Civil and Municipal Engineering

ARK Engineering and Development

Serviceability Brief

Proposed 73 Lot Development
Emerald Subdivision
Ottawa (Greely), Ontario

Prepared For
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SERVICEABILITY BRIEF

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APPENDIX "A"

SERVICEABILITY BRIEF

1.0 BACKGROUND

1.1 General

The subject property encompasses a total area of approximately 35.03 hectares (86.56 acres) and is located within the Western limits of the existing Village of Greely, Ontario on Parts of Lot 3 and 4, Concession 3, just West of Stagecoach Rd. and south of Mitch Owens Rd. (see location map SK-1).

The average minimum lot size for each of the proposed lots has been assigned at approximately 0.40 hectares (1.0 acres) with a total of 73 lots. Permissible minimum lot size within the former Village of Greely, as referenced by the City of Ottawa Official Plan is set for this site at 0.40 hectare (1.0 acre).

It is proposed that the subdivision will be serviced by individual onsite wells and wastewater treatment systems. This form of servicing is consistent with the established hierarchy prescribed in Section 1.6.6.4 of the Ontario Provincial Policy Statement and is consistent with the established development within the Village of Greely and surrounding rural areas.

1.2 Existing Services

This area of development in Greely has no existing sanitary, watermain and storm sewers to services this proposed subdivision. Therefore, this rural development will be constructed as follows:

- All dwellings will have their own:
    1. wells for domestic water usage
    2. septic systems for sewage treatment

- Roadside ditches and culvert crossings will be proposed and sized to accommodate the 10yr storm as a minimum to drain the lots and roads

- Two stormwater management ponds are proposed to ensure that the pre to post conditions of the site are respected after development.

- An internal Village Road Network as shown in the Village of Greely Community Design Plan, Schedule “C” is being considered which will provide this subdivision with three connection access points, one by Fox Valley Rd., the second by Jack Pine Crescent and the third by Green Links Way.

- Hydro, Bell, Cable and Gas will be circulated and their layouts/designs will be incorporated into a Composite Utility Plan.

2.0 PROPOSED SERVICES

2.1 Water Supply

As previously mentioned, all dwellings will have their own individual wells in order to supply domestic water. These wells will have to be drilled by a licensed water well contractor and its construction method will have to be in accordance to the approved Hydrogeological report which is being prepared by Gemtec. Once the well is drilled, a water well record shall be provided to the homeowner and submitted to the Ministry of Environment.

2.2 Sewage

Since no sanitary sewer pipes are available for this area, septic systems for every dwellings are proposed which is typical in a rural setting. The septic system designs must be submitted and approved by the Ottawa Septic System Office in order to obtain a sewage system permit for its installation.

2.3 Stormwater Management

The SWM report will have to be written/designed in conjunction with the approved Stantec Consulting Ltd: "Greely/Shields Creek Stormwater and Drainage Study", 2002 and Shields Creek Subwatershed Study 2004 which fall within the Middle Castor River Subwatershed.

In order to meet the MOE quality and quantity control criteria, a Stormwater Management Pond (SWM) is required. The existing site topography gently slopes from East to West. Although the study is still at a preliminary stage, the most probable pond locations will be as shown on the sketch SK-2. A centralized and south-western ponds are proposed since it will intercept runoff which currently drains from the East to West. This drainage pattern will also be respected during the final design.

The south-western pond outlet will be via a City of Ottawa drainage easement from an approved open ditch within the adjacent subdivision (Refer to Appendix "A" – GP-8 Emerald Links Phase III) which ultimately discharges into Grey's Creek. An overall drainage area delineation is shown on SK-2.

The purpose of the SWM will be to undertake the necessary hydrological analyses:

i. to evaluate the existing drainage conditions of the subject site and nearby watercourse,
ii. to size the proposed wet pond and configure the outlet control structure to provide the required controls. The need to provide quality control is secondary as much of this will be provided by the grass ditch drainage system,
iii. to document the hydraulic operation of the pond.

The following are some Design Objectives and Criteria which will be analyzed:

i) Stormwater will be restricted to ensure that the peak rate of runoff from the site does not exceed the allowable release Pre to Post flows after development.
ii) Summer design storms: 4 hour Chicago and 24 hour SCS Type II distributions for 2 to 100 year storms (for quantity control) based on the updated City of Ottawa Design Guideline IDF curves.
iii) Quantity control from the proposed SWM pond is to maintain future peak runoff flows, on the receiving watercourses, to existing levels or lower for the 2 year to 100 year design storms.
iv) Quality control from the proposed SWM pond is to provide 80% long-term suspended sediment removal, described as "Enhanced" protection level.
v) The pond's extended detention volume (for quality control purposes) is to be released over a minimum period of 24 hours.

2.4 Site Grading

Preliminary findings indicate that grade raises up to 1.5m would probably be required in some areas in order to service the lands in question. That being said, a Geotechnical investigation for this proposed site has been conducted which states that grade raises up to 3.0m would be permissible, which would in turn prevent any future possible settlement.

The Macro grading plan is also included on SK-2 illustrating the overall intent in terms of proposed grades and drainage scheme for this development.

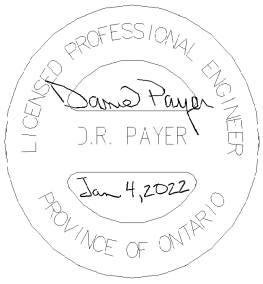
3.0 CONCLUSION

From the above statements the following can be concluded:

i) This entire site can be serviced as proposed above.
ii) All dwelling are to be serviced on private wells and septic systems.
iii) The proposed subdivision will be drain towards two proposed SWM ponds which will provide adequate protection to the site and the environment.
iv) The Geotechnical report determined the permissible grade raise of up to 3.0m.

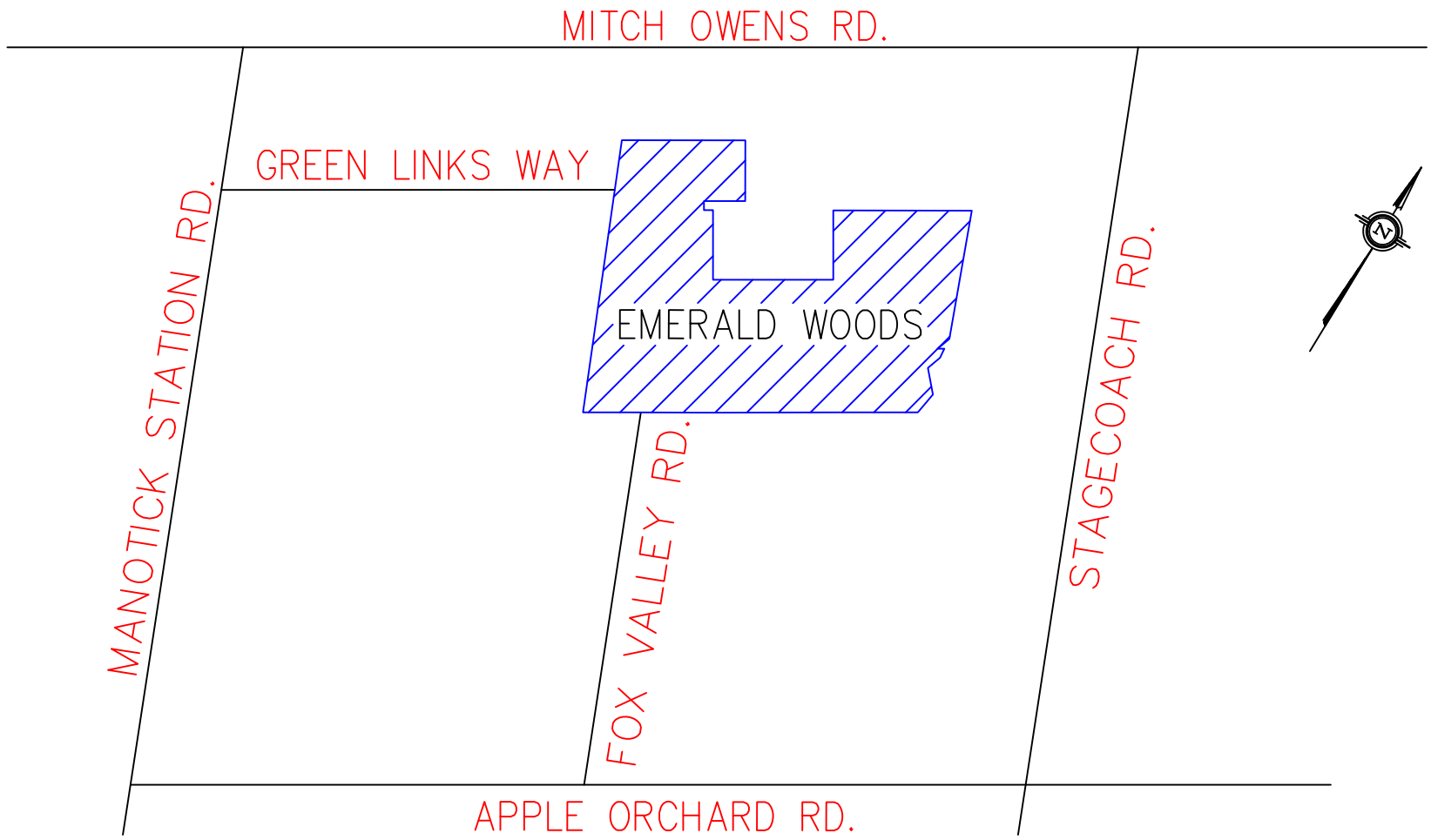
Prepared by:
ARK Engineering and Development

Daniel Payer, P.Eng.
President



APPENDIX "A"

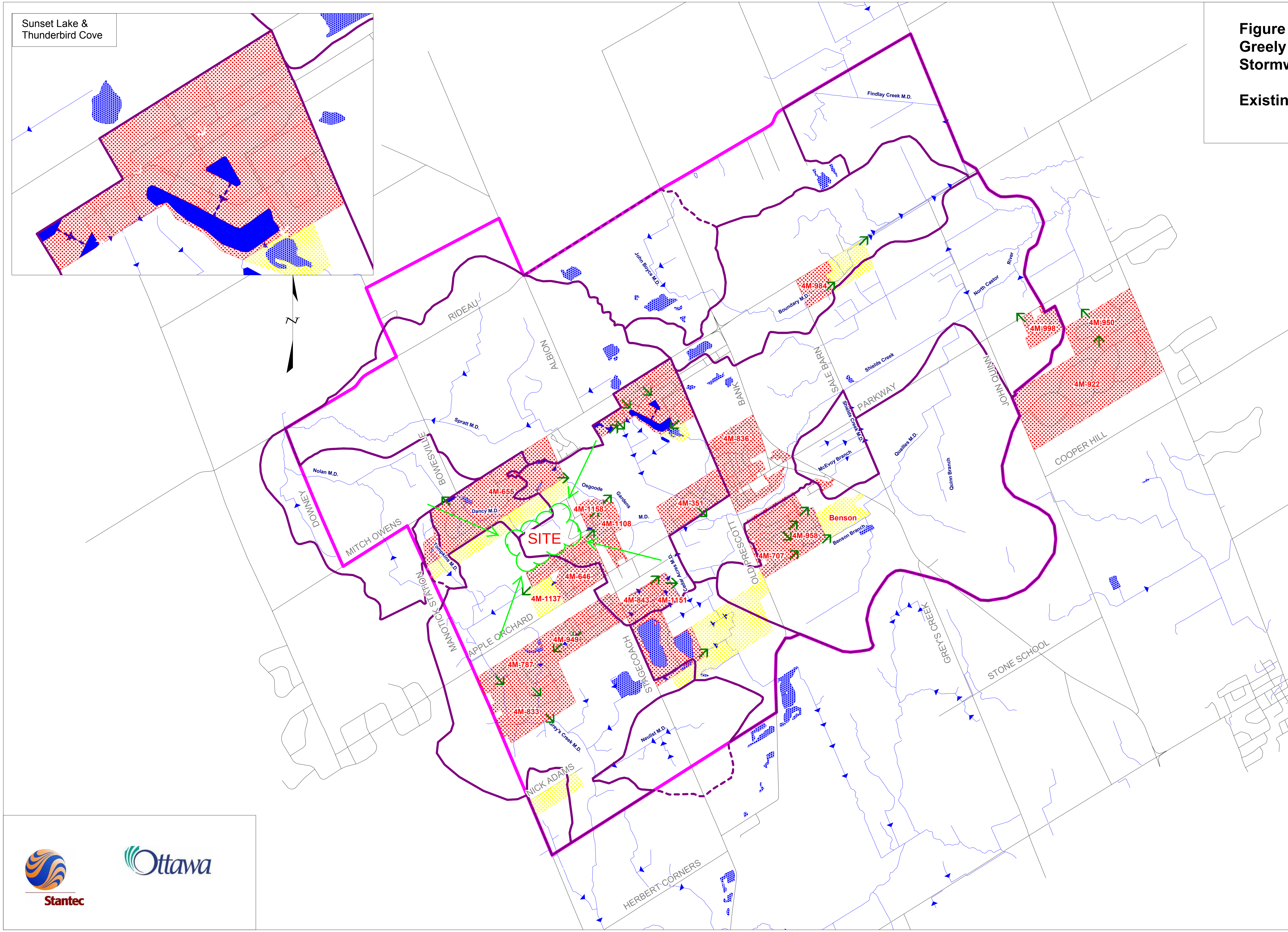
SK-1 - Location Map
Figure 4.12.1 - Greely/Shields Creek Stormwater and Drainage Study
SK-2 - Storm Drainage and Macro Grading Plan
GP-8 – Emerald Links Phase III



	LOCATION MAP CITY OF OTTAWA - Formerly TOWNSHIP OF OSGOODE	Completed By: ARK ENGINEERING AND DEVELOPMENT Scale: 1:6000 / Date: JUNE 2021	Drawing No.: SK-1

Figure 4.12.1
Greely / Shields Creek Stormwater and Drainage Study

Existing Drainage Conditions



Sunset Lake & Thunderbird Cove
N
SITE
RIDEAU
ALBION
BANK
SALE BARN
PARKWAY
JOHN QUINN
COOPER HILL
BOWESVILLE
DOWNEY
MITCH OWENS
MANOTICK STATION
APPLE ORCHARD
STAGECOACH
OLD PRESCOTT
GREY'S CREEK
STONE SCHOOL
NICK ADAMS
HERBERT CORNERS
Findlay Creek M.D.
John Boyce M.D.
Boundary M.D.
North Castor River
Shields Creek
Spratt M.D.
Nolan M.D.
Dancy M.D.
Osgoode Gardens M.D.
Tompkins M.D.
McEvoy Branch
Qualtiles M.D.
Quinn Branch
Benson
Benson Branch
Grey's Creek M.D.
Neulist M.D.
4M-984
4M-998
4M-950
4M-922
4M-836
4M-351
4M-655
4M-1158
4M-1108
4M-646
4M-1137
4M-958
4M-707
4M-843
4M-1151
4M-949
4M-787
4M-833

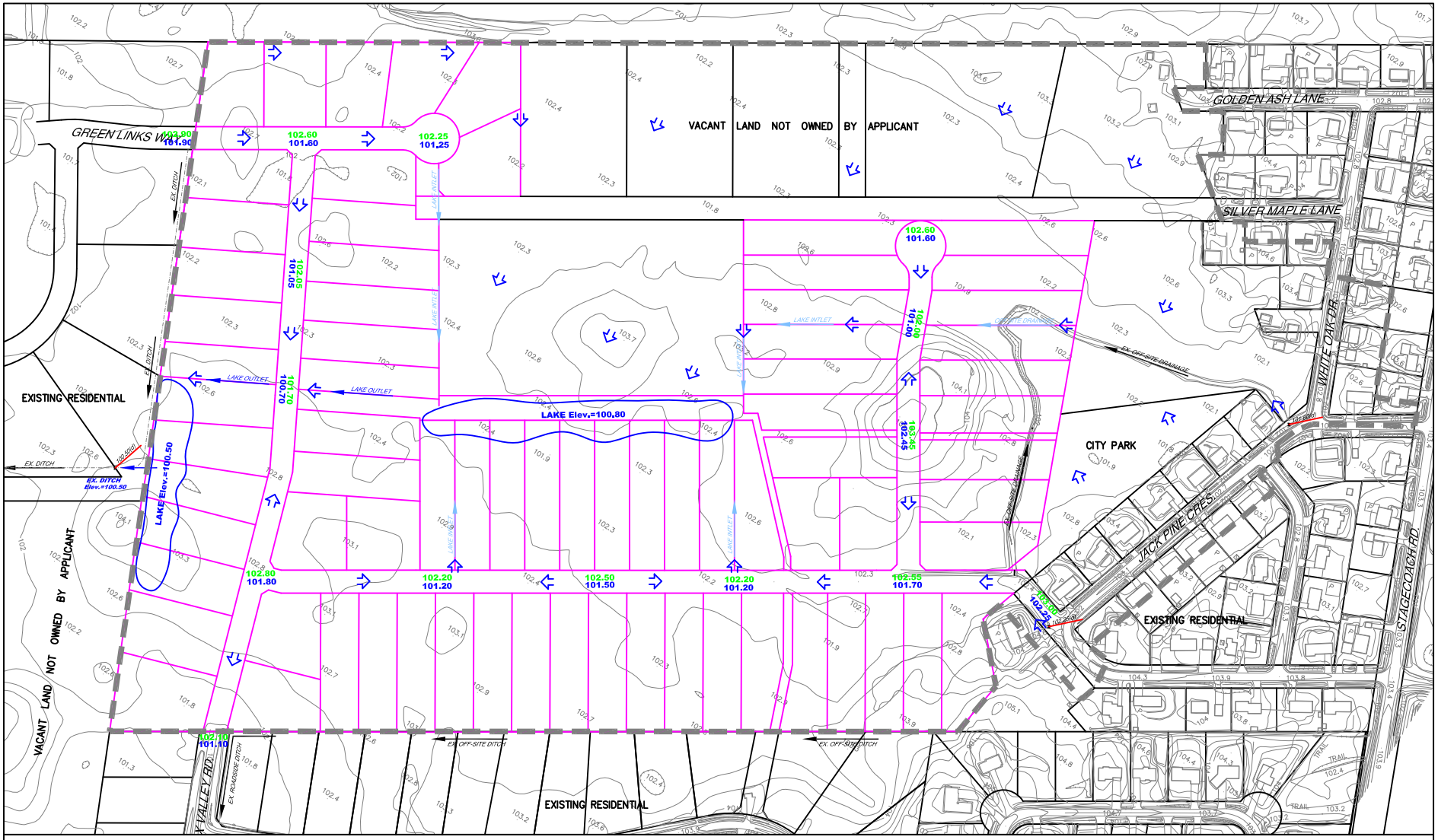
Subdivision by Status

- Draft Approved
- Registered
- Subdivision Outlet
- Water Course
- Pond
- Culvert
- Storm Water Management Pond
- Drainage Basin
- Sub-Drainage Basin
- Study Area

SCALE 1:50000

Stantec

Ottawa



LEGEND:

MAJOR SYSTEM DRAINAGE

DRAINAGE AREA BOUNDARY

100.50(d) EXISTING DITCH ELEVATIONS

102.55 / 101.70 PROPOSED CENTER LINE OF ROAD ELEVATIONS / PROPOSED ROADSIDE DITCH ELEVATIONS

STORM DRAINAGE AND MACRO GRADING PLAN

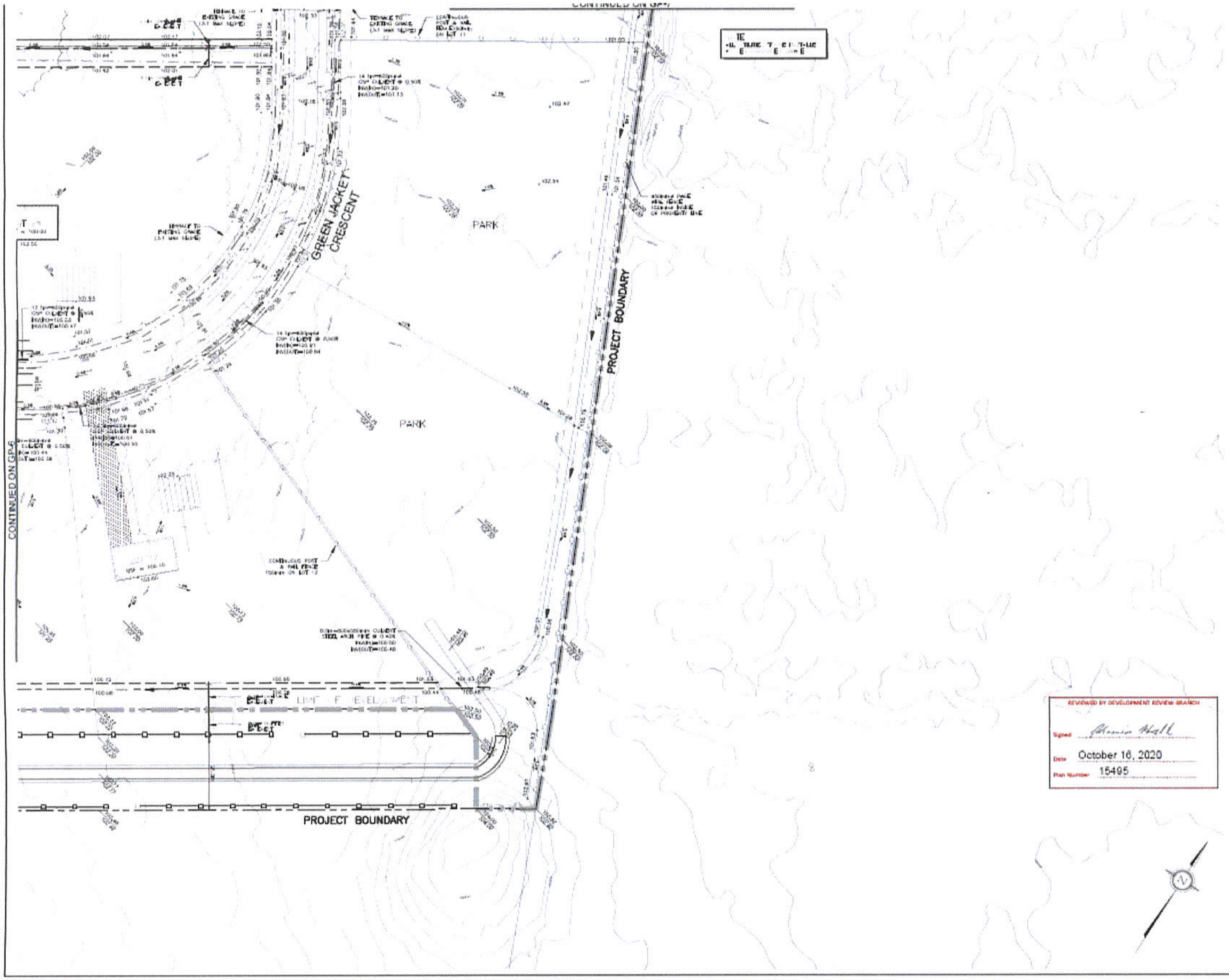
CITY OF OTTAWA - Formerly TOWNSHIP OF OSGOODE

Completed By: ARK ENGINEERING AND DEVELOPMENT

Scale: NTS

Date: JUNE 2021

Drawing No.: SK-2



TOPOGRAPHIC INFORMATION

DRAFT PLAN OF SUBDIVISION

GEOTECHNICAL STUDY

SITE SERVICING AND STORMWATER MANAGEMENT STUDY

BENCH MARK

REVIEWED BY DEVELOPMENT REVIEW BRANCH

Signed: [signature]

Date: October 16, 2020

Plan Number: 15495

PROJECT No. 15-833

GRADING PLAN

EMERALD LINKS PHASE III - CASTOR CREEK

EMERALD LINKS GOLF AND COUNTRY CLUB

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Greely, Ontario, K4P 1M4
Tel: (613) 850-5466

DSEL

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GP-8

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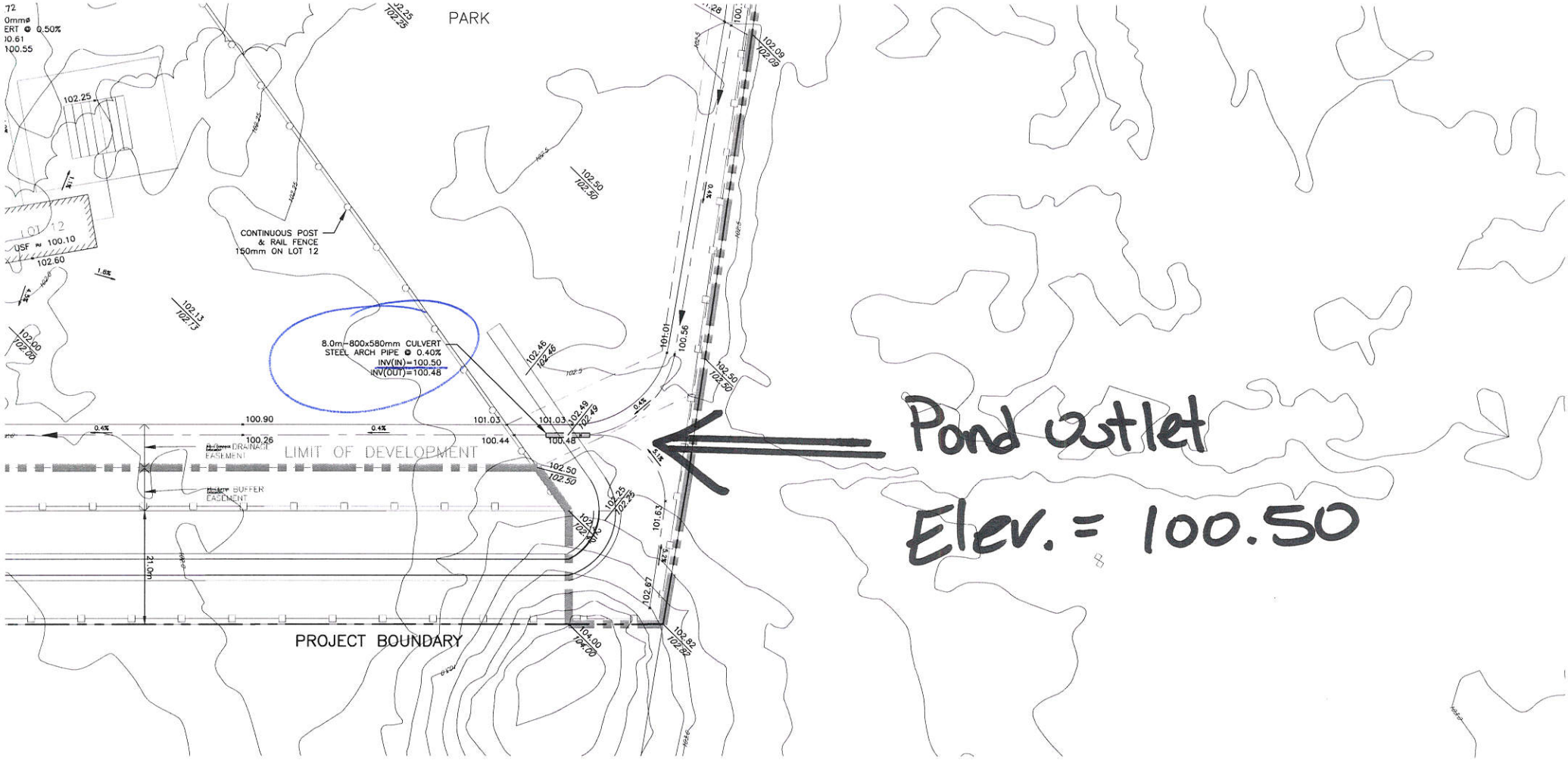
PARK
CONTINUOUS POST
& RAIL FENCE
150mm ON LOT 12
8.0m-800x580mm CULVERT
STEEL ARCH PIPE @ 0.40%
INV(IN)=100.50
INV(OUT)=100.48
LIMIT OF DEVELOPMENT
DRAINAGE EASEMENT
BUFFER EASEMENT
21.0m
PROJECT BOUNDARY
Pond outlet
Elev. = 100.50