NYX HEMERA Technologies Inc.
109, St-Vallier Est, suite 100, Québec, Qc, Canada, G1K 3N9
tel.: 418 977 7788 www.nyx-hemera.com

VINII SOLAR
ENGINEERING & ELECTRIC

Project: MITCHELL TUNNELS MAINTENANCE - LUMINANCE PHOTOMETER

Client: VINII SOLAR ENGINEERING & ELECTRIC

Drawing: E0145-D03-10000

DRAWING No:	DRAWING TITLE	DRAWING No:	DRAWING TITLE
10100	DRAWING LIST	10403	INSTALLATION TOP VIEW TUNNEL 1
10200	BILL OF MATERIAL	10404	INSTALLATION TOP VIEW TUNNEL 2
10300	ELECTRICAL WIRING WITH WIPER WASHER	10405	INSTALLATION TOP VIEW TUNNEL 3
10301	FIELD WIRING	10406	MECHANICAL ASSEMBLY
10400	INSTALLATION SIDE VIEW TUNNEL 1		
10401	INSTALLATION SIDE VIEW TUNNEL 2		
10402	INSTALLATION SIDE VIEW TUNNEL 3		

REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
DRAWING LIST
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10100

ITEMS

ITEM	QTY	DESCRIPTION	NYX NUMBER	PART NUMBER	MANUFACTURER	DETAILS
①	1	LUMINANCE PHOTOMETER	LCAM-P-20-1-W-E	LCAM-P-20-1-W-E	NYX HEMERA TECHNOLOGIES	Luminance Photometer w/wall mounting bracket, wiper/washer system and washer enclosure.

SPARE PARTS

ITEM	QTY	DESCRIPTION	NYX NUMBER	PART NUMBER	MANUFACTURER	IDENTIFICATION
①	2	FAST ACTING CERAMIC FUSE 250VAC/5A	PDP-1021-5A250	F5AH250VAC	LITTLEFUSE	

REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
BILL OF MATERIAL
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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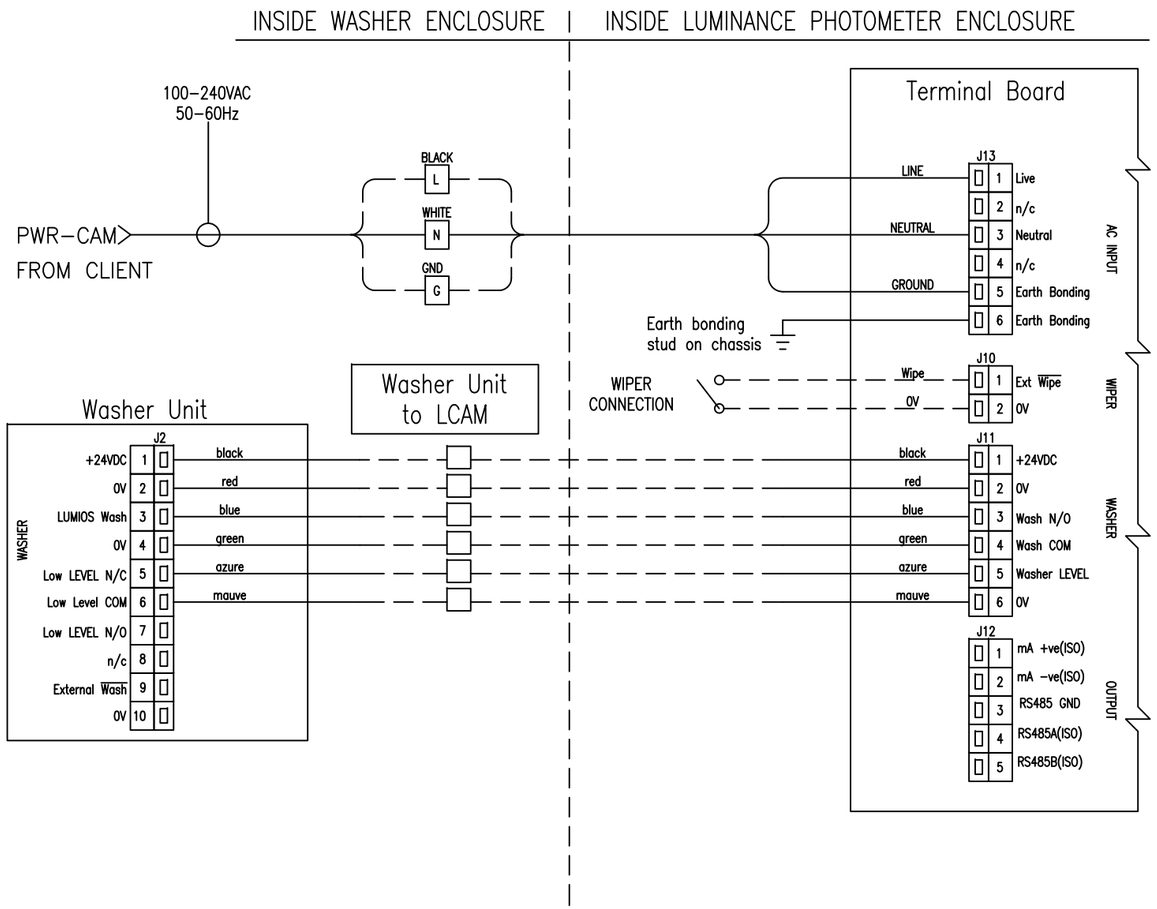
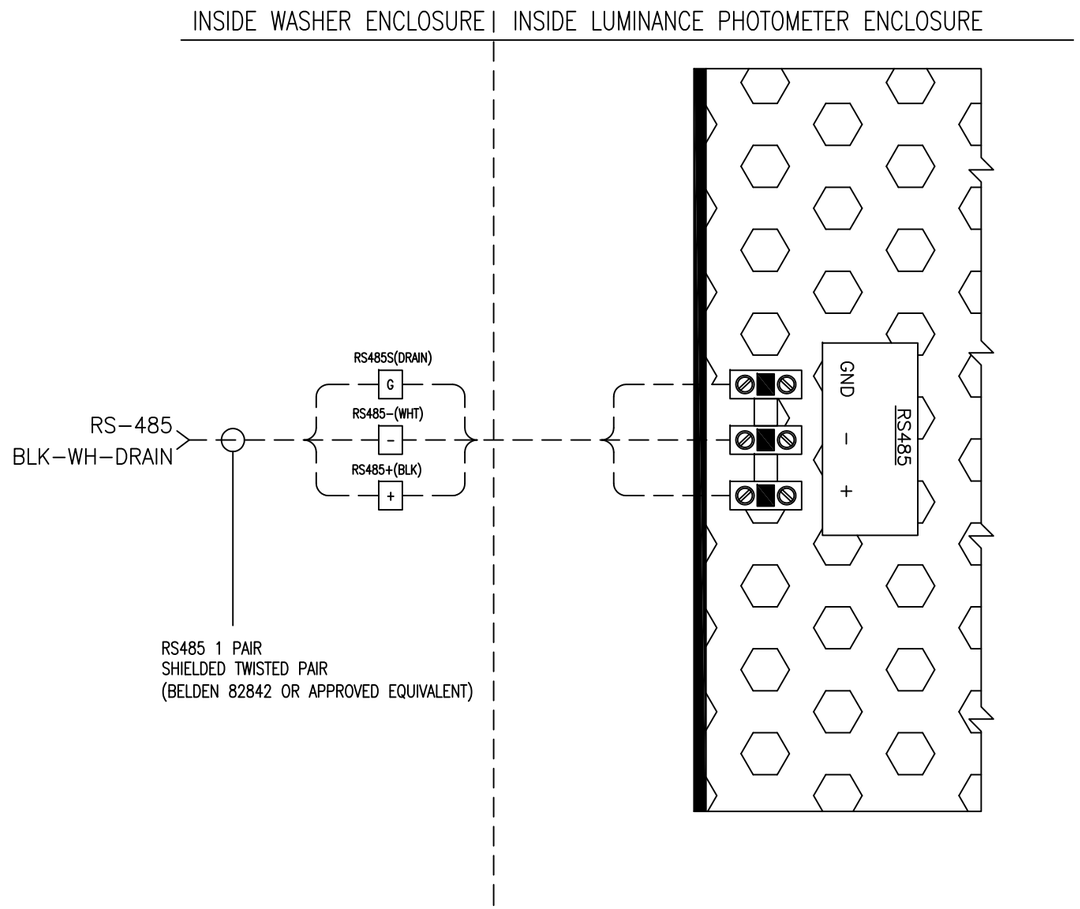
PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10200

LUMINANCE PHOTOMETER
with wiper and washer system





REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
ELECTRICAL WIRING
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10300

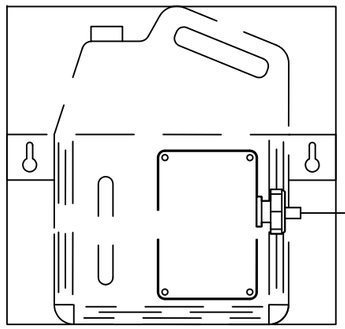
NOTE:
1. CONNEXION BETWEEN TERMINAL BOARD OF WASHER (CONNECTOR J2) AND TERMINAL BLOCK.

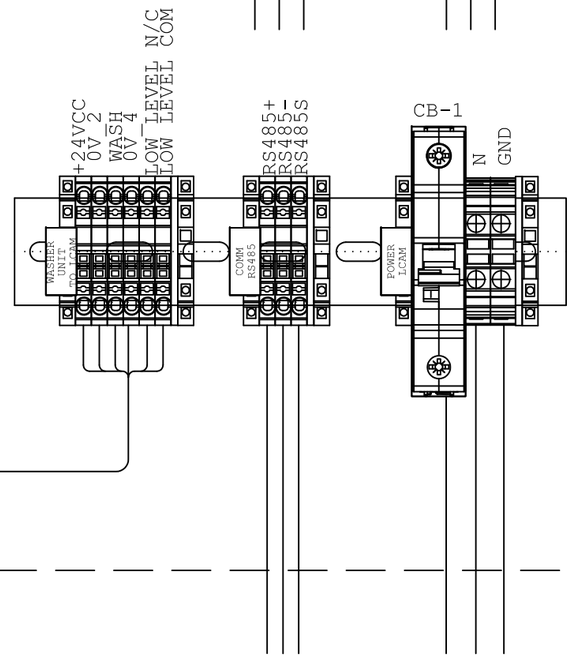
TO LCAM CONNECTOR J13 TERMINAL BOARD

TO LCAM PHOTOMETER RS-485

TO LCAM PHOTOMETER POWER SUPPLY

WASHER UNIT INSIDE JONCTION BOX





DETAIL "A"

NOTE:1

INSIDE JONCTION BOX

RS-485

POWER SUPPLY 100-240VAC 50/60Hz

EXTERNAL POWER AND RS-485 SIGNAL SUPPLIED BY THE CLIENT

CABLE #	FROM/TO	CIRCUIT	LOAD	DESCRIPTION	TYPE
A	POWER SUPPLY	--	--	LCAM POWER	3 CONDUCTORS (max.) 14AWG
B	LCAM	--	--	RS485 MODBUS RTU	BELDEN 82842 OR EQUIVALENT

GENERAL NOTE:
1. WIRE SIZE MUST BE VALIDATED ACCORDING TO LOCAL REGULATIONS AND WIRE LENGTH.

REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
FIELD WIRING
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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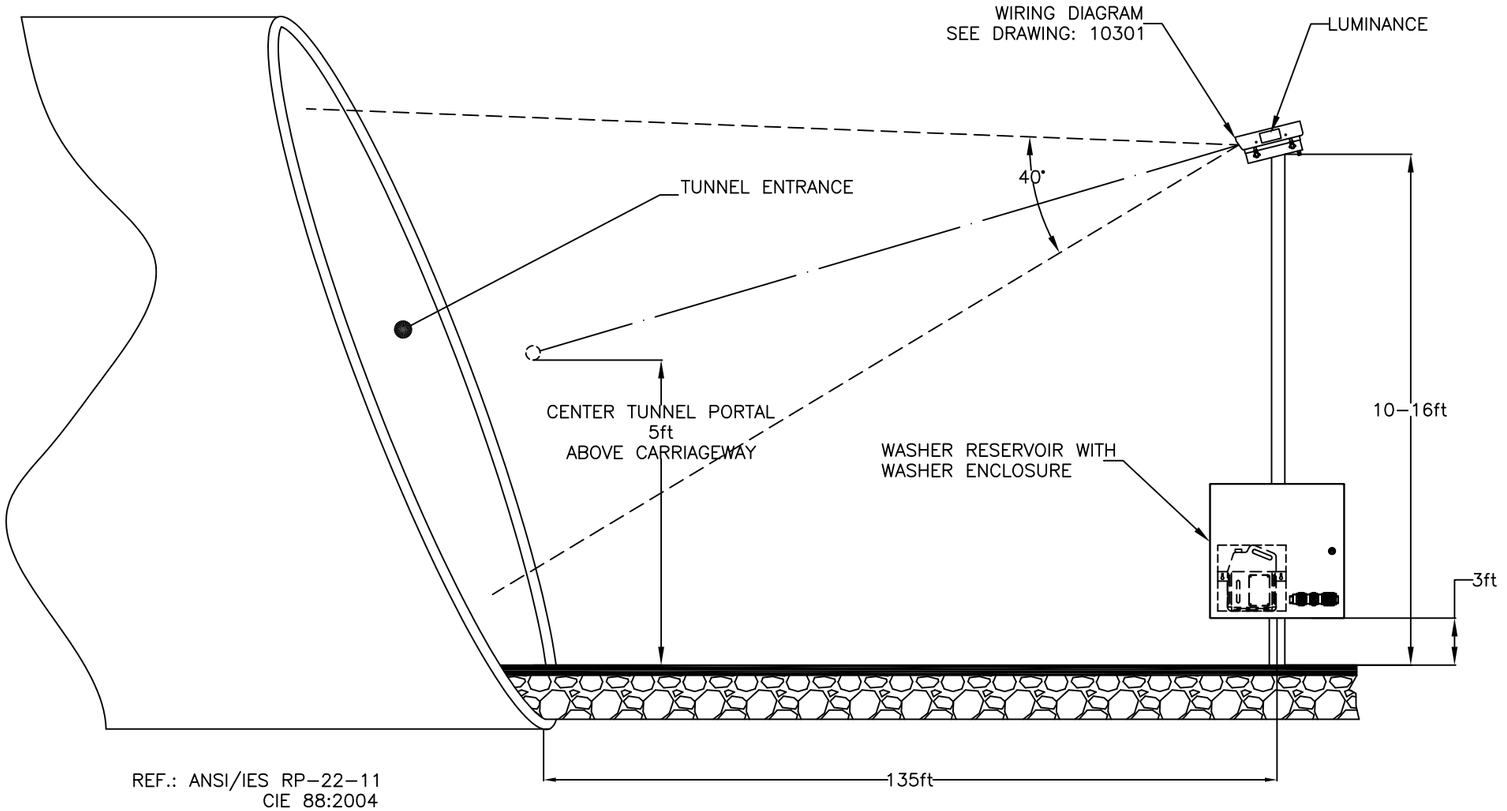
PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145-D03-10301

Note:
1. The angle of the photometer is limited to 40.
This means that the measured luminance will not optimaly reflect the tunnel entrance luminance as the photometer is installed too close to the entrance.
The system will be configured to compensate this as much as possible by adjusting the lighting level thresholds.



REF.: ANSI/IES RP–22–11
CIE 88:2004

Mount the monitor at the driver's safe stopping distance from the tunnel portal, based on the maximum approach speed allowed for in design, and national definitions of "safe stopping distance".

Mount the monitor at a height of 3–5m (10–16ft), on a pole, or gantry, above the carriageway.

Orientate the monitor in both horizontal and vertical planes such that it looks directly at the tunnel portal, centering on a point ~1.5m (5ft) above the surface of the carriageway.

Locate the instrument in a position where sunlight cannot fall onto the light collector directly. consideration should be given to the variable position of the sun at different times of day/year.

Remember that illuminance camera collects light from ~180 deg about the surface of the light collector on the lid of the instrument and that the objective of the instrument is to measure the average illuminance within the tunnel.

Therefore, do not locate the instrument alongside any other equipment, furniture or structures which may obstruct the light collector or cast shadow over it.

Likewise, do not locate the instrument immediately alongside any equipment, furniture or signage which is illuminated, or is likely to be illuminated, and which may expose the light collector to a disproportionate illuminance.

Avoid any location that may bring the instrument into direct contact with water. if the light collector is exposed to splashes, spray and dripping water, it could become dirty which in turn will reduce the performance of the instrument and require more frequent cleaning.

REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
INSTALLATION SIDE VIEW
TUNNEL 1
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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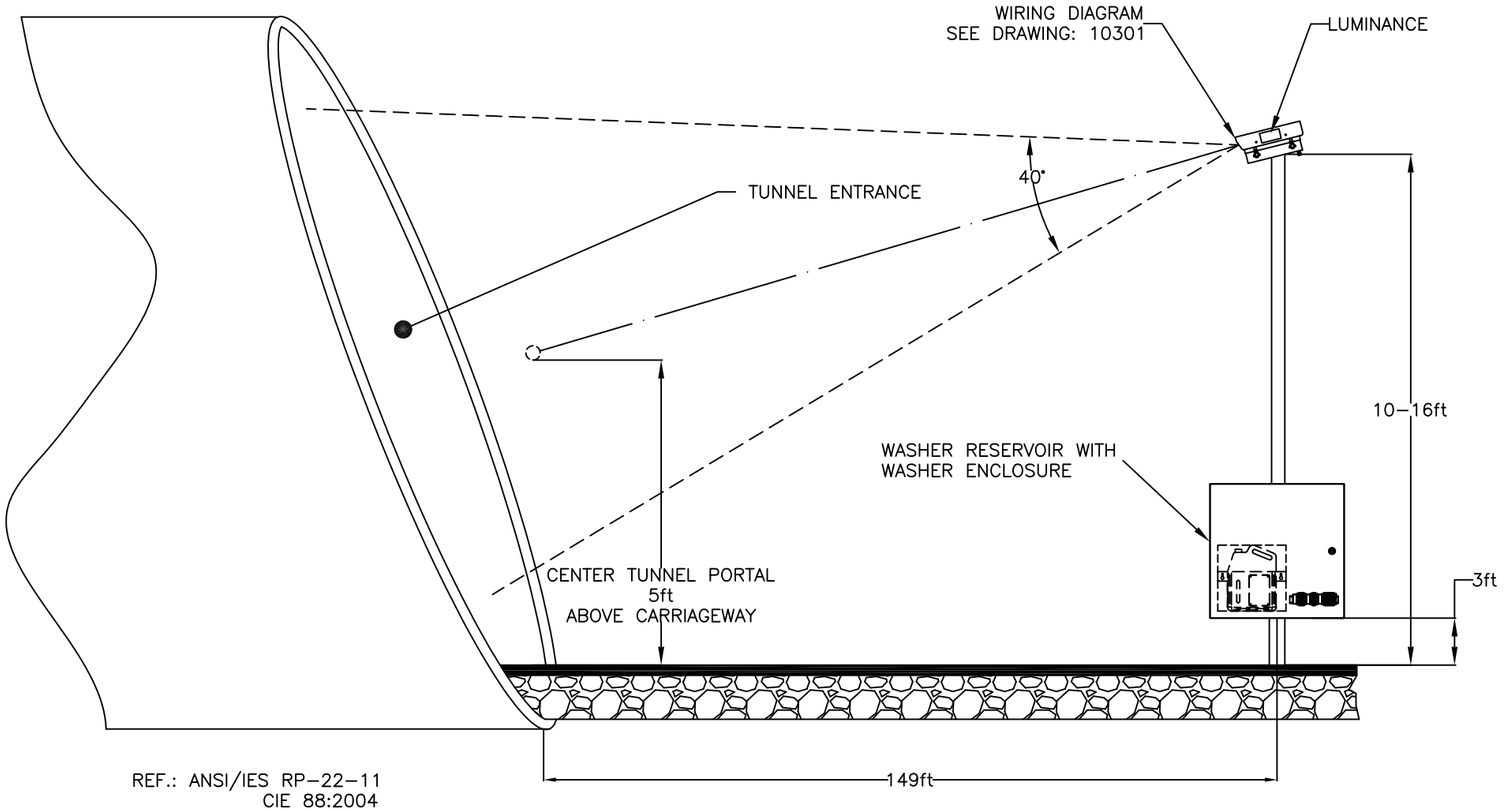
PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10400

Note:
1. The angle of the photometer is limited to 40.
This means that the measured luminance will not optimaly reflect the tunnel entrance luminance as the photometer is installed too close to the entrance.
The system will be configured to compensate this as much as possible by adjusting the lighting level thresholds.



REF.: ANSI/IES RP–22–11
CIE 88:2004

Mount the monitor at the driver's safe stopping distance from the tunnel portal, based on the maximum approach speed allowed for in design, and national definitions of "safe stopping distance".

Mount the monitor at a height of 3–5m (10–16ft), on a pole, or gantry, above the carriageway.

Orientate the monitor in both horizontal and vertical planes such that it looks directly at the tunnel portal, centering on a point ~1.5m (5ft) above the surface of the carriageway.

Locate the instrument in a position where sunlight cannot fall onto the light collector directly. consideration should be given to the variable position of the sun at different times of day/year.

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Likewise, do not locate the instrument immediately alongside any equipment, furniture or signage which is illuminated, or is likely to be illuminated, and which may expose the light collector to a disproportionate illuminance.

Avoid any location that may bring the instrument into direct contact with water. if the light collector is exposed to splashes, spray and dripping water, it could become dirty which in turn will reduce the performance of the instrument and require more frequent cleaning.

REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
INSTALLATION SIDE VIEW
TUNNEL 2
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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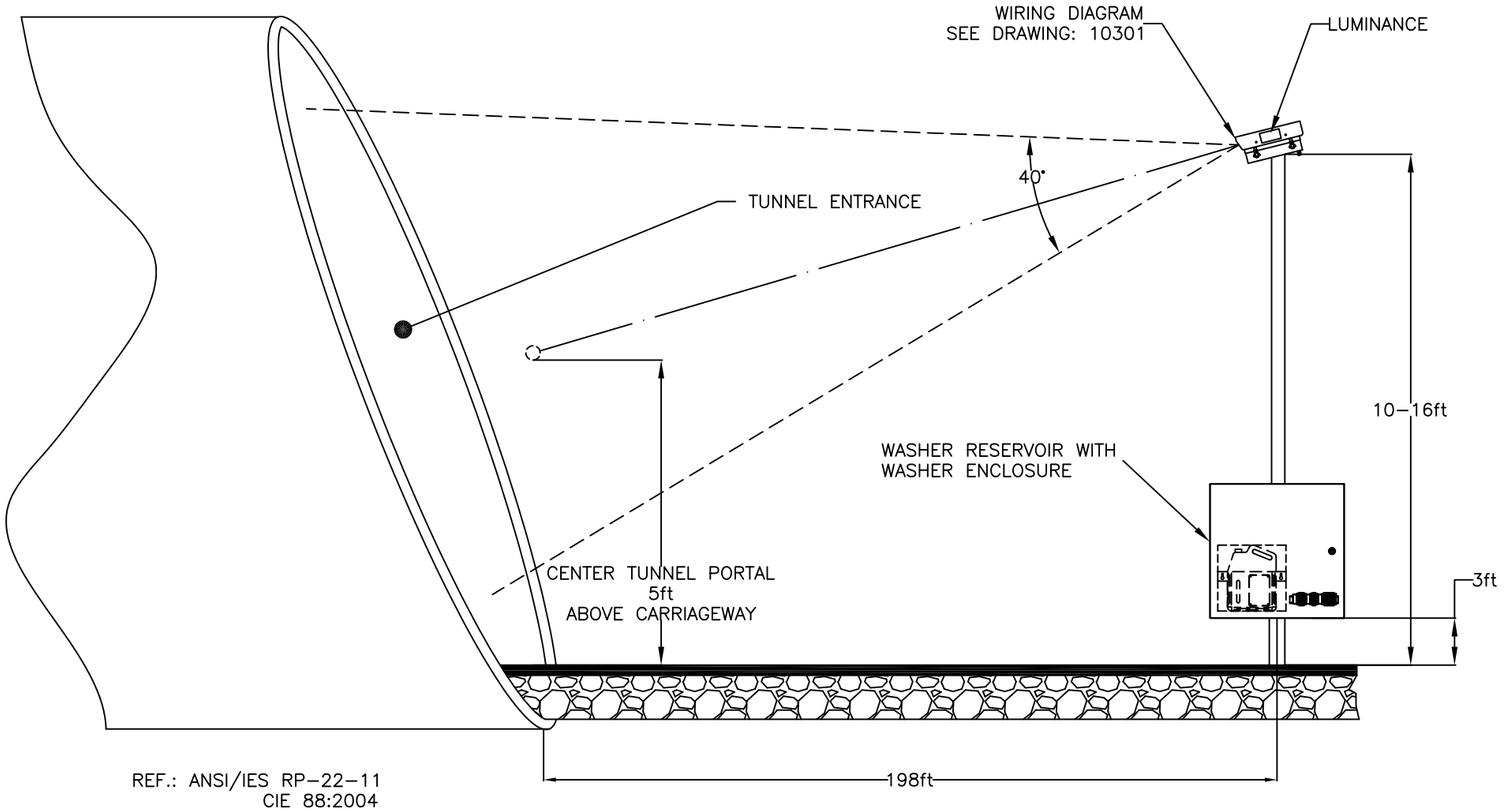
PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10401

Note:
1. The angle of the photometer is limited to 40.
This means that the measured luminance will not optimaly reflect the tunnel entrance luminance as the photometer is installed too close to the entrance.
The system will be configured to compensate this as much as possible by adjusting the lighting level thresholds.



REF.: ANSI/IES RP–22–11
CIE 88:2004

Mount the monitor at the driver's safe stopping distance from the tunnel portal, based on the maximum approach speed allowed for in design, and national definitions of "safe stopping distance".

Mount the monitor at a height of 3–5m (10–16ft), on a pole, or gantry, above the carriageway.

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REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
INSTALLATION SIDE VIEW
TUNNEL 3
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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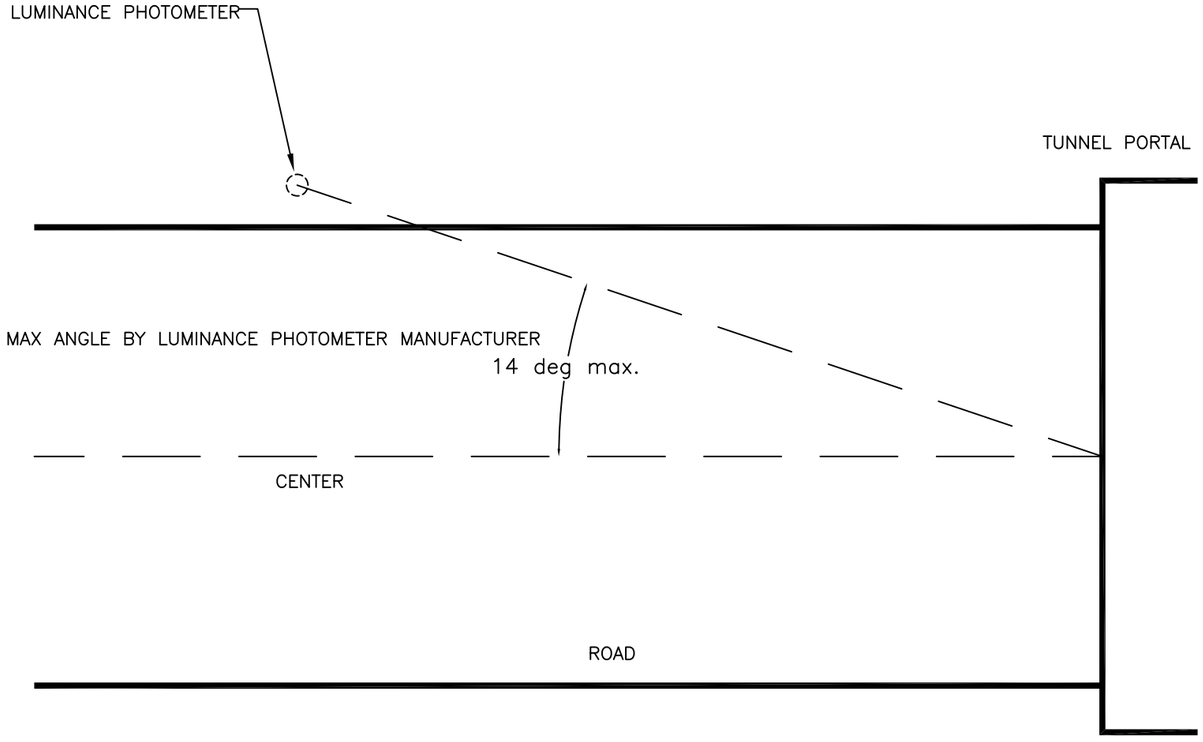
PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10402

IF THE LUMINANCE PHOTOMETER IS NOT INSTALLED
CENTERED ON GANTRY ABOVE ROAD



REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
INSTALLATION TOP VIEW
TUNNEL 1
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

PROJECT No: P0145

SCALE N/A

DRAWING No: P0145-D03-10403

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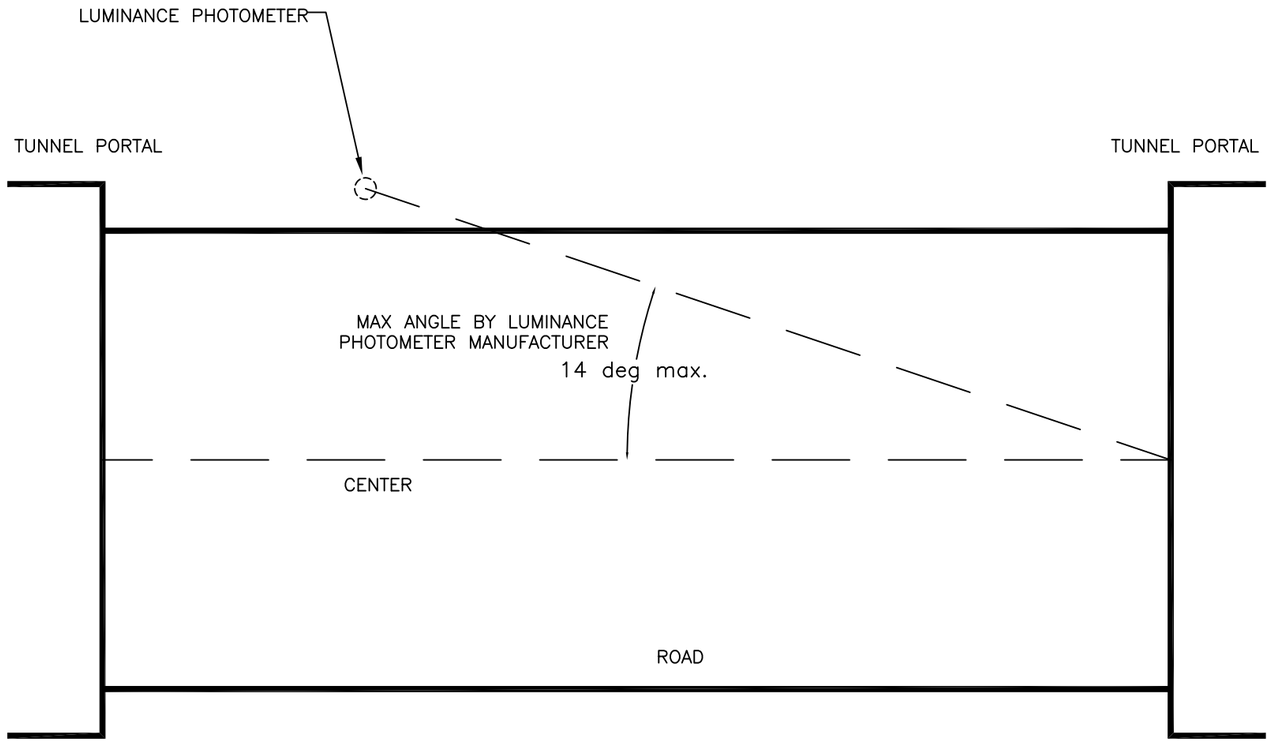
IF THE LUMINANCE PHOTOMETER IS NOT INSTALLED CENTERED ON GANTRY ABOVE ROAD



REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
INSTALLATION TOP VIEW
TUNNEL 2
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10404

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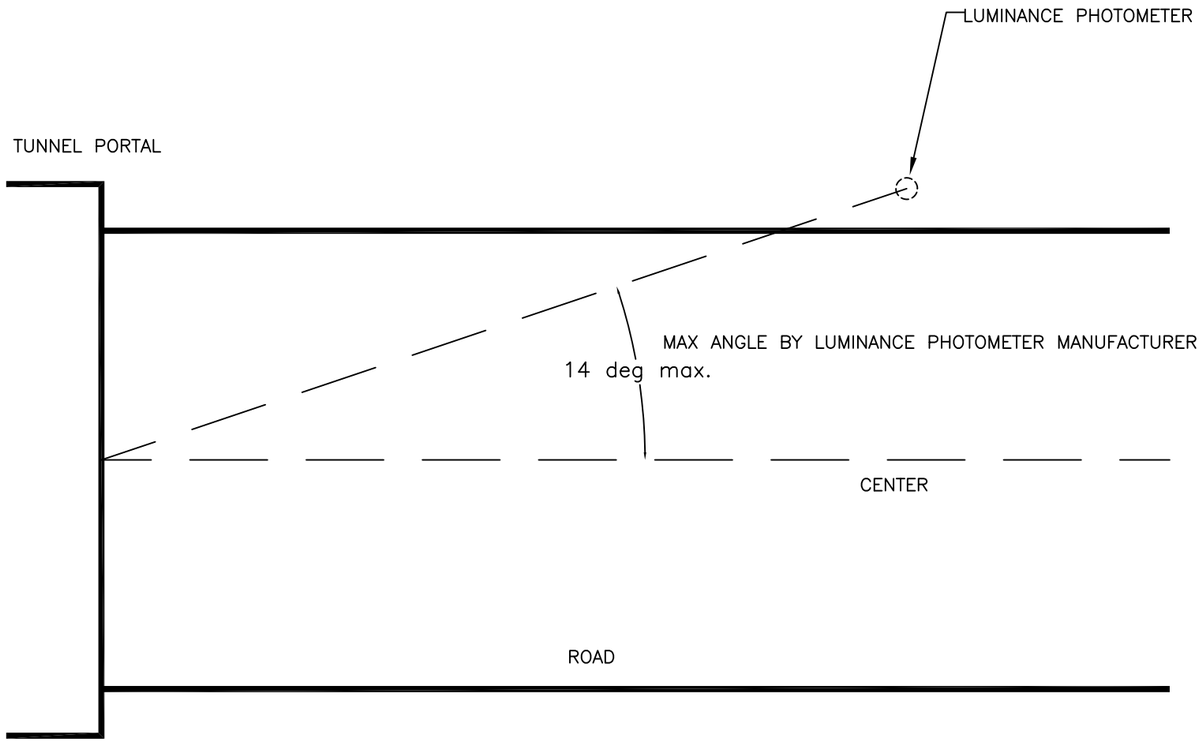
IF THE LUMINANCE PHOTOMETER IS NOT INSTALLED CENTERED ON GANTRY ABOVE ROAD



REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
INSTALLATION TOP VIEW
TUNNEL 3
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
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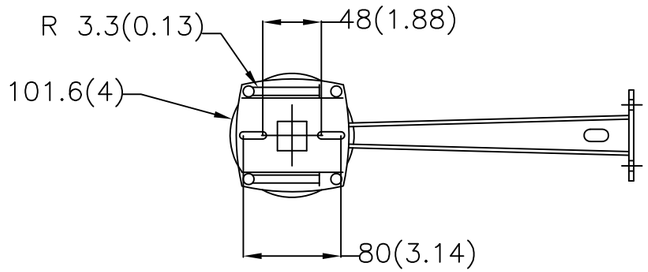
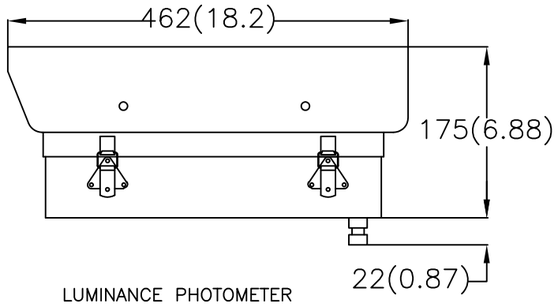
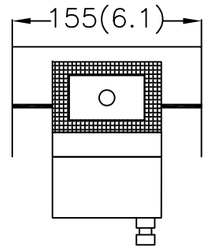
PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10405

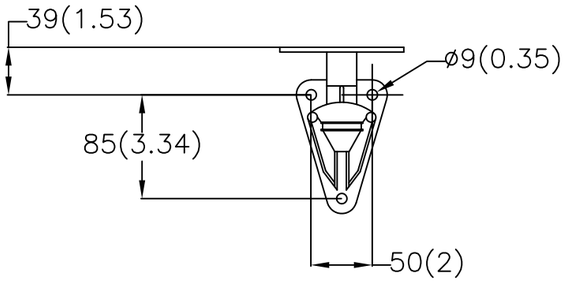


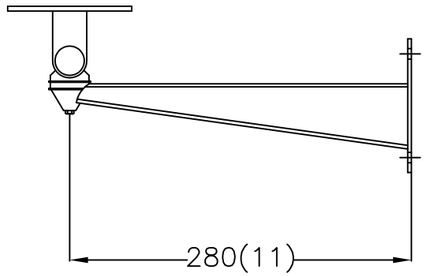


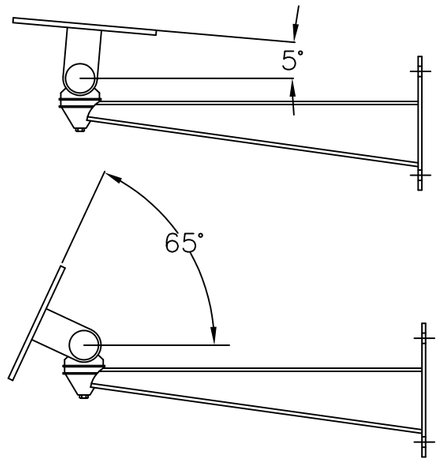
LUMINANCE PHOTOMETER
(RIGHT SIDE)



LUMINANCE PHOTOMETER
(FACE)







NOTE: ALL DIMENSIONS IN MM (INCH)

NOTE: BRACKET MUST BE FIXED ON A STABLE STRUCTURE IN ORDER TO MAINTAIN LUMINANCE PHOTOMETER ALIGNMENT

REV	DESCRIPTION	DATE	BY	CHK	APP
A	FOR SUBMITTAL	2016.11.03	C.E.	G.D.	P.L.

LUMINANCE PHOTOMETER
MECHANICAL ASSEMBLY
MITCHELL TUNNELS MAINTENANCE

DRAWN BY:	C. ENACHE	2016.11.03
CHECKED BY:	G. DOGGER	2016.11.03
APPROVED BY:	P. LONGTIN	2016.11.03
CLIENT: VINII SOLAR ENGINEERING & ELECTRIC		

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PROJECT No:	SCALE	DRAWING No:
P0145	N/A	P0145–D03–10406