BURNS McDONNELL

DUB11

Dialux Calculation

PREPARED FOR

VANTAGE™ DATA CENTERS

Issue WS3

23 July 2021

Ref: DUB11-CL-XX-E003-V0-WS3-BMD

Dialux Calculation

prepared for

Project: DUB11

United Kingdom

Ref: DUB11-CL-XX-E003-V0-WS3-BMD

Issue WS3

23 July 2021

prepared by

Burns & McDonnell

Birmingham, UK

Issue History

ISSUE	DATE	COMMENTS	BY	CHECKED	APPROVED
WS3	23/07/2021	Issued for WS3	MJ	PM	EP

Contents

1. Executive Summary

These lighting calculations were prepared for the DUB11 project to demonstrate compliance with the lighting design criteria contained within the VDC OPR, VDC basis of design document and local regulations. Normal and emergency lighting calculations are included, with calculation surfaces used where required to provide accurate outputs and UGR calculated where a UGR limit it set.

DUB-A EXTERIOR LIGHTING PLAN

Partner for Contact:
Order No.:
Company:
Customer No.:

Date: 20.07.2021
Operator:

Operator
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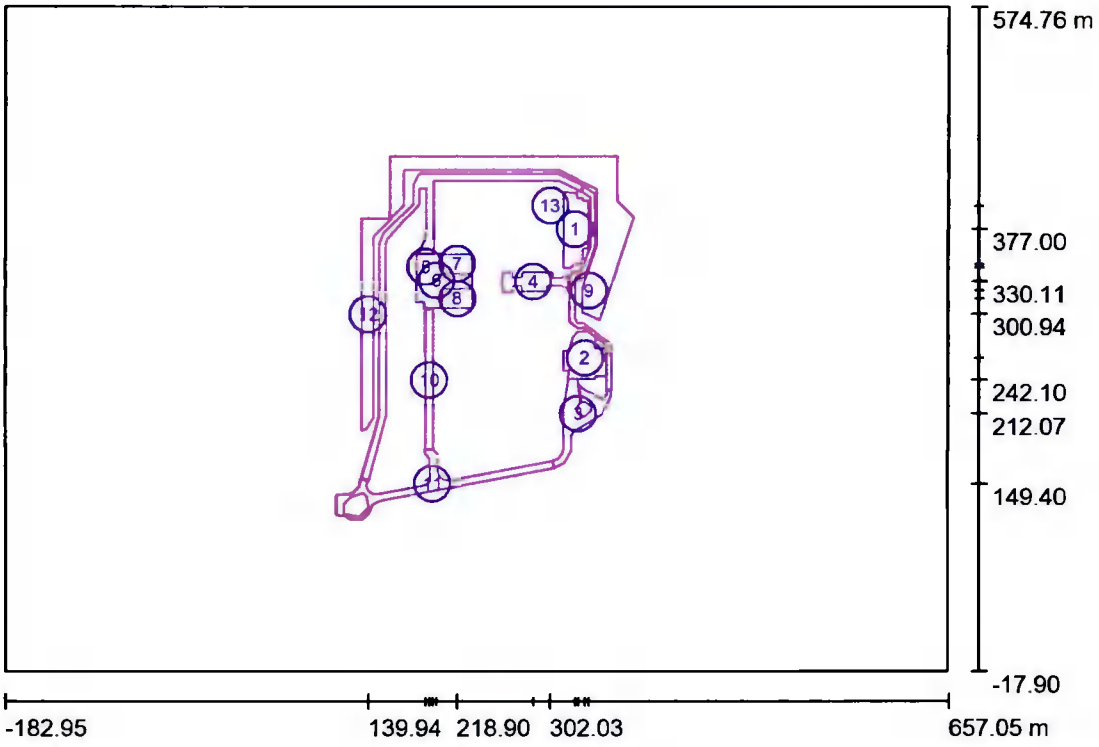
Exterior Scene 1 / Calculation surfaces (results overview)



Scale 1 : 6744

Calculation Surface List

No.	Designation	Type	Grid	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1	AREA 1 - PLAN NORTHEAST PARKING	perpendicular	700 x 700	12	7.45	16	0.647	0.465
2	AREA 2 - PLAN EAST PARKING	perpendicular	700 x 700	13	5.47	20	0.406	0.274
3	AREA 3 - PLAN SOUTHEAST CIRCLE	perpendicular	700 x 700	13	5.34	21	0.422	0.258
4	AREA 4 - CENTRAL BUILDING PARKING	perpendicular	500 x 500	10	5.21	20	0.513	0.264
5	AREA 5 - PLAN WEST TO NORTH SECTION	perpendicular	700 x 700	13	5.47	25	0.427	0.215
6	AREA 6 - LOADING BAY SECTION	perpendicular	700 x 700	69	7.28	257	0.106	0.028
7	AREA 7 - PLAN UPPER LOADING BAY	perpendicular	700 x 700	152	73	231	0.478	0.314
8	AREA 8 - PLAN LOWER LOADING BAY	perpendicular	700 x 700	153	74	232	0.487	0.321
9	AREA 9 - PLAN EAST ACCESS ROAD	perpendicular	700 x 700	13	5.63	20	0.445	0.284

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Exterior Scene 1 / Calculation surfaces (results overview)

Calculation Surface List

No.	Designation	Type	Grid	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
10	AREA 10 - PLAN CENTER ACCESS ROAD	perpendicular	700 x 700	11	7.54	23	0.671	0.332
11	AREA 11 - PLAN SOUTH STREET	perpendicular	700 x 700	13	5.85	20	0.447	0.300
12	AREA 12 - PLAN WEST BAT TRESPASS	perpendicular	700 x 700	0.32	0.09	4.21	0.266	0.020
13	AREA 13 - PLAN NORTH TO EAST LIGHT TRESPASS	perpendicular	700 x 700	1.55	0.04	12	0.025	0.003

Summary of Results

Type	Quantity	Average [lx]	Min [lx]	Max [lx]	u0	E_{min} / E_{max}
perpendicular	13	18	0.04	257	0.00	0.00

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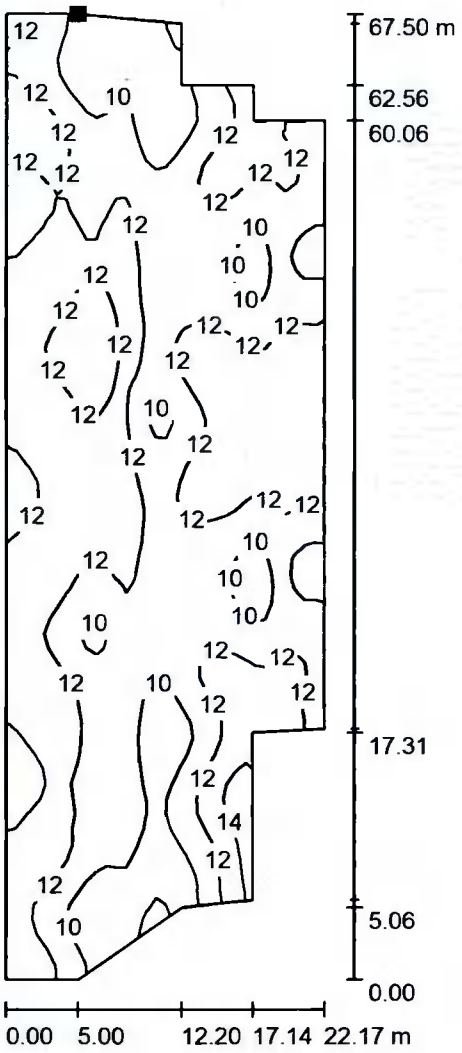
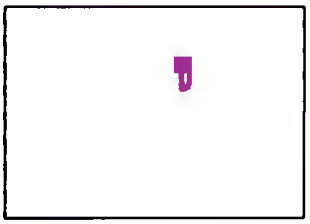
Exterior Scene 1 / AREA 1 - PLAN NORTHEAST PARKING / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 528

Position of surface in external scene:
Marked point:
(318.655 m, 409.492 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
12	7.45	16	0.647	0.465

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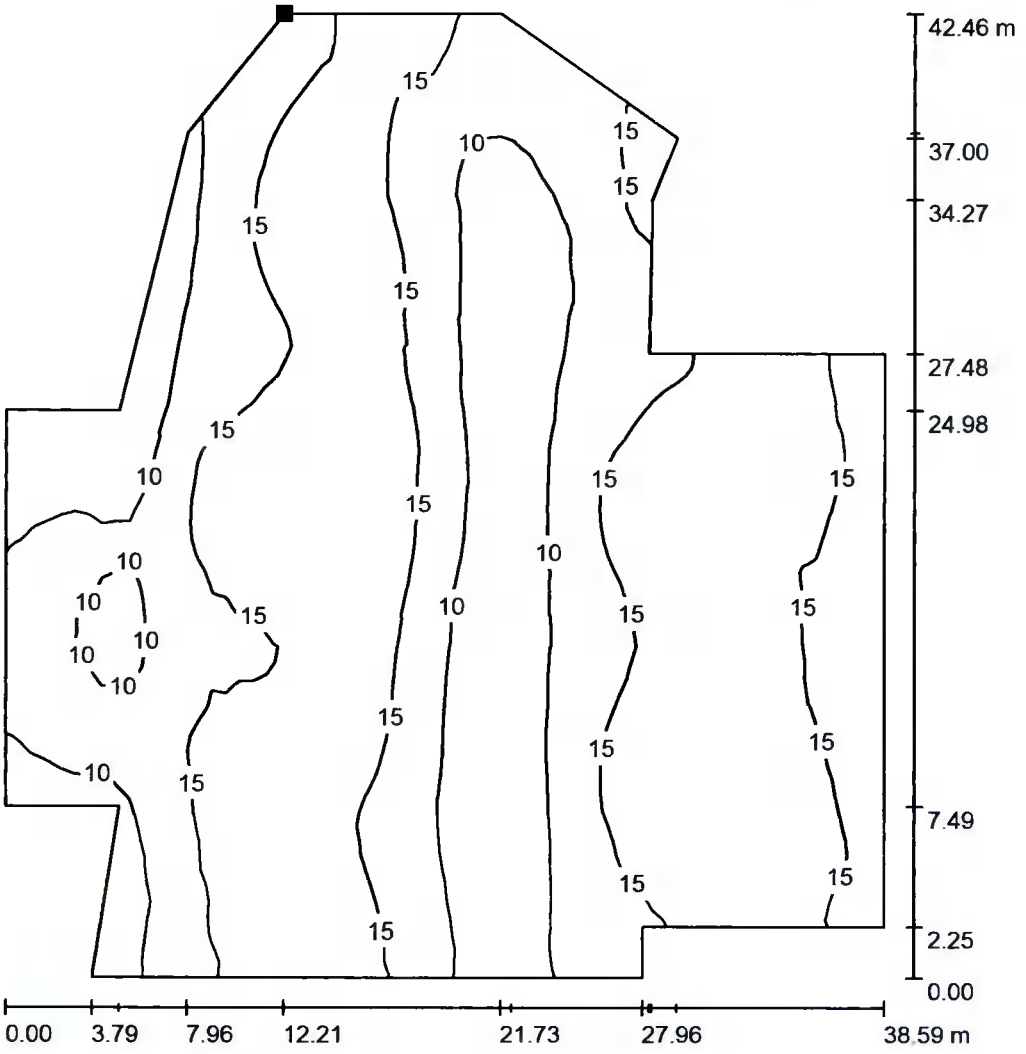
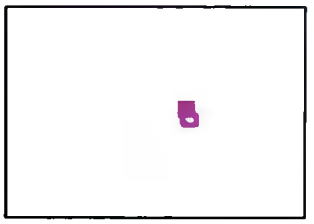
Exterior Scene 1 / AREA 2 - PLAN EAST PARKING / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 333

Position of surface in external scene:
Marked point:
(325.709 m, 285.364 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
13	5.47	20	0.406	0.274

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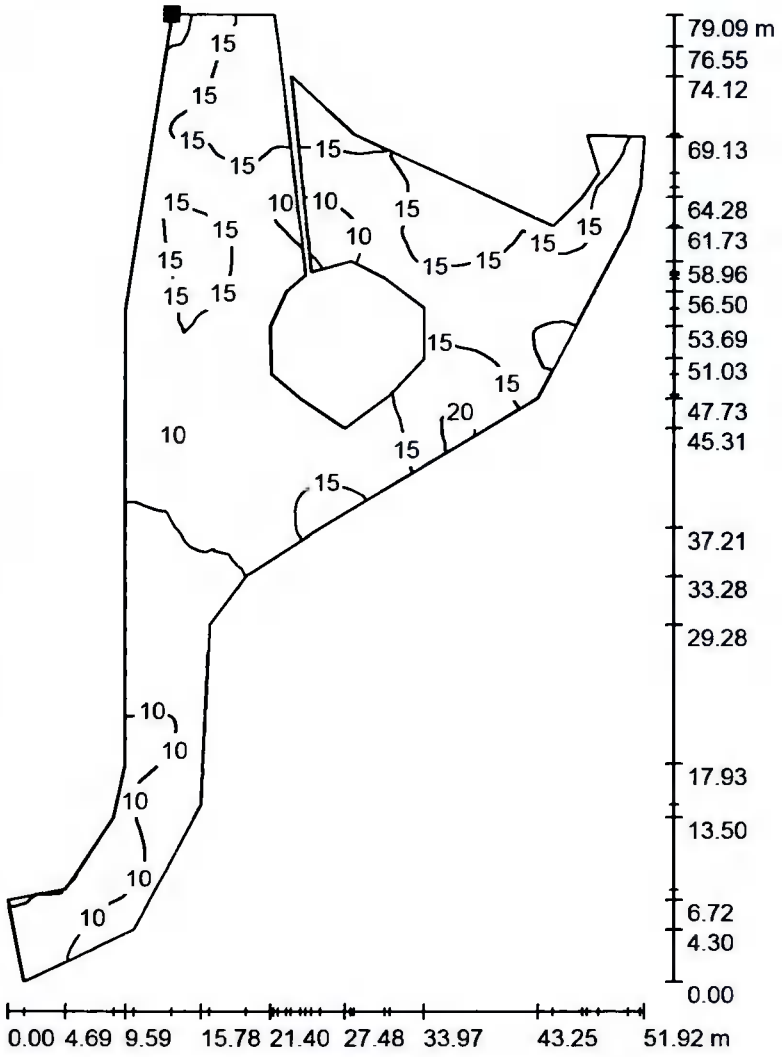
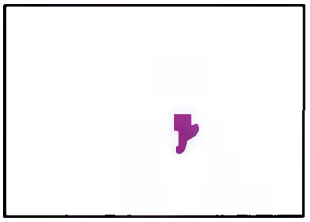
Exterior Scene 1 / AREA 3 - PLAN SOUTHEAST CIRCLE / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 619

Position of surface in external scene:
Marked point:
(317.459 m, 242.864 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
13	5.34	21	0.422	0.258

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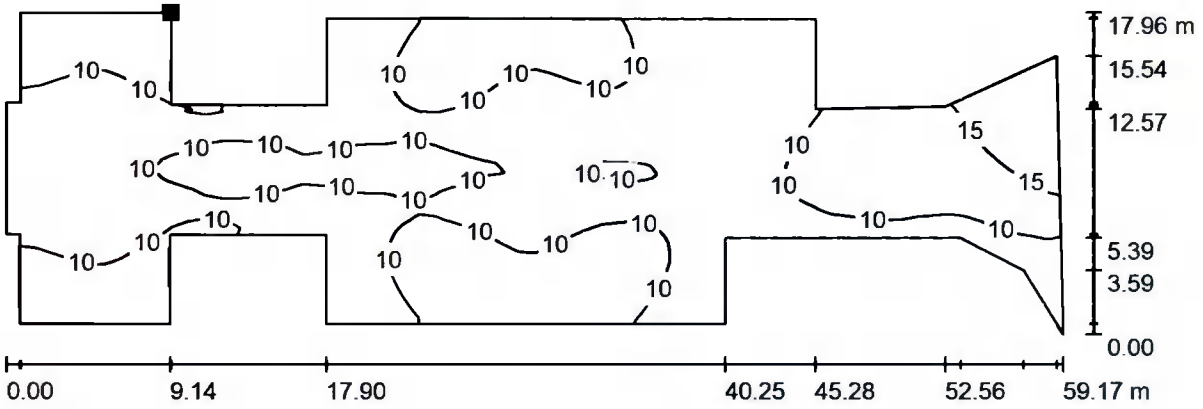
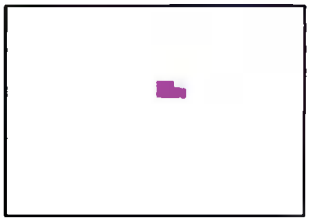
Exterior Scene 1 / AREA 4 - CENTRAL BUILDING PARKING / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 424

Position of surface in external scene:
Marked point:
(268.022 m, 338.771 m, 0.000 m)



Grid: 500 x 500 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
10	5.21	20	0.513	0.264

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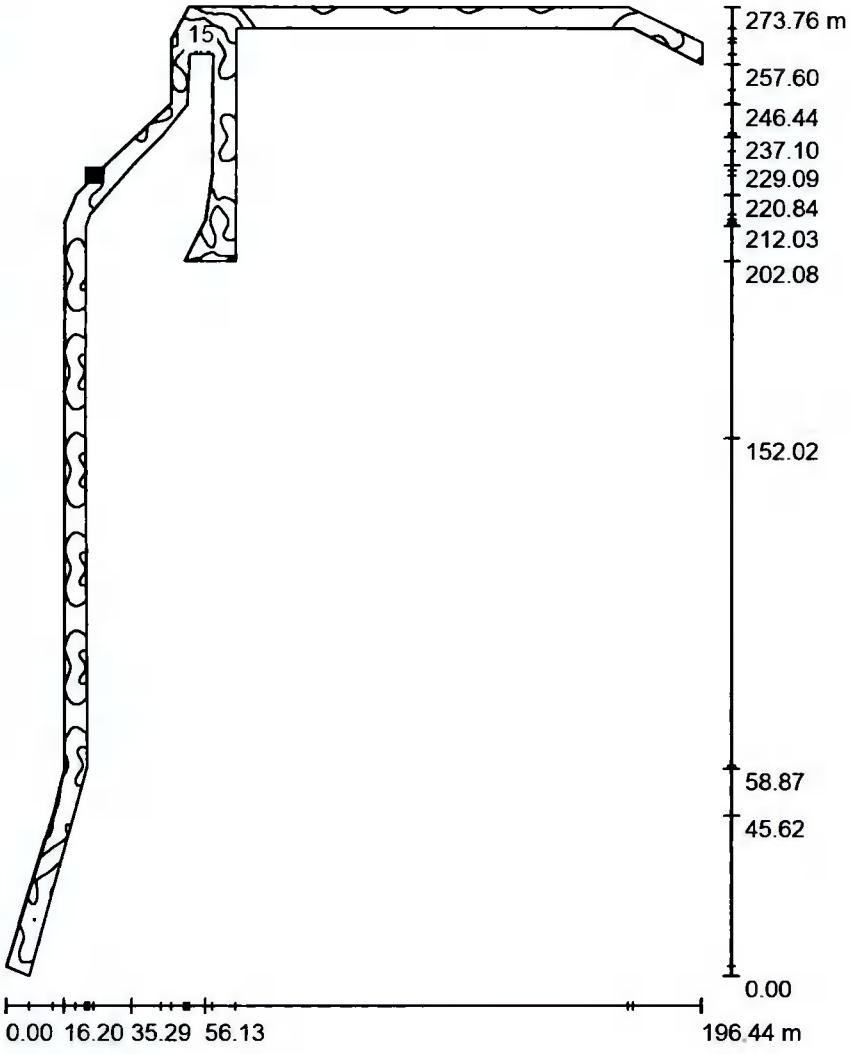
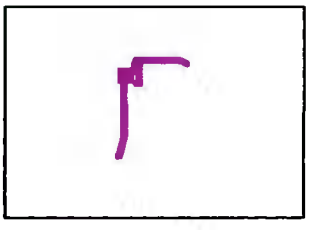
Exterior Scene 1 / AREA 5 - PLAN WEST TO NORTH SECTION / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 2141

Position of surface in external scene:
Marked point:
(158.109 m, 378.691 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
13	5.47	25	0.427	0.215

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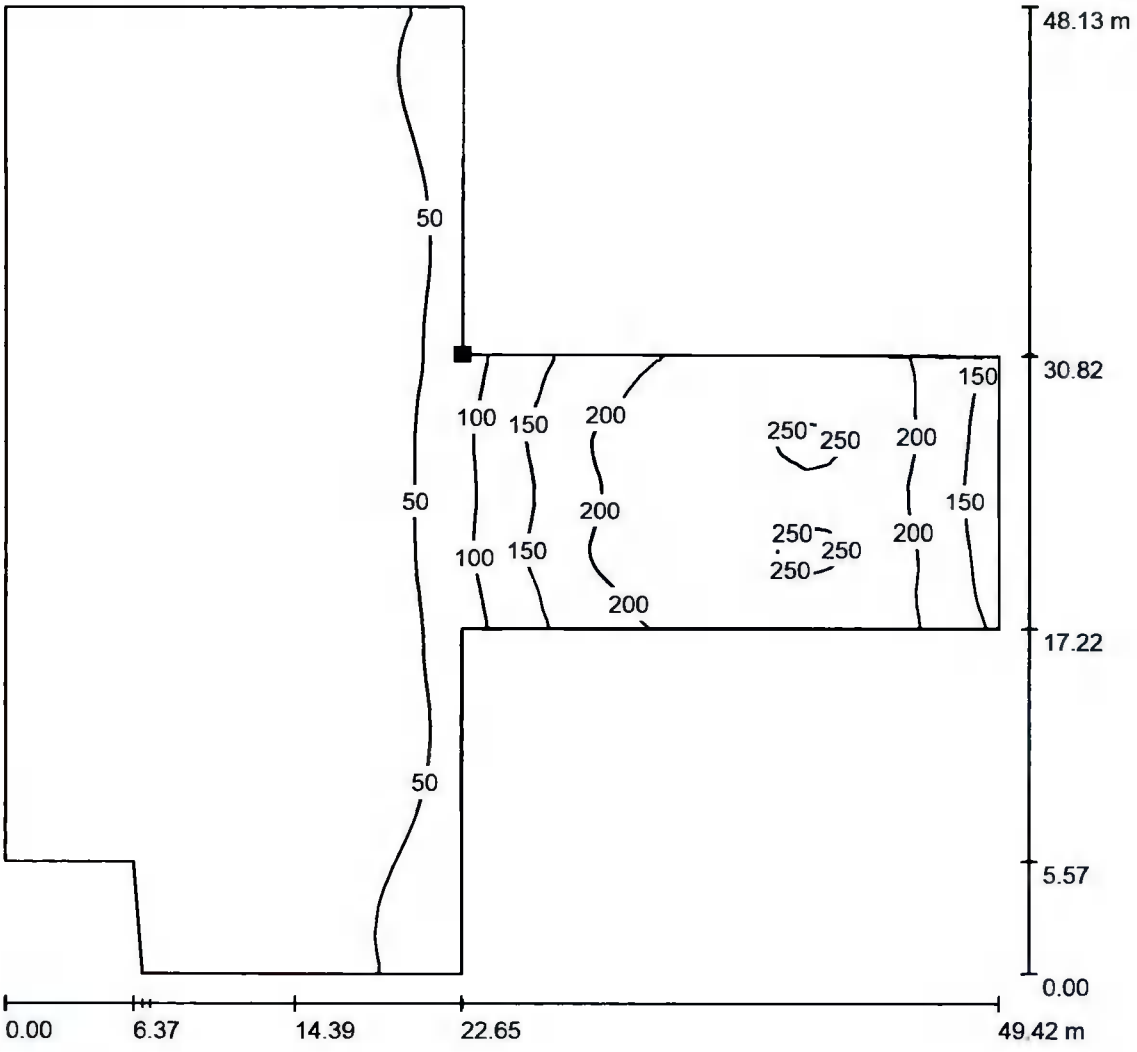
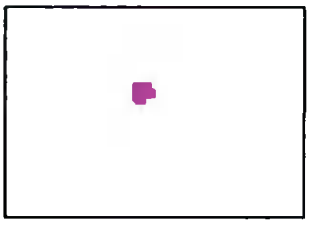
Exterior Scene 1 / AREA 6 - LOADING BAY SECTION / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 377

Position of surface in external scene:
Marked point:
(205.475 m, 337.378 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
69	7.28	257	0.106	0.028

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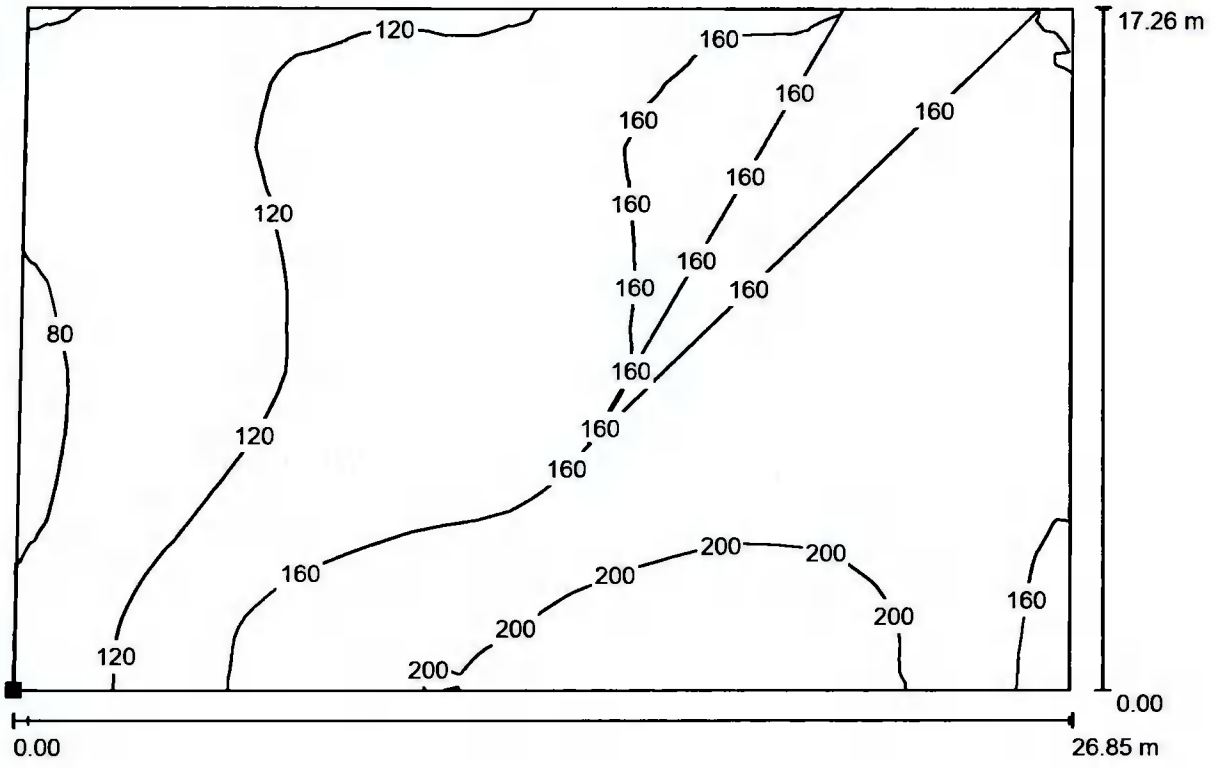
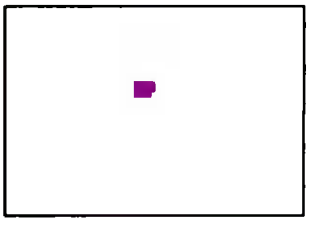
Exterior Scene 1 / AREA 7 - PLAN UPPER LOADING BAY / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 192

Position of surface in external scene:
Marked point:
(205.406 m, 337.310 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
152	73	231	0.478	0.314

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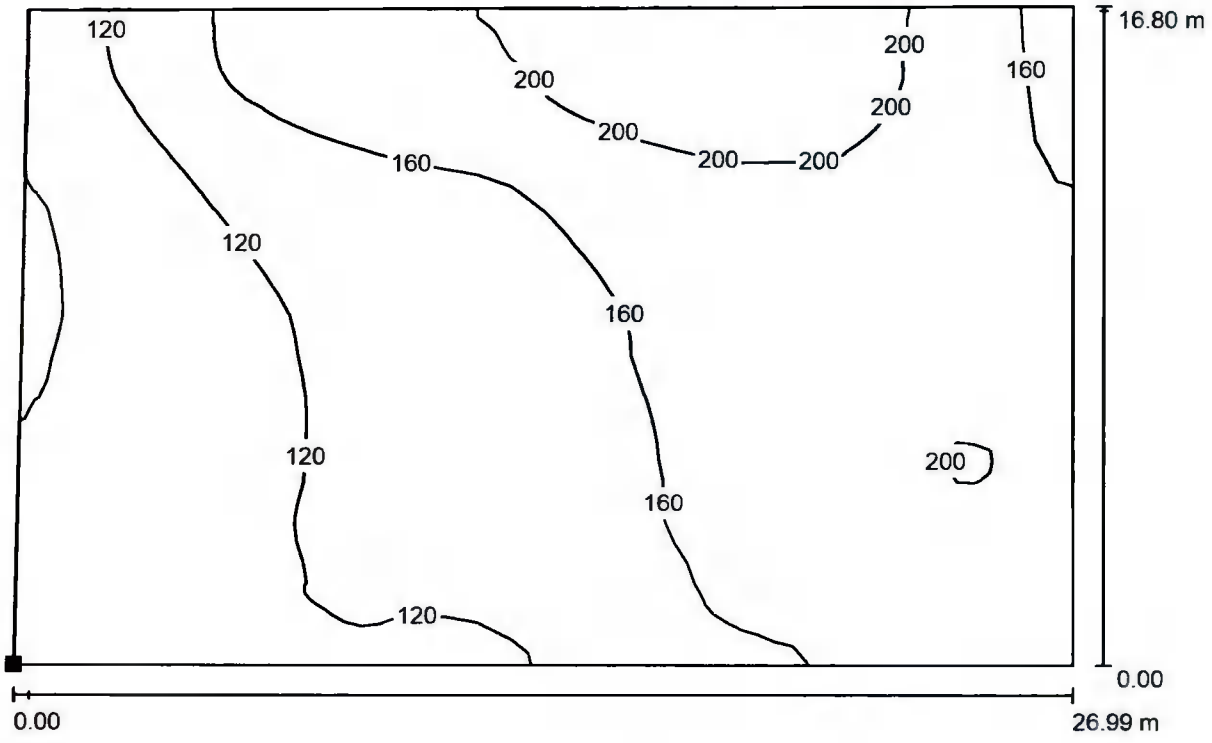
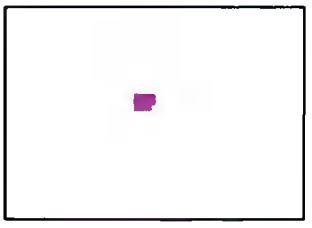
Exterior Scene 1 / AREA 8 - PLAN LOWER LOADING BAY / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 193

Position of surface in external scene:
Marked point:
(205.619 m, 306.515 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
153	74	232	0.487	0.321

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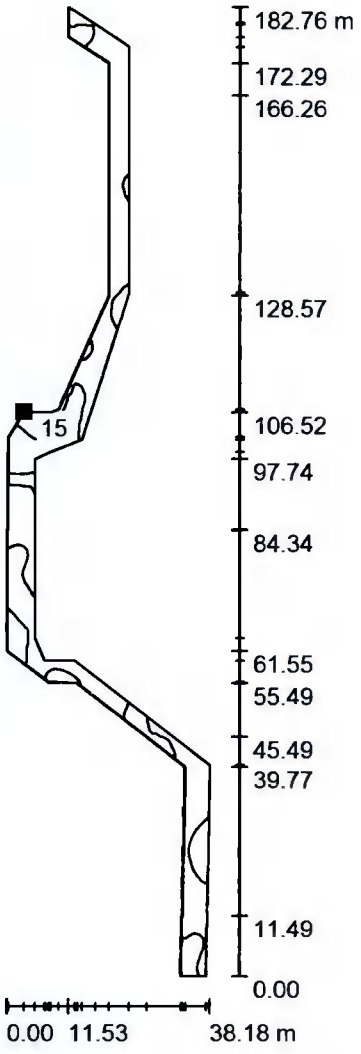
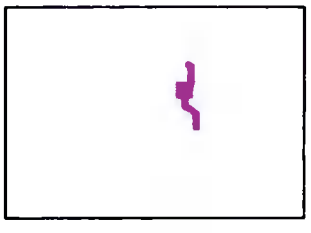
Exterior Scene 1 / AREA 9 - PLAN EAST ACCESS ROAD / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 1430

Position of surface in external scene:
Marked point:
(321.894 m, 339.628 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
13	5.63	20	0.445	0.284

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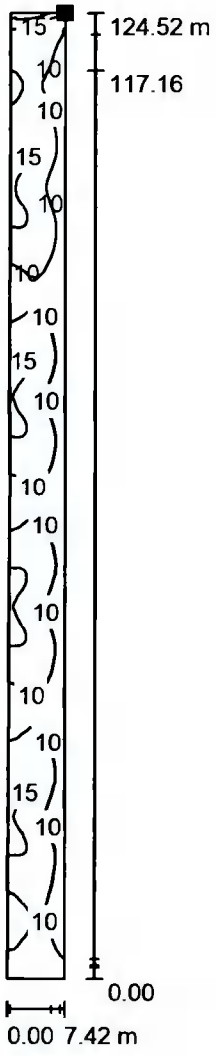
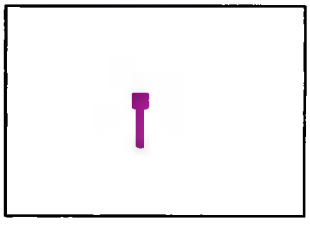
Exterior Scene 1 / AREA 10 - PLAN CENTER ACCESS ROAD / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 974

Position of surface in external scene:
Marked point:
(197.807 m, 304.876 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
11	7.54	23	0.671	0.332

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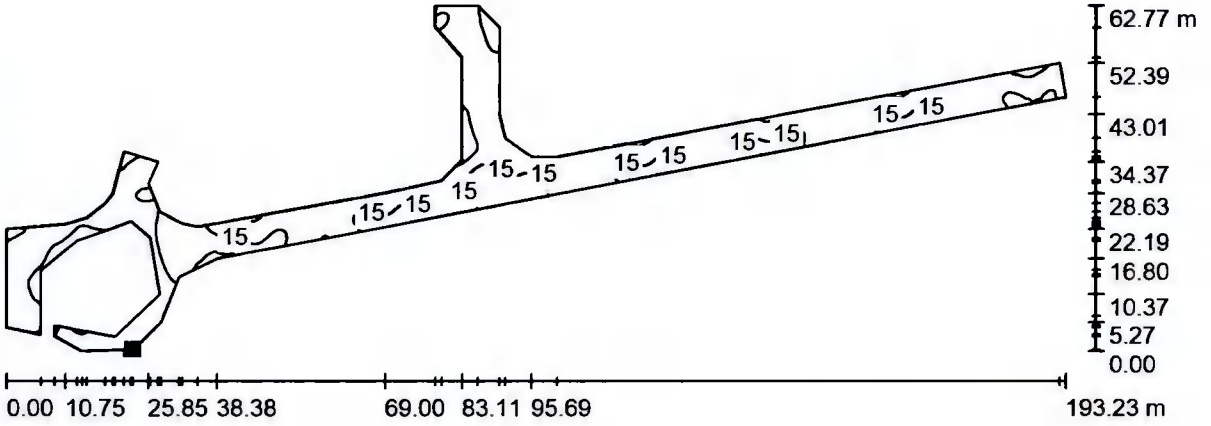
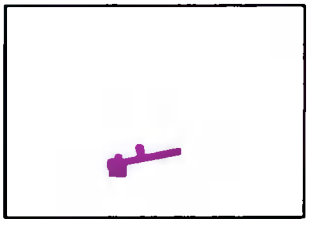
Exterior Scene 1 / AREA 11 - PLAN SOUTH STREET / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 1382

Position of surface in external scene:
Marked point:
(135.082 m, 117.819 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
13	5.85	20	0.447	0.300

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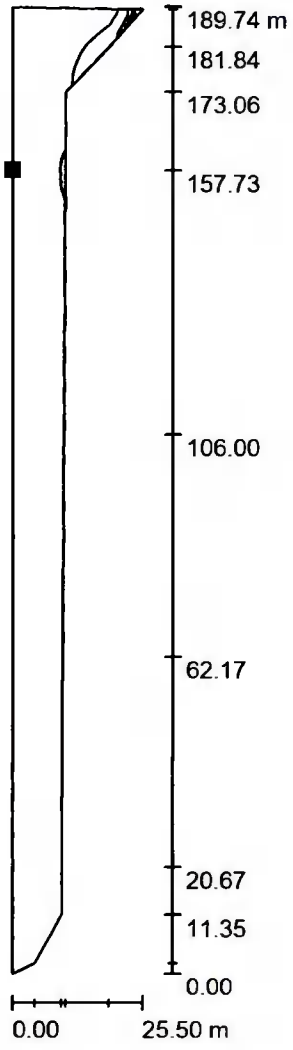
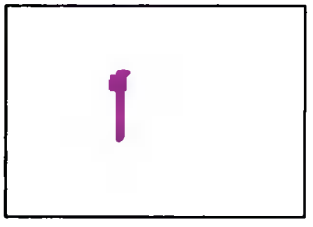
Exterior Scene 1 / AREA 12 - PLAN WEST BAT TRESPASS / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 1485

Position of surface in external scene:
Marked point:
(134.307 m, 354.887 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.32	0.09	4.21	0.266	0.020

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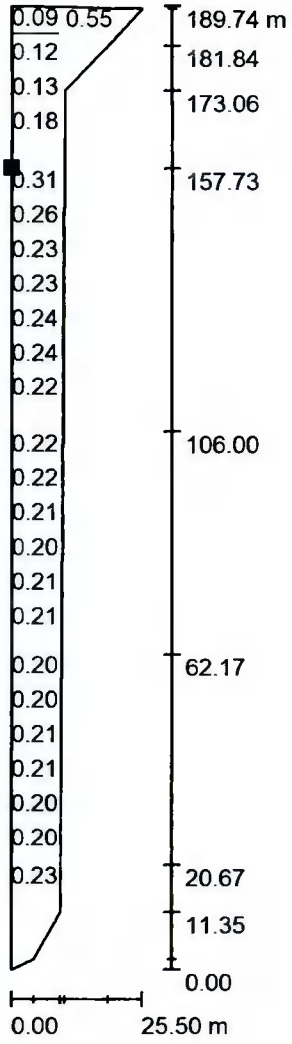
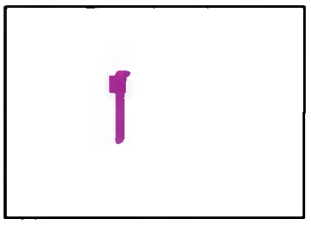
Exterior Scene 1 / AREA 12 - PLAN WEST BAT TRESPASS / Value Chart (E, Perpendicular)



Values in Lux, Scale 1 : 1485

Not all calculated values could be displayed.

Position of surface in external scene:
Marked point:
(134.307 m, 354.887 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.32	0.09	4.21	0.266	0.020

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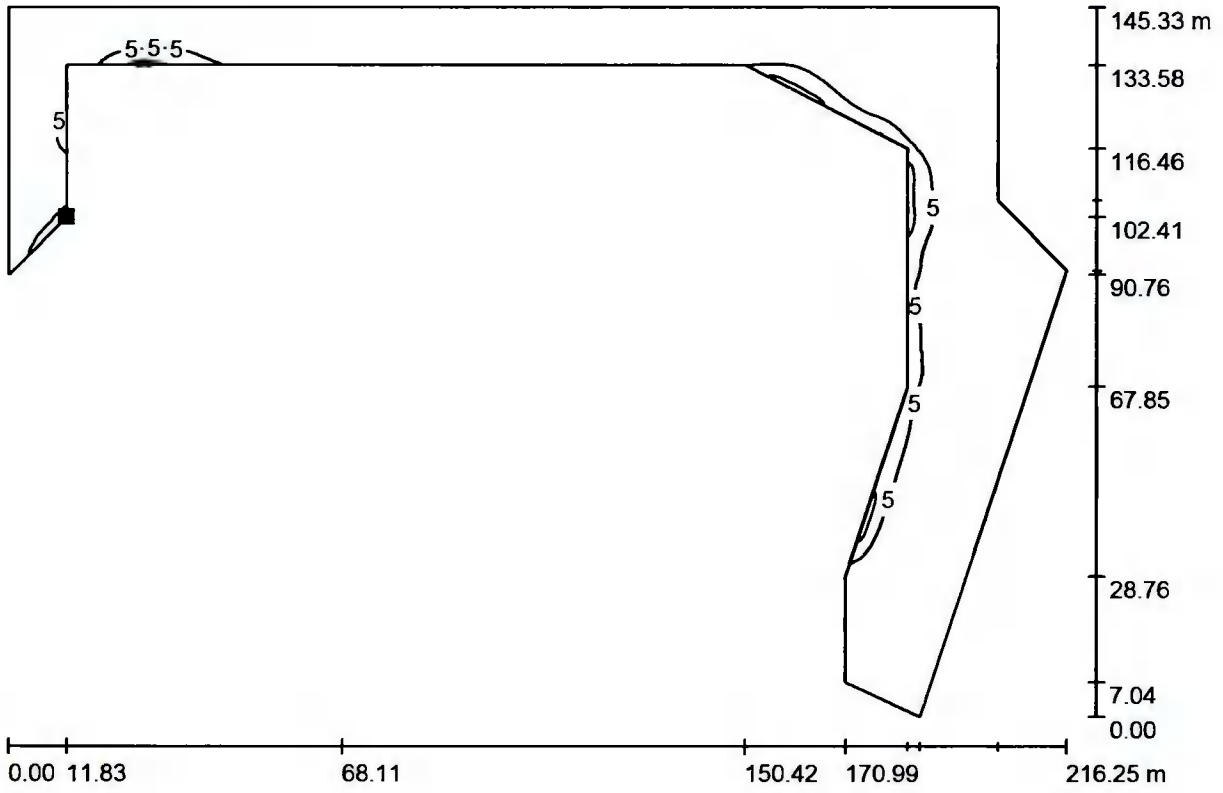
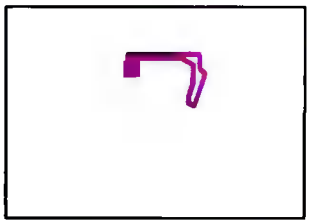
Exterior Scene 1 / AREA 13 - PLAN NORTH TO EAST LIGHT TRESPASS / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 1547

Position of surface in external scene:
Marked point:
(171.400 m, 398.400 m, 0.000 m)



Grid: 700 x 700 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.55	0.04	12	0.025	0.003

BURNS McDONNELL.

CREATE AMAZING.

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