



wood.

Appendix T

Lighting Assessment Report



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18 June 2021

RE: Lighting Assessment Report – Lakeshore Road West Improvements

The Lighting Assessment Report presented herein was developed based on the preliminary preferred design that was identified in 2017 through an initial evaluation of alternative design concepts. Since then, revised alternative design concepts were introduced and evaluated and an updated preferred design was identified. The updated preferred design was presented to the public at Public Information Centre #3 in April 2021.

A reassessment of lighting levels and pole locations shall be completed during detailed design based on the updated design for Lakeshore Road West improvements.





OAKVILLE

**LAKESHORE ROAD WEST IMPROVEMENTS
CLASS ENVIRONMENTAL ASSESSMENT**

**LIGHTING ASSESSMENT REPORT
ON LAKESHORE ROAD WEST
FROM
MISSISSAGA STREET
TO
DORVAL DRIVE**

 **U TECH
ENGINEERS INC.**

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1. INTRODUCTION

The following study has been prepared to estimate the lighting levels and pole locations on Lakeshore Road West from Mississauga Street to Dorval Drive. Lakeshore Road West is functionally designated as a minor arterial roadway.

2. EXISTING LIGHTING FIXTURES

Based on site visit and Google maps, LED light fixtures have been installed on hydro poles and independent poles. Details of decorative light pole and fixture were obtained from supplier.



3. ASSUMPTIONS

The following assumptions have been made to proceed with the study:

3.1 Mounting Heights & Arm Lengths

Mounting heights on Hydro poles – 8.2m (attachment height 7.0m) and arm length 2.4m

Mounting heights on independent regular poles – 10.7m and arm length 2.4m

Mounting heights on decorative poles – 7.2m and arm length 1.67m

Hydro pole needs to be relocated to match with roadway design and relocated tentative locations were used for illumination analysis.

3.2 Fixture Types

Evolve™ LED Roadway Lighting

LED Roadway Luminaire (ERL1-ERLH-ERS1-ERS2)



Town approved GE Evolve LED 32W, 51W and 108W Roadway Lighting fixtures were used for calculation.

3.3 Tilt and Orientation Angles

It was assumed that the tilt angle is 0° i.e. parallel to roadway, and orientation is 0° i.e. perpendicular to roadway for all the fixtures.

3.4 Light Loss Factor

The total light loss factor used in the model was set as 0.70

3.5 Roadway Surface Classification

Roadway pavement classification is Type 3.

4. LIGHTING MODELING AND ANALYSIS

Based on the information gathered from site visit and assumptions made, photometric calculations have been performed for the intersections and roadway midblock. The calculation results and photometric layouts are attached in the appendix of this report.

4.1 Intersections

Intersection illumination calculation needs to be done based on illuminance method. Illumination on signalized and non-signalized intersections were analyzed within the project limits. The following lists the intersections and their corresponding classification:

- Lakeshore Rd. West & Mississauga St. – Arterial / Collector
- Lakeshore Rd. West & Bronte St. – Arterial / Arterial
- Lakeshore Rd. West & Third Line – Arterial / Arterial
- Lakeshore Rd. West & Fourth Line – Arterial / Collector
- Lakeshore Rd. West & Modern Rd. – Arterial / Collector
- Lakeshore Rd. West & Dorval Dr. – Arterial / Arterial

All the other intersections were classified as Arterial / Local.

The items below have been calculated for each intersection:

- Average illuminance
- Average-to-Min horizontal uniformity ratio

Exhibit 4-1 presents the required illumination levels.

Exhibit 4-1 – Intersection Lighting

Intersection functional classification	Average Illuminance (Lux)	Avg. / Min Ratio
Arterial / Arterial	18.0	3.0
Arterial / Collector	15.0	3.0
Arterial / Local	13.0	3.0

Refer to the Appendix for layouts and additional details.

4.2 Roadway Midblock

The midblock roadway configuration is fairly consistent throughout the project limits. Illumination levels at curved section were calculated using illuminance method and straight sections were based on luminance method.

Required levels are as follows.

ROADWAY LUMINANCE TARGET VALUES FOR STRAIGHT SECTIONS	
AVERAGE LUMINANCE ($L_{avg.}$)	0.45 cd/m ²
AVE. UNIFORMITY RATIO ($L_{avg.} / L_{min.}$)	3.5
MAX. UNIFORMITY RATIO ($L_{max.} / L_{min.}$)	6
MAX. VEILING LUMINANCE RATIO ($L_{Vmax.} / L_{avg.}$)	0.3

ROADWAY ILLUMINANCE TARGET VALUES FOR CURVED SECTIONS	
AVERAGE ILLUMINANCE ($E_{avg.}$)	6.75 lux
AVE. UNIFORMITY RATIO ($E_{avg.} / E_{min.}$)	3.5

Refer to the Appendix for layouts and specific results for each area.

5. APPENDIX A

- Cut sheets of luminaires used in model
- Lighting Calculation Drawing

REV.	ALTERATION	E.C.N.	DATE	BY

LUMINAIRE SPECIFICATIONS

CATALOGUE NO.: K205-P4AS-III-60(SSL)
-7030-120:277-4K-KPL20-PR7

QUANTITY:
MOUNTING TYPE: TENON MOUNT
OPTICAL DESIGN: FLAT ARRAY
LENS MATERIAL: SHALLOW ACRYLIC
IES CLASS.: TYPE III
WATTAGE: 60W
SERIES: 7030
LIGHT SOURCE: SOLID STATE LIGHTING
LINE VOLTAGE: 120:277V
CCT/DIODE: 4000K/HE5
PAINT: TEXTURED BLACK
OPTIONS: TWISTLOCK RECEPTACLE C/W
KPL20 (PHOTO-EYE BY OTHERS)
& 10" LEADS OUT OF KPL20

IES FILE NO.: 200SP4SH306040.IES

OPTIONS

QUICK DISCONNECT PLEASE SELECT ONE
TERMINAL BLOCK

POLE SPECIFICATIONS:

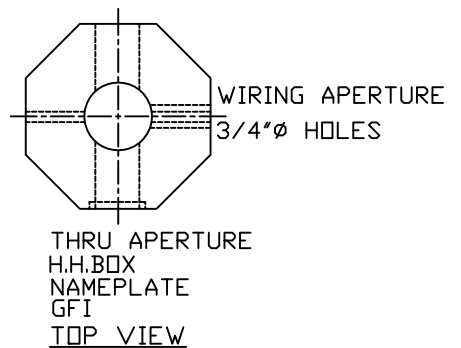
CATALOGUE NO.: KCH25-G-E40-DB-DR
C/W FC & CAPSEAL
S/F 120 & BRONZE "CITY OF
OAKVILLE" CREST

QUANTITY:
SECTION: OCTAGONAL
COLOR: PEARL GRAY
FINISH: ETCHED
POLE TOP: 4 3/4" FL/FL
POLE BUTT: 10" DIA.
POLE LENGTH: 30' 0"
APPROX WEIGHT: 1600 lbs.

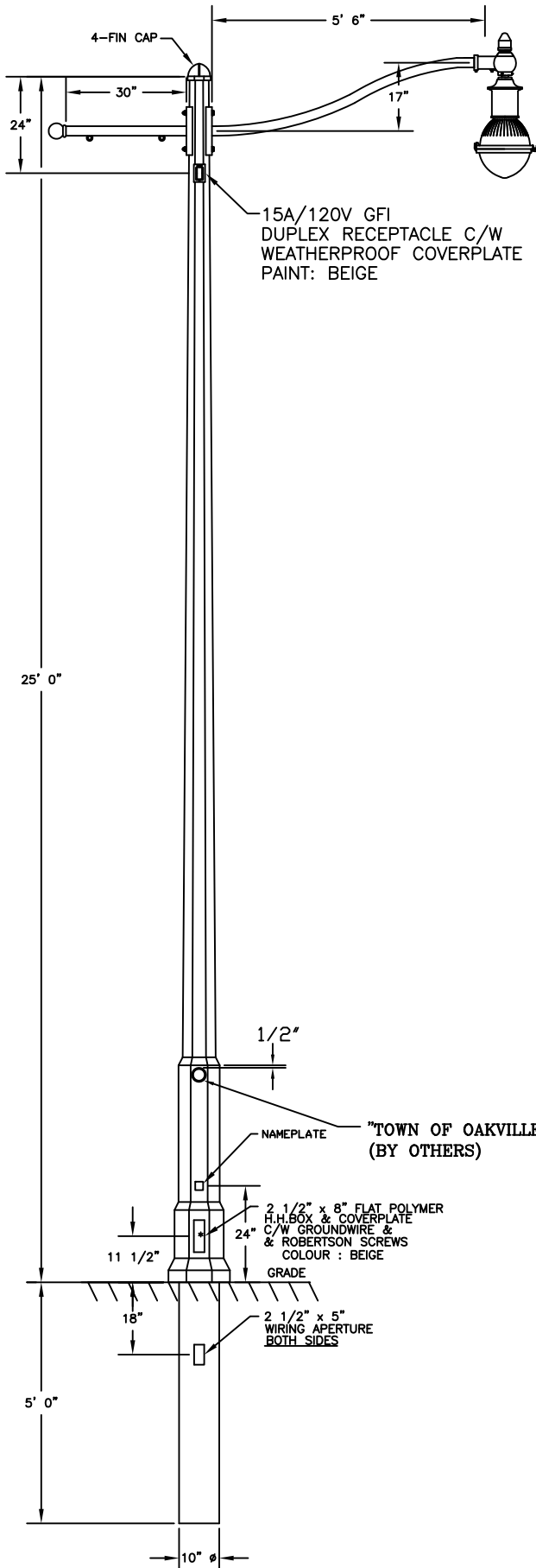
* COATING REQUIRED *
-CAPSEAL U FULL LENGTH
(NO ACRYLIC)


ARM SPECIFICATIONS:

CATALOGUE NO.: KA94-S-1-5' 6"
QUANTITY:
MAT'L: ALUMINUM
PAINT : SW-ENAMEL #B54W102



CUSTOMER APPROVAL: _____



 KING LUMINAIRE COMPANY INC. 840 WALKER'S LINE, P.O. BOX 7, BURLINGTON, ONTARIO, CANADA L7R 3X9 P.O. BOX 266 JEFFERSON, OHIO 1153 STATE ROUTE 46N U.S.A. 44047				
DRAWING NAME: CONCEPT	DWG NUMBER 206A9152-A	DATE: 11/28/17	DWG BY: G.R.	REV.
PROJECT/CUSTOMER: TOWN OF OAKVILLE				

REV.	ALTERATION	DATE	BY

LUMINAIRE SPECIFICATIONS

CATALOGUE NO.: K205-P4AS-III-60(SSL)
-7030-120:277-4K-KPL20-PR7

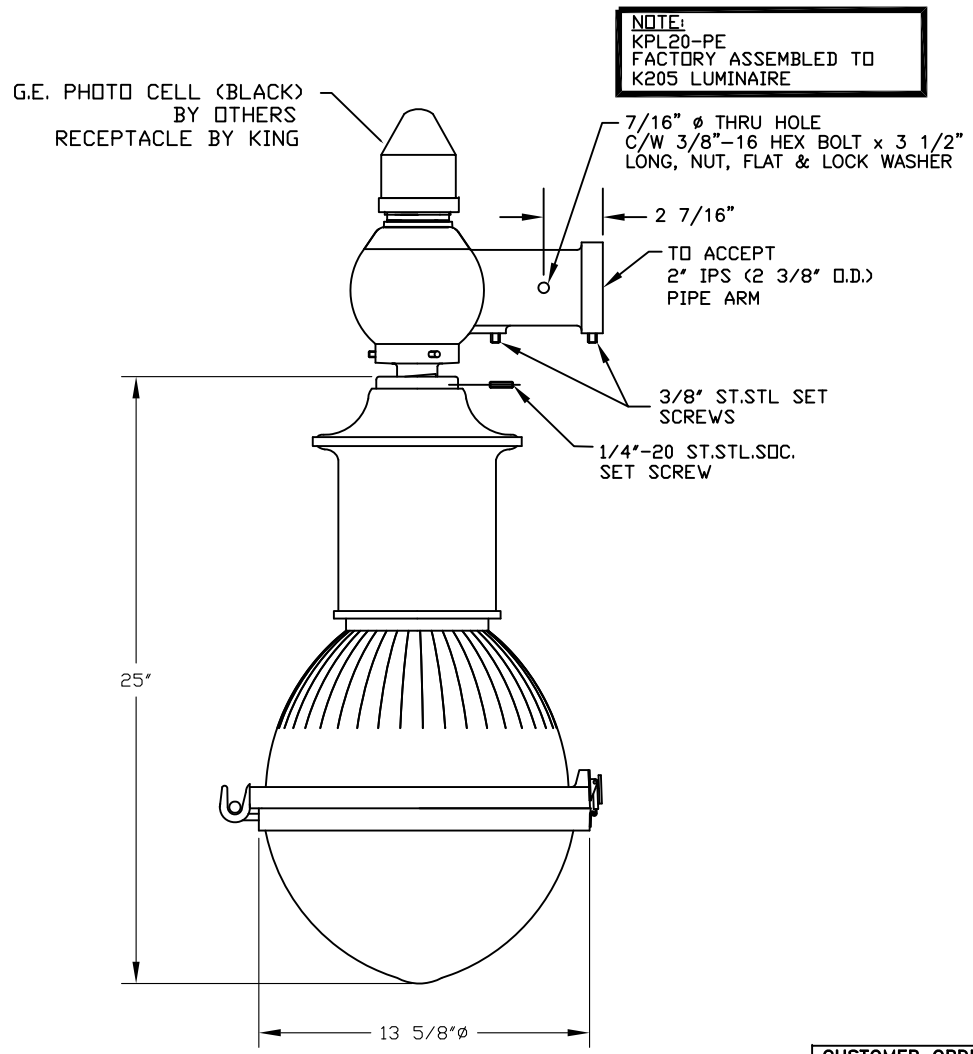
QUANTITY: MOUNTING TYPE: TENDON MOUNT
OPTICAL DESIGN: FLAT ARRAY
LENS MATERIAL: SHALLOW ACRYLIC
IES CLASS.: TYPE III
WATTAGE: 60W
SERIES: 7030
LIGHT SOURCE: SOLID STATE LIGHTING
LINE VOLTAGE: 120:277V
CCT/DIODE: 4000K/HE5
PAINT: TEXTURED BLACK
OPTIONS: TWISTLOCK RECEPTACLE C/W
KPL20 (PHOTO-EYE BY OTHERS)

IES FILE NO.: 200SP4SH306040.IES



OPTIONS

QUICK DISCONNECT PLEASE SELECT ONE
TERMINAL BLOCK

LOCATION: Bronte / Lakeshore Blvd



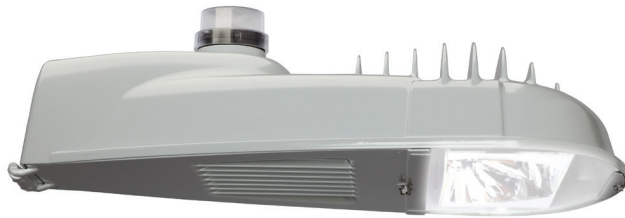
CUSTOMER APPROVAL & DATE: _____

  King Luminaire • StressCrete • Est. 1953 STRESSCRETE GROUP	<u>Manufacturing Locations:</u> Burlington, Ontario 1-800-268-7809 Northport, Alabama 1-800-435-6563 Atchison, Kansas 1-800-837-1024 Jefferson, Ohio 1-800-268-7809	
	PROJECT/CUSTOMER: EL-CON / TOWN OF DAKVILLE PH2 LED CONVERSION	
DRAWN BY: G.R. AT: SC1 CHECKED BY: DATE: 08/21/17 REVISION:		
DRAWING TYPE: APPROVAL/MFG. DWG.	DRAWING NUMBER: 206A9152-13	

CUSTOMER ORDER No:	-
STRESSCRETE ORDER No:	-
KMFG. ORDER No:	-
KING U.S. ORDER No:	-

Evolve™ LED Roadway Lighting

LED Roadway Luminaire (ERL1-ERLH-ERS1-ERS2)



Product Features

The Evolve™ LED Roadway Luminaire is optimized for customers requiring a LED solution for local, collector and major roadways. GE's unique reflective optics are designed to optimize application efficiency and minimize glare. The modern design incorporates the heat sink directly into the unit for heat transfer to prolong LED life. This reliable unit has a 100,000 hour design life, significantly reducing maintenance needs and expense over the life of the fixture. This efficient solution lowers energy consumption compared to traditional HID fixture for additional operating cost savings.

Applications

- Designed to meet recommended luminance and illuminance requirements for local, collector and major roadway/street classifications.

Housing

- The modern design incorporates Casting-integral heatsink for maximum heat transfer.
- Meets 3G vibration per ANSI C136.31-2010.
- Die Cast Enclosure.




LED & Optical Assembly

- Evolve™ light engine consisting of reflective technology designed to optimize application efficiency and minimize glare.
- Utilizes high brightness LEDs, 70 CRI at 3000K and 4000K typical.
- LM-79 tests and reports in accordance with IESNA standards.

Lumen Maintenance

- Lumen Maintenance per TM21.

Ratings

- /  listed, suitable for wet locations per UL 1598.
- Std. Optical enclosure rated per ANSI C136.25-2009: ERL1 = IP65, ERS1-2 = IP66, ERLH = IP65.
- Upward Light Output Ratio (ULOR) = 0.
- Compliant with the material restriction requirements of RoHS.
-  3000k must be selected to meet IDA certification and approval - ERL1 and ERLH only.

Product ID	Lumen Output	Ambient Rating
ERL1	02-09	-40°C to 50°C
ERLH	10-11	-40°C to 50°C
ERLH	13-15	-40°C to 40°C
ERS1	10-15	-40°C to 50°C
ERS2	16-23	-40°C to 50°C
ERS2	25-28	-40°C to 40°C

Delayed start may be experienced <-35°C.

Mounting

- Slipfitter with +/- 5 degree of adjustment for leveling.
- Integral die cast mounting pipe stop.
- Adjustable for 1.25 in. or 2 in. mounting pipe.

Finish

- Corrosion resistant polyester powder paint, minimum 2.0 mil. thickness.
- Standard colors: Black, Gray and Dark Bronze.
- RAL & custom colors available.
- Optional coastal finish available.

Electrical

- 120-277 VAC and 347-480 VAC.
- System power factor is >90% and THD <20%.*
- Class "A" Sound rating.
- 0-10V dimming standard or DALI dimming available upon request for 120V-277V.
- Surge Protection per ANSI C136.2-2015:
 - Standard: 6kV/3kA "Basic: (120 Strikes)"
 - Optional Secondary: 10kV/5kA "Enhanced: (40 Strikes)"
- EMI: Title 47 CFR Part 15 Class A
- Photo electric sensors (PE) available.

* System power factor and THD is tested and specified at 120V input and maximum load conditions. THD<26% for 347/480V supply with 03 power level.

Warranty

- 5 Year Standard
- 10 Year Optional

Suggested HID Replacement Lumen Levels

- ~4,000–5,000 lumens to replace 100W HPS Cobra-head
- ~7,000–8,800 lumens to replace 150W HPS Cobra-head
- ~8,500–11,500 lumens to replace 200W HPS Cobra-head
- ~11,500–14,000 lumens to replace 250W HPS Cobra-head
- ~21,000–28,000 lumens to replace 400W HPS Cobra-head

Note: Actual replacement lumens may vary based upon mounting height, pole spacing, design criteria, etc.

Ordering Number Logic

Evolve™ LED Streetlight (ERL1)



ERL1

PROD. ID	VOLTAGE	LUMEN OUTPUT	DISTRIBUTION	CCT	CONTROLS	COLOR	OPTIONS
E = Evolve R = Roadway L = Local 1 = Single Module	0 = 120-277* 1 = 120 2 = 208 3 = 240 4 = 277 5 = 480 D = 347 H = 347-480*	02* 03 04 05 06 07 08 09	A1 = Extra Narrow Asymmetric B1 = Narrow Asymmetric (Medium) C1 = Asymmetric (Short) D1 = Asymmetric Forward E1 = Asymmetric (Medium) F1 = Asymmetric (Wide) G1 = Asymmetric (Extra Wide)	30 = 3000K 40 = 4000K	A = ANSI C136.41 7-pin D = ANSI C136.41 7-pin receptacle with Shorting Cap E = ANSI C136.41 7-pin Receptacle with non-Dimming PE Control.*	GRAY = Gray BLCK = Black DKBZ = Dark Bronze	A = 4 Bolt Slipfitter † F = Fusing G = Internal Bubble Level I = IP66 Optical L = Tool-Less Entry R = Optional Secondary Enhanced Surge Protection (10kV/5kA) U = Universal DALI Programmable +^ X = Single Package # Y = Coastal Finish * XXX = Special Options
	* Not available with Fusing. Must choose a discreet voltage with F option.	See Data Table for more information. *120V only, not compatible with 0-10V dimming.	See Data Table for more information		* PE Control Only available for 120-277V or 480V Discrete. Not available for 347-480V or 347V Discrete. NOTE: Dimming controls wired for 0-10V standard unless DALI option "U" requested.		† Contact manufacturer for Lead-Time. # Std Packaging = 20 units per container. * Recommended for installations within 1 mile from the coast. Contact Factory for Lead-Time. + Compatible with LightGrid 2.0 nodes. ^ Not available in 347V, 480V or 347-480V for Lumen Level 07 and 08.



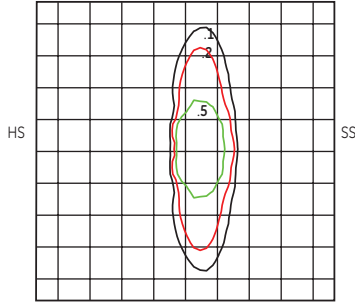
PRODUCT ID	LUMEN OUTPUT	DISTRIBUTION	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE		BUG RATING		IES FILE NUMBER 4000K		IES FILE NUMBER 3000K					
			4000K	3000K	120-277V	347-480V	4000K	3000K	120-277V		347-480V					
ERL1	02	A1	1900	1800	15	N/A	B1-U0-G1	B1-U0-G1	ERL1_02A140	-120VIES	N/A	ERL1_02A130	-120VIES	N/A		
ERL1		B1	1900	1800			B1-U0-G0	B1-U0-G0	ERL1_02B140	-120VIES	N/A	ERL1_02B130	-120VIES	N/A		
ERL1		C1	2000	1900			B1-U0-G1	B1-U0-G1	ERL1_02C140	-120VIES	N/A	ERL1_02C130	-120VIES	N/A		
ERL1		D1	1900	1800			B1-U0-G0	B1-U0-G0	ERL1_02D140	-120VIES	N/A	ERL1_02D130	-120VIES	N/A		
ERL1		E1	2000	1900			B1-U0-G0	B1-U0-G0	ERL1_02E140	-120VIES	N/A	ERL1_02E130	-120VIES	N/A		
ERL1		F1	2000	1900			B1-U0-G1	B1-U0-G1	ERL1_02F140	-120VIES	N/A	ERL1_02F130	-120VIES	N/A		
ERL1		G1	2000	1900			B1-U0-G1	B1-U0-G1	ERL1_02G140	-120VIES	N/A	ERL1_02G130	-120VIES	N/A		
ERL1	03	A1	2800	2700	25	28	B1-U0-G1	B1-U0-G1	ERL1_03A140	-120-277VIES	ERL1_03A140	-347-480VIES	ERL1_03A130	-120-277VIES	ERL1_03A130	-347-480VIES
ERL1		B1	2900	2800			B1-U0-G1	B1-U0-G1	ERL1_03B140	-120-277VIES	ERL1_03B140	-347-480VIES	ERL1_03B130	-120-277VIES	ERL1_03B130	-347-480VIES
ERL1		C1	3000	2900			B1-U0-G1	B1-U0-G1	ERL1_03C140	-120-277VIES	ERL1_03C140	-347-480VIES	ERL1_03C130	-120-277VIES	ERL1_03C130	-347-480VIES
ERL1		D1	2900	2800			B1-U0-G1	B1-U0-G1	ERL1_03D140	-120-277VIES	ERL1_03D140	-347-480VIES	ERL1_03D130	-120-277VIES	ERL1_03D130	-347-480VIES
ERL1		E1	3000	2900			B1-U0-G1	B1-U0-G1	ERL1_03E140	-120-277VIES	ERL1_03E140	-347-480VIES	ERL1_03E130	-120-277VIES	ERL1_03E130	-347-480VIES
ERL1		F1	3000	2900			B1-U0-G1	B1-U0-G1	ERL1_03F140	-120-277VIES	ERL1_03F140	-347-480VIES	ERL1_03F130	-120-277VIES	ERL1_03F130	-347-480VIES
ERL1		G1	3000	2900			B1-U0-G1	B1-U0-G1	ERL1_03G140	-120-277VIES	ERL1_03G140	-347-480VIES	ERL1_03G130	-120-277VIES	ERL1_03G130	-347-480VIES
ERL1	04	A1	3800	3700	32	35	B1-U0-G1	B1-U0-G1	ERL1_04A140	-120-277VIES	ERL1_04A140	-347-480VIES	ERL1_04A130	-120-277VIES	ERL1_04A130	-347-480VIES
ERL1		B1	3900	3800			B1-U0-G1	B1-U0-G1	ERL1_04B140	-120-277VIES	ERL1_04B140	-347-480VIES	ERL1_04B130	-120-277VIES	ERL1_04B130	-347-480VIES
ERL1		C1	4000	3900			B1-U0-G1	B1-U0-G1	ERL1_04C140	-120-277VIES	ERL1_04C140	-347-480VIES	ERL1_04C130	-120-277VIES	ERL1_04C130	-347-480VIES
ERL1		D1	3900	3800			B1-U0-G1	B1-U0-G1	ERL1_04D140	-120-277VIES	ERL1_04D140	-347-480VIES	ERL1_04D130	-120-277VIES	ERL1_04D130	-347-480VIES
ERL1		E1	4000	3900			B1-U0-G1	B1-U0-G1	ERL1_04E140	-120-277VIES	ERL1_04E140	-347-480VIES	ERL1_04E130	-120-277VIES	ERL1_04E130	-347-480VIES
ERL1		F1	4000	3900			B1-U0-G1	B1-U0-G1	ERL1_04F140	-120-277VIES	ERL1_04F140	-347-480VIES	ERL1_04F130	-120-277VIES	ERL1_04F130	-347-480VIES
ERL1		G1	4000	3900			B1-U0-G1	B1-U0-G1	ERL1_04G140	-120-277VIES	ERL1_04G140	-347-480VIES	ERL1_04G130	-120-277VIES	ERL1_04G130	-347-480VIES
ERL1	05	A1	4800	4600	41	45	B2-U0-G1	B2-U0-G1	ERL1_05A140	-120-277VIES	ERL1_05A140	-347-480VIES	ERL1_05A130	-120-277VIES	ERL1_05A130	-347-480VIES
ERL1		B1	4800	4600			B2-U0-G1	B2-U0-G1	ERL1_05B140	-120-277VIES	ERL1_05B140	-347-480VIES	ERL1_05B130	-120-277VIES	ERL1_05B130	-347-480VIES
ERL1		C1	5000	4800			B2-U0-G1	B2-U0-G1	ERL1_05C140	-120-277VIES	ERL1_05C140	-347-480VIES	ERL1_05C130	-120-277VIES	ERL1_05C130	-347-480VIES
ERL1		D1	4800	4600			B1-U0-G1	B1-U0-G1	ERL1_05D140	-120-277VIES	ERL1_05D140	-347-480VIES	ERL1_05D130	-120-277VIES	ERL1_05D130	-347-480VIES
ERL1		E1	5000	4800			B2-U0-G1	B2-U0-G1	ERL1_05E140	-120-277VIES	ERL1_05E140	-347-480VIES	ERL1_05E130	-120-277VIES	ERL1_05E130	-347-480VIES
ERL1		F1	5000	4800			B2-U0-G1	B2-U0-G1	ERL1_05F140	-120-277VIES	ERL1_05F140	-347-480VIES	ERL1_05F130	-120-277VIES	ERL1_05F130	-347-480VIES
ERL1		G1	5000	4800			B2-U0-G1	B2-U0-G1	ERL1_05G140	-120-277VIES	ERL1_05G140	-347-480VIES	ERL1_05G130	-120-277VIES	ERL1_05G130	-347-480VIES
ERL1	06	A1	5700	5500	53	58	B2-U0-G1	B2-U0-G1	ERL1_06A140	-120-277VIES	ERL1_06A140	-347-480VIES	ERL1_06A130	-120-277VIES	ERL1_06A130	-347-480VIES
ERL1		B1	5800	5600			B2-U0-G1	B2-U0-G1	ERL1_06B140	-120-277VIES	ERL1_06B140	-347-480VIES	ERL1_06B130	-120-277VIES	ERL1_06B130	-347-480VIES
ERL1		C1	6000	5800			B2-U0-G1	B2-U0-G1	ERL1_06C140	-120-277VIES	ERL1_06C140	-347-480VIES	ERL1_06C130	-120-277VIES	ERL1_06C130	-347-480VIES
ERL1		D1	5800	5600			B1-U0-G1	B1-U0-G1	ERL1_06D140	-120-277VIES	ERL1_06D140	-347-480VIES	ERL1_06D130	-120-277VIES	ERL1_06D130	-347-480VIES
ERL1		E1	6000	5800			B2-U0-G1	B2-U0-G1	ERL1_06E140	-120-277VIES	ERL1_06E140	-347-480VIES	ERL1_06E130	-120-277VIES	ERL1_06E130	-347-480VIES
ERL1		F1	6000	5800			B2-U0-G1	B2-U0-G1	ERL1_06F140	-120-277VIES	ERL1_06F140	-347-480VIES	ERL1_06F130	-120-277VIES	ERL1_06F130	-347-480VIES
ERL1		G1	6000	5800			B2-U0-G1	B2-U0-G1	ERL1_06G140	-120-277VIES	ERL1_06G140	-347-480VIES	ERL1_06G130	-120-277VIES	ERL1_06G130	-347-480VIES
ERL1	07	A1	6700	6500	67		B2-U0-G2	B2-U0-G2		ERL1_07A140	_IES		ERL1_07A130	_IES		
ERL1		B1	6800	6600			B2-U0-G1	B2-U0-G1		ERL1_07B140	_IES		ERL1_07B130	_IES		
ERL1		C1	7000	6800			B2-U0-G1	B2-U0-G1		ERL1_07C140	_IES		ERL1_07C130	_IES		
ERL1		D1	6800	6600			B2-U0-G1	B2-U0-G1		ERL1_07D140	_IES		ERL1_07D130	_IES		
ERL1		E1	7000	6800			B2-U0-G1	B2-U0-G1		ERL1_07E140	_IES		ERL1_07E130	_IES		
ERL1		F1	7000	6800			B2-U0-G2	B2-U0-G2		ERL1_07F140	_IES		ERL1_07F130	_IES		
ERL1		G1	7000	6800			B2-U0-G2	B2-U0-G2		ERL1_07G140	_IES		ERL1_07G130	_IES		
ERL1	08	A1	8200	8000	88		B2-U0-G2	B2-U0-G2		ERL1_08A140	_IES		ERL1_08A130	_IES		
ERL1		B1	8300	8100			B2-U0-G1	B2-U0-G1		ERL1_08B140	_IES		ERL1_08B130	_IES		
ERL1		C1	8500	8200			B2-U0-G1	B2-U0-G1		ERL1_08C140	_IES		ERL1_08C130	_IES		
ERL1		D1	8300	8100			B2-U0-G1	B2-U0-G1		ERL1_08D140	_IES		ERL1_08D130	_IES		
ERL1		E1	8500	8200			B2-U0-G1	B2-U0-G1		ERL1_08E140	_IES		ERL1_08E130	_IES		
ERL1		F1	8500	8200			B2-U0-G2	B2-U0-G2		ERL1_08F140	_IES		ERL1_08F130	_IES		
ERL1		G1	8500	8200			B2-U0-G2	B2-U0-G2		ERL1_08G140	_IES		ERL1_08G130	_IES		
ERL1	09	A1	8400	8100	90		B2-U0-G2	B2-U0-G2		ERL1_09A140	_IES		ERL1_09A130	_IES		
ERL1		B1	8500	8200			B2-U0-G1	B2-U0-G1		ERL1_09B140	_IES		ERL1_09B130	_IES		
ERL1		C1	8800	8400			B2-U0-G1	B2-U0-G1		ERL1_09C140	_IES		ERL1_09C130	_IES		
ERL1		D1	8500	8200			B2-U0-G2	B2-U0-G2		ERL1_09D140	_IES		ERL1_09D130	_IES		
ERL1		E1	8800	8400			B2-U0-G1	B2-U0-G1		ERL1_09E140	_IES		ERL1_09E130	_IES		
ERL1		F1	8800	8400			B2-U0-G2	B2-U0-G2		ERL1_09F140	_IES		ERL1_09F130	_IES		
ERL1		G1	8800	8400			B2-U0-G2	B2-U0-G2		ERL1_09G140	_IES		ERL1_09G130	_IES		

Photometrics

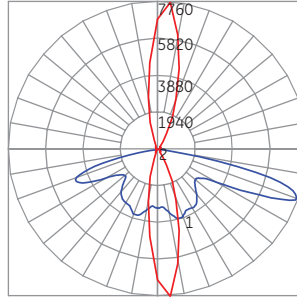
Evolve™ LED Streetlight (ERL1)

ERL1 Extra Narrow Asymmetric (08A1)

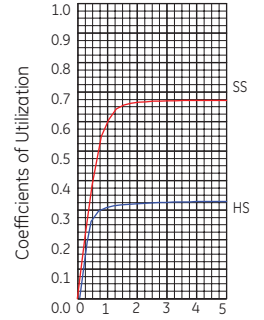
8,200 Lumens
4000K
ERL1_08A140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



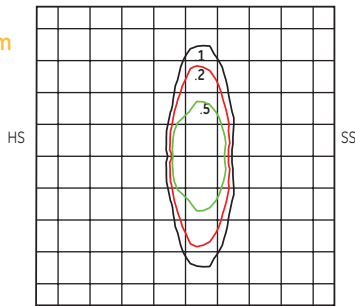
— Vertical plane through horizontal angle of maximum candlepower at 85°
— Vertical plane through horizontal angle of 70°



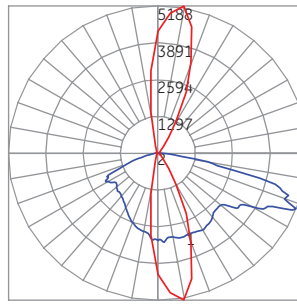
Coefficients of Utilization vs. Street Width/Mounting Height

ERL1 Narrow Asymmetric Medium (08B1)

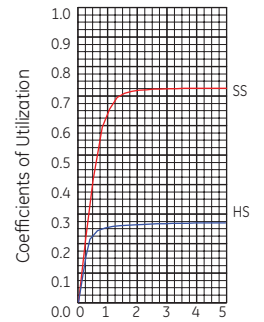
8,300 Lumens
4000K
ERL1_08B140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



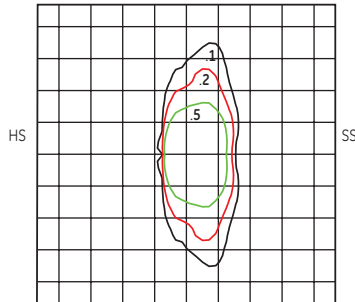
— Vertical plane through horizontal angle of maximum candlepower at 80°
— Vertical plane through horizontal angle of 68°



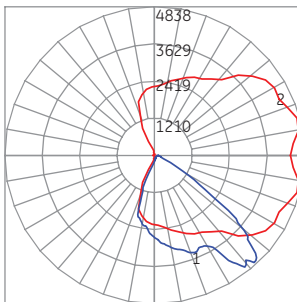
Coefficients of Utilization vs. Street Width/Mounting Height

ERL1 Asymmetric Short (08C1)

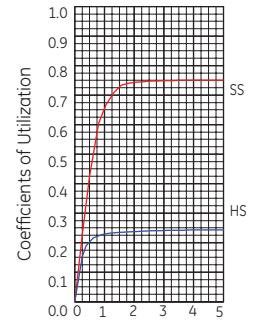
8,500 Lumens
4000K
ERL1_08C140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



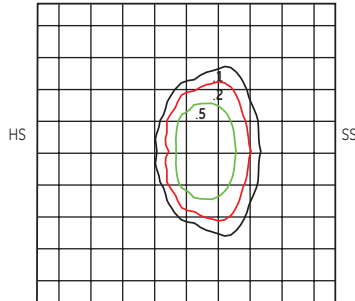
— Vertical plane through horizontal angle of maximum candlepower at 15°
— Vertical plane through horizontal angle of 42°



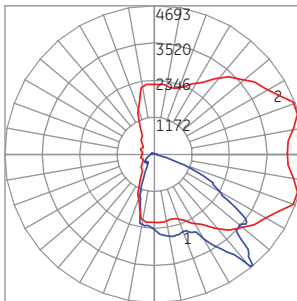
Coefficients of Utilization vs. Street Width/Mounting Height

ERL1 Asymmetric Forward (08D1)

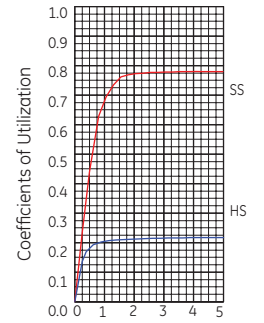
8,300 Lumens
4000K
ERL1_08D140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



— Vertical plane through horizontal angle of maximum candlepower at 15°
— Vertical plane through horizontal angle of 42°



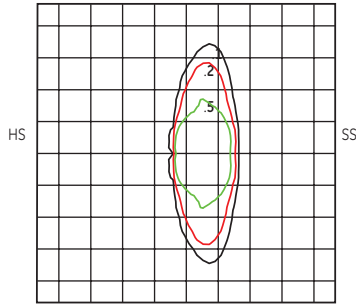
Coefficients of Utilization vs. Street Width/Mounting Height

Photometrics

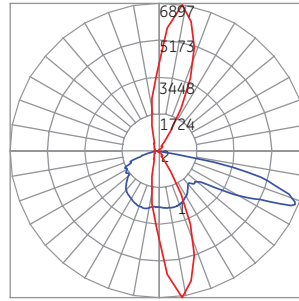
Evolve™ LED Streetlight (ERL1)

ERL1 Asymmetric Medium (08E1)

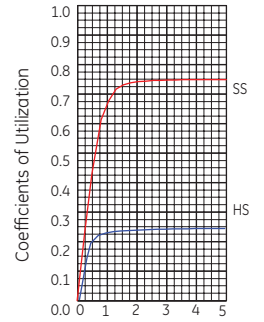
8,500 Lumens
4000K
ERL1_08E140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



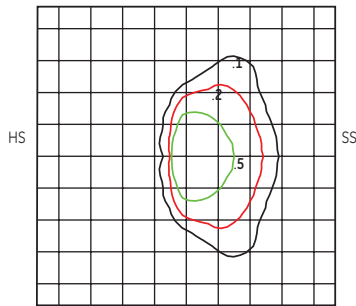
— Vertical plane through horizontal angle of maximum candlepower at 80°
— Vertical plane through horizontal angle of 69°



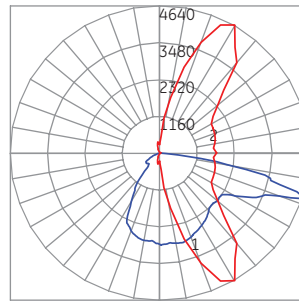
Street Width/Mounting Height

ERL1 Asymmetric Wide (08F1)

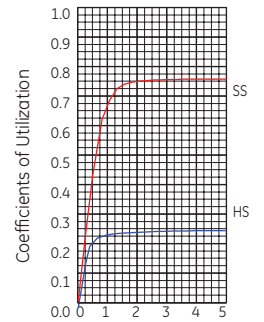
8,500 Lumens
4000K
ERL1_08F140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



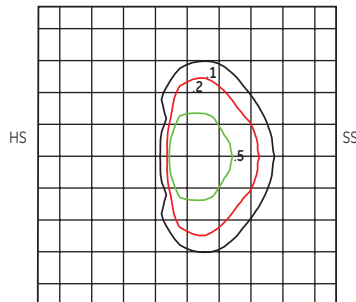
— Vertical plane through horizontal angle of maximum candlepower at 60°
— Vertical plane through horizontal angle of 73°



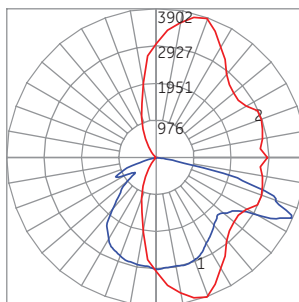
Street Width/Mounting Height

ERL1 Asymmetric Extra Wide (08G1)

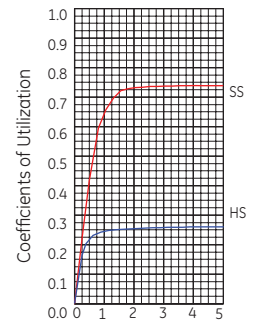
8,500 Lumens
4000K
ERL1_08G140____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



— Vertical plane through horizontal angle of maximum candlepower at 70°
— Vertical plane through horizontal angle of 66°



Street Width/Mounting Height

Ordering Number Logic

Evolve™ LED Streetlight (ERLH)



ERLH

PROD. ID	VOLTAGE	LUMEN OUTPUT	DISTRIBUTION	CCT	CONTROLS	COLOR	OPTIONS
E = Evolve R = Roadway L = Local H = High Output	0 = 120-277* 1 = 120 2 = 208 3 = 240 4 = 277 5 = 480 D = 347 H = 347-480* * Not available with Fusing. Must choose a discreet voltage with F option.	10 11 13 14 15 See Data Table for more information.	A1 = Extra Narrow Asymmetric B1 = Narrow Asymmetric (Medium) C1 = Asymmetric (Short) D1 = Asymmetric Forward E1 = Asymmetric (Medium) F1 = Asymmetric (Wide) G1 = Asymmetric (Extra Wide) See Data Table for more information	30 = 3000K 40 = 4000K	A = ANSI C136.41 7-pin D = ANSI C136.41 7-pin receptacle with Shorting Cap E = ANSI C136.41 7-pin Receptacle with non-Dimming PE Control.* * PE Control Only available for 120-277V or 480V Discrete. Not available for 347-480V or 347V Discrete. NOTE: Dimming controls wired for 0-10V standard unless DALI option "U" requested.	GRAY = Gray BLCK = Black DKBZ = Dark Bronze	A = 4 Bolt Slipfitter † F = Fusing G = Internal Bubble Level I = IP66 Optical L = Tool-Less Entry R = Optional Secondary Enhanced Surge Protection (10kV/5kA) U = Universal DALI Programmable + ^ X = Single Package # Y = Coastal Finish * XXX = Special Options † Contact manufacturer for Lead-Time. # Std Packaging = 20 units per container. * Recommended for installations within 1 mile from the coast. Contact Factory for Lead-Time. + Compatible with LightGrid 2.0 nodes. ^ Not available at 347V, 480V or 347-480V.

PRODUCT ID	LUMEN OUTPUT	DISTRIBUTION	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE	BUG RATING		IES FILE NUMBER	
			4000K	3000K		4000K	3000K	4000K	3000K
ERLH	10	A1	9500	9100	90	B3-U0-G2	B3-U0-G2	ERLH_10A140_IES	ERLH_10A130_IES
ERLH		B1	9800	9500		B3-U0-G1	B2-U0-G1	ERLH_10B140_IES	ERLH_10B130_IES
ERLH		C1	10000	9600		B2-U0-G1	B2-U0-G1	ERLH_10C140_IES	ERLH_10C130_IES
ERLH		D1	9800	9500		B2-U0-G2	B2-U0-G2	ERLH_10D140_IES	ERLH_10D130_IES
ERLH		E1	10000	9600		B2-U0-G2	B2-U0-G2	ERLH_10E140_IES	ERLH_10E130_IES
ERLH		F1	10000	9600		B2-U0-G2	B2-U0-G2	ERLH_10F140_IES	ERLH_10F130_IES
ERLH		G1	10000	9600		B2-U0-G2	B2-U0-G2	ERLH_10G140_IES	ERLH_10G130_IES
ERLH	11	A1	10900	10500	108	B3-U0-G2	B3-U0-G2	ERLH_11A140_IES	ERLH_11A130_IES
ERLH		B1	11200	10800		B3-U0-G2	B3-U0-G1	ERLH_11B140_IES	ERLH_11B130_IES
ERLH		C1	11500	11100		B3-U0-G2	B3-U0-G2	ERLH_11C140_IES	ERLH_11C130_IES
ERLH		D1	11200	10800		B2-U0-G2	B2-U0-G2	ERLH_11D140_IES	ERLH_11D130_IES
ERLH		E1	11500	11100		B3-U0-G2	B3-U0-G2	ERLH_11E140_IES	ERLH_11E130_IES
ERLH		F1	11500	11100		B3-U0-G2	B3-U0-G2	ERLH_11F140_IES	ERLH_11F130_IES
ERLH		G1	11500	11100		B3-U0-G2	B3-U0-G2	ERLH_11G140_IES	ERLH_11G130_IES
ERLH	13	A1	12300	11900	125	B3-U0-G2	B3-U0-G2	ERLH_13A140_IES	ERLH_13A130_IES
ERLH		B1	12700	12200		B3-U0-G2	B3-U0-G2	ERLH_13B140_IES	ERLH_13B130_IES
ERLH		C1	13000	12500		B3-U0-G2	B3-U0-G2	ERLH_13C140_IES	ERLH_13C130_IES
ERLH		D1	12700	12200		B3-U0-G2	B2-U0-G2	ERLH_13D140_IES	ERLH_13D130_IES
ERLH		E1	13000	12500		B3-U0-G2	B3-U0-G2	ERLH_13E140_IES	ERLH_13E130_IES
ERLH		F1	13000	12500		B3-U0-G2	B3-U0-G2	ERLH_13F140_IES	ERLH_13F130_IES
ERLH		G1	13000	12500		B3-U0-G2	B3-U0-G2	ERLH_13G140_IES	ERLH_13G130_IES
ERLH	14	A1	13300	12800	139	B3-U0-G3	B3-U0-G3	ERLH_14A140_IES	ERLH_14A130_IES
ERLH		B1	13700	13200		B3-U0-G2	B3-U0-G2	ERLH_14B140_IES	ERLH_14B130_IES
ERLH		C1	14000	13500		B3-U0-G2	B3-U0-G2	ERLH_14C140_IES	ERLH_14C130_IES
ERLH		D1	13700	13200		B3-U0-G2	B3-U0-G2	ERLH_14D140_IES	ERLH_14D130_IES
ERLH		E1	14000	13500		B3-U0-G2	B3-U0-G2	ERLH_14E140_IES	ERLH_14E130_IES
ERLH		F1	14000	13500		B3-U0-G2	B3-U0-G2	ERLH_14F140_IES	ERLH_14F130_IES
ERLH		G1	14000	13500		B3-U0-G2	B3-U0-G2	ERLH_14G140_IES	ERLH_14G130_IES
ERLH	15	A1	14200	13700	161	B3-U0-G3	B3-U0-G3	ERLH_15A140_IES	ERLH_15A130_IES
ERLH		B1	14700	14200		B3-U0-G2	B3-U0-G2	ERLH_15B140_IES	ERLH_15B130_IES
ERLH		C1	15000	14500		B3-U0-G2	B3-U0-G2	ERLH_15C140_IES	ERLH_15C130_IES
ERLH		D1	14700	14200		B3-U0-G2	B3-U0-G2	ERLH_15D140_IES	ERLH_15D130_IES
ERLH		E1	15000	14500		B3-U0-G2	B3-U0-G2	ERLH_15E140_IES	ERLH_15E130_IES
ERLH		F1	15000	14500		B3-U0-G2	B3-U0-G2	ERLH_15F140_IES	ERLH_15F130_IES
ERLH		G1	15000	14500		B3-U0-G2	B3-U0-G2	ERLH_15G140_IES	ERLH_15G130_IES

Ordering Number Logic

Evolve™ LED Streetlight (ERS1)



ERS1

PROD. ID	VOLTAGE	LUMEN OUTPUT	DISTRIBUTION	DRIVE CURRENT	CCT	CONTROLS	COLOR	OPTIONS
E = Evolve R = Roadway S = Scalable 1 = Single Module	0 = 120-277* 1 = 120 2 = 208 3 = 240 4 = 277 5 = 480 D = 347 H = 347-480* * Not available with Fusing. Must choose a discreet voltage with F option.	10 11 13 14 15 See Data Table for more information.	A1 = Extra Narrow Asymmetric B1 = Narrow Asymmetric (Medium) C1 = Asymmetric (Short) D1 = Asymmetric Forward E1 = Asymmetric (Medium) F1 = Asymmetric (Wide) G1 = Asymmetric (Extra Wide) See Data Table for more information	X = Not Applicable	30 = 3000K 40 = 4000K	A = ANSI C136.41 7-pin D = ANSI C136.41 7-pin receptacle with Shorting Cap E = ANSI C136.41 7-pin Receptacle with non-Dimming PE Control.* * PE Control Only available for 120-277V or 480V Discrete. Not available for 347-480V or 347V Discrete. NOTE: Dimming controls wired for 0-10V standard unless DALI option "U" requested.	GRAY = Gray BLCK = Black DKBZ = Dark Bronze	F = Fusing G = Internal Bubble Level L = Tool-Less Entry R = Optional Secondary Enhanced Surge Protection (10kV/5kA) T = 20kV/10kA Surge Protection per IEEE/ANSI C62.41.2-2002 † U = Universal DALI Programmable+ Y = Coastal Finish* XXX = Special Options * Recommended for installations within 1 mile from the coast. Contact Factory for Lead-Time. + Compatible with LightGrid 2.0 nodes. ^Not available at 347V, 480V or 347-480V.

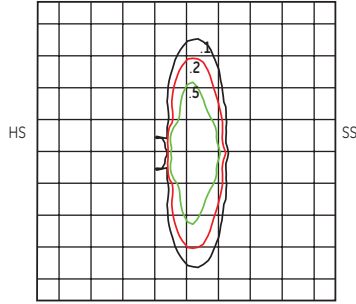
PRODUCT ID	LUMEN OUTPUT	DISTRIBUTION	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE	BUG RATING		IES FILE NUMBER	
			4000K	3000K		4000K	3000K	4000K	3000K
ERS1	10	A1	9500	9200	90	B3-U0-G2	B3-U0-G2	ERS1_10A1X40_IES	ERS1_10A1X30_IES
ERS1		B1	9800	9500		B3-U0-G1	B2-U0-G1	ERS1_10B1X40_IES	ERS1_10B1X30_IES
ERS1		C1	10000	9600		B2-U0-G1	B2-U0-G1	ERS1_10C1X40_IES	ERS1_10C1X30_IES
ERS1		D1	9800	9500		B2-U0-G2	B2-U0-G2	ERS1_10D1X40_IES	ERS1_10D1X30_IES
ERS1		E1	10000	9600		B2-U0-G2	B2-U0-G2	ERS1_10E1X40_IES	ERS1_10E1X30_IES
ERS1		F1	10000	9600		B2-U0-G2	B2-U0-G2	ERS1_10F1X40_IES	ERS1_10F1X30_IES
ERS1		G1	10000	9600		B2-U0-G2	B2-U0-G2	ERS1_10G1X40_IES	ERS1_10G1X30_IES
ERS1	11	A1	10900	10500	108	B3-U0-G2	B3-U0-G2	ERS1_11A1X40_IES	ERS1_11A1X30_IES
ERS1		B1	11200	10800		B3-U0-G2	B3-U0-G1	ERS1_11B1X40_IES	ERS1_11B1X30_IES
ERS1		C1	11500	11100		B3-U0-G2	B3-U0-G2	ERS1_11C1X40_IES	ERS1_11C1X30_IES
ERS1		D1	11200	10800		B2-U0-G2	B2-U0-G2	ERS1_11D1X40_IES	ERS1_11D1X30_IES
ERS1		E1	11500	11100		B3-U0-G2	B3-U0-G2	ERS1_11E1X40_IES	ERS1_11E1X30_IES
ERS1		F1	11500	11100		B3-U0-G2	B3-U0-G2	ERS1_11F1X40_IES	ERS1_11F1X30_IES
ERS1		G1	11500	11100		B3-U0-G2	B3-U0-G2	ERS1_11G1X40_IES	ERS1_11G1X30_IES
ERS1	13	A1	12300	11900	125	B3-U0-G2	B3-U0-G2	ERS1_13A1X40_IES	ERS1_13A1X30_IES
ERS1		B1	12700	12200		B3-U0-G2	B3-U0-G2	ERS1_13B1X40_IES	ERS1_13B1X30_IES
ERS1		C1	13000	12500		B3-U0-G2	B3-U0-G2	ERS1_13C1X40_IES	ERS1_13C1X30_IES
ERS1		D1	12700	12200		B3-U0-G2	B2-U0-G2	ERS1_13D1X40_IES	ERS1_13D1X30_IES
ERS1		E1	13000	12500		B3-U0-G2	B3-U0-G2	ERS1_13E1X40_IES	ERS1_13E1X30_IES
ERS1		F1	13000	12500		B3-U0-G2	B3-U0-G2	ERS1_13F1X40_IES	ERS1_13F1X30_IES
ERS1		G1	13000	12500		B3-U0-G2	B3-U0-G2	ERS1_13G1X40_IES	ERS1_13G1X30_IES
ERS1	14	A1	13300	12800	139	B3-U0-G3	B3-U0-G3	ERS1_14A1X40_IES	ERS1_14A1X30_IES
ERS1		B1	13700	13200		B3-U0-G2	B3-U0-G2	ERS1_14B1X40_IES	ERS1_14B1X30_IES
ERS1		C1	14000	13500		B3-U0-G2	B3-U0-G2	ERS1_14C1X40_IES	ERS1_14C1X30_IES
ERS1		D1	13700	13200		B3-U0-G2	B3-U0-G2	ERS1_14D1X40_IES	ERS1_14D1X30_IES
ERS1		E1	14000	13500		B3-U0-G2	B3-U0-G2	ERS1_14E1X40_IES	ERS1_14E1X30_IES
ERS1		F1	14000	13500		B3-U0-G2	B3-U0-G2	ERS1_14F1X40_IES	ERS1_14F1X30_IES
ERS1		G1	14000	13500		B3-U0-G2	B3-U0-G2	ERS1_14G1X40_IES	ERS1_14G1X30_IES
ERS1	15	A1	14200	13700	161	B3-U0-G3	B3-U0-G3	ERS1_15A1X40_IES	ERS1_15A1X30_IES
ERS1		B1	14700	14200		B3-U0-G2	B3-U0-G2	ERS1_15B1X40_IES	ERS1_15B1X30_IES
ERS1		C1	15000	14500		B3-U0-G2	B3-U0-G2	ERS1_15C1X40_IES	ERS1_15C1X30_IES
ERS1		D1	14700	14200		B3-U0-G2	B3-U0-G2	ERS1_15D1X40_IES	ERS1_15D1X30_IES
ERS1		E1	15000	14500		B3-U0-G2	B3-U0-G2	ERS1_15E1X40_IES	ERS1_15E1X30_IES
ERS1		F1	15000	14500		B3-U0-G2	B3-U0-G2	ERS1_15F1X40_IES	ERS1_15F1X30_IES
ERS1		G1	15000	14500		B3-U0-G2	B3-U0-G2	ERS1_15G1X40_IES	ERS1_15G1X30_IES

Photometrics

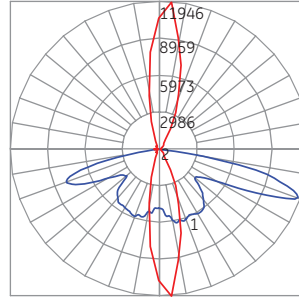
Evolve™ LED Streetlight (ERLH and ERS1)

ERLH and ERS1 Extra Narrow Asymmetric (15A1)

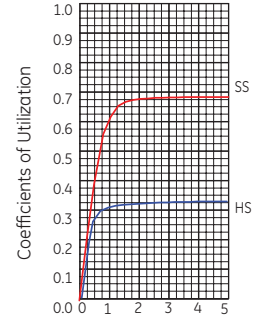
14,200 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



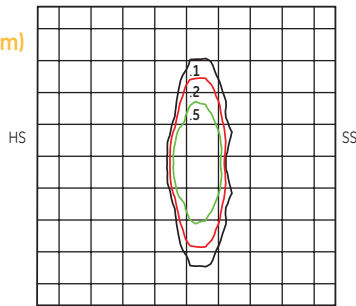
— Vertical plane through horizontal angle of maximum candlepower at 85°
— Vertical plane through horizontal angle of 71°



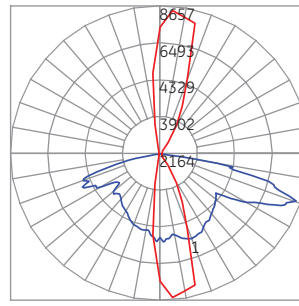
Coefficients of Utilization vs Street Width/Mounting Height

ERLH and ERS1 Narrow Asymmetric (Medium) (15B1)

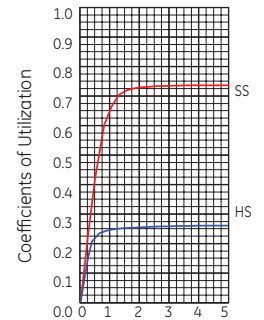
14,700 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



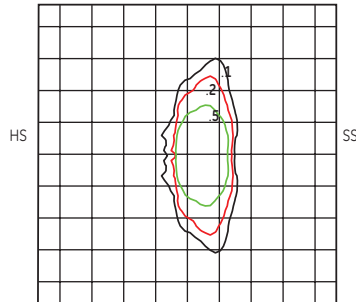
— Vertical plane through horizontal angle of maximum candlepower at 85°
— Vertical plane through horizontal angle of 71°



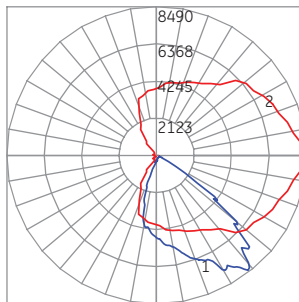
Coefficients of Utilization vs Street Width/Mounting Height

ERLH and ERS1 Asymmetric Short (15C1)

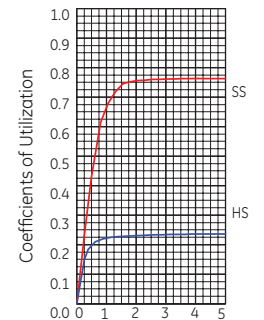
15,000 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



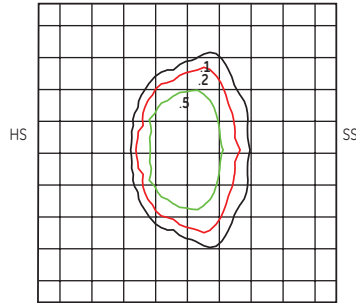
— Vertical plane through horizontal angle of maximum candlepower at 0°
— Vertical plane through horizontal angle of 38°



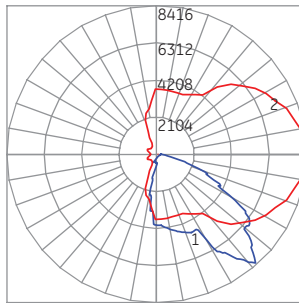
Coefficients of Utilization vs Street Width/Mounting Height

ERLH and ERS1 Asymmetric Forward (15D1)

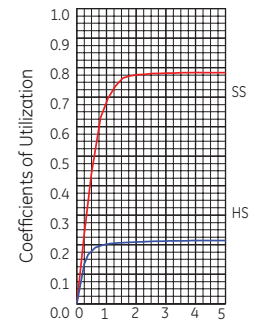
14,700 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



— Vertical plane through horizontal angle of maximum candlepower at 5°
— Vertical plane through horizontal angle of 41°



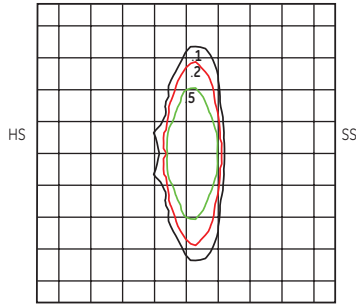
Coefficients of Utilization vs Street Width/Mounting Height

Photometrics

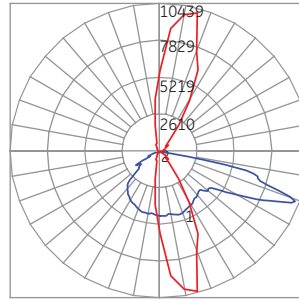
Evolve™ LED Streetlight (ERLH and ERS1)

ERLH and ERS1 Asymmetric Medium (15E1)

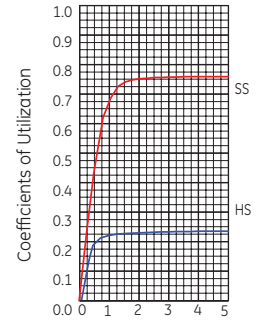
15,000 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



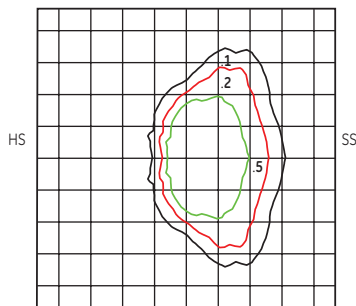
— Vertical plane through horizontal angle of maximum candlepower at 75°
— Vertical plane through horizontal angle of 70°



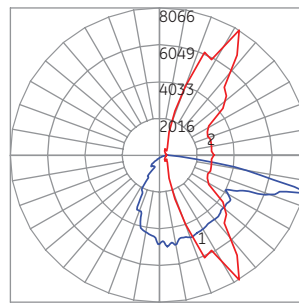
Street Width/Mounting Height

ERLH and ERS1 Asymmetric Wide (15F1)

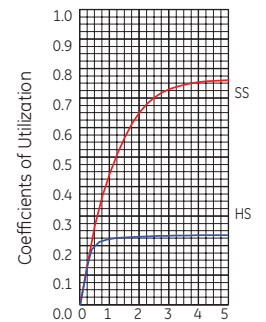
15,000 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



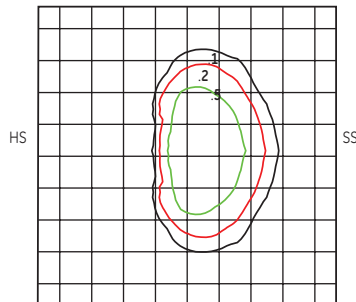
— Vertical plane through horizontal angle of maximum candlepower at 60°
— Vertical plane through horizontal angle of 75°



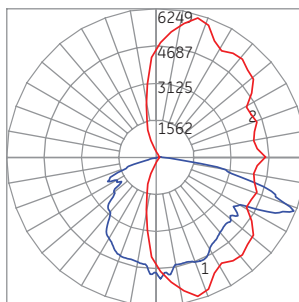
Street Width/Mounting Height

ERLH and ERS1 Asymmetric Extra Wide (15G1)

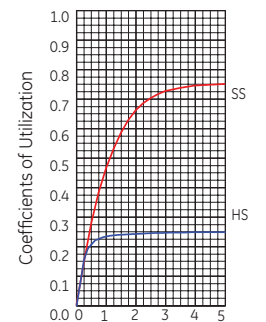
15,000 Lumens
4000K



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



— Vertical plane through horizontal angle of maximum candlepower at 75°
— Vertical plane through horizontal angle of 68°



Street Width/Mounting Height

Ordering Number Logic

Evolve™ LED Streetlight (ERS2)



ERS2

PROD. ID	VOLTAGE	LUMEN OUTPUT	DISTRIBUTION	DRIVE CURRENT	CCT	CONTROLS	COLOR	OPTIONS
E = Evolve	0 = 120-277*	16	A1 = Extra Narrow Asymmetric	X = Not Applicable	30 = 3000K 40 = 4000K	A = ANSI C136.41 7-pin D = ANSI C136.41 7-pin receptacle with Shorting Cap E = ANSI C136.41 7-pin Receptacle with non-Dimming PE Control.*	GRAY = Gray BLCK = Black DKBZ = Dark Bronze	A = 4 Bolt Slipfitter † F = Fusing G = Internal Bubble Level L = Tool-Less Entry R = Optional Secondary Enhanced Surge Protection (10kV/5kA) T = 20kV/10kA Surge Protection per IEEE/ANSI C62.41.2-2002 † U = Universal DALI Programmable + ^ Y = Coastal Finish* XXX = Special Options
R = Roadway	1 = 120	18	B1 = Narrow Asymmetric (Medium)					† Contact manufacturer for Lead-Time.
S = Scalable	2 = 208	19	C1 = Asymmetric (Short)					* Recommended for installations within 1 mile from the coast. Contact Factory for Lead-Time.
2 = Double Module	3 = 240	21	D1 = Asymmetric Forward					+ Compatible with LightGrid 2.0 nodes.
	4 = 277	23	E1 = Asymmetric (Medium)					^ Not available at 347V, 480V or 347-480V.
	5 = 480	25	F1 = Asymmetric (Wide)					
	D = 347	27	G1 = Asymmetric (Extra Wide)					
	H = 347-480*	28						
	* Not available with Fusing. Must choose a discreet voltage with F option.		See Data Table for more information.					
			See Data Table for more information.					
			See Data Table for more information.					

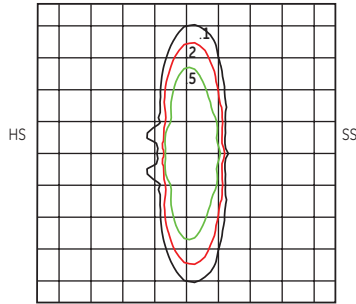
PRODUCT ID	LUMEN OUTPUT	DISTRIBUTION	TYPICAL INITIAL LUMENS		TYPICAL SYSTEM WATTAGE	BUG RATING		IES FILE NUMBER	
			4000K	3000K		4000K	3000K	4000K	3000K
ERS2	16	A1	15200	14700	132	B3-U0-G3	B3-U0-G3	ERS2_16A1X40	ERS2_16A1X30
ERS2		B1	15700	15100		B3-U0-G2	B3-U0-G2	ERS2_16B1X40	ERS2_16B1X30
ERS2		C1	16000	15400		B3-U0-G2	B3-U0-G2	ERS2_16C1X40	ERS2_16C1X30
ERS2		D1	15700	15100		B3-U0-G2	B3-U0-G2	ERS2_16D1X40	ERS2_16D1X30
ERS2		E1	16000	15400		B3-U0-G2	B3-U0-G2	ERS2_16E1X40	ERS2_16E1X30
ERS2		F1	16000	15400		B3-U0-G2	B3-U0-G2	ERS2_16F1X40	ERS2_16F1X30
ERS2		G1	16000	15400		B3-U0-G2	B3-U0-G2	ERS2_16G1X40	ERS2_16G1X30
ERS2		A1	17100	16500		B3-U0-G3	B3-U0-G3	ERS2_18A1X40	ERS2_18A1X30
ERS2		B1	17600	17000		B3-U0-G2	B3-U0-G2	ERS2_18B1X40	ERS2_18B1X30
ERS2		C1	18000	17400		B3-U0-G2	B3-U0-G2	ERS2_18C1X40	ERS2_18C1X30
ERS2		D1	17600	17000		B3-U0-G2	B3-U0-G2	ERS2_18D1X40	ERS2_18D1X30
ERS2		E1	18000	17400		B3-U0-G2	B3-U0-G2	ERS2_18E1X40	ERS2_18E1X30
ERS2	F1	18000	17400	B3-U0-G3	B3-U0-G2	ERS2_18F1X40	ERS2_18F1X30		
ERS2	G1	18000	17400	B3-U0-G2	B3-U0-G2	ERS2_18G1X40	ERS2_18G1X30		
ERS2	A1	18000	17300	B3-U0-G3	B3-U0-G3	ERS2_19A1X40	ERS2_19A1X30		
ERS2	B1	18600	17900	B3-U0-G2	B3-U0-G2	ERS2_19B1X40	ERS2_19B1X30		
ERS2	C1	19000	18300	B3-U0-G2	B3-U0-G2	ERS2_19C1X40	ERS2_19C1X30		
ERS2	D1	18600	17900	B3-U0-G2	B3-U0-G2	ERS2_19D1X40	ERS2_19D1X30		
ERS2	E1	19000	18300	B3-U0-G2	B3-U0-G2	ERS2_19E1X40	ERS2_19E1X30		
ERS2	F1	19000	18300	B3-U0-G3	B3-U0-G3	ERS2_19F1X40	ERS2_19F1X30		
ERS2	G1	19000	18300	B3-U0-G3	B3-U0-G2	ERS2_19G1X40	ERS2_19G1X30		
ERS2	A1	20000	19300	B3-U0-G3	B3-U0-G3	ERS2_21A1X40	ERS2_21A1X30		
ERS2	B1	20600	19900	B3-U0-G2	B3-U0-G2	ERS2_21B1X40	ERS2_21B1X30		
ERS2	C1	21000	20300	B3-U0-G2	B3-U0-G2	ERS2_21C1X40	ERS2_21C1X30		
ERS2	D1	20600	19900	B3-U0-G2	B3-U0-G2	ERS2_21D1X40	ERS2_21D1X30		
ERS2	E1	21000	20300	B3-U0-G2	B3-U0-G2	ERS2_21E1X40	ERS2_21E1X30		
ERS2	F1	21000	20300	B3-U0-G3	B3-U0-G3	ERS2_21F1X40	ERS2_21F1X30		
ERS2	G1	21000	20300	B3-U0-G3	B3-U0-G3	ERS2_21G1X40	ERS2_21G1X30		
ERS2	A1	21900	21100	B4-U0-G3	B3-U0-G3	ERS2_23A1X40	ERS2_23A1X30		
ERS2	B1	22500	21700	B3-U0-G3	B3-U0-G2	ERS2_23B1X40	ERS2_23B1X30		
ERS2	C1	23000	22200	B3-U0-G2	B3-U0-G2	ERS2_23C1X40	ERS2_23C1X30		
ERS2	D1	22500	21700	B3-U0-G2	B3-U0-G2	ERS2_23D1X40	ERS2_23D1X30		
ERS2	E1	23000	22200	B3-U0-G2	B3-U0-G2	ERS2_23E1X40	ERS2_23E1X30		
ERS2	F1	23000	22200	B3-U0-G3	B3-U0-G3	ERS2_23F1X40	ERS2_23F1X30		
ERS2	G1	23000	22200	B3-U0-G3	B3-U0-G3	ERS2_23G1X40	ERS2_23G1X30		
ERS2	A1	23800	23000	B4-U0-G3	B4-U0-G3	ERS2_25A1X40	ERS2_25A1X30		
ERS2	B1	24500	23600	B4-U0-G3	B3-U0-G3	ERS2_25B1X40	ERS2_25B1X30		
ERS2	C1	25000	24100	B3-U0-G2	B3-U0-G2	ERS2_25C1X40	ERS2_25C1X30		
ERS2	D1	24500	23600	B3-U0-G3	B3-U0-G3	ERS2_25D1X40	ERS2_25D1X30		
ERS2	E1	25000	24100	B3-U0-G3	B3-U0-G3	ERS2_25E1X40	ERS2_25E1X30		
ERS2	F1	25000	24100	B3-U0-G3	B3-U0-G3	ERS2_25F1X40	ERS2_25F1X30		
ERS2	G1	25000	24100	B3-U0-G3	B3-U0-G3	ERS2_25G1X40	ERS2_25G1X30		
ERS2	A1	25700	24800	B4-U0-G3	B4-U0-G3	ERS2_27A1X40	ERS2_27A1X30		
ERS2	B1	26500	25600	B4-U0-G3	B4-U0-G3	ERS2_27B1X40	ERS2_27B1X30		
ERS2	C1	27000	26000	B4-U0-G3	B4-U0-G3	ERS2_27C1X40	ERS2_27C1X30		
ERS2	D1	26500	25600	B3-U0-G3	B3-U0-G3	ERS2_27D1X40	ERS2_27D1X30		
ERS2	E1	27000	26000	B4-U0-G3	B4-U0-G3	ERS2_27E1X40	ERS2_27E1X30		
ERS2	F1	27000	26000	B4-U0-G4	B4-U0-G3	ERS2_27F1X40	ERS2_27F1X30		
ERS2	G1	27000	26000	B4-U0-G3	B4-U0-G3	ERS2_27G1X40	ERS2_27G1X30		
ERS2	A1	26600	25600	B4-U0-G3	B4-U0-G3	ERS2_28A1X40	ERS2_28A1X30		
ERS2	B1	27400	26400	B4-U0-G3	B4-U0-G3	ERS2_28B1X40	ERS2_28B1X30		
ERS2	C1	28000	26900	B4-U0-G3	B4-U0-G3	ERS2_28C1X40	ERS2_28C1X30		
ERS2	D1	27400	26400	B3-U0-G3	B3-U0-G3	ERS2_28D1X40	ERS2_28D1X30		
ERS2	E1	28000	26900	B4-U0-G3	B4-U0-G3	ERS2_28E1X40	ERS2_28E1X30		
ERS2	F1	28000	26900	B4-U0-G4	B4-U0-G3	ERS2_28F1X40	ERS2_28F1X30		
ERS2	G1	28000	26900	B4-U0-G4	B4-U0-G3	ERS2_28G1X40	ERS2_28G1X30		

Photometrics

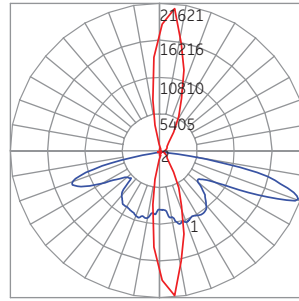
Evolve™ LED Streetlight (ERS2)

ERS2 Extra Narrow Asymmetric (27A1)

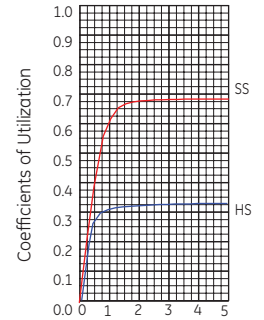
25,700 Lumens
4000K
ERS2_27A1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



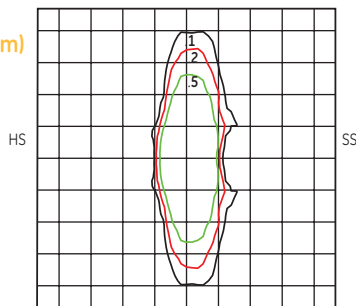
— Vertical plane through horizontal angle of maximum candlepower at 85°
— Vertical plane through horizontal angle of 71°



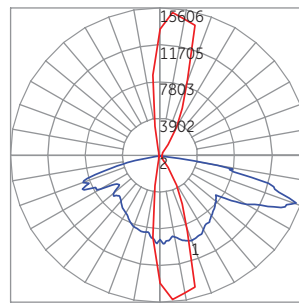
Street Width/Mounting Height

ERS2 Narrow Asymmetric (Medium) (27B1)

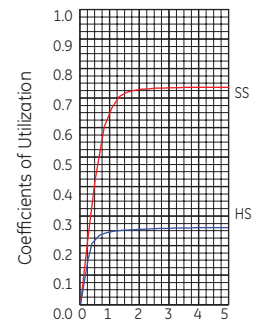
26,500 Lumens
4000K
ERS2_27B1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



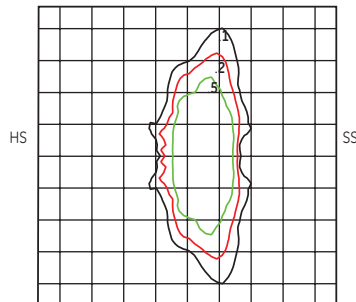
— Vertical plane through horizontal angle of maximum candlepower at 85°
— Vertical plane through horizontal angle of 71°



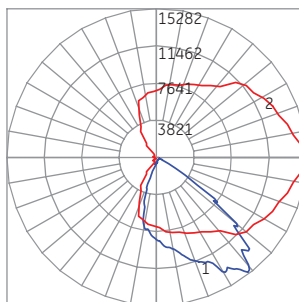
Street Width/Mounting Height

ERS2 Asymmetric Short (27C1)

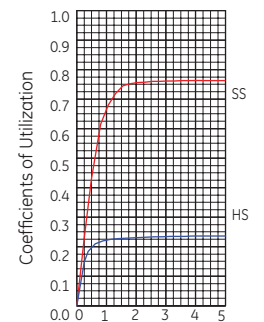
27,000 Lumens
4000K
ERS2_27C1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



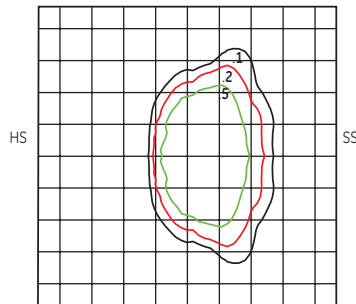
— Vertical plane through horizontal angle of maximum candlepower at 0°
— Vertical plane through horizontal angle of 38°



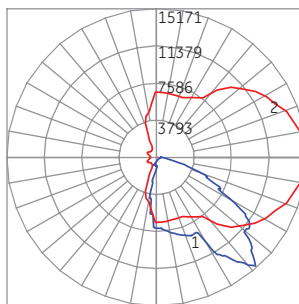
Street Width/Mounting Height

ERS2 Asymmetric Forward (27D1)

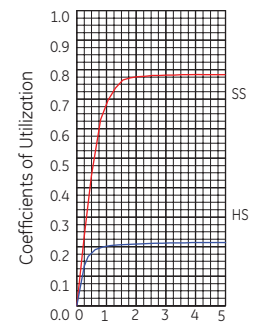
26,500 Lumens
4000K
ERS2_27D1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



— Vertical plane through horizontal angle of maximum candlepower at 5°
— Vertical plane through horizontal angle of 41°



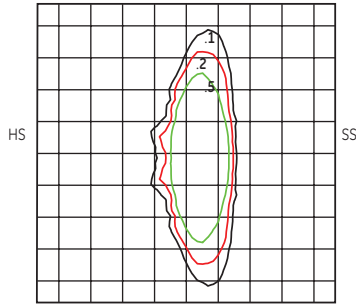
Street Width/Mounting Height

Photometrics

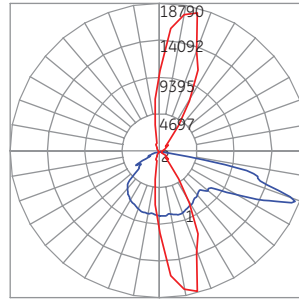
Evolve™ LED Streetlight (ERS2)

ERS2 Asymmetric Medium (27E1)

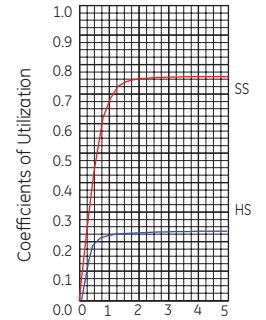
27,000 Lumens
4000K
ERS2_27E1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



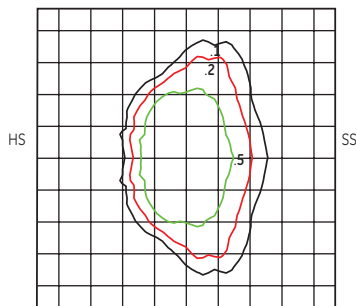
— Vertical plane through horizontal angle of maximum candlepower at 75°
— Vertical plane through horizontal angle of 70°



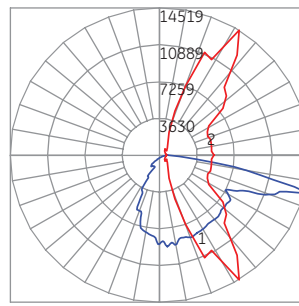
Street Width/Mounting Height

ERS2 Asymmetric Wide (27F1)

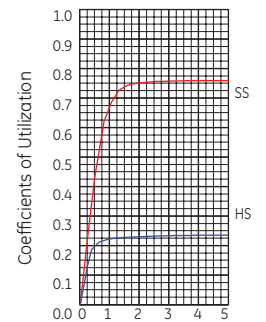
27,000 Lumens
4000K
ERS2_27F1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



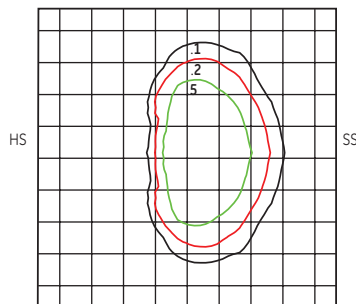
— Vertical plane through horizontal angle of maximum candlepower at 60°
— Vertical plane through horizontal angle of 75°



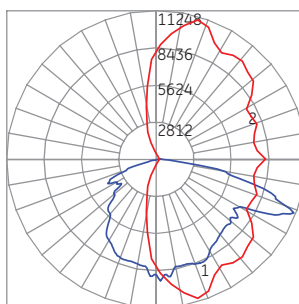
Street Width/Mounting Height

ERS2 Asymmetric Extra Wide (27G1)

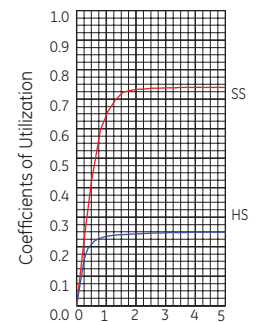
27,000 Lumens
4000K
ERS2_27G1X40____.IES



Grid Distance in Units of Mounting Height at 30' Initial Footcandle Values at Grade



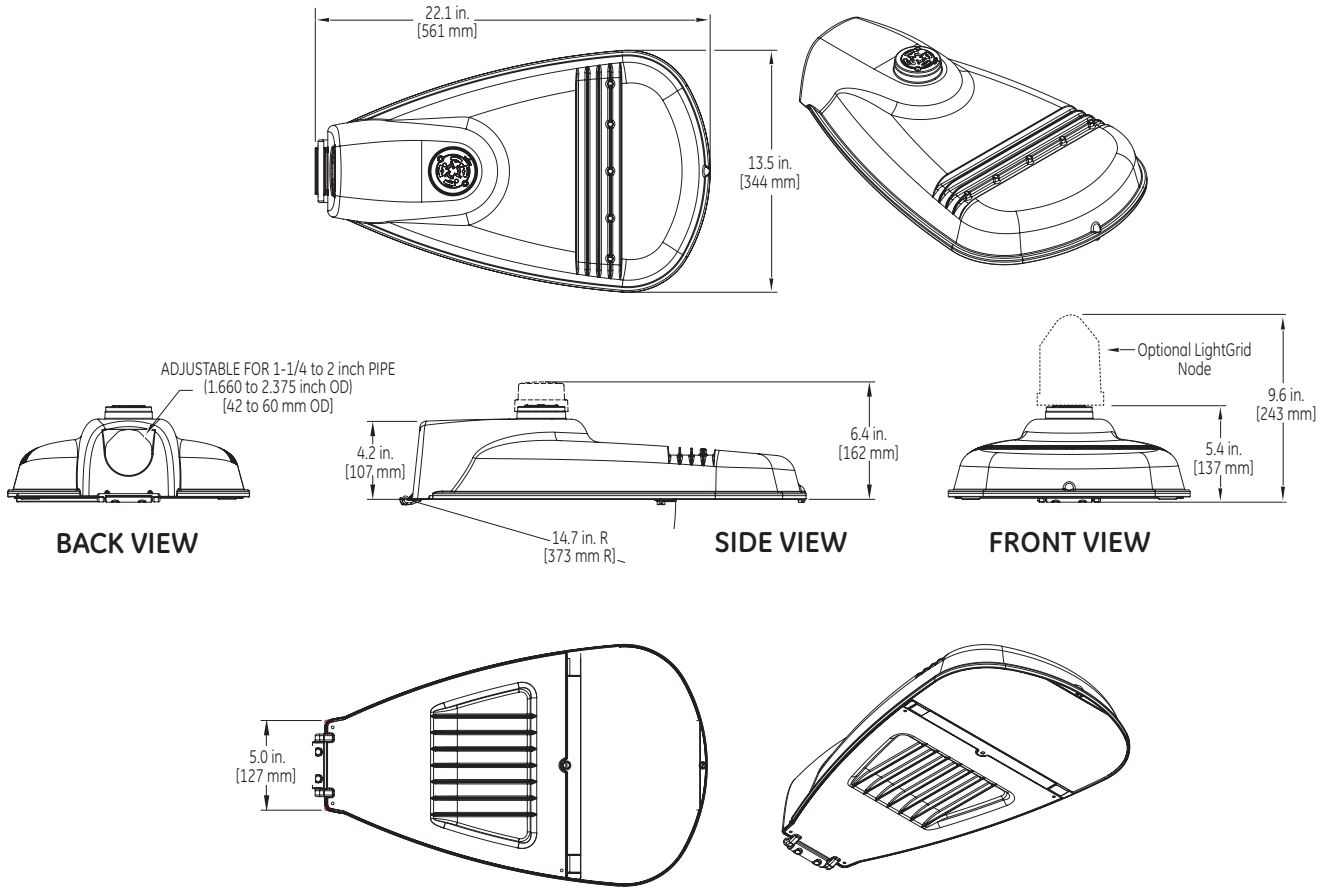
— Vertical plane through horizontal angle of maximum candlepower at 75°
— Vertical plane through horizontal angle of 68°



Street Width/Mounting Height

Product Dimensions

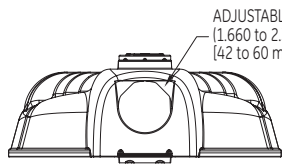
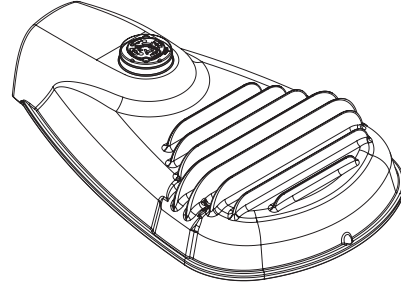
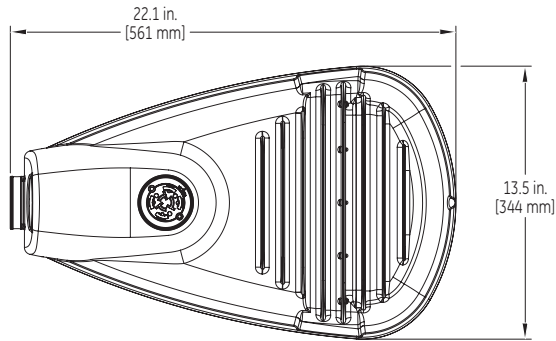
Evolve™ LED Streetlight (ERL1)



DATA	<ul style="list-style-type: none"> • Approximate net weight: 12.4 lbs (5.6 kgs) - Without XFMR • Approximate net weight: 15.5 lbs (7 kgs) - With XFMR • Effective Projected Area (EPA): 0.5 sq ft max (0.046 sq m)
-------------	---

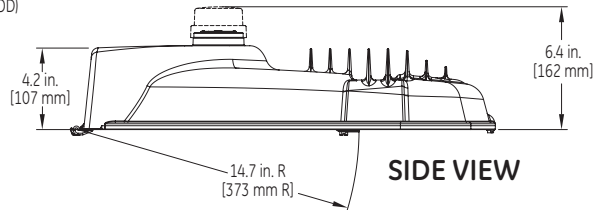
Product Dimensions

Evolve™ LED Streetlight (ERLH)

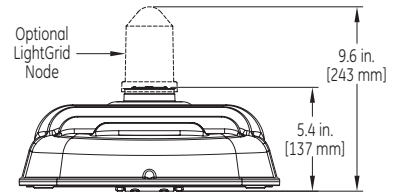


BACK VIEW

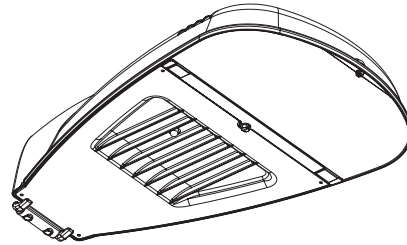
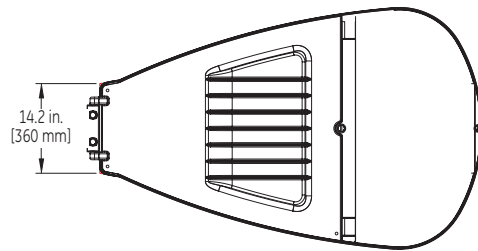
ADJUSTABLE FOR 1-1/4 to 2 inch PIPE
(1.660 to 2.375 inch OD)
(42 to 60 mm OD)



SIDE VIEW



FRONT VIEW

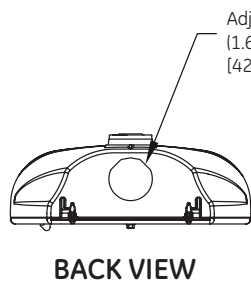
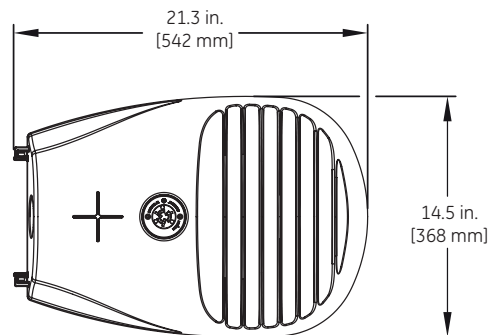


DATA

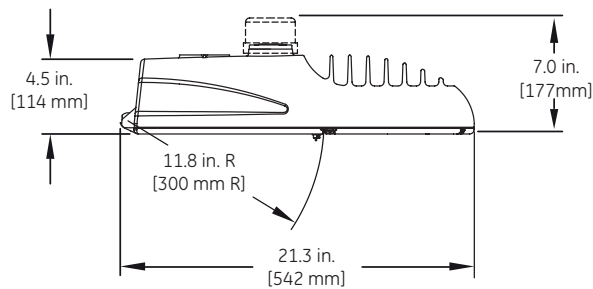
- Approximate net weight: 15.15 lbs (6.9 kgs) - 2 Bolt Slipfitter
- Approximate net weight: 15.85 lbs (7.2 kgs) - 4 Bolt Slipfitter
- Effective Projected Area (EPA): 0.5 sq ft max (0.046 sq m)

Product Dimensions

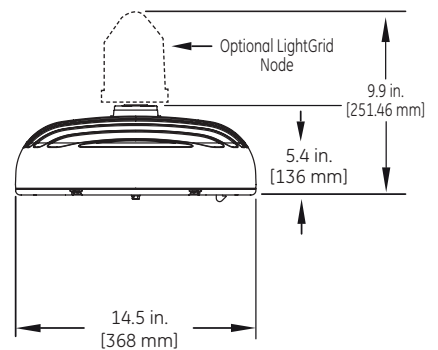
Evolve™ LED Streetlight (ERS1)



Adjustable for 1-1/4 to 2 in. mounting pipe
(1.660 to 2.375 inch OD)
(42 to 60 mm OD)



SIDE VIEW



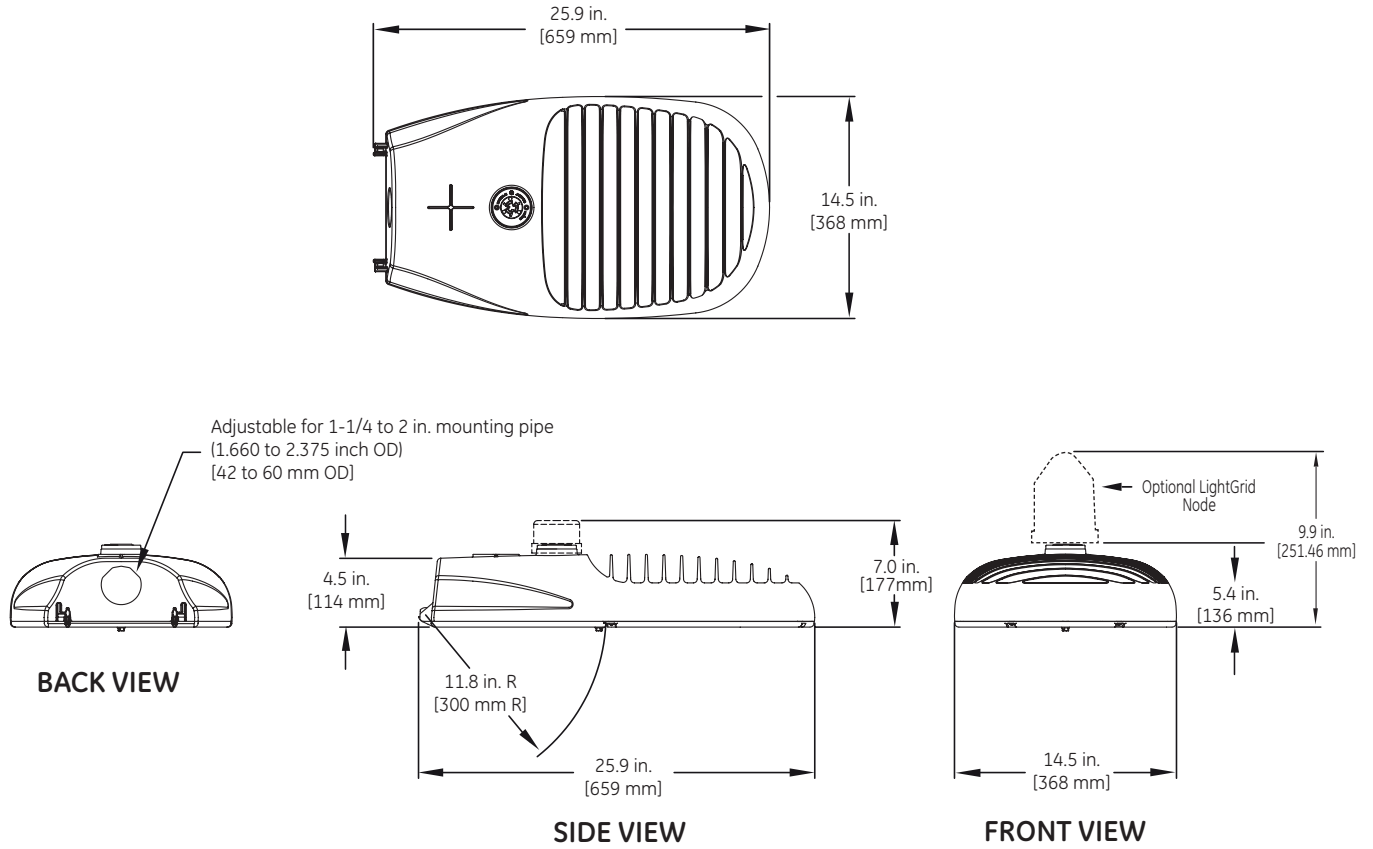
FRONT VIEW

DATA

- Approximate net weight: 20 lbs (9.1 kgs) to 25 lbs (11.4 kgs)
- Effective Projected Area (EPA): 0.5 sq ft max (0.046 sq m)

Product Dimensions

Evolve™ LED Streetlight (ERS2)



DATA

- Approximate net weight: 25 lbs (11.4 kgs) to 29 lbs (13.2 kgs)
- Effective Projected Area (EPA): 0.7 sq ft max (0.065 sq m)



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OLP3105 (Rev 09/21/16)

LUMINAIRE AND POLE DETAILS	
LUMINAIRE	ERL1_04B140 -120-277V .IES (32W)
	ERL1_C7A140 -120-277V .IES (51W)
	ERS1_11E140 .IES (108W)
	K700S-P4SH-III-60(SSL)-7030.IES (60W)
LLF	0.7
ARM LENGTH	DECORATIVE - 1.68m
	REGULAR (COBRA HEAD) - 2.4m
MOUNTING HEIGHT	DECORATIVE LIGHT POLES - 7.2m
	REGULAR LIGHT POLES - 10.7m
POLE TYPES	HYDRO POLES - 8.2m
	AS PER DETAIL - 1 & DETAIL - 2

INTERSECTION ILLUMINANCE TARGET VALUES		
FUNCTIONAL CLASSIFICATION	AVERAGE ILLUMINANCE (E _{avg})	AVE. UNIFORMITY RATIO (E _{avg} / E _{min})
MAJOR/MAJOR	18 lux	3
MAJOR/COLLECTOR	15 lux	3
MAJOR/LOCAL	13 lux	3

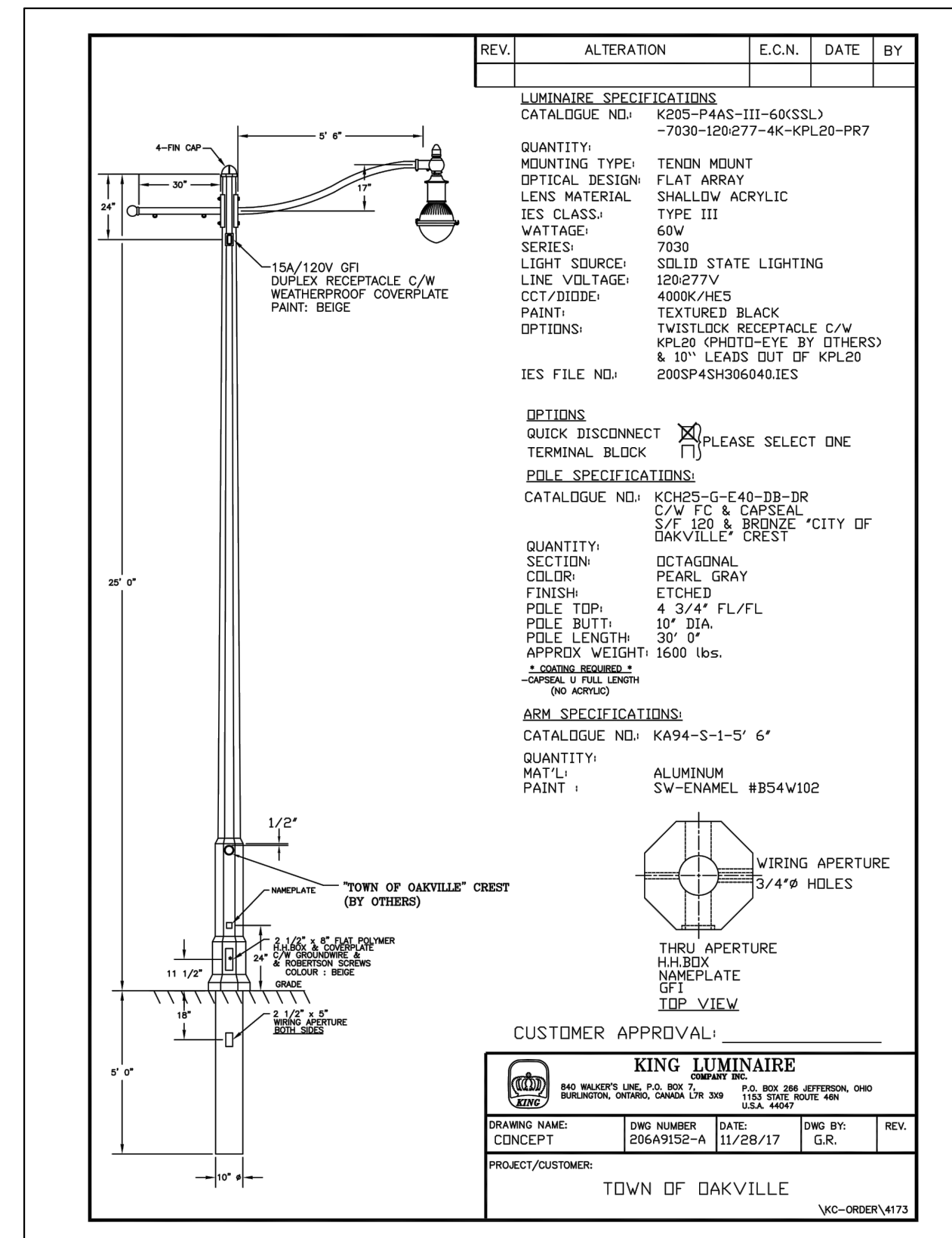
*TARGET AVERAGE ILLUMINANCE VALUE IS 75% OF THE RECOMMENDED LEVEL IN ANSIES-RP-8-14.
**PEDESTRIAN CONFLICT LEVEL - LOW.

ROADWAY LUMINANCE TARGET VALUES FOR STRAIGHT SECTIONS	
AVERAGE LUMINANCE (L _{avg})	0.45 cd/m ²
AVE. UNIFORMITY RATIO (L _{avg} / L _{min})	3.5
MAX. UNIFORMITY RATIO (L _{max} / L _{min})	6
MAX. VEILING LUMINANCE RATIO (LV _{max} / L _{avg})	0.3

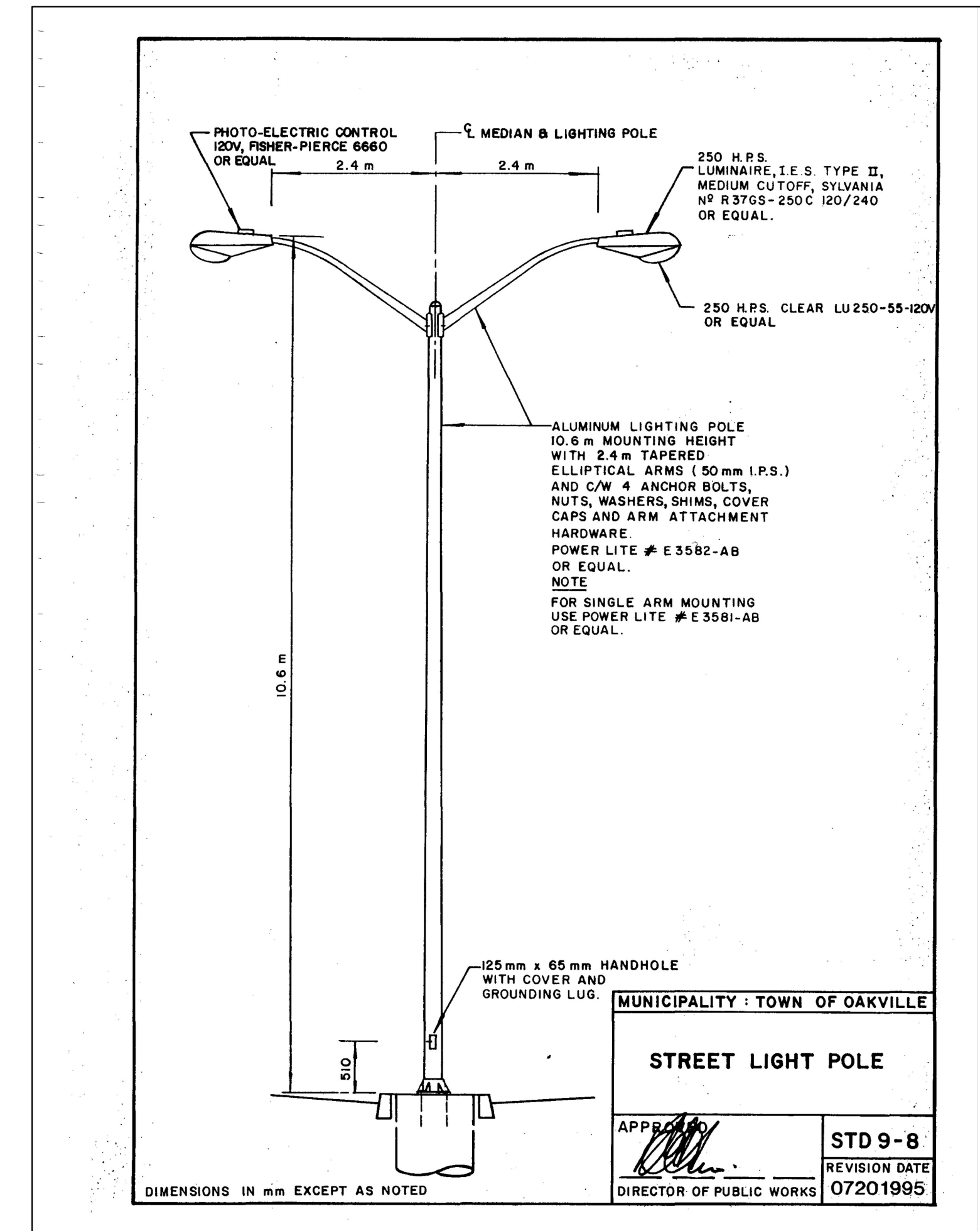
*TARGET AVERAGE LUMINANCE VALUE IS 75% OF THE RECOMMENDED LEVEL IN ANSIES-RP-8-14.
**PEDESTRIAN CONFLICT LEVEL - LOW.

ROADWAY ILLUMINANCE TARGET VALUES FOR CURVED SECTIONS	
AVERAGE ILLUMINANCE (E _{avg})	6.75 lux
AVE. UNIFORMITY RATIO (E _{avg} / E _{min})	3.5

*TARGET AVERAGE ILLUMINANCE VALUE IS 75% OF THE RECOMMENDED LEVEL IN ANSIES-RP-8-14.
**PEDESTRIAN CONFLICT LEVEL - LOW.



DETAIL - 1 : DECORATIVE LIGHT POLE



DETAIL - 2 : REGULAR LIGHT POLE

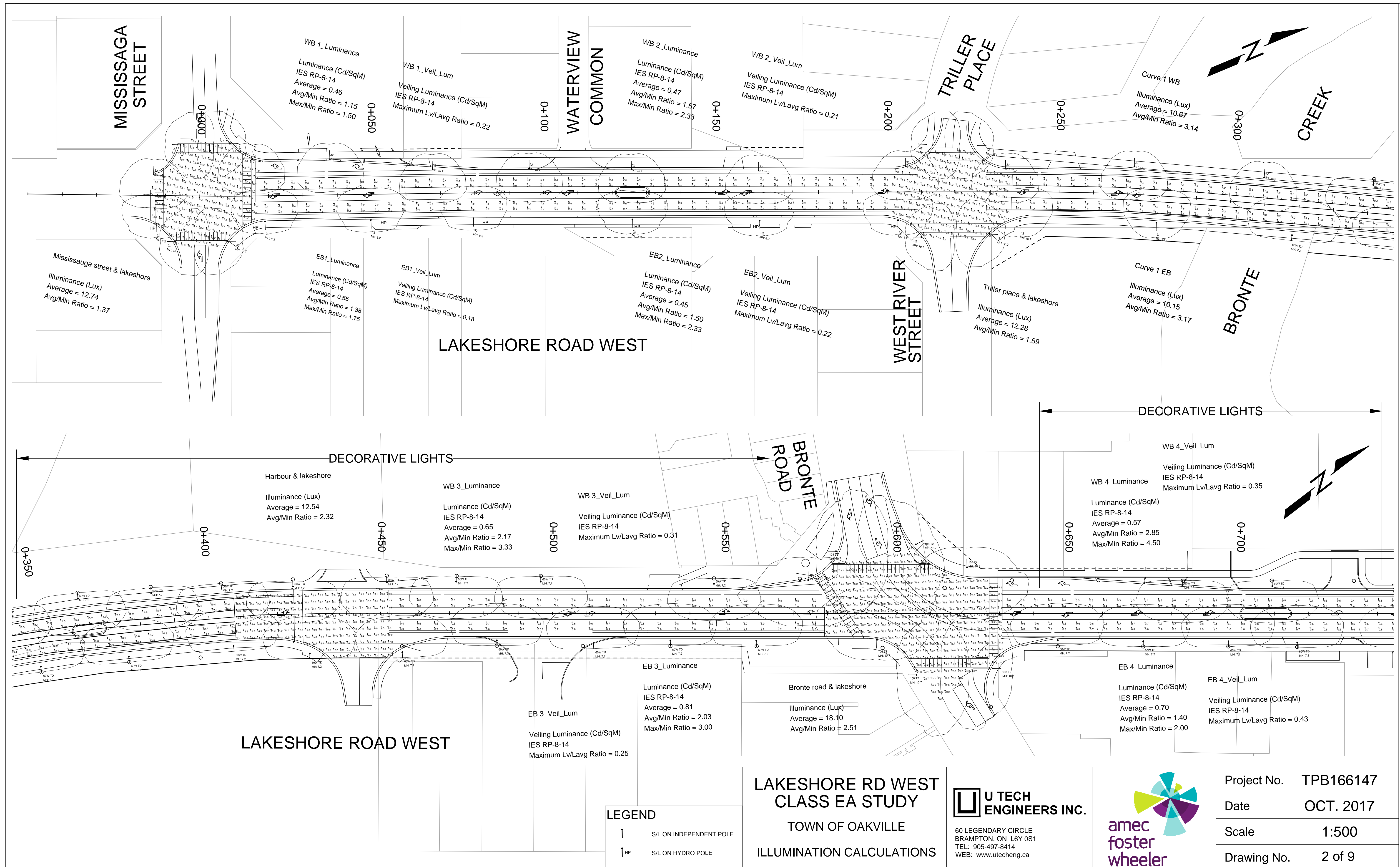
LEGEND	
	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE

LAKESHORE RD WEST
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Project No.	TPB166147
Date	OCT. 2017
Scale	1:500
Drawing No.	1 of 9



MISSISSAGA STREET

WATERVIEW COMMON

TRILLER PLACE

CREEK

WEST RIVER STREET

BRONTE

LAKESHORE ROAD WEST

DECORATIVE LIGHTS

DECORATIVE LIGHTS

LAKESHORE ROAD WEST

LAKESHORE RD WEST
CLASS EA STUDY
TOWN OF OAKVILLE
ILLUMINATION CALCULATIONS

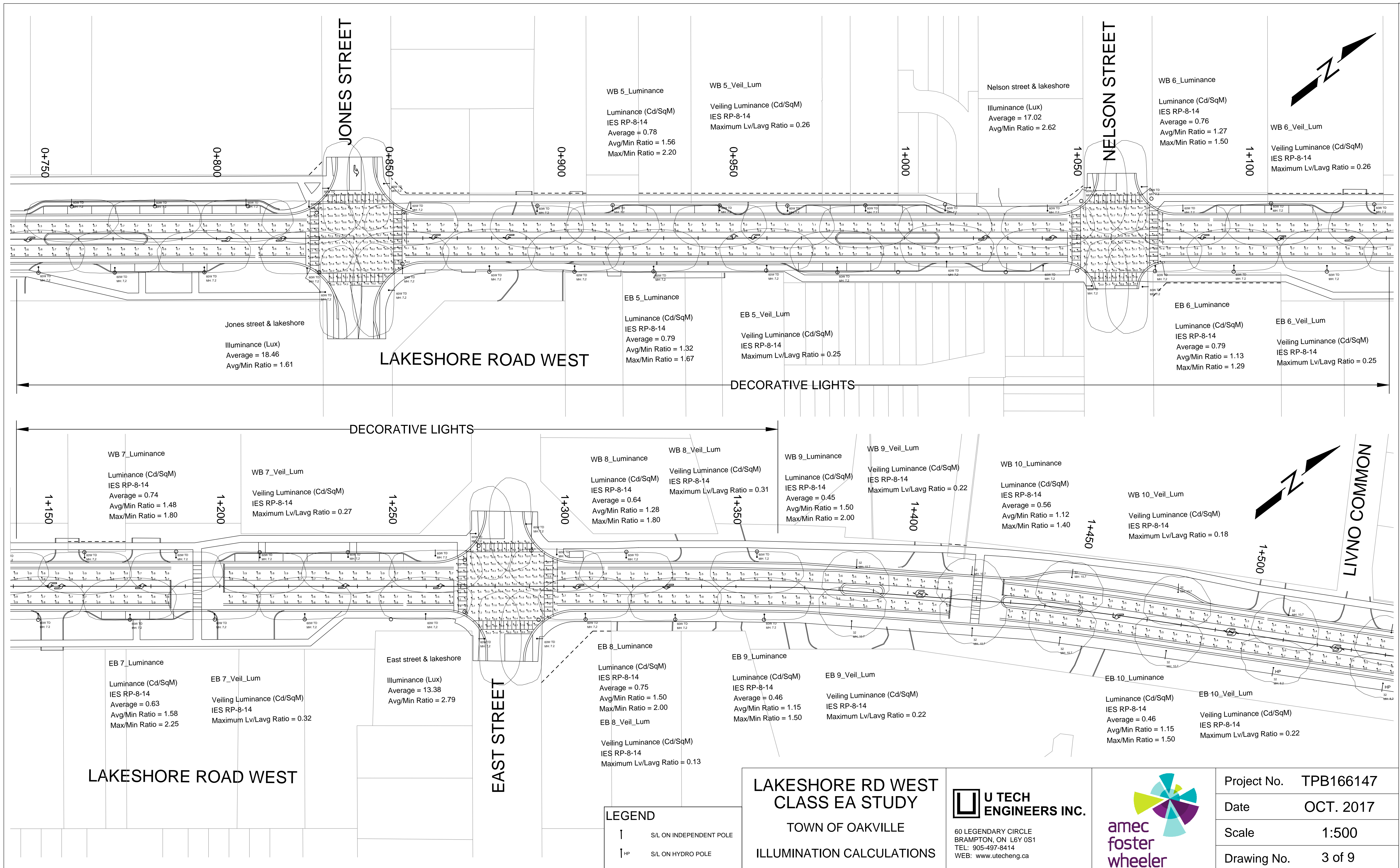
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Project No.	TPB166147
Date	OCT. 2017
Scale	1:500
Drawing No.	2 of 9

LEGEND

	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE



WB 5_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.78
Avg/Min Ratio = 1.56
Max/Min Ratio = 2.20

WB 5_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.26

Nelson street & lakeshore
Illuminance (Lux)
Average = 17.02
Avg/Min Ratio = 2.62

WB 6_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.76
Avg/Min Ratio = 1.27
Max/Min Ratio = 1.50

WB 6_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.26

Jones street & lakeshore
Illuminance (Lux)
Average = 18.46
Avg/Min Ratio = 1.61

LAKESHORE ROAD WEST

EB 5_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.79
Avg/Min Ratio = 1.32
Max/Min Ratio = 1.67

EB 5_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.25

EB 6_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.79
Avg/Min Ratio = 1.13
Max/Min Ratio = 1.29

EB 6_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.25

DECORATIVE LIGHTS

DECORATIVE LIGHTS

WB 7_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.74
Avg/Min Ratio = 1.48
Max/Min Ratio = 1.80

WB 7_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.27

WB 8_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.64
Avg/Min Ratio = 1.28
Max/Min Ratio = 1.80

WB 8_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.31

WB 9_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.45
Avg/Min Ratio = 1.50
Max/Min Ratio = 2.00

WB 9_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.22

WB 10_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.56
Avg/Min Ratio = 1.12
Max/Min Ratio = 1.40

WB 10_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.18

EB 7_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.63
Avg/Min Ratio = 1.58
Max/Min Ratio = 2.25

EB 7_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.32

East street & lakeshore
Illuminance (Lux)
Average = 13.38
Avg/Min Ratio = 2.79

EAST STREET

EB 8_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.75
Avg/Min Ratio = 1.50
Max/Min Ratio = 2.00

EB 8_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.13

EB 9_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.46
Avg/Min Ratio = 1.15
Max/Min Ratio = 1.50

EB 9_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.22

EB 10_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.46
Avg/Min Ratio = 1.15
Max/Min Ratio = 1.50

EB 10_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.22

LAKESHORE ROAD WEST

LIVNO COMMON

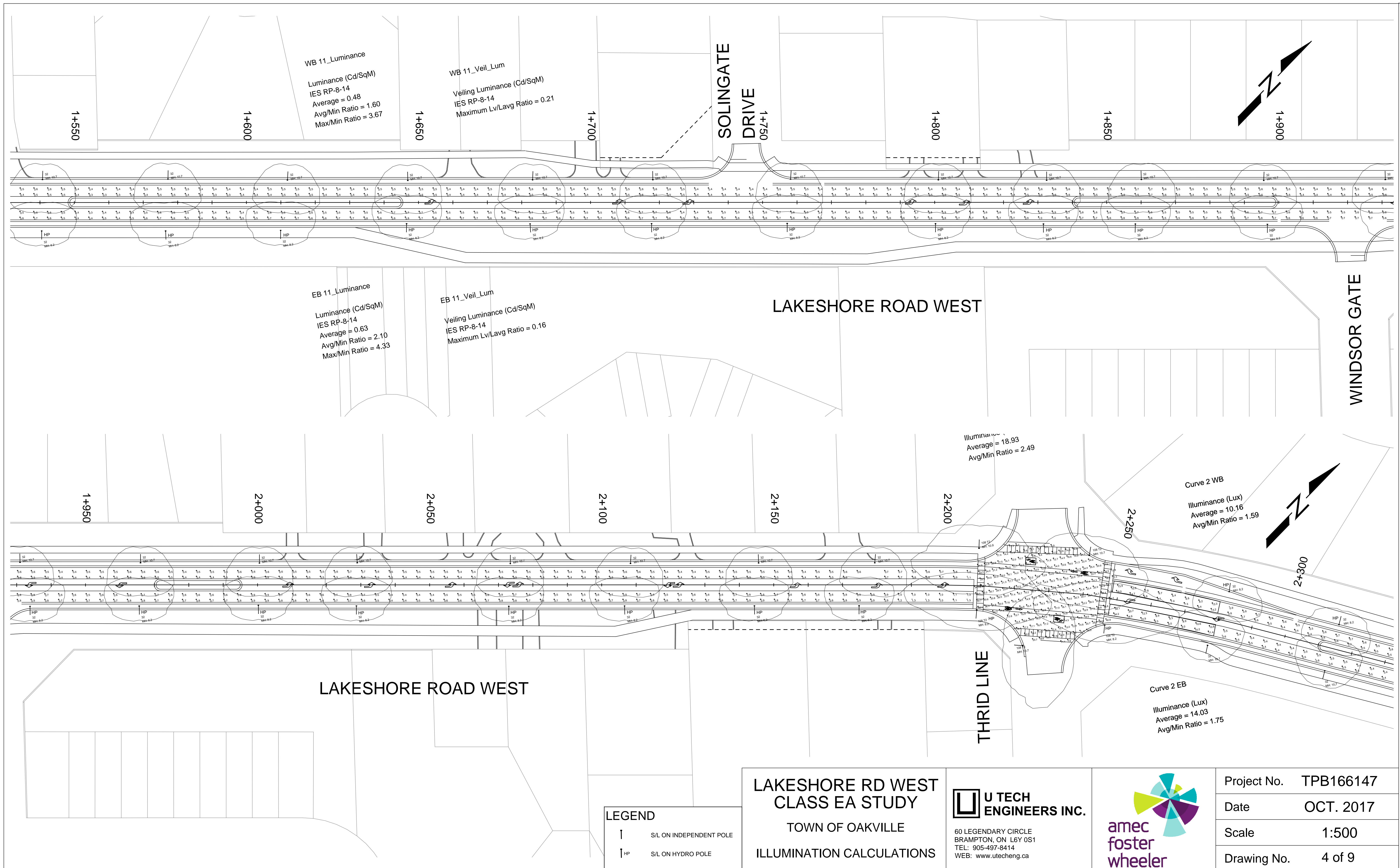
LEGEND
| S/L ON INDEPENDENT POLE
| HP S/L ON HYDRO POLE

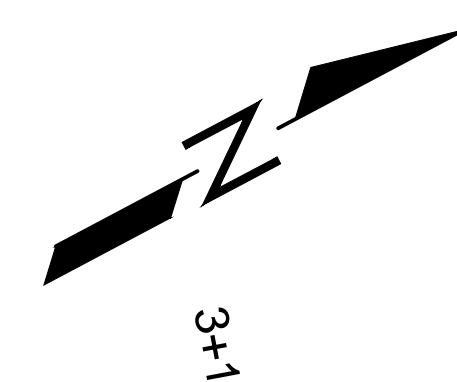
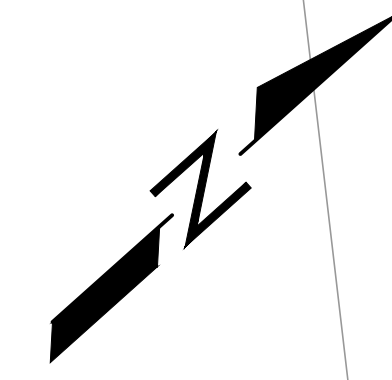
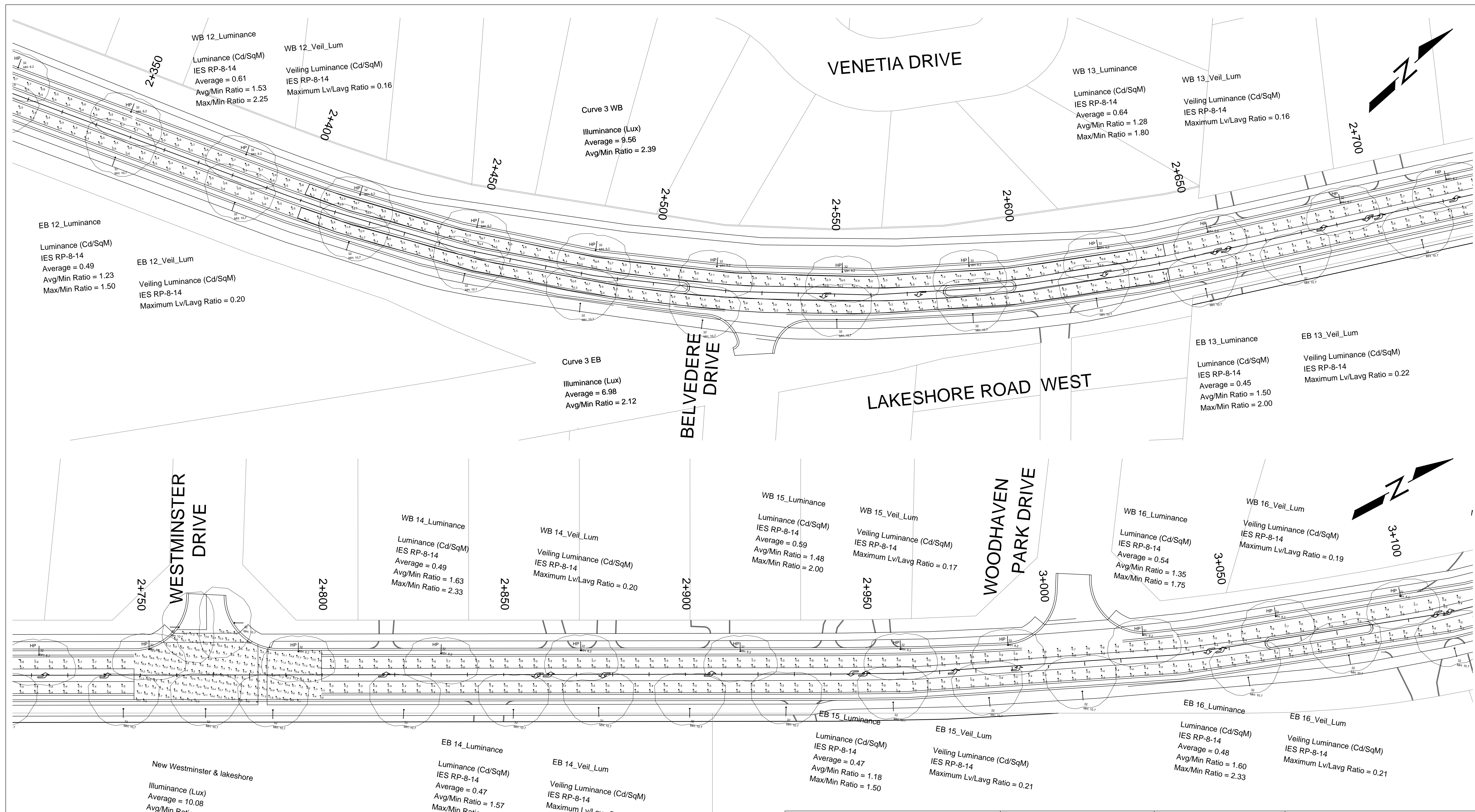
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Date	OCT. 2017
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LAKESHORE ROAD WEST

LEGEND

	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE

**LAKESHORE RD WEST
CLASS EA STUDY**

TOWN OF OAKVILLE

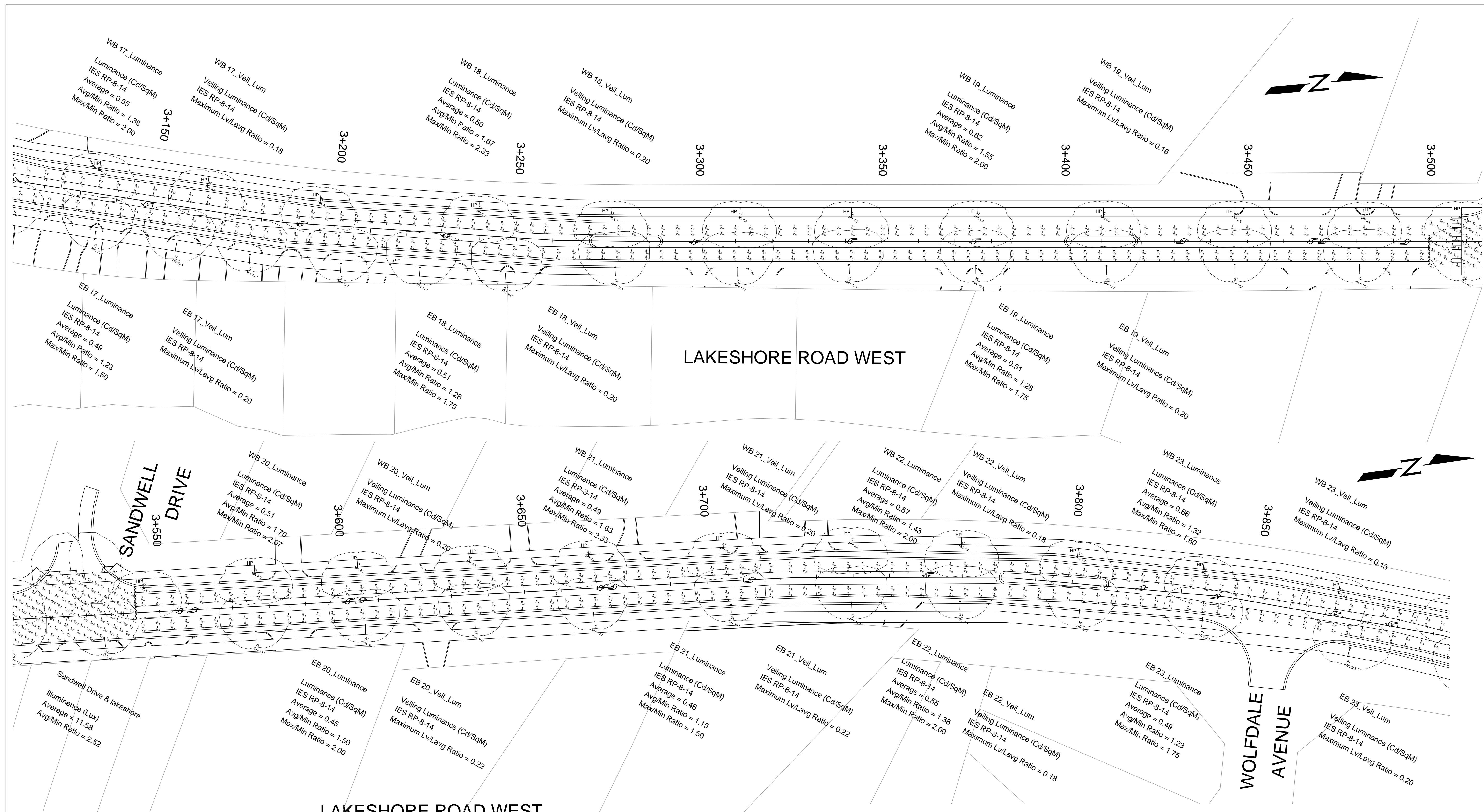
ILLUMINATION CALCULATIONS

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Date	OCT. 2017
Scale	1:500
Drawing No.	5 of 9



LAKESHORE ROAD WEST

LAKESHORE ROAD WEST

LEGEND

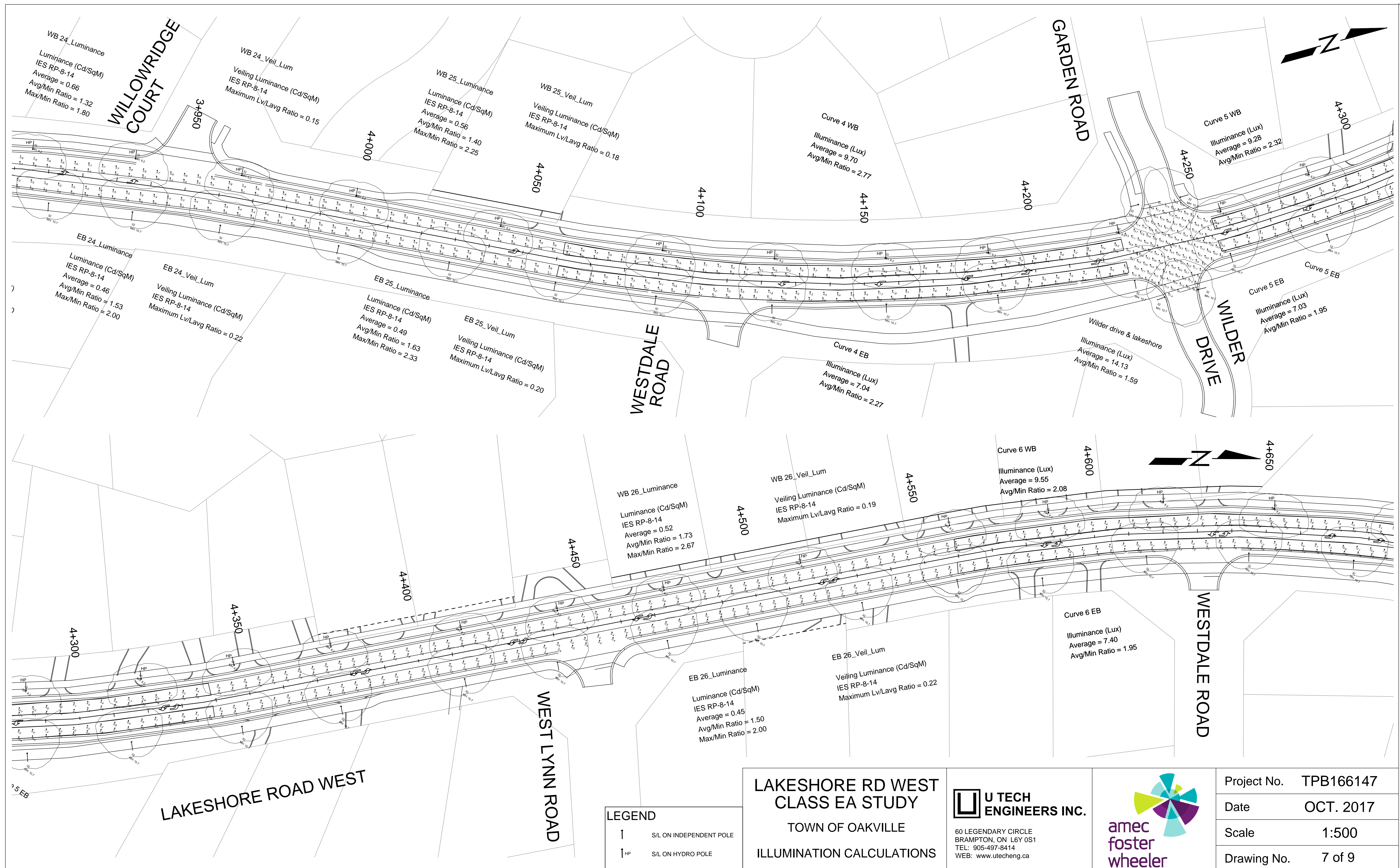
	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE

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Project No.	TPB166147
Date	OCT. 2017
Scale	1:500
Drawing No.	6 of 9



WB 24_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.66
Avg/Min Ratio = 1.32
Max/Min Ratio = 1.80

WB 24_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.15

WB 25_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.56
Avg/Min Ratio = 1.40
Max/Min Ratio = 2.25

WB 25_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.18

Curve 4 WB
Illuminance (Lux)
Average = 9.70
Avg/Min Ratio = 2.77

Curve 5 WB
Illuminance (Lux)
Average = 9.28
Avg/Min Ratio = 2.32

EB 24_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.46
Avg/Min Ratio = 1.53
Max/Min Ratio = 2.00

EB 24_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.22

EB 25_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.49
Avg/Min Ratio = 1.63
Max/Min Ratio = 2.33

EB 25_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.20

Curve 4 EB
Illuminance (Lux)
Average = 7.04
Avg/Min Ratio = 2.27

Wilder drive & lakeshore
Illuminance (Lux)
Average = 14.13
Avg/Min Ratio = 1.59

Curve 5 EB
Illuminance (Lux)
Average = 7.03
Avg/Min Ratio = 1.95

WB 26_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.52
Avg/Min Ratio = 1.73
Max/Min Ratio = 2.67

WB 26_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.19

Curve 6 WB
Illuminance (Lux)
Average = 9.55
Avg/Min Ratio = 2.08

EB 26_Luminance
Luminance (Cd/SqM)
IES RP-8-14
Average = 0.45
Avg/Min Ratio = 1.50
Max/Min Ratio = 2.00

EB 26_Veil_Lum
Veiling Luminance (Cd/SqM)
IES RP-8-14
Maximum Lv/Lavg Ratio = 0.22

Curve 6 EB
Illuminance (Lux)
Average = 7.40
Avg/Min Ratio = 1.95

LEGEND

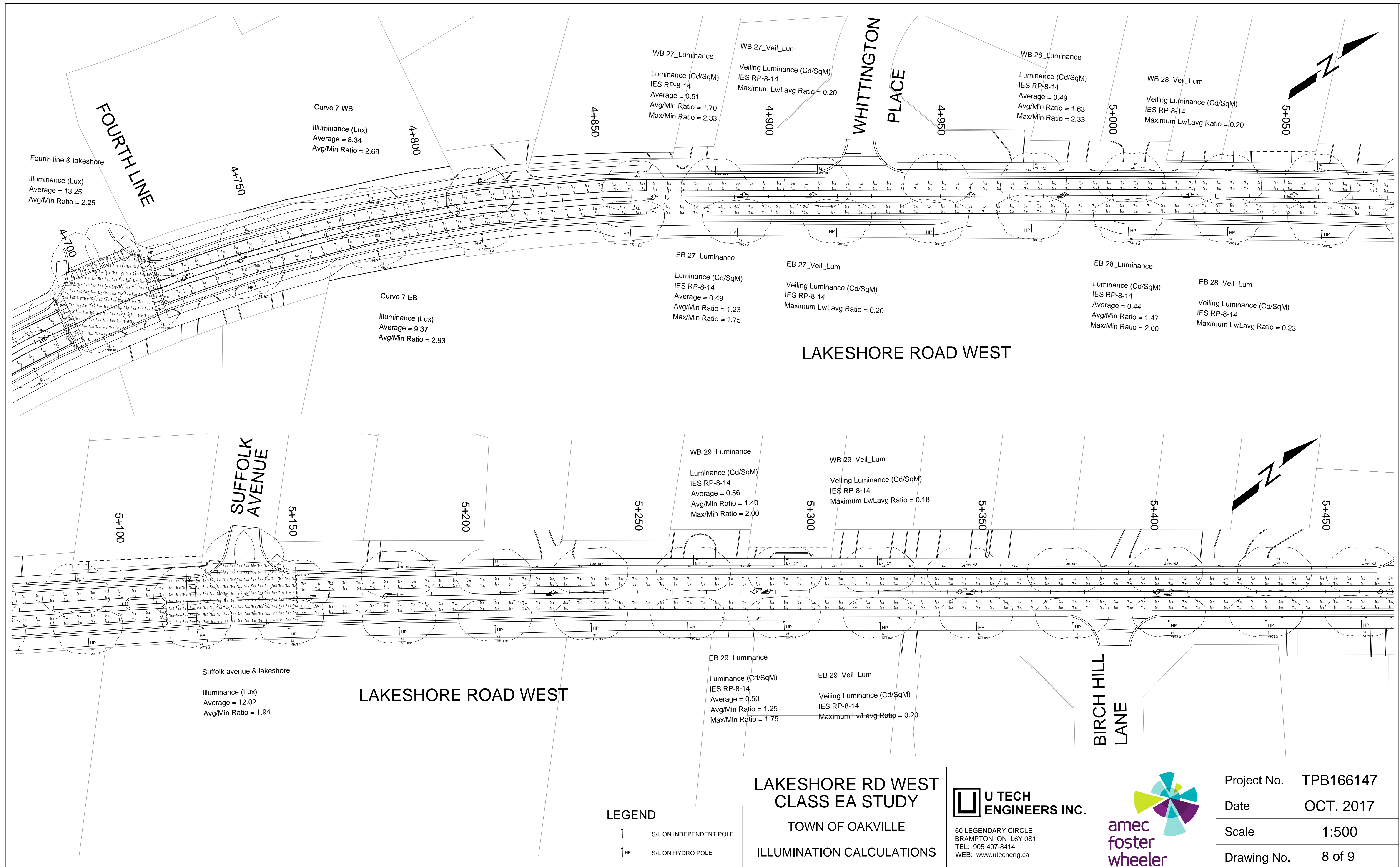
	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE

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Date	OCT. 2017
Scale	1:500
Drawing No.	7 of 9



LEGEND

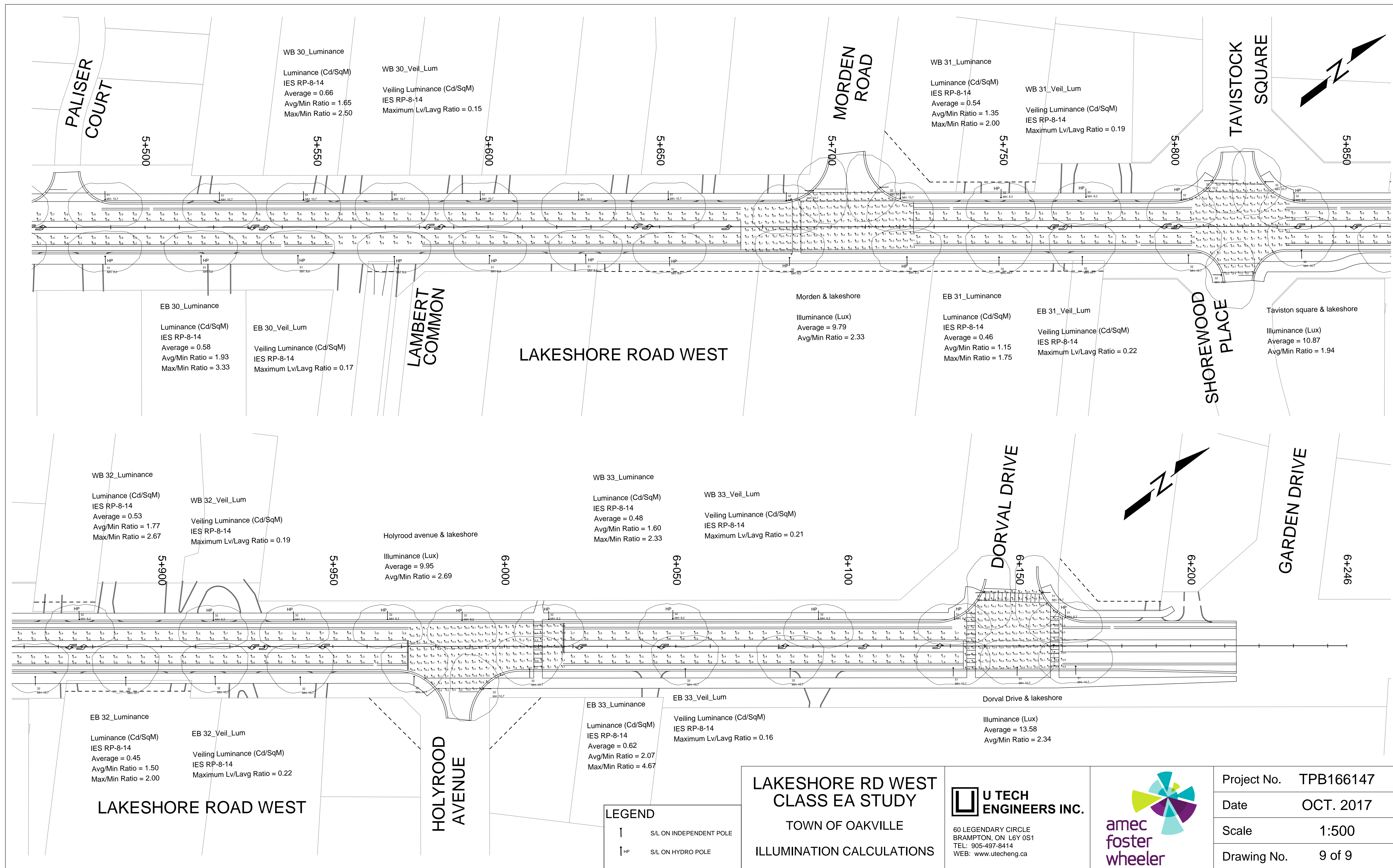
	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE

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Project No.	TPB166147
Date	OCT. 2017
Scale	1:500
Drawing No.	8 of 9



WB 30_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.66
 Avg/Min Ratio = 1.65
 Max/Min Ratio = 2.50

WB 30_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.15

WB 31_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.54
 Avg/Min Ratio = 1.35
 Max/Min Ratio = 2.00

WB 31_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.19

EB 30_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.58
 Avg/Min Ratio = 1.93
 Max/Min Ratio = 3.33

EB 30_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.17

Morden & lakeshore
 Illuminance (Lux)
 Average = 9.79
 Avg/Min Ratio = 2.33

EB 31_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.46
 Avg/Min Ratio = 1.15
 Max/Min Ratio = 1.75

EB 31_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.22

Taviston square & lakeshore
 Illuminance (Lux)
 Average = 10.87
 Avg/Min Ratio = 1.94

WB 32_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.53
 Avg/Min Ratio = 1.77
 Max/Min Ratio = 2.67

WB 32_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.19

Holyrood avenue & lakeshore
 Illuminance (Lux)
 Average = 9.95
 Avg/Min Ratio = 2.69

WB 33_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.48
 Avg/Min Ratio = 1.60
 Max/Min Ratio = 2.33

WB 33_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.21

EB 32_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.45
 Avg/Min Ratio = 1.50
 Max/Min Ratio = 2.00

EB 32_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.22

EB 33_Luminance
 Luminance (Cd/SqM)
 IES RP-8-14
 Average = 0.62
 Avg/Min Ratio = 2.07
 Max/Min Ratio = 4.67

EB 33_Veil_Lum
 Veiling Luminance (Cd/SqM)
 IES RP-8-14
 Maximum Lv/Lavg Ratio = 0.16

Dorval Drive & lakeshore
 Illuminance (Lux)
 Average = 13.58
 Avg/Min Ratio = 2.34

LAKESHORE ROAD WEST

HOLYROOD AVENUE

LAKESHORE RD WEST
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LEGEND

	S/L ON INDEPENDENT POLE
HP	S/L ON HYDRO POLE

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Project No.	TPB166147
Date	OCT. 2017
Scale	1:500
Drawing No.	9 of 9