRANGEMENT

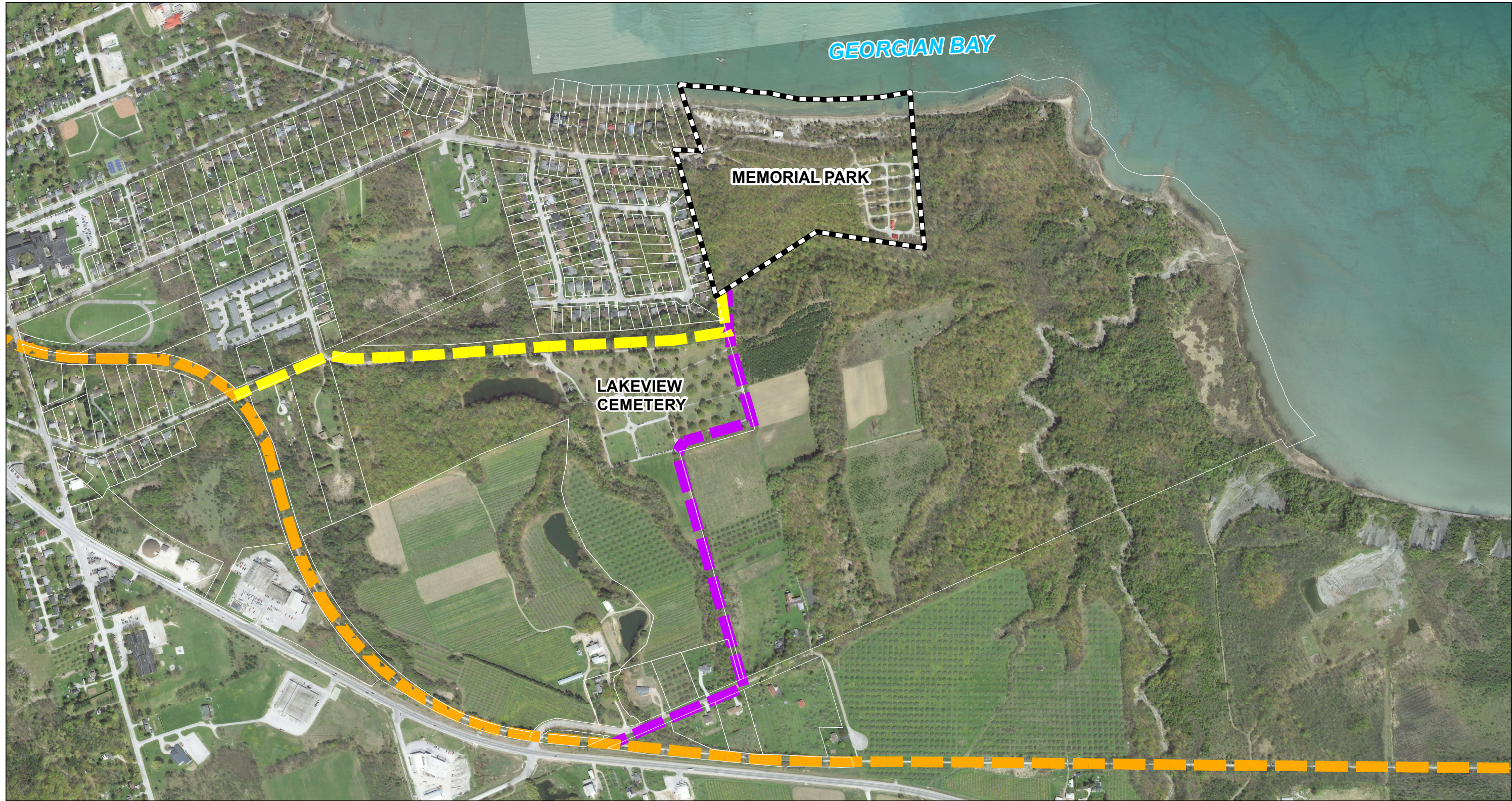


 BURNSIDE		Figure Title TYPICAL CAMPSITE ENLARGEMENTS	
Client MUNICIPALITY OF MEAFORD	Drawn KW	Checked DN	Date 20/05/15
	Scale 1:250	Project No. 300043326	
			Figure No. 5-1

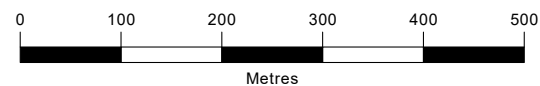
6.0 Connection to the Georgian Trail

The Georgian Trail is located south of the Park running adjacent to Sykes St. A connection to the Georgian Trail would provide park users with additional recreational options. The Georgian Trail provides 34 km of trail for pedestrians and cyclists. The trail is also open in the winter for cross-country skiing and snowshoeing. There are privately owned lands between Memorial Park and the Georgian Trail. A potential trail connection could extend from the Memorial Park trail network through lands owned by the Moore family, with a connection through the Lakeview Cemetery to Swathmore Dr. which then connects to the Georgian Trail. This route is shown as “Trail Connection Option #1” on Figure 6-1. A second option could cross the Moore family lands and extend westward through the cemetery to the unopened road allowance off Montgomery St. This is identified as “Trail Connection Option #2.”

Additional work is required to confirm this route, including consultation with the Moore family and cemetery directors. A more detailed feasibility study should be completed to confirm the most appropriate route.



Datum: North American 1983
Coord. System: NAD 1983 UTM Zone 17N
Projection: Transverse Mercator
Central Meridian: 81°0'0.00"W
False Easting: 500,000m False Northing: 0m
Page Orientation: 7.07" Scale Factor: 0.99960



-  Georgian Trail
-  Potential Connecting Trail - Option 1
-  Potential Connecting Trail - Option 2
-  Memorial Park



Client
MUNICIPALITY OF MEAFORD

Figure Title
MEMORIAL PARK MASTER PLAN

POTENTIAL CONNECTING TRAIL

Drawn	Checked	Date	Figure No.
HN	TR	2020/04/17	6.1
Scale		Project No.	
H 1:7,500		300043326	

7.0 Master Plan

7.1 Park Vision and Goals

A vision is a guiding statement by which decisions about the future of the Park will be made and implemented. The vision is a tool that is central to the Park master planning process - it provides a framework for developing recommendations and planning future enhancements, construction, development and environmental protection measures. A vision for Memorial Park over the next twenty-five years was developed based on feedback from the public, policy direction from previous park planning efforts and analysis related to the Park's calculated capacity.

The vision for Memorial Park is as follows:

Memorial Park offers opportunities for inspiration, health, and recreational enjoyment on the shores of Georgian Bay, while protecting the natural landscape through sustainable practises for residents, visitors, and future generations.

This vision is based on the following guiding principles:

1. Memorial Park is first and foremost a public park; future changes to camping facilities and occupancy utilization should not displace public use of the park;
2. The natural sandy beach is the number one feature of the Park and should remain accessible to the public. Solutions to protect against high water levels should take this into account;
3. There will be no further reduction in green space acreage (including camping areas);
4. No long-term/seasonal camping will be permitted.

Specific goals have been identified to achieve the Park vision, taking into account the guiding principles. Goals are based on park capacity calculations, park planning standards, OP and Strategic Plan policies, and include:

Goal 1: Recreational facilities will be well maintained.

Goal 2: Any facility upgrades, retrofits or new construction should be completed with consideration to the Park's capacity, the Municipality's sustainable development goals, and all Building Code and *Accessibility for Ontarians with Disabilities Act* (AODA) standards.

Goal 3: Mixed camping between tents, pop-up trailers, and larger campers should be accommodated and promoted in order to encourage family camping and retain economic accessibility for all groups.

Goal 4: Woodlands will be well-managed, protected and enhanced where possible.

These goals will be achieved through a variety of facility upgrades, efficiencies, re-development and consolidation.

The Master Plan is a compilation of the most preferred features of each of the four concepts presented at the Public Meeting. The Master Plan achieves the Park vision and goals by:

- Focusing on improvements to existing facilities and features.
- Identifying opportunities for re-purposing and retrofitting.
- Using the capacity of the Park as a benchmark in order to provide sufficient services.
- Identifying key priorities.

7.2 Key Recommendations

Recommendations to meet the Park vision and goals are wide ranging and include minor maintenance activities as well as major facility upgrades and construction projects that can be completed over the next twenty-five years. A full list of recommendations is provided in Table 7-2: Key Actions. Recommendations are visually depicted in the Master Plan presented in Figure 7-1. A proposed revised campground layout is presented in Figure 7-2. Further detail regarding infrastructure and servicing recommendations are provided in Appendix B.

Five major projects are included in the recommendations, as follows:

- Work to address the failing retaining wall at the Lower Campground.
- Removal of Kin Hall and replacement with a new multi-purpose building.
- Reconfiguration of the campsites in the Upper Campground to better suit larger trailers.
- Reconfiguration of the campsites in the Lower Campground to move sites back from the waterfront and to better suit larger trailers.
- Formalizing, updating and expanding the park's trail and road network.

Each is described in detail below and in Table 7-2, along with recommendations for other minor and moderate modifications to the Park.

Major Project 1: Retaining Wall

- The retaining wall along the waterfront at the Lower Campground was failing and the Municipality has taken measures to fortify the shoreline with a slope of boulders. None of the completed work has been inspected by Burnside staff; however, details regarding the work completed can be found in Appendix A.
- Before this action was taken, three options to address this issue were identified:
 - Rebuild the wall at generally the same location.
 - Rebuild the wall with set-back block layers.
 - Naturalize the embankment and eliminate the retaining wall.
- Next step are to:

- Engage the services of a shoreline erosion engineer familiar with alternatives to “hardening” approaches.
- Re-naturalize as much of the sandy beach as possible and as soon as possible; as the report emphasizes, the beach is the number one attraction in the park; every effort should be made to preserve public access to the sandy beach.

Major Project 2: Reconfiguration of Beachfront Space and Consolidation of Buildings

- Kin Hall is aging and is deficient with respect to accessibility. Costly retrofits would be required to upgrade this building. The expense would not provide good value, given the condition of this structure. It is recommended that Kin Hall be removed.
- A new consolidated, multi-purpose building could be constructed that incorporates the pavilion, beach washroom and Kin Hall uses into one structure.
- The multi-purpose building should accommodate beach-goers with washrooms and changerooms. A meeting room space could be used for Kinsmen meetings and event rentals. The attached pavilion could serve as a picnic area for beach visitors as well as an outdoor space for events.
- With this type of major renovation, washrooms, building access and parking will need to be upgraded to meet AODA requirements.
- The Kinsmen should be a key participant in the removal of Kin Hall and design of a consolidated multi-purpose building as they have been key users and contributors to the development of these facilities.

Major Project 3: Reconfiguration of the Upper Campground

- The Upper Campground can be reconfigured to create more pull-through campsites and campsites of a larger size to better accommodate the size of trailers typically in use by camp visitors.
- A reconfiguration option is shown on Figure 7-1 based on the recommendations provided in Section 5.6.
- By increasing the size of campsites, the number of campsites in the Upper Campground would be reduced from 84 to 72.
- Despite the fewer number of campsites, the overall camping experience for visitors is expected to improve. This reconfiguration includes upgrades to provide full water and sanitary services to additional sites.
- Infrastructure updates to sewer, water, and hydro should proceed as needed.
- Some building infrastructure may require significant work; if so they may need to be replaced with AODA compliant structures.
- No reduction in green space or play areas should occur.
- All of the trees in the park should be managed by professional arborists to ensure a healthy forest canopy and healthy mature trees should not be removed to provide for larger camp sites.
- Any reconfiguration of the upper campground should consist only of minor adjustments.

- Mixed camping (tents, pop-up trailers, and large campers) should be accommodated and promoted.
- No permanent camping structures such as cabins or yurts should be installed.

Major Project 4: Reconfiguration of the Lower Campground

- The lower campground can be reconfigured to move sites back from the waterfront to improve safety and to make the waterfront physically and psychologically available to the general public.
- Increasing the size of sites is also recommended to provide an improved camping experience. Campsites will be angled to allow for improved access for larger trailers.
- These recommendations would reduce the number of campsites in the Lower Campground from 30 to 16.
- Tree management in the lower campground should be the same as the rest of the park. Trees should be managed by professional arborists to ensure a healthy forest canopy; mature trees should not be removed to provide for larger camp sites.

Major Project 5: Formalizing and Upgrading the Trail and Road Network

- Maintaining the woodland area is a key priority and any work within the woodland area should be undertaken only as required to update and maintain the trail network and infrastructure in the area. No new development (e.g., campground expansion or new facilities) should occur within the woodland area.
- The trail network within the woodland should be consolidated and formalized. Informal trails should be closed and rehabilitated.
- Provide regular maintenance of all formal trails as required.
- The main trail loop should be identified and upgraded to meet AODA requirements.
- Wayfinding signage should be provided along trail routes and at trail junctions.
- Provide rest areas (ex. park benches), add amenities such as bird houses, dog “poop and scoop” disposal and bag dispenser etc.
- Further examine the potential to create a trail linkage to the south, beyond the Park to create a connection with the Georgian Trail.

Campground Reconfiguration

With the reconfiguration of campsites recommended under Major Projects 3 and 4, the future campground will include a variety of campsites, as summarized in Table 7-1 and shown on Figure 7-2.

Table 7-1 Number and Type of Sites in Reconfigures Campgrounds

Campsite #	Site Type	Average Site Size
Lower Campground		
1-16	Waterfront	40 ft in length x 30 ft in width.
Upper Campground		
17-20, 49-69, 75-82	Premium	50 ft in length x 40 ft in width
21-40, 70-74, 83-86	Full-service	40 ft in length x 30 ft in width.
41-48	Water and Electrical-only Service	30ft in length x 20 ft in width

The total number of each type of site is as follows:

- Waterfront: 16
- Premium: 33
- Full-service: 31
- Water and Electrical -only service: 8

Total: 88 (16 Lower Campground + 72 Upper Campground)

7.3 Priorities and Cost Estimates

The recommendations provided in this Master Plan are intended to be implemented over a ten-year period or beyond. While some recommendations are intended to generally improve Park service or aesthetics and can be implemented at any time, other recommendations are more urgent and should be completed on a more immediate schedule. An indication of the level or urgency or priority of each recommendation, along with a high-level cost estimates is provided in Table 7-2.

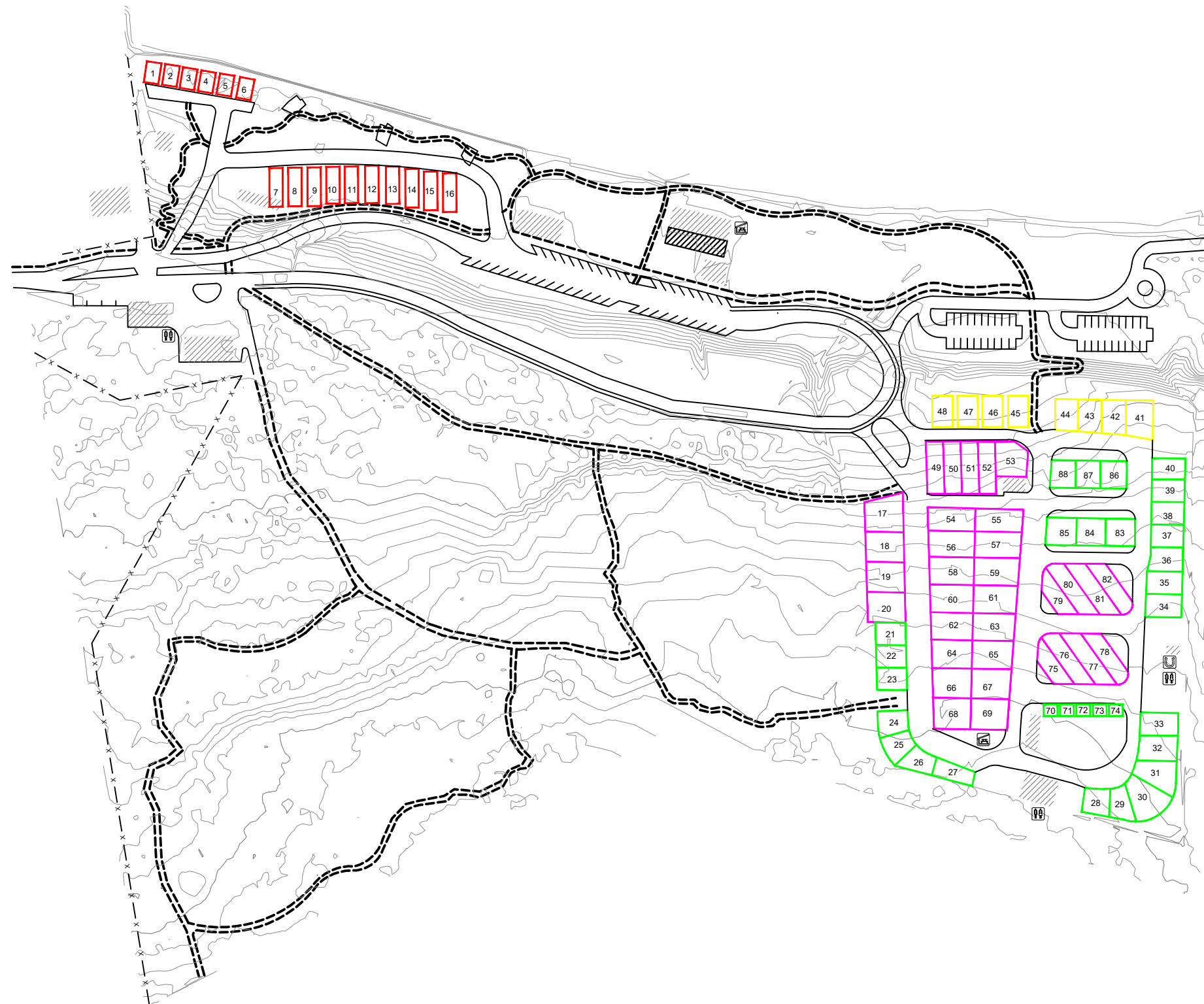
Priorities are identified according to the following scale:

- Urgent:
 - Actions which are needed immediately to address a safety issue or deficiency which will affect the ability of the Park to operate.
 - Urgent actions should be completed within 1-2 years.
- High:
 - Actions that are highly recommended to make an immediate impact to improve visitor experience or which will have a significant financial impact.
 - This also includes “quick wins” that are easy and relatively inexpensive to implement but which can significantly improve visitor experience.
 - High priority actions should be completed within 2-5 years.

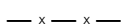
- Medium:
 - Actions which are recommended in the medium to long-term which may have a moderate impact to visitors and campground operations.
 - Medium priority actions should be completed within 5-10 years.
- Low:
 - Actions which will improve visitor experiences, but which can occur as funding is available.
 - Low priority actions should be completed within 10-25 years.

Cost estimates are provided based on the following:

- Cost estimates are based on historical cost information and are provided for planning purposes only.
- Estimates are Class 'D' with a contingency of 40%.
- Estimates are in 2020 dollars (not including inflation).
- Estimates are to be updated based on detailed designs before project implementation.



LEGEND:

-  EXISTING BUILDING
-  PROPOSED BUILDING
-  EXISTING TRAIL
-  PROPOSED TRAIL
-  PROPERTY FENCE
-  UPPER - FULL SERVICE
-  UPPER - UNSERVED
-  PREMIUM SITES
-  WATERFRONT - FULL SERVICE
-  WASHROOM
-  HORSESHOE
-  PAVILLION

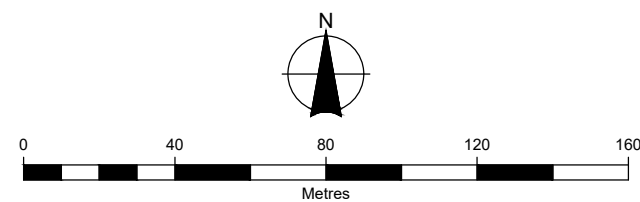


Figure Title
POTENTIAL CAMPGROUND LAYOUT

Client
MUNICIPALITY OF MEAFORD

Drawn KW	Checked DN	Date 21/09/29	Figure No. 7-2
Scale 1:2000		Project No. 300043326	

Table 7-2: Key Actions

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
Park Entrance					
Raised Entrance Garden Bed	1.1	As the entrance and first impression of the Park, this garden should have greater visual appeal and prominence.	High	N/A	\$50,000
	1.2	Add lights on poles within the garden bed for night time lighting.			
	1.3	It is recommended that future maintenance of the walls should include review, possible rehabilitation or replacement of the foundation. The architectural block wall and cap is in good shape and could be salvaged, reinforced and reused. Additional measures should be considered to protect the entrance garden amenities.			
	1.4	Prior to expenditure on this feature, it is recommended that additional investigations be completed to determine the type and condition of the existing foundation, and to determine if the geometry of this feature needs any modifications. A more detailed			

¹⁹ This Class D construction cost has been developed in accordance with the "Guide to Cost Predictability in Construction" November 2012, by the Joint Federal Government/Industry Cost Predictability Taskforce. Burnside does not accept any responsibility for the accuracy of the cost estimates noted in Table 6-1 as additional studies may need to be completed and the actual scope of work will need to be refined further.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
		geometric road study may reveal that for large RV units the Park Entrance garden walls may be too constricting, and the asphalt pavement may have to be widened. Pedestrian safety should be considered with any design changes. Improved sidewalk space in this area should be considered in conjunction with any changes to the entrance to ensure pedestrian safety.			
Perimeter Fencing	1.5	- Add fencing to establish the Park boundaries, ensure visitors use the main entrance and to minimize disturbances to adjacent neighbours. - Fencing design should address various needs, including Park boundary demarcation, minimizing disturbances to neighbours, limiting access from areas other than the Park Entrance and others, as identified.	High	\$50/m	\$25,000 ²⁰
Park Office	1.6	Delineate short-term parking adjacent to the Park Office for check-in/check-out and other Park Office interactions.	High	N/A	\$55,000
	1.7	Add lighting to outside of Park Office or tie in with lighting at entrance garden to increase current lighting levels			
	1.8	Add power-operated door to office in compliance with AODA standards.			

²⁰ Assumes 500 m of fencing along the west park boundary.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	1.9	Complete upgrades identified in most recent BCA²¹	Medium	N/A	\$41,000 ²²
Accessible Washroom at Park Office	1.10	Remove all obstructions and trip hazards (doorsteps, uneven and rutted pathways) along the path to the washrooms in compliance with AODA standards	Urgent	N/A	\$2500
	1.11	Add clear signage to identify the washrooms as being accessible. Clearly mark accessibility on Park maps.			
	1.12	Complete upgrades identified in most recent BCA.	Medium	N/A	\$60,000 ²²
Main Trail Loop	1.13	Extend main trail loop to end at the widened Park Entrance road near the Office rather than its current terminus at the Workshop.	Medium	N/A	\$10,500
Workshop and Woodshed	1.14	As per the Ontario Building Code (OBC) 3.1.4.2, the interior wall surfaces should be covered to increase the safety and limit the risk of employees being exposed to burning foam fumes from the exposed foam insulation. If left exposed, ultraviolet light may breakdown the integrity of the foam. Additional review of the foam specifications may be required.	Low	N/A	\$9,000

²¹ The BCA Upgrade values have been referenced from the completed BCA reports provided by CCI Group Inc. and McIntosh Perry Limited to the Municipality of Meaford. Refer to Appendix A.

²² This value may be high as some upgrades have been or may have been completed since BCA report was completed.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	1.15	Add a maintenance area/ash pit at the back of the Workshop for safer ash collection and general maintenance.			
	1.16	Add signage to direct customers to wood pickup areas, including where to park for wood pick-up.			
	1.17	Add bollards on either side of the overhead doors to provide some protection to exterior vehicle impact.			
	1.18	Complete upgrades identified in most recent BCA.	Low	N/A	\$15,000 ²²
Mini-Golf Course	1.19	General refurbishment of the course (e.g., new carpet, curbs, landscaping etc.) and make surface between holes accessible.	Medium	N/A	\$12,000
	1.20	Add/improve lighting to allow for use of the mini-golf course after dusk.	Medium	N/A	\$28,000
Water Servicing	1.21	Remove obstructions restricting access to the fire hydrant near Park Office.	Urgent	N/A	Staff Time
Waterfront and Beach					
Kin Hall (Short-term)	2.1	Repair and maintain roof drainage issues from the upper roof near the entrance. Water is currently flowing over the upper walls, causing moisture damage.	High	N/A	\$25,000
	2.2	Rooftop drainage and building eavestroughs should be assessed and repaired, as required.			

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	2.3	The entrance pavement concrete slabs are not level with the threshold that pose a tripping hazard. The slab should be raised or removed and replaced.			
	2.4	Complete upgrades identified in most recent BCA.	Low/TBD Subject to removal of Kin Hall	N/A	\$337,000 ²²
Beach Pavilion	2.5	The lighting in the Pavilion could be upgraded or improved to increase the utilization of the structure in the evening.	Low	N/A	\$3000
Beach Washrooms	2.6	Washrooms are only partially AODA compliant. General upgrades and maintenance should be provided.	Low	N/A	\$1200
	2.7	During any major renovations, including potential future building consolidation (noted below), work should be undertaken to make this facility fully AODA compliant.			
	2.8	Complete upgrades identified in most recent BCA.	Low/TBD Subject to construction of consolidated building	N/A	\$63,000 ²²
Facility Consolidation (Long-term)	2.9	Remove Kin Hall and replace with a consolidated building that incorporates the beach washrooms and new facilities, including	Low	\$215/sq ft (\$20/m ²)	

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
		changerooms and a meeting/rental room. The new building can be tied to the existing pavilion which can provide a connected outdoor feature.			\$860,000 ²³
	2.10	A common electrical transformer (37.5kVA, 120/240V, single phase) feeds both Kin Hall and the Beach Pavilion. The future building consolidation would likely require a service upgrade.			
Beach Playground	2.11	Inspect and maintain playground regularly, as required.	High	N/A	Repair costs subject to playground condition
	2.12	When the playground reaches the end of its natural life, replace it with a naturalized playground that mimics the beach/shoreline landscape. Any new playground should be designed to meet AODA requirements.	Low	N/A	\$25,000-\$80,000
Parking	2.13	Formalize parking on the north and south of the main road loop. Parking can be formalized with pre-cast concrete parking bumpers to denote each space. This will create a more efficient use of the parking areas. The following parking spaces should be created:	High	N/A	\$15,000

²³ Assumes 4000 sq.ft building. Requires further architectural detail to confirm price.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
		– Kin Hall Parking: 29 Standard Spaces, 2 Accessible Parking spaces. – Angle Parking across from Kin Hall: 31 Standard Spaces, 2 Accessible Parking spaces. – West Public Parking: 44 Standard Spaces, 2 Accessible Parking spaces. – East Public Parking: 40 Standard Spaces, 2 Accessible Parking spaces. • All accessible spaces should be signed and clearly marked as accessible on Park maps.			
	2.14	• Add signed accessible parking spaces adjacent to Kin Hall and in other parking areas. Once Kin Hall is removed and replaced by a consolidated structure near the Beach Pavilion, accessible parking spaces should be relocated to that area. Clearly mark accessible parking on all Park maps.			
Water Servicing	2.15	• A fire hydrant should be added in the vicinity of Kin Hall and the Pavilion.	High	\$7000/hydrant	\$7000
Sidewalk/Beach Trail	2.16	• The existing sidewalk that runs from the Park Entrance to the Lower Campground can be extended to provide access to other Park amenities and be compliant with current AODA standards.	Medium	\$50/m (stone dust)	\$46,250 ²⁴

²⁴ Assumes 925 m of beach access and sidewalk.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
		Specific designs should be explored to support walking and cycling.			
Beach Access	2.17	- Access paths should be created from parking areas to the beach and other public areas. Should be compliant with current AODA standards. - Where access cannot be provided due to high water levels (e.g., at previous location of the beach lookout), signage should be added to clearly mark an area as having rough terrain and not for use as an accessible path.	Medium		
Removal of Waterfront Campsites	2.18	Remove a portion of the Lower Campground waterfront sites and develop a public trail and open space.	High	N/A	\$40,000
Swimming Area	2.19	Staff should review municipal liability with respect to the public swimming areas to confirm whether existing signage is sufficient and whether any improvements such as installation of a buoyed swimming area or increased signage may decrease liability concerns and provide a safer environment for park users.	Urgent	N/A	Staff Time
Dog Beach	2.20	Provide signage indicating the start of the Dog Beach.	High	N/A	\$2000
	2.21	Provide waste bins for pet waste disposal.			

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
Lower Campground					
Retaining Wall	3.1	- Engage the services of a shoreline erosion engineer familiar with alternatives to “hardening” approaches. - Re-naturalize as much of the sandy beach as possible and as soon as possible; as the report emphasizes, the beach is the number one attraction in the park; every effort should be made to preserve public access to the sandy beach.	High	N/A	\$550,000-\$650,000
Campsites	3.2	Reconfigure the campground layout to shift sites away from the shoreline erosion area, to create angled, more easily accessible sites and to create larger, more comfortable sites. This will reduce the number of sites to 16.	High	\$15,000-\$20,000/site	\$240,000-\$320,000
Electrical Servicing	3.3	The RV power connection boxes are old and do not appear to be protected by a Ground Fault Circuit Interrupter as required by the Electrical Code. Replacing them should be considered.	High	\$500/unit	\$8,000
Lower West Washrooms	3.4	Remove this washroom facility and replace with additional campsites.	High	N/A	\$15,000-\$20,000
Water/Sanitary Servicing	3.5	A fire hydrant should be added in centrally within the Lower Campground.	High	\$7000/hydrant	\$7000
	3.6	There are concerns that the integrity of the existing watermain located behind the	Medium	N/A	Staff Time

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
		shoreline break wall (west end of the site) could be compromised due to the shoreline erosion as well as the impact it may have on the sanitary sewer which is located within 3 m to the north. Any shifting or failure of the sanitary sewer may impact the stability of the watermain. As a result, the area should be monitored regularly until such time the shoreline is properly stabilized and detailed inspections of the sanitary sewer and watermain conditions are carried out.			
Upper Campground					
Campsites	4.1	Reconfigure the campground layout to allow for improved site access and more pull-through sites.	Low	\$7,500-\$10,000	\$540,000-\$720,000
	4.2	Upgrade all non- or partially serviced sites to full service, where possible.			
Horseshoe Pits	4.3	Consolidate or remove some horseshoe pits to allow for additional recreational space in this area.	Low	N/A	Staff Time
The Bud Eagles Memorial Pavilion and Amphitheater	4.4	Inspect and refurbish the pavilion, as required.	Medium	N/A	TBD ²⁵

²⁵ Subject to Building Condition Assessment.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
Upper Campground Playground	4.5	Provide qualified inspection and maintain playground regularly as required.	High	N/A	\$1000
Lower Kin Washrooms	4.6	Maintain as required to satisfy current service levels.	High	N/A	Staff Time
	4.7	Consider future new comfort station to achieve barrier-free access and AODA compliance in a location that can service public beach and northern area of upper campground.	Low	\$350/sq ft (\$32/m ²)	\$455,000 ²⁶
	4.8	Complete upgrades identified in most recent BCA.	Low/TBD subject to construction of a new comfort station	N/A	\$93,000 ²²
Horseshoe Pit Washrooms	4.9	Maintain as required to satisfy current service levels.	High	N/A	Staff Time
	4.10	Consider future new comfort station to achieve barrier-free access and AODA compliance in a location that can service public beach and northern area of Upper Campground.	Low	N/A	Refer to recommendation 4.8

²⁶ Assumes a 1300 sq.ft building. If Kin Hall is relocated and reconstructed, this washroom would be included in that building at the cost indicated in recommendation 2.9.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	4.11	Complete upgrades identified in most recent BCA.	Low	N/A	\$72,000 ²²
Upper Kin Comfort Station	4.12	Maintain as required to satisfy current service levels.	Low	N/A	Within standard campground operating budget
	4.13	Complete upgrades identified in most recent BCA.	Low	N/A	\$37,000 ²²
Electrical Servicing	4.14	The RV power connection boxes are old and do not appear to be protected by a Ground Fault Circuit Interrupter as required by the Electrical Code. Replacing them should be considered.	High	\$500/ unit	\$36,000
Water Servicing	4.15	Additional fire hydrant should be added at southeast corner of the Upper Campground.	High	\$7000/ Hydrant	\$7000
Upper Campground Access	4.16	Add a gate at the entrance to the Upper Campground to limit vehicle access to those who have booked sites. The gate could be accessed by key or code by registered campers.	Medium	N/A	\$20,000
Woodland Trail Area					
Woodland Trails	5.1	- Provide regular maintenance of all formal trails as required. - Upgrade main trail loop per AODA requirements.	High	\$50/m (stone dust)	\$60,000

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	5.2	Remove and/or minimize informal trails and rehabilitate these areas. Limiting the construction/use of informal trails will help to protect trilliums and other ground cover.	High	N/A	Staff time + \$1000 for signage
	5.3	Install wayfinding signage along trail routes and at trail junctions.	High	N/A	\$5,000-10,000
	5.4	Provide rest areas (e.g., park benches), add amenities such as bird houses, dog "poop and scoop" disposal and bag dispenser etc.	High	N/A	\$10,000-15,000
Trail connection to Georgian Trail	5.5	- Consult with the Moore family, Lakeview Cemetery and Georgian Trail staff (Georgian Cycle and Ski Trail Association) to determine the feasibility of a connection to the Georgian Trail and funding opportunities. - Trail design and final routing to be determined through consultation.	Low	\$50/m (stone dust)	\$60,000
Woodland/Trees throughout park	5.6	Development an invasive species management plan for the Park.	Medium	N/A	\$5000-10000
	5.7	Have a hazard tree assessment completed to identify and remove hazard trees from along trails and campsite edges.	High	N/A	\$3000-7000
	5.8	Protect snag trees that are sufficiently setback from trails/campgrounds to maintain the habitat provided by these trees.	N/A	N/A	N/A

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	5.9	Native trees should be planted throughout the Park, including throughout campground areas to increase campsite privacy and shading.	High	N/A	TBD- make use of volunteers and tree planting programs
	5.10	All wooded throughout the park should be assessed by a professional arborist and managed to ensure a healthy forest canopy. Healthy, mature trees should not be removed to accommodate larger campsites.	High	N/A	TBD
Archaeological Assessment	5.11	An Archaeological Assessment, in accordance with the <i>Ontario Heritage Act</i>, should be conducted where upgrades will result in ground disturbance (ex. changes to below-ground infrastructure etc.) beyond the existing footprint of the developed area.	Medium	N/A	\$5000-\$7000
Park-wide Infrastructure and Servicing					
Road Network	6.1	Upgrade the road and main walking trails to provide a consistent and uniform surface for travelling.	High	\$600/m (2 lane road with walkway)	\$300,000
	6.2	Provide a consistent paved width of 5.0 m along the perimeter road loop to accommodate a 3.5 m vehicle lane and a 1.5 m wide shoulder for shared use by pedestrians and cyclists. Painted edge lines will be required to delineate the shoulder from the travel lane.			

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	6.3	Signage and pavement markings can be used to help alert motorists to expect pedestrian and cyclists, along the road and at high conflict areas such as intersections and road crossings.			
	6.4	- Extend the sidewalk/1.5 m shoulder through the park entrance to connect to Grant Avenue. - A connection to Grant Avenue should be included in the Municipality's Transportation Master Plan, recognizing that upgrades to Grant Avenue are required outside the scope of this study.			
	6.5	Design parking areas, roads and main walking trails in conjunction with new storm water collection and conveyance measures to remove known ponding and flood prone areas.			
	6.6	Road geometry should be improved to include larger camping trailers and RVs.			
	6.7	Illumination should be added and/or improved particularly at high traffic areas including intersections and pedestrian road crossings.		N/A	TBD- Dependant on Photometric Study
	6.8	Improve sightlines for both vehicular and pedestrian traffic through regular maintenance activities including the pruning of trees and shrubs. Tree removals may need to be	High	N/A	Staff time

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
		considered at high conflict areas with poor visibility. For any proposed widenings, the impacts to trees and roots will need to be identified and managed.			
Sanitary Service	6.9	Existing watermain and campsite services should be monitored on a regular basis for condition and operational deficiencies for compliance to current standards.	Medium	N/A	Staff Time
Site Lighting	6.10	General maintenance of all Park lighting is required.	High	N/A	Staff Time
	6.11	Photometric study to be completed to determine existing lighting levels and new/additional lighting fixtures.		N/A	\$7,000
Drainage	6.12	Replace undersized culverts and storm sewers.	High	\$390/m	\$39,000 ²⁷
	6.13	Improve perimeter ditch south and east of the upper campground.		\$40/m	\$12,000 ²⁸
	6.14	Rectify drainage issues on sites where ponding occurs.		\$7/m ²	\$24,500 ²⁹
	6.15	Add erosion control on eroded slopes.		\$105/m ²	\$84,000 ³⁰

²⁷ Assumes 100 m of sewer and culvert replacement.²⁸ Assumes 300 m of perimeter ditching.²⁹ Assumes 3500m² of grading required.³⁰ Assumes 800m² of erosion control required.

Feature		Recommendation/Action	Priority	Estimated Unit Cost	Estimated Class Level D ¹⁹ Budget
	6.16	Monitor and flush blocked culverts (maintain existing storm infrastructure).	High	N/A	Staff time/general maintenance
Community/Interest Group Involvement					
Volunteer-run Projects	7.1	- Encourage interest groups such as Friends of Memorial Park and the Kinsmen to actively participate in Park upgrades. - Activities that could be undertaken by these groups include: fundraising, tree planting, trail maintenance, annual Park clean-ups, invasive species removal and planting of native species, developing interpretive materials etc.	High	N/A	Staff time+ volunteers
	7.2	Fundraising to support park upgrades will be important. The Kinsmen and other groups can be approached to help with fundraising efforts.	High	N/A	Staff time+ volunteers
	7.3	Park and Municipal staff should meet regularly with interest groups to obtain ongoing feedback about the Park, design/coordinate volunteer projects and celebrate and appreciate volunteerism.	High	N/A	Staff time+ volunteers

7.4 Cost Estimates by Implementation Timeframe

Each of the recommended actions listed in Table 7-2 were assigned a priority based on their urgency to address safety to deficiency concerns and ability to improve visitor experience.

Table 7-3 summarizes the total costs based on the recommended implementation timeframe.

Table 7-3: Total Costs by Implementation Priority

Priority Level	Implementation Timeframe	Total Cost Range
Urgent	1-2 Years	\$2,500
High	2-5 Years	\$1,472,500 - \$1,826,500
Medium	5-10 Years	\$227,750 - \$234,750
Low	10-25 Years	\$2,570,200 - 2,805,200 ³¹
Total		\$4,272,950 - 4,868,950

8.0 Using this Plan

All projects recommended in this Master Plan will be considered within the Municipality's broader community and recreational planning and budget approval processes and will be subject to individual consideration and approval by Council.

This document should be used as a living document which will evolve as recreational needs; preferences; and priorities change. The Master Plan should be reviewed and updated every five years; each update will account for changes since the previous version and identify the course moving forward.

³¹ Lower cost range reflects costs for upgrades to Kin Hall, Beach Washroom and Lower Kin Washroom in recent BCA. Upper range reflects costs to remove and replace these structures.



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]



Appendix A

Retaining Wall Review



Memorandum

Date: January 28, 2020 **Project No.:** 300043326.0000
Project Name: Memorial Park & Campground Master Plan
Client Name: Municipality of Meaford
To: Shawn Watters, O.A.L.A, Project Manager
From: Stephen Riley, P.Eng.

This memo summarizes findings and recommendations associated with the retaining wall at the waterfront in Memorial Park, Meaford.

The existing retaining wall located at Memorial Park consists of interlocking prefabricated concrete blocks placed directly on an original ground with a sandy base. The wall extends approximately 150 m eastward from the west limits of the park.

Natural stone of various sizes had been placed on the water side of the retaining wall at the time of its construction, estimated to be in the early 1980's. At the time of the retaining wall installation the water level in Georgian Bay was lower than its current level. Additional natural stone may have been placed at different times since the original construction although the records are not complete.



Burnside staff visited the site in December 2018 to observe the initial stages of retaining wall failure.

Increased water levels and increased exposure to more aggressive wave action has resulted in the loss of soil support below the concrete blocks. It is believed that the concrete blocks were placed directly on a sand bedding, likely the original natural beach. This material is relatively fine grained and easily mobilized by the water. As the water level rises and waves impact the wall, the waves draw material supporting the blocks from below the blocks.

The resulting failure has manifested itself in two primary ways:

- Rotation of the retaining wall from the vertical towards the water; and
- Loss of backfill from behind the wall resulting in significant voids.

The rotation of the wall is due to a partial withdrawal of material from under the blocks, generally closer to the water side. The rotation is marked by a separation between the top of the wall and the surrounding ground. This was observed where the water was intermittently in contact with the retaining wall and is generally the first stage of retaining wall failure.

The loss of backfill from behind the wall is due to the complete withdrawal of material from below the blocks. As the supporting material is pulled from below the blocks by wave action, the backfill drops into the resulting void. The process continues progressively until all the backfill has been drawn into the water. This failure is marked by large deep voids forming behind the wall, resulting in a significant hazard. The type of failure was observed where the water was more frequently in contact with the block wall.

A geotechnical investigation undertaken near the wall established that the wall had been founded on a fine grain sandy material that was underlain by rock at a depth that varies between the two boreholes. The investigation confirmed that the retaining wall was not founded on the underlying rock.

In order to prevent further rotation or backfill failure Burnside recommended that the loss of base material and backfill migration that results from the effect of the higher water levels and increased wave action be prevented.

Several options were discussed including:

1. Rebuild the wall at generally the same location. This would include:
 - a) The installation of sheet pile walls with the tip of the sheets driven to the rock below to keep as the sand material below
 - b) The re-establishing of the wall at its current location with horizontal tie-backs installed to prevent further rotation.
 - c) Improve the drainage of the wall, through the installation of filter fabric and coarser stone backfill.
 - d) Place additional natural stone on the water side of the wall to reduce wave energy.
 - e) The design included the installation of a pedestrian guard (railing) due to the wall height.

This design was intended to limit the ability of the waves and higher water levels from removing material from below and behind the wall.

The design would generally preserve the waterfront camp sites as they are.

A design was proposed that could be installed in small sections or on a larger scale depending on the available budget.



The estimated construction cost was \$550,000- \$650,000 depending on the final scope of the contract.

2. Rebuild the wall with set-back block layers. This would include:
 - a) Excavating behind the existing wall down to and into the rock layer at depth.
 - b) Placing a layer of the existing concrete block retaining wall into the excavation
 - c) Relocate successive layers of the existing block wall on top of the previous, with each layer set back
 - d) Introduce a new block layer(s) to return to desired grade.
 - e) Place additional natural stone on the water side of the wall to reduce wave energy.
 - f) This design included the installation of a guard (railing) due to the height of the wall.

This design was intended to reduce removal of material from below the blocks by anchoring the concrete blocks in the underlying rock.

The design would require the relocation and or reduction in size of the waterfront campsites.

The estimated construction cost was \$450,000 to \$550,000 depending on the final scope of the contract.

3. Naturalize the embankment and eliminate the retaining wall. This would include:
 - a) Removing the existing retaining wall in its entirety.
 - b) Naturalize the slopes with bioengineered slope protection potentially featuring a
 - c) combination of natural rock and vegetative plantings.
 - d) Place additional natural stone on the water side to reduce wave energy.

This design was intended to provide a long term more stable and natural slope.

The design would likely require the elimination of the waterfront campsites.

Subsequent to our initial inspection, we understand that rising water levels and storm events have further damaged the retaining walls. We also understand that some work towards creating option No. 2 had been initiated.

The existing wall along the shoreline appears to have been constructed with uniform looking precast concrete blocks. This type of block is commonly made by Ready Mix concrete suppliers as a by-product from their operations (surplus concrete). These units vary in appearance between manufacturers and may contain concrete mixes of varies properties and strengths. Some of these blocks contain interlocking features, however, these are generally constructed as stacked units and may function as a gravity retaining structures or buried dead men. Typically, they do not contain tiebacks or other anchorage systems.

Under the 2012 OBC, the retaining wall is considered a Designated Structure (Division A, Section 1.3.1.1) and is treated as a *building* and must conform to Code requirements. This type of retaining wall, if it exceeds 1000 mm in height and is *adjacent to public property or private property to which the public is admitted*, is considered one of these designated structures.

Part 4 of Division B applies to these walls.

Section 4.4.3 Guards over Retaining walls; provides that where the public has access to the top of a retaining wall (as designated) it shall be protected with guards.

Section 4.1.5.14 and 4.1.5.15 indicate the design loads for guards and for vehicle guards. We would suggest that if vehicles can travel up to the proximity of the upper wall, then more robust vehicle guards would be required.

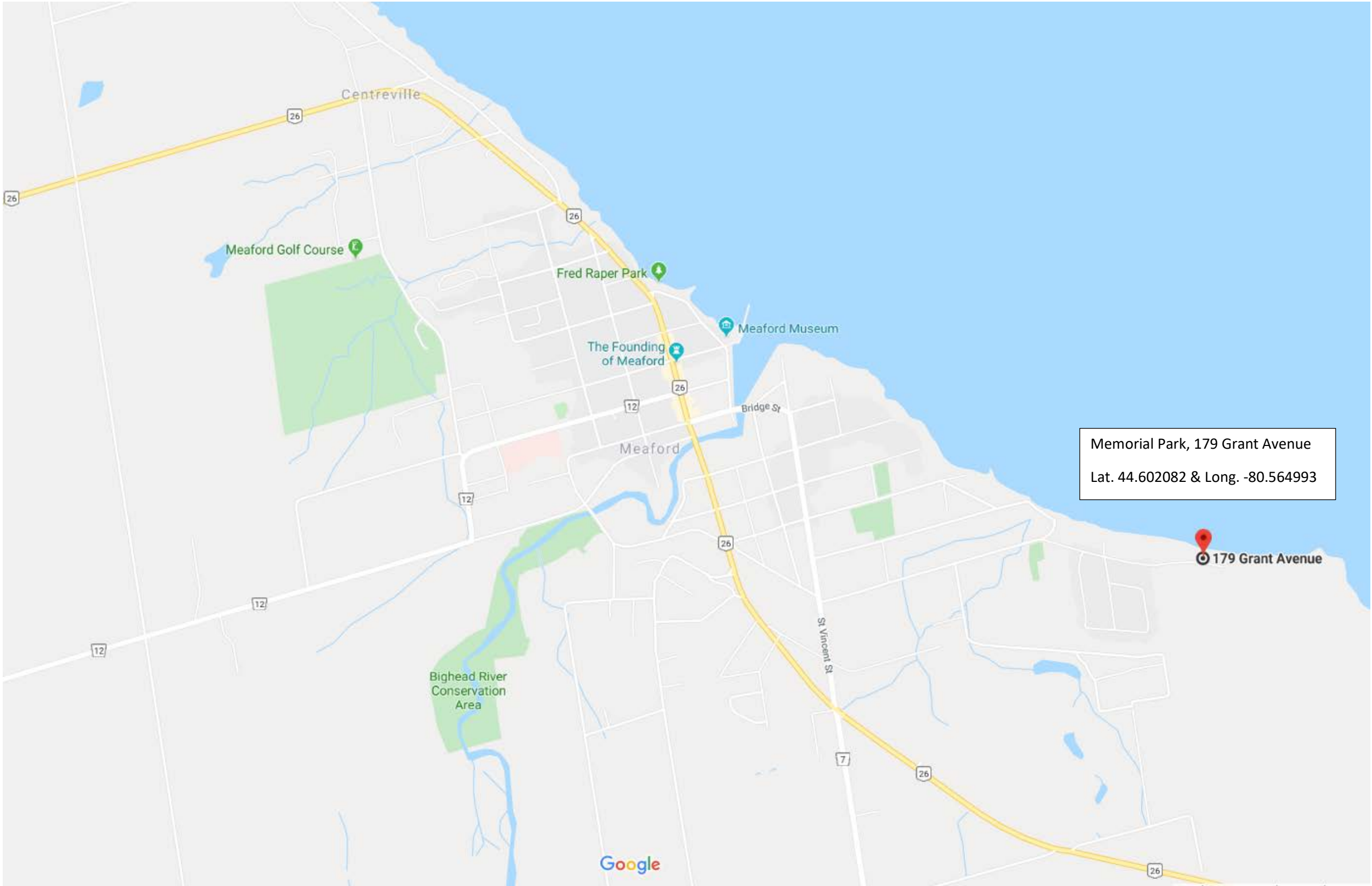
Currently no guards exist along the wall, and it appears that the wall height is at least 1,000 mm over much of its length.

“Guards” is a defined term in the building Code and the geometry may vary depending on the type of occupancy involved and the loading. It is defined as “a protective barrier to prevent accidental falls from one level to another”. A conservative approach for a pedestrian guardrail would also be designed to prevent children from climbing, which would require smaller code conforming openings and other restrictions, where a simple heavy single chain draped between bollards may not be sufficient.

The final future geometry of the wall, whether additional material is placed in front of the wall to reduce the fall height, or if the wall height itself is reduced, will influence the need for, and the type of guards required. Any wall repairs need to consider the capacity requirements for such guards as well as the stability of the wall to resist other environmental loading.

SPR

Meaford Memorial Park, 179 Grant Ave.
Shoreline Rehabilitation (Revision B)



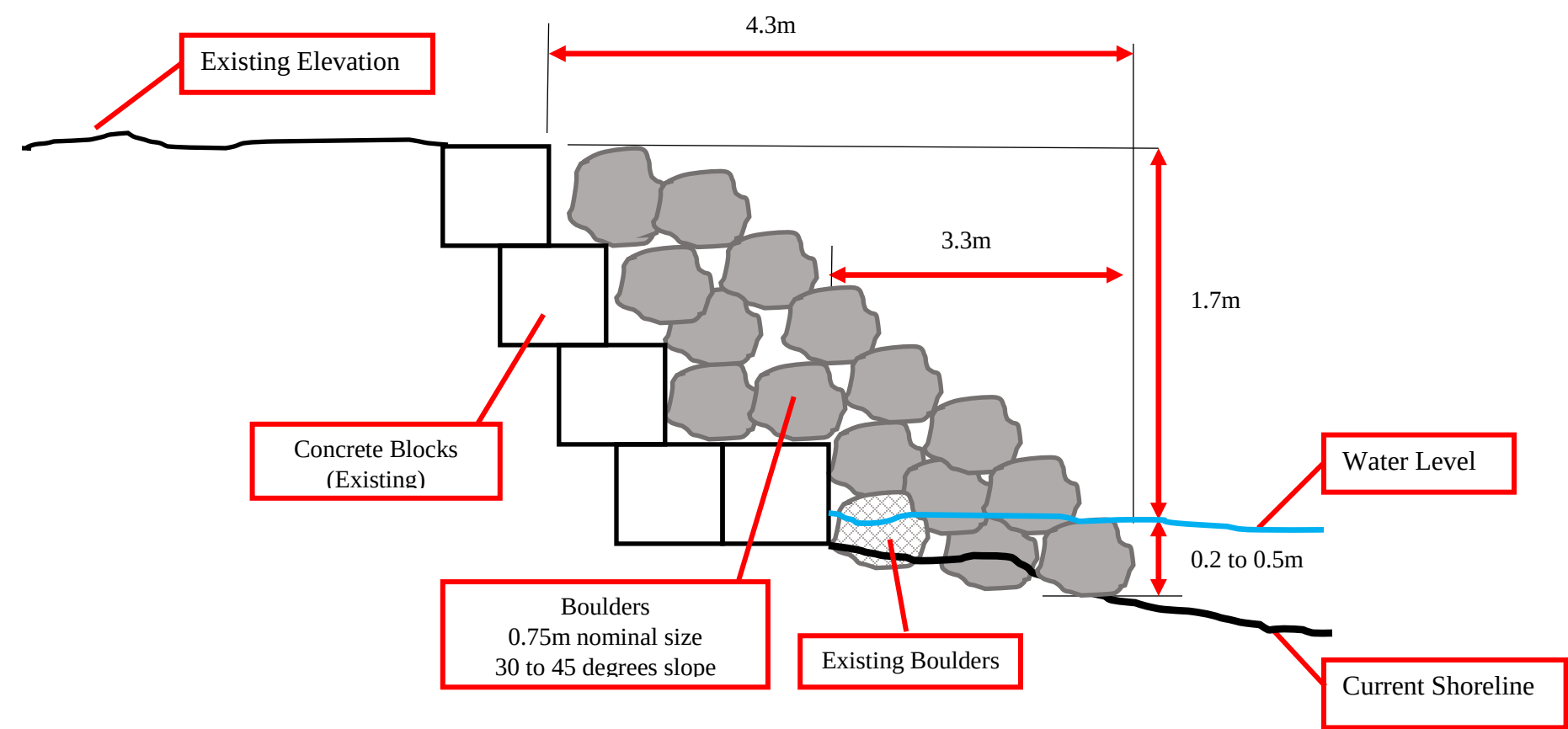
Meaford Memorial Park, 179 Grant Ave.
Shoreline Rehabilitation (Revision B)

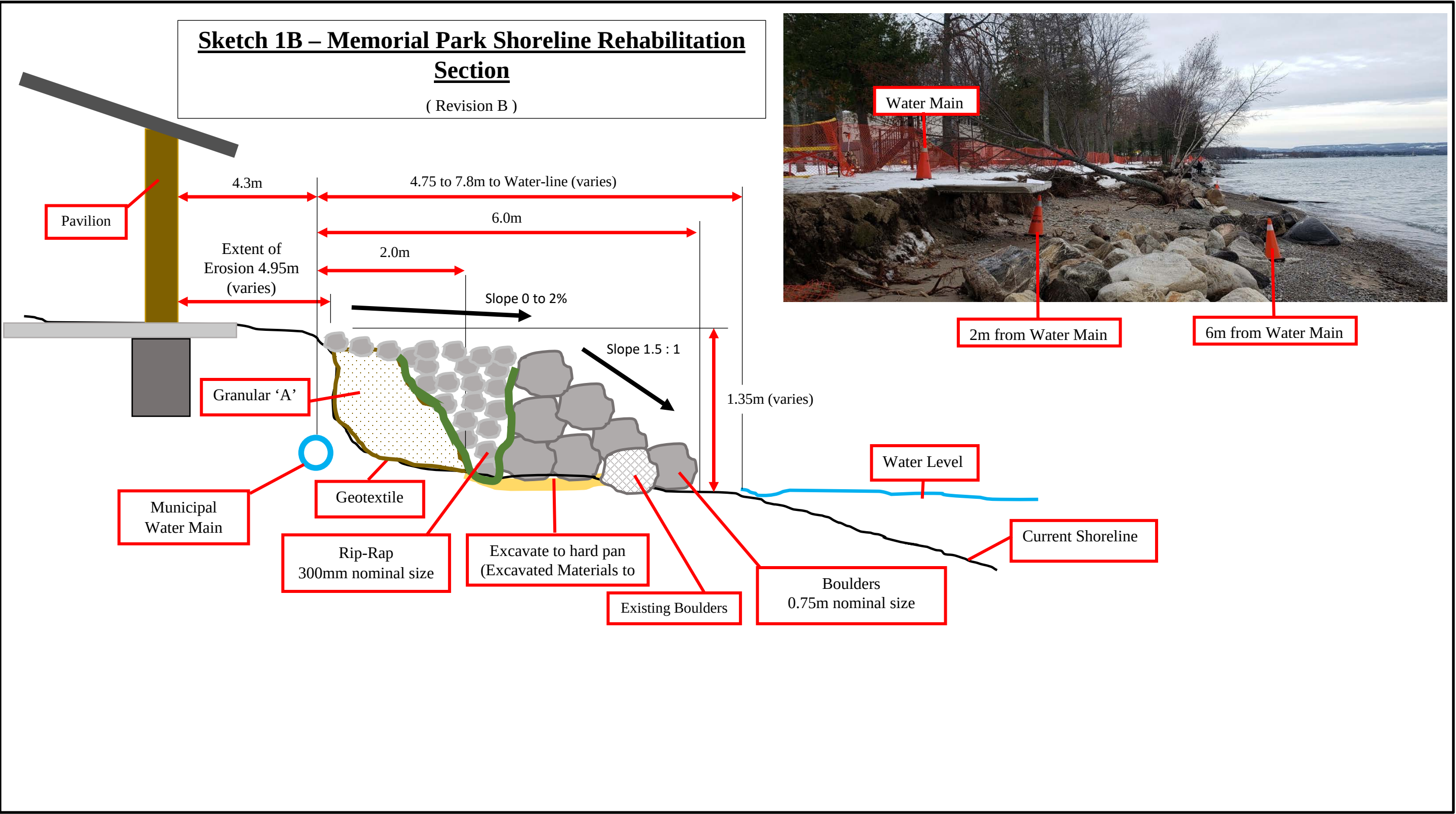


Notes:

- Aerial Photograph from 2015
- High water levels, wave action and storm surge have compromised approximately 275 meters of shoreline. Infrastructure and services are at risk of being damaged/destroyed.
- The area is made up of 150 meters of cement block retaining wall for camping services and the remaining 125 meters of public beach access. The beach access area was protected by hammer head boulders and topsoil material in the past that has been eroded away over the past several weeks and months.
- The cement block retaining wall is currently leaning towards the water at a 10% to 30% incline. The retaining wall repairs will begin on November 18 and have been permitted through Grey Suable Conservation Authority. No in water work is required for this restoration. Additional boulder protection for the wall is required and is part of this application.
- Significant loss of shoreline greater than 10 meters in some areas is threatening both a pavilion and water-main and has already damaged a water sampling station/blow-off (removed).
- The pavilion is constructed of 8x8 inch wooden posts anchored in place with sonotube concrete forms. The poured concrete pad poured as the flooring for the pavilion.
- The water-main is connected to the municipally drinking water system and forms a loop through the park with is active all year round.
- The goal is to stabilize shoreline and create a barrier from wave rush to stabilize bank to protect the pavilion and watermain and reduce shoreline erosion.
- Water-main to have a minimum of 2m of existing soil or new granular 'A' coverage to the side to protect from freezing.

Sketch 1A – Memorial Park Retaining Wall
Section





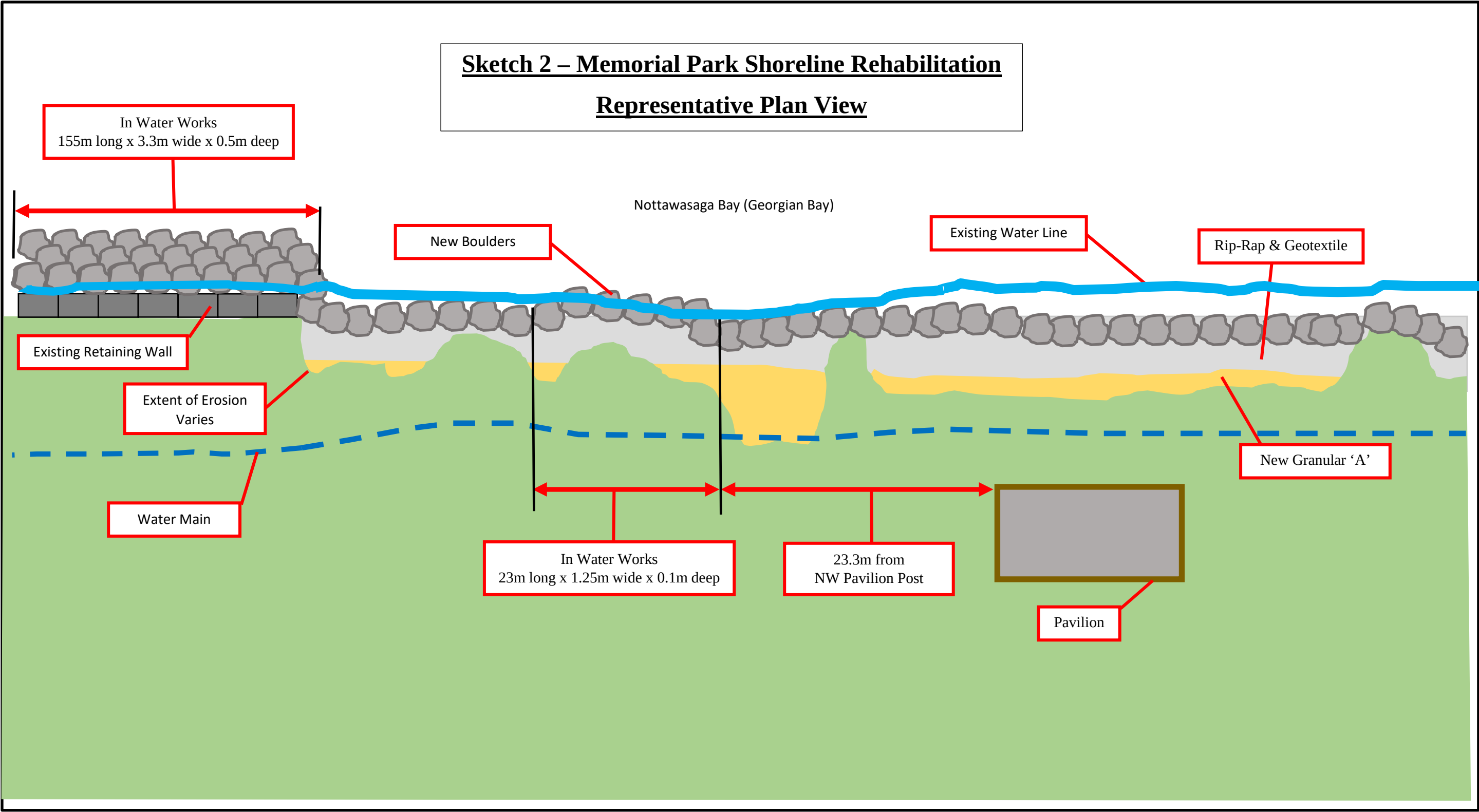


Photo #1 - Pavilion









BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Infrastructure Recommendations



Memorandum

Date: January 28, 2020 **Project No.:** 300043326.0000
Project Name: Memorial Park & Campground Master Plan
Client Name: Municipality of Meaford
To: Shawn Watters, O.A.L.A., Project Manager
From: Vic Bohdanow, Reza Soleymani

Introduction

This memo is intended to provide general recommendations for infrastructure and servicing upgrades to support the vision identified in the Memorial Park & Campground Master Plan. Recommendations associated roads, parking, water, wastewater and electricity are provided in the following sections.

1.0 Roads

The use of a holistic approach as a design strategy will ensure that any upgrades will incorporate and build upon aspects of the existing infrastructure to produce practical and more cost-effective solutions. The goal is to promote all types of users and modes of travel, and ultimately open-up opportunities for all to share the amenities. This approach will ensure improved safety, consistency and continuity within the Park as well as reduce maintenance activities and risk for the Municipality. Any improvements will need to comply with the Design of Public Spaces Standard of the AODA which describes ways to make newly constructed or redeveloped spaces to be more accessible for people with disabilities. The focus areas shall include, but not be limited to, beach and shoreline access, trail connections to parking and rest areas, washroom facilities, playgrounds, Kin Hall, the campsites and any future expansion areas.

The following improvements shall be considered in developing the design plan:

- Upgrading the road and connecting trails with asphalt to provide a consistent and uniform surface for travelling.
- Providing a consistent paved width of 5.0 m along the perimeter road loop to accommodate a 3.5 m vehicle lane and a 1.5 m wide shoulder for shared use by pedestrians and cyclists. Painted edge lines will be required to delineate the shoulder from the travel lane.

- Signage and pavement markings can be used to help alert motorists to expect pedestrian and cyclists, along the road and at high conflict areas such as intersections and road crossings.
- Designing parking areas, roads and connecting trails in conjunction with new storm water collection and conveyance measures to remove known ponding and flood prone areas.
- Improving sightlines for both vehicular and pedestrian traffic through regular maintenance activities including the pruning of trees and shrubs. Tree removals may need to be considered at high conflict areas with poor visibility. For any proposed widenings, the impacts to trees and roots will need to be identified and assessed against the FMP.
- Trailer units and RVs need plenty of maneuvering room. The curves in the road will need to be widened to accommodate these longer vehicles. The centreline turning radius should be no less than 15 m but as large as practical.
- Designing “drive through” angled RV pads (30 to 45-degrees) require less turning area and offer better sightlines.
- Illuminating high traffic areas including intersections and pedestrian road crossings.

Although the road design must conform to minimum engineering standards it must also consider the current needs within the Park and any new requirements as part of any future expansion areas.

2.0 Parking

Devising a parking space layout plan will ensure that opportunities are being maximized within the parking lots. The parking and road/trail access within each campground site can be better utilized if the new layouts are configured in conjunction with the upgrades to the perimeter road loop.

The following design ideas will help provide smoother flowing and safer traffic circulation:

- Using asphalt pavement for the entire perimeter loop which receives more traffic. Consider the paving of driveways at large RV sites.
- Designing “drive through” angled RV pads (30 to 45-degrees) require less turning area and offer better sightlines.
- The minimum size for a passenger-vehicle parking space to be 3 m wide by 6 m long and introduce additional spaces to accommodate longer pickup trucks. Typically, angled spaces are easier to navigate.
- Providing accessible parking spaces at each of the activity areas and buildings that are AODA accessible.
- Creating small parking lot areas where property is limited. The circulation pattern shall be devised to prevent vehicles from becoming trapped when all parking spaces are full.
- Using directional signage to mark the direction of flow.
- Incorporating measures such as parking markers to delineate parking spaces on unpaved and gravel areas, to maximize space and eliminate confusion.

Vehicle types and their operating characteristics need to be confirmed to ensure the most suitable parking arrangements are selected for each of the activity areas and building facilities in the Park.

3.0 Water and Wastewater

The campground areas have been operating at maximum capacity. To meet current demands and any possible expansions to the Park's services and amenities; the existing sanitary and water infrastructure will require upgrades. The Municipality's Engineering Standards; MECP Guidelines; and all other relevant industry standards, guidelines and practices shall follow to develop the designs.

Note: The impact of seasonal variations in demand will also be a key factor in designing any upgrades or expansion of infrastructure.

3.1 Water

The following assumptions can be anticipated for general design purposes:

- 150 mm diameter watermain to service all hydrants and provide adequate fire flow. Note: The Municipality's requirement is 38 L/s during maximum day demand plus fire flow conditions.
- Watermains within the campgrounds to be connected to the distribution system through a minimum 50 mm diameter watermain.
- Watermain design shall eliminate existing dead-ends by looping the mainline back to the system creating a network and providing adequate mainline gate valves to minimize entire system shutdowns during maintenance activities.
- Hydrants to be situated within 90 m of all public buildings/ campsites for adequate fire protection.
- Individual services at campsite lots to be minimum 12.5 mm diameter.
- Individual services to buildings and washroom facilities to be minimum 19 mm diameter.
- All new watermains and services to be installed with proper depth of cover to prevent freezing.

A MECP Form 1 – Record of Watermains will be required but not until the design is deemed "Tender Ready".

3.2 Wastewater

The Upper Campground area can continue to be serviced by a gravity sewer which outlets to a maintenance hole at Grant Avenue. The Lower Campground areas can continue to be serviced by the gravity sewer that outlets into a pump station before being discharged by forcemain to the gravity sewer on Grant Avenue. Upgrades to the existing system however is anticipated to

bring it up to minimum municipal standards and to provide for possible expansion of Park services and/or amenities.

The sanitary systems for any of the additional Park services and amenities will need to be designed with appropriate gravity sewers or a pump station system to outlet into the existing sanitary sewer on Grant Avenue which is expected to have sufficient capacity.

The following assumptions can be anticipated for general design purposes.

Gravity Sewer Systems

- Gravity sanitary sewer main to be minimum 200 mm diameter and meet minimum municipal standards.
- Individual services to campsite lots to be 100 mm diameter and have updated connection points to minimum municipal standards.
- Individual services to buildings and washroom facilities to be minimum 100 mm diameter and meet minimum municipal standards.
- All new sanitary sewers and services to be installed to minimum municipal standards with proper depth of cover to prevent freezing, pipe slope and material.
- All maintenance holes to be provided at all changes in direction of the sewer and at intersections to facilitate maintenance activities and improved flow characteristics.
- The outlet elevation of the existing gravity sewer for the Upper Campground area indicates it may be possible to lower the system to service additional sites in the area by gravity flow.

Pump Station/ Forcemain System

- New pump station(s) will consist of a maintenance hole type structure with wet well; where wastewater is received. It shall include a power supply system, alarm controls and systems for monitoring pump operations and wastewater levels; as well as an odour control and ventilation system. The forcemain(s) will be sized based on projected flows to ensure the system is operating efficiently. The system shall also be designed to handle the future peak flows from areas being considered for possible Park expansion of services and amenities.

MECP Environmental Compliance Approval (ECA) applications will need to be completed for the new sewer and pump station systems when the design is deemed "Tender Ready".

4.0 Electricity

Based upon Burnside's electrical staff review, the following key actions and future upgrades have been recommended:

4.1 Office Area and Lower Campground:

Currently, some of the concepts include expansion of this area. In the future, if an expansion is considered, depending on the magnitude of the expansion and the fact that the transformer (50kVA, 120/240V, single phase) is shared, it is wise to assume that an upgrade to the service and transformer would be required.

The RV power connection boxes are old and do not appear to be protected by a Ground Fault Circuit Interrupter (GFCI) as required by the Electrical Code. Replacing them should be considered.

4.1.1 Upper Campground

The Upper Campground area is fed from a large transformer (167kVA, 120/240V, single phase), as such, there should be enough capacity to power additional camp sites added to the area. A service upgrade is not anticipated.

The RV power connection boxes are old and do not appear to be protected by a GFCI as required by the Electrical Code. Replacing them should be considered.

4.1.2 Kin Hall and Beach Pavilion:

A common transformer (37.5kVA, 120/240V, single phase) feeds both Kin Hall and the Beach Pavilion. Any sizeable expansion in the future would likely require a service upgrade.

4.1.3 Site Lighting:

All streetlights in Memorial Park are LED cobra head fixtures that provide excellent light output. However, given the close proximity to trees and generally dusty nature of the Park, most of them are dirty and should be cleaned to restore maximum light output. Annual cleaning is recommended.

Additional roadways and parking lots added to the site would require a photometric study to determine lighting levels and quantities and locations of new poles, arms and fixtures required.

RDF:js



Memorandum

Date: March 31, 2020 **Project No.:** 300043326.0000
Project Name: Memorial Park & Campground Master Plan, Estimating the Existing Sewage System Design Flows
Client Name: Municipality of Meaford
To: Shawn Watters, O.A.L.A., Project Manager
From: Vic Bohdanow, P.Eng.

Introduction

This memo is intended to provide design flow calculations for the existing conditions of the sanitary sewer infrastructure; estimated based on available information and drawings; and engineering assumptions. Suggested recommendations for upgrades are also included. Figure D-1 Existing Utilities (copy attached) shall be referenced.

1.0 Data Inventory of Existing Site Conditions

1. There are 114 campsites.
2. Of the 114 total sites there are 87 sites that are fully serviced with water and sanitary sewer hook ups for RVs; and the remaining 27 sites are not serviced.
 - a) Lower campground – 30 fully serviced.
 - b) Upper campground – 57 fully serviced and 27 un-serviced.
3. 384 visitors are estimated to visit the beach each day. The beach area is located in the lower campground area.
4. There is a total of six washroom buildings at the Park.
 - a) Lower campground – two buildings (one with shower facilities at the Park office).
 - b) Upper campground – three buildings (one with shower facilities at Upper Kin Comfort Station).
 - c) The Beach area – one building (no shower).

The above data is summarized in Table 1 below.

Table 1: Summary Table – Data Inventory of Existing Site Conditions

Site Location	Campsites		# Visitors Per Day (Estimated)	Washroom Buildings	
	# Serviced with Sanitary & Water	# Unserviced		With Showers & Toilets	Only Toilets
Lower Campground	30	x	x	1	1
Beach Area	x	x	384	0	1
Upper Campground	57	27	x	1	2

2.0 Sanitary Sewage System Flow Analysis

Note: The following water usage rates used in the calculations were obtained from the Ontario Building Code (OBC) Regulation 332/12 – Sewage System Design Flows- Part 8 - Table 8.2.1.3.B (copy attached):

- i) 425 L/day/site – RV serviced site
- ii) 275 L/day/site – Non-serviced site
- iii) 50 L/day/site – Shower and toilet
- iv) 20 L/day/site – Toilet only
- v) .69 L/s/hectare – Infiltration
- vi) 4 – Harmon Peaking Factor (assuming maximum)

2.1 Lower Campground and Beach Area

2.1.1 Gravity System

- OBC ref. 17 b) for **RV Campsite w/ water and sanitary**: 30 sites x 425 l/day/site = **12,750 L/day**.
- OBC ref. 16 a) for **washroom building - toilet use only - by beach visitors**: 384 beach users x 20 l/d per person visit = **7,680 L/day**.
- Infiltration** rate 0.69 l/s/ha x 0.5 hectares sanitary sewer catchment area is 0.35 l/s or **30,240 L/day**.

Total = (1+2+3) x Harmon Peaking Factor = 50,670 L/day x 4 = **202,680 L/day or 2.36 L/s**.

2.1.2 Forcemain

Sewage flows from the lower campground discharge into the pump station and outlet via a 75 mm forcemain into the 200 mm diameter gravity sewer in front of the Park Office which is connected to the 200 mm diameter gravity sewer on Grant Avenue.

For a 75 mm forcemain the flow range is 2.75 l/s to 9 l/s for acceptable MECP velocities of 0.6 m/s to 2 m/s. The current peak flows in the forcemain (from the lower campground only) are 2.36 l/s and this value is less than the acceptable minimum.

2.2 Upper Campground Area

2.2.1 Gravity System

1. OBC ref. 17 b) for **RV Campsite w/ water and sanitary**: 57 sites x 425 l/day/site = **24,225 L/day**.
2. OBC ref. 16 b) for **washroom shower and toilet use**: 27 un-serviced campsites x 275 l/d per person = **7,425 L/day**.
3. **Infiltration** rate 0.69 l/s /ha x 2-hectare sanitary sewer catchment area 1.38 L/s or **119,232 L/day**.

Total = (1+2+3) x Harmon Peaking Factor = 150,882 L/day x 4 = **603,528 L/day or 7 L/s**.

Note: Sewage flows from the upper campground discharge into the 200 mm diameter gravity sewer in front of the Park Office which is connected to the 200 mm gravity sewer on Grant Avenue.

3.0 Conclusions

3.1 Summary of Calculations

Table 2: Sewage Flow Summary

Pipe Diameter	Minimum Allowable Pipe Slope per MECP	Full Flow Capacity from Design Tables	Lower Campground and Beach Area		Upper Campground		Total Sewage Flow (Estimated)	% Full Pipe
			Calculated Flow	% Full Pipe	Calculated Flow	% Full Pipe		
150 mm	0.4%	9.6 L/s	2.36 L/s	24.6%	7 L/s	72.9%	9.36 L/s	45.2%
200 mm	0.4%	20.7 L/s	2.36 L/s	11.4%	7 L/s	33.8%		

3.2 Interpretation of the Results from Table 2: Sewage Flow Summary

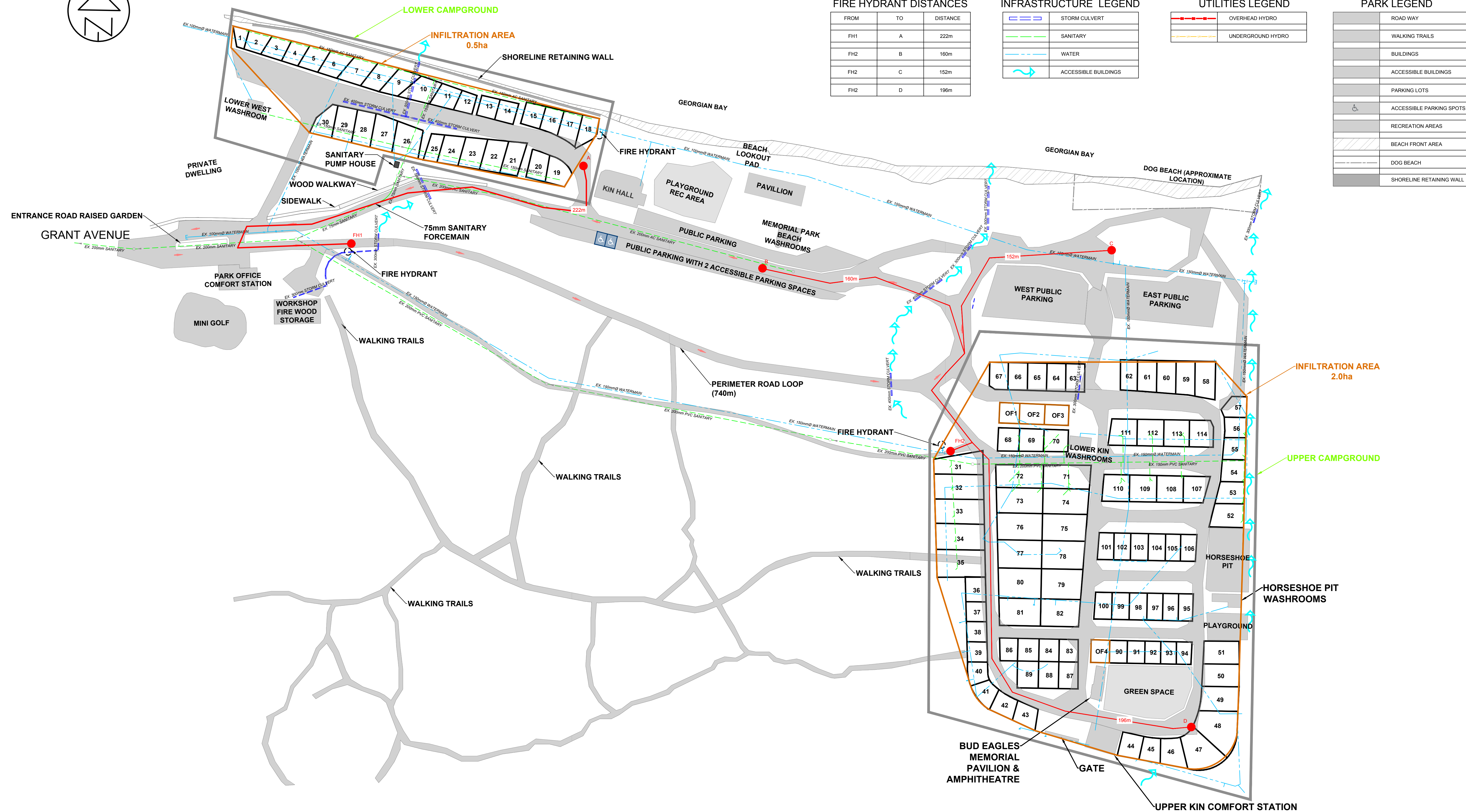
The following conclusions are provided from the calculations completed for the existing sanitary sewer systems:

- i) The 150 mm diameter sewers in the upper campground area could be approaching capacity at existing conditions. With the potential of expansion within the Park the sewers will need to be upsized to 200 mm diameter.
- ii) The 200 mm diameter sewers in the lower and upper campgrounds are sized appropriately for existing conditions; and to accept additional flows. The existing capacity of the downstream sewer on Grant Avenue shall be confirmed in a future detailed design analysis.
- iii) The total sewage flow generated from the lower and upper campgrounds discharge into the 200 mm gravity sewer in front of the Park office building (which outlets into the 200 mm diameter sewer on Grant Avenue). The calculations show that this sewer is only 45.2% full and could accept additional flow.
- iv) Infiltration can significantly be reduced by replacing all AC pipe material with PVC. This upgrade would also decrease the loading at the Wastewater Treatment Plant.
- v) Forcemain - Depending on size of the pumps minimum velocities may not be achieved in the 75 mm diameter forcemain with the estimated flow generated from the lower campground/ beach area. A capacity for upgrades up to a peak flow of 9 L/s is available.

In the preparation of this Technical Memorandum, R.J. Burnside & Associates Limited was in part required to rely upon various sources of information produced by other parties including reports, data, drawings and observations.

Enclosure(s) Drawing D-1 Existing Utilities
 Ontario Building Code, Sewage System Design Flows

VB:sj



FROM	TO	DISTANCE
FH1	A	222m
FH2	B	160m
FH2	C	152m
FH2	D	196m

	STORM CULVERT
	SANITARY
	WATER
	ACCESSIBLE BUILDINGS

	OVERHEAD HYDRO
	UNDERGROUND HYDRO

	ROAD WAY
	WALKING TRAILS
	BUILDINGS
	ACCESSIBLE BUILDINGS
	PARKING LOTS
	ACCESSIBLE PARKING SPOTS
	RECREATION AREAS
	BEACH FRONT AREA
	DOG BEACH
	SHORELINE RETAINING WALL

[illegible]

Client
MUNICIPALITY OF MEAFORD
21 TROWBRIDGE STREET WEST
MEAFORD, ONTARIO
N4L 1A1

Drawn J.D.	Checked V.B	Designed ----	Checked ----	Date 20/03/2017
Project No. 300043326		Contract No.		Revision No. 0
Scale 1:750				

Drawing No. **D-1**

D-1

C:\Users\jlpatterson\Desktop\Hwy - Access\055-056 - 055-056.dwg 05/25/2016 10:00:00 AM User: jlpatterson Plot Style: Default.ctb 05/25/2016 10:00:00 AM 11x17 Landscape 1:1

Excerpt from the
Ontario Building Code
- Sewage System
Design Flows

Table 8.2.1.3.B.

	j) Food outlet	
	i) excluding delicatessen, bakery and meat department, per 9.25 m ² of floor space,	40
	ii) per 9.25 m ² of delicatessen floor space,	190
	iii) per 9.25 m ² of bakery floor space,	190
	iv) per 9.25 m ² of meat department floor space, and	380
	v) per water closet	950
13.	Hospitals - per bed	
	a) Including laundry facilities, or	750
	b) Excluding laundry facilities	550
14.	Long-Term Care Homes, etc. - per bed	450
15.	Office Building ⁽³⁾	
	a) Per employee per 8 hour shift, or	75
	b) Per each 9.3 m ² of floor space	75
16.	Public Parks	
	a) With toilets only per person, or	20
	b) With bathhouse, showers, and toilets per person	50
17.	Recreational Vehicle or Campground Park	
	a) Per site without water or sewer hook-up, or	275
	b) Per site with water and sewer hook-up	425
18.	Schools - per student	
	a) Day school,	30
	b) With showers,	30



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Drainage Assessment



Technical Memorandum

Memorial Park Drainage Assessment

Date: May 15, 2020 **Project No.:** 300043326.0000

Project Name: Memorial Park Master Plan

Client Name: Municipality of Meaford

Submitted To: Tricia Radburn, M.Sc.(PI), MCIP, RPP, Shawn Watters, OALA, CSLA

Submitted By: Rachel Walton, E.I.T.

Reviewed By: Adrian Holvik, P.Eng.

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by the Municipality of Meaford (Municipality) to conduct a Master Plan for Memorial Park (Park). Memorial Park is a 13-ha park owned and operated by the Municipality. About 6.9 ha of the Park has been developed for recreation and camping uses. The remaining portion of the Park consists mainly of forested areas.

The purpose of this technical memorandum is to provide an assessment of the existing drainage conditions with recommendations to address deficiencies in the park. It also indicates what types of drainage upgrades would be required in various parts of the park if that part of the park were to be expanded in the future. As such, recommendations given are to be considered preliminary with the view that the detailed design is to be completed by others in the future if the Municipality decides to complete the improvements. The recommendations in this memorandum should assist the Municipality to decide which upgrades to prioritize to address existing drainage deficiencies. If in the future, the Municipality decides to expand the number of sites within the Park, this memorandum will help the Municipality to decide where to make improvements by evaluating the cost and level of effort at various locations.

2.0 Existing Conditions

All runoff from Memorial Park ultimately outlets to Georgian Bay (Bay). Three stormwater outlets service the Park and discharge into the Bay. Overland flow is the dominant drainage

mechanism throughout the Park; however, some culverts, catchbasins and drainage ditches exist to service the campsite areas.

Catchment areas for Memorial Park were delineated using contour mapping of the Park. The contours were developed from a combination of a topographic survey and an Unmanned Aerial Vehicle (UAV) survey. The combined survey only covered the park property; however, external areas drain through Memorial Park. The Grey County Online GIS mapping service was used to determine the external catchment areas that would runoff into the Park. Refer to Appendices A and B Figures 1 and 2 for the catchment delineation of the catchment areas within the Park and its external catchment areas. Nine catchment areas were delineated, six of which are internal to the Park, and three are external drainage areas.

A site visit was conducted on August 16th, 2019 to observe the existing drainage conditions. The existing conditions for each catchment are summarized in Table 1 below. Problems observed during the site visit or reported by the Municipality are also included in Table 1 below.

Table 1: Existing Conditions Summary

Catchment Number	Area (ha)	Land Cover	Existing Conditions	Reported/Observed Problems
A1	1.42	Occasional Trailers and Roadway	- Runoff flows via a ditch that begins at the southeast property limits, then takes a 90 degree turn and travels along the eastern property line. - There is a low-lying area that appears to collect runoff at the northeast area of the catchment. - Catchment ultimately outlets through a 300 mm culvert on the beach towards the Bay.	A 2.23 ha external area (EXT1) enters the upstream end of the ditch through a culvert on private property. In large rain events, the ditch does not have capacity to convey the upstream flow, water overtops the ditch and flows through the roadway and campsites towards the Bay.
A2	1.54	Occasional Trailers and Roadway	- Based on the contours and site visit, this section of the Park does not have a defined outlet and runoff flows overland towards the Bay. - A catch basin (CB) and 300 mm diameter CB lead outlet between the last row of campsites in this catchment.	- Runoff flows overland through walking paths and has caused erosion problems on the trails. - Some of the camp sites don't drain well and remain wet following storm events.

Catchment Number	Area (ha)	Land Cover	Existing Conditions	Reported/Observed Problems
A3	1.67	Upper Catchment – Treed Lower Catchment – Beach/Beach Access	Upper catchment flows overland through the treed area to a system of culverts that directs drainage towards the outlet culvert into the Bay.	During the field inspection it was noted that the outlet culvert was completely blocked with sand.
A4	0.56	Trees and Beach/Beach Access	Runoff flows overland towards the Bay.	No reported or observed problems.
A5	2.76	Upper Catchment – Treed Lower Catchment – Beach/Beach Access	- A 0.75 ha external area (EXT2) flows into A5. - Runoff flows overland towards the Bay. - Defined flow paths/stormwater infrastructure was not observed in this catchment.	No reported or observed problems.
A6	4.84	Upper Catchment – Treed Lower Catchment – Waterfront Campsites	1.99 ha external catchment area (EXT3) flows into A6. - Upper catchment area flows overland. - CBs and culverts drain the parking lot by the work shed. - CBs drain the waterfront campsites and outlet in the break wall into the Bay.	- The southern row of waterfront campsites have poor drainage following rain events and remain wet. - Break wall is failing, which may impact performance of the outlet through the breakwall in the future.

2.1 Existing Condition Stormwater Model

The Rational Method was used to calculate the stormwater runoff rates from each catchment. Both the 5-year and 100-year event flows were calculated. A summary of the modeled flows from each catchment is in Table 2. The Rational Method calculations are provided in Appendix C.

Table 2: Existing Condition Stormwater Runoff Rates

Catchment Number	Area (ha)	Runoff Coefficient	Time of Concentration (min)	5-Year Event (m³/s)	100-Year Event (m³/s)
EXT1	2.23	0.2	16.68	0.091	0.152
A1	1.42	0.3	16.89	0.087	0.143
A2	1.54	0.2	15.00	0.102	0.170
A3	1.67	0.2	17.94	0.065	0.108
A4	0.56	0.25	17.28	0.028	0.046
EXT2 + A5	3.51	0.2	23.22	0.113	0.187
EXT3 + A6	6.83	0.2	31.62	0.176	0.290

Following the Municipality of Meaford Engineering Standards, storm sewers and culverts must be able to convey the 5-year storm without surcharging.

The size of the existing stormwater infrastructure was evaluated using the 5-year and the 100-year storm event. The capacity of each existing culvert was analyzed using HY-8 modelling software. The HY-8 version 7.50 Hydraulic Model developed by the Federal Highway Administration, in cooperation with Aquaveo LLC and Environmental Modelling Research Laboratory is recognized throughout the industry by various Ministries Approval Agencies as being an effective method by which bridge, and culvert hydraulics can be analyzed. The output from the HY-8 model is provided in Appendix D.

Refer to Appendix C for the storm sewer design spreadsheet for details of the existing condition analysis.

2.2 Stormwater Modelling for Recommended Upgrades

Table 3 below summarizes the recommended upgrades based on the stormwater modelling conducted.

If the analysis noted that the existing storm sewer or culvert does not have the capacity to convey the 5-year storm event, a preliminary proposed pipe diameter designed to pass the 5-year peak flow is recommended.

Table 3: Recommended Upgrades

Catchment	Storm Sewer/Culvert	Existing Diameter (mm)	Size Increase Required?	Recommended Minimum Diameter (mm) (CSP)
A1	Outlet Culvert 1-1	300	Yes	450
A3	Culvert 3-1	400	No	400
	Culvert 3-2	400	No	400
	Culvert 3-3	500	No	500
	Culvert 3-4	500	No	500
A6	Pipe 6-1	300	Yes	525
	Pipe 6-2	300	Yes	525
	Pipe 6-3	300	Yes	525
	Culvert 6-1	500	Yes	525
	Outlet 6-4	500	Yes	525

Refer to Appendix C for calculations supporting the recommended pipe sizes.

3.0 Recommended Upgrades to Better Service the Existing Park Layout

The following recommendations are made for each catchment area to improve the existing drainage conditions for Memorial Park.

Catchment Area A1

- Increase the size of the outlet pipe 1-1 from a 300 mm diameter culvert to a 450 mm diameter CSP culvert.
- To prevent the external area drainage from overtopping the perimeter ditch, it is recommended that a short length of pipe and a 90-degree elbow be installed in the existing ditch to pipe runoff from the upstream culvert, around the 90-degree bend and into the existing ditch. Rip-rap erosion protection at the pipe outlet is recommended. It is anticipated that the ditch along the western perimeter will need to be enlarged to provide adequate capacity. A preliminary ditch geometry to convey the existing 100-year peak flow (A1+EXT1 = 0.295 m³/s) is recommended as follows:
 - Side Slopes = 3:1
 - Bottom Width = 0.7 m
 - Depth (including 0.2 m of freeboard) = 0.5 m
 - Manning's 'n' Value = 0.05

Catchment Area A2

- Provide rip-rap erosion protection along the side slopes of the heavily eroded path. Consider paving the path and adding a spillway along the side of the slope to direct drainage over the slope towards the outlet.
- To address the poor drainage on existing camp sites, consider re-grading the sites to prevent ponding and encourage runoff to flow off of the sites.

Catchment Area A3

- Increase the size of the existing storm sewers and culverts as identified in Table 3.
- Flush out blocked culverts. Provide ongoing routine maintenance to prevent future culvert blockages.

Catchment Area A4

- No drainage problems have been reported or observed in this catchment.

Catchment Area A5

- No drainage problems have been reported or observed in this catchment.

Catchment Area A6

- Increase the size of the existing storm sewers and culverts as identified in Table 3.
- To address the poor drainage on existing camp sites, consider re-grading the sites to prevent ponding and encourage runoff to flow off of the sites.

4.0 Future Upgrades to Service Park Expansion

The purpose of the Master Plan is to also identify required upgrades to services for possible future Park expansion. To assess the drainage upgrades that may be required during Park expansion an expansion scenario was imagined within each catchment. The purpose of each expansion scenario was not to actually present a particular scenario as a preferred option. It was simply to allow the Municipality to envision the scope of drainage upgrades that might be required if they were to increase the site coverage in any given catchment. In each of the catchment areas the runoff coefficient was increased to represent future construction of campsites. To increase the runoff coefficient, it was assumed that approximately 60% of the catchment area would be converted into campsites. Expanded campsite coverage was considered for catchment areas A3, A5 and A6 in the campground. Table 4 summarizes the increase in flow rate if expansion were to occur in catchment area A3, A5 or A6.

Table 4: Future Catchment Flows

Catchment Area	Area (ha)	Current Area Covered by Campsites (%)	Current Runoff Coefficient	Existing 5-Year Flow (100-year) (m ³ /s)	Expanded Area covered by Campsites (% of catchment covered)	Expanded Runoff Coefficient	Expanded 5-Year Flow (100-year) (m ³ /s)
A3	1.67	6.7	0.25	0.065 (0.108)	60	0.35	0.113 (0.189)
A5	2.76	3	0.2	0.113 (0.187)	60	0.35	0.179 (0.298)
A6	4.84	9.8	0.2	0.176 (0.290)	60	0.35	0.269 (0.445)

Note: Bracketed values refer to the 100-year peak flow.

The following recommendations are made for each catchment to improve the drainage conditions, if expansion occurs. Note that the expansion is assumed to occur individually and not occur in all three catchments simultaneously.

Catchment Area A3

- The diameter of culvert 3-1 should be increased to at least 500 mm to drain the increased flows. The inlet invert elevation would require lowering to provide enough cover over the culvert.
- The remaining culverts in Catchment Area A3 are sufficiently sized to drain the increased flows.

Catchment Area A5

- Catchment Area A5 does not have a channelized stormwater outlet to the Bay. For future expansion, a new outlet would be designed, or the stormwater would need to be redirected to an existing outlet.
- The stormwater from Catchment Area A5 could be diverted east along the upper perimeter road loop to drain through the culverts servicing Catchment Area A3. This would likely require enlargement of all the existing culverts in Catchment Area A3. The invert elevation of each culvert would need to be lowered to provide sufficient cover over the enlarged culverts.
- The potential to divert stormwater from Catchment A5 to Catchment A6 was reviewed and is not recommended. Specifically, the diversion that is not recommended involves redirecting the stormwater from Catchment Area A5 west along the upper roadway to drain through the storm sewer network in Catchment Area A6. It is not recommended to direct more stormwater to this outlet because it is in close proximity to the premium waterfront campsites. If the storm sewers were to become blocked, more campsites would be impacted.

Catchment Area A6

- The following pipe sizes are recommended if expansion occurs in Catchment Area A6:
 - Culvert 6-1 = 650 mm diameter
 - Pipe 6-1 = 600 mm diameter
 - Pipe 6-2 = 600 mm diameter
 - Pipe 6-3 = 600 mm diameter

5.0 Summary and Recommendations

The drainage analysis completed revealed a number of deficiencies in the existing drainage works and provided preliminary recommendations for upgrades to address the deficiencies. The analysis also demonstrated that a number of different Park expansion scenarios are feasible from a drainage perspective by providing preliminary recommendations to service various expansion scenarios.

R.J. Burnside & Associates Limited



Rachel Walton, E.I.T.

RW:sj

Enclosures: Appendix A – Catchment Areas – Figure 1
Appendix B – Memorial Park External Drainage Areas – Figure 2
Appendix C – Stormwater Management Calculations
Appendix D – HY8 Output

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

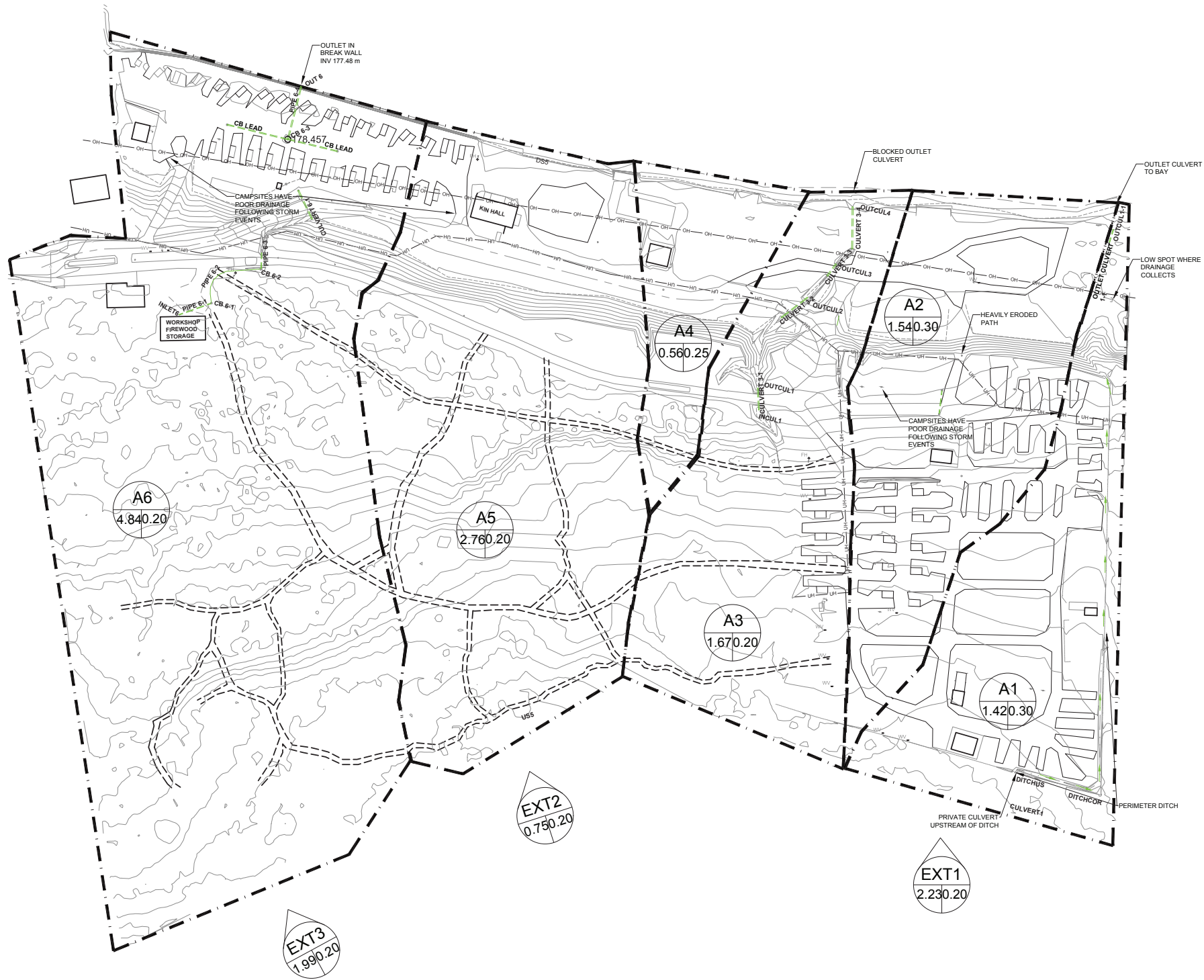


BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Catchment Areas – Figure 1



Notes

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
0	ISSUED FOR CLIENT REVIEW	20/01/20	A.H.



R.J. Burnside & Associates Limited
3 Ronell Crescent,
Collingwood, Ontario, L9Y 4J6
telephone (705) 446-0515
fax (705) 446-2399
web www.rjburnside.com

Client
MUNICIPALITY OF MEAFORD
21 TROWBRIDGE STREET WEST
MEAFORD, ONTARIO
N4L 1A1

Drawing Title
MEMORIAL PARK
CATCHMENT AREAS

Drawn	Checked	Designed	Checked	Date	Drawing No.
J.D.	V.B.	J.D.	A.H.	20/01/20	
Project No.	Contract No.	Revision No.			
300043326		0			
Scale					
1:1,000					

FIG-1



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Memorial Park External Drainage Areas—Figure 2

Memorial Park External Drainage Areas - Figure 2

Legend

- Parcels
- Contours (Metres ASL)
 - 180-250m
 - 255-300m
 - 305-350m
 - 355-400m
 - 405-450m
 - 455-500m
 - 505-540m
- Large Scale Roads
 - Provincial Highway
 - County Road
 - Township Road
 - Seasonal Road



0 0 0 0 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere
© County of Grey



This map is a user generated static output from an Internet mapping site and is for reference only.
Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Printed: September 6,

THIS MAP IS NOT TO BE USED FOR NAVIGATION

2019

Notes



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Stormwater Management Calculations

STORM SEWER DESIGN SHEET: (5 Year Storm)

Memorial Park Master Plan
Memorial Park Master Plan, Municipality of Meaford



Project #: 300043326.0
Date: 21-Nov-19
Designed: RW
Checked: AH

Min. Diameter = 300 mm
Mannings 'n'= 0.024
Starting Tc = 15 min
Factor of Safety = 20 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ where Tc is in minutes
A = 563.994
B = 0
C = 0.724 } (5 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
EXT1	CULVERT1	DITCHUS	2.23	0.20	0.45	0.45	73.5	0.091			0.091	18.0	1.10	450	0.162	1.02	16.68	0.29	16.97	56%
A1	DITCHUS	DITCHCOR	1.42	0.30	0.43	0.87	72.6	0.176			0.176	35.0	2.88	450	0.262	1.65	16.97	0.35	17.33	67%
	DITCHCOR	OUTCUL1-1				0.87	71.5	0.173			0.173	163.4	3.00	450	0.267	1.68	17.33	1.62	18.95	65%
A2	US2	DS2	1.54	0.30	0.46	0.46	79.4	0.102			0.102									
A3	INCUL1	OUTCUL1	1.67	0.20	0.33	0.33	69.7	0.065			0.065	9.3	6.56	300	0.134	1.90	17.94	0.08	18.02	48%
	OUTCUL1	OUTCUL2				0.33	69.5	0.064			0.064	14.2	0.85	375	0.088	0.79	18.02	0.30	18.32	74%
	OUTCUL2	OUTCUL3				0.33	68.7	0.064			0.064	6.3	0.32	450	0.087	0.55	18.32	0.19	18.51	73%
	OUTCUL3	OUTCUL4				0.33	68.2	0.063			0.063	18.0	1.27	450	0.174	1.09	18.51	0.27	18.79	36%
A4	US4	DS4	0.56	0.25	0.14	0.14	71.7	0.028			0.028									
A5+EXT2	US5	DS5	3.51	0.20	0.70	0.70	57.9	0.113			0.113									
A6+EXT3	INLET6	CB6-1	6.83	0.20	1.37	1.37	46.3	0.176			0.176	14.0	1.55	525	0.290	1.34	31.62	0.17	31.79	61%
	CB6-1	CB6-2				1.37	46.1	0.175			0.175	32.5	4.39	525	0.488	2.25	31.79	0.24	32.03	36%
	CB6-2	OUT				1.37	45.8	0.174			0.174	6.9	1.80	525	0.313	1.44	32.03	0.08	32.11	56%
CULVERT 6-1 SIZED IN HY8	OUT	CB6-3				1.37	45.8	0.174			0.174	49.8	5.00	525	0.521	2.41	32.11	0.34	32.46	33%
	CB6-3	OUT6				1.37	45.4	0.172			0.172	23.3	2.00	525	0.329	1.52	32.46	0.26	32.71	52%

NOTES:

5-year storm used to assess existing capacity in storm sewers and provide recommendations if increased diameter is required. Pipe diameters listed are required sizes to convey the 5-year storm, not necessarily the existing pipe size.

Refer to catchment drawing for location of referenced storm infrastructure.

Catchment Areas A2, A4 and A5 do not have any existing pipes or culverts. To calculate the flow using the Rational Method, the "From MH" and "To MH" are simply place holders and not referring to existing infrastructure.

STORM SEWER DESIGN SHEET: (100 Year Storm)

Memorial Park Master Plan
Memorial Park Master Plan, Municipality of Meaford



Project #: 300043326.0
Date: 17-Jan-20
Designed: RW
Checked: AH

Min. Diameter = 300 mm
Mannings 'n'= 0.024
Starting Tc = 15 min
Factor of Safety = 20 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ where Tc is in minutes
A = 979.025
B = 0
C = 0.738 } (100 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
EXT1	CULVERT1	DITCHUS	2.23	0.20	0.45	0.45	122.7	0.152			0.152						16.68	0.27	16.95	62%
A1	DITCHUS	DITCHCOR	1.42	0.30	0.43	0.87	121.3	0.294			0.294						16.95	0.32	17.27	74%
	DITCHCOR	OUTLET				0.87	119.6	0.290			0.290						17.27	1.46	18.73	72%
A2	US2	DS2	1.54	0.30	0.46	0.46	132.7	0.170			0.170									
A3	INCUL1	OUTCUL1	1.67	0.20	0.33	0.33	116.3	0.108			0.108						17.94	0.08	18.02	80%
	OUTCUL1	OUTCUL2				0.33	115.9	0.108			0.108						18.02	0.26	18.29	76%
	OUTCUL2	OUTCUL3				0.33	114.6	0.106			0.106						18.29	0.11	18.39	69%
	OUTCUL3	OUTCUL4				0.33	114.1	0.106			0.106						18.39	0.27	18.67	61%
A4	US4	DS4	0.56	0.25	0.14	0.14	119.5	0.046			0.046									
A5+EXT2	US5	DS5	3.51	0.20	0.70	0.70	96.1	0.187			0.187									
A6+EXT3	INLET6	CB6-1	6.83	0.20	1.37	1.37	76.5	0.290			0.290						31.62	0.16	31.78	70%
	CB6-1	CB6-2				1.37	76.2	0.289			0.289						31.78	0.22	32.00	42%
	CB6-2	OUT				1.37	75.9	0.288			0.288						32.00	0.07	32.07	65%
CULVERT 6-1 SIZED IN HY8																				
	OUT	CB6-3				1.37	75.7	0.287			0.287						32.07	0.32	32.39	39%
	CB6-3	OUT6				1.37	75.2	0.285			0.285						32.39	0.23	32.62	61%

NOTES:
This spreadsheet has been created to determine the 100-year flow from each catchment area. This spreadsheet has not been used to assess pipe sizes.

STORM SEWER DESIGN SHEET: (5 Year Storm)

Memorial Park Expansion Scenarios
Memorial Park Master Plan, Municipality of Meaford



Project #: 300043326.0
Date: 17-Jan-20
Designed: RW
Checked: AH

Min. Diameter = 300 mm
Mannings 'n'= 0.024
Starting Tc = 15 min
Factor of Safety = 20 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ where Tc is in minutes
A = 563.994
B = 0
C = 0.724
(5 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
EXT1	CULVERT1	DITCHUS	2.23	0.20	0.45	0.45	73.5	0.091			0.091	18.0	1.10	450	0.162	1.02	16.68	0.29	16.97	56%
A1	DITCHUS	DITCHCOR	1.42	0.30	0.43	0.87	72.6	0.176			0.176	35.0	2.88	450	0.262	1.65	16.97	0.35	17.33	67%
	DITCHCOR	OUTCUL1-1				0.87	71.5	0.173			0.173	163.4	3.00	450	0.267	1.68	17.33	1.62	18.95	65%
A2	US2	DS2	1.54	0.30	0.46	0.46	79.4	0.102			0.102									
A3	INCUL1	OUTCUL1	1.67	0.35	0.58	0.58	69.7	0.113			0.113	9.3	6.56	375	0.243	2.20	17.94	0.07	18.01	47%
	OUTCUL1	OUTCUL2				0.58	69.5	0.113			0.113	14.2	0.85	450	0.142	0.90	18.01	0.26	18.27	79%
	OUTCUL2	OUTCUL3				0.58	68.8	0.112			0.112	6.3	0.32	600	0.188	0.67	18.27	0.16	18.43	59%
	OUTCUL3	OUTCUL4				0.58	68.4	0.111			0.111	18.0	1.27	600	0.375	1.33	18.43	0.23	18.66	30%
A4	US4	DS4	0.56	0.25	0.14	0.14	71.7	0.028			0.028									
A5+EXT2	US5	DS5	3.51	0.35	1.23	1.23	57.9	0.197			0.197									
A6+EXT3	INLET6	CB6-1	6.83	0.35	2.39	2.39	46.3	0.307			0.307	14.0	1.55	600	0.414	1.46	31.62	0.16	31.78	74%
	CB6-1	CB6-2				2.39	46.1	0.306			0.306	32.5	4.39	600	0.697	2.46	31.78	0.22	32.00	44%
	CB6-2	OUT				2.39	45.9	0.305			0.305	6.9	1.80	600	0.446	1.58	32.00	0.07	32.07	68%
CULVERT 6-1 SIZED IN HY8	OUT	CB6-3				2.39	45.8	0.304			0.304	49.8	5.00	600	0.744	2.63	32.07	0.32	32.39	41%
	CB6-3	OUT6				2.39	45.5	0.302			0.302	23.3	2.00	600	0.470	1.66	32.39	0.23	32.62	64%

NOTES:
Expansion is assumed in catchment areas A3, A5 and A6, reflected in this design sheet by an increased runoff coefficient.

5-year storm used to assess capacity in storm sewers in the expansion scenario and provide recommendations if increased diameter is required. Pipe diameters listed are required sizes to convey the 5-year storm in the expanded scenario and not necessarily the existing pipe size.

Refer to catchment drawing for location of referenced storm infrastructure.

Catchment Areas A2, A4 and A5 do not have any existing pipes or culverts. To calculate the flow using the Rational Method, the "From MH" and "To MH" are simply place holders and not referring to existing infrastructure.

STORM SEWER DESIGN SHEET: (100 Year Storm)

Memorial Park Expansion Scenarios
Memorial Park Master Plan, Municipality of Meaford



Project #: 300043326.0
Date: 17-Jan-20
Designed: RW
Checked: AH

Min. Diameter = 300 mm
Mannings 'n'= 0.024
Starting Tc = 15 min
Factor of Safety = 20 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ where Tc is in minutes
A = 979.025
B = 0
C = 0.738 } (100 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
EXT1	CULVERT1	DITCHUS	2.23	0.20	0.45	0.45	122.7	0.152			0.152						16.68	0.27	16.95	62%
A1	DITCHUS	DITCHCOR	1.42	0.30	0.43	0.87	121.3	0.294			0.294						16.95	0.32	17.27	74%
	DITCHCOR	OUTLET				0.87	119.6	0.290			0.290						17.27	1.46	18.73	72%
A2	US2	DS2	1.54	0.30	0.46	0.46	132.7	0.170			0.170									
A3	INCUL1	OUTCUL1	1.67	0.35	0.58	0.58	116.3	0.189			0.189						17.94	0.07	18.01	78%
	OUTCUL1	OUTCUL2				0.58	115.9	0.188			0.188						18.01	0.22	18.23	61%
	OUTCUL2	OUTCUL3				0.58	114.9	0.187			0.187						18.23	0.09	18.32	56%
	OUTCUL3	OUTCUL4				0.58	114.5	0.186			0.186						18.32	0.23	18.55	50%
A4	US4	DS4	0.56	0.25	0.14	0.14	119.5	0.046			0.046									
A5+EXT2	US5	DS5	3.51	0.35	1.23	1.23	96.1	0.328			0.328									
A6+EXT3	INLET6	CB6-1	6.83	0.35	2.39	2.39	76.5	0.508			0.508						31.62	0.14	31.76	68%
	CB6-1	CB6-2				2.39	76.3	0.507			0.507						31.76	0.19	31.95	40%
	CB6-2	OUT				2.39	75.9	0.504			0.504						31.95	0.06	32.01	62%
CULVERT 6-1 SIZED IN HY8	OUT	CB6-3				2.39	75.8	0.504			0.504						32.01	0.27	32.28	37%
	CB6-3	OUT6				2.39	75.4	0.500			0.500						32.28	0.20	32.48	59%

NOTES:
This spreadsheet has been created to determine the 100-year flow from each catchment area. This spreadsheet has not been used to assess pipe sizes.

Project Name: Memorial Park Master Plan
Project No.: 300043326
Location: Municipality of Meaford
Created By: RW
Checked By: AH
Date Created: 22-Nov-2019
Date Modified: 1/20/2020

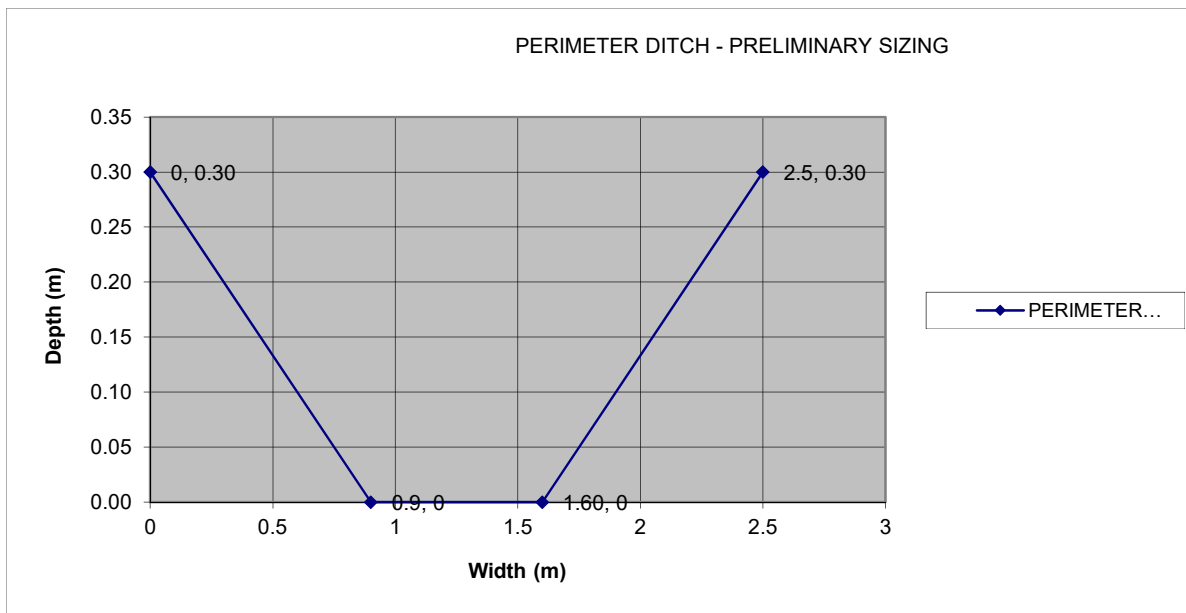


BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

R. J. Burnside & Associates Limited
 3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 **fax** (705) 446-2399
web www.rjburnside.com

PERIMETER DITCH - PRELIMINARY SIZING

Mannings' Equation		Trapezoidal Channel	
Flow Depth (m) =	0.30	Top Width	2.5 m
Left Side Slope Ratio (H:V) =	3.0 : 1		
Right Side Slope Ratio (H:V) =	3.0 : 1		
Bed Width (m) =	0.70	Hydraulic Radius 'R'	0.18 m
Area (m2) =	0.48	Friction Slope 'Sf'	0.0100 m/m
Wetted Perimeter (m) =	2.60	Velocity	0.65 m/s
Slope (%) =	1.00		
Manning 'n' =	0.050		
Channel Capacity, Q (m3/s) =	0.31		





BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

HY8 Output

HY-8 Culvert Analysis Report

Culvert Data Summary - Culvert A3-1

Barrel Shape: Circular
Barrel Diameter: 400.00 mm
Barrel Material: Concrete
Embedment: 0.00 mm
Barrel Manning's n: 0.0240
Culvert Type: Straight
Inlet Configuration: Grooved End Projecting
Inlet Depression: None

Table 1 - Culvert Summary Table: Culvert A3-1

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.06	0.06	183.16	0.245	0.0*	1-S2n	0.125	0.182	0.125	0.074	1.867	1.004
100 year	0.11	0.11	183.25	0.332	0.0*	1-S2n	0.165	0.236	0.165	0.097	2.138	1.179

* Full Flow Headwater elevation is below inlet invert.

Straight Culvert
Inlet Elevation (invert): 182.92 m, Outlet Elevation (invert): 182.31 m
Culvert Length: 9.32 m, Culvert Slope: 0.0656

Water Surface Profile Plot for Culvert: Culvert A3-1

Crossing - Culvert A3-1, Design Discharge - 0.11 cms

Culvert - Culvert A3-1, Culvert Discharge - 0.11 cms

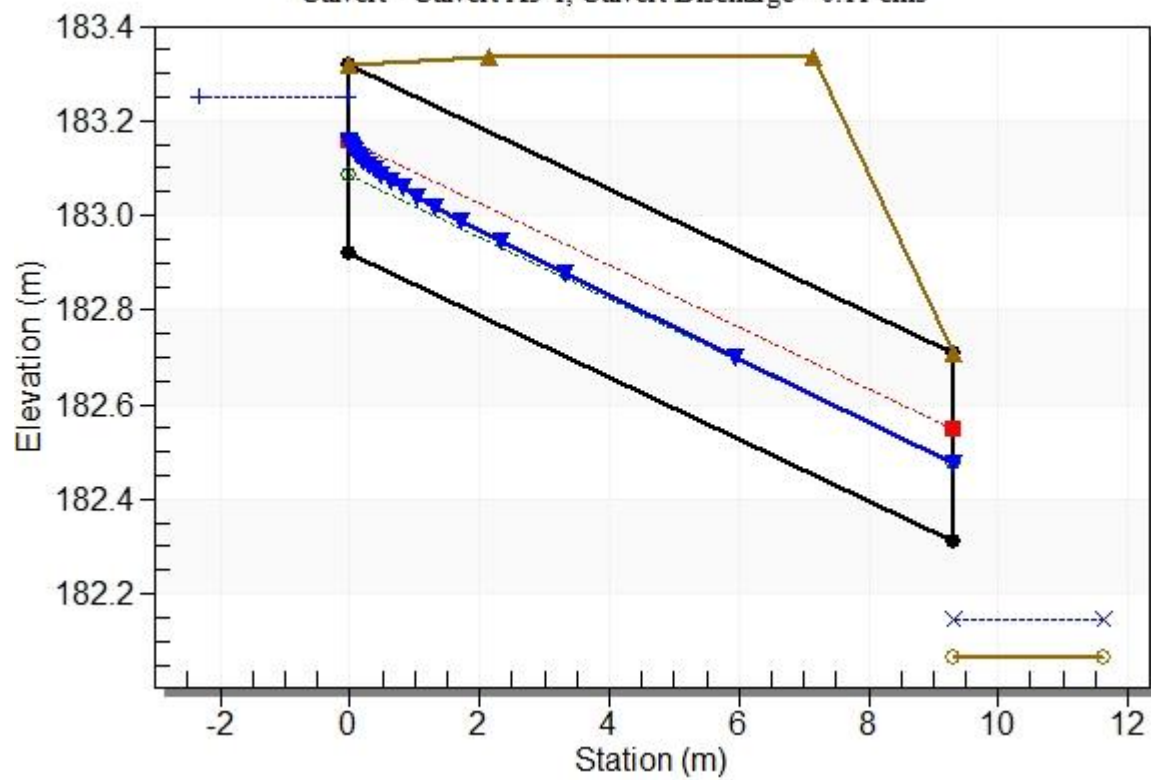


Table 2 - Downstream Channel Rating Curve (Crossing: Culvert A3-1)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.06	182.13	0.06	1.31	75.76	1.93
0.11	182.15	0.08	1.55	98.54	2.01

Tailwater Channel Data - Culvert A3-1

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1280

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	0.98	183.25	0.0350
2	4.59	182.07	0.0350
3	5.36	182.08	0.0350
4	7.77	183.13	0.0000

Roadway Data for Crossing: Culvert A3-1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.00 m

Crest Elevation: 183.34 m

Roadway Surface: Paved

Roadway Top Width: 5.00 m

Culvert Data Summary - Culvert A3-2

Barrel Shape: Circular

Barrel Diameter: 400.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 3 - Culvert Summary Table: Culvert A3-2

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.06	0.06	179.04	0.257	0.285	2-M2c	0.245	0.182	0.182	0.184	1.170	0.569
100 year	0.11	0.11	179.16	0.343	0.399	2-M2c	0.400	0.236	0.236	0.222	1.397	0.646

Straight Culvert

Inlet Elevation (invert): 178.76 m, Outlet Elevation (invert): 178.67 m

Culvert Length: 14.20 m, Culvert Slope: 0.0063

Water Surface Profile Plot for Culvert: Culvert A3-2

Crossing - Culvert A3-2, Design Discharge - 0.11 cms

Culvert - Culvert A3-2, Culvert Discharge - 0.11 cms

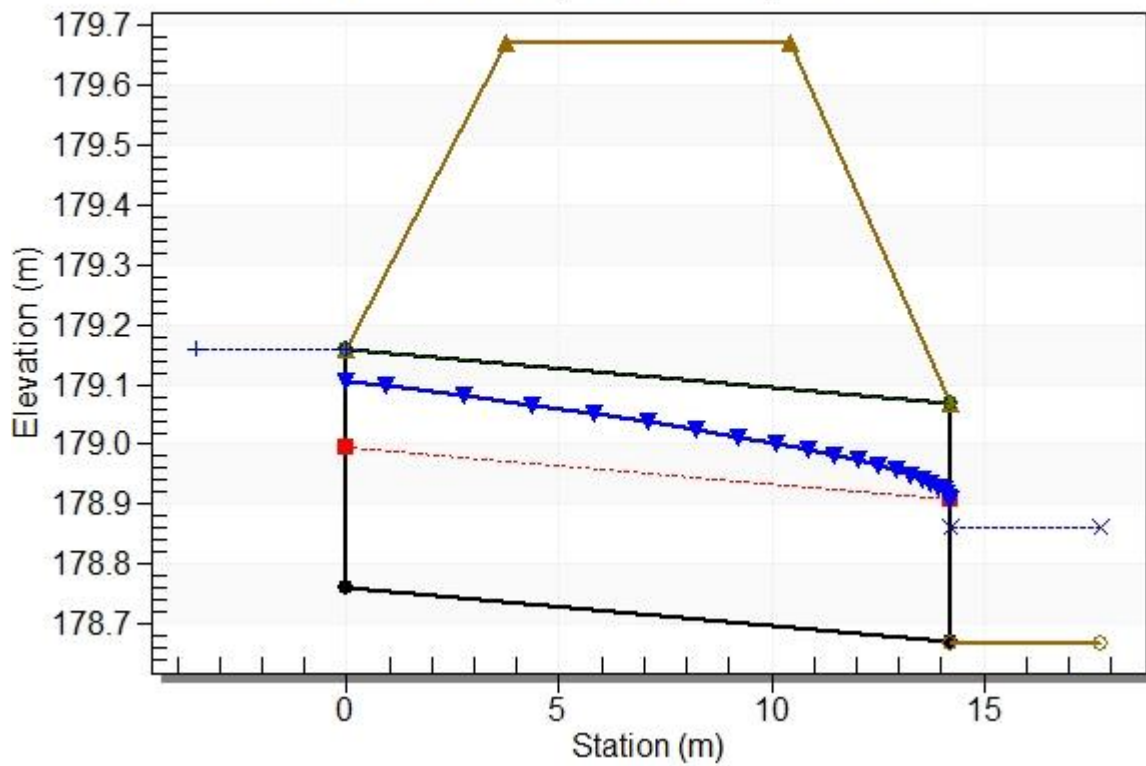


Table 4 - Downstream Channel Rating Curve (Crossing: Culvert A3-2)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.06	178.83	0.16	0.77	35.22	0.87
0.11	178.86	0.19	0.87	42.60	0.90

Tailwater Channel Data - Culvert A3-2

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.0227

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.18	179.06	0.0350
2	3.17	178.67	0.0350
3	4.70	179.61	0.0000

Roadway Data for Crossing: Culvert A3-2

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 19.70 m

Crest Elevation: 179.67 m

Roadway Surface: Paved

Roadway Top Width: 6.67 m

Culvert Data Summary - Culvert A3-3

Barrel Shape: Circular

Barrel Diameter: 500.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 5 - Culvert Summary Table: Culvert A3-3

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.06	0.06	178.58	0.233	0.324	3-M1t	0.266	0.169	0.315	0.199	0.499	0.496
100 year	0.11	0.11	178.65	0.312	0.389	3-M2t	0.384	0.221	0.351	0.240	0.733	0.563

Straight Culvert

Inlet Elevation (invert): 178.26 m, Outlet Elevation (invert): 178.24 m

Culvert Length: 6.67 m, Culvert Slope: 0.0030

Water Surface Profile Plot for Culvert: Culvert A3-3

Crossing - Culvert A3-3, Design Discharge - 0.11 cms

Culvert - Culvert A3-3, Culvert Discharge - 0.11 cms

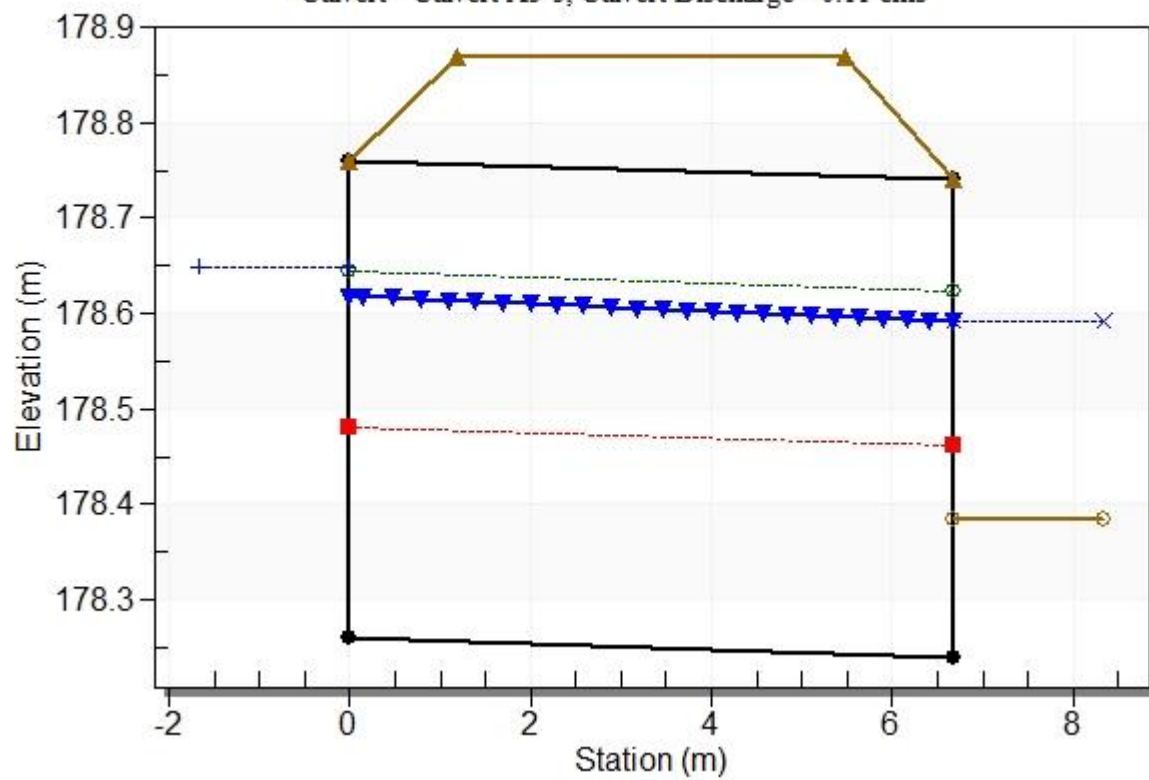


Table 6 - Downstream Channel Rating Curve (Crossing: Culvert A3-3)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.06	178.56	0.17	0.67	25.84	0.73
0.11	178.59	0.21	0.76	31.26	0.75

Tailwater Channel Data - Culvert A3-3

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.0154

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.95	178.80	0.0350
2	2.98	178.38	0.0350
3	4.55	178.76	0.0000

Roadway Data for Crossing: Culvert A3-3

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 6.67 m

Crest Elevation: 178.87 m

Roadway Surface: Paved

Roadway Top Width: 4.30 m

Culvert Data Summary - Culvert A3-4

Barrel Shape: Circular

Barrel Diameter: 500.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 7 - Culvert Summary Table: Culvert A3-4

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.06	0.06	178.48	0.231	0.244	2-M2c	0.177	0.169	0.169	-1.050	1.115	0.000
100 year	0.11	0.11	178.56	0.310	0.322	2-M2c	0.235	0.221	0.221	-1.050	1.288	0.000

Straight Culvert

Inlet Elevation (invert): 178.24 m, Outlet Elevation (invert): 178.01 m

Culvert Length: 18.25 m, Culvert Slope: 0.0126

Water Surface Profile Plot for Culvert: Culvert A3-4

Crossing - Culvert A3-4, Design Discharge - 0.11 cms

Culvert - Culvert A3-4, Culvert Discharge - 0.11 cms

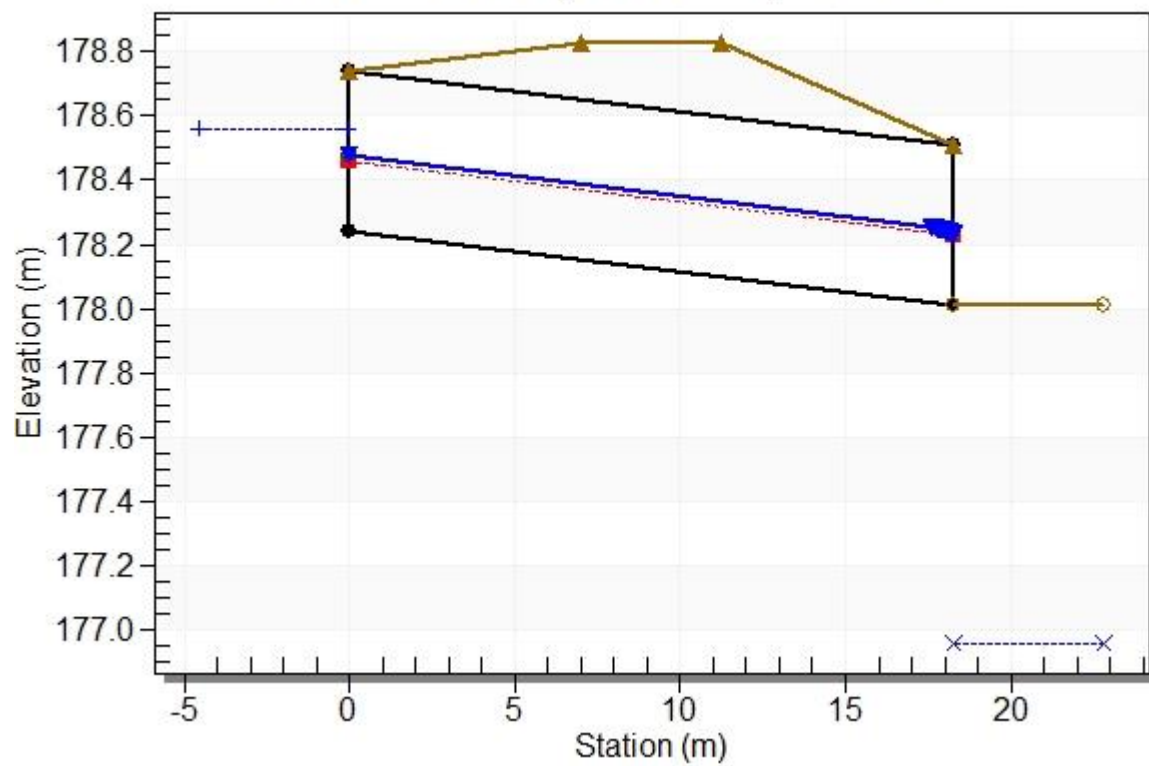


Table 8 - Downstream Channel Rating Curve (Crossing: Culvert A3-4)

Flow (cms)	Water Surface Elev (m)	Depth (m)
2.30	176.96	-1.05
3.81	176.96	-1.05

Tailwater Channel Data - Culvert A3-4

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 176.96 m

Roadway Data for Crossing: Culvert A3-4

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 18.25 m

Crest Elevation: 178.83 m

Roadway Surface: Paved

Roadway Top Width: 4.30 m

Culvert Data Summary - Culvert A3-1 Future

Barrel Shape: Circular

Barrel Diameter: 400.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 9 - Culvert Summary Table: Culvert A3-1 Future

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.11	0.11	182.95	0.348	0.094	1-S2n	0.210	0.242	0.210	0.099	1.638	1.196
100 year	0.19	0.19	183.10	0.505	0.465	5-S2n	0.302	0.314	0.302	0.129	1.803	1.398

Straight Culvert

Inlet Elevation (invert): 182.60 m, Outlet Elevation (invert): 182.31 m

Culvert Length: 9.30 m, Culvert Slope: 0.0312

Water Surface Profile Plot for Culvert: Culvert A3-1 Future

Crossing - Culvert A3-1 - Future, Design Discharge - 0.19 cms

Culvert - Culvert A3-1 Future, Culvert Discharge - 0.19 cms

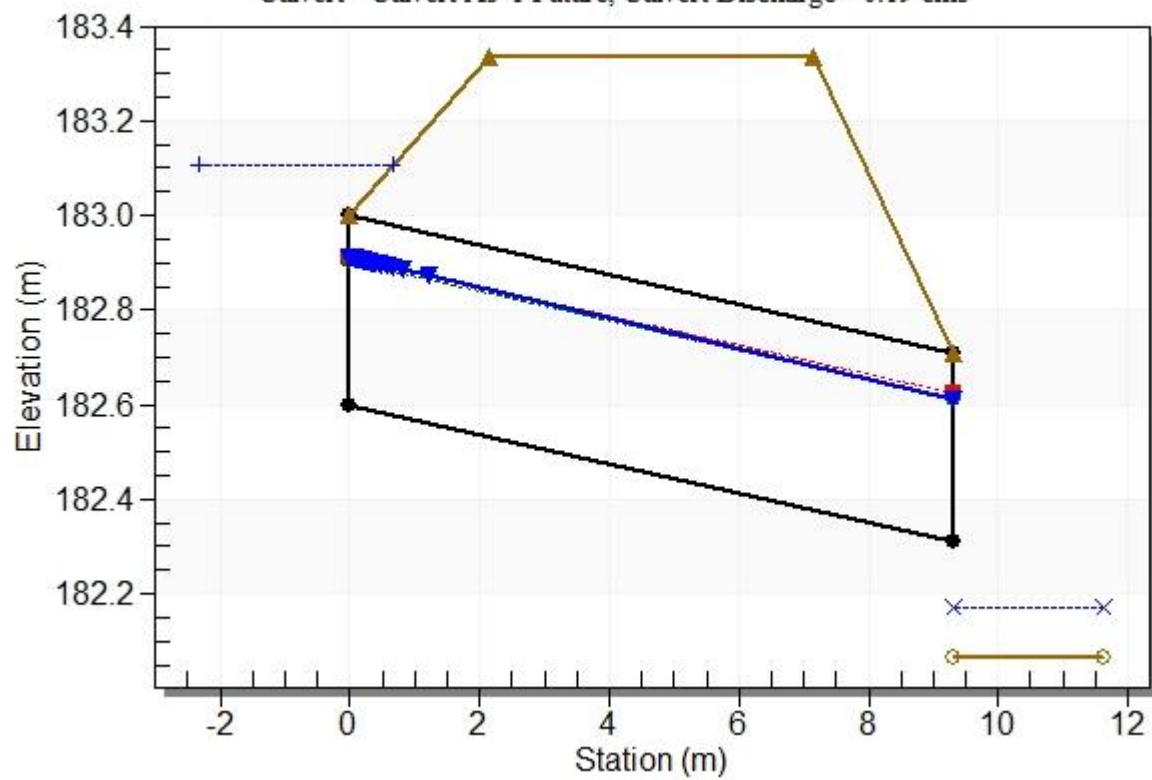


Table 10 - Downstream Channel Rating Curve (Crossing: Culvert A3-1 - Future)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.11	182.15	0.08	1.57	100.88	2.02
0.19	182.17	0.11	1.84	131.82	2.10

Tailwater Channel Data - Culvert A3-1 - Future

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1280

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	0.98	183.25	0.0350
2	4.59	182.07	0.0350
3	5.36	182.08	0.0350
4	7.77	183.13	0.0000

Roadway Data for Crossing: Culvert A3-1 - Future

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.00 m

Crest Elevation: 183.34 m

Roadway Surface: Paved

Roadway Top Width: 5.00 m

Culvert Data Summary - Culvert A3-2 Future

Barrel Shape: Circular

Barrel Diameter: 400.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 11 - Culvert Summary Table: Culvert A3-2 Future

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.11	0.11	179.19	0.352	0.396	2-M2c	0.400	0.242	0.242	0.226	1.422	0.653
100 year	0.19	0.19	179.56	0.510	0.770	7-M2c	0.400	0.314	0.314	0.274	1.789	0.742

Straight Culvert

Inlet Elevation (invert): 178.79 m, Outlet Elevation (invert): 178.67 m

Culvert Length: 14.20 m, Culvert Slope: 0.0085

Water Surface Profile Plot for Culvert: Culvert A3-2 Future

Crossing - Culvert A3-2 Future, Design Discharge - 0.19 cms

Culvert - Culvert A3-2 Future, Culvert Discharge - 0.19 cms

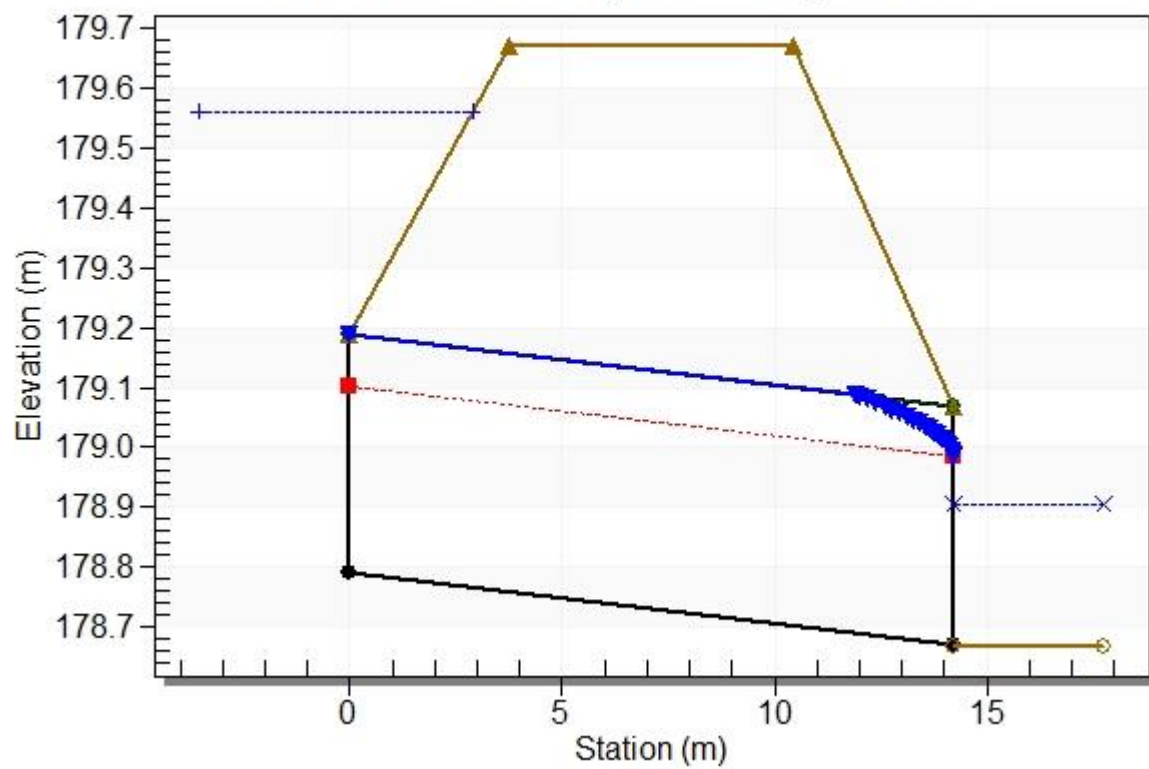


Table 12 - Downstream Channel Rating Curve (Crossing: Culvert A3-2 Future)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.11	178.86	0.19	0.88	43.33	0.90
0.19	178.91	0.24	1.00	52.55	0.93

Tailwater Channel Data - Culvert A3-2 Future

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.0227

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.18	180.00	0.0350
2	1.18	179.06	0.0350
3	3.17	178.67	0.0350
4	4.70	179.61	0.0350
5	4.70	180.00	0.0000

Roadway Data for Crossing: Culvert A3-2 Future

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 19.70 m

Crest Elevation: 179.67 m

Roadway Surface: Paved

Roadway Top Width: 6.67 m

Culvert Data Summary - Culvert A3-3 Future

Barrel Shape: Circular

Barrel Diameter: 500.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 13 - Culvert Summary Table: Culvert A3-3 Future

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.11	0.11	178.66	0.321	0.397	3-M2t	0.500	0.227	0.355	0.244	0.759	0.570
100 year	0.19	0.19	178.77	0.431	0.509	3-M2t	0.500	0.296	0.399	0.296	1.124	0.648

Straight Culvert

Inlet Elevation (invert): 178.26 m, Outlet Elevation (invert): 178.24 m

Culvert Length: 6.67 m, Culvert Slope: 0.0030

Water Surface Profile Plot for Culvert: Culvert A3-3 Future

Crossing - Culvert A3-3 Future, Design Discharge - 0.19 cms

Culvert - Culvert A3-3 Future, Culvert Discharge - 0.19 cms

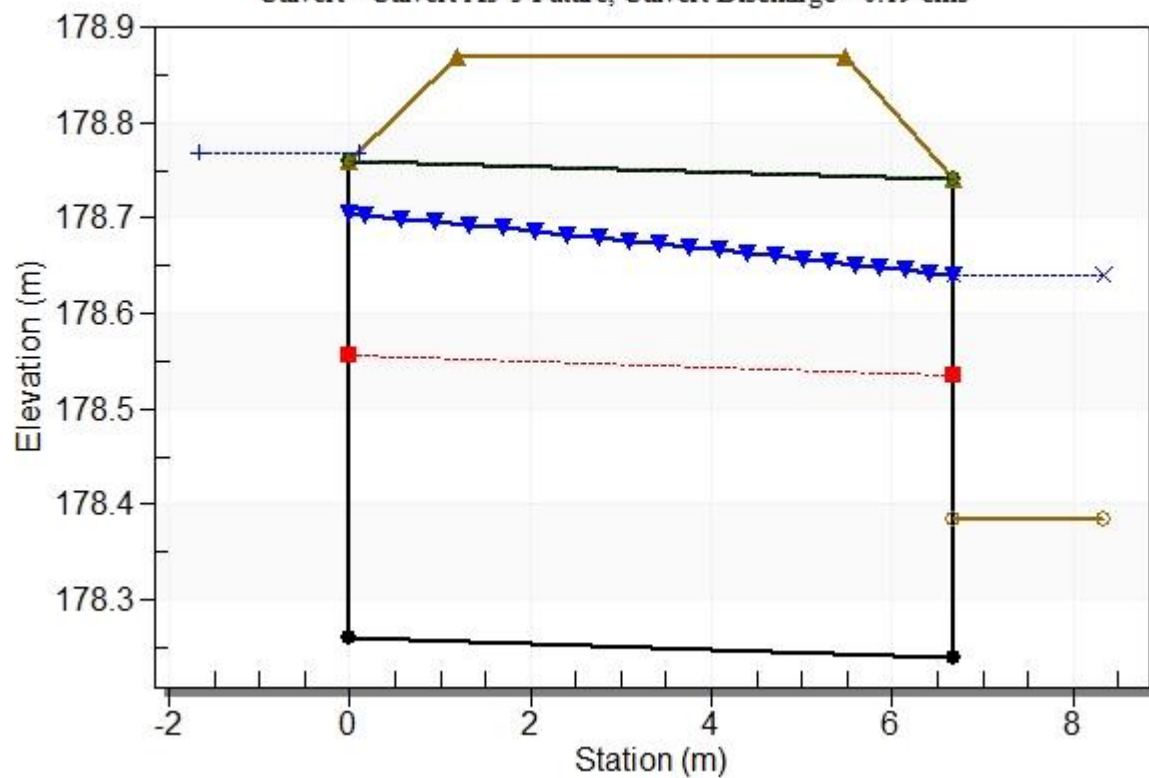


Table 14 - Downstream Channel Rating Curve (Crossing: Culvert A3-3 Future)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.11	178.59	0.21	0.77	31.79	0.75
0.19	178.64	0.26	0.87	38.56	0.78

Tailwater Channel Data - Culvert A3-3 Future

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.0154

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.95	179.50	0.0350
2	1.95	178.80	0.0350
3	2.98	178.38	0.0350
4	4.55	178.76	0.0350
5	4.55	179.50	0.0000

Roadway Data for Crossing: Culvert A3-3 Future

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 6.67 m

Crest Elevation: 178.87 m

Roadway Surface: Paved

Roadway Top Width: 4.30 m

Culvert Data Summary - Culvert A3-4 Future

Barrel Shape: Circular

Barrel Diameter: 500.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 15 - Culvert Summary Table: Culvert A3-4 Future

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.11	0.11	178.57	0.318	0.330	2-M2c	0.241	0.227	0.227	-1.050	1.306	0.000
100 year	0.19	0.19	178.69	0.428	0.447	2-M2c	0.336	0.296	0.296	-1.050	1.563	0.000

Straight Culvert

Inlet Elevation (invert): 178.24 m, Outlet Elevation (invert): 178.01 m

Culvert Length: 18.25 m, Culvert Slope: 0.0126

Water Surface Profile Plot for Culvert: Culvert A3-4 Future

Crossing - Culvert A3-4 Future, Design Discharge - 0.19 cms

Culvert - Culvert A3-4 Future, Culvert Discharge - 0.19 cms

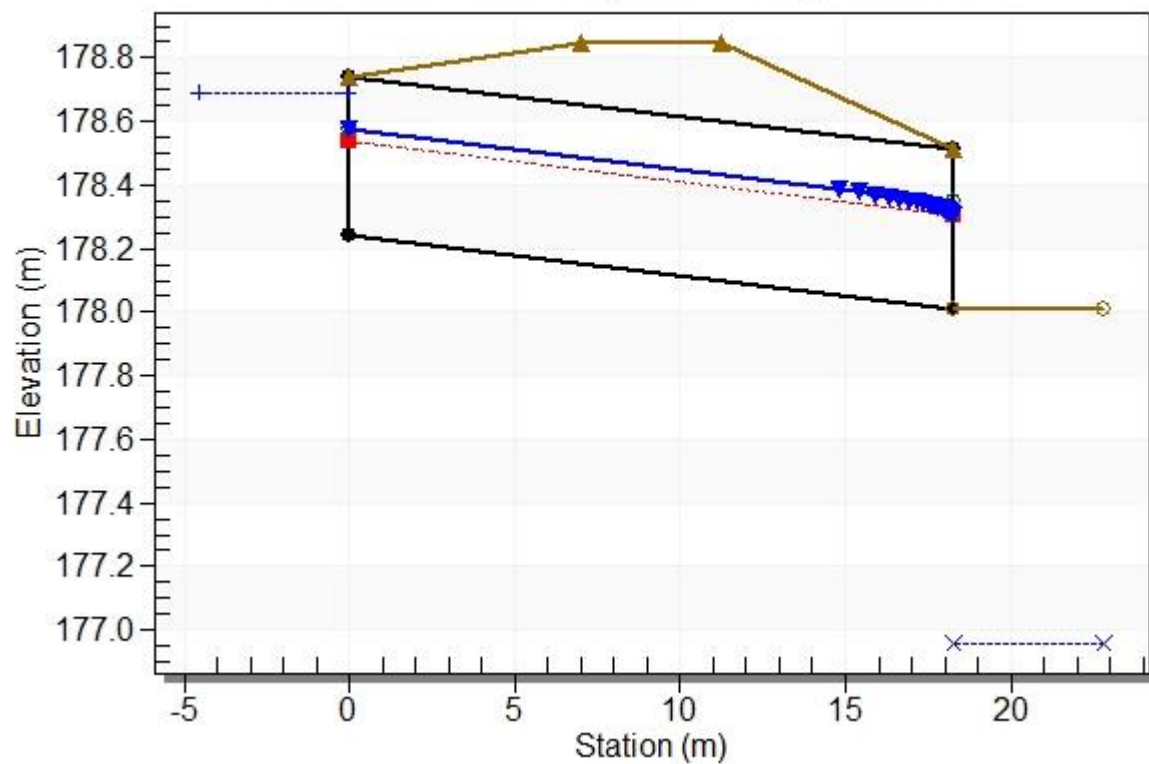


Table 16 - Downstream Channel Rating Curve (Crossing: Culvert A3-4 Future)

Flow (cms)	Water Surface Elev (m)	Depth (m)
3.99	176.96	-1.05
6.67	176.96	-1.05

Tailwater Channel Data - Culvert A3-4 Future

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 176.96 m

Roadway Data for Crossing: Culvert A3-4 Future

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 18.25 m

Crest Elevation: 178.85 m

Roadway Surface: Paved

Roadway Top Width: 4.30 m

Culvert Data Summary - Culvert A1

Barrel Shape: Circular

Barrel Diameter: 300.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 17 - Culvert Summary Table: Culvert A1

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.09	0.08	178.97	0.344	0.768	7-M2c	0.300	0.221	0.221	0.149	1.451	1.060
100 year	0.15	0.08	179.00	0.351	0.796	7-M2c	0.300	0.224	0.224	0.181	1.469	1.206

Straight Culvert

Inlet Elevation (invert): 178.20 m, Outlet Elevation (invert): 178.20 m

Culvert Length: 18.25 m, Culvert Slope: 0.0003

Water Surface Profile Plot for Culvert: Culvert A1

Crossing - Culvert A1, Design Discharge - 0.15 cms

Culvert - Culvert A1, Culvert Discharge - 0.08 cms

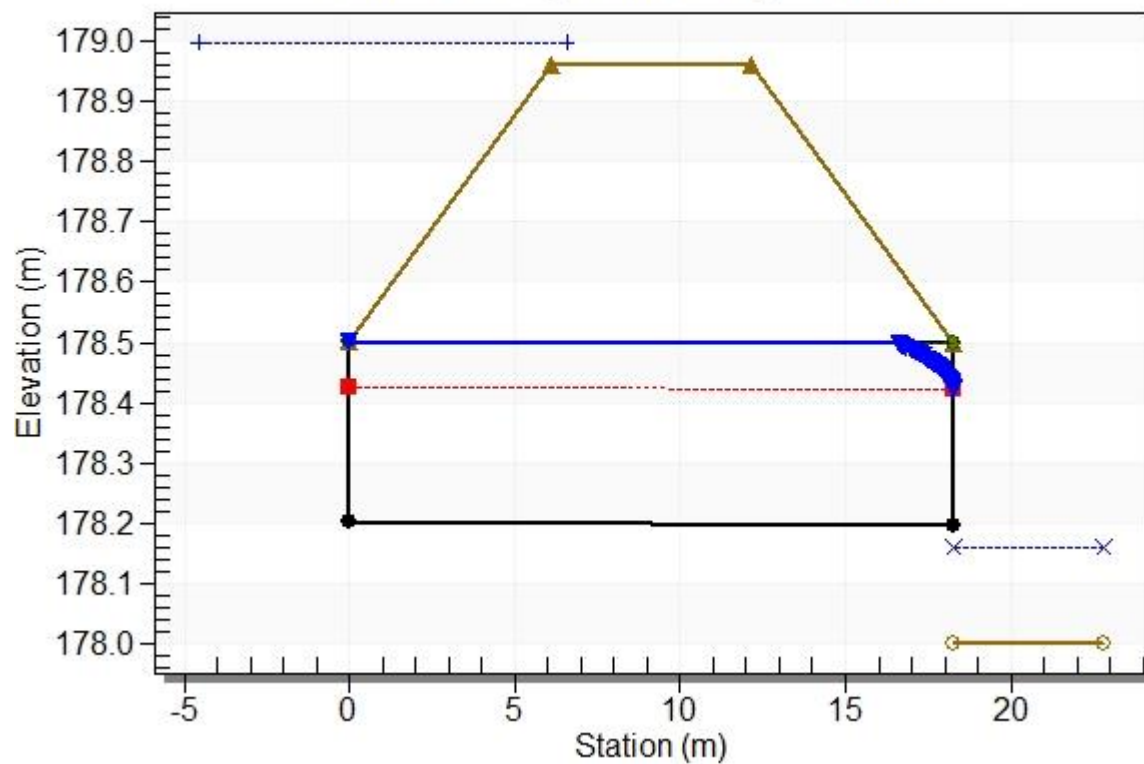


Table 18 - Downstream Channel Rating Curve (Crossing: Culvert A1)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.09	178.13	0.13	1.43	127.54	1.80
0.15	178.16	0.16	1.62	154.60	1.85

Tailwater Channel Data - Culvert A1

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1010

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.65	178.43	0.0350
2	3.46	178.00	0.0350
3	4.91	178.42	0.0000

Roadway Data for Crossing: Culvert A1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.70 m

Crest Elevation: 178.96 m

Roadway Surface: Paved

Roadway Top Width: 6.10 m

Culvert Data Summary - Culvert A1 Upsized

Barrel Shape: Circular

Barrel Diameter: 450.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 19 - Culvert Summary Table: Culvert A1 Upsized

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.09	0.09	178.59	0.297	0.389	2-M2c	0.450	0.209	0.209	0.149	1.257	1.060
100 year	0.15	0.15	178.77	0.399	0.570	7-M2c	0.450	0.272	0.272	0.181	1.509	1.206

Straight Culvert

Inlet Elevation (invert): 178.20 m, Outlet Elevation (invert): 178.20 m

Culvert Length: 18.25 m, Culvert Slope: 0.0003

Water Surface Profile Plot for Culvert: Culvert A1 Upsized

Crossing - Culvert A1 Upsized, Design Discharge - 0.15 cms

Culvert - Culvert A1 Upsized, Culvert Discharge - 0.15 cms

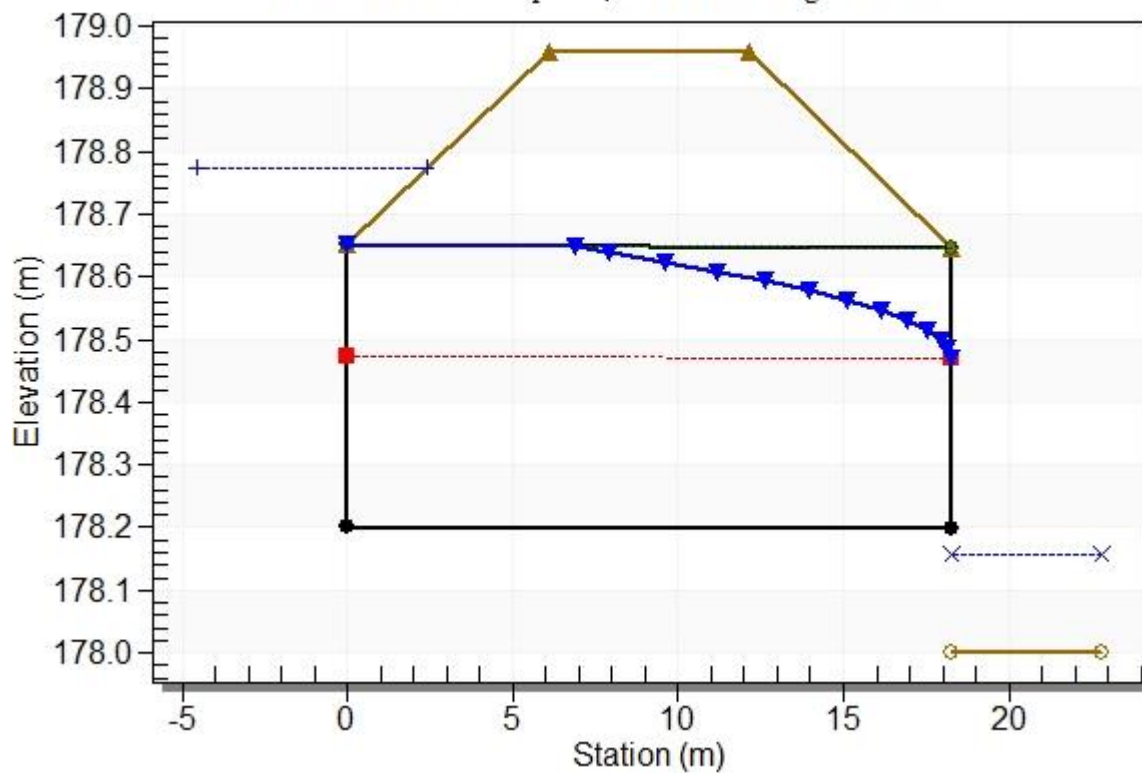


Table 20 - Downstream Channel Rating Curve (Crossing: Culvert A1 Upsized)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.09	178.13	0.13	1.43	127.54	1.80
0.15	178.16	0.16	1.62	154.60	1.85

Tailwater Channel Data - Culvert A1 Upsized

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1010

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.65	178.43	0.0350
2	3.46	178.00	0.0350
3	4.91	178.42	0.0000

Roadway Data for Crossing: Culvert A1 Upsized

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.70 m

Crest Elevation: 178.96 m

Roadway Surface: Paved

Roadway Top Width: 6.10 m

Culvert Data Summary - Culvert 6-1

Barrel Shape: Circular

Barrel Diameter: 500.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 21 - Culvert Summary Table: Culvert 6-1

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.18	0.18	179.10	0.412	0.452	2-M2c	0.379	0.284	0.284	0.191	1.527	1.251
100 year	0.29	0.27	179.36	0.541	0.707	7-M2c	0.500	0.356	0.356	0.231	1.810	1.417

Straight Culvert

Inlet Elevation (invert): 178.65 m, Outlet Elevation (invert): 178.50 m

Culvert Length: 18.33 m, Culvert Slope: 0.0082

Water Surface Profile Plot for Culvert: Culvert 6-1

Crossing - Culvert 6-1, Design Discharge - 0.29 cms

Culvert - Culvert 6-1, Culvert Discharge - 0.27 cms

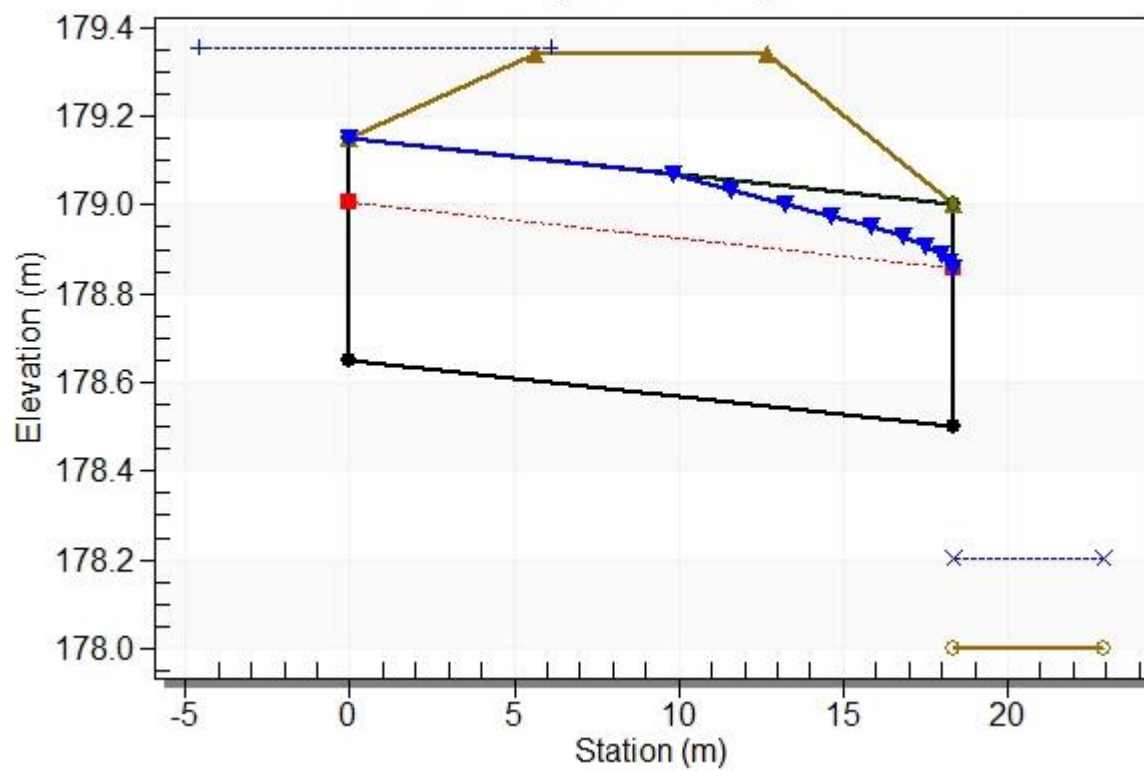


Table 22 - Downstream Channel Rating Curve (Crossing: Culvert 6-1)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.18	178.17	0.16	1.68	163.34	1.87
0.29	178.20	0.20	1.91	196.98	1.93

Tailwater Channel Data - Culvert 6-1

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1010

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.65	178.43	0.0350
2	3.46	178.00	0.0350
3	4.91	178.42	0.0000

Roadway Data for Crossing: Culvert 6-1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.70 m

Crest Elevation: 179.34 m

Roadway Surface: Paved

Roadway Top Width: 7.00 m

Culvert Data Summary - Culvert 6-1 Future

Barrel Shape: Circular

Barrel Diameter: 650.00 mm

Barrel Material: Concrete

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: None

Table 23 - Culvert Summary Table: Culvert 6-1 Future

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
5 year	0.27	0.27	179.15	0.469	0.496	2-M2c	0.398	0.329	0.329	0.224	1.596	1.391
100 year	0.45	0.44	179.35	0.626	0.696	7-M2c	0.650	0.424	0.424	0.271	1.916	1.577

Straight Culvert

Inlet Elevation (invert): 178.65 m, Outlet Elevation (invert): 178.50 m

Culvert Length: 18.33 m, Culvert Slope: 0.0082

Water Surface Profile Plot for Culvert: Culvert 6-1 Future

Crossing - Culvert 6-1 Future, Design Discharge - 0.45 cms

Culvert - Culvert 6-1 Future, Culvert Discharge - 0.44 cms

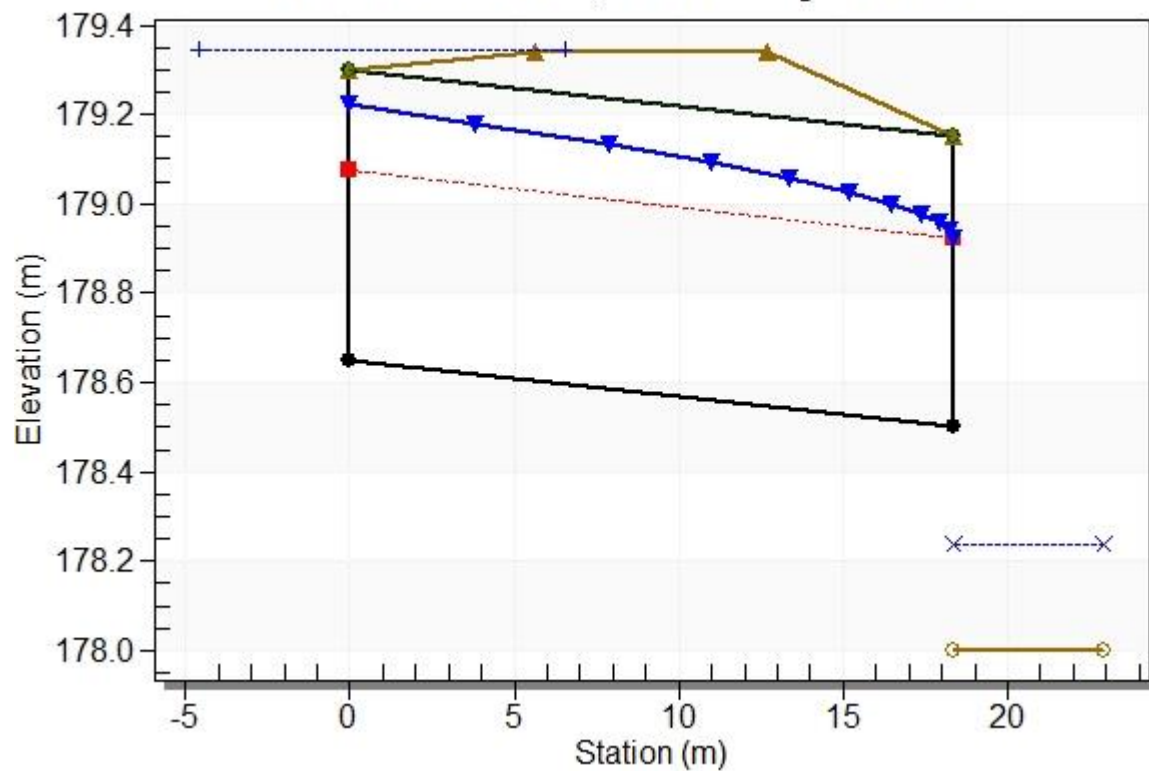


Table 24 - Downstream Channel Rating Curve (Crossing: Culvert 6-1 Future)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.27	178.20	0.19	1.87	191.50	1.92
0.45	178.24	0.23	2.12	231.29	1.98

Tailwater Channel Data - Culvert 6-1 Future

Tailwater Channel Option: Irregular Channel

Channel Slope: 0.1010

User Defined Channel Cross-Section:

Coord No.	Station (m)	Elevation (m)	Manning's n
1	1.65	178.43	0.0350
2	3.46	178.00	0.0350
3	4.91	178.42	0.0000

Roadway Data for Crossing: Culvert 6-1 Future

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.70 m

Crest Elevation: 179.34 m

Roadway Surface: Paved

Roadway Top Width: 7.00 m



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Forest Management Plan

Memorial Park Forest Management Plan

Municipality of Meaford

**R.J. Burnside & Associates Limited
292 Speedvale Avenue West Unit 20
Guelph ON N1H 1C4 CANADA**

**July 6, 2020
300043326**

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	Municipality of Meaford

Record of Revisions

Revision	Date	Description
0	July 6, 2020	Submission to Meaford

R.J. Burnside & Associates Limited

Report Prepared By:



Kevin Butt, B.Sc. (Env), Eco. Rest. Cert. TRAQ
ISA Certified Arborist and Terrestrial Ecologist
KB:sd

Table of Contents

1.0	Introduction	4
2.0	Strategy Objectives	4
3.0	Existing Conditions.....	4
4.0	Forest Management Recommendations	6
	4.1 General Recommendations	6
	4.2 Primary Woodlot Recommendations.....	7
5.0	Summary	8

Figures

Figure 1: Forest Management Plan

Disclaimer

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to: reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

1.0 Introduction

Memorial Park (the Park) is a 13 ha (32 ac) property along the shoreline of Georgian Bay. It has operated as recreational area since 1953 and is currently used as a campground, public beach and recreational area for the residents of Meaford and beyond. The Memorial Park Master Plan, prepared by R.J. Burnside & Associates Limited, reviews the existing site uses, and provides guidance for making improvements to existing site features, facilities and amenities.

It has been identified through public consultation and discussion with the Municipality that one of the goals associated with the vision for the park is that "*Woodlands will be well-managed, protected and enhanced where possible*". This Forest Management Plan has been prepared to assist with the actions required to promote the long-term retention of the treed communities and maintaining safe and aesthetically pleasing natural assets.

Much of the site is characterized by forest with at least 60% canopy cover or greater; however, there are wooded areas of varying densities throughout the site. This investigation reviews each wooded area and provides management recommendations based on existing and future uses.

2.0 Strategy Objectives

The objectives that will fulfill the above goal are as follows:

- Maintain and enhance the natural aesthetics of the forest;
- Maintain and enhance biodiversity / wildlife habitat (including Species at Risk);
- Address and manage issues for species that may be impacted by pest infestation and disease (i.e., Ash);
- Allow for sustainable continued recreational use (i.e., hiking);
- Provide opportunities to educate park users on sustainable forest management; and,
- Continue to operate the campground and recreational areas in a manner that accounts for the health and safety of park users and staff.

3.0 Existing Conditions

The treed communities contribute to larger contiguous forested land parcels that extend south and west of the site, and include Workman's Creek along the shore of Georgian Bay. This connection benefits both the onsite and offsite treed communities by:

- Buffering seasonal and permanent occupancy by people;
- Providing high-quality forest habitat, including interior forest habitat that can support sensitive species of plants and wildlife and Species at Risk; and

- Supporting a variety of natural communities that provides greater forest resiliency to droughts, wildfires, climate change and other significant natural or non-natural impacts.

The site has been divided into five management sections that are described below by use and natural feature composition. These delineated sections are illustrated on Figure 1.

1. Passive Use Area

Use: Playground, pavilion, beach, trails, roads.

Natural Feature Composition: This section has varying canopy cover (open grown trees to closed canopy forest). There are many trees that are mature and the section is dominated by White cedar with associate species of Eastern hemlock, Sugar maple, Ironwood, Red oak and American beech. Some trees contain cavities that may be suitable for wildlife habitat (e.g. bat maternity roosting). Most of the groundlayer is without vegetation (beach) or manicured turf grass.

2. Lower Campground

Use: Kin Hall, beach, trailer camping

Natural Feature Composition: This section has open grown trees that are scattered amongst the camp sites. Many of the trees are mature, comprised of mainly Sugar maple with scattered Eastern hemlock and groupings of White cedar. Manicured turf dominates the groundlayer.

3. Upper Campground

Use: Trailer camping

Natural Feature Composition: This section is primarily manicured turf and open grown Sugar maples. Recent planting of shrubs and tree planting within the section has occurred, including conifer hedges.

4. Office and Amenity Area

Use: Administrative office, mini golf, work shed

Natural Feature Composition: This section is characterized as Sugar maple canopy trees scattered among the amenity uses. No other natural vegetation is present in this area, and the groundlayer is comprised of gravel, the mini golf course, roads and buildings.

5. Primary Woodlot

Use: Trails (formal and informal), roads

Natural Feature Composition: This section is a deciduous forest dominated by Sugar maple with associates of White ash, Ironwood, American basswood, White cedar, Eastern hemlock and American beech. The understory is comprised of Sugar maple, Ironwood, and American beech. The forest has second-growth characteristics with many of the canopy trees growing densely and are similar sizes.

Symptoms of tree impacts were recorded including Emerald Ash Borer, Eutypella Canker (on maples) and potentially Beech Bark Disease. The supporting site investigation was completed in January 2020 and groundlayer vegetation was not evident, but it is anticipated that species typical of hardwood forests are present including Chokecherry, Sarsaparilla sp., Trilliums and Jack-in-the-pulpit as well as regenerating tree species from the canopy and subcanopy. The composition of the herbaceous vegetation was confirmed by members of the Friends of Memorial Park and other park users during public information centres.

This woodlot provides potential roosting habitat for Tri-colored Bat (a Species at Risk) and potentially other bat species due to the dominance of maples in the woodlot, as well as the presence of cavities and snags.

A small wetland (swamp) area is present in the southwest corner of the woodlot. This area is dominated by mature coniferous trees including Eastern hemlock and White cedar with Yellow birch and Black ash as associates.

4.0 Forest Management Recommendations

The following forest management recommendations are provided based on the existing site uses. These recommendations may need to be revised so that they can be adapted for changes of use or improvements that are implemented as a result of the Master Plan.

4.1 General Recommendations

The following recommendations apply to the passive use area, lower and upper campgrounds, and office and amenity areas, as well as the primary woodlot.

Discourage visitors from bringing firewood from outside the park to reduce importing tree pathogens and pests.

Monitor every spring, prior to summer occupancy, to review sections or trails within primary woodlot for hazardous limbs and trees. Remove limbs and fell trees November 1 to March 31 to prevent impacts to breeding birds and bats.

Monitor trees annually for signs of dieback or reduced condition (e.g. crown dieback, trunk cankers), including problematic issues like Emerald Ash Borer.

Identify and control outbreaks of invasive, non-native species such as Common buckthorn, Garlic mustard and Tartarian honeysuckle.

Clearly mark designated parking areas to prevent vehicles from hitting trees, causing basal damage.

Discourage anchoring of garbage cans, benches and picnic tables to trees that can cause significant trunk injuries.

Clean up garbage to improve aesthetics that fosters stewardship by park users.

Install woodchips around bases of trees in high use areas, where practical, to minimize rootzone compaction, reduce weed competition and retain moisture for the trees.

Provide signage and park user guides that promote the care of the park including staying on formal trails, not bringing in firewood and dispose of their waste appropriately.

Maintain habitat trees where feasible since not all dead and dying trees are a threat to park users. Consider the occupancy by people and structures around the tree (constant, frequent, occasional, rare), or if the tree can be made safe (e.g. topped, delimbed).

Avoid and minimize impacts to trees' rootzone that often extend beyond the canopy, growing just below the soil surface. Filling and cutting of grades within the rootzone may result in short or long-term destabilization, creation of infection points for root pathogens and compromising the overall biological health and structural condition of the tree.

Practice cleanliness of maintenance equipment such as string trimmers and lawnmowers to reduce weed spread.

Carry out nature programs for park visitors that support the work of the Friends of Memorial Park, including nature study and park clean-up.

4.2 Primary Woodlot Recommendations

The following recommendations provide additional specific recommendations for the primary woodlot:

- Dissuade use of informal trails by placing cut brush at entry points, signage and / or planted native shrubs and trees. Snow fencing mounted on t-bars can be used in significant problem areas;
- Branches and bodywood from cut vegetation can be laid at the edges of trails to delineate edges of formal trails;

- Mark trees along formal trails with non-damaging signage such as spray-painted blazes;
- Identify low or washed out areas of trails that result in trail users walking around puddles, resulting in damage to adjacent forest vegetation;
- Refresh trail surfacing as needed to reduce impacts to tree roots and maintain aesthetics;
- Avoid trail surfaces that are impermeable and require greater excavation to construct a base layer such as asphalt and concrete. Stone dust and woodchips are recommended;
- Pruned limbs and trunks can be left on the forest floor to naturally decompose, but should not be left in unsightly piles;
- Encourage structural diversity in the woodlot by creating small clearings in the forest that remove select canopy trees, while encouraging subcanopy and understory vegetation and species diversity;
- Discourage yard waste dumping by neighbouring residential properties that introduces weed species, reduces aesthetics and smothers natural habitats;
- Do not allow free roaming pets such as unleashed dogs or cats from adjacent residential lands that harm wildlife through predation and spreading pathogens; and
- Identify use of woodlot by bats by completing leaf-off and leaf-on surveys using Ministry of Environment Conservation and Parks' survey protocols.

5.0 Summary

Memorial Park offers a unique nature-based recreational space on the shoreline of Georgian Bay. The park's value can be found in its beach and woodlot which attract campers and day-use visitors alike. Maintaining the health of the park's woodlands is key in continuing to provide a valuable recreational service to park users. The recommendations provided herein are intended to ensure that trees area within the park are healthy and sustainable as long-term park assets.

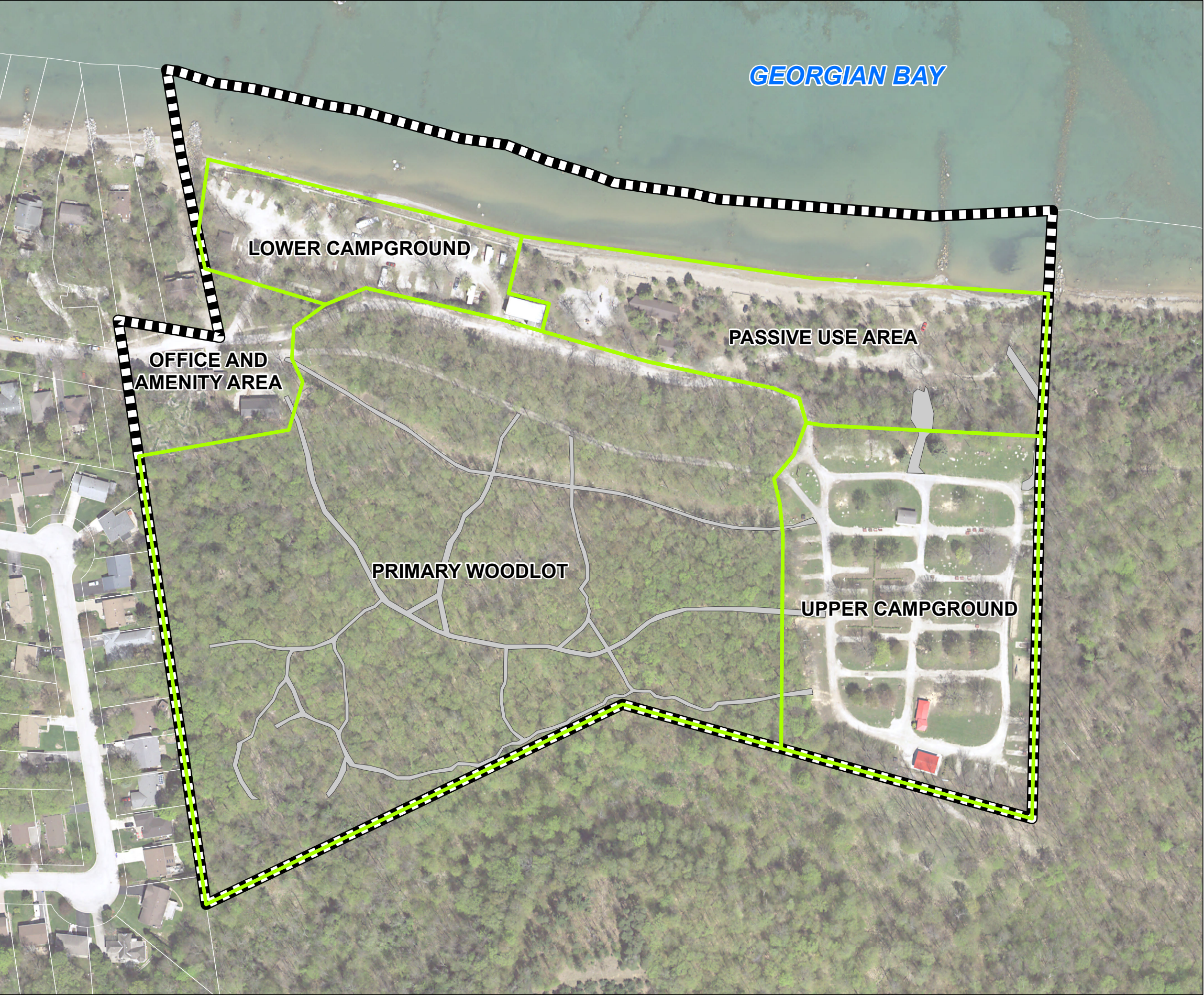


BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]



Figures



 Study Area (Property Limit)

 Management Sections

 Existing Trail

Sources:

1. Ministry of Natural Resources and Forestry, © Queen's Printer for Ontario.
2. Natural Resources Canada © Her Majesty the Queen in Right of Canada.

Disclaimer:

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented.

This map is the product of a Geographic Information System (GIS). As such, the data represented on this map may be subject to updates and future reproductions may not be identical.

Datum: North American 1983	
Coord. System: NAD 1983 UTM Zone 17N	
Projection: Transverse Mercator	
Central Meridian: 81°0'0.00"W	
False Easting: 500,000m	False Northing: 0m
Page Orientation: 0°	Scale Factor: 0.99960



Grid North



0 25 50 75 100 125
Metres



Client

MUNICIPALITY OF MEAFORD

Figure Title

MEMORIAL PARK MASTER PLAN

FOREST MANAGEMENT UNITS

Drawn	Checked	Date	Figure No.
HN	KB	2020/05/15	
Scale		Project No.	
H 1:2,000		300043326	1



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Field Data

ELC Community Summary Sheet

Primary Woodlot Area

Polygon #

Project #: 43326

Project Name: Newford Park

Surveyor(s): SAB

Date: Nov 23/18

Polygon Description

Community Series: FOD		Ecosite:	Vegetation Type: Sage maple dom.
System: Terrestrial Wetland Aquatic	Topographic Feature: Lacustrine / Riverine / Bottomland / Terrace / Valley Slope / Tableland Rolling Upland / Cliff / Talus / Crevice / Cave / Alvar / Rockland / Beach / Bar / Sand Dune / Bluff		Dominant Plant Form: Plankton / Submerged / Floating-leaved / Graminoid / Forb / Lichen / Bryophyte / Deciduous / Coniferous / Mixed
Cover: Open Shrub Treed	History: Natural Cultural	Community Class: Beach-Bar / Sand Dune / Bluff / Cliff / Talus / Alvar / Rock Barren / Crevice-Cave / Sand Barren / Tallgrass Prairie - Savannah & Woodland / Forest / Cultural / Swamp / Bog / Marsh / Open Water / Shallow Water	

Stand Description			Soil Analysis
Community Age: Pioneer / Young / Mid-Aged / Mature / Old Growth		Basal Area (m ² /ha):	Soil Drainage: V. Rapid / Rapid / Well / Moderately Well / Imperfect / Poor / V. Poor
Standing Snags: Rare / Occasional / Abundant / Dominant			Soil Moisture Regime: Dry / Fresh / Moist / Wet
Deadfall Logs: Rare / Occasional / Abundant / Dominant			Effective Soil Texture:
Health L / M / H	Sensitivity L / M / H	Botanical Quality L / M / H	Depth to Mottles / Gley Sample 1 M - cm / G - cm, Sample 2 M - cm / G - cm
Slope: None / Gentle / Moderate / Steep Simple / Complex			Depth to G. Water: @ m At surface / <1m / >1m
			Depth to Bedrock: @ m At surface / <1m / >1m

Vegetation Layer	Height	Cover	Dominant Sp. Per Vegetation Layer
1 Canopy			
2 Subcanopy			
3 Understorey			
4 Groundlayer			

Height Codes - (1) >20m, (2) 10-20m, (3) 2-10m, (4) 1-2m, (5) 0.5-1m, (6) 0.2-0.5m, (7) <0.2m

Cover Codes - (0) None, (1) 1-10%, (2) 10-25%, (3) 25-60%, (4) >60%

Size Class Analysis (Rare / Occasional / Abundant / Dominant)	< 10cm DBH	10 - 24cm DBH	25 - 50cm DBH	> 50cm DBH

Evidence of Disturbance:

Tree cutting, exotic species, trails, dumping, noise, predation

- Dumping of litter (low)
- woodchuck tracks (moderate)

Wildlife / Habitat Observations:

Birds, mammals, calls, observed, dens, nests

- Bl. capped chickadee - Nuthatch
- Grey Squirrel - Downy Woodpecker
- Eastern chipmunk

Comments:

- Few trees with cavities suitable for bat habitat.
- Avg tree DBH = 40cm / spec approx 4-5m.
- Trees in "good" health.

Inclusion	Complex	Community Name	Code	% of Community
Inclusion	Complex	SWA - yellow birch / hemlock		8-10%
Inclusion	Complex			
Inclusion	Complex			

ELC Community Summary Sheet	Lower Campground	Polygon #
-----------------------------	------------------	-----------

Project #: 43326 Project Name: Meafort Park Surveyor(s): SAG Date: Nov 28/12

Community Series:		Ecosite:	Vegetation Type: Sugar maple Park
System: Terrestrial Wetland Aquatic	Topographic Feature: Lacustrine / Riverine / Bottomland / Terrace / Valley Slope / Tableland Rolling Upland / Cliff / Talus / Crevice / Cave / Alvar / Rockland / Beach / Bar / Sand Dune / Bluff		Dominant Plant Form: Plankton / Submerged / Floating-leaved / Graminoid / Forb / Lichen / Bryophyte / Deciduous / Coniferous / Mixed
Cover: Open Shrub Treed	History: Natural Cultural	Community Class: Beach-Bar / Sand Dune / Bluff / Cliff / Talus / Alvar / Rock Barren / Crevice-Cave / Sand Barren / Tallgrass Prairie - Savannah & Woodland / Forest / Cultural / Swamp / Bog / Marsh / Open Water / Shallow Water	

Stand Description		Soil Analysis	
Community Age: Pioneer / Young / Mid-Aged / Mature / Old Growth		Basal Area (m ² /ha):	Soil Drainage: V. Rapid / Rapid / Well / Moderately Well / Imperfect / Poor / V. Poor
Standing Snags: Rare / Occasional / Abundant / Dominant		Soil Moisture Regime: Dry / Fresh / Moist / Wet	
Deadfall Logs: Rare / Occasional / Abundant / Dominant		Effective Soil Texture:	
Health L / M / H	Sensitivity L / M / H	Botanical Quality L / M / H	Depth to Mottles / Gley Sample 1 M - cm / G - cm, Sample 2 M - cm / G - cm
Slope: None / Gentle / Moderate / Steep		Simple / Complex	Depth to G. Water: @ m At surface / <1m / >1m
			Depth to Bedrock: @ m At surface / <1m / >1m

Vegetation Layer	Height	Cover	Dominant Sp. Per Vegetation Layer
1 Canopy			
2 Subcanopy			
3 Understorey			
4 Groundlayer			

Height Codes - (1) >20m, (2) 10-20m, (3) 2-10m, (4) 1-2m, (5) 0.5-1m, (6) 0.2-0.5m, (7) <0.2m
Cover Codes - (0) None, (1) 1-10%, (2) 10-25%, (3) 25-60%, (4) >60%

Size Class Analysis (Rare / Occasional / Abundant / Dominant)	< 10cm DBH	10 - 24cm DBH	25 - 50cm DBH	> 50cm DBH

Evidence of Disturbance: Tree cutting, exotic species, trails, dumping, noise, predation - Campsite present - High Traffic Area
Wildlife / Habitat Observations: Birds, mammals, calls, observed, dens, nests - Cavity present for bird hab. - Retaining wall - possible snake den?
Comments:

Community Name			Code	% of Community
Inclusion	Complex			
Inclusion	Complex			
Inclusion	Complex			

ELC Community Summary Sheet

Passive Use Area

Polygon #

Project #: 42326 Project Name: Marford Park Surveyor(s): SHG Date: Nov 23/12

Polygon Description

Community Series: WOM -		Ecosite:	Vegetation Type: Cedar / Birch Dom.
System: Terrestrial Wetland Aquatic	Topographic Feature: Lacustrine / Riverine / Bottomland / Terrace / Valley Slope / Tableland Rolling Upland / Cliff / Talus / Crevice / Cave / Alvar / Rockland / Beach / Bar / Sand Dune / Bluff		Dominant Plant Form: Plankton / Submerged / Floating-leaved / Graminoid / Forb / Lichen / Bryophyte / Deciduous / Coniferous / Mixed
Cover: Open Shrub Tree	History: Natural Cultural	Community Class: Beach-Bar / Sand Dune / Bluff / Cliff / Talus / Alvar / Rock Barren / Crevice-Cave / Sand Barren / Tallgrass Prairie - Savannah / Woodland / Forest / Cultural / Swamp / Bog / Marsh / Open Water / Shallow Water	

Stand Description		Soil Analysis	
Community Age: Pioneer / Young / Mid-Aged / Mature / Old Growth		Basal Area (m ² /ha):	Soil Drainage: V. Rapid / Rapid / Well / Moderately Well / Imperfect / Poor / V. Poor
Standing Snags: Rare / Occasional / Abundant / Dominant		Soil Moisture Regime: Dry / Fresh / Moist / Wet	
Deadfall Logs: Rare / Occasional / Abundant / Dominant		Effective Soil Texture:	
Health L / M / H	Sensitivity L / M / H	Botanical Quality L / M / H	Depth to Mottles / Gley Sample 1 M - cm / G - cm, Sample 2 M - cm / G - cm
Slope: None / Gentle / Moderate / Steep Simple / Complex		Depth to G. Water: @ m At surface / <1m / >1m	
		Depth to Bedrock: @ m At surface / <1m / >1m	

Vegetation Layer	Height	Cover	Dominant Sp. Per Vegetation Layer
1 Canopy			
2 Subcanopy			
3 Understorey			
4 Groundlayer			

Height Codes - (1) >20m, (2) 10-20m, (3) 2-10m, (4) 1-2m, (5) 0.5-1m, (6) 0.2-0.5m, (7) <0.2m

Cover Codes - (0) None, (1) 1-10%, (2) 10-25%, (3) 25-60%, (4) >60%

Size Class Analysis (Rare / Occasional / Abundant / Dominant)	< 10cm DBH	10 - 24cm DBH	25 - 50cm DBH	> 50cm DBH

Evidence of Disturbance:

Tree cutting, exotic species, trails, dumping, noise, predation

- Roadway
- high traffic area.
- trails
- litter dumping

Wildlife / Habitat Observations:

Birds, mammals, calls, observed, dens, nests

- cavity present for bat hole.
- Redwinged blackbird - possible snake hole.
- Driftwood / large logs present (amphib over wintering?)
- chickadee
- Am. crow
- Red-tail squirrel
- Eastern bluebird
- Pileated woodpecker hole(s)

Comments:

- 40-50% canopy cover.
- included shoreline

Inclusion	Complex	Community Name	Code	% of Community

ELC Community Summary Sheet	offsite East of Existing Campground	Polygon #	
-----------------------------	-------------------------------------	-----------	--

Project #: 43326 Project Name: Meaford Park Surveyor(s): SAB Date: Nov 13/18

Community Series: FOD		Ecosite:	Vegetation Type: sugar maple dom
System: Terrestrial Wetland Aquatic	Topographic Feature: Lacustrine / Riverine / Bottomland / Terrace / Valley Slope / Tableland Rolling Upland / Cliff / Talus / Crevice / Cave / Alvar / Rockland / Beach / Bar / Sand Dune / Bluff		Dominant Plant Form: Plankton / Submerged / Floating-leaved / Graminoid / Forb / Lichen / Bryophyte / Deciduous / Coniferous / Mixed
Cover: Open Shrub Tree	History: Natural Cultural	Community Class: Beach-Bar / Sand Dune / Bluff / Cliff / Talus / Alvar / Rock Barren / Crevice-Cave / Sand Barren / Tallgrass Prairie - Savannah & Woodland / Forest / Cultural / Swamp / Bog / Marsh / Open Water / Shallow Water	

Stand Description			Soil Analysis	
Community Age: Pioneer / Young / Mid-Aged / Mature / Old Growth		Basal Area (m2/ha):	Soil Drainage: V. Rapid / Rapid / Well / Moderately Well / Imperfect / Poor / V. Poor	
Standing Snags: Rare / Occasional / Abundant / Dominant			Soil Moisture Regime: Dry / Fresh / Moist / Wet	
Deadfall Logs: Rare / Occasional / Abundant / Dominant			Effective Soil Texture:	
Health L / M / H	Sensitivity L / M / H	Botanical Quality L / M / H	Depth to Mottles / Gley Sample 1 M - cm / G - cm, Sample 2 M - cm / G - cm	
Slope: None / Gentle / Moderate / Steep Simple / Complex			Depth to G. Water: @ m At surface / <1m / >1m	
			Depth to Bedrock: @ m At surface / <1m / >1m	

Vegetation Layer	Height	Cover	Dominant Sp. Per Vegetation Layer
1 Canopy			
2 Subcanopy			
3 Understorey			
4 Groundlayer			

Height Codes - (1) >20m, (2) 10-20m, (3) 2-10m, (4) 1-2m, (5) 0.5-1m, (6) 0.2-0.5m, (7) <0.2m

Cover Codes - (0) None, (1) 1-10%, (2) 10-25%, (3) 25-60%, (4) >60%

Size Class Analysis (Rare / Occasional / Abundant / Dominant)				
	< 10cm DBH	10 - 24cm DBH	25 - 50cm DBH	> 50cm DBH

Evidence of Disturbance:

Tree cutting, exotic species, trails, dumping, noise, predation

- lots of fallen trees - possible ash tree impacts.

Wildlife / Habitat Observations:

Birds, mammals, calls, observed, dens, nests

Comments:

- Aug 2014 - 60cm (50-80 cm).
- Assessed from property

	Community Name	Code	% of Community
Inclusion	Complex		
Inclusion	Complex		
Inclusion	Complex		

ELC Community Summary Sheet	Upper Campground	Polygon #
-----------------------------	------------------	-----------

Project #: 43346 Project Name: Meadow Park Surveyor(s): SAC Date: Nov 23/18

Community Series:		Ecosite:	Vegetation Type:
System: Terrestrial Wetland Aquatic	Topographic Feature: Lacustrine / Riverine / Bottomland / Terrace / Valley Slope / Tableland Rolling Upland / Cliff / Talus / Crevice / Cave / Alvar / Rockland / Beach / Bar / Sand Dune / Bluff		Dominant Plant Form: Plankton / Submerged / Floating-leaved / Graminoid / Forb / Lichen / Bryophyte / Deciduous / Coniferous / Mixed
Cover: Open Shrub Treed	History: Natural Cultural	Community Class: Beach-Bar / Sand Dune / Bluff / Cliff / Talus / Alvar / Rock Barren / Crevice-Cave / Sand Barren / Tallgrass Prairie – Savannah & Woodland / Forest / Cultural / Swamp / Bog / Marsh / Open Water / Shallow Water	

Stand Description			Soil Analysis
Community Age: Pioneer / Young / Mid-Aged / Mature / Old Growth		Basal Area (m2/ha):	Soil Drainage: V. Rapid / Rapid / Well / Moderately Well / Imperfect / Poor / V. Poor
Standing Snags: Rare / Occasional / Abundant / Dominant			Soil Moisture Regime: Dry / Fresh / Moist / Wet
Deadfall Logs: Rare / Occasional / Abundant / Dominant			Effective Soil Texture:
Health L / M / H	Sensitivity L / M / H	Botanical Quality L / M / H	Depth to Mottles / Gley Sample 1 M - cm / G - cm, Sample 2 M - cm / G - cm
Slope: None / Gentle / Moderate / Steep Simple / Complex			Depth to G. Water: @ m At surface / <1m / >1m
			Depth to Bedrock: @ m At surface / <1m / >1m

Vegetation Layer	Height	Cover	Dominant Sp. Per Vegetation Layer
1 Canopy			
2 Subcanopy			
3 Understorey			
4 Groundlayer			

Height Codes – (1) >20m, (2) 10-20m, (3) 2-10m, (4) 1-2m, (5) 0.5-1m, (6) 0.2-0.5m, (7) <0.2m

Cover Codes – (0) None, (1) 1-10%, (2) 10-25%, (3) 25-60%, (4) >60%

Size Class Analysis (Rare / Occasional / Abundant / Dominant)	< 10cm DBH	10 – 24cm DBH	25 – 50cm DBH	> 50cm DBH
---	------------	---------------	---------------	------------

Evidence of Disturbance:
Tree cutting, exotic species, trails, dumping, noise, predation

- Existing campground
- High traffic area

Wildlife / Habitat Observations:
Birds, mammals, calls, observed, dens, nests

Comments:
- lots of ornamental plantings
- open mowed turf area.

			Community Name	Code	% of Community
Inclusion	Complex				
Inclusion	Complex				
Inclusion	Complex				



BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Public Consultation

Welcome

Memorial Park Master Plan

- Please Sign In.
- Write your thoughts on a sticky note and post under each question and discuss with the Study Team.
- Please fill out a comment sheet and return it to the Study Team in person, dropped off at the municipality's administration office or by email to:

bcarbert@meaford.ca
or
Tricia.Radburn@rjburnside.com

THANK-YOU FOR ATTENDING

1

Project Description

Memorial Park is an important tourist and recreational destination in the Municipality of Meaford.

Park infrastructure is aging. There may be an opportunity to expand the campground and create new sites. There may also be an opportunity to develop new trails and trail linkages. All of these issues will be considered in the Master Plan.

The Municipality of Meaford wishes to ensure that the park remains a valuable, well-maintained destination that meets the needs and recreational interests of its visitors.

Study Area Map



2

Project Approach

1. Gather existing Background Information
2. Meetings with:
 - Adjacent Landowners
 - Friends of Memorial Park
 - Meaford Kiwanis Club
3. Review Existing Conditions
 - Roads
 - Water Mains and Site Services
 - Wastewater Mains
 - Hydro Lines
 - Facilities
 - Recreational Trails and Recreational Amenities
 - Trees
 - Site Drainage and Stormwater Management
4. Investigate Potential Campsite Expansion
5. Analyze Impacts of Expansion and park upgrades on Social and Natural Environments
6. Public Information Centre - Spring 2019
7. Development of Master Plan Concept
8. Draft and Final Report Presented to Council and Technical Committee

3

What do you enjoy best about Memorial Park?

Are there any programs/ events that your organization is involved in at the park? Or programs/ events that you would like to see take place in the future?

4

Do you use the park's trails? How could they be improved?

Do you visit the beach? Could anything be done to improve your beach experience?

5

Which park amenities do you use (e.g. playgrounds, snack shack, mini-golf etc.)? What could be improved for these amenities?

Do you have any additional suggestions for improving Memorial Park?

6

Meaford **BURNSIDE**

Welcome

- Please Sign In
- Meet with Project Team Members
- Review the display materials and discuss your questions and ideas with the Project Team
- Please fill out a comment sheet and return it to the Study Team in person or by email by **May 6, 2019**.

1

Meaford **BURNSIDE**

Memorial Park Master Plan

The Municipality of Meaford wishes to ensure that the park remains a valuable, well-maintained destination that meets the needs and recreational interests of its visitors.

Purposes of the Master Plan :

- Identify a future vision for the park;
- Optimize the capacity and variety of camping options to reflect current market trends;
- Confirm the condition of existing infrastructure and updated servicing needs;
- Improve park amenities and facilities;
- Upgrade trail conditions and accessibility; and,
- Identify impacts of changes and minimize problems.



2

Meaford **BURNSIDE**

Work to Date...

Meetings with:

- Friends of Memorial Park
- Kinsmen Club
- Adjacent Landowners

Completion of campground customer satisfaction survey in 2018.

What we heard...

Interest groups said...

- ✓ Keep dog-friendly beach
- ✓ Keep public access to beach and water
- ✓ Provide greater variety of campsites
- ✓ Upgrade facilities and park buildings (washrooms, playground, picnic tables, snack shack, Kin Hall)
- ✓ Minimize impacts to wooded areas
- ✓ Leave views of water/ beach unobstructed
- ✓ Improve overall accessibility

Survey respondents said...

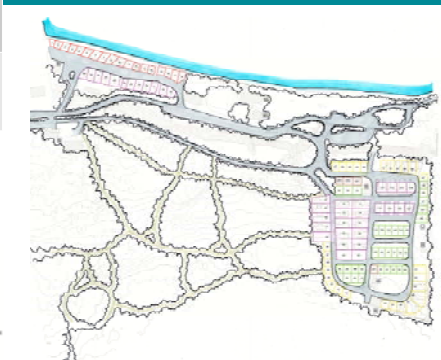
- ✓ Provide more **full service** campsites
- ✓ Improve park washrooms and showers
- ✓ Improve general cleanliness
- ✓ Provide general facility upgrades

52 % of survey respondents rated the general facilities as "good".

3

Meaford **BURNSIDE**

Concept #1: Basic Upgrade Only



Proposed Upgrades

- Infrastructure:
 - Retaining wall at waterfront sites
 - Overall drainage
 - Trails
 - Roads
- Facilities:
 - Washrooms
 - Mini golf
 - Office, Kin Hall, Pavilion to AQQA standards

Legend

- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- EXISTING TRAIL
- PROPOSED TRAIL
- UPPER FULL SERVICE
- UPPER PARTIAL SERVICE
- PREMIUM SITE
- WATERFRONT FULL SERVICE
- WATERFRONT PARTIAL SERVICE
- WATERFRONT
- UPPER FULL
- UPPER PARTIAL
- WATERFRONT
- WATERFRONT

Concept Summary

- Public Beach Access: No change
- # Campsites: No change
- Waterfront: 18
- Premium: 37
- Full Service: 32
- Hydro/Water: 27
- Unserviced: 4
- # Washrooms: 6
- Washrooms: 6
- Showers: 2
- Length of Trails: No change
- Format: 498m
- Informal: 626m
- Tree cover: No change

4

Meaford **BURNSIDE**

Concept #2: Upgrade + Waterfront and Trail Changes



Proposed Upgrades

- Infrastructure:
 - Overall drainage
 - Trails
 - Roads
- Facilities:
 - Washrooms
 - Mini golf
 - Office, Kin Hall, Pavilion to AQQA standards

New Features

- Infrastructure:
 - Formal parking areas
 - Improved campground servicing
- Facilities:
 - New waterfront trail
 - New campsites between upper campground and dog beach
 - New cabins

Legend

- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- EXISTING TRAIL
- PROPOSED TRAIL
- UPPER FULL SERVICE
- UPPER PARTIAL SERVICE
- PREMIUM SITE
- WATERFRONT FULL SERVICE
- WATERFRONT PARTIAL SERVICE
- WATERFRONT
- UPPER FULL
- UPPER PARTIAL
- WATERFRONT
- WATERFRONT

Concept Summary

- Dog beach maintained with additional waterfront sites set back from water
- # Campsites: Waterfront: 23
- Premium: 39
- Full Service: 35
- Hydro/Water: 0
- Unserviced: 0
- Cabins: 19
- # Washrooms: 4
- Washrooms: 4
- Showers: 2
- Length of Trails: 1,630m
- Tree cover: Cabins will be field fit with individual trees removed as needed.

5

Meaford **BURNSIDE**

Concept #3: Upgrade + Basic Campground Changes



Proposed Upgrades

- Infrastructure:
 - Retaining wall at waterfront sites
 - Overall drainage
 - Trails
 - Roads
- Facilities:
 - Washrooms
 - Mini golf
 - Office, Kin Hall, Pavilion to AQQA standards

New Features

- Infrastructure:
 - Formal parking areas
 - Improved campground servicing
- Facilities:
 - New waterfront trail
 - New cabins

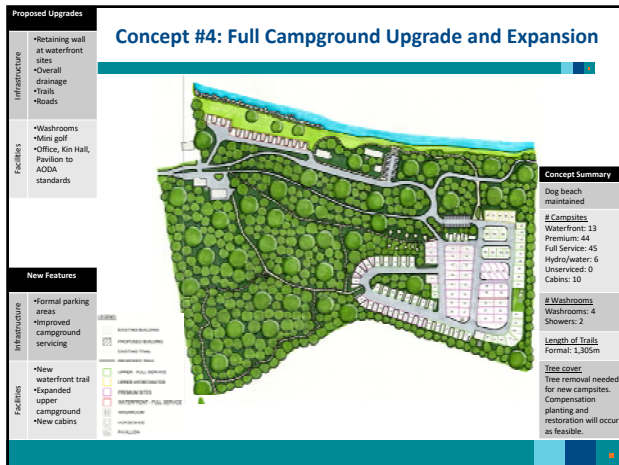
Legend

- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- EXISTING TRAIL
- PROPOSED TRAIL
- UPPER FULL SERVICE
- UPPER PARTIAL SERVICE
- PREMIUM SITE
- WATERFRONT FULL SERVICE
- WATERFRONT PARTIAL SERVICE
- WATERFRONT
- UPPER FULL
- UPPER PARTIAL
- WATERFRONT
- WATERFRONT

Concept Summary

- Dog beach maintained
- # Campsites: Waterfront: 13
- Premium: 34
- Full Service: 35
- Hydro/Water: 0
- Unserviced: 0
- Cabins: 19
- # Washrooms: 4
- Washrooms: 4
- Showers: 2
- Length of Trails: 2,180m
- Cabins will be constructed field fit with individual trees removed as needed

6

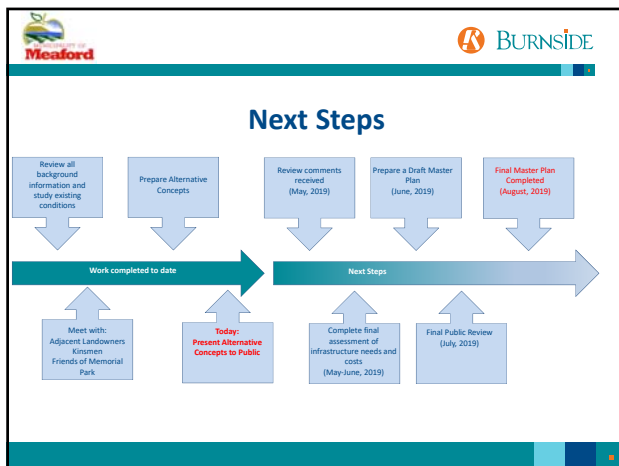


7

Concept Comparison

Criteria	Concept #1	Concept #2	Concept #3	Concept #4
Dog Beach Access:	Dog beach maintained.	Dog beach maintained with additional waterfront sites set back from water.	Dog beach maintained.	Dog beach maintained.
Campsites:	Waterfront: 18 Premium: 37 Full Service: 32 Hydro/water: 27 Unserviced: 4 Total Sites: 118 Cabins: 0	Waterfront: 23 Premium: 39 Full Service: 35 Hydro/water: none Unserviced: none Total Sites: 97 Cabins: 19	Waterfront: 13 Premium: 34 Full Service: 39 Hydro/water: 6 Unserviced: none Total Sites: 92 Cabins: 19	Waterfront: 13 Premium: 44 Full Service: 45 Hydro/water: 6 Unserviced: none Total Sites: 108 Cabins: 10
Washrooms:	Washrooms: 6 Showers: 2	Washrooms: 4 Showers: 2	Washrooms: 4 Showers: 2	Washrooms: 4 Showers: 2
Trails:	Formal: 498m Informal: 626m Total: 1,124m	Formal: 1,630m	Formal: 2,180m	Formal: 1,305m
Parking Spots:	+/- 60 (Informal)	117	96	46
Trees:	No tree removal. No restoration.	Cabins field-fit to limit tree removal. Limited tree planting opportunity.	Cabins field-fit to limit tree removal. Tree planting opportunity between upper campground and dog beach.	Cabins field-fit to limit tree removal. Tree removal required for expanded campground. Tree planting opportunity between upper campground and dog beach.
Shoreline work:	Replace retaining wall in front of waterfront	Remove retaining wall. Replace with natural/rocky	Remove retaining wall. Replace with natural/rocky	Remove retaining wall. Replace with natural/rocky

8



9

Invitation for Participation

- Thanks for participating.
- Public input is an important component of the decision-making process.
- You are invited to provide comments by completing the forms provided and submitting forms to the Project Team members below on or before **May 6, 2019**.

Bradey Carbert Manager, Purchasing & Assets Municipality of Meaford 21 Trowbridge Street West Meaford, ON Tel: 519-538-1060 Email: bcarbert@meaford.ca	Tricia Radburn Consultation Coordinator R.J. Burnside & Associates Limited 292 Speedvale Avenue West, Unit 20 Guelph, ON N1H 1C4 Tel: 226-486-1778 Email: tricia.radburn@rjburnside.com
---	--

THANK-YOU FOR ATTENDING

10



**Municipality of Meaford
Memorial Park Master Plan Project
Adjacent Property Owners Consultation Meeting**

Dear Resident / Property Owner,

The Municipality of Meaford wishes to provide an update on the Meaford Memorial Park Master Plan project, as approved by Council on June 25th, 2018.

The Municipality has selected a consulting firm, RJ Burnside & Associates Limited for the creation of a Master Plan to address the continued operation of Memorial Park with the identification of future rehabilitation, replacement, or expansion needs of the park for the next 25 years.

The project is a combination of a technical review of the current park assets and a social, natural, and economic review of the park operations and future expansion opportunities.

The Municipality has requested that the successful Consultant meet with adjacent and directly impacted property owners (Beachvale Subdivision and Grant Avenue) to provide information on the Master Plan process, tasks required to be completed by the Consultant, park experiences, and any future visions that they may have for the park with regards to both current infrastructure and future infrastructure rehabilitation, replacement, and/or expansion needs.

A Consultation Meeting has been scheduled for Thursday November 29th, 2018 from 7:00pm to 8:30pm at the Meaford & St. Vincent Community Centre, located at 151 Collingwood St. W., Meaford, ON.

In the event that you are unable to attend this consultation meeting a comment sheet has been provided on the back of this letter. Please drop off or e-mail a copy of the the comment sheet off to the undersigned.

For further information on this project, please contact:

**Bradey Carbert
Manager, Purchasing & Assets**

Municipality of Meaford
21 Trowbridge Street West
Meaford, ON N4L 1A1
Tel: (519) 538-1060 ext. 1307
bcarbert@meaford.ca

**Memorial Park Master Plan Project
Adjacent Property Owners Consultation Meeting
November 29, 2018**

Please complete and hand in this sheet so that your comments can be considered during the Master Plan process. If you cannot complete your comments today, please take this home and mail or email your comments on or before **December 13, 2018** to the undersigned.

Bradey Carbert

Manager, Purchasing & Assets
Municipality of Meaford
21 Trowbridge Street West
Meaford, Ontario N4L 1A1
(519) 538-1060 ext. 1307
bcarberrt@meaford.ca

Your Comments on the Project

This image shows a full page of white paper with horizontal grey ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the page.

Name: _____ **Email:** _____

Address: _____ **Postal Code:** _____

Comments and information regarding this project are being collected in accordance with the Municipal Freedom of Information and Protection of Privacy Act for the purpose of the Master Plan requirements. With the exception of personal information, all comments received will become a part of the public record.