Civil and Municipal Engineering

ARK Engineering and Development

Serviceability Brief:
Water, Sewage, Grading and Stormwater

Plan 4M-1398 - Blocks 65, 64 and 63
Greely Village Centre
Ottawa (Greely), Ontario

Prepared For
Greely Family Farm Inc.

July 2013

Revised: November 2018

ARK Engineering and Development

Consulting Engineer
2343 Lorraine St.
Rockland, Ontario

Tel: (613) 858-6443
ARKEngineering@rogers.com

WATER, SEWAGE, GRADING AND STORMWATER

SERVICEABILITY BRIEF

TABLE OF CONTENT

SERVICEABILITY BRIEF

1.0 BACKGROUND

1.1 General

The proposed site plan situated on Blocks 65, 64 and 63 with the Water's Edge Subdivision 4M-1398 consists of approximately 0.858ha and is located on the Eastern side of the intersection of Village Centre Place and Vista Villagio St. (refer to the location map SK-1 in appendix A). The proposed site plan will consist of approximately a 20,000ft^2 professional building and a 6,000ft^2 retail building. These will be serviced by an existing private sanitary sewer and well along with existing roadside drainage ditches.

1.2 Existing Services

This area of commercial development in Greely has no City sanitary and watermain to service this proposed site plan on Blocks 65, 64 and 63. The proposed sanitary and water service will be privately owned. As for the storm service the existing roadside ditches will serve as an outlet for this development.

An internal Road Network as shown on the location map in Appendix A, will provide this site plan with one main connection access point from Bank St. An alternate access is located off of Parkway Rd.

All utilities (Hydro, Bell Cable and Gas) are available and have been installed up to the property line.

2.0 PROPOSED SERVICES

2.1 Water Supply

As previously mentioned, these buildings will have their own individual wells in order to supply domestic water. Block 65 has an existing well which was drilled by a licensed water well contractor and its construction method was in accordance to the approved Hydrogeological report, prepared by Paterson Group. Any other required wells to service the buildings will have to adhere to the approved Hydrogeological recommendations which are registered on title for these properties.

2.2 Sewage

The entire commercial development will be serviced by an exisitng private sanitary sewage treatment facility and an existing underground gravity sewer system all in accordance to MOE reference #2418-AVJRJ5.

2.3 Stormwater Management

The following is to demonstrate that the proposed site plan application for 7586 Village Center Place meets the SWM criteria previously approved in the J.F Sabourin report SWM Pond Design Brief – Commercial Phase Ultimate Conditions.

It is important to note, that the subject land (Blocks 65, 64 and 63) on the Registered Plan of Subdivision 4M-1398 – Water's Edge Subdivision was clearly included in all of the subdivision reports.

On Figure 4b, of the approved J.F. Sabourin report (refer to Appendix A for Figure 4b, shown as Block 3, 5 and 6), the author applied an impervious value of 79% for entire rural commercial area identified as C2. Applying a total impervious of 79% is a conservative approach in calculating runoff generated by different storm events for commercial development since it assumed a weighted runoff coefficient of C=0.75. The Tables 1 and 2 summarizes the modeled/approved conditions vs the proposed conditions of the imperviousness for these Blocks.

Table 1: Modeled Impervious for Block 65, 64 and 63

Hard (m^2)	Soft (m^2)	Area (m^2)
-	-	8,579
Runoff Coefficient		**0.75**
Total Impervious		**79.0%**

Table 2: Proposed Impervious for Block 65, 64 and 63

Hard (m^2)	Soft (m^2)	Total (m^2)
5,364	3,215	8,579
Runoff Coefficient		**0.64**
Total Impervious		**63.0%**

As shown above, once developed these blocks will still yield a "total impervious" below the value of 79% applied in the modeling. Thus, this will have no impact on stormwater management, since the ditches and pond have been designed and sized to accommodate this portion of the development.

2.4 Site Grading

The installation of concrete curbs in a rural development which has no underground storm sewer as an outlet will definitely create problematic ponding areas especially in the vicinity of the depressed curb outlets where snow will block these outlets during the freeze thaw cycles in Winter/Spring. This ice built-up and unwanted ponding runoff will be become a safety hazard to the public. Therefore, in order to properly grade this site and to provide multiple drainage outlets via overland sheet drainage to all four corners of the site, no concrete curb are proposed along the perimeter of the parking. This will allow for runoff to simply sheet drain on a larger surface

This will allow for the surface runoff to drain away from the curbs and will promote infiltration/percolation as it reaches the edge of the asphalt onto the sodded or landscaped surface areas instead of concentrating all the precipitation towards narrow depressed curbs.

That being said, a Geotechnical investigation for this proposed site has been conducted which states that grade raises up to 1.5m would be permissible, which would in turn prevent any future possible settlement.

3.0 CONCLUSION

From the above statements the following can be concluded:

i) This entire site can be serviced as proposed above.
ii) The buildings will be serviced by a private sanitary sewer and well.
iii) The proposed site will drain overland towards the existing roadside ditch which ultimately discharges into an existing SWM pond which will provide adequate protection to the site and the environment.
iv) The Geotechnical report revealed a permissible grade raise of up to 1.5m.

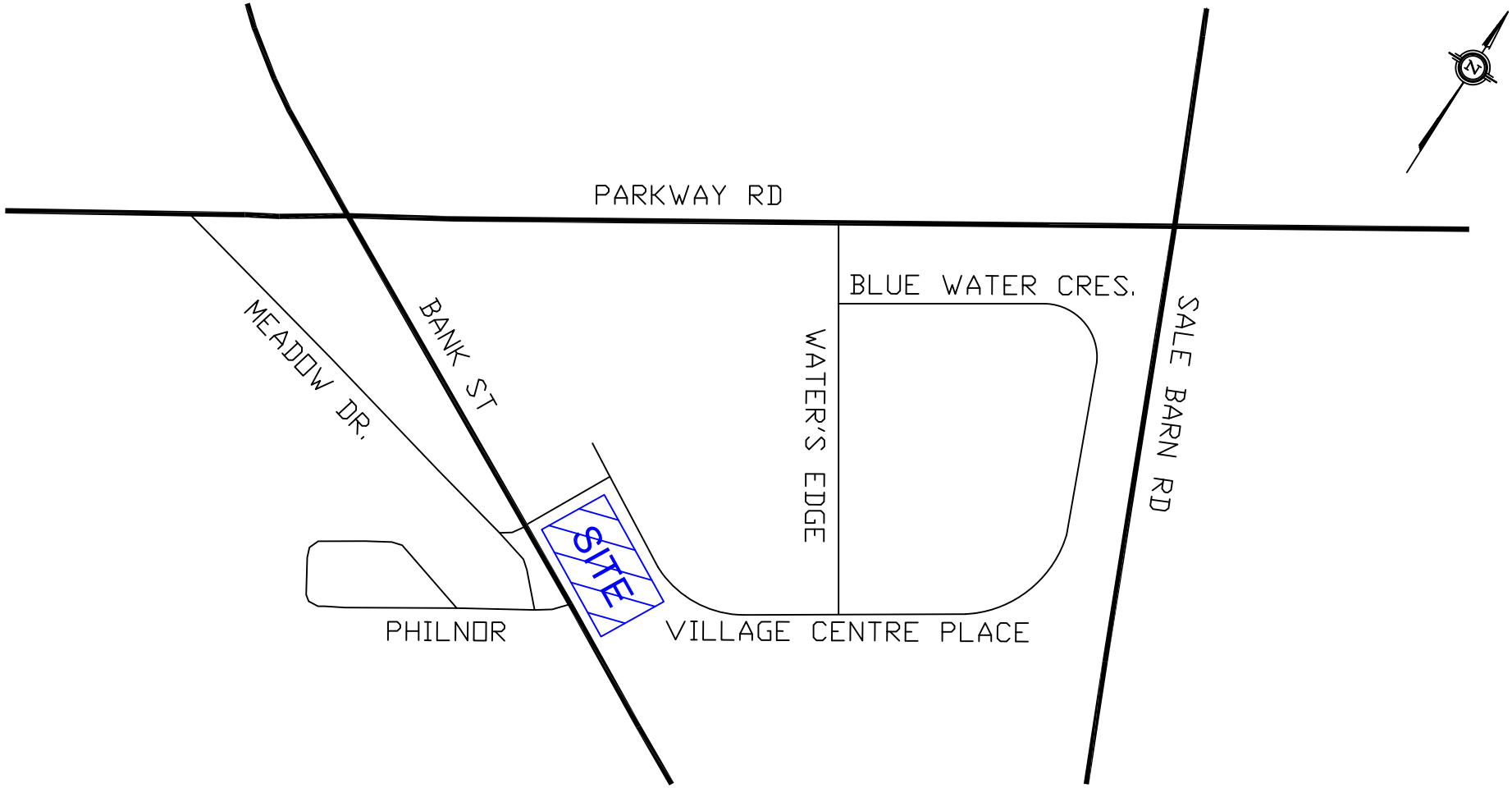
Prepared by:

ARK Engineering and Development

Daniel Payer, P.Eng.
President

APPENDIX "A"

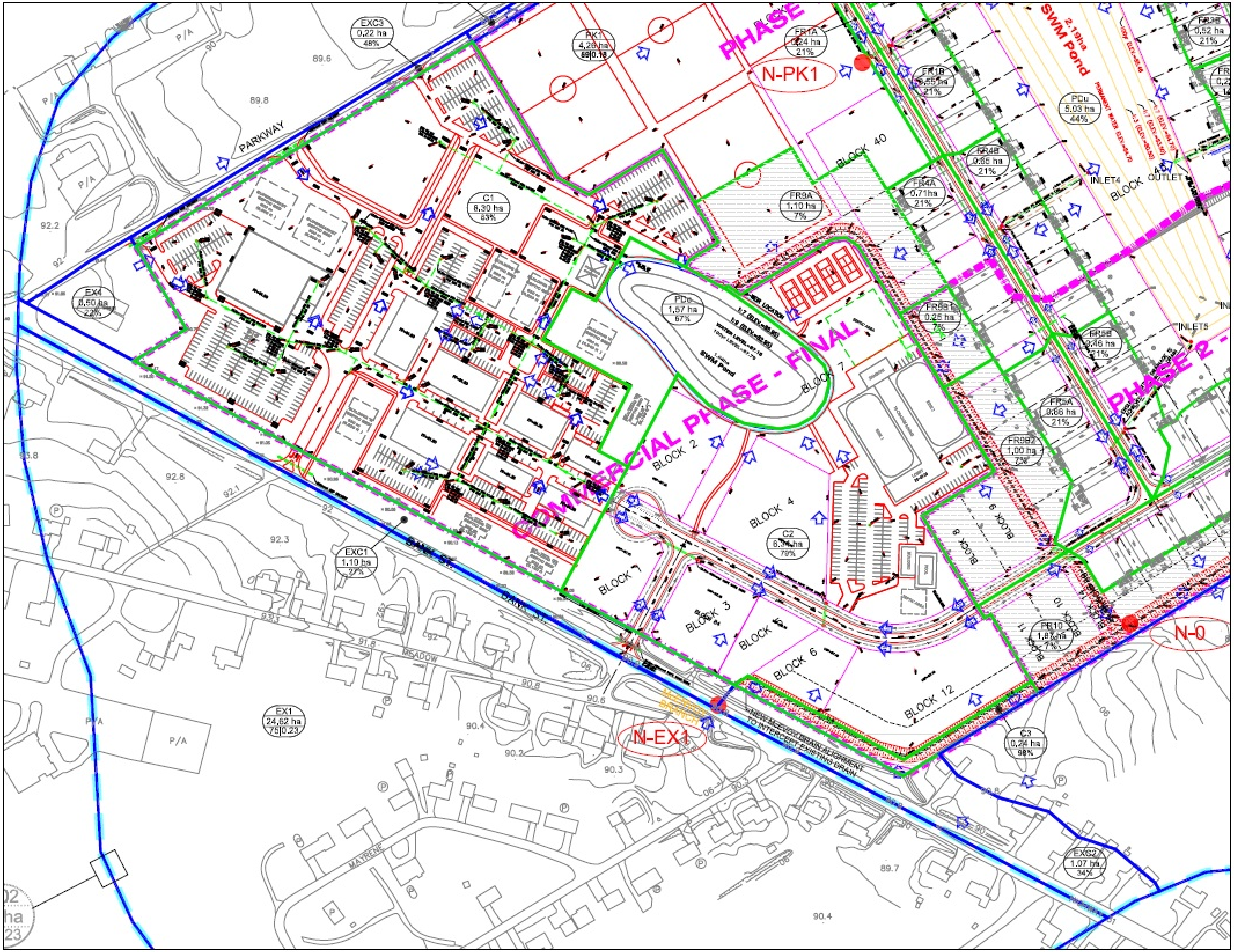
SK-1	Location Map
Figure 4b	Greely/Shields Creek Stormwater and Drainage



LOCATION MAP

CITY OF OTTAWA - Formerly TOWNSHIP OF OSGOODE

Completed By:	Drawing No.:
ARK ENGINEERING AND DEVELOPMENT	SK-1
Scale: NTS / Date: JUL 2013	



LEGEND :

SW3 / 2.68 ha / 30%	Subwatershed ID; Subwatershed Area; Total Imperviousness
SW4 / 15.67 ha / 75 | .85	Subwatershed ID; Subwatershed Area; Time to Peak (hrs); CN
	Subwatershed delineation
	Phase limits
	Proposed subwatershed delineation
	Proposed pond outline
	Overland flow direction
	Node
N-EX2	Node ID
	Uncontrolled areas

NOTE :
All base information provided by Atrel Engineering Inc.

N

Scale : 1:1250

0 25 50 75 100 125 m

BY : JFSA inc. WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS

CLIENT : ATREL Engineering Ltd. Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G3
TEL: (613) 446-7423 FAX: (613) 446-7425

PROJECT :
GREELY VILLAGE CENTRE - OTTAWA

No.	BY	DATE	DESCRIPTION	BY

TITLE :
PROPOSED DRAINAGE CONDITIONS
COMMERCIAL PHASE - DETAIL

FIGURE 4b

DESIGNED:	
DRAWN:	JAVA
VERIFIED:	JAVA
APPROVED:	JAVA
DATE:	PROJECT No.
Dec/06	607-07

DRAWING REF.:
[illegible]