TATHAM ENGINEERING

Enhancing our communities

Cedar Run Wakeboard Cable Park

FUNCTIONAL SERVICING REPORT

2533827 Ontario Limited

File 115232 | November 2017 (Revised April 2, 2020)

Document Control

File:

115232

Date:

April 2, 2020

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	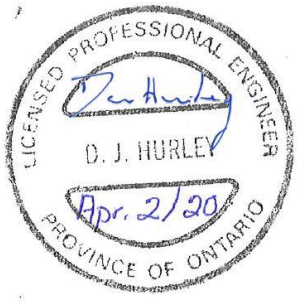
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Issue	Date	Description
1	November 2017	First Revision
2	April 2, 2020	Second Revision

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1 Introduction

Tatham Engineering Limited (Tatham) has prepared the following Functional Servicing Report (FSR) in support of application for Official Plan Amendment (OPA), re-zoning and Site Plan Approval for the proposed Cedar Run Wakeboard Cable Park in the Town of The Blue Mountains (Town). This report presents an overview of the proposed servicing strategy for the site, including water supply and distribution, sanitary sewage collection and conveyance, and utility distribution (electrical, telephone, cable TV and gas). Additional servicing components such as transportation and stormwater management assessments have been completed under separate cover.

1.1 SITE DESCRIPTION

The site is located near the southwest corner of Grey Road 2 and Clark Street as depicted on Figure 1 provided overleaf. The site consists of 35.78 ha of land formerly referred to as the Cedar Run Horse Park property and is bisected southwest to northeast by an intermittent tributary watercourse. The site is currently zoned as "Recreational Commercial (C4-12h)" zone and "Hazard (H)" zone under the site-specific by-law (By-law 2012-49) applicable to the property. The property is legally described as part Lot 30, Concession 9, Town of the Blue Mountains in Grey County.

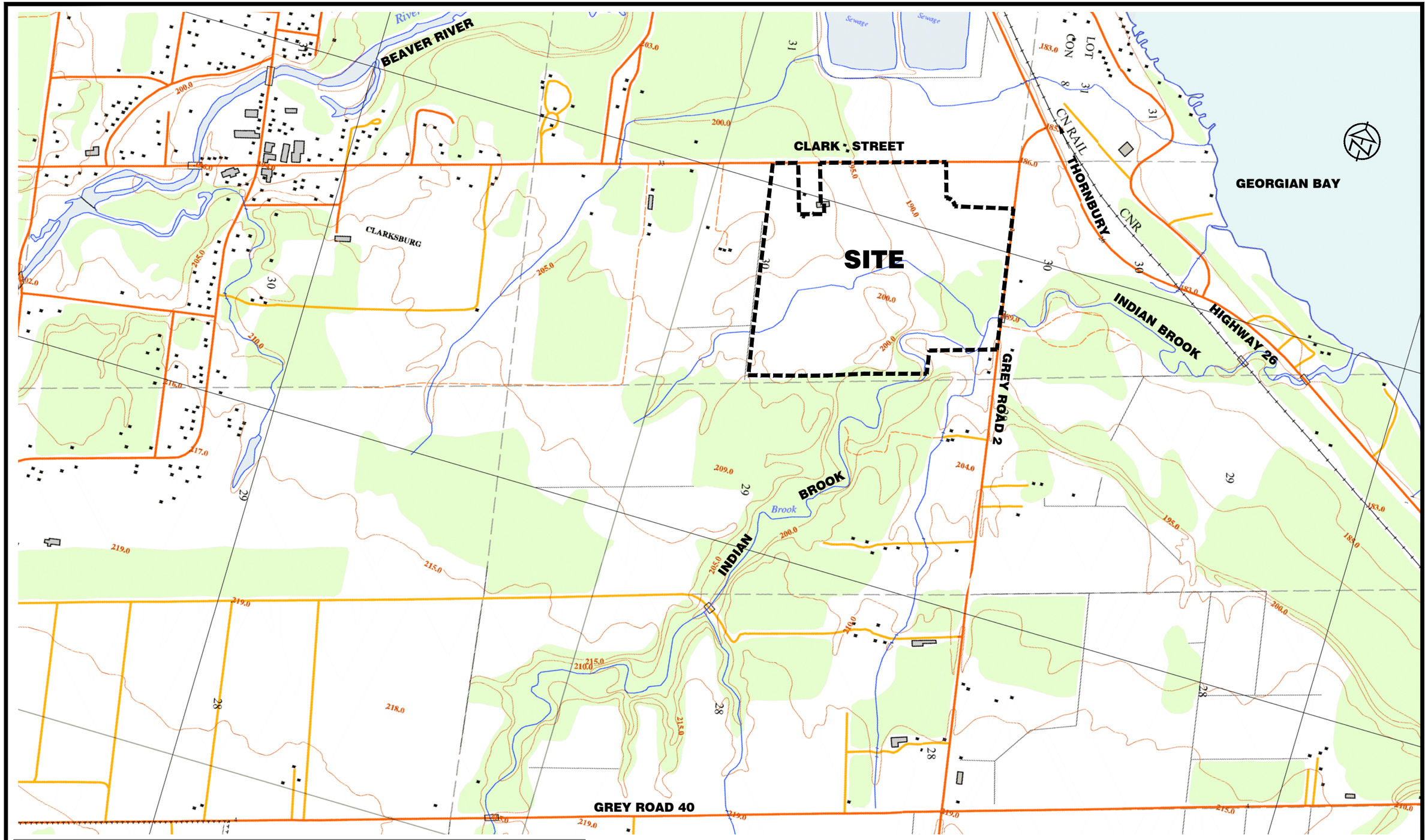
1.2 OBJECTIVES

The primary objective of this report is to determine the services that are available at the subject property and demonstrate how the proposed development will use these services. The report will confirm the available capacity of the services and outline how the proposed development can access the services as to mitigate any adverse effect to other users and comply with Town and Provincial Regulations.

1.3 BACKGROUND

The Cedar Run Wakeboard Cable Park property has been the subject of various development reports and approvals over the past years. This report shall demonstrate that the plan has been designed considering all past input from approval agencies. The following summary documents background information pertinent to the planning and development of the area:

- Proposed Thornbury Horse Park Development Functional Servicing Report. C.C. Tatham & Associates Ltd. (July, 2006). This report presented an overall analysis demonstrating serviceability of the proposed horse park in terms of traffic, stormwater, sewage flows, water supply and utilities.



CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

TATHAM ENGINEERING

CEDAR RUN WAKEBOARD CABLE PARK
TOWN OF THE BLUE MOUNTAINS
SITE PLAN

DWG. No. **FIG. 1**

SCALE: 1:10,000	DRAWN: DEP	DATE: MAR./17	JOB NO. 115232

- Cedar Run – Thornbury Horse Park 2009-2010 Horse Show Approval Submission and Technical Report. C.C. Tatham & Associates Ltd. (March, 2009). This report summarized the grading and drainage work completed on-site for the horse park from 2006-2008 and presented an overall plan summarizing the site servicing works required for the events proposed in 2009-2010.
- Thornbury Horse Park Stormwater Management Report. C.C. Tatham & Associates Ltd. (June, 2009). This report presented a SWM Plan for the interim drainage conditions for the Horse Park events planned in 2009 and 2010. The three ponds constructed from 2006-2008 were to provide the required quality and quantity control.
- Thornbury Horse Park Stormwater Design Brief - Addendum. C.C. Tatham & Associates Ltd. (April, 2011). This report presented a SWM Plan for a proposed parking area. The parking area was designed to drain to two new proposed SWM ponds. The parking area and ponds did not proceed to construction.
- Thornbury Horse Park Approval Submission and Technical Report: Proposed 2012 Works. C.C. Tatham & Associates Ltd. (March, 2012). This report presented the work proposed on-site in 2012. The work presented in this report did not proceed to construction. This report included the design for a proposed diversion channel.

2 Proposed Development

A Site Plan (Drawing SP-1) has been prepared for the proposed development project and is included with this report for reference purposes. The Cedar Run Wakeboard Cable Park is proposed to consist of a large circular wakeboard pond (Pond A), a smaller multi-level wakeboard pond (Pond B), a pro shop/office, a commercial plaza, overnight accommodations, a passive recreation area and associated parking and access roads. It is noted that the Town is considering the re-alignment of Clark Street to improve intersection functionality approaching Highway 26. The potential to accommodate this re-alignment has been accounted for in the plans prepared to date.

The development is proposed to progress in phases. The interim development plan will include construction of the ponds, pro shop/office, parking areas and associated access roads. The overnight accommodation and commercial development will be constructed as part of a later phase.

Under interim conditions, the development will be serviced by a single access on the south side of Clark Street. A tile bed will provide sewage treatment and water supply for the pro shop/clubhouse shall be from a drilled groundwater well. The three existing ponds constructed onsite will be modified as required for stormwater management control and treatment. The intermittent tributary watercourse that currently bisects the lower portion of the property will be realigned to Indian Brook and flows will be split between Indian Brook and the Grey Road 2 roadside ditch as previously approved.

Ultimately, when the overnight accommodations and commercial components proceed, the water and sanitary servicing will be connected to the municipal system. Watermain and sanitary services will be extended to the site via connection to the existing watermain on Grey Road 2 and the existing sanitary sewer installed along Highway 26. Utilities (hydro, gas, telephone and cable) will be provided by the respective utility providers in the surrounding area.

3 Sanitary Sewage

The preliminary site servicing layout is illustrated on Drawing SS-1 and should be referenced when reviewing Section 3 of this report. As described, the site will be serviced via tile bed under the interim condition. The tile bed will provide treatment for the pro shop/office and the daytime visitors. Preliminary sizing calculations for the tile bed have been completed using Ontario Building Code guidelines based on the expected number of visitors and the existing soil conditions. Sizing indicates a bed sized to accommodate 6,000 L/d can accommodate this first phase of development. Sizing calculations are included in Appendix A.

The long-term plan for sanitary sewers on the site is to extend the existing sanitary sewer which runs along Highway 26. The extension will be from Highway 26 west to Grey Road 2, south along Grey Road 2 and then west into the site. The sanitary extension will be required to service the proposed commercial development and overnight accommodations. The exact routing and grade for this sewer will be developed once the expansion plan is finalized as part of a later phase.

4 Water Supply & Distribution

Potable water will be supplied from a drilled groundwater well under the interim condition. Similar to the tile bed, the well will provide service for the pro shop/office and the daytime visitors. The expected peak flow required from the well is 1.9 l/s as per Ontario Building Code and MOE Design Guidelines for Drinking-Water Systems. Water supply calculations are included in Appendix B.

Ultimately it is proposed to connect to the existing water supply at Grey Road 2 to provide potable water for the entire area as part of a later phase. The existing 250 mm watermain along Grey Road 2 east of the site has a 250 mm dia. service to the site and will be used as the water source. If required, a watermain (minimum 150 mm dia.) will be looped through the site to service the commercial development and overnight accommodations as required. Additional details such as the preferred path for the looping and confirmation of pipe size and hydrant locations will be developed once the expansion plans are finalized as part of a later phase.

5 Stormwater Management

A separate Surface Water Management Strategy Report (April 2, 2020) has been prepared by Tatham to address drainage and stormwater management requirements, and should be read in conjunction with this report. The Surface Water Management Strategy Report has been prepared to address the internal and external servicing requirements related to stormwater management and details the stormwater management plan for the interim phase of development. The report also presents a surface water management strategy that will demonstrate how the wakeboard ponds are to be filled and water levels maintained.

6 Traffic Impact Assessment

A separate Traffic Impact Study (November 2017) has been prepared by C.C, Tatham & Associated Ltd. and should be read in conjunction with this report. The report addresses traffic operations and the transportation system and confirms an adequate road network exists to support the development and proposed entrances. It is noted the site plan presents a potential realignment location for Clark Street; this realignment is not proposed as a result of this development but was subject to a recently completed EA by the Town. The realignment is shown to demonstrate it will not disrupt the site plan proposal presented.

7 Utilities

All utilities in the area were reviewed to determine if any significant constraints exist in this regard. Although most utilities will require more detail than is currently available for the development to precisely confirm capacity, the following has been resolved:

- There is an existing gas main along the east side of Grey Road 2 adjacent to the right-of-way boundary which tees to service the existing firehall, and is terminated. There is no existing gas main along Clark Street. Gas would be available to the development by extending a main down Clark Street.
- There is an existing Bell station at the southeast corner of the Grey Road 2 and Clark Street intersection. There is an existing Bell main underground 1.0m from the property line on the west side of Grey Road 2 and the south side of Clark Street. These services can be extended to the site subject to confirmation from Bell that capacity is available to service the development.
- There is existing three-phase hydro power on the west side of Grey Road 2 and three phase hydro supply on the north side of Clark Street. These facilities can be utilized to provide hydro supply for the site, however, more detailed information must be provided to hydro to confirm that capacity is available to service the development.
- Additional work in this regard will be completed as the development proceeds through the planning approval process.

8 Summary

This Functional Servicing Report has demonstrated adequate services are available in the area to support the proposed interim development conditions. The development will utilize a tile bed for sanitary sewage and a drilled well for potable water for the interim condition. A retrofit of the existing on-site ponds will satisfy the stormwater management requirements. Hydro One, Union Gas, Rogers and Bell Canada have been contacted to confirm the availability of their utilities for the proposed development. Options for servicing the ultimate condition were assessed and will be finalized as part of a later phase.

Appendix A: Sanitary Demand and Tile Bed Sizing

TATHAM ENGINEERING	**Project:**	Cedar Run Wakeboard Cable Park	**Date:** March 2017
	File No.:	115232	**Designed:** DAM
	Subject:	Sanitary Demand and Tile Bed Calculations	**Checked:** DJH

ONTARIO BUILDING CODE GUIDELINES

Wakeboard Park Including Pro Shop / Office (Required Service Level for Interim Conditions)

Peak Usage = 120 Riders per day Expected According To Proposal

Total Daily Design Sanitary Sewage Flow As Per Table 8.2.1.3.B. O.B.C.

Public Parks With Bathhouse, Showers and Toilets per Person	=	**50**	**litres/day**	**Applied as more conservative estimate**
Swimming and Bathing Facilities (Public) per Person	=	40	litres/day	

DESIGN FLOW

Total Daily Design Flow	=	6000	litres/day	
Design Percolation Time (T)	=	50	min/cm	Lesser of 50 and percolation time of underlying soil as per O.B.C. Underlying soil is sandy till with field infiltration tests of 43 min/cm under wet conditions.

TREATMENT

Septic Tank Volume	=	Q x 3		As per 8.2.2.3 of O.B.C.
	=	18,000	litres	Minimum 18,000 litre tank
Maximum Area of Each Filter Bed	=	50	m^2	As per 8.7.5.2 of O.B.C.
Effective Area of Filter Bed	=	50	litres/m^2	As per 8.7.5.2 of O.B.C.
Required Area	=	Q / Effective Area		
	=	120	m^2	Provide 3 Beds at 40 m2
Filter Medium Base Area	=	QT/850		As per 8.7.5.3 of O.B.C.
(Expanded Contact Area)	=	353	m^2	
Maximum Loading Rate	=	6	litres/m^2	As per 8.7.4.1 of O.B.C. for percolation time between 35 and 50 minutes
Required Loading Area	=	Q / Loading Rate		
	=	1,000	m^2	Imported Sand

Appendix B:
Water Supply Calculations

TATHAM ENGINEERING	**Project:**	Cedar Run Wakeboard Cable Park	**Date:**	March 2017
	File No.:	115232	**Designed:**	DAM
	Subject:	Water Supply Calculations	**Checked:**	DJH

ONTARIO BUILDING CODE GUIDELINES

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DESIGN FLOW

Total Daily Design Flow	=	6,000	litres/day
Factored to 8 Hour Period	=	18,000	litres/day 50 litres/person/day is expected in an 8 hour period.

Maximum Day Factor	=	2.0	The Blue Moutain Engineering Standards for Domestic Use. Conservative for Commercial as per
Peak Hour Factor	=	4.5	MOE Design Guideliens for Drinking-Water Systems

Maximum Day Demand:	0.42	L/s	
Peak Hour Demand:	1.88	L/s	
Design Flow:	1.88	L/s	Maximum Demand