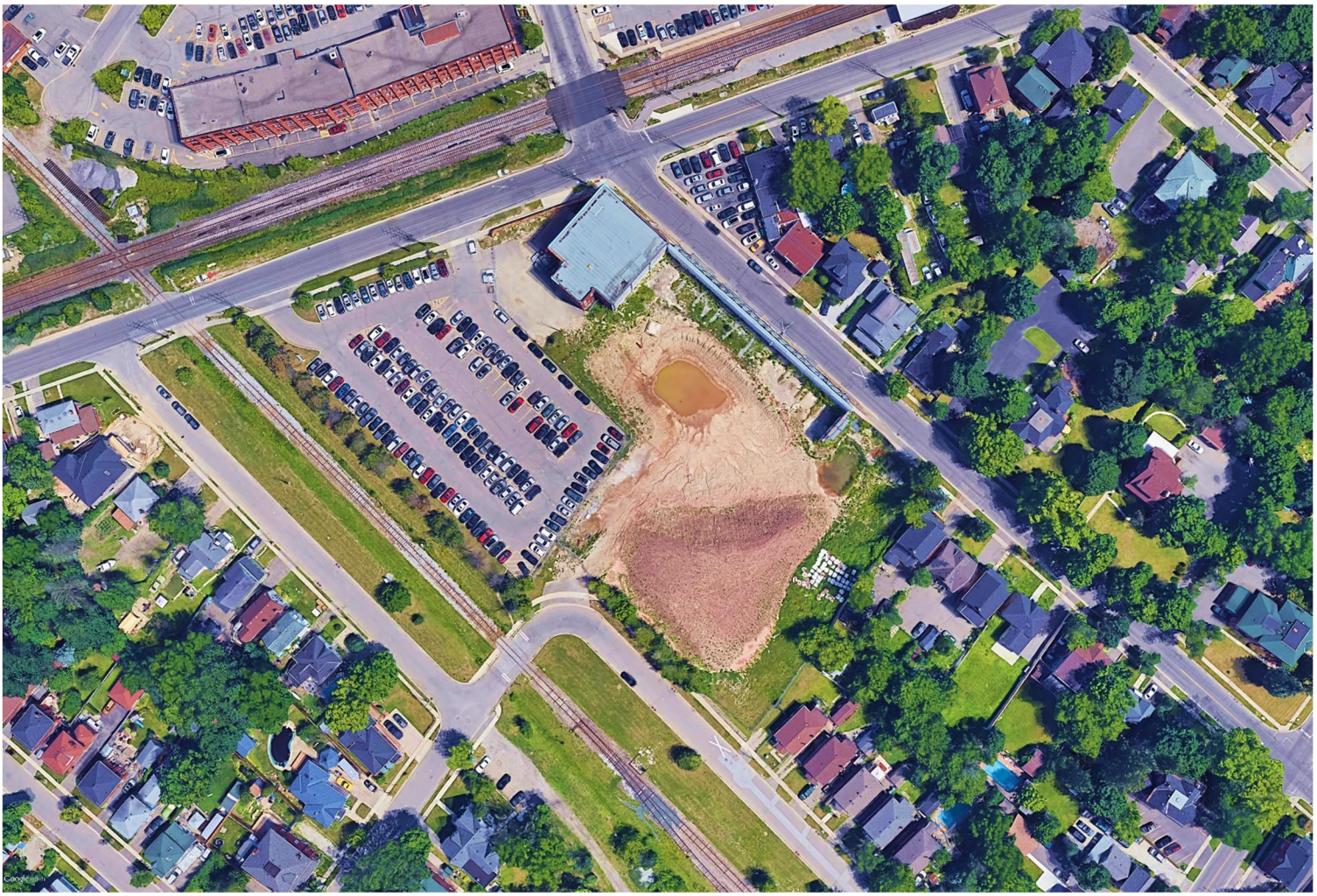
Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

REPORT

City of Brampton

Street Lighting Design
Denison Avenue Extension
Between Park Street and Mill Street



NOVEMBER 2019

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1 INTRODUCTION

The City of Brampton requested that Associated Engineering complete a lighting assessment to add street lighting for the proposed Denison Avenue extension. The scope of the project includes approximately 100m of local roadway connecting Park Street and Mill Street.

2 ANALYSIS

A photometric analysis for this project, was prepared based on the following assumptions:

- The extension (and surrounding streets) were considered as local streets.
- The extension (and surrounding streets) were considered medium pedestrian conflict areas (11-100 people average annual peak hour of darkness, typically between 6-7 p.m.)
- Existing hydro poles and proposed lighting poles will be used for placing luminaires.
- Mounting height of luminaires will be 7.62m/25ft (standalone pole mounted).
- GE Evolve LED Roadway Streetlight – ERL1 (8000 lumen) fixtures/IES files has been used for all photometric analysis, based on previous projects completed for the city

2.1 Denison Extension

The following tables compare the resulting lighting levels of the proposed fixtures, with the recommended levels under RP-8-14 for roadways.

Table 2-1: Recommended RP-8-14 Luminance Values for Proposed Roadway

Area	Min. Lavg cd/m2	Max. Lavg / Lmin	Max. Lmax / Lmin
Denison Extension (Local – Medium Pedestrian Conflict)	0.5	6.0	10.0

Table 2-2: Calculated Luminance Values for Proposed Roadway (Medium Pedestrian Conflict Area)

Area	Min. Lavg cd/m2	Max. Lavg / Lmin	Max. Lmax / Lmin
Denison Extension (Local – Medium Pedestrian Conflict)	0.74	3.70	9.5

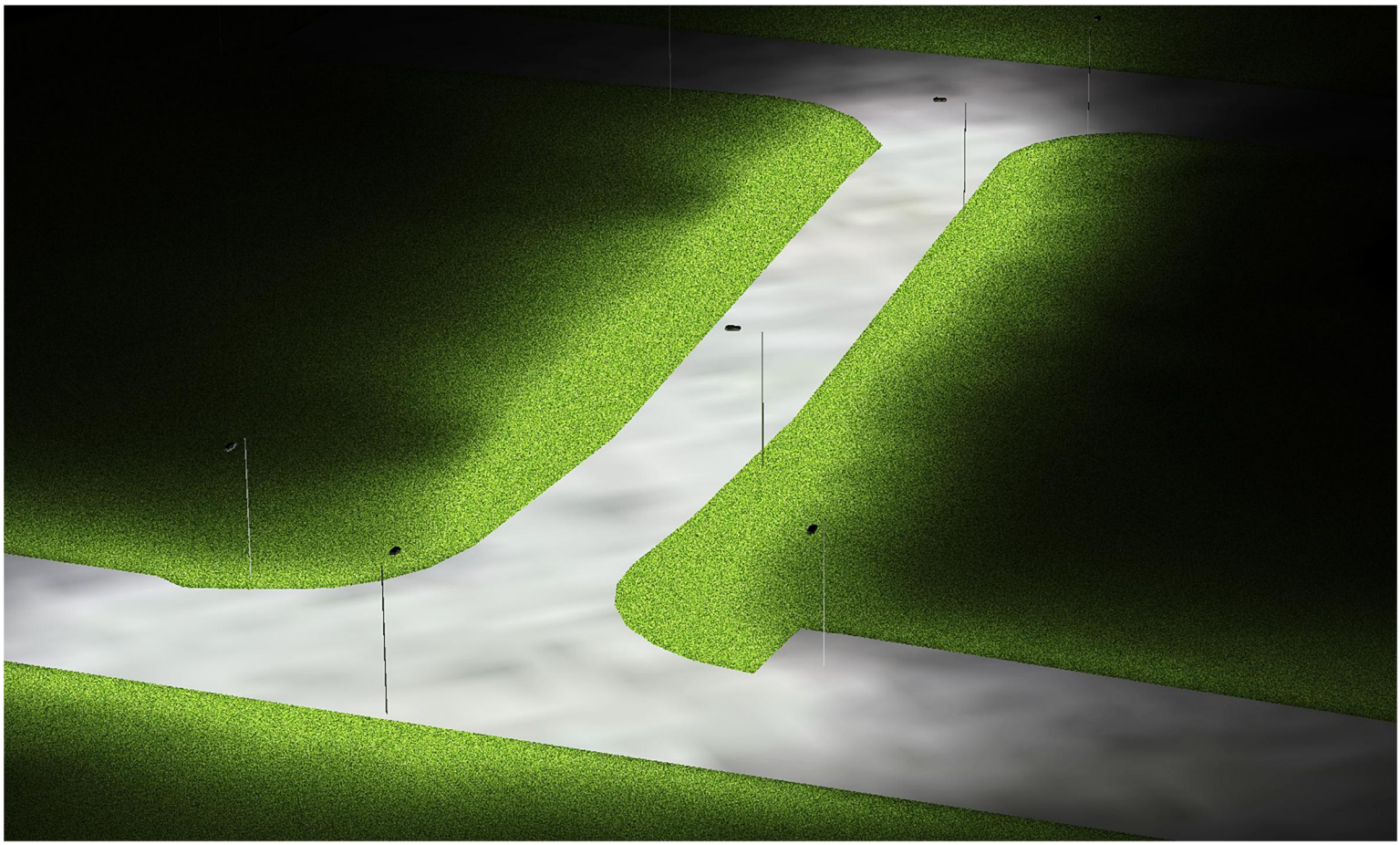


Figure 2-1: Denison Extension - Model Rendering

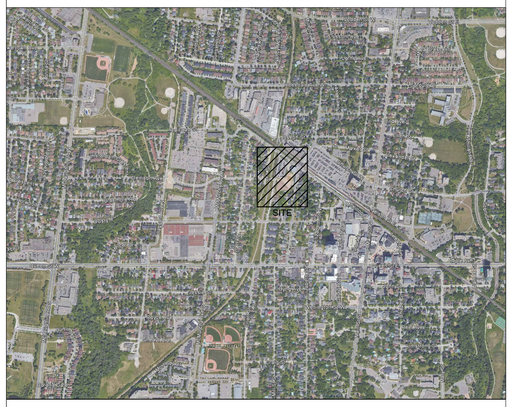
3 RECOMMENDATIONS

3.1 Denison Extension

Reviewing the results of the photometric model, the horizontal pavement luminance and uniformity ratios (Average/Min & Max/Min) of the roadway are acceptable and adhere to RP-8-14 (Guide to Roadway Lighting) requirements. To achieve optimum roadway uniformity and lighting, we recommend proceeding with our luminaire design.

Appendix A – Lighting Plan (Roadway/Extension)

KEY MAP



STREETLIGHT SYMBOLS LEGEND

POLES AND ELECTRICAL CHAMBERS

- EXISTING CONCRETE POLE - ECP
- NEW CONCRETE POLE - NCP
- TEMPORARY WOOD POLE - TWP
- EXISTING WOOD POLE - EWP
- EXISTING CIRCULAR SPUN ALUMINUM POLE - EAP
- NEW CIRCULAR SPUN ALUMINUM POLE - NAP
- EXISTING STEEL POLE - ESP
- EXISTING HANDWELL (300mm) - EH
- NEW HANDWELL (300mm) - NH
- EXISTING JUNCTION BOX (450mm) - EJB
- NEW JUNCTION BOX (450mm) - NJB
- EXISTING MANHOLE (600mm x 600mm) - EM

POLE EQUIPMENT AND CONNECTIONS

- EXISTING LUMINAIRE ON BRACKET
- NEW LUMINAIRE ON BRACKET
- INDICATES REMOVAL
- INDICATES ABANDON
- IN-LINE FUSE
- GROUND PLATE
- BACKGUY
- [TYPE]xx [POLE #] — STREET LIGHT IDENTIFICATION TAG
  [TYPE]: ELP = Existing; SLP = New; R = Removal

POWER CONNECTIONS

- HC / Txxxx — HYDRO ONE BRAMPTON TRANSFORMER WITH IDENTIFICATION NUMBER
- EXISTING POLE-MOUNT TRANSFORMER
- PROPOSED POLE-MOUNT TRANSFORMER
- J — HYDRO-OWNED JUNCTION BOX
- PS / SLxxxx — POLE-MOUNT DISCONNECT WITH STREET LIGHT IDENTIFICATION NUMBER
- SLxxxx — POWER PEDESTAL WITH STREET LIGHT IDENTIFICATION NUMBER
- 50A / SLxxxx — 50A IN-POLE BREAKER
- 2P-50A / SLxxxx — DOUBLE 50A IN-POLE BREAKER

DUCTS

- EXISTING 50mm RIGID PVC DUCT
- NEW 50mm RIGID PVC DUCT
- EXISTING 100mm RIGID PVC DUCT
- NEW 100mm RIGID PVC DUCT
- EXISTING O/H S/L CABLE
- NEW O/H S/L CABLE

WIRING

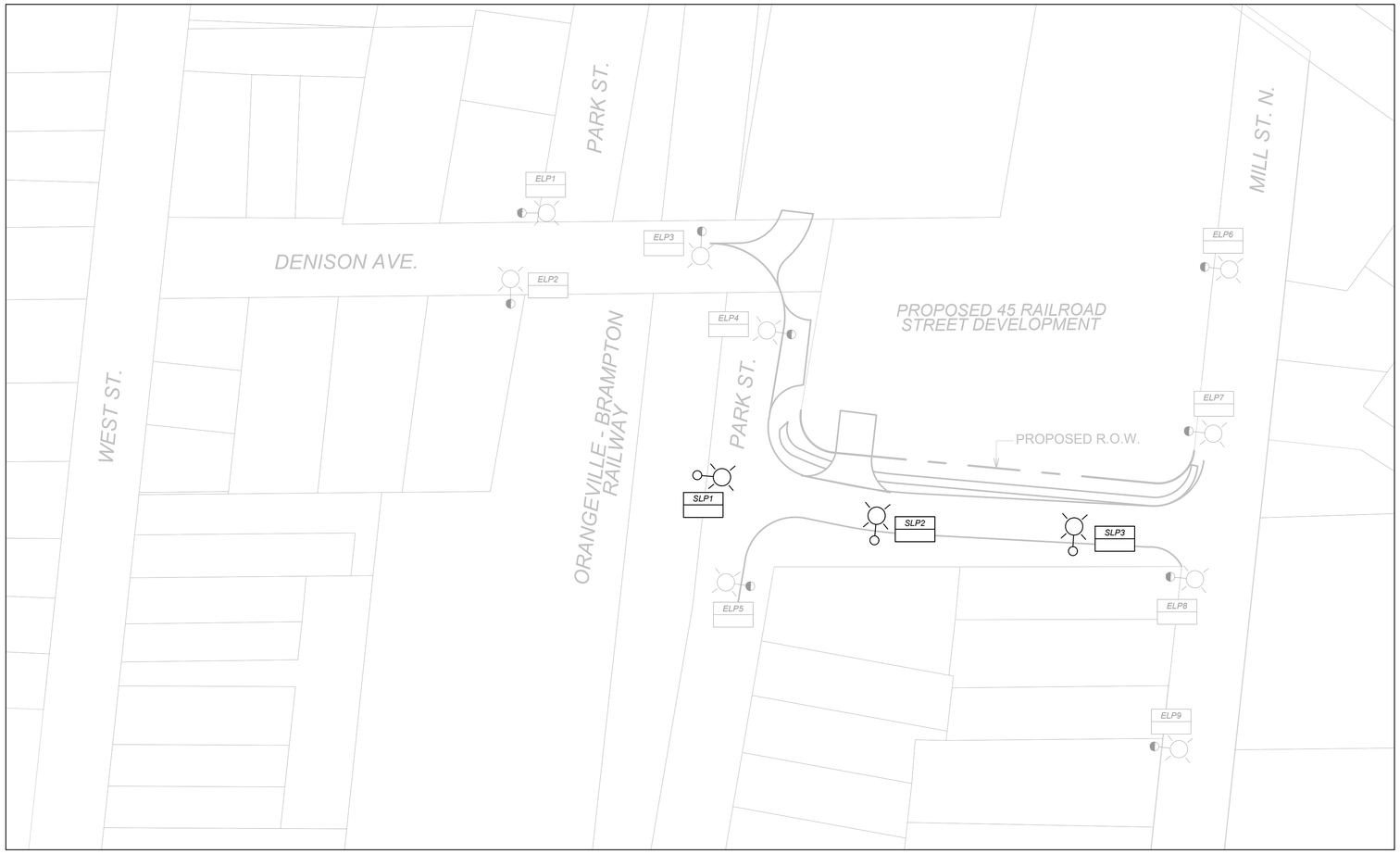
- EX SL — EXISTING S/L CABLE
- HCU — HYDRO CABLE UNDERGROUND
- HCA — HYDRO CABLE AERIAL
- DENOTES JUNCTION BOX OR HANDWELL ON WIRING DIAGRAM (SIZE CAN VARY)

GENERAL NOTES

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES PRIOR TO AND DURING CONSTRUCTION. THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE OF THEM.

THE CONTRACTOR SHALL MAINTAIN EXISTING ILLUMINATION AT ALL TIMES.

ALL WORK TO BE COORDINATED WITH CITY OF BRAMPTON REPRESENTATIVE.



1 / - PLAN
DENISON AVENUE EXTENSION

NOTES

STREET LIGHT POLE DETAILS

SCHEDULE OF APPROVALS

NO.	DATE	BY	DESCRIPTION	CHECKED BY

SCALE: NTS	DESIGNED BY: C.W.	CHECKED BY: E.M.
DATE: NOVEMBER 1, 2019	APPROVAL:	
CONTRACT NO: T2019-070	APPROVAL DATE:	

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DENISON AVENUE EXTENSION
BETWEEN PARK STREET AND MILL STREET
LIGHTING LAYOUT

DWG. NO.: EL 1

SIGNATURES

PREPARED BY

Connor Whitehouse
Electrical, Instrumentation & Controls Designer

REVIEWED AND APPROVED BY

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Manager, Electrical, Instrumentation & Controls