

Final Report

Preliminary Functional Grading, Servicing & SWM Report for 510 Erbsville Road, Waterloo



Prepared for Muslim Association of Canada
by IBI Group

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1 Introduction

IBI Group was retained to prepare a Preliminary Functional Grading, Servicing and Stormwater Management Report for 510 Erbsville Road, Ontario.

For the purpose of this report Erbsville Road is assumed to be oriented in a north-south direction. The legal description of 510 Erbsville Road is:

Plan 58R4413, Parts 3, 4 & 5 of Lot 43, German Company Tract, City of Waterloo, in the Regional Municipality of Waterloo.

This Preliminary Functional Engineering report has been prepared to support an Official Plan and zoning bylaw amendment to allow for a proposed new facility identified as the Islamic Centre of Waterloo. Planning for the centre is in its early stages and accordingly a concept plan for the proposed development is not yet available. As such for the purposes of this report is to identify possible servicing methods and their potential constraints for the site, including sanitary, storm and potable water servicing.

The subject property is an irregular shaped parcel of land with an approximate area of 1.31 hectares (3.23 acres). The property fronts approximately 140m of Erbsville Road and is currently zoned 'A' – "Agriculture" and is proposed for community use development with a proposed zoning of 'IN' – "Institutional".

The property currently contains a residential house, garage and shed. According to Grand River Conservation Authority (GRCA) mapping, the majority of the property lies within the GRCA regulation limits. Provincially significant wetlands are located adjacent to the northeast property boundary and the southeast property boundary, with the southeast corner of the property included as a portion of the provincially significant wetland. Refer to Plate #1 for an aerial photo of the site and Plate #2 for a photo of the existing street frontage.

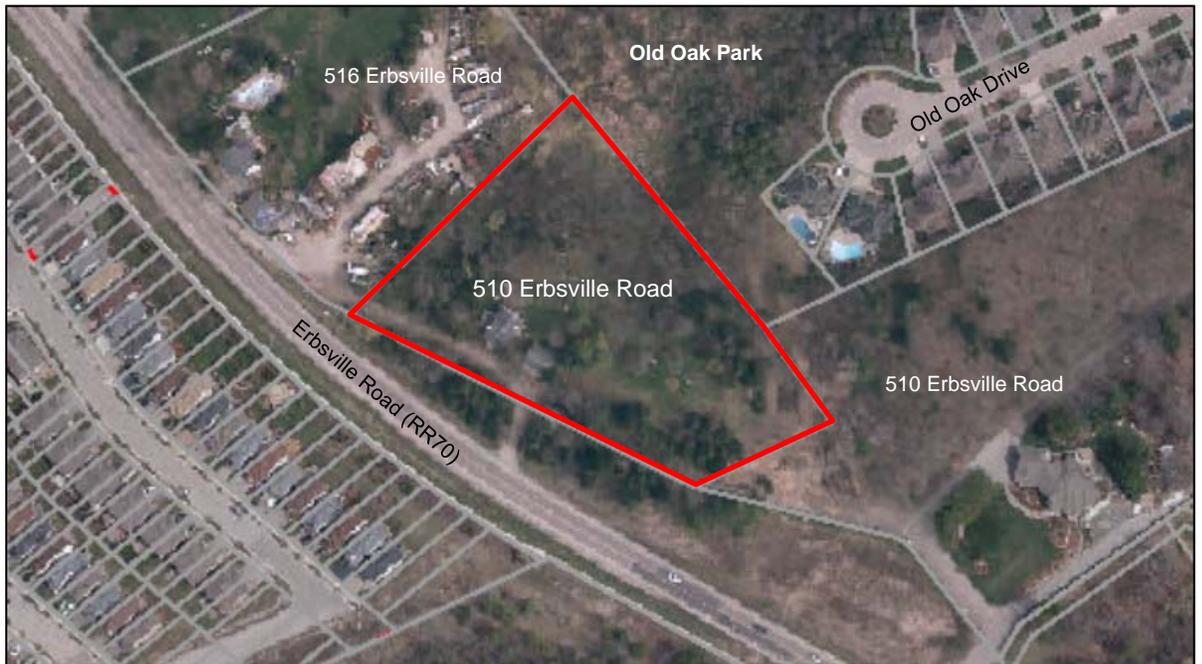


Plate #1: Site Aerial Photo



Plate #2: 510 Erbsville Road Frontage (looking southerly from Erbsville Road)

This report will describe the preliminary functional grading, servicing and stormwater management controls for the site in order to demonstrate the feasibility of the proposed redevelopment from a municipal civil engineering perspective.

2 Site Access

Currently the property has two gravel driveway accesses to Erbsville Road as shown in Plate #1. The northern driveway appears to cross an adjacent property (516 Erbsville Road).

The subject property is located on a large radius curve of Erbsville Road. Accordingly, the future site access would need to be located such that appropriate sight lines to the north and south are achieved to create a safe access to the site. From review of the existing conditions, this should be achievable as the sight distances from the existing entrance appear to be in excess of 200m in either direction.

3 Site Grading and Storm Drainage

The existing site is located within the GRCA regulated area (see Plate #3). Accordingly, any site modification will require a GRCA Permit.



Plate #3: GRCA Mapping

Generally the subject property falls in elevation from west to east with an elevation difference of approximately 11m over an approximate distance of 100m, translating to a slope of 11%. Future grading of the site would need to ensure slopes are less than 8% for driveways, and optimally less than 5% for parking areas. Barrier free access to parking areas and the building should also be ensured per OBC regulations.

Vegetated slopes should be a maximum of 3:1 (H:V) to ensure stability and for ease of maintenance. Once a site plan has been prepared, functional grading can be prepared for the site.

The site is located within Subwatershed # 310 of the Laurel Creek Watershed. As per City of Waterloo and GRCA development requirements, stormwater quantity and quality control are required on-site to meet the peak flow targets as outlined in the Planning documents for Subwatershed # 310.

The existing property generally falls in gradient from west to east, or from Erbsville Road to the environmental areas to the east known as Old Oak Park.

As a development concept for the site has not been prepared at this early stage, a specific design or analysis for the site is not possible. However, with general stormwater design practices, a stormwater management strategy for the site would be possible to control stormwater from the site to provide stormwater quantity and quality control. This strategy would conceivably comprise of a stormwater management pond (or possibly parking lot surface

storage) to control stormwater quantity. Stormwater would outlet the pond through an on-site oil/grit separator (OGS) unit to provide quality control to an Enhanced Protection Level (as per MOE 2003). Discharge from the OGS would likely be to a spreader swale to outlet the stormwater to the receiving downgradient lands. Further investigations should be completed to establish if existing stormwater management facilities are available downstream, or what level of on-site facilities would be required.

A Geotechnical Investigation will be required to determine if native soils are suitable for active infiltration to enhance groundwater recharge.

It is anticipated that the existing building on site will be utilized in the short term as a 'Prayer Meeting' centre, and that at some point a larger facility would be constructed. Given that site grading, servicing, and building construction will not occur in the short term, the existing site runoff will continue to be maintained and adequately accommodated through existing infiltration and drainage routes.

4 Proposed Sanitary Servicing

The site is currently serviced by a private septic system.

With the development of the site to a more intensive use, it is likely a municipal sanitary connection will be required. An existing municipal sanitary sewer system exist around the subject property as shown in Plate #4.

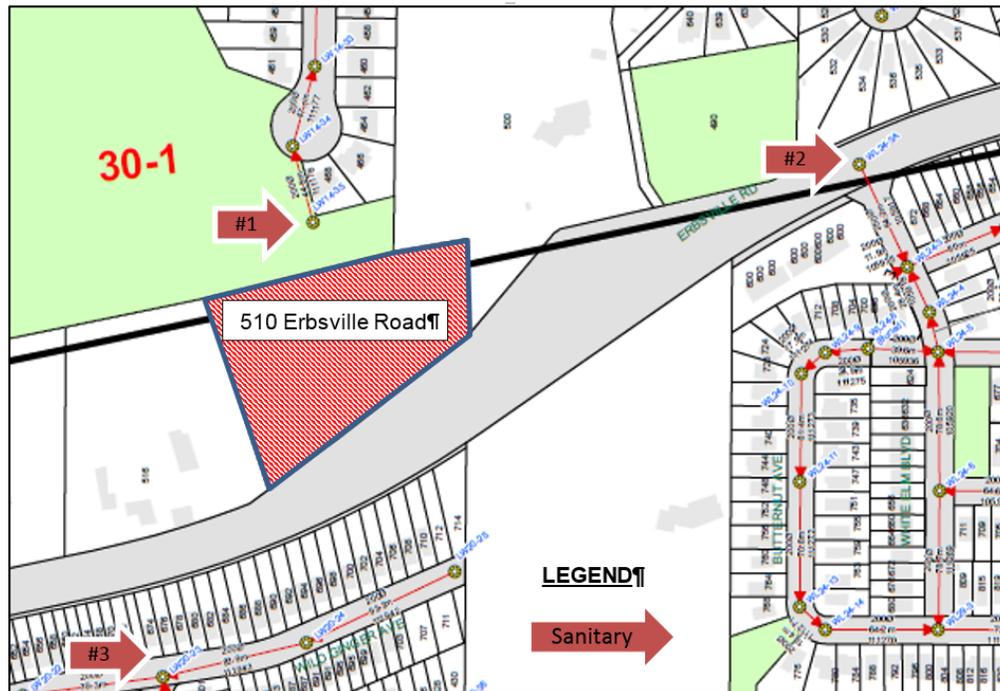


Plate #4: Municipal Sanitary

As shown in Plate #4, there are three potential locations that could be used by the site for sanitary discharge. These three locations are described as follows:

- **Location #1:** This location is closest in proximity to the subject property. It is located within a City owned block connected to Old Oak Drive. The existing City sanitary system would be extended from existing manhole LW14-35 and would be extended across the Old Oak Park (approximately 40m) to the subject property. Given the alignment of the proposed sanitary would cross a significantly vegetated area

(environmental areas), the sanitary sewer could be installed by trenchless methods to avoid impacts. There is an elevation change from the low side of the site (i.e., east side) to the existing manhole of approximately 2m and thus gravity servicing is feasible. Note, consideration should be made to extend the sanitary sewer within a municipally owned easement to Erbsville Road to allow other properties to be serviced in the vicinity of the subject property, and appropriate cost sharing of the sewer developed.

- **Location #2:** This location is at the intersection of White Elm Boulevard and Erbsville Road. The existing City sanitary system would be extended approximately 300m from this intersection (existing manhole LW24-3A) northward along Erbsville Road to the subject property. While the topography falls continuously from the subject property to White Elm Boulevard, the subject property falls away (eastward) from Erbsville Road to a lower elevation than the White Elm/Erbsville Road intersection. Accordingly, depending on the site layout of the subject property, it may not be possible to service all areas of the site by gravity.
- **Location #3:** This location is within the Laurel Creek subdivision on Wild Ginger Avenue. This location is not a feasible gravity outlet due to the significant elevation differential from Wild Ginger Avenue to the subject site (approx. 10m). This if this outlet was to be used, sanitary pumping and a forcemain would be needed.

On review of the above three outlet locations, we believe Location #1 is preferred and is a feasible outlet. Further, we understand that the purpose of the sanitary stub along the Old Oak Drive Block was to service the upstream lands, of which the subject property is a part.

However, regardless of the outlet location chosen, there are feasible municipal sanitary outlets for the subject property.

5 Proposed Water Supply & Fire Protection

Two 300mm diameter municipal watermains exists along each of the western and eastern sides of Erbsville Road (see Plate #5). A suitably sized water service lateral would be extended from one of the existing watermain to provide service to the subject site.

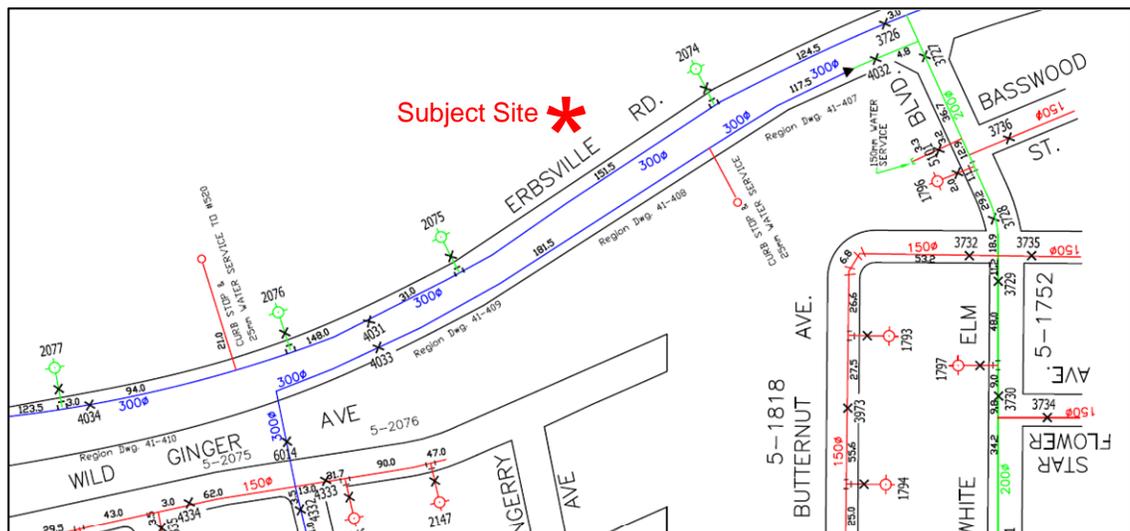


Plate #5: Municipal Water

6 Erosion & Sediment Control

During construction, erosion and sediment control measures will be required. Details of this control will be provided during the detailed engineering design and will include (as a minimum) the following:

- Silt fence erected around site perimeter before any work begins on the site to protect adjacent areas from migration of sediment in overland flow.
- A “mud mat” installed at the construction entrance(s) to the site to minimize the amount of sediment transported off site via construction vehicles.
- All disturbed areas should be stabilized as quickly as possible to minimize the opportunity for erosion.

7 Utilities

The various utilities (i.e., hydro, gas, cable and telephone) all have existing facilities adjacent to the site. Servicing of the development by the various utilities will be provided by the extension of these facilities.

It is anticipated that each of these utilities will, as required, identify their specific requirements through the standard application circulation, review and design process.

8 Summary

The development will be graded to properly match into the existing topography around the site. Further, the site will be serviced via the existing municipal infrastructure (i.e., sanitary, storm and water). Finally, stormwater management controls will be implemented to control stormwater discharge from the site (both quantity and quality).

Accordingly, this Preliminary Functional Design Report demonstrates that the proposed development can be designed and constructed in accordance with municipal standards.

All of which is respectfully submitted.

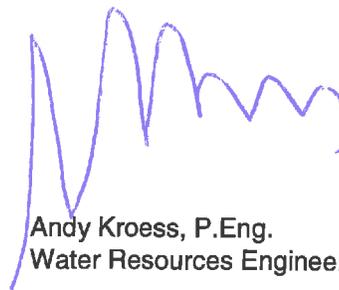
Yours truly

IBI GROUP



John Perks, MBA, P.Eng.
Associate Director

JP/AK/baw



Andy Kroess, P.Eng.
Water Resources Engineer