BASE 31: ELECTRICAL NEEDS STUDY

343 COUNTY ROAD 22
PICTON, ON

DATE:

SEPTEMBER 5, 2023

PROJECT:

CE-5492

BASE 31: ELECTRICAL NEEDS STUDY

343 COUNTY ROAD 22,
PICTON, ON

CLIENT:

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INTRODUCTION

Callidus Engineering has been retained by PEC Community Partners to provide a high-level analysis of the electrical service required to serve the multi-use development proposed at the Base31 site located within Prince Edward County, Ontario. As the development continues to progress this analysis will be updated to include the results of preliminary electrical load calculations from Hydro One based on the land uses.

The purpose of this analysis is to provide a basic understanding of the expected loads that will be included in each phase of the proposed development as well the total load for the development. The anaysis will also outline the contestable and non- contestable work as well as an order of magnatude of the estimated associated costs. This report will continue to be updated as the development's design and coordination with Hydro One continues.

The information included in this report is based on meetings, phone calls, and information provided to us by the PEC team, an area concept plan produced by Sasaki dated June 2023, and limited information provided by Hydro One as of the date of this report.

PROPERTY DESCRIPTION

The proposed development has a total site area of 750 acres and is comprised of the revitalization district and multiple villages. Refer to Figure 1 below. The villages will offer a mix of housing types including apartments, townhouses, and detached homes. Throughout the villages there will be retail stores, restaurants, places of work and community amenities. The development will be constructed with a phased approach over decades.

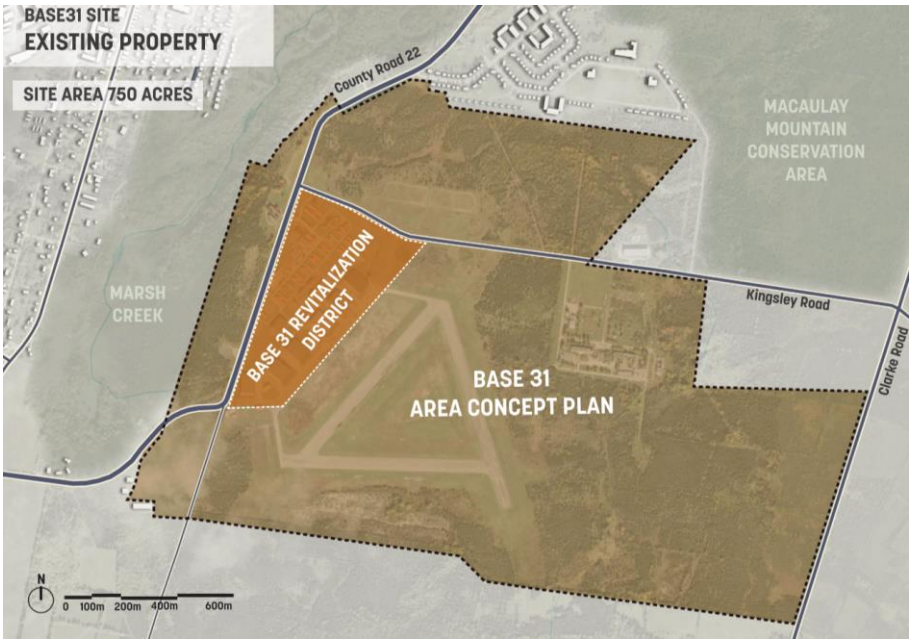

Figure 1: Base31 Concept Plan

TECHNICAL PROCESS & STANDARDS

Hydro One is the electricity transmission and distribution service provider in Prince Edward County and responsible for the distribution upgrades that will be required for this development. Hydro One will be the primary driver of the technical evaluation, calculations, and design of any distribution upgrades associated this development. Furthermore, Hydro One will install and own all distribution systems.

As such, the entire design and installation must comply with Hydro One standards and requirements under regulation by the Ontario Energy Board. All developer-owned infrastructure including developer-owned transformers and secondary services must comply with the Ontario Electrical Safety Code under regulation and review by the Electrical Safety Authority.

Finally, the schedule and advancement of the technical process is contingent upon Hydro One's availability and their internal prioritization of projects. All costs associated with Hydro One's scope of work will be set by Hydro One directly and are not negotiable.

HYDRO ONE COMMUNICATION & STATUS OF DESIGN

Callidus Engineering has been in regular communication with Hydro one since December 2022 to determine a servicing plan for the development. We anticipate the servicing plan will be organized and implemented in alignment with the phased approach of the development.

A representative from Callidus Engineering met on site with Hydro One's local department, technicians, as well as the subdivision group to discuss the development in order to determine next steps. Callidus has currently provided all required documentation and information to Hydro One's Subdivision planning department to begin their internal planning process and start a servicing plan.

During the site meeting, Hydro One noted that there is currently not sufficient capacity in the vicinity to accommodate the proposed development. Hydro One's servicing plan will include details to upgrade their existing infrastructure in the area to provide the necessary capacity to serve the development's electrical needs. Hydro One will also layout their requirements within the development to service the various villages including transformers, substations, underground distribution, etc. Their servicing plan will outline the required contestable and non- contestable work as specified below.

HYDRO ONE: CONTESTABLE WORK AND NON-CONTESTABLE WORK

Electrical work for subdivisions is made up of the following components:

- Contestable work is the portion of work that may be performed by the developer, a contractor engaged by the developer, or by Hydro One.
- Non-contestable work is the portion of work which must be performed by Hydro One at the developer's cost.

- All civil work and trenching associated with both the contestable and non-contestable work is the developer's responsibility.

This these options for the distribution of work and responsibilities, there are two options to proceed:

Option A

Hydro One completes both the contestable and non-contestable work. Hydro One will supply all material and labour for the installation of the electrical distribution system. This option takes advantage of Hydro One's experience in meeting the technical requirements of system development and the fact that Hydro One has all the necessary equipment to do the job right and according to their own standards.

Option B

The developer completes the contestable work. The developer may have a contractor perform this work on their behalf provided they obtain Hydro One approval before retaining the contractor. With this option, the developer will supply all materials for the completion of the work.

DESCRIPTION OF CONTESTABLE WORK:

Hydro One or developers and their contractors can perform this work.

For Underground Lines (including submarine):

- Supply and install primary and secondary cables.
- Install secondary splices.

For Overhead Lines:

- Install new poles, primary and secondary conductor, guys, and anchors.
- Install primary and secondary framing.
- Install grounding (plates and rods).

DESCRIPTION OF NON- CONTESTABLE WORK:

Hydro One must perform this work at the developer's cost.

For Underground Lines (Including submarine):

- Perform make-ready work on Hydro One existing facilities (dip pole, existing transformer, or kiosk).
- Termination of all primary and secondary cables within the Electrical Distribution System.
- Supply and install transformers and kiosks including inserts, elbows, insulating caps, arrestors, and feed through.
- Supply and install kiosks including insulating caps.
- Install numbering, signs, locks, and phase markings on transformers and kiosks.

- Connection of grounds to transformers and kiosks.
- Supply and install switching or isolation of our existing facilities.
- Perform inspection.

For Overhead Lines:

- Perform make-ready work on Hydro Ones existing facilities.
- Termination of primary cables at transformer and switch locations.
- Termination of secondary cables transitioning to underground within the system.
- Supply and install transformers and transformer framing.
- Supply and install switches.

DESCRIPTION OF CIVIL WORK

The developer will perform the following civil work, at their own expense in accordance with Hydro One applicable specifications and standards.

For Underground Lines:

- Excavate trenches.
- Supply and install complete duct banks as specified on drawing.
- Supply and install sand padding with masonry sand.
- Supply and install pre-cast concrete vaults and backfill.
- Supply and install bollards if specified by our team in the design of the system.
- Supply and install grounding (rods).
- Supply and install a crushed stone base for transformers and kiosks.
- Supply and install road crossing ducts (including road cuts and bores) complete with pull rope and caps for spares.
- Perform any other civil work identified in our applicable specifications and standards.
- All forestry work outside of operating clearances around existing lines.

For Sub-Cable Work (In addition to requirements for underground lines):

- Install poured pads (when specified on drawing) in accordance with Hydro One Standard DU-06-302
- Supply and install pre-cast concrete vaults and/or aluminum vaults
- Install grounding (rods or plates)
- Install masonry sand padding and crushed stone
- Perform any other civil work identified in Hydro One applicable specifications and standards
- All forestry work outside of operating clearances around existing lines.

CLOSING REMARKS

While initial communication and coordination with Hydro One remains on-going and the sub-division distribution design work has not yet commenced, the level of engagement and support from Hydro One indicates that they are committed to providing adequate power for the electrical demand of this development.

As of September 5, 2023, this report is draft only until further technical and scheduling information can be provided by Hydro One.

Any questions regarding the information contained within this report can be directed to the report authors via the phone number listed on the cover page.

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