

Operator:  
Jānis Škutāns

SIA "Gaismas Stils"  
Maskavas iela 12, Rīga, Latvija,  
LV-1050

+371 67276760  
+371 20262941  
janis.skutans@gaismasstils.lv

Date:  
23/05/2018



Ventspils, Durbes ielas apgaismojums

## Table of contents

### Ventspils, Durbes ielas apgaismojums

#### Ventspils, Durbes iela (Zvaigžņu-Kuldīgas): Alternative 1

Planning results.....	4
Ventspils, Durbes iela (Zvaigžņu-Kuldīgas): Alternative 1 / Roadway 1 (M4)	
Results summary.....	6
Isolines.....	7
Ventspils, Durbes iela (Zvaigžņu-Kuldīgas): Alternative 1 / Bicycle lane 1 (P1)	
Results summary.....	12
Isolines.....	13
Ventspils, Durbes iela (Zvaigžņu-Kuldīgas): Alternative 1 / Sidewalk 1 (P2)	
Results summary.....	14
Isolines.....	15

#### Ventspils, Durbes iela (Kuldīgas-Vārves iela): Alternative 2

Planning results.....	16
Ventspils, Durbes iela (Kuldīgas-Vārves iela): Alternative 2 / Roadway 1 (M4)	
Results summary.....	17
Isolines.....	18
Ventspils, Durbes iela (Kuldīgas-Vārves iela): Alternative 2 / Sidewalk 1 (P1)	
Results summary.....	21
Isolines.....	22

#### Ventspils, Durbes iela (Vārves-Brīvības): Alternative 3

Planning results.....	23
Ventspils, Durbes iela (Vārves-Brīvības): Alternative 3 / Roadway 1 (M4)	
Results summary.....	25
Isolines.....	26
Ventspils, Durbes iela (Vārves-Brīvības): Alternative 3 / Bicycle lane 1 (P2)	
Results summary.....	31
Isolines.....	32
Ventspils, Durbes iela (Vārves-Brīvības): Alternative 3 / Sidewalk 1 (P3)	
Results summary.....	33
Isolines.....	34

#### Ventspils, Durbes iela (Brīvības-Tērvetes): Alternative 4

Planning results.....	35
Ventspils, Durbes iela (Brīvības-Tērvetes): Alternative 4 / Sidewalk 2 (P1)	
Results summary.....	37
Isolines.....	38
Ventspils, Durbes iela (Brīvības-Tērvetes): Alternative 4 / Bicycle lane 1 (P1)	
Results summary.....	39
Isolines.....	40
Ventspils, Durbes iela (Brīvības-Tērvetes): Alternative 4 / Roadway 1 (M4)	
Results summary.....	41
Isolines.....	42
Ventspils, Durbes iela (Brīvības-Tērvetes): Alternative 4 / Sidewalk 1 (P4)	
Results summary.....	47
Isolines.....	48

#### Ventspils, Durbes iela (Tērvetes-Rāvas): Alternative 5

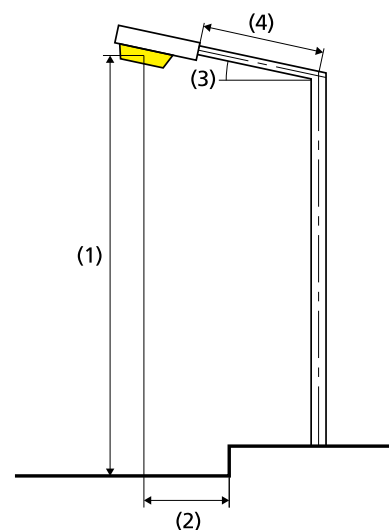
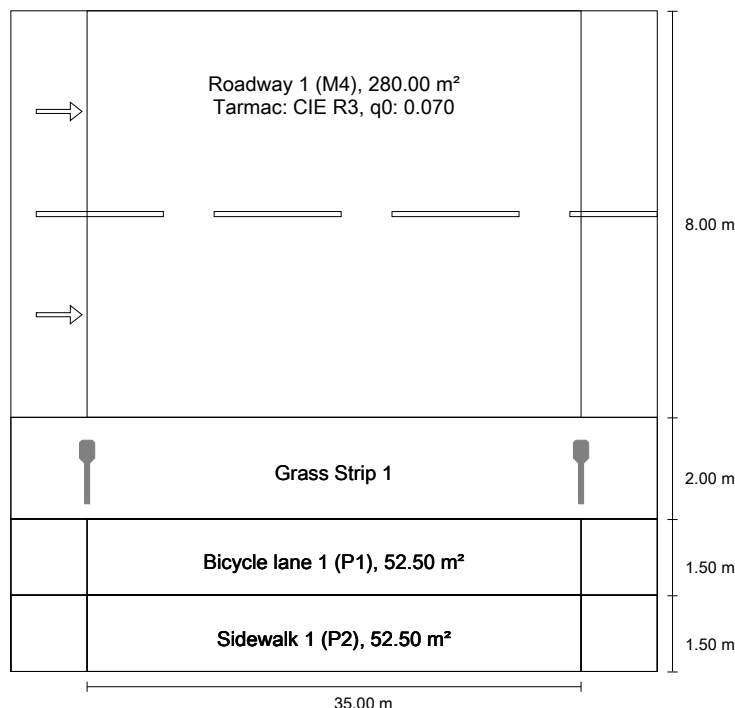
Planning results.....	49
Ventspils, Durbes iela (Tērvetes-Rāvas): Alternative 5 / Sidewalk 2 (P1)	
Results summary.....	50
Isolines.....	51
Ventspils, Durbes iela (Tērvetes-Rāvas): Alternative 5 / Bicycle lane 1 (P1)	
Results summary.....	52
Isolines.....	53
Ventspils, Durbes iela (Tērvetes-Rāvas): Alternative 5 / Roadway 1 (M4)	
Results summary.....	54
Isolines.....	55

#### Ventspils, Durbes iela (Rāvas-12+20 (T973)): Alternative 6

Planning results.....	58
Ventspils, Durbes iela (Rāvas-12+20 (T973)): Alternative 6 / Sidewalk 2 (P1)	
Results summary.....	60
Isolines.....	61
Ventspils, Durbes iela (Rāvas-12+20 (T973)): Alternative 6 / Bicycle lane 1 (P1)	
Results summary.....	62
Isolines.....	63
Ventspils, Durbes iela (Rāvas-12+20 (T973)): Alternative 6 / Roadway 1 (M4)	
Results summary.....	64
Isolines.....	65
Ventspils, Durbes iela (Rāvas-12+20 (T973)): Alternative 6 / Sidewalk 1 (P4)	
Results summary.....	70
Isolines.....	71
Ventspils, Durbes iela (12+20 (T973)-Rūpniecības ielas krustojums): Alternative 7	
Planning results.....	72
Ventspils, Durbes iela (12+20 (T973)-Rūpniecības ielas krustojums): Alternative 7 / Sidewalk 2 (P2)	
Results summary.....	74
Isolines.....	75
Ventspils, Durbes iela (12+20 (T973)-Rūpniecības ielas krustojums): Alternative 7 / Bicycle lane 1 (P2)	
Results summary.....	76
Isolines.....	77
Ventspils, Durbes iela (12+20 (T973)-Rūpniecības ielas krustojums): Alternative 7 / Roadway 1 (M4)	
Results summary.....	78
Isolines.....	79
Ventspils, Durbes iela (12+20 (T973)-Rūpniecības ielas krustojums): Alternative 7 / Sidewalk 1 (P4)	
Results summary.....	84
Isolines.....	85
Ventspils, Durbes iela (Rūpniecības ielas krustojums): Alternative 9	
Planning results.....	86
Ventspils, Durbes iela (Rūpniecības ielas krustojums): Alternative 9 / Sidewalk 2 (P2)	
Results summary.....	88
Isolines.....	89
Ventspils, Durbes iela (Rūpniecības ielas krustojums): Alternative 9 / Bicycle lane 1 (P2)	
Results summary.....	90
Isolines.....	91
Ventspils, Durbes iela (Rūpniecības ielas krustojums): Alternative 9 / Roadway 1 (M4)	
Results summary.....	92
Isolines.....	93
Ventspils, Durbes iela (Rūpniecības ielas krustojums): Alternative 9 / Sidewalk 1 (P2)	
Results summary.....	100
Isolines.....	101

# Ventspils, Durbes iela (Zvaigžņu-Kuldīgas) according to EN 13201:2015

## CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K



The pole distance of this luminaire arrangement determines the length of the valuation fields.

### Results for valuation fields

Maintenance factor: 0.90

#### Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.41	✓ 0.67	✓ 0.36	* 17

#### Bicycle lane 1 (P1)

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.70	✓ 8.87

#### Sidewalk 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.33	✓ 6.66

\* Informative, not part of the valuation

### Results for energy efficiency indicators

Power density indicator (Dp)

0.006 W/lxm²

EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2059.0
Arrangement:	single side bottom
Pole distance:	35.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	-0.700 m

ULR: 0.00

ULOR: 0.00

#### Maximum luminous intensities

at 70°:	837 cd/klm
at 80°:	33.1 cd/klm
at 90°:	0.00 cd/klm

Luminous intensity class: G\*3

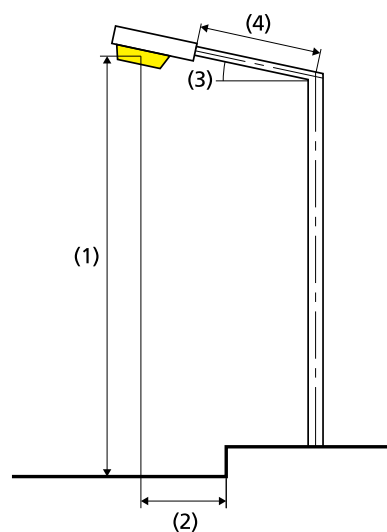
Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.4

## Energy consumption density

Arrangement 1: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr) 0.7 kWh/m<sup>2</sup> yr

Arrangement 2: XSPM - E - Type 210 - Q4 3K (132.0 kWh/yr) 0.3 kWh/m<sup>2</sup> yr

**CREE XSPM02210E30K\_24-Q4 XSPM - E - Type 210 - Q4 3K**


Lamp:	1x3 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	3732.34 lm
Luminous flux (lamp):	4263.00 lm
Operating Hours	
4000 h:	100.0 %, 33.0 W
W/km:	957.0
Arrangement:	single side bottom
Pole distance:	35.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	-0.700 m

ULR:	0.00
ULOR:	0.00
Maximum luminous intensities	
at 70°:	837 cd/klm
at 80°:	33.1 cd/klm
at 90°:	0.00 cd/klm
Luminous intensity class:	G*3

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6

## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.41	✓ 0.67	✓ 0.36	* 17

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 7.000, 1.500)	0.97	0.45	0.71	17
Observer 2	(-60.000, 11.000, 1.500)	1.08	0.41	0.67	8

## Roadway 1 (M4)

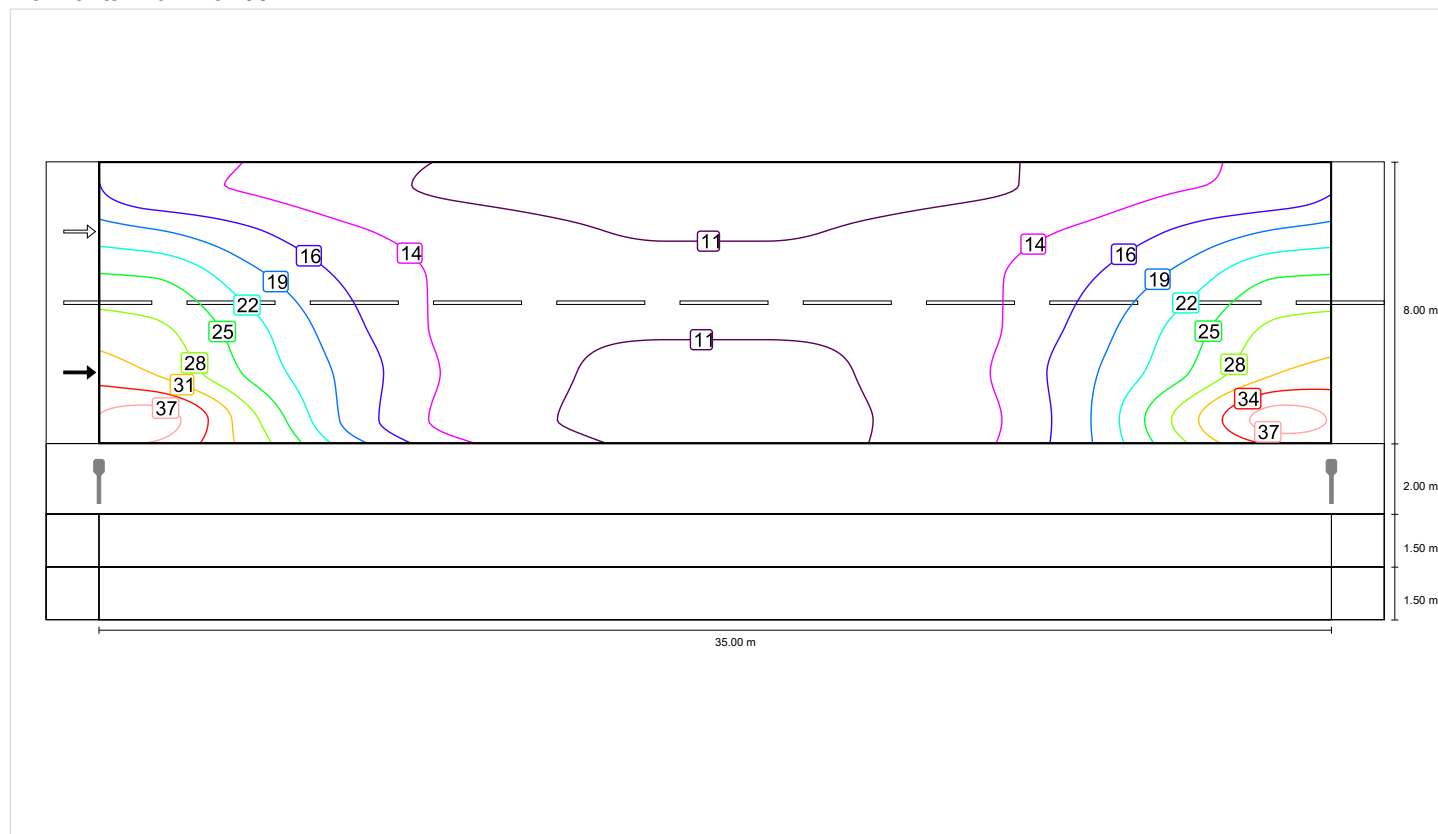
Maintenance factor: 0.90

Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.41	✓ 0.67	✓ 0.36	* 17

\* Informative, not part of the valuation

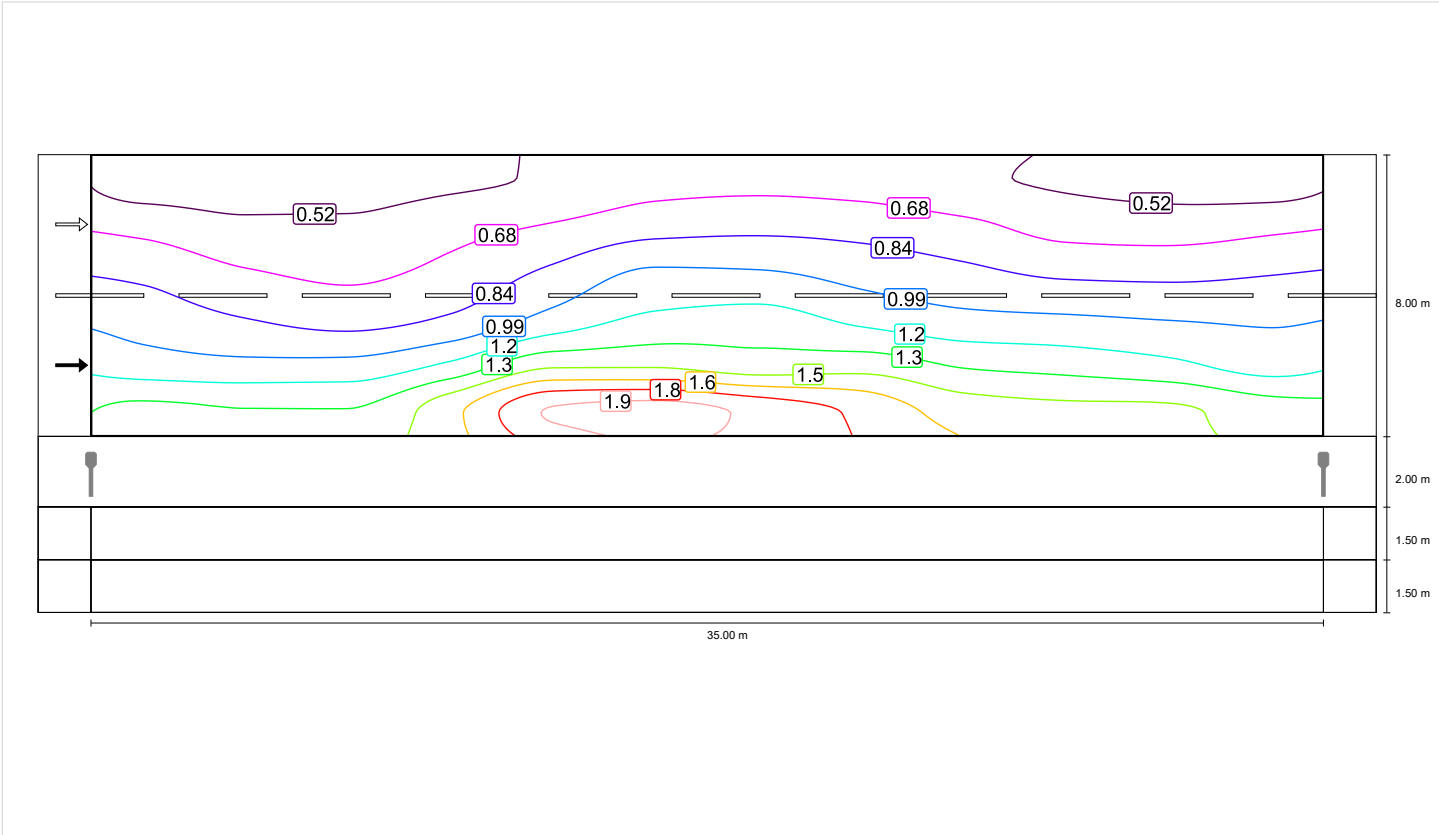
### Horizontal illuminance



Scale: 1 : 200

Observer 1

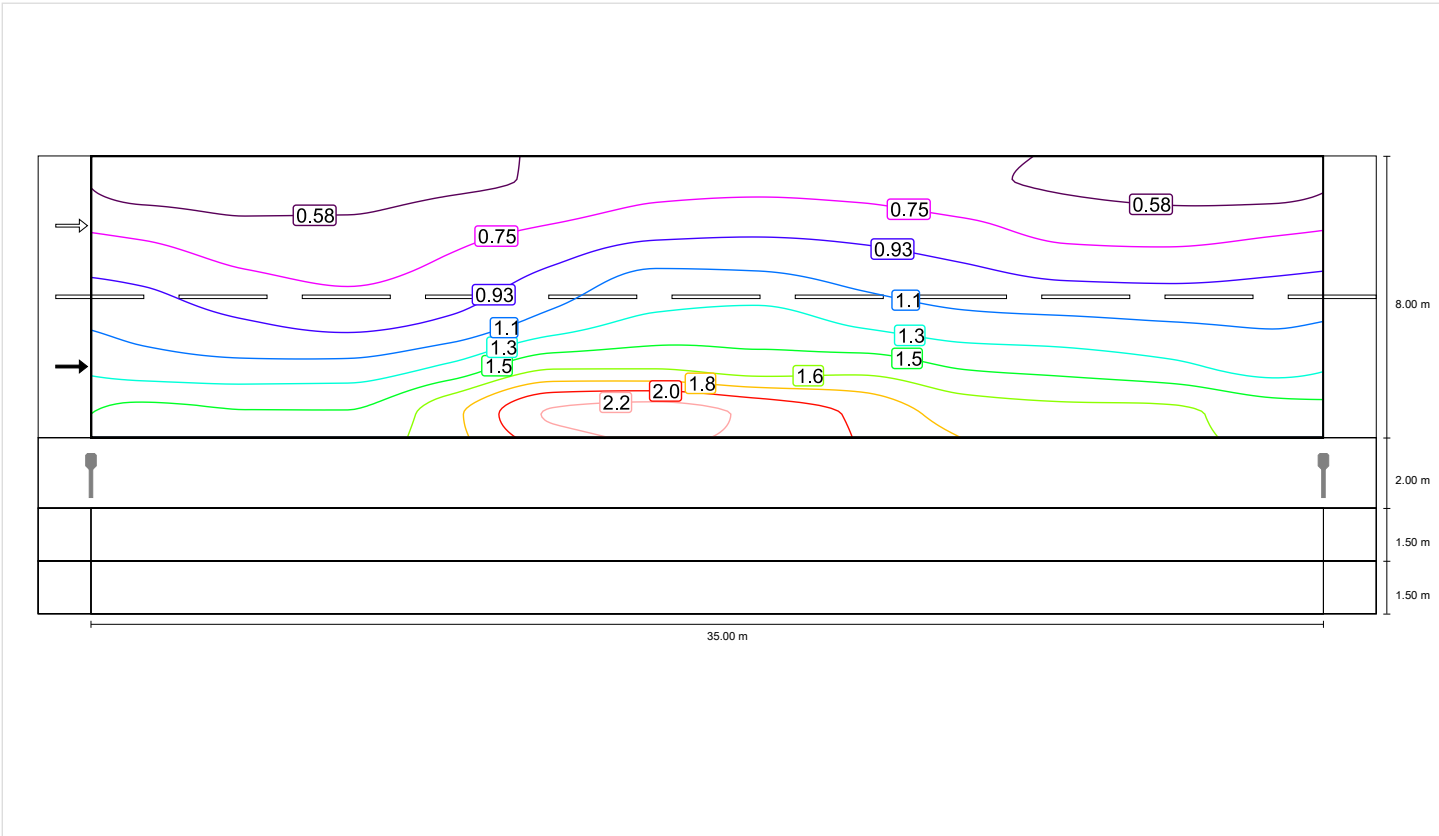
Luminance with dry roadway



Scale: 1 : 200



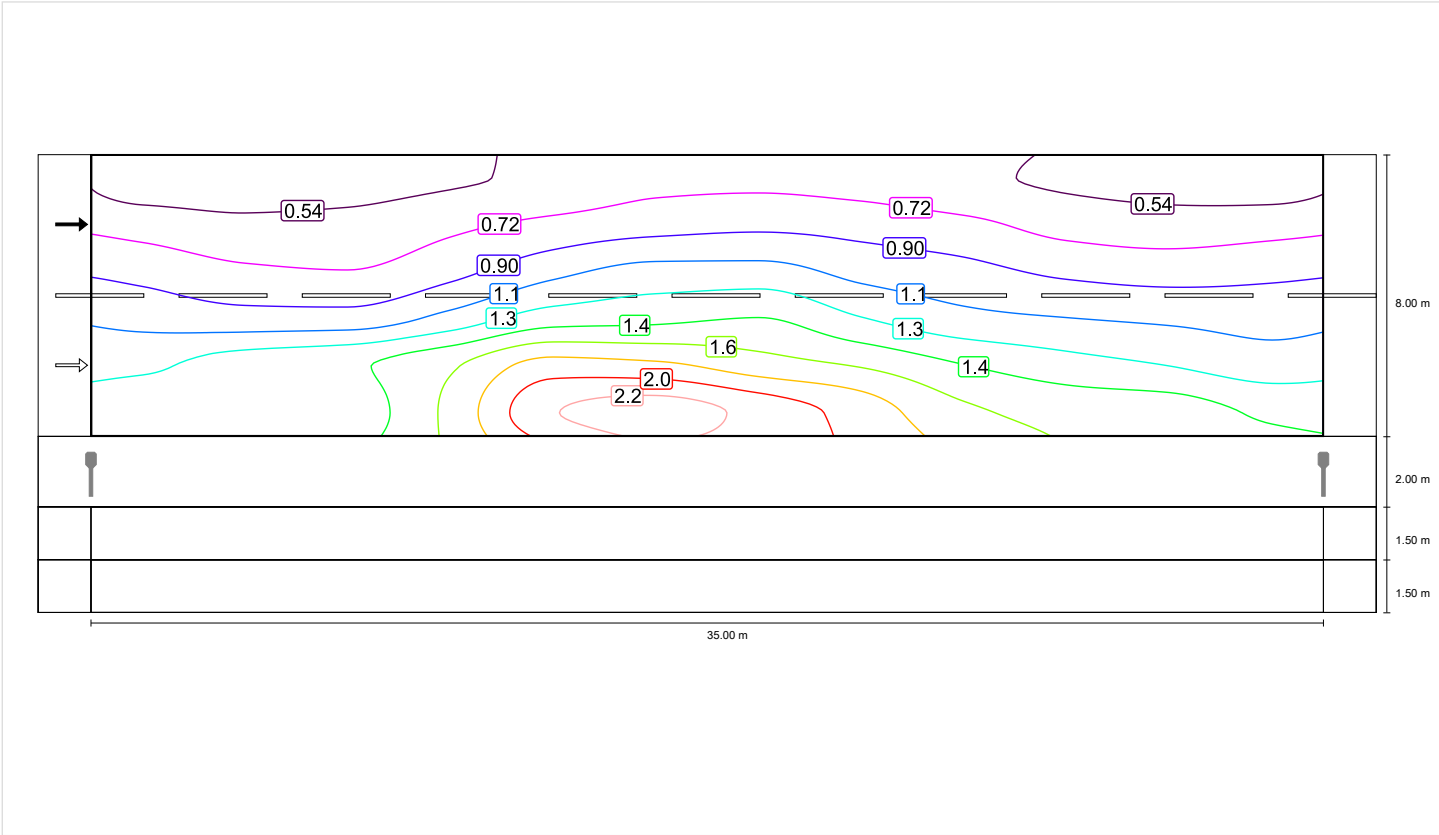
Luminance with new lamp



Scale: 1 : 200

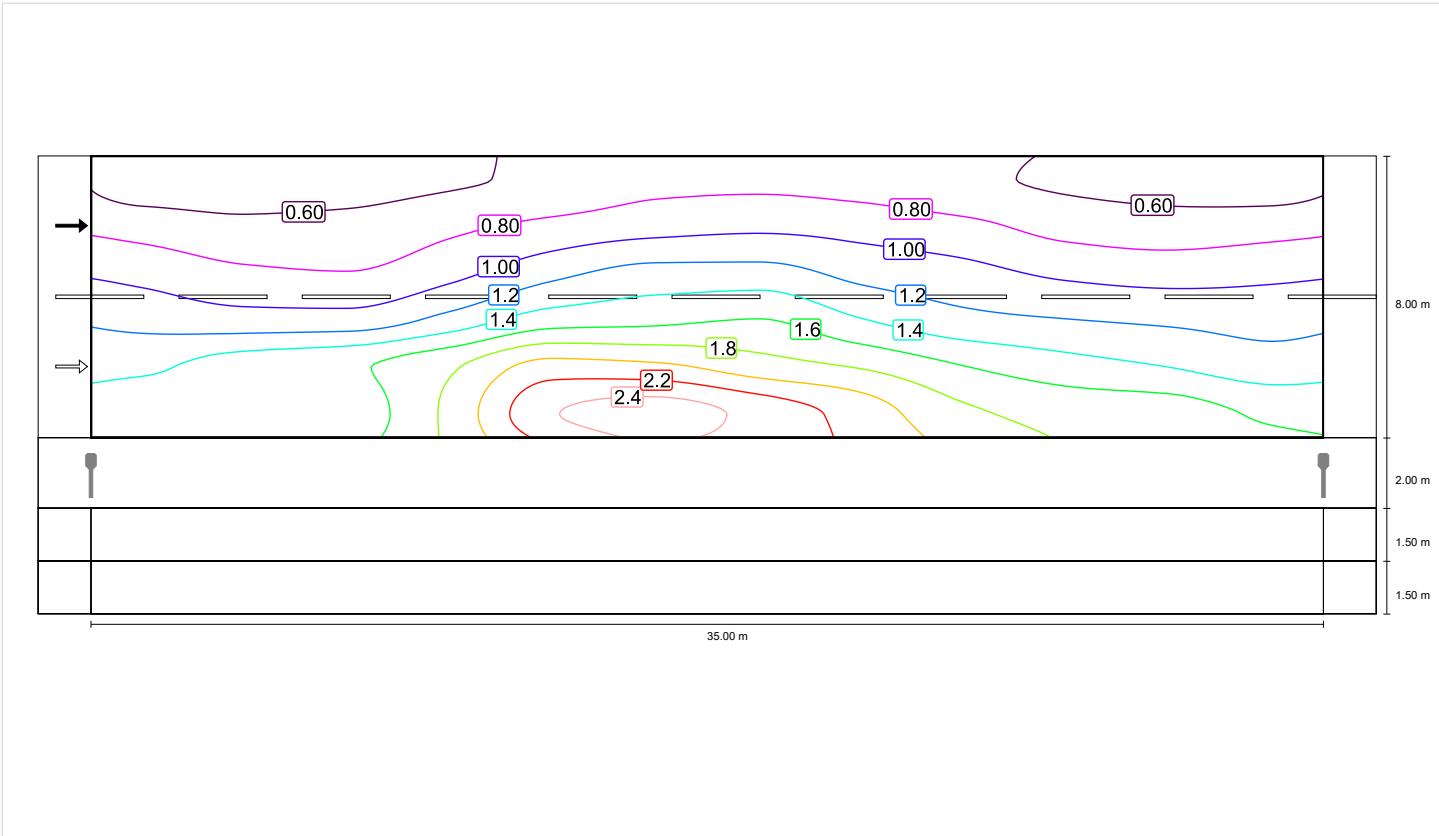
Observer 2

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp



Scale: 1 : 200

## Bicycle lane 1 (P1)

Maintenance factor: 0.90

Grid: 12 x 3 Points

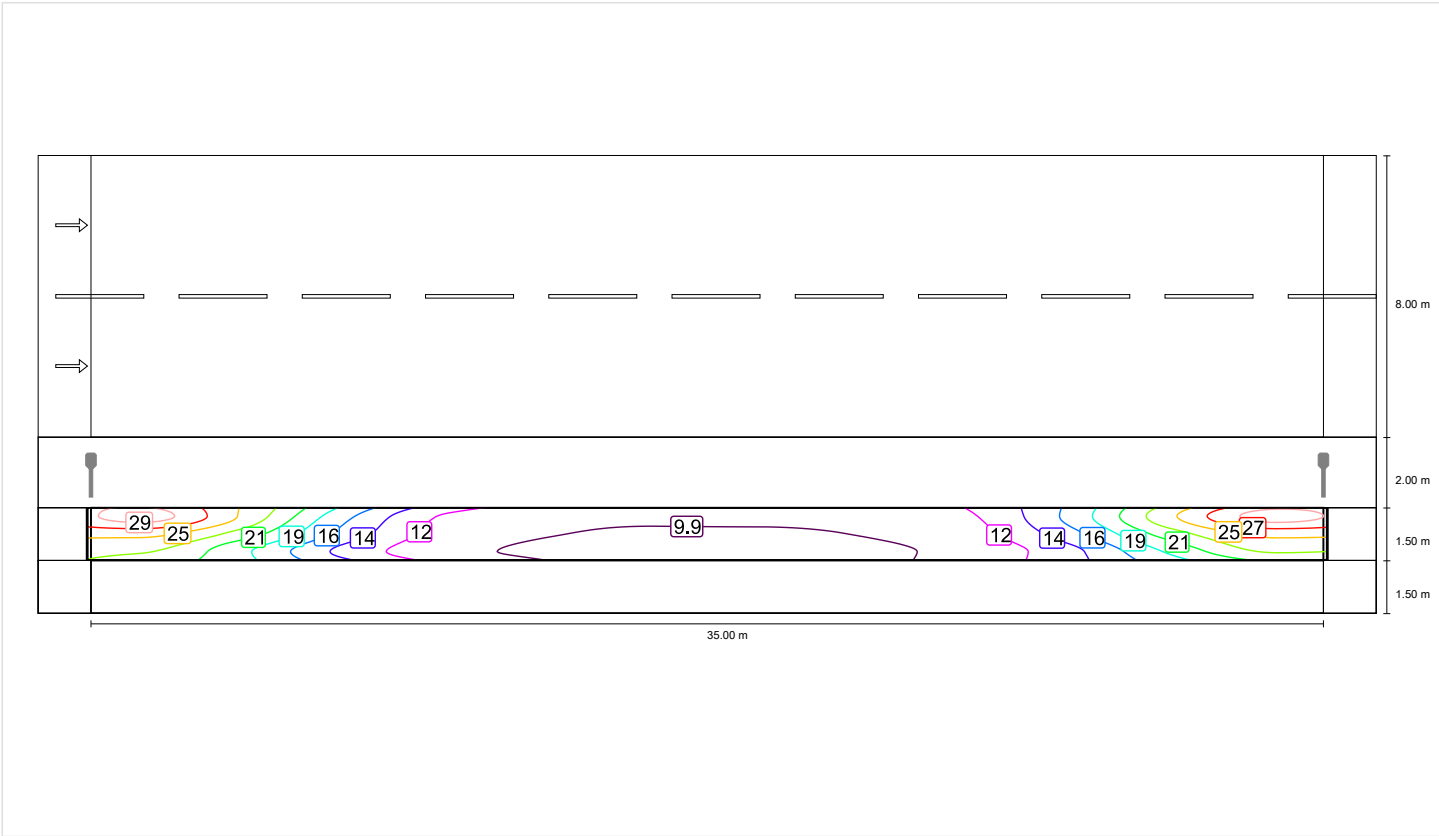
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.70	✓ 8.87

Bicycle lane 1 (P1)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.70	✓ 8.87

Horizontal illuminance



Scale: 1 : 200

## Sidewalk 1 (P2)

Maintenance factor: 0.90

Grid: 12 x 3 Points

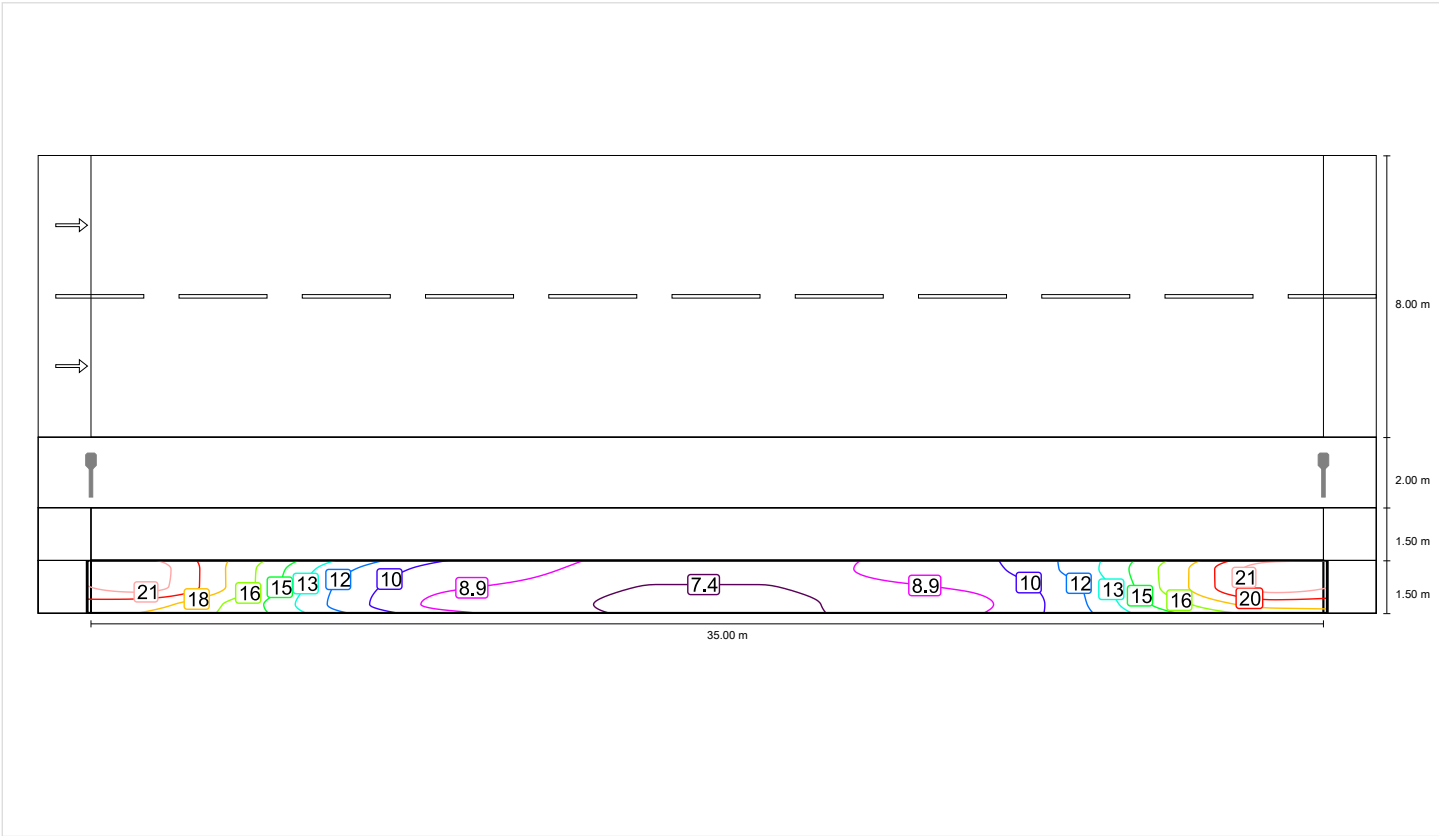
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.33	✓ 6.66

### Sidewalk 1 (P2)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.33	✓ 6.66

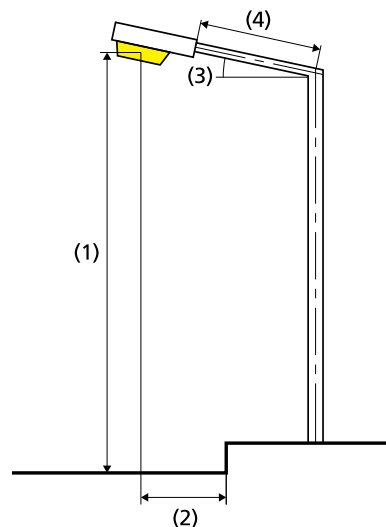
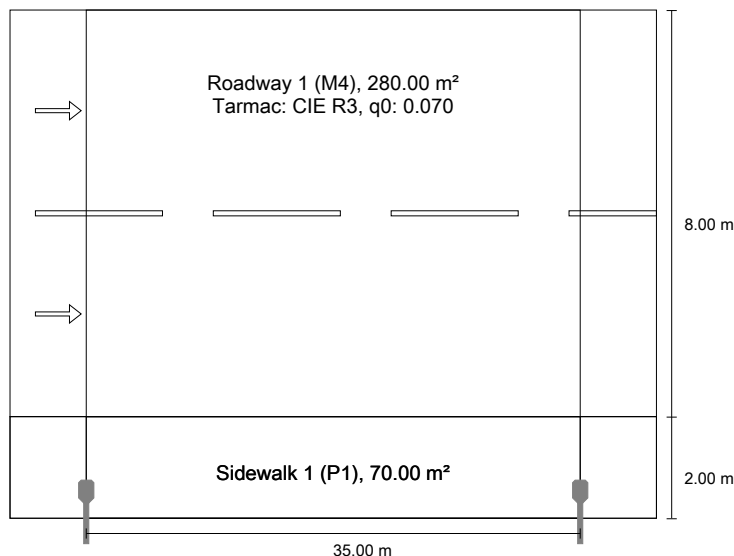
#### Horizontal illuminance



Scale: 1 : 200

# Ventspils, Durbes iela (Kuldīgas-Vārves iela) according to EN 13201:2015

## CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K



### Results for valuation fields

Maintenance factor: 0.90

#### Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.83	✓ 0.41	✓ 0.68	✓ 0.31	* 18

#### Sidewalk 1 (P1)

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.59	✓ 7.53

\* Informative, not part of the valuation

### Results for energy efficiency indicators

Power density indicator (Dp) 0.014 W/lxm²

Energy consumption density

Arrangement: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr) 0.8 kWh/m² yr

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2059.0
Arrangement:	single side bottom
Pole distance:	35.000 m
Boom inclination (3):	1.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	-1.500 m

ULR: 0.00

ULOR: 0.00

#### Maximum luminous intensities

at 70°: 828 cd/klm

at 80°: 45.9 cd/klm

at 90°: 0.00 cd/klm

Luminous intensity class: G\*3

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.4



## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.83	✓ 0.41	✓ 0.68	✓ 0.31	* 18

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 4.000, 1.500)	0.83	0.46	0.72	18
Observer 2	(-60.000, 8.000, 1.500)	0.94	0.41	0.68	7

## Roadway 1 (M4)

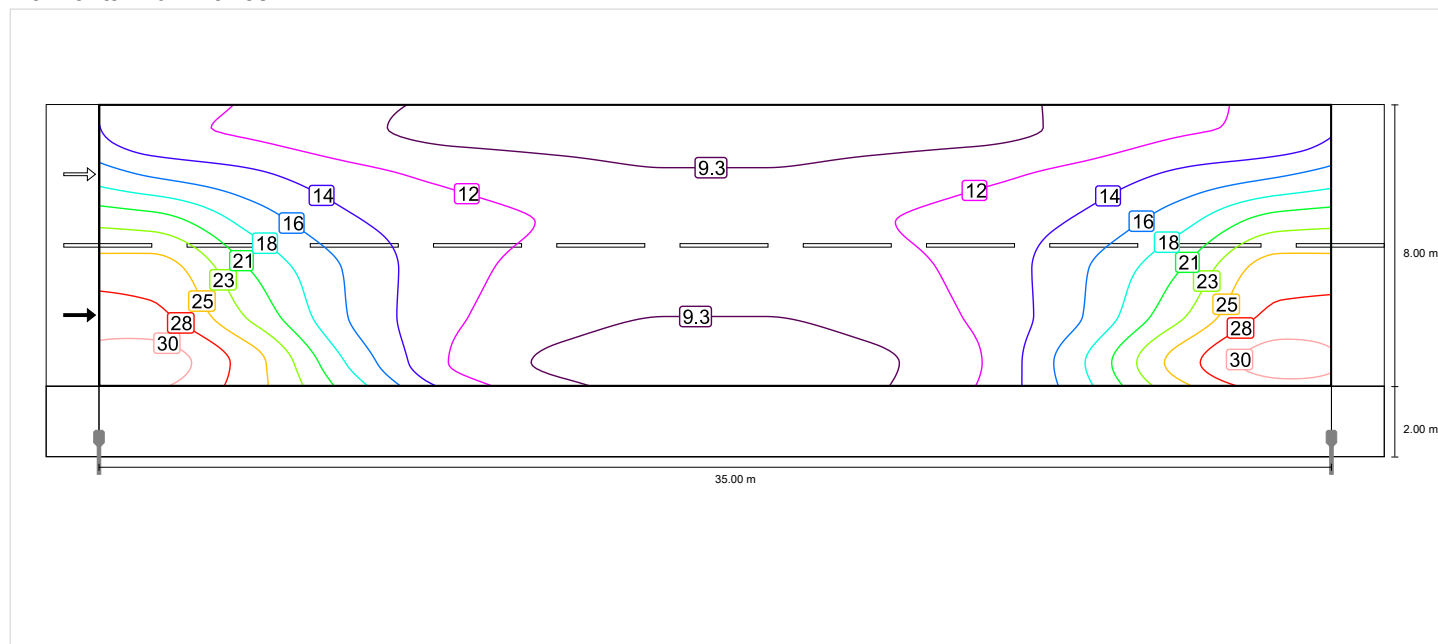
Maintenance factor: 0.90

Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.83	✓ 0.41	✓ 0.68	✓ 0.31	* 18

\* Informative, not part of the valuation

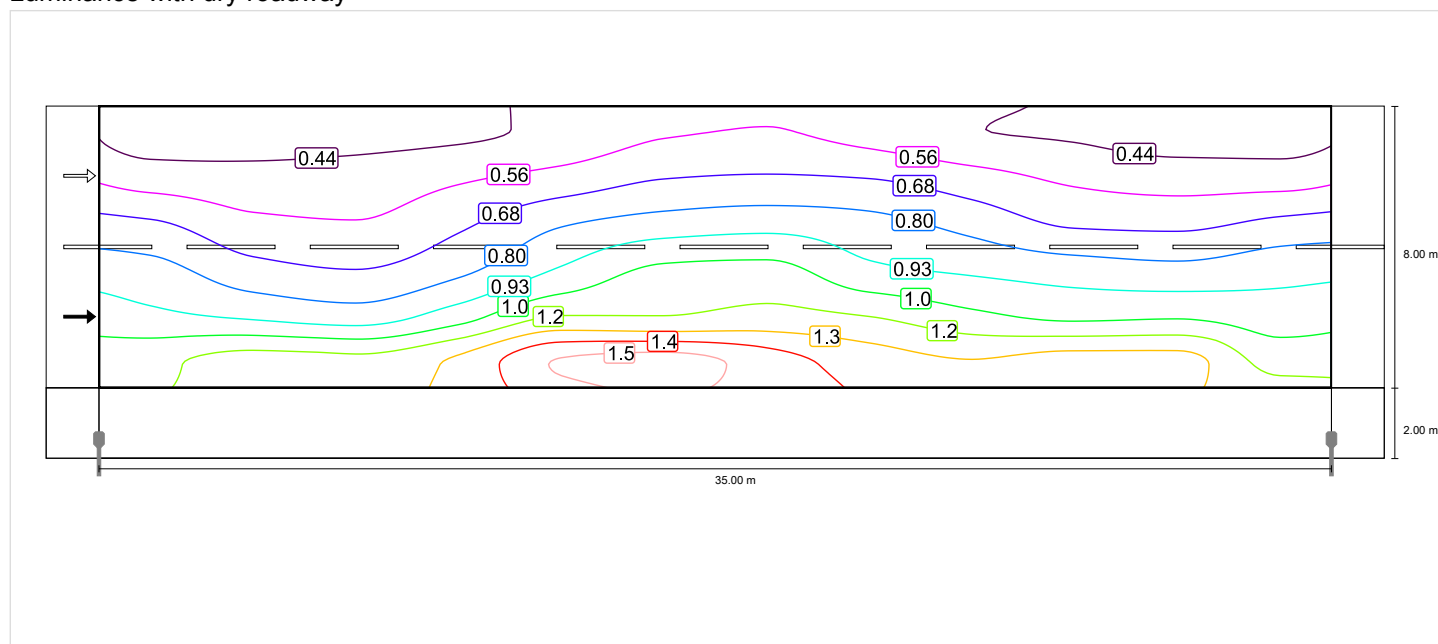
### Horizontal illuminance



Scale: 1 : 200

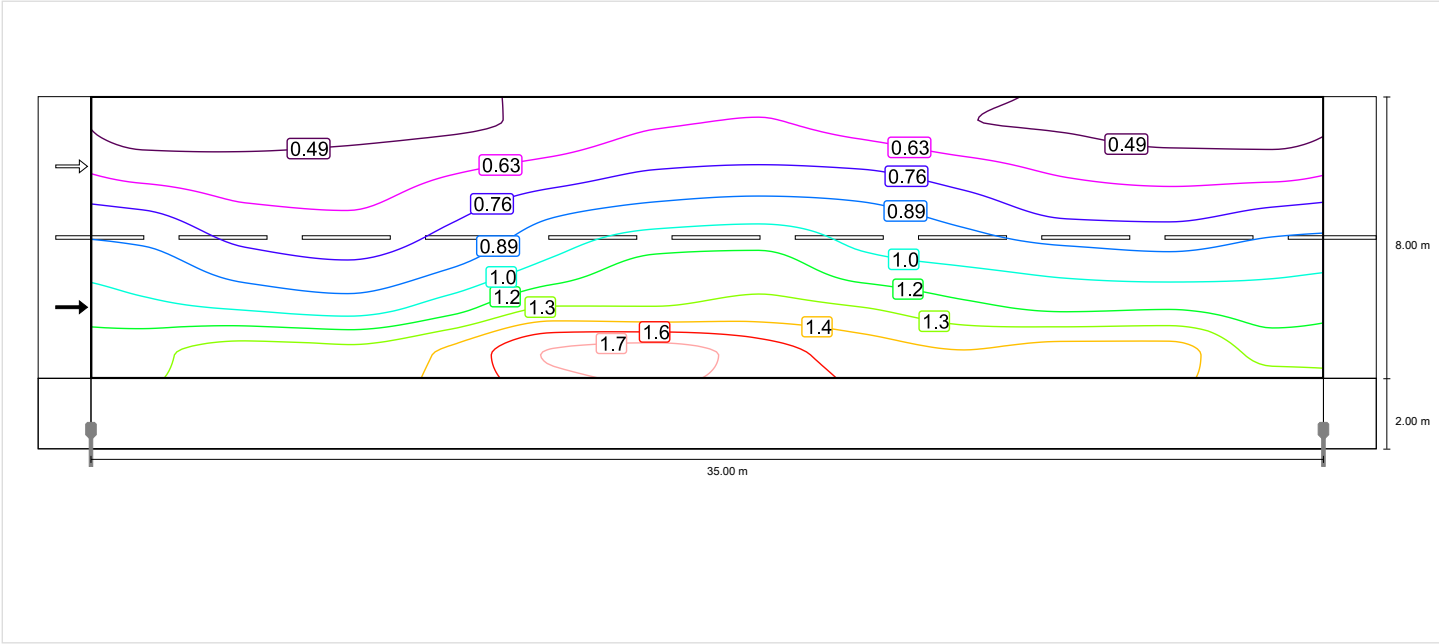
### Observer 1

### Luminance with dry roadway



Scale: 1 : 200

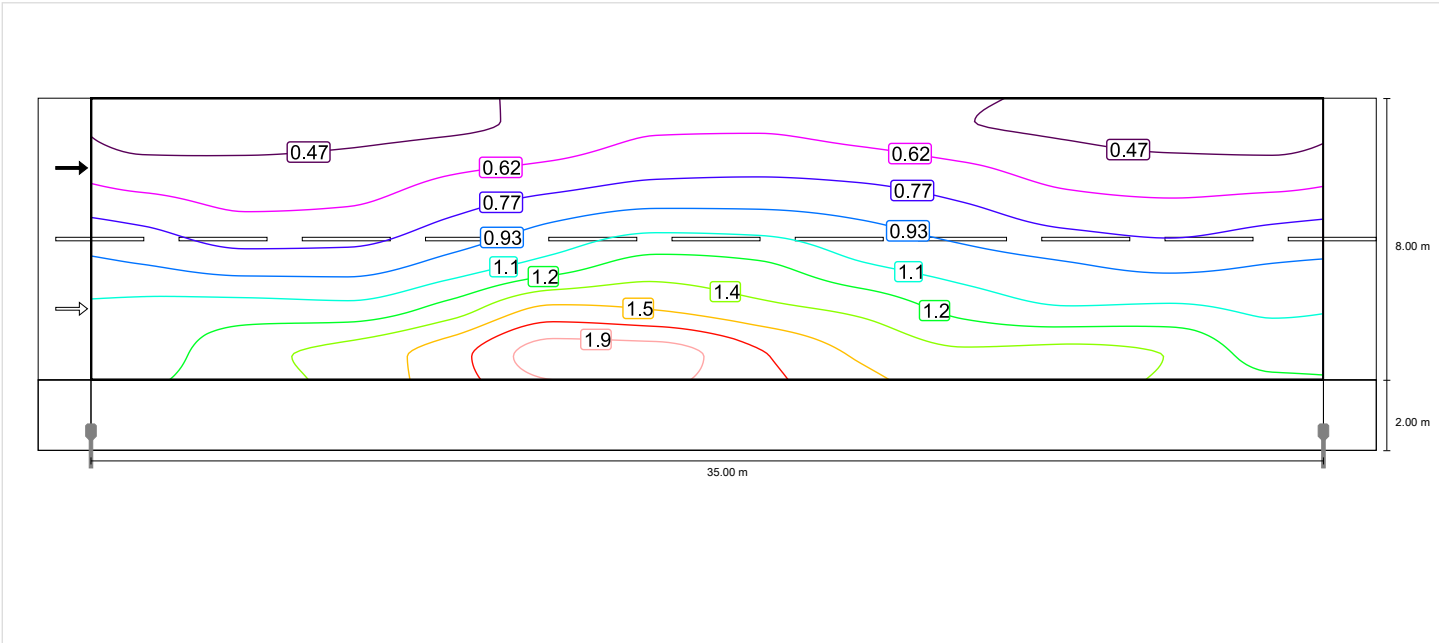
Luminance with new lamp



Scale: 1 : 200

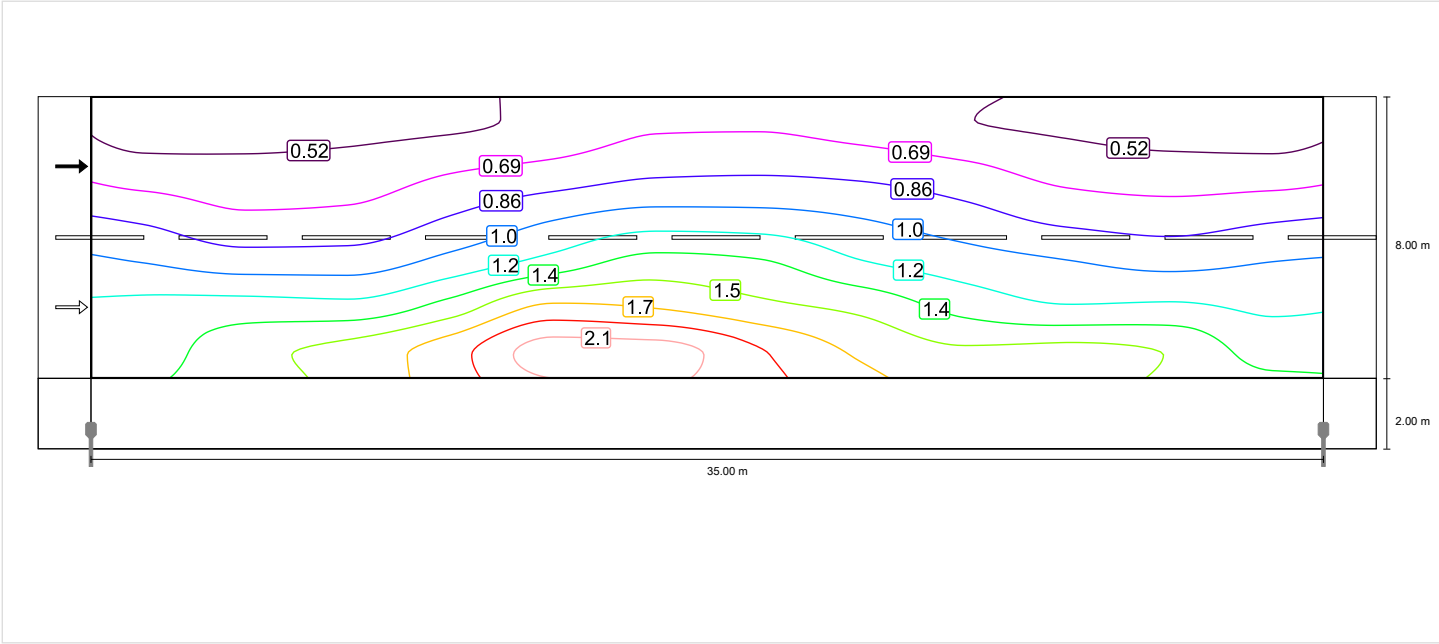
Observer 2

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp



## Sidewalk 1 (P1)

Maintenance factor: 0.90

Grid: 12 x 3 Points

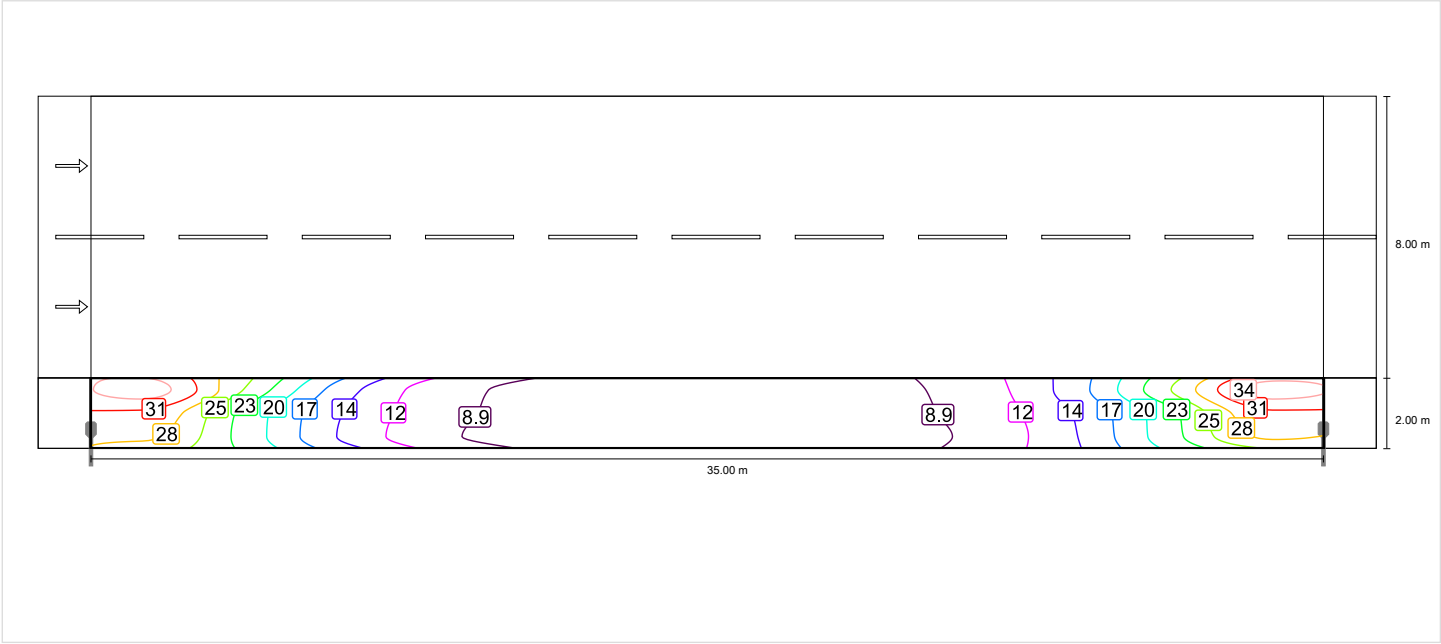
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.59	✓ 7.53

### Sidewalk 1 (P1)

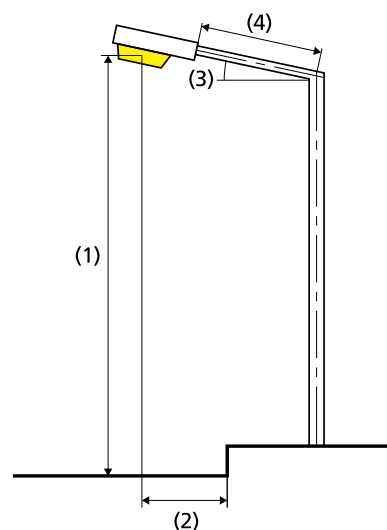
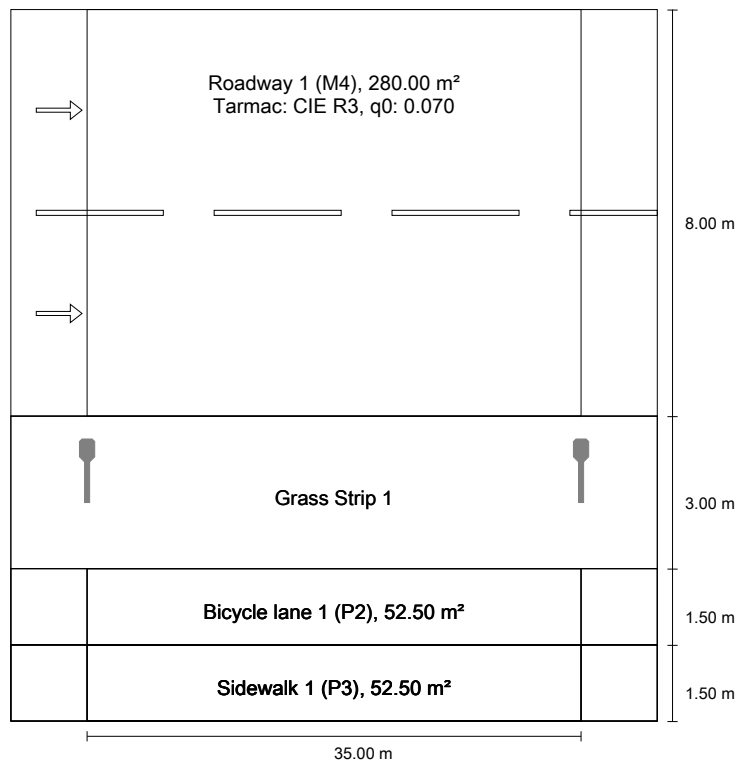
Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx]	Emin [lx]
≥ 15.00	≥ 3.00
≤ 22.50	
✓ 15.59	✓ 7.53

#### Horizontal illuminance



Scale: 1 : 200

**Ventspils, Durbes iela (Vārves-Brīvības) according to EN 13201:2015**
**CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K**


The pole distance of this luminaire arrangement determines the length of the valuation fields.

**Results for valuation fields**

Maintenance factor: 0.90

**Roadway 1 (M4)**

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.41	✓ 0.67	✓ 0.36	* 17

**Bicycle lane 1 (P2)**

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 13.20	✓ 7.32

**Sidewalk 1 (P3)**

Em [lx] ≥ 7.50 ≤ 11.25	Emin [lx] ≥ 1.50
✓ 10.75	✓ 5.76

\* Informative, not part of the valuation

**Results for energy efficiency indicators**

Power density indicator (Dp)

0.006 W/lxm²

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2059.0
Arrangement:	single side bottom
Pole distance:	35.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	-0.700 m

ULR: 0.00

ULOR: 0.00

**Maximum luminous intensities**

at 70°: 837 cd/klm

at 80°: 33.1 cd/klm

at 90°: 0.00 cd/klm

Luminous intensity class: G\*3

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

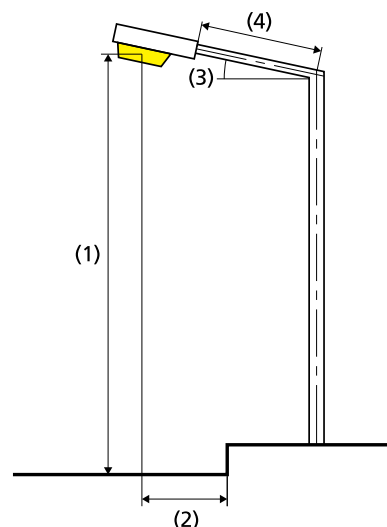
Arrangement complies with glare index class D.4

EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.

#### Energy consumption density

Arrangement 1: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr)	0.7 kWh/m² yr
Arrangement 2: XSPM - E - Type 210 - Q4 3K (132.0 kWh/yr)	0.3 kWh/m² yr

#### CREE XSPM02210E30K\_24-Q4 XSPM - E - Type 210 - Q4 3K



Lamp:	1x3 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	3732.34 lm
Luminous flux (lamp):	4263.00 lm
Operating Hours	
4000 h:	100.0 %, 33.0 W
W/km:	957.0
Arrangement:	single side bottom
Pole distance:	35.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	-0.700 m

ULR:	0.00
ULOR:	0.00
Maximum luminous intensities	
at 70°:	837 cd/klm
at 80°:	33.1 cd/klm
at 90°:	0.00 cd/klm
Luminous intensity class:	G*3

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6



## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.41	✓ 0.67	✓ 0.36	* 17

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 8.000, 1.500)	0.97	0.45	0.71	17
Observer 2	(-60.000, 12.000, 1.500)	1.08	0.41	0.67	8

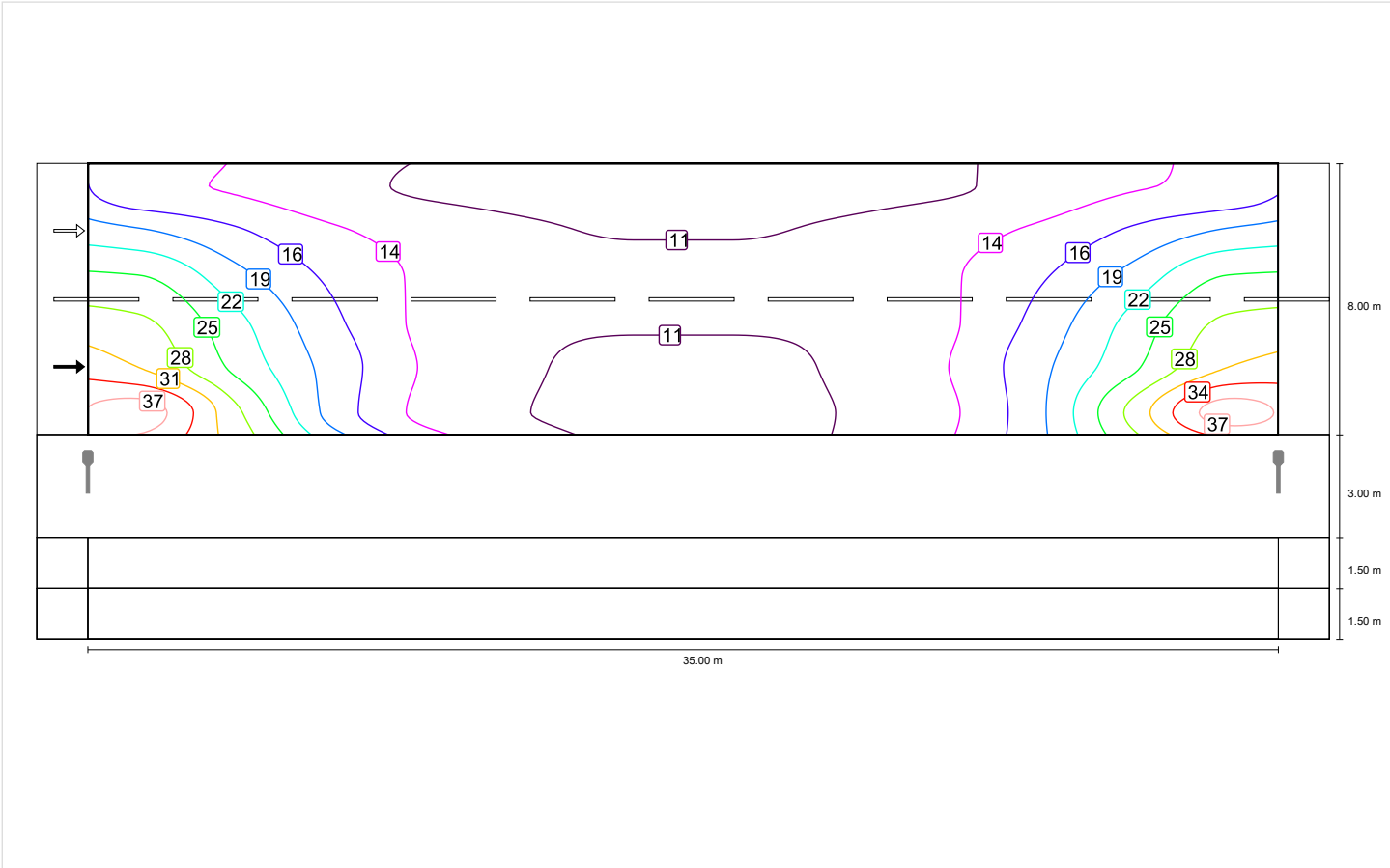
Roadway 1 (M4)

Maintenance factor: 0.90  
Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%] * 17
✓ 0.97	✓ 0.41	✓ 0.67	✓ 0.36	

\* Informative, not part of the valuation

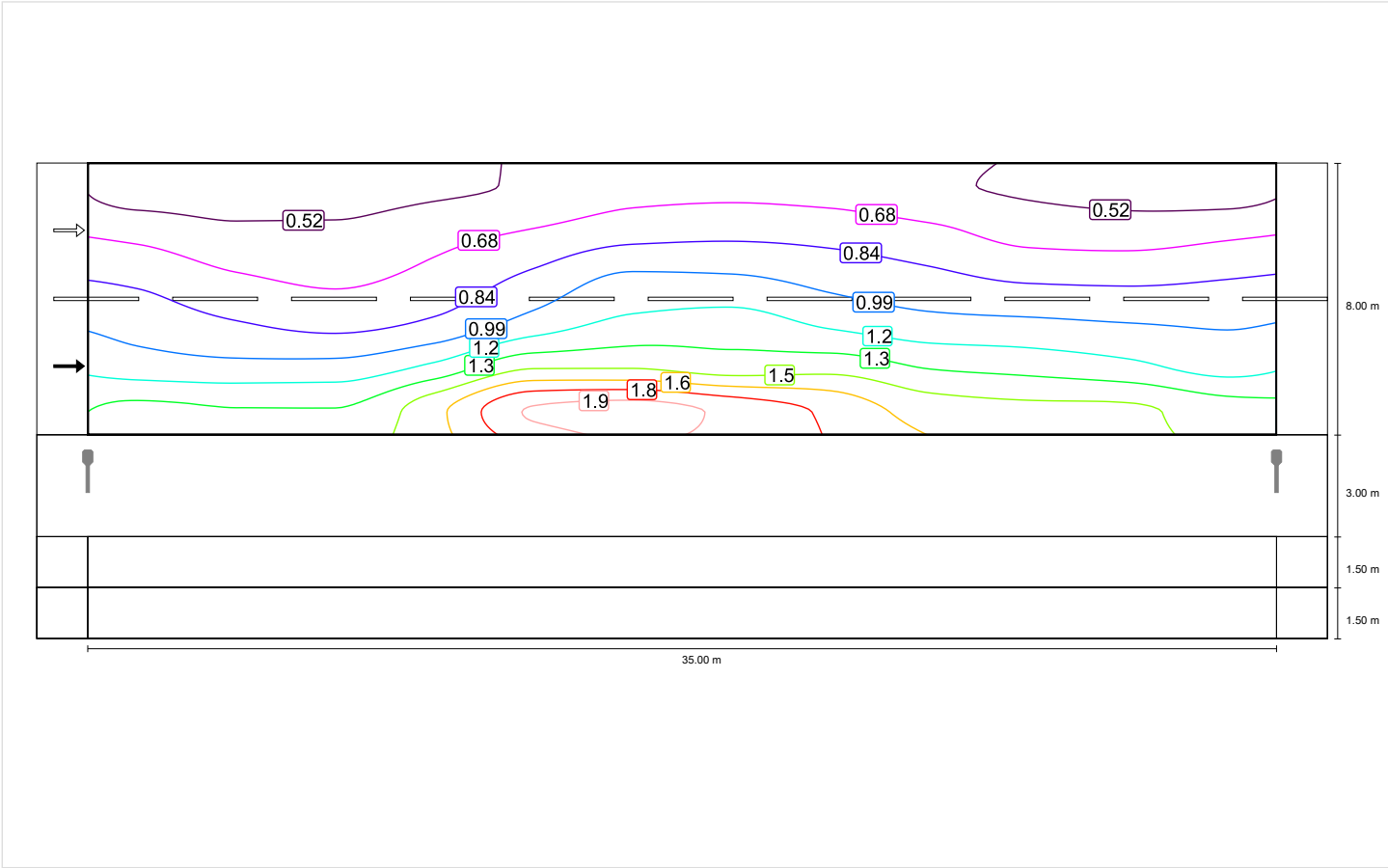
Horizontal illuminance



Scale: 1 : 200

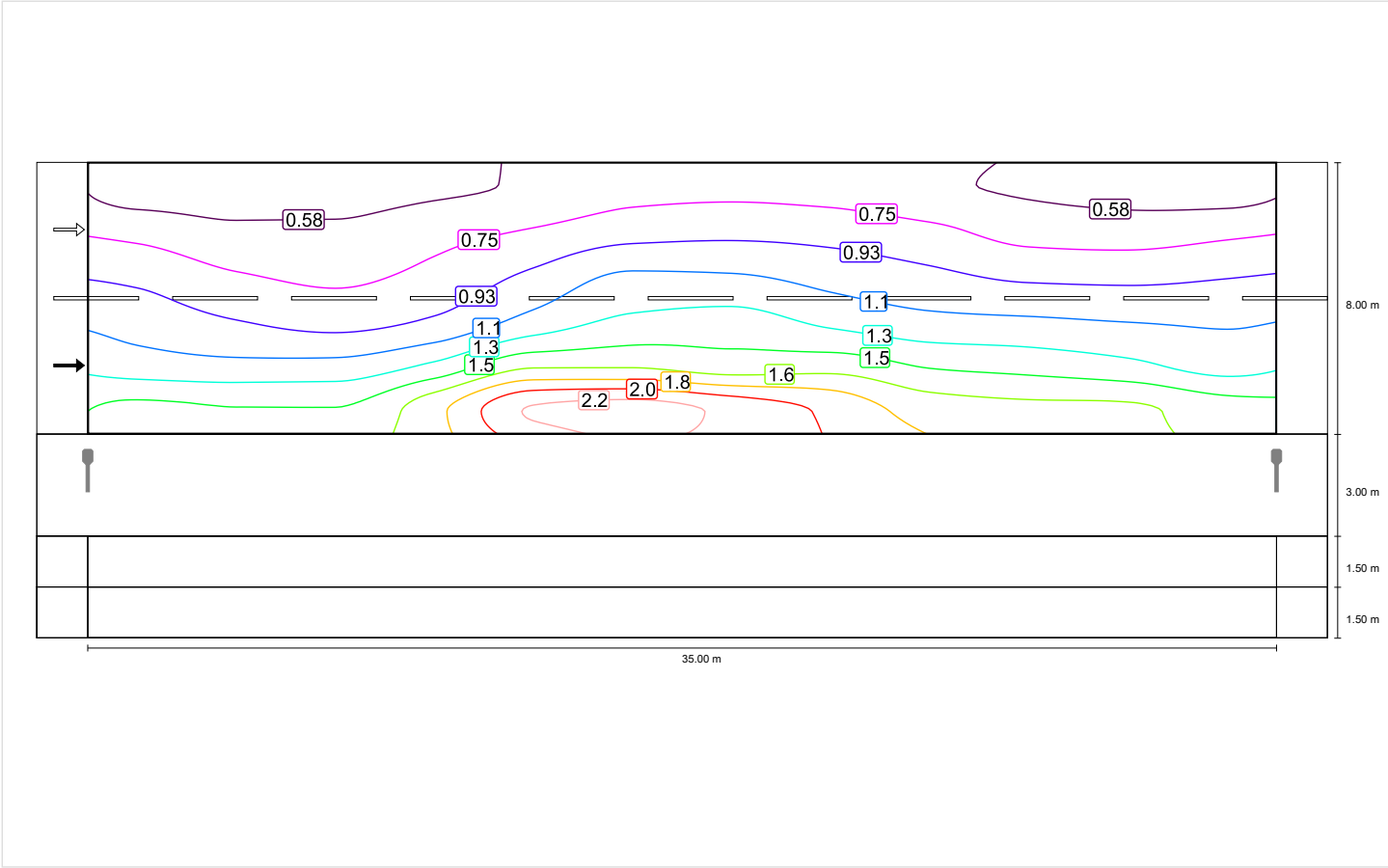
Observer 1

Luminance with dry roadway



Scale: 1 : 200

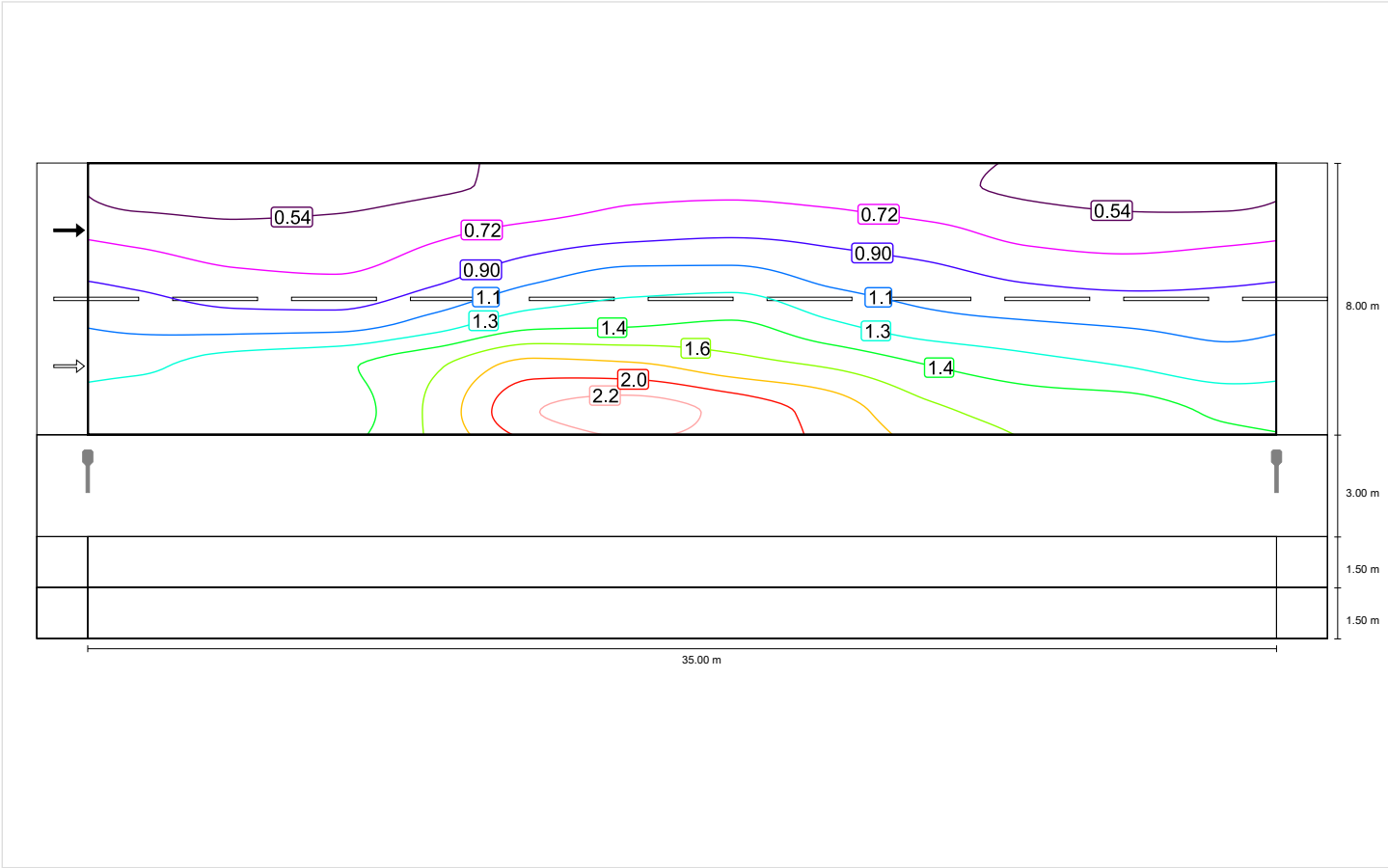
Luminance with new lamp



Scale: 1 : 200

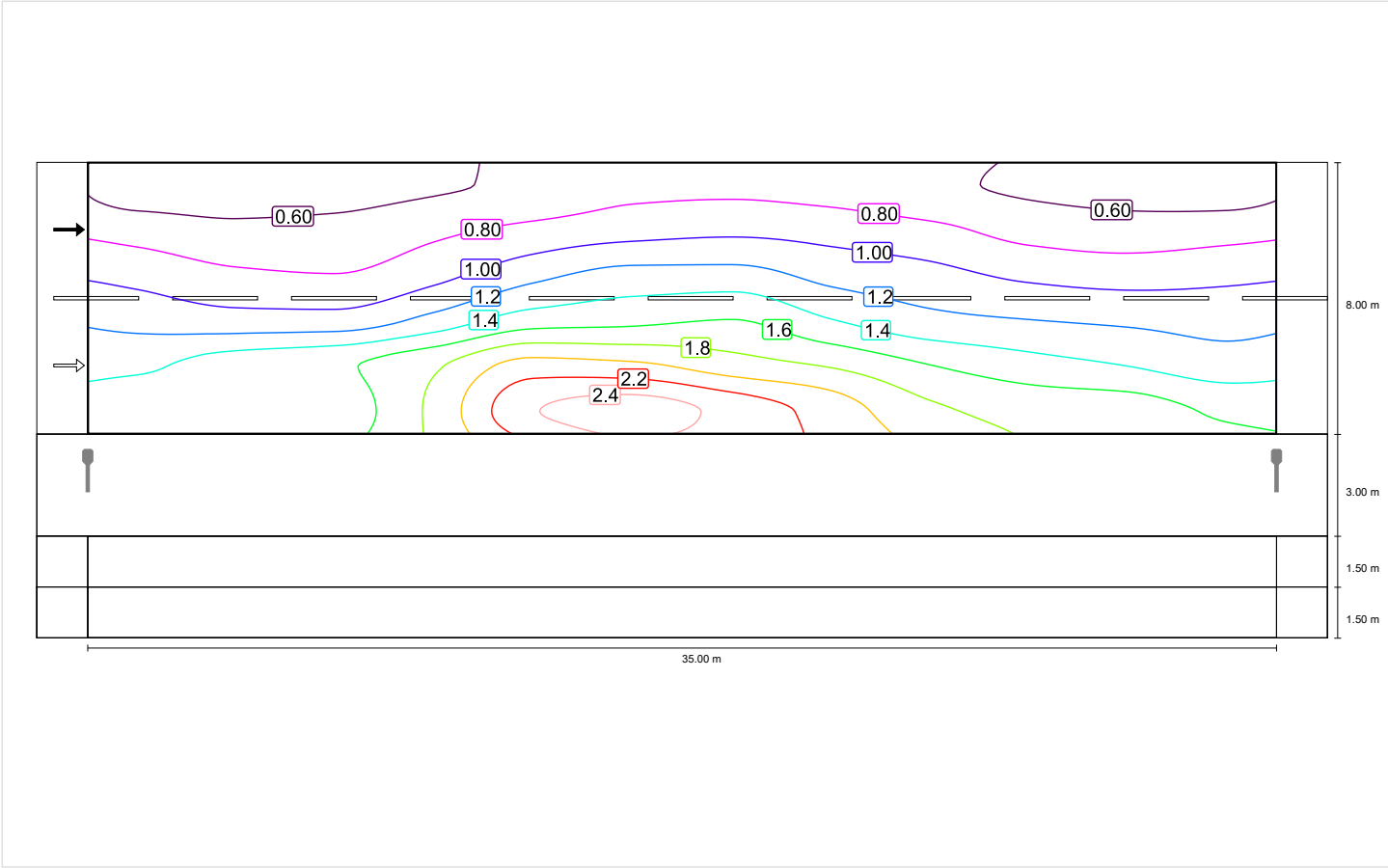
Observer 2

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp



Scale: 1 : 200

## Bicycle lane 1 (P2)

Maintenance factor: 0.90

Grid: 12 x 3 Points

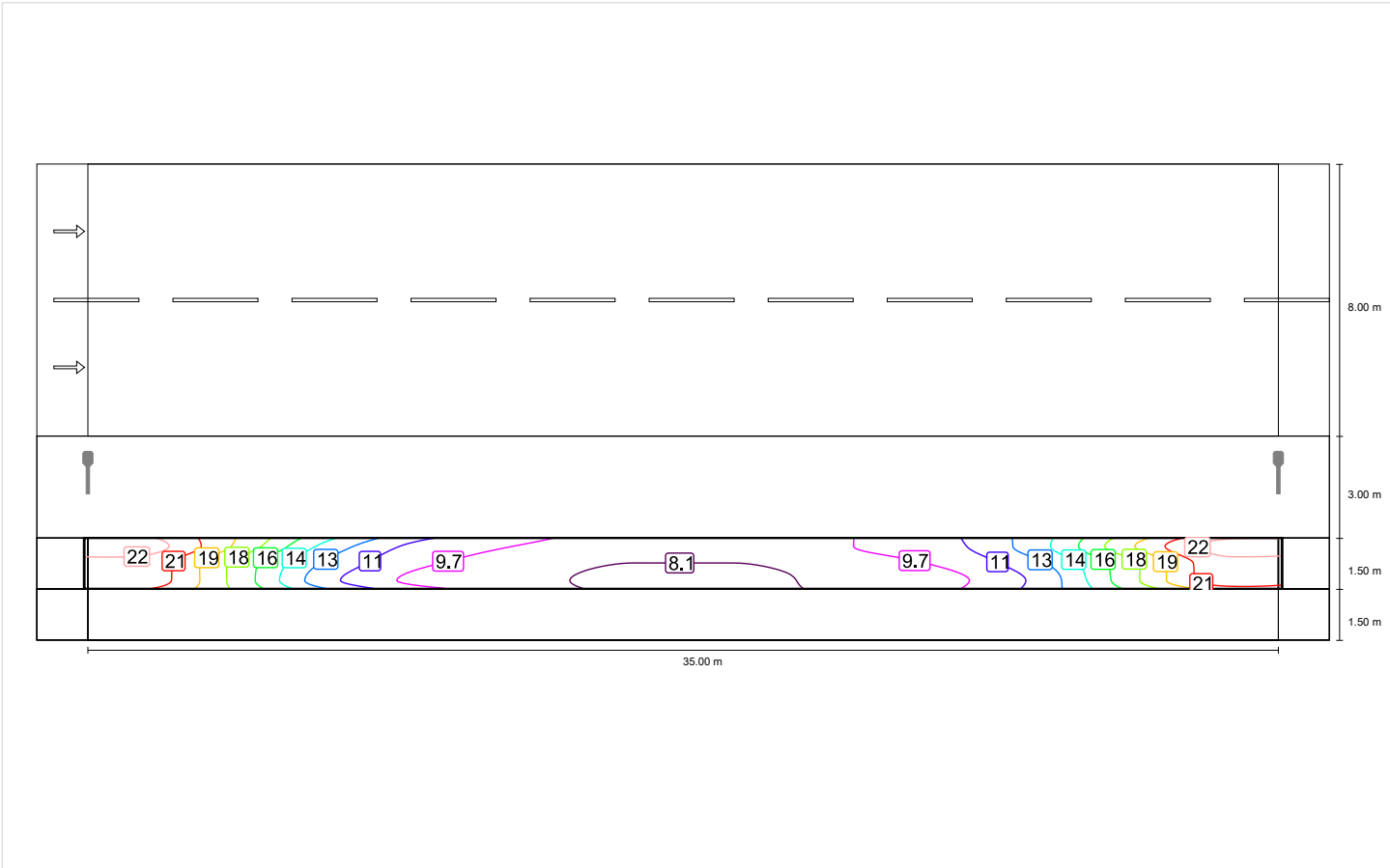
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 13.20	✓ 7.32

Bicycle lane 1 (P2)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 13.20	✓ 7.32

Horizontal illuminance



Scale: 1 : 200



## Sidewalk 1 (P3)

Maintenance factor: 0.90

Grid: 12 x 3 Points

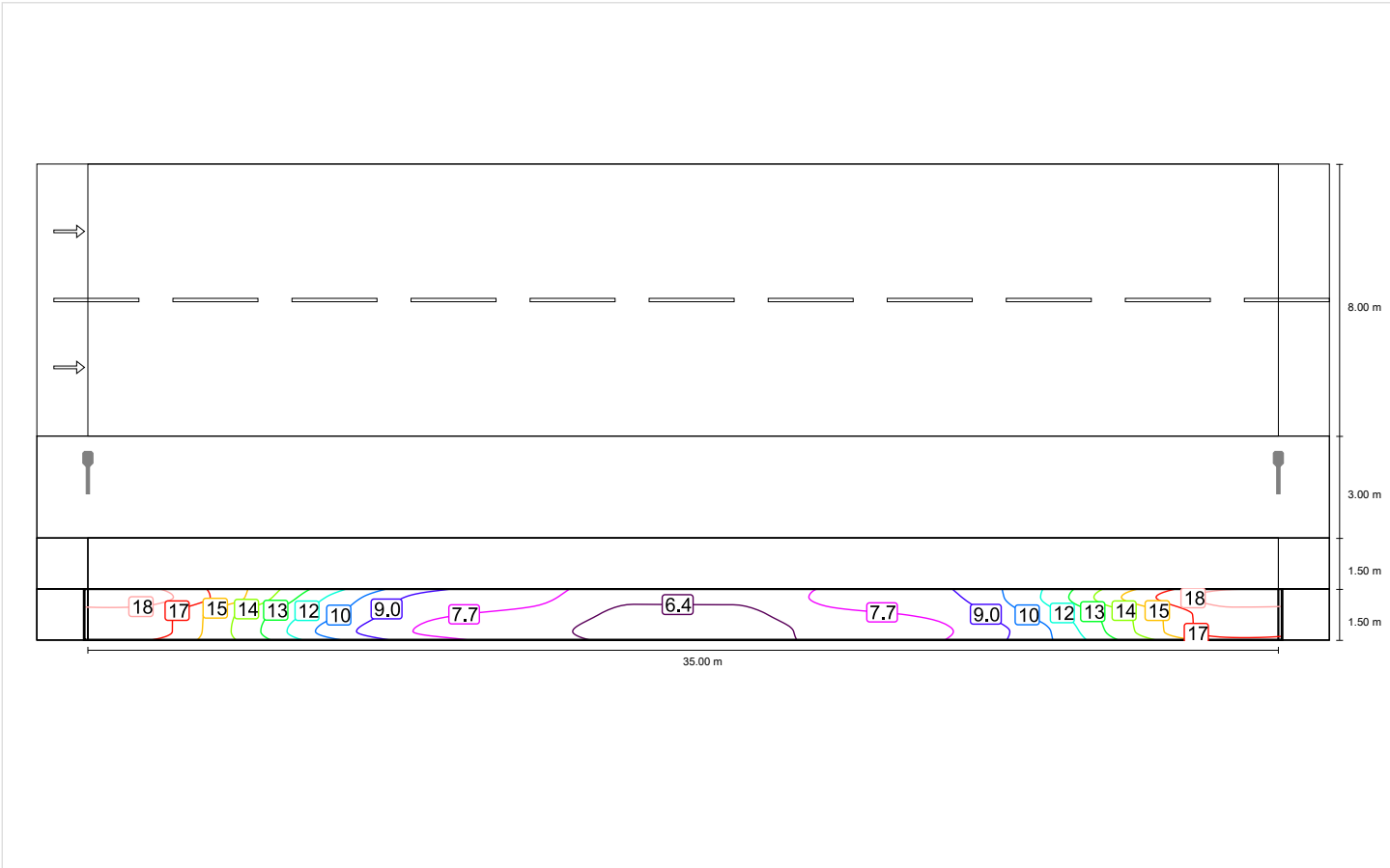
Em [lx] ≥ 7.50 ≤ 11.25	Emin [lx] ≥ 1.50
✓ 10.75	✓ 5.76

### Sidewalk 1 (P3)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx] ≥ 7.50 ≤ 11.25	Emin [lx] ≥ 1.50
✓ 10.75	✓ 5.76

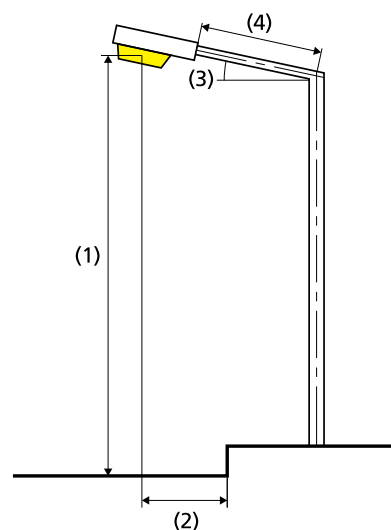
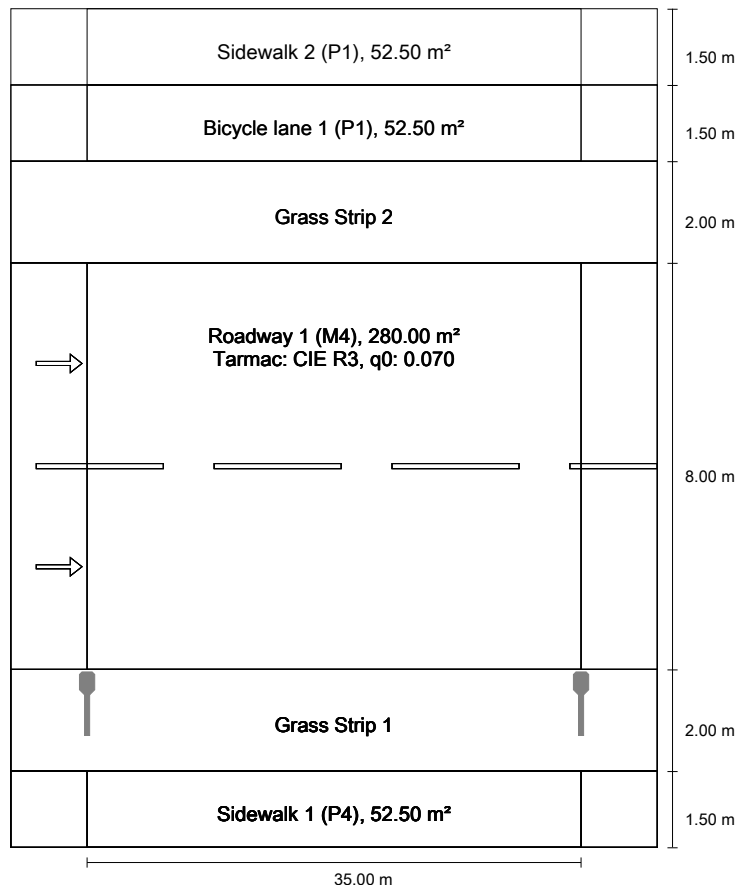
#### Horizontal illuminance



Scale: 1 : 200

# Ventspils, Durbes iela (Brīvības-Tērvetes) according to EN 13201:2015

## CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K



The pole distance of this luminaire arrangement determines the length of the valuation fields.

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2059.0
Arrangement:	single side bottom
Pole distance:	35.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.000 m
Light centre height (1):	8.000 m
Light overhang (2):	-0.300 m

## Results for valuation fields

Maintenance factor: 0.90

### Sidewalk 2 (P1)

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.12	✓ 10.48

### Bicycle lane 1 (P1)

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.83	✓ 9.07

ULR: 0.00

ULOR: 0.00

### Maximum luminous intensities

at 70°: 837 cd/klm

at 80°: 33.1 cd/klm

at 90°: 0.00 cd/klm

Luminous intensity class: G\*3

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.4

## Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.48	✓ 0.66	✓ 0.59	* 17

## Sidewalk 1 (P4)

Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 7.18	✓ 4.61

\* Informative, not part of the valuation

## Results for energy efficiency indicators

Power density indicator (Dp) 0.003 W/lxm²

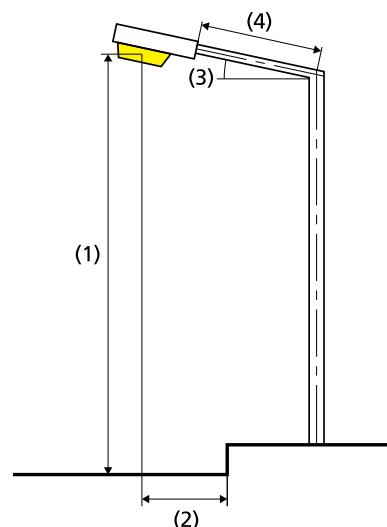
EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.

Energy consumption density

Arrangement 1: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr) 0.6 kWh/m² yr

Arrangement 2: XSPM - A - Type 2LG - Q2 3K (88.0 kWh/yr) 0.2 kWh/m² yr

## CREE XSPMA022LGA30K\_24-Q2 XSPM - A - Type 2LG - Q2 3K



Lamp:	1x3 MD-A1450 Q2 3K
Luminous flux (luminaire):	2257.45 lm
Luminous flux (lamp):	2763.00 lm
Operating Hours	
4000 h:	100.0 %, 22.0 W
W/km:	1100.0
Arrangement:	single side top
Pole distance:	20.000 m
Boom inclination (3):	0.0°
Boom length (4):	0.000 m
Light centre height (1):	4.000 m
Light overhang (2):	-5.000 m

ULR:	0.00
ULOR:	0.00

## Maximum luminous intensities

at 70°:	744 cd/klm
at 80°:	268 cd/klm
at 90°:	0.00 cd/klm

Luminous intensity class: /

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.3

## Sidewalk 2 (P1)

Maintenance factor: 0.90

Grid: 12 x 3 Points

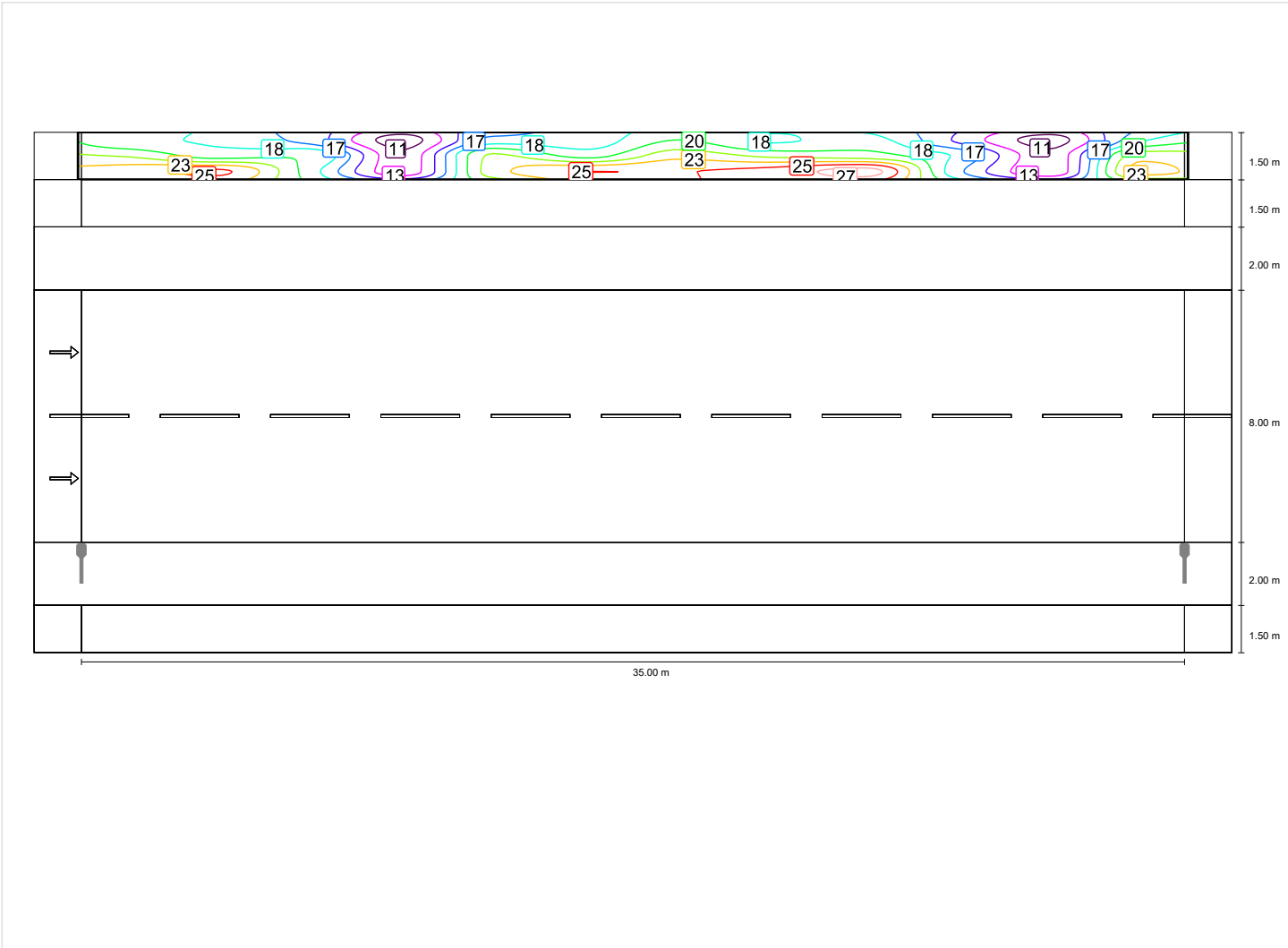
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.12	✓ 10.48

### Sidewalk 2 (P1)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.12	✓ 10.48

#### Horizontal illuminance



Scale: 1 : 200

## Bicycle lane 1 (P1)

Maintenance factor: 0.90

Grid: 12 x 3 Points

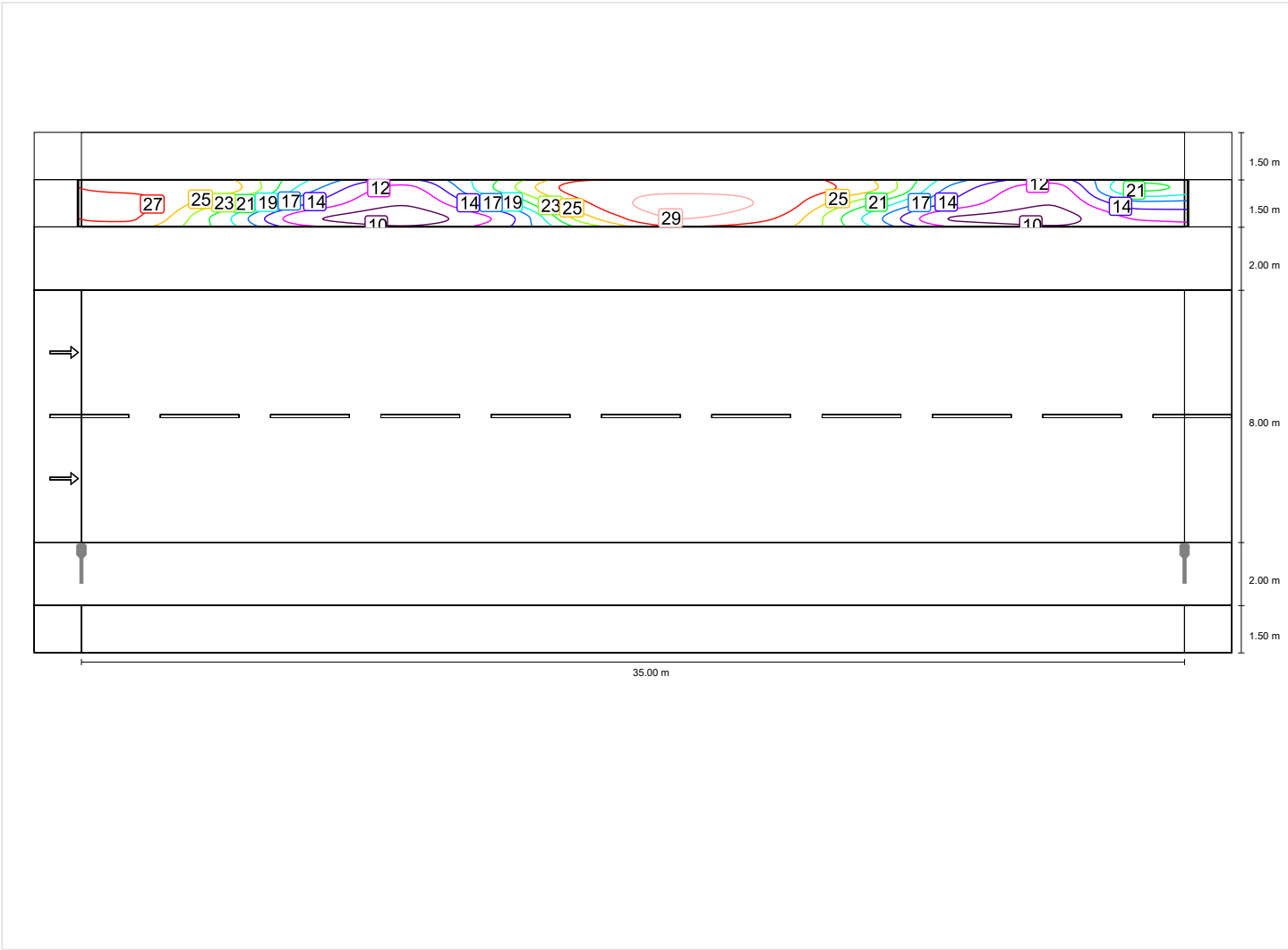
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.83	✓ 9.07

### Bicycle lane 1 (P1)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.83	✓ 9.07

#### Horizontal illuminance



Scale: 1 : 200



## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 12 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.97	✓ 0.48	✓ 0.66	✓ 0.59	* 17

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 5.500, 1.500)	0.97	0.53	0.71	17
Observer 2	(-60.000, 9.500, 1.500)	1.06	0.48	0.66	10

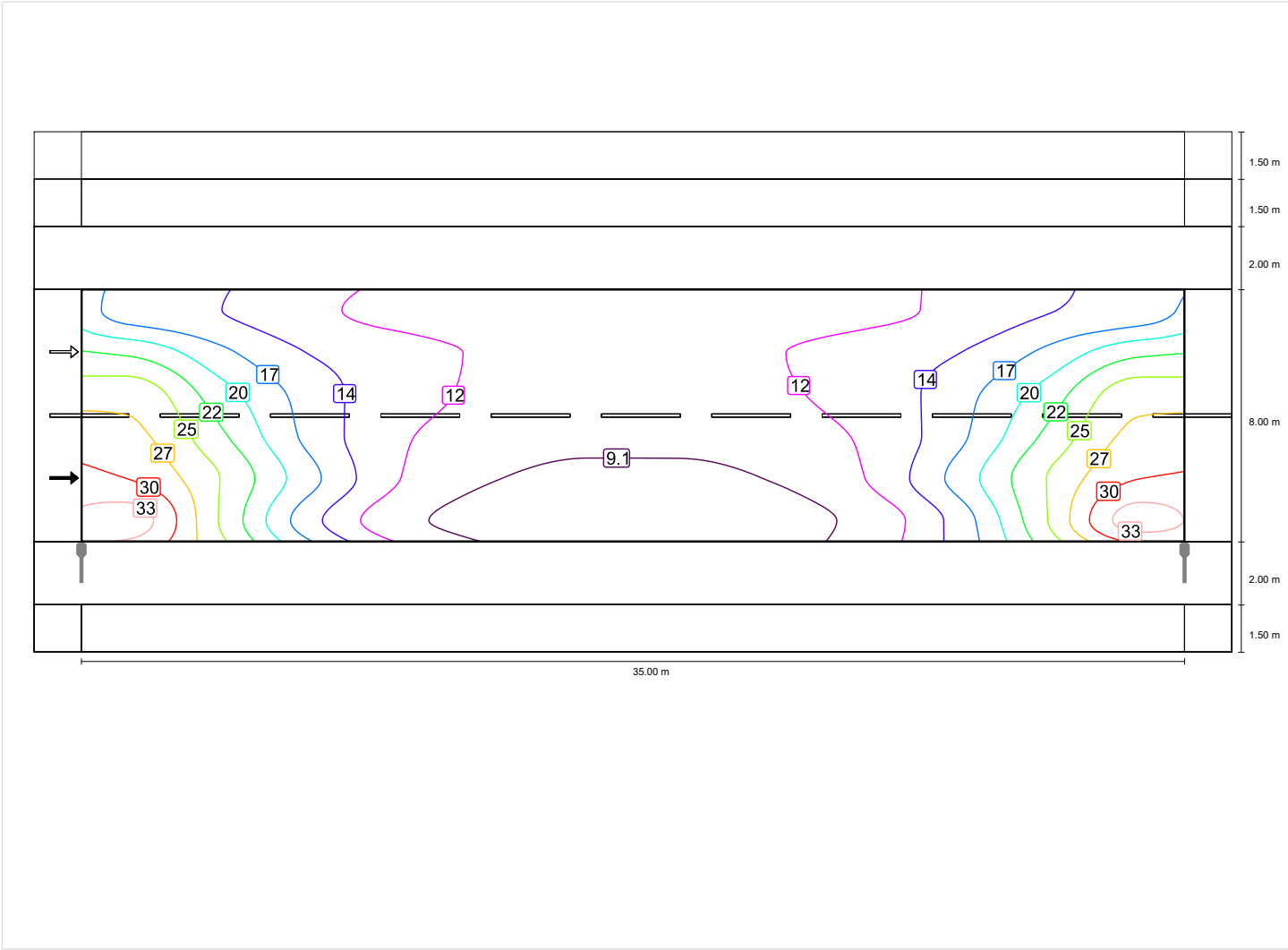
Roadway 1 (M4)

Maintenance factor: 0.90  
Grid: 12 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%] * 17
✓ 0.97	✓ 0.48	✓ 0.66	✓ 0.59	

\* Informative, not part of the valuation

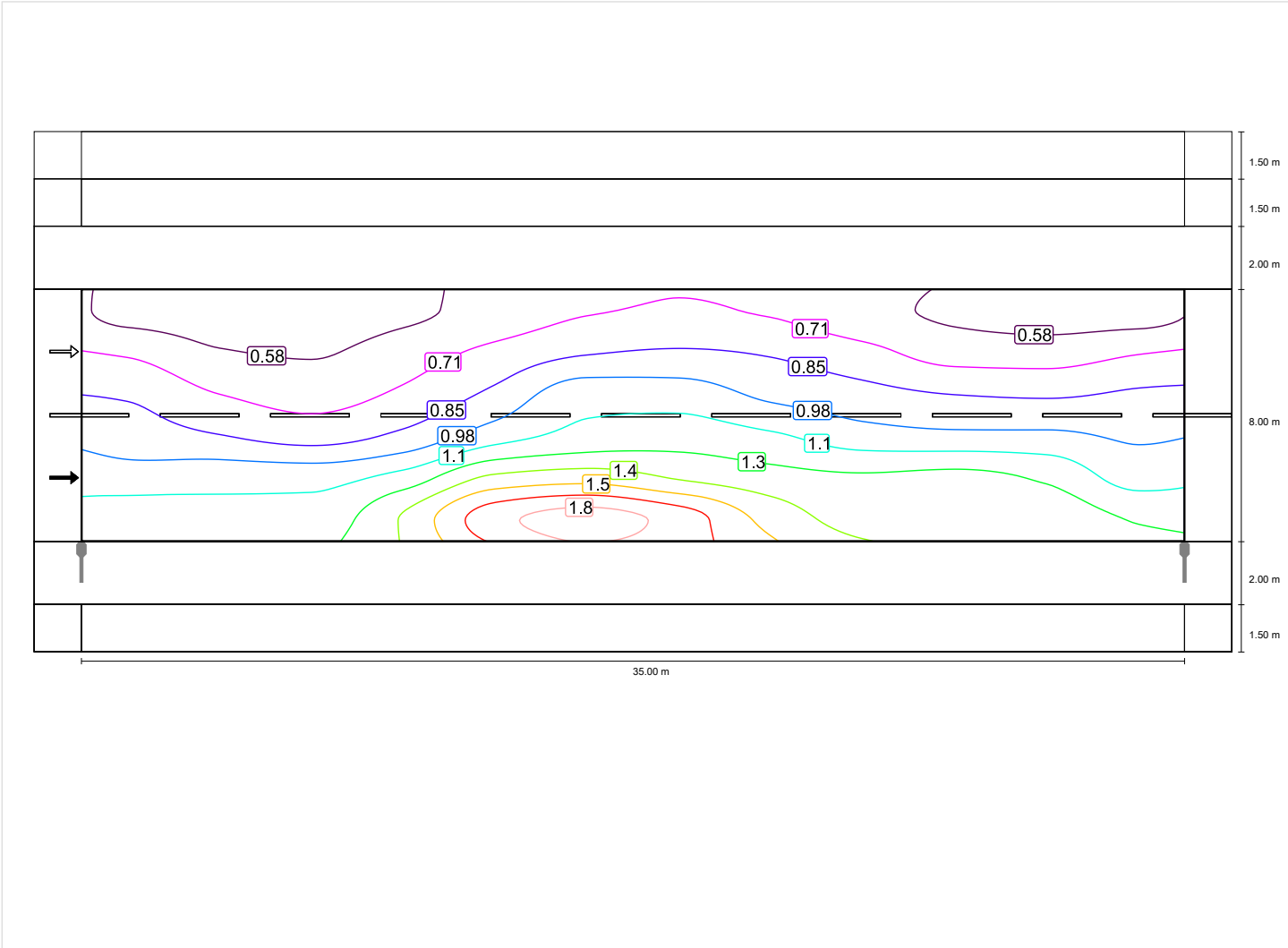
Horizontal illuminance



Scale: 1 : 200

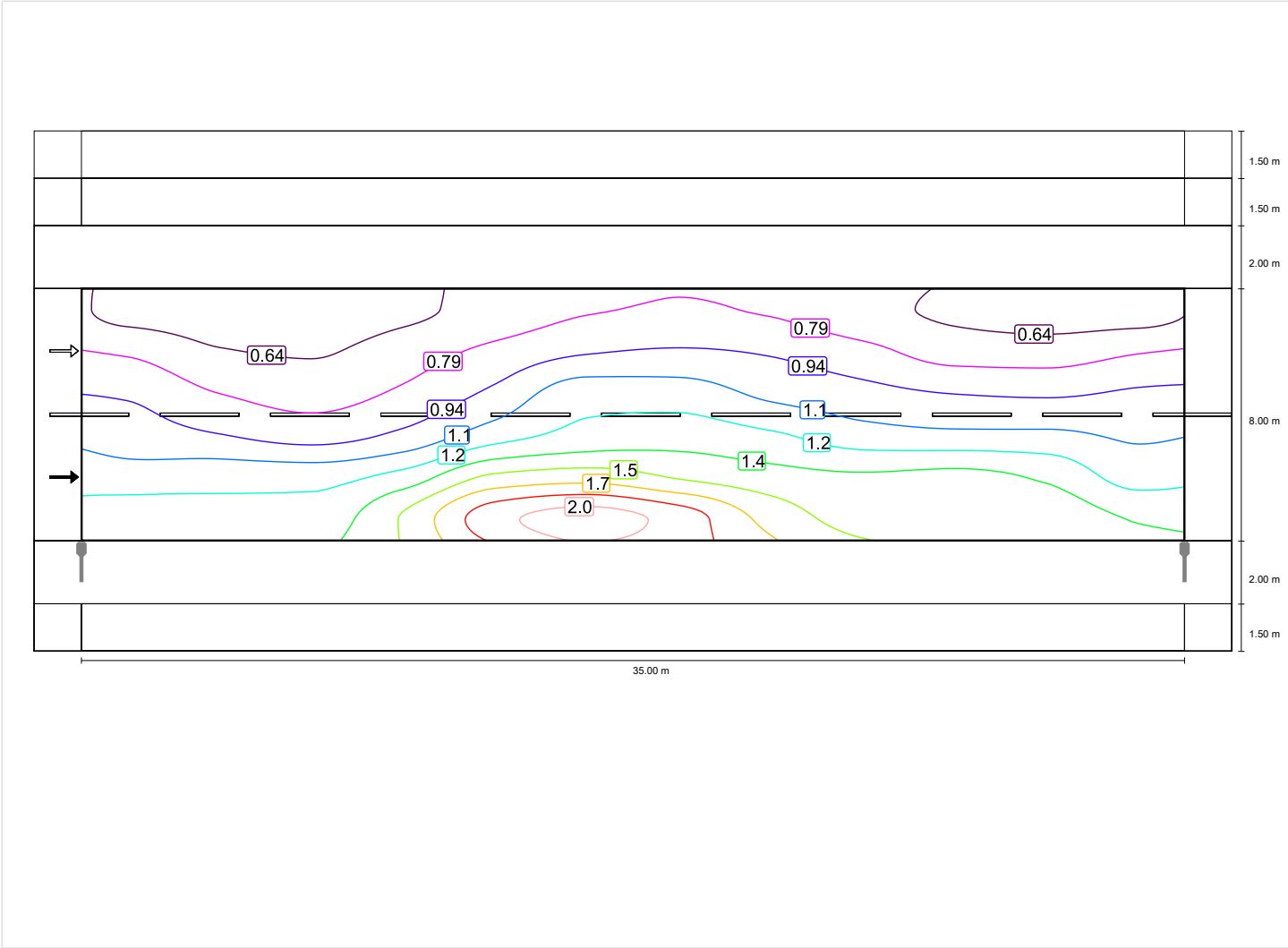
Observer 1

Luminance with dry roadway



Scale: 1 : 200

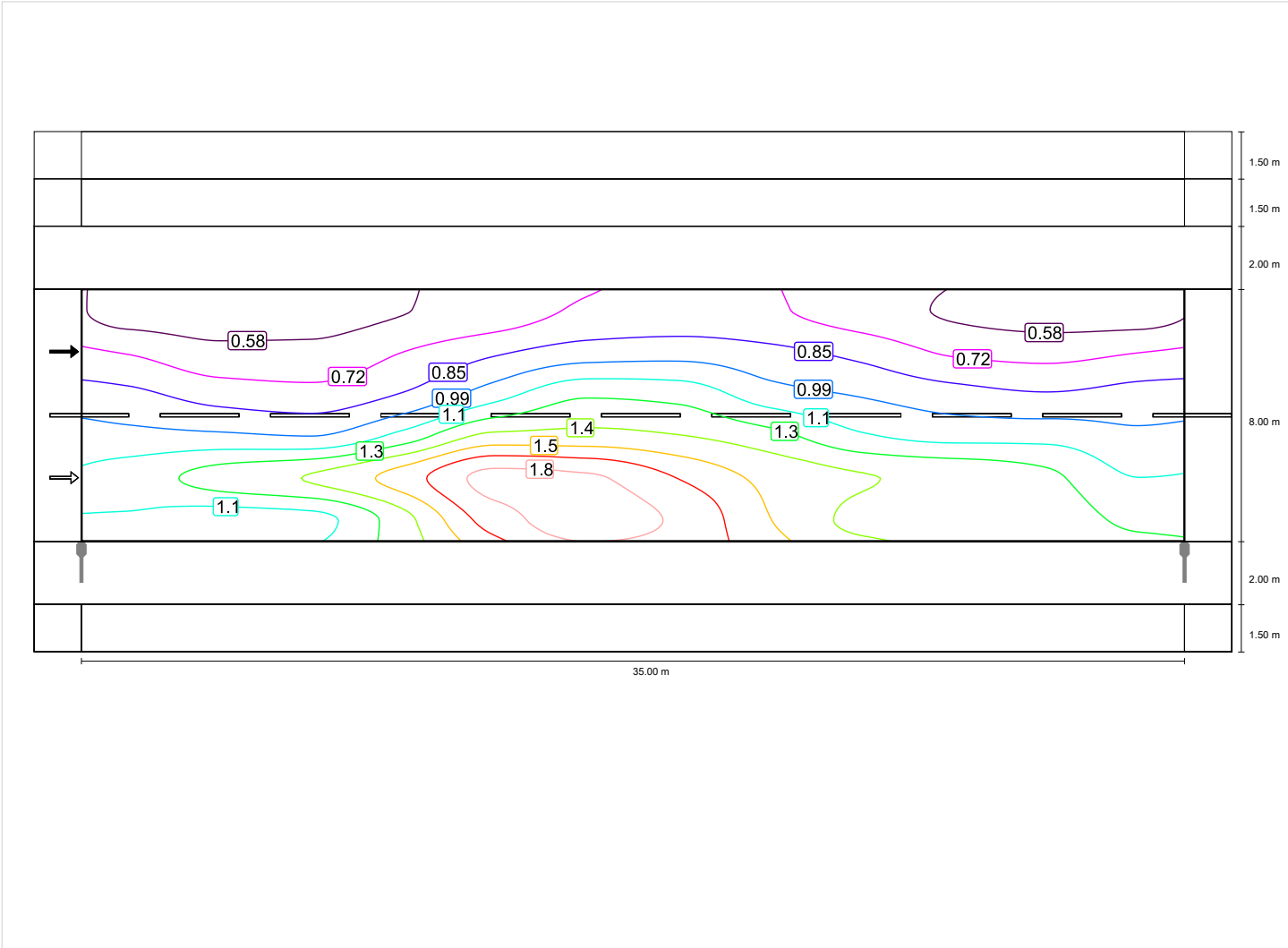
Luminance with new lamp



Scale: 1 : 200

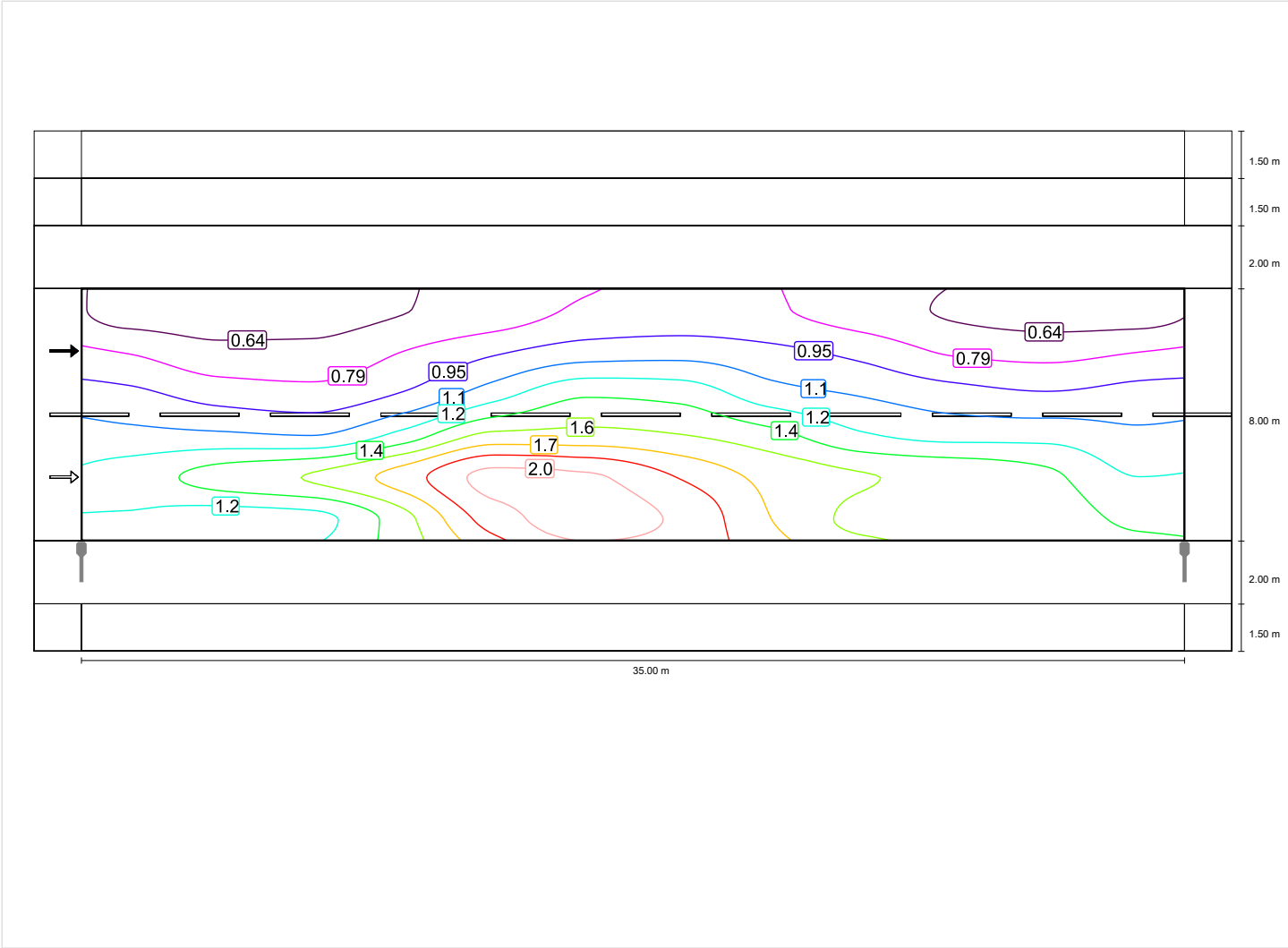
Observer 2

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp



Scale: 1 : 200

## Sidewalk 1 (P4)

Maintenance factor: 0.90

Grid: 12 x 3 Points

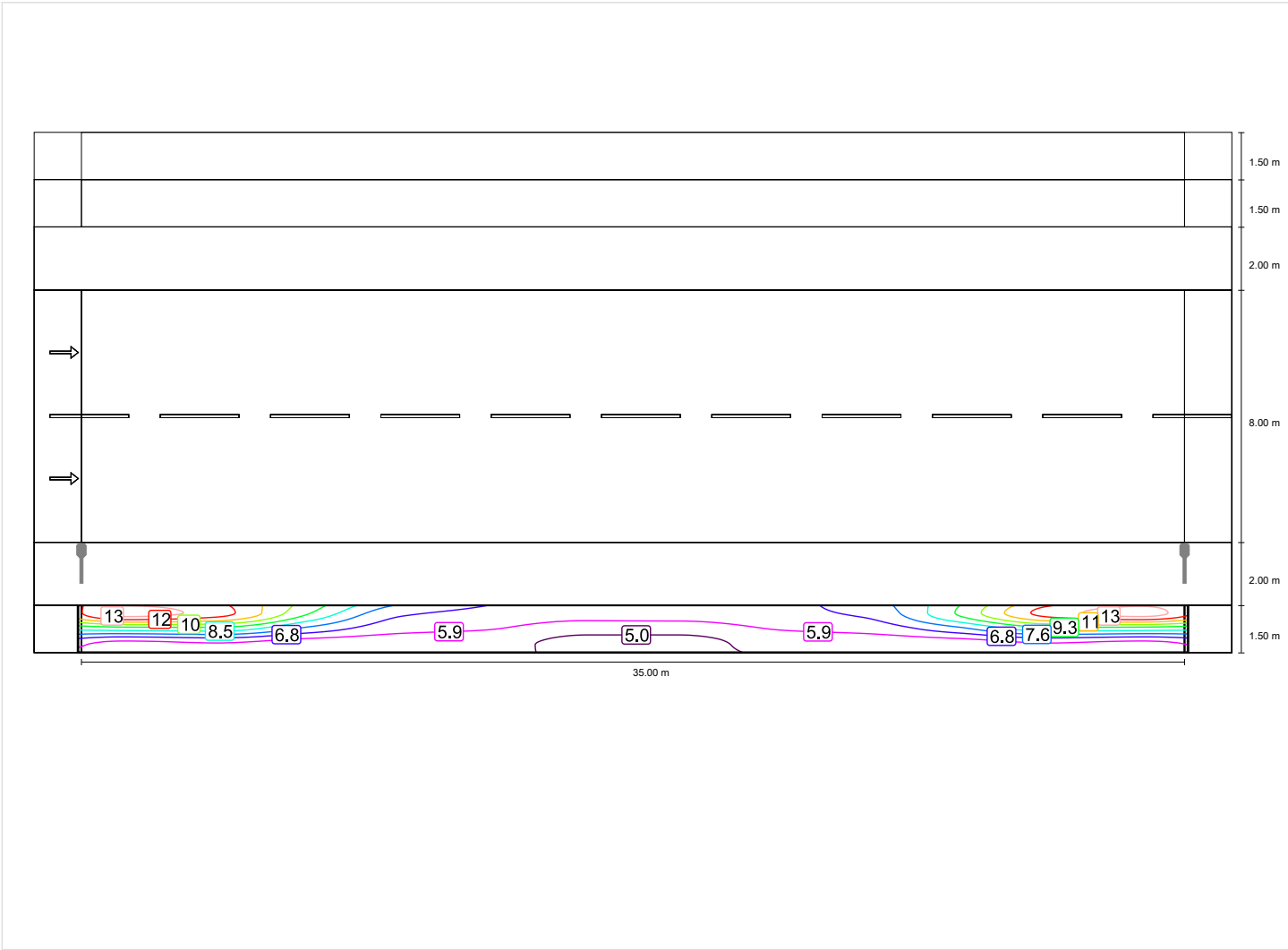
Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 7.18	✓ 4.61

### Sidewalk 1 (P4)

Maintenance factor: 0.90  
Grid: 12 x 3 Points

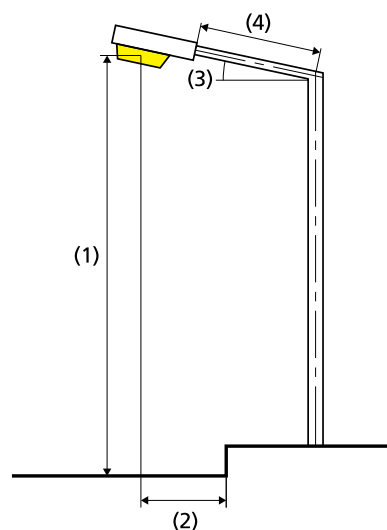
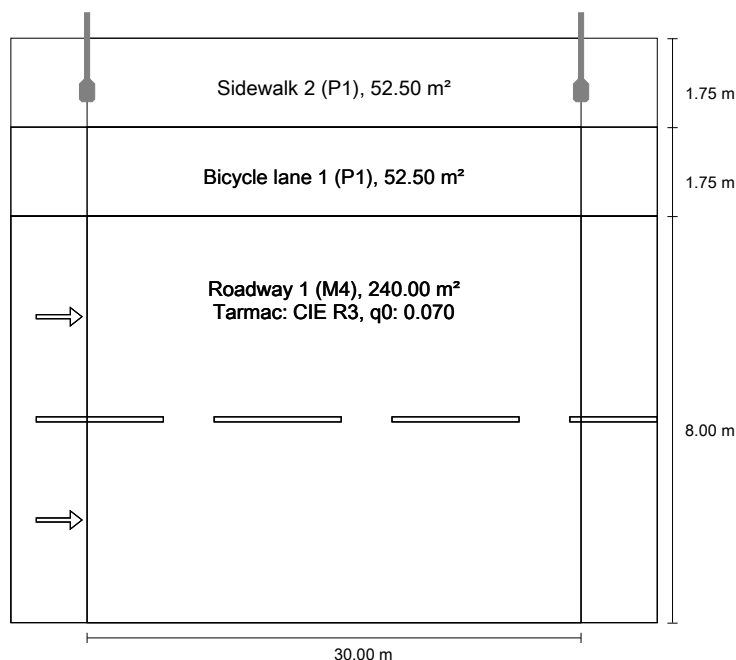
Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 7.18	✓ 4.61

#### Horizontal illuminance



Scale: 1 : 200



**Ventspils, Durbes iela (Tērvetes-Rāvas) according to EN 13201:2015**
**CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K**

**Results for valuation fields**

Maintenance factor: 0.90

**Sidewalk 2 (P1)**

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.46	✓ 9.32

**Bicycle lane 1 (P1)**

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 18.87	✓ 9.61

**Roadway 1 (M4)**

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.84	✓ 0.44	✓ 0.74	✓ 0.39	* 17

\* Informative, not part of the valuation

**Results for energy efficiency indicators**

Power density indicator (Dp) 0.013 W/lxm²

Energy consumption density

Arrangement: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr) 0.8 kWh/m² yr

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2343.0
Arrangement:	single side top
Pole distance:	30.000 m
Boom inclination (3):	5.0°
Boom length (4):	1.500 m
Light centre height (1):	8.000 m
Light overhang (2):	-2.500 m

ULR: 0.00

ULOR: 0.00

**Maximum luminous intensities**

at 70°: 837 cd/klm

at 80°: 100 cd/klm

at 90°: 1.53 cd/klm

Luminous intensity class: G\*2

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6

## Sidewalk 2 (P1)

Maintenance factor: 0.90

Grid: 10 x 3 Points

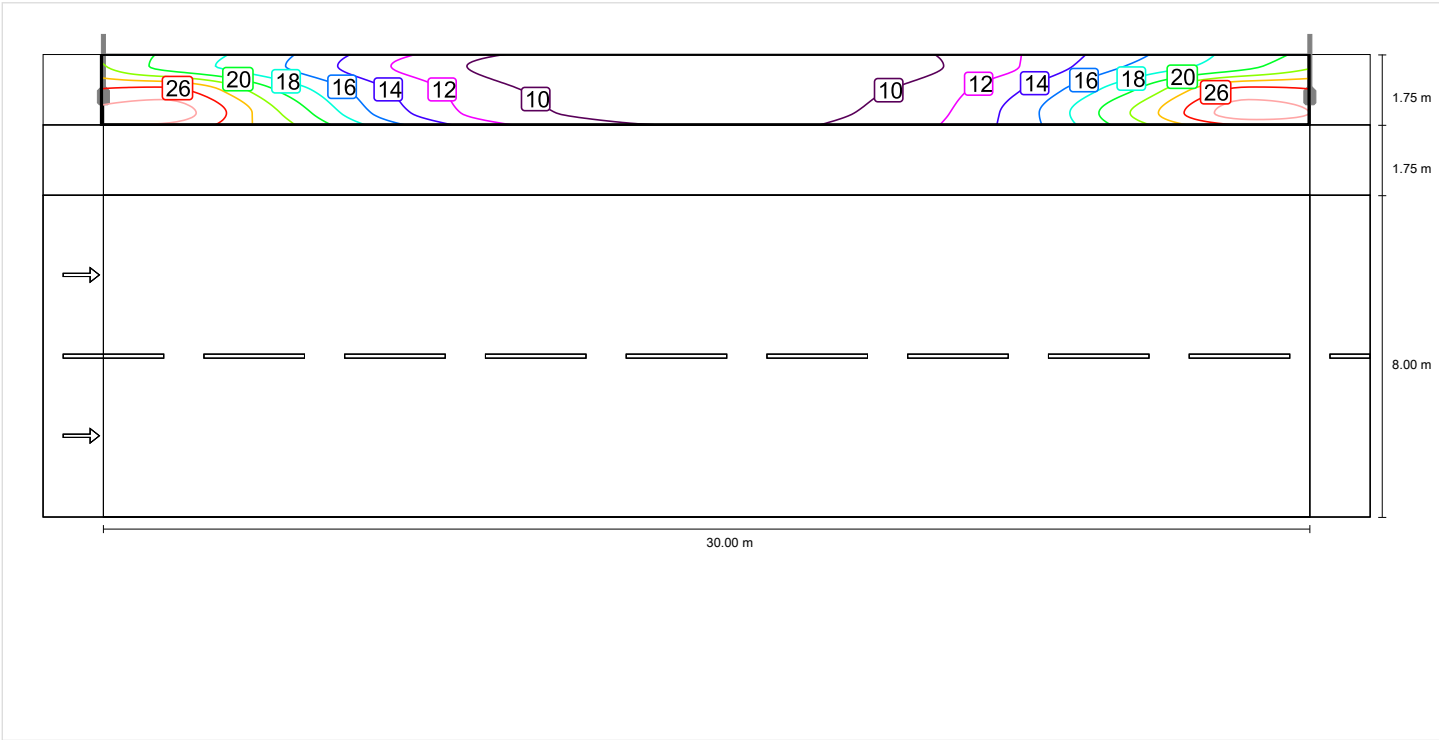
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 15.46	✓ 9.32

### Sidewalk 2 (P1)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 15.00	≥ 3.00
≤ 22.50	
✓ 15.46	✓ 9.32

#### Horizontal illuminance



Scale: 1 : 200

## Bicycle lane 1 (P1)

Maintenance factor: 0.90

Grid: 10 x 3 Points

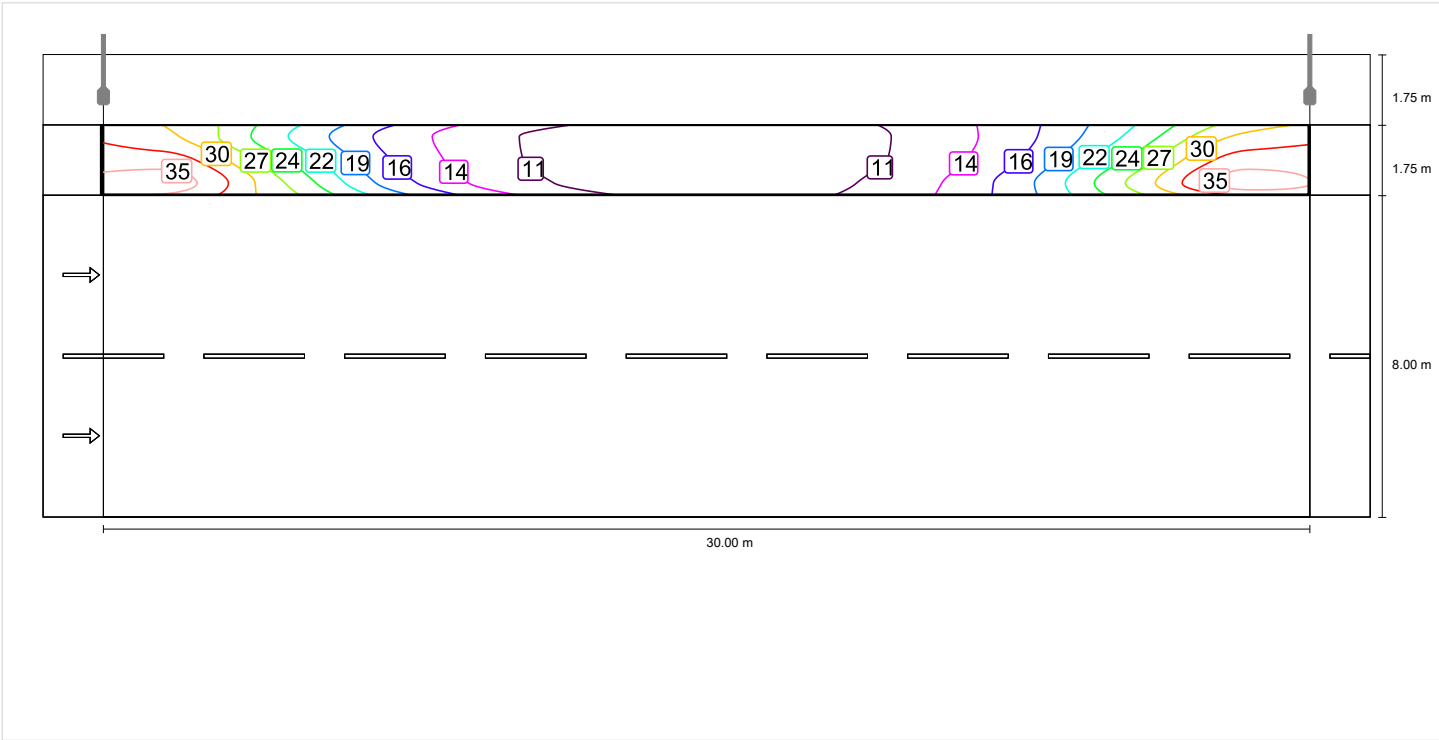
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 18.87	✓ 9.61

### Bicycle lane 1 (P1)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 15.00	≥ 3.00
≤ 22.50	
✓ 18.87	✓ 9.61

#### Horizontal illuminance



Scale: 1 : 200

## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 10 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 0.84	✓ 0.44	✓ 0.74	✓ 0.39	* 17

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 2.000, 1.500)	0.96	0.44	0.74	6
Observer 2	(-60.000, 6.000, 1.500)	0.84	0.48	0.93	17

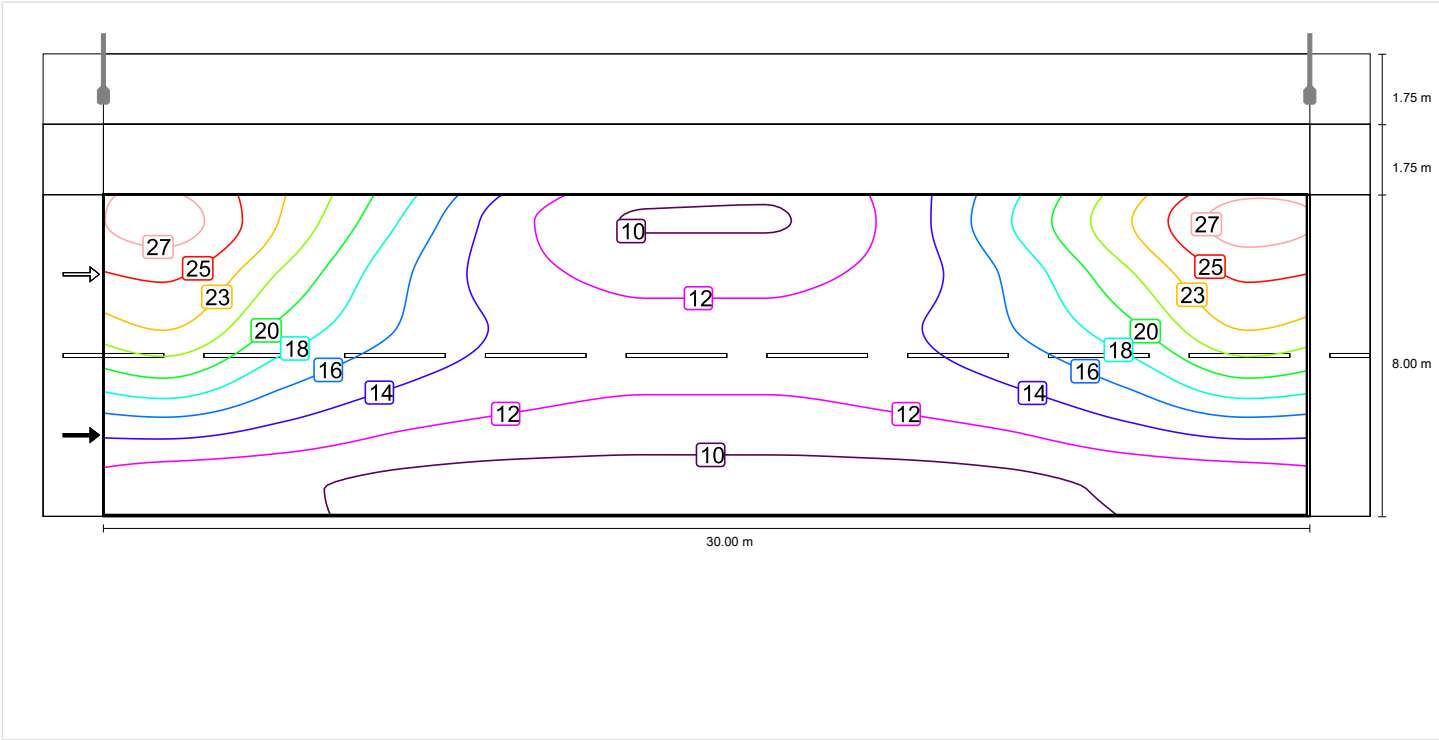
Roadway 1 (M4)

Maintenance factor: 0.90  
Grid: 10 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%] * 17
✓ 0.84	✓ 0.44	✓ 0.74	✓ 0.39	

\* Informative, not part of the valuation

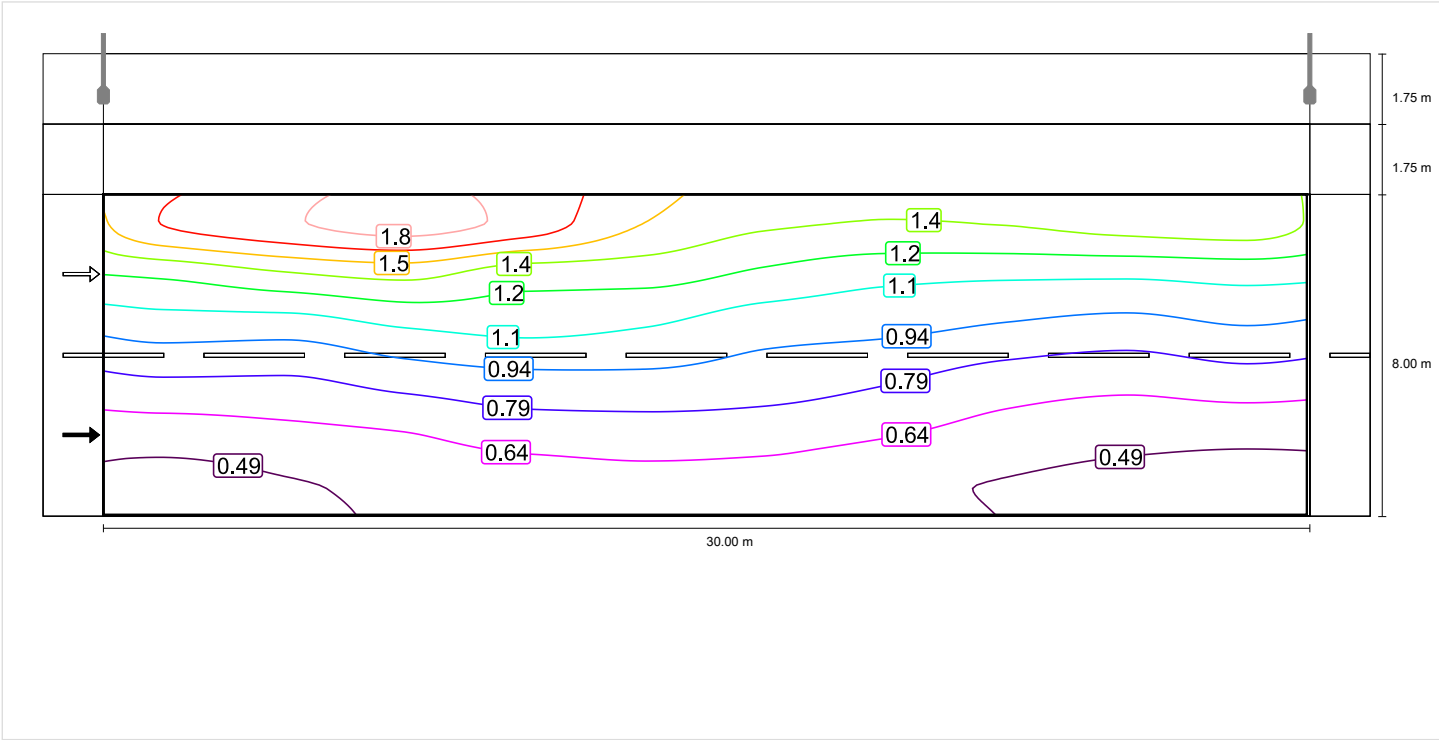
Horizontal illuminance



Scale: 1 : 200

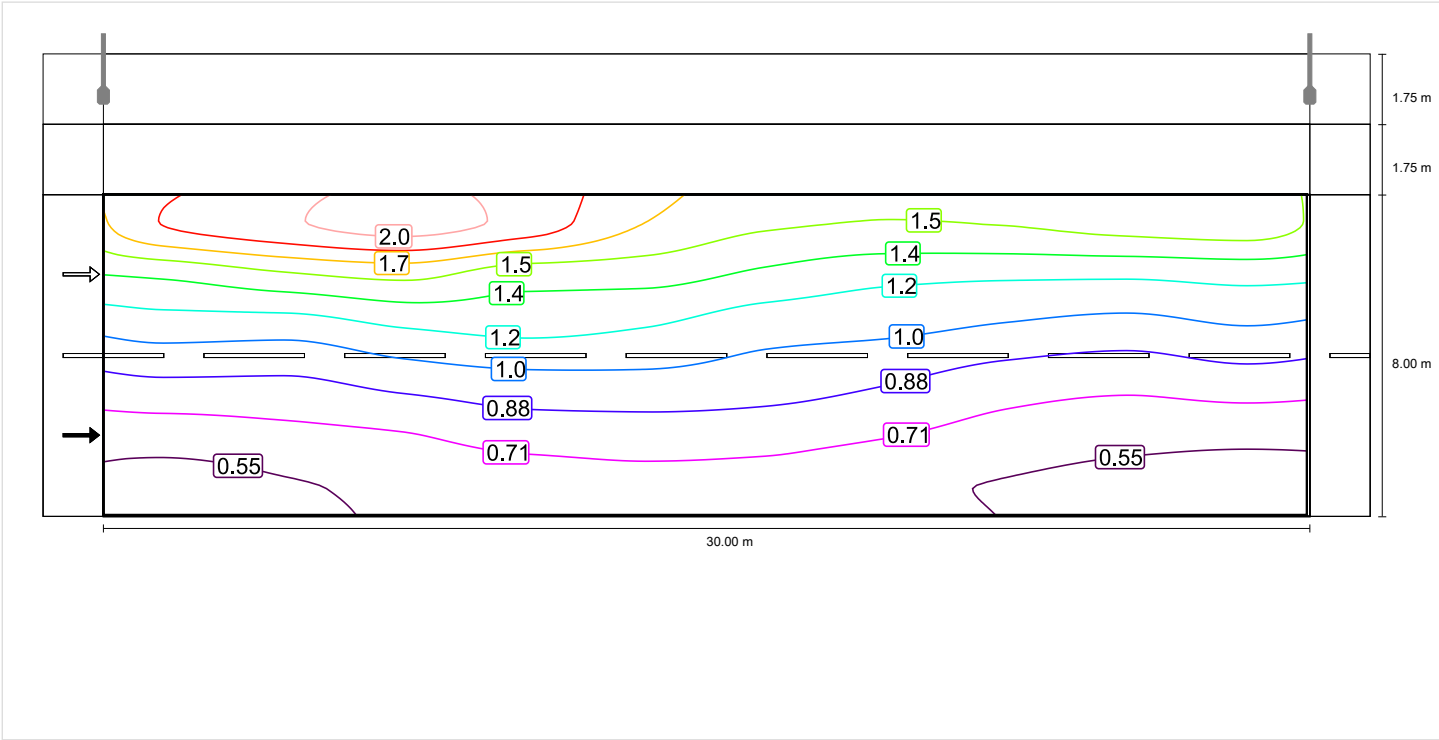
Observer 1

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp

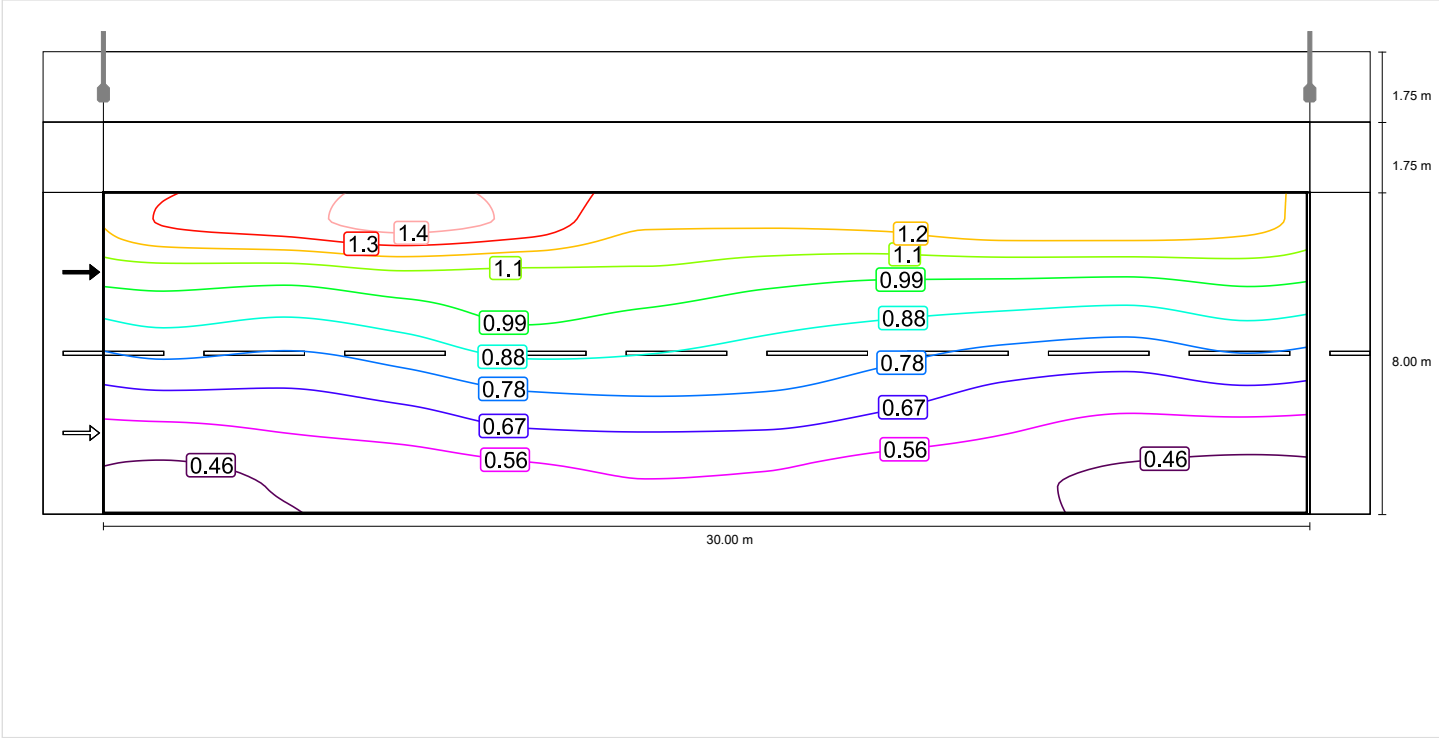


Scale: 1 : 200



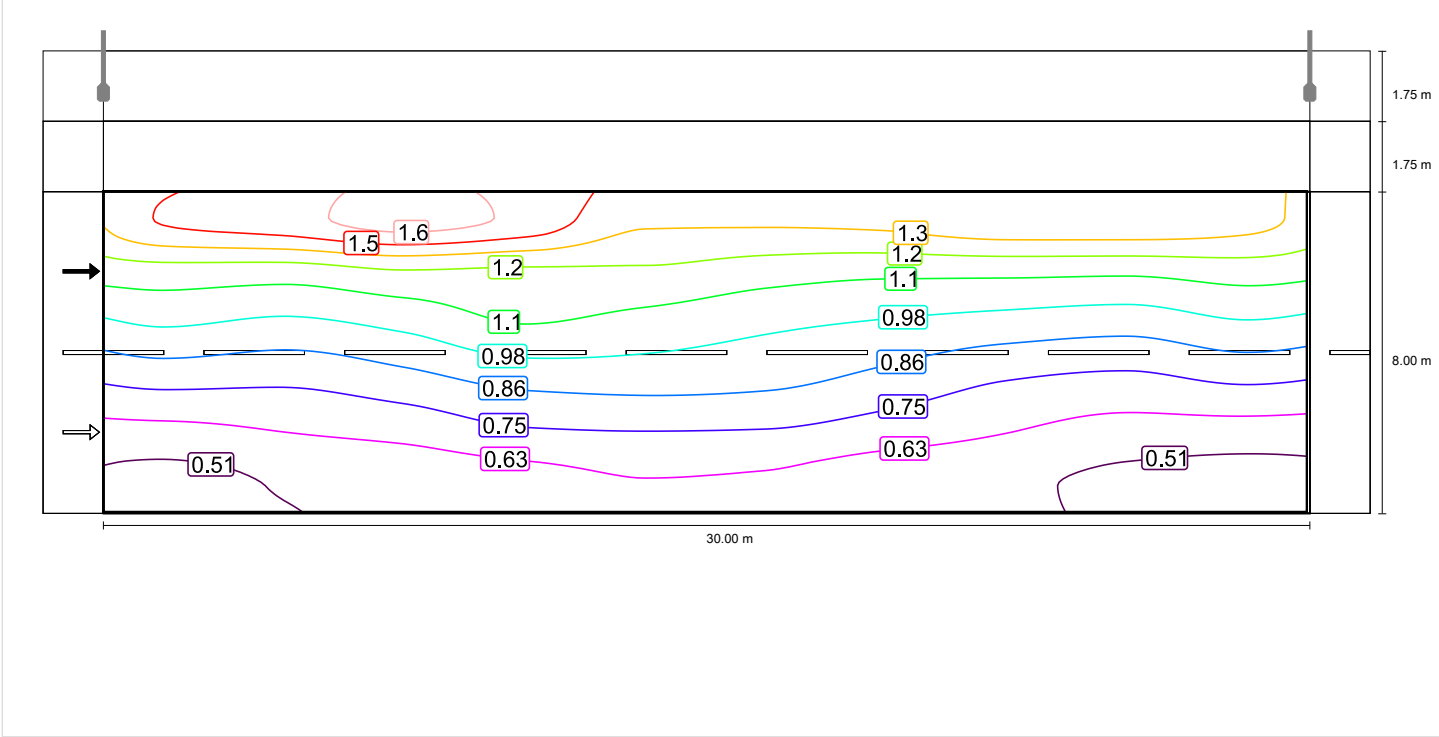
Observer 2

Luminance with dry roadway



Scale: 1 : 200

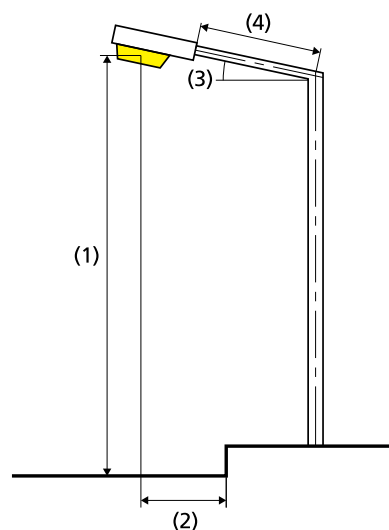
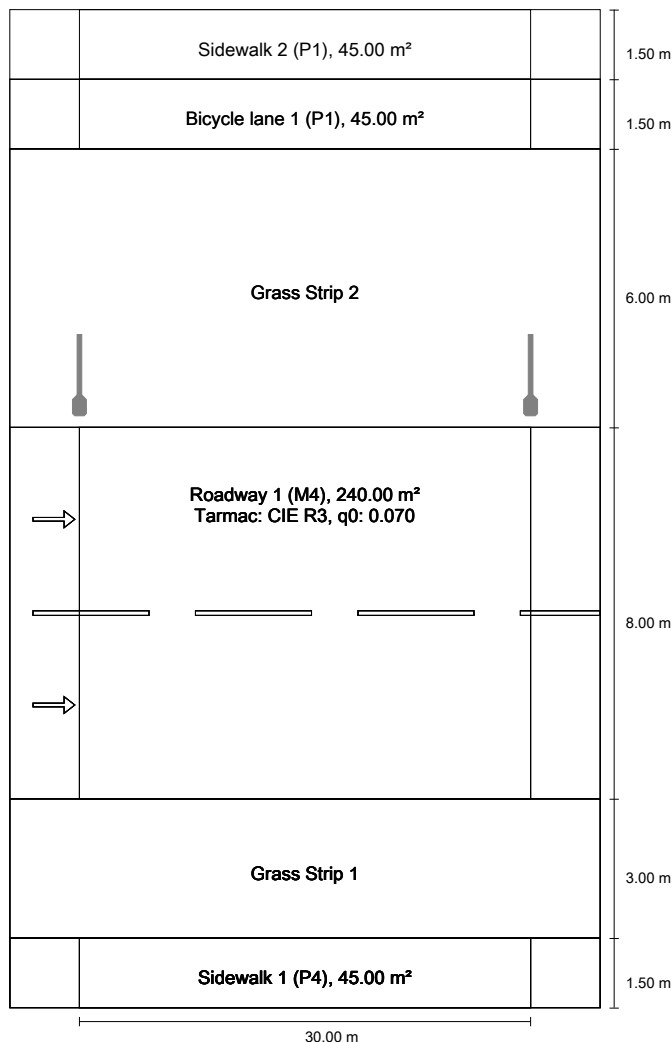
Luminance with new lamp



Scale: 1 : 200

Ventspils, Durbes iela (Rāvas-12+20 (T973)) according to EN 13201:2015

CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K



The pole distance of this luminaire arrangement determines the length of the valuation fields.

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2343.0
Arrangement:	single side top
Pole distance:	30.000 m
Boom inclination (3):	5.0°
Boom length (4):	1.500 m
Light centre height (1):	8.000 m
Light overhang (2):	-0.500 m

ULR:	0.00
ULOR:	0.00
Maximum luminous intensities	
at 70°:	837 cd/klm
at 80°:	100 cd/klm
at 90°:	1.53 cd/klm
Luminous intensity class:	G*2

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6

Results for valuation fields  
Maintenance factor: 0.90

## Sidewalk 2 (P1)

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.07	✓ 10.35

## Bicycle lane 1 (P1)

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 18.96	✓ 6.69

## Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	Tl [%]
✓ 1.05	✓ 0.51	✓ 0.78	✓ 0.56	* 15

## Sidewalk 1 (P4)

Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 5.01	✓ 3.61

\* Informative, not part of the valuation

## Results for energy efficiency indicators

Power density indicator (Dp) 0.004 W/lxm²

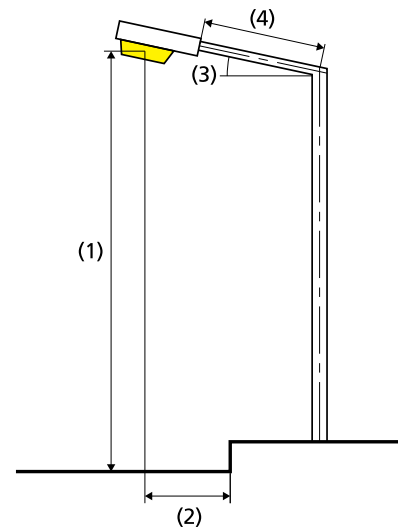
EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.

## Energy consumption density

Arrangement 1: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr) 0.8 kWh/m² yr

Arrangement 2: XSPM - A - Type 2LG - Q2 3K (88.0 kWh/yr) 0.2 kWh/m² yr

## CREE XSPMA022LGA30K\_24-Q2 XSPM - A - Type 2LG - Q2 3K



Lamp:	1x3 MD-A1450 Q2 3K
Luminous flux (luminaire):	2257.45 lm
Luminous flux (lamp):	2763.00 lm
Operating Hours	
4000 h:	100.0 %, 22.0 W
W/km:	1100.0
Arrangement:	single side top
Pole distance:	20.000 m
Boom inclination (3):	0.0°
Boom length (4):	0.000 m
Light centre height (1):	4.000 m
Light overhang (2):	-9.000 m

ULR: 0.00

ULOR: 0.00

## Maximum luminous intensities

at 70°: 744 cd/klm

at 80°: 268 cd/klm

at 90°: 0.00 cd/klm

Luminous intensity class: /

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.3

## Sidewalk 2 (P1)

Maintenance factor: 0.90

Grid: 10 x 3 Points

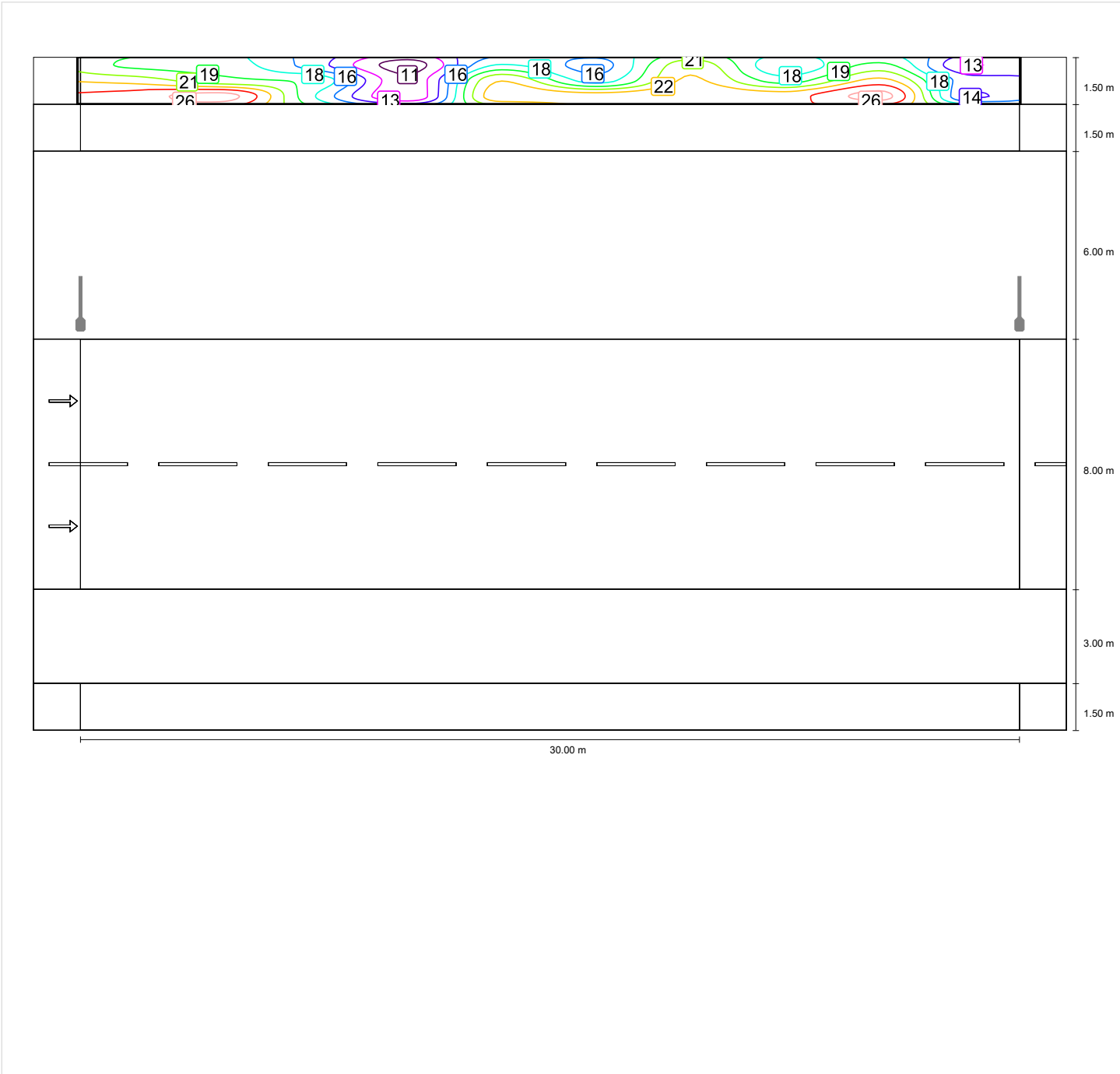
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.07	✓ 10.35

### Sidewalk 2 (P1)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 19.07	✓ 10.35

#### Horizontal illuminance



Scale: 1 : 200

## Bicycle lane 1 (P1)

Maintenance factor: 0.90

Grid: 10 x 3 Points

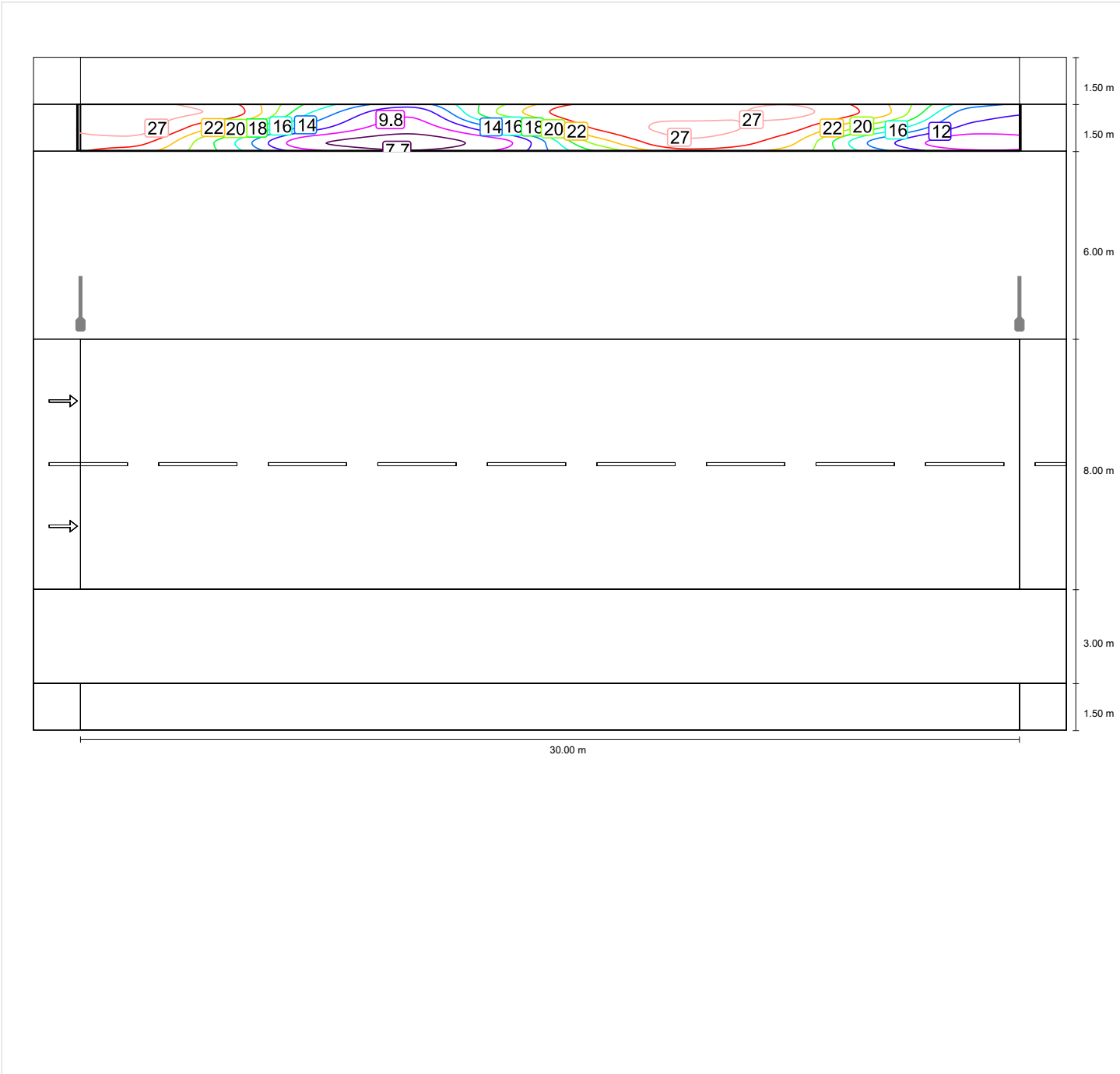
Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 18.96	✓ 6.69

### Bicycle lane 1 (P1)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx] ≥ 15.00 ≤ 22.50	Emin [lx] ≥ 3.00
✓ 18.96	✓ 6.69

#### Horizontal illuminance



Scale: 1 : 200

## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 10 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 1.05	✓ 0.51	✓ 0.78	✓ 0.56	* 15

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 6.500, 1.500)	1.17	0.51	0.78	9
Observer 2	(-60.000, 10.500, 1.500)	1.05	0.55	0.85	15



Ventspils, Durbes iela (Rāvas-12+20 (T973)): Alternative 6 / Roadway 1 (M4) / Isolines

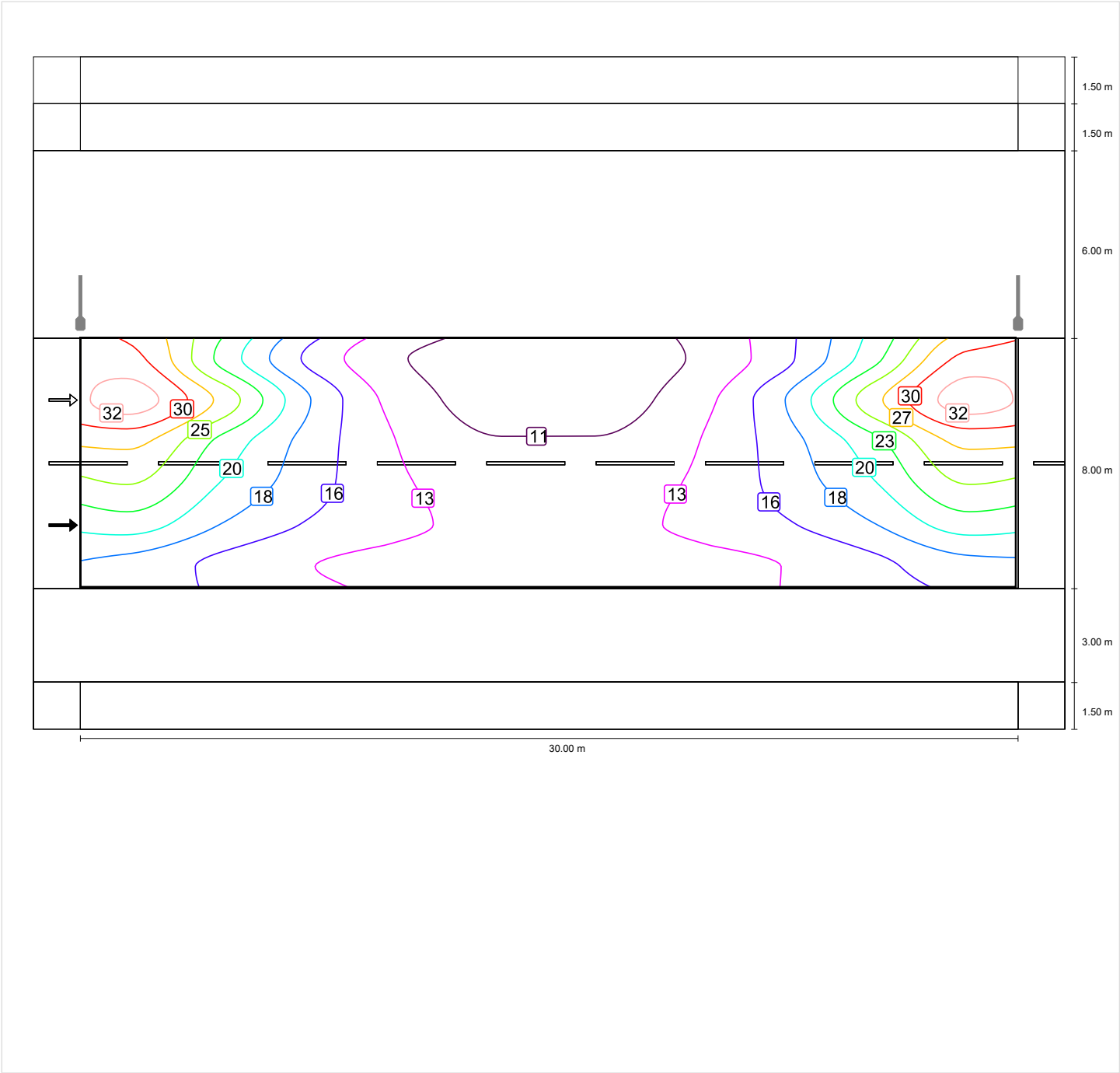
Roadway 1 (M4)

Maintenance factor: 0.90  
Grid: 10 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%] * 15
✓ 1.05	✓ 0.51	✓ 0.78	✓ 0.56	* 15

\* Informative, not part of the valuation

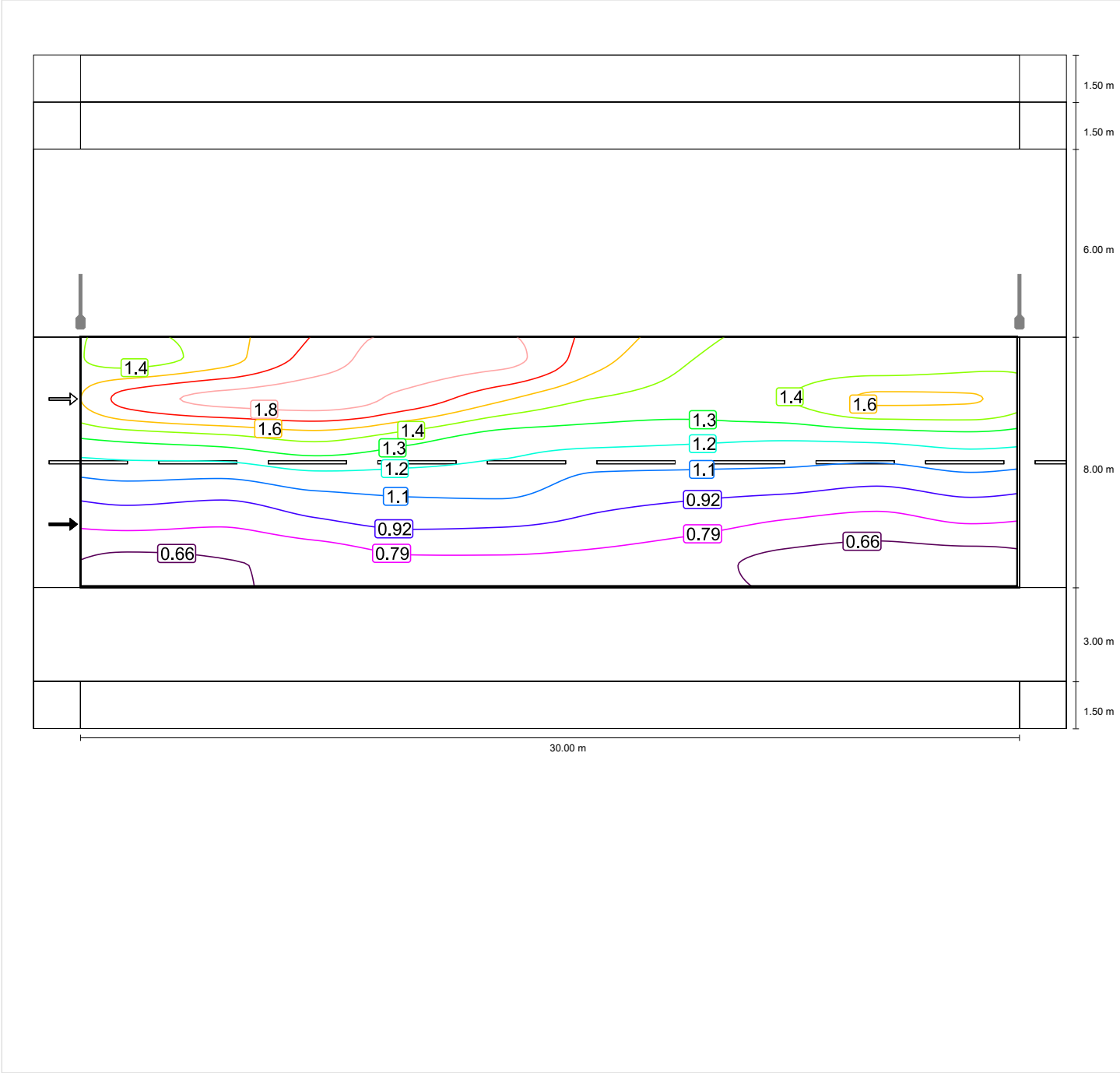
Horizontal illuminance



Scale: 1 : 200

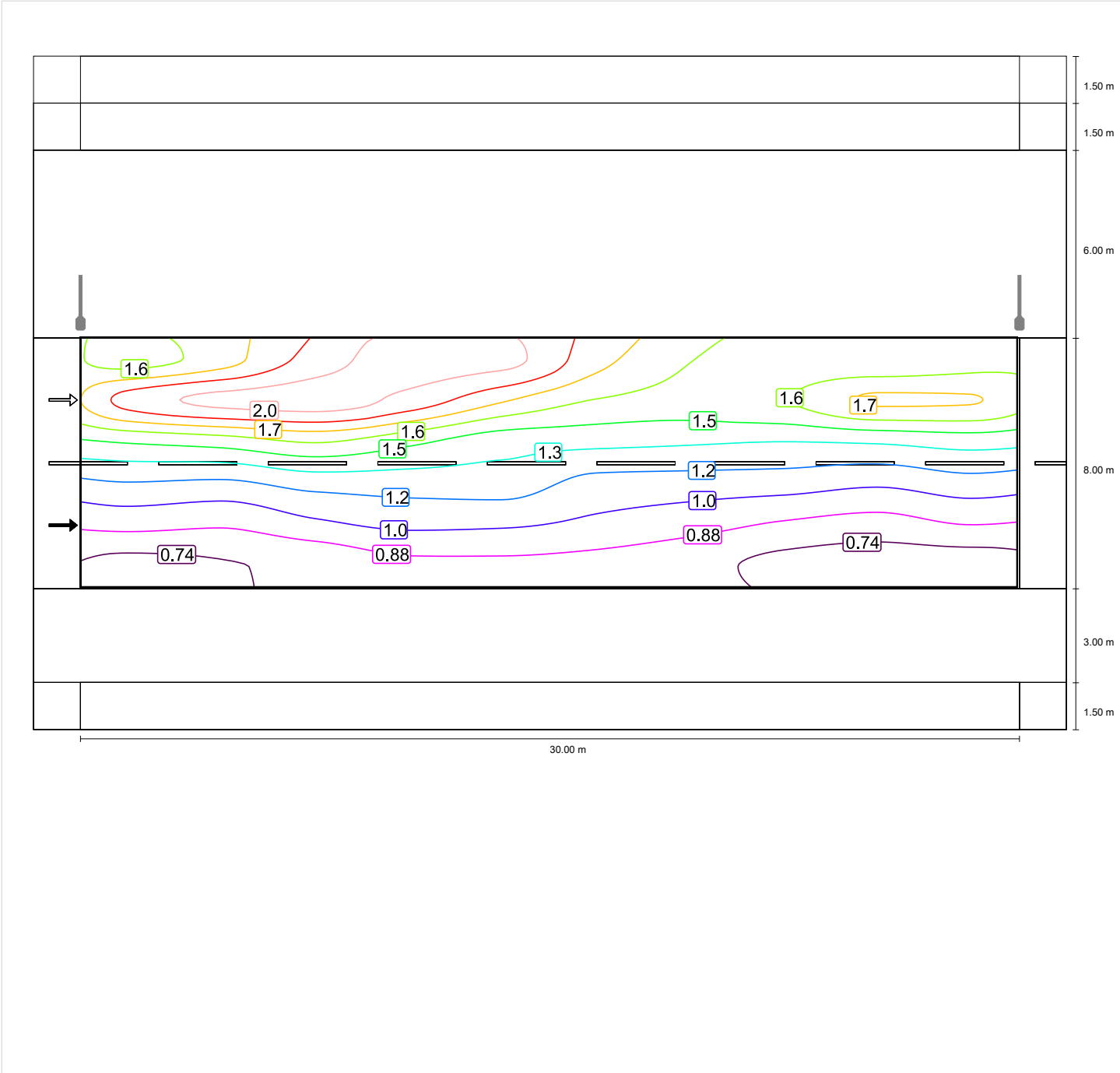
Observer 1

Luminance with dry roadway



Scale: 1 : 200

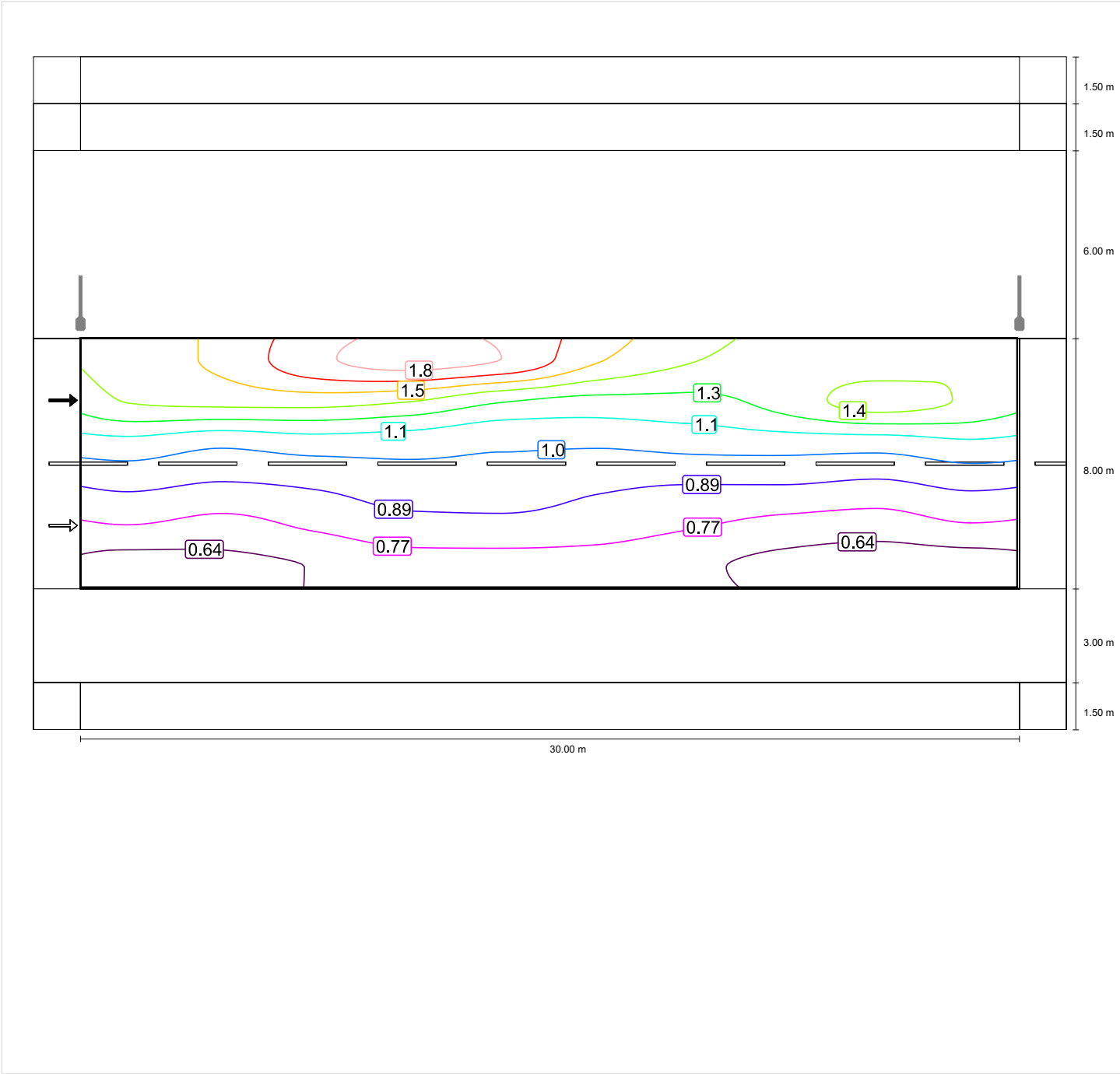
Luminance with new lamp



Scale: 1 : 200

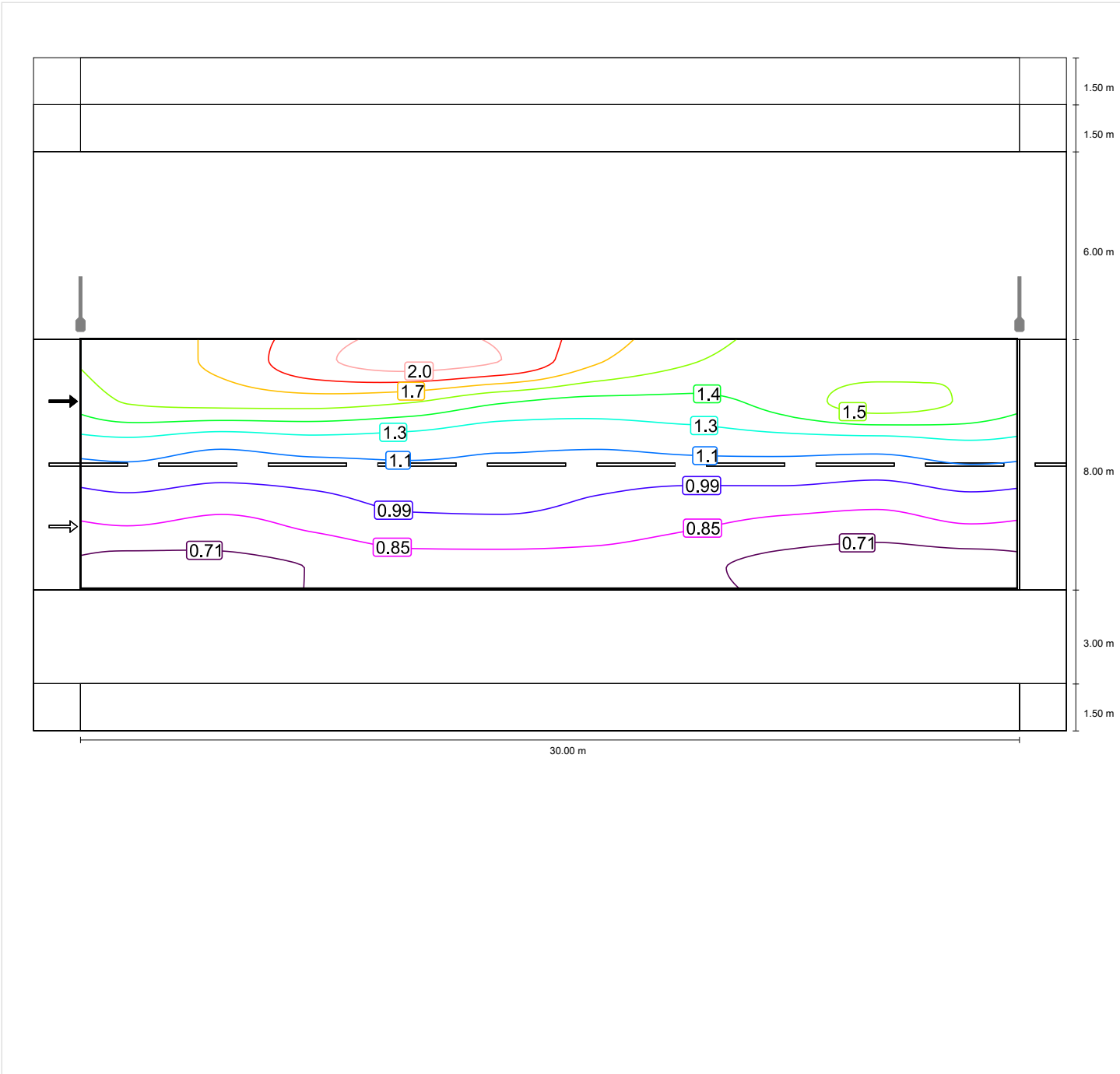
Observer 2

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp



Scale: 1 : 200

## Sidewalk 1 (P4)

Maintenance factor: 0.90

Grid: 10 x 3 Points

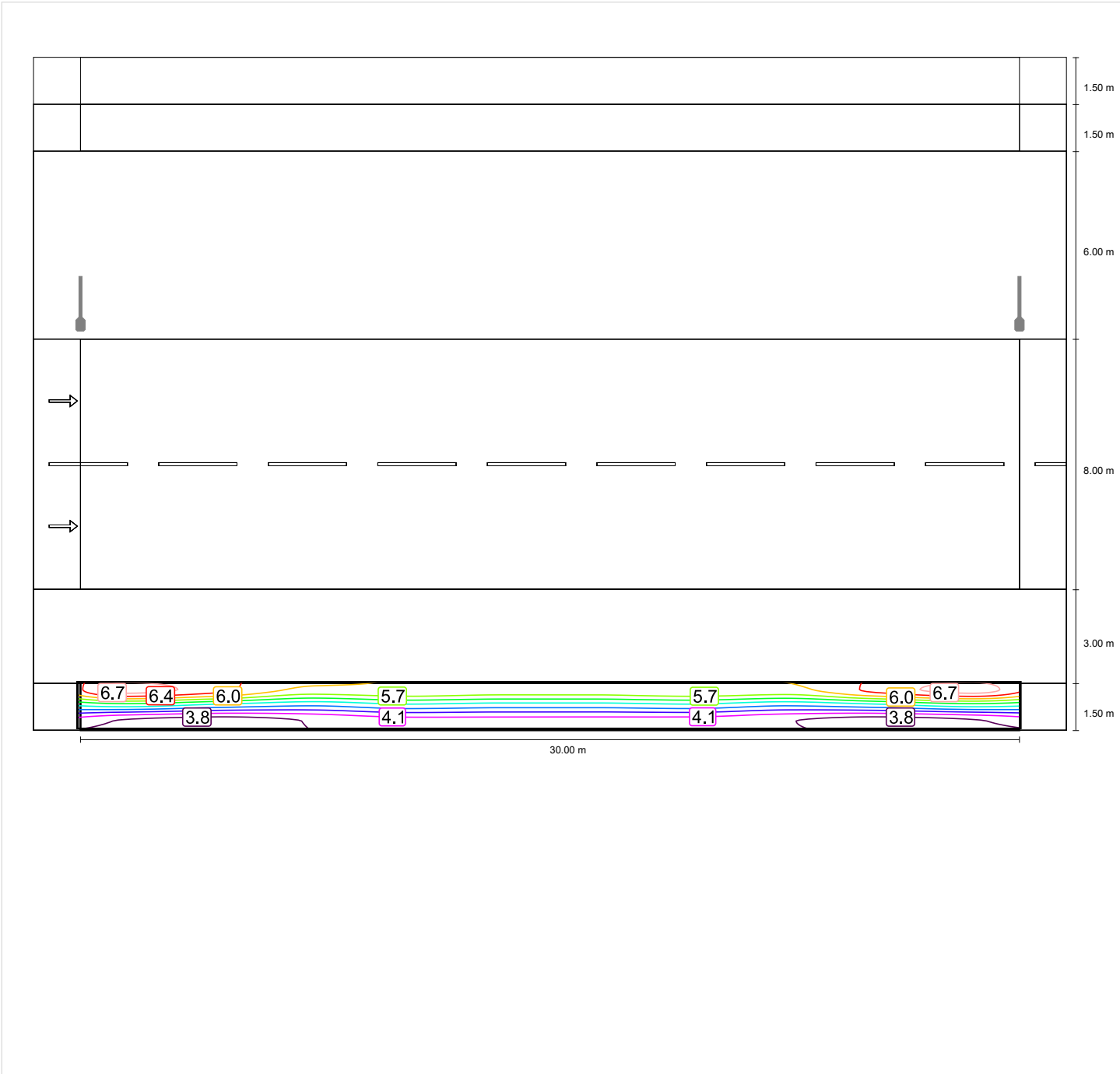
Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 5.01	✓ 3.61

### Sidewalk 1 (P4)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 5.01	✓ 3.61

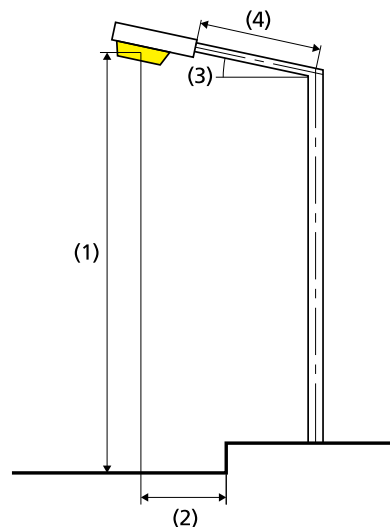
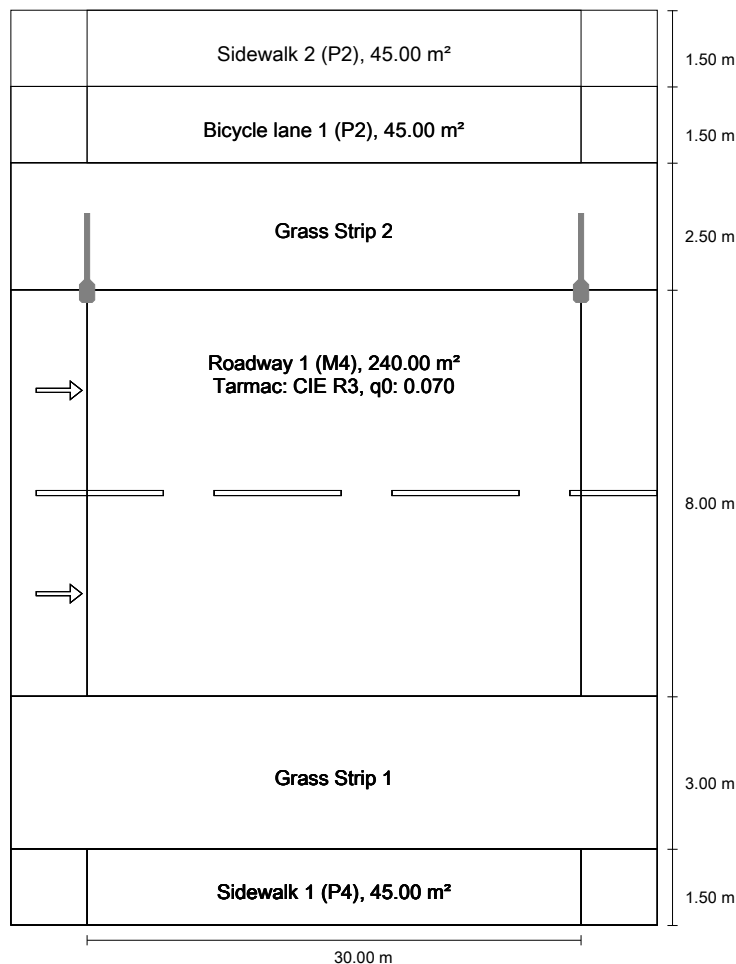
#### Horizontal illuminance



Scale: 1 : 200

# Ventspils, Durbes iela (12+20 (T973)-Rūpniecības ielas krustojums) according to EN 13201:2015

## CREE XSPD02210E30K\_24-Q4 XSP1D - E - Type 210 - Q4 3K



The pole distance of this luminaire arrangement determines the length of the valuation fields.

Lamp:	1x5 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	7942.71 lm
Luminous flux (lamp):	9072.00 lm
Operating Hours	
4000 h:	100.0 %, 71.0 W
W/km:	2343.0
Arrangement:	single side top
Pole distance:	30.000 m
Boom inclination (3):	5.0°
Boom length (4):	1.500 m
Light centre height (1):	8.000 m
Light overhang (2):	0.000 m

## Results for valuation fields

Maintenance factor: 0.90

### Sidewalk 2 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.98	✓ 6.38

### Bicycle lane 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.49	✓ 8.07

### Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 1.14	✓ 0.52	✓ 0.80	✓ 0.60	* 14

ULR: 0.00

ULOR: 0.00

### Maximum luminous intensities

at 70°: 837 cd/klm

at 80°: 100 cd/klm

at 90°: 1.53 cd/klm

Luminous intensity class: G\*2

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.6



Sidewalk 1 (P4)

Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 6.41	✓ 4.92

\* Informative, not part of the valuation

Results for energy efficiency indicators

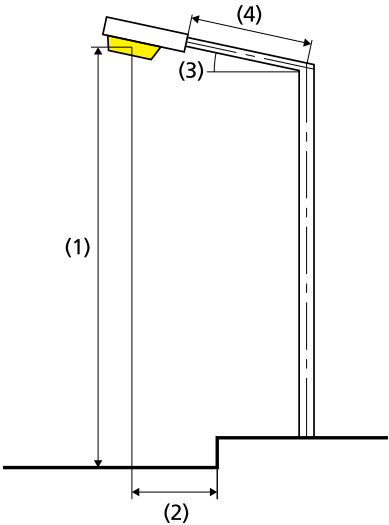
Power density indicator (Dp)0.006 W/lxm²

EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.

Energy consumption density

Arrangement 1: XSP1D - E - Type 210 - Q4 3K (284.0 kWh/yr)	0.8 kWh/m² yr
Arrangement 2: XSPM - E - Type 210 - Q4 3K (132.0 kWh/yr)	0.4 kWh/m² yr

CREE XSPM02210E30K\_24-Q4 XSPM - E - Type 210 - Q4 3K



Lamp:	1x3 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	3732.34 lm
Luminous flux (lamp):	4263.00 lm
Operating Hours	
4000 h:	100.0 %, 33.0 W
W/km:	1089.0
Arrangement:	single side top
Pole distance:	30.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.500 m
Light centre height (1):	8.000 m
Light overhang (2):	0.000 m

ULR:	0.00
ULOR:	0.00
Maximum luminous intensities	
at 70°:	837 cd/klm
at 80°:	33.1 cd/klm
at 90°:	0.00 cd/klm
Luminous intensity class:	G*3
Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	
Arrangement complies with glare index class D.5	

## Sidewalk 2 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

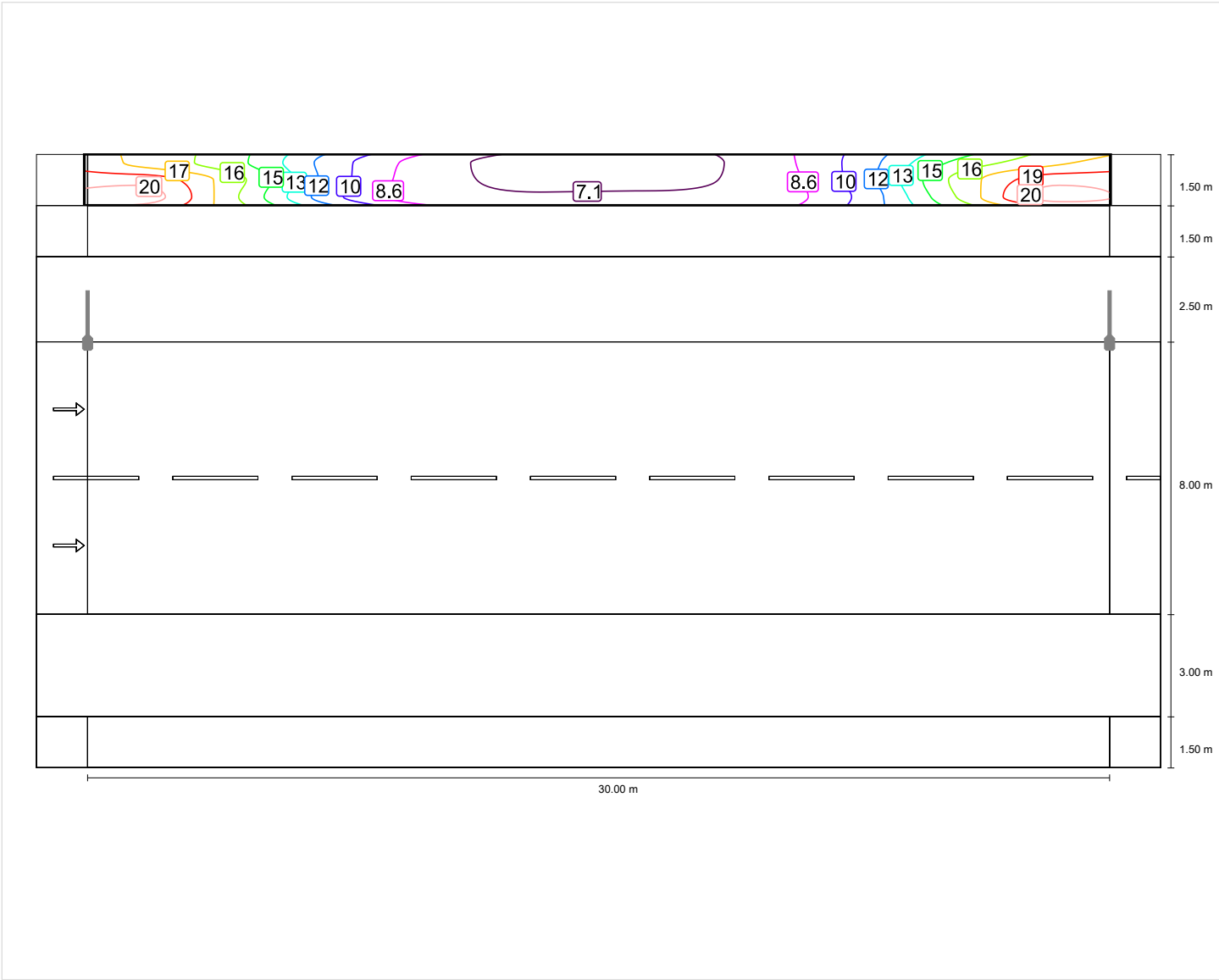
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.98	✓ 6.38

Sidewalk 2 (P2)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.98	✓ 6.38

Horizontal illuminance



Scale: 1 : 200

## Bicycle lane 1 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

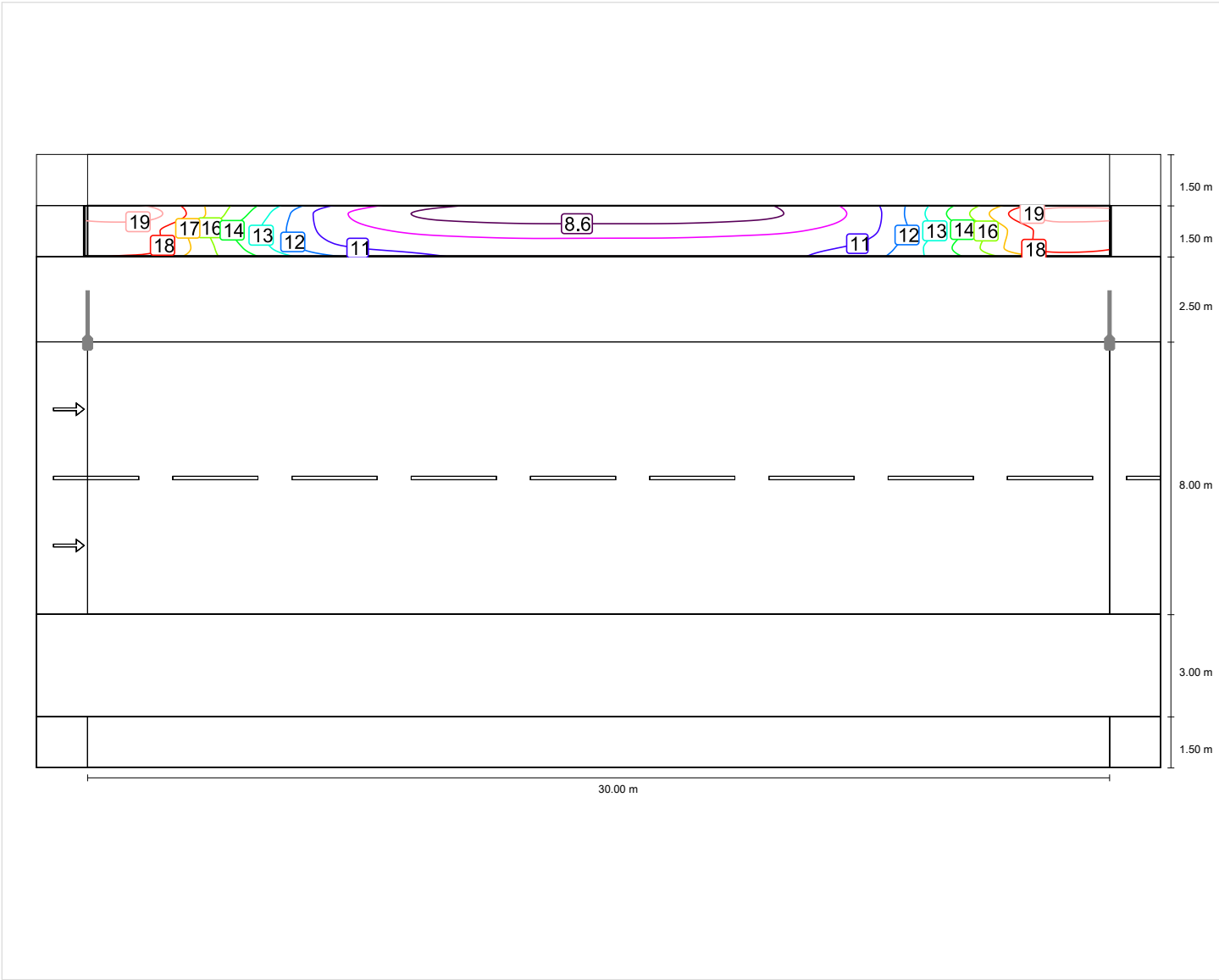
Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.49	✓ 8.07

Bicycle lane 1 (P2)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 10.00	≥ 2.00
≤ 15.00	
✓ 12.49	✓ 8.07

Horizontal illuminance



Scale: 1 : 200

## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 10 x 6 Points

Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 1.14	✓ 0.52	✓ 0.80	✓ 0.60	* 14

\* Informative, not part of the valuation

Assigned Observer (2):

Observer	Position [m]	Lm [cd/m <sup>2</sup> ] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 6.500, 1.500)	1.26	0.52	0.80	10
Observer 2	(-60.000, 10.500, 1.500)	1.14	0.56	0.84	14

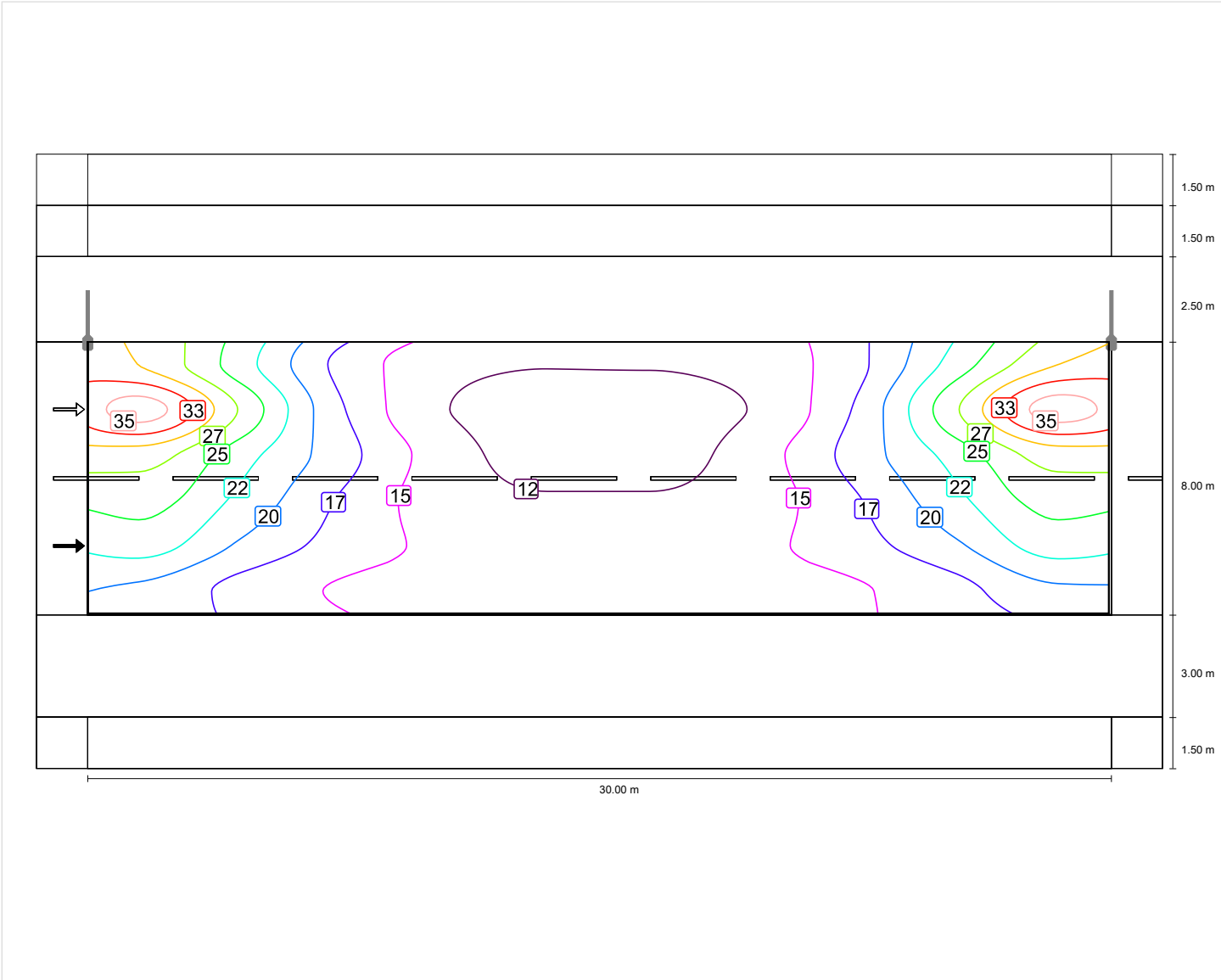
Roadway 1 (M4)

Maintenance factor: 0.90  
Grid: 10 x 6 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%] 
✓ 1.14	✓ 0.52	✓ 0.80	✓ 0.60	* 14

\* Informative, not part of the valuation

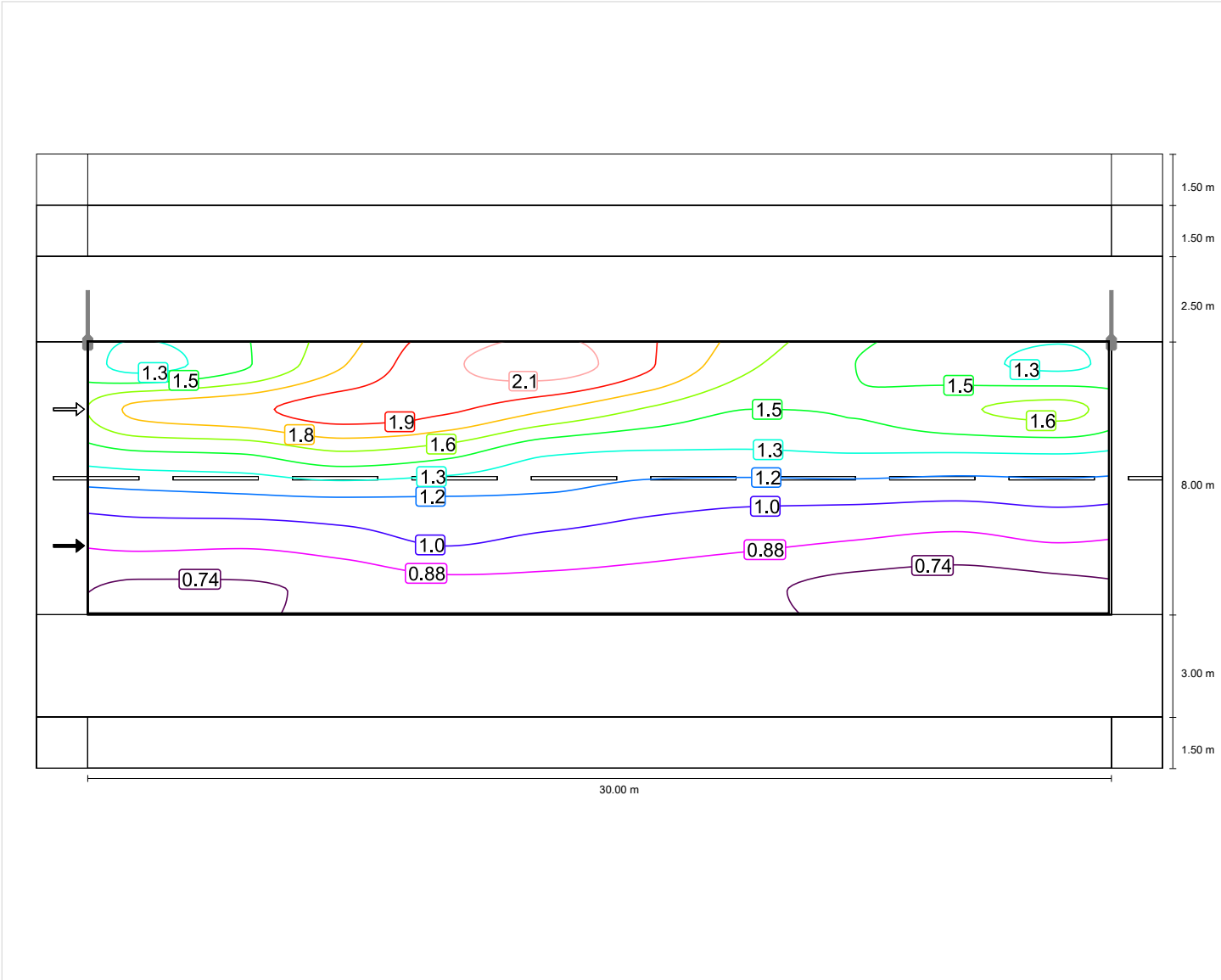
Horizontal illuminance



Scale: 1 : 200

Observer 1

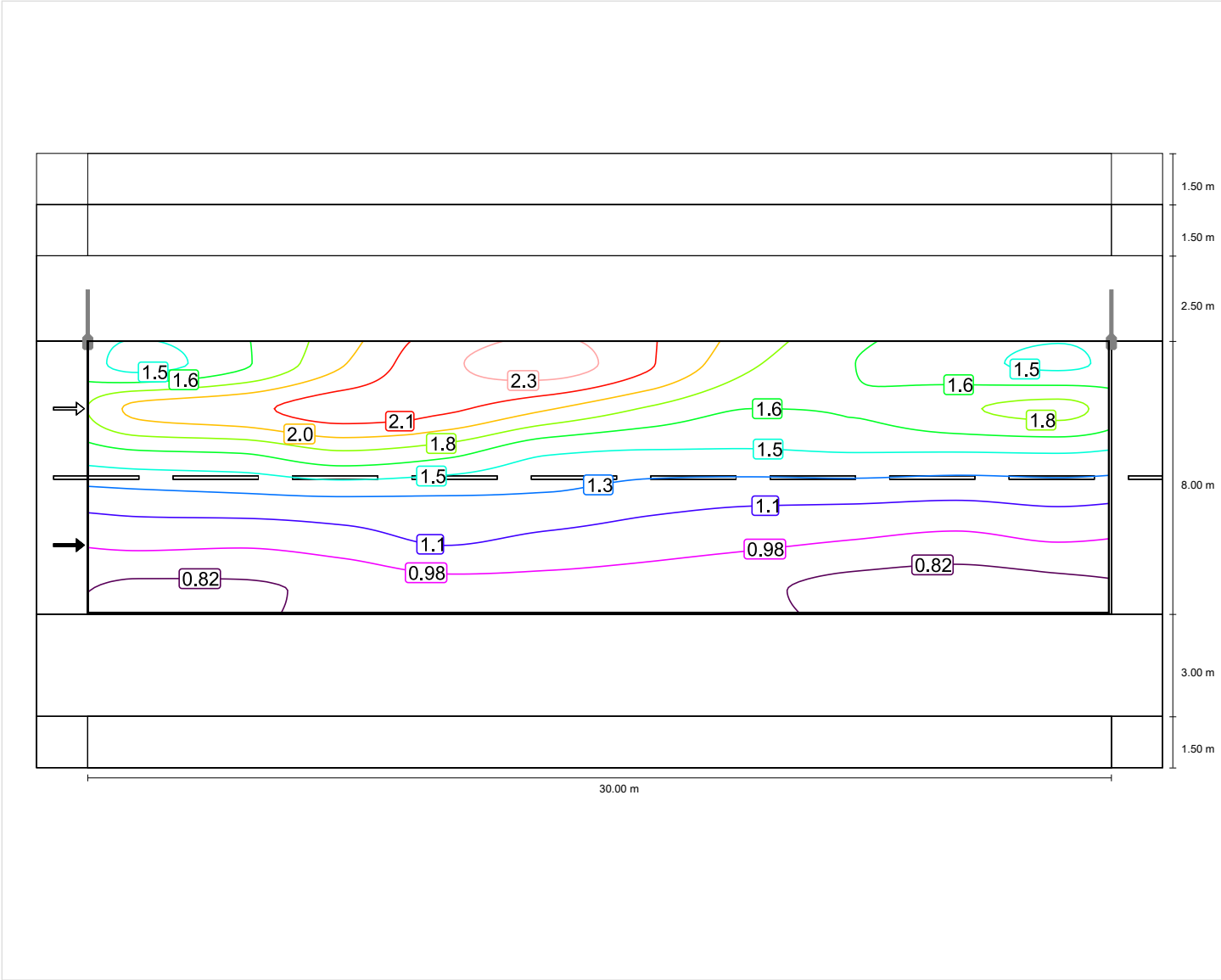
Luminance with dry roadway



Scale: 1 : 200



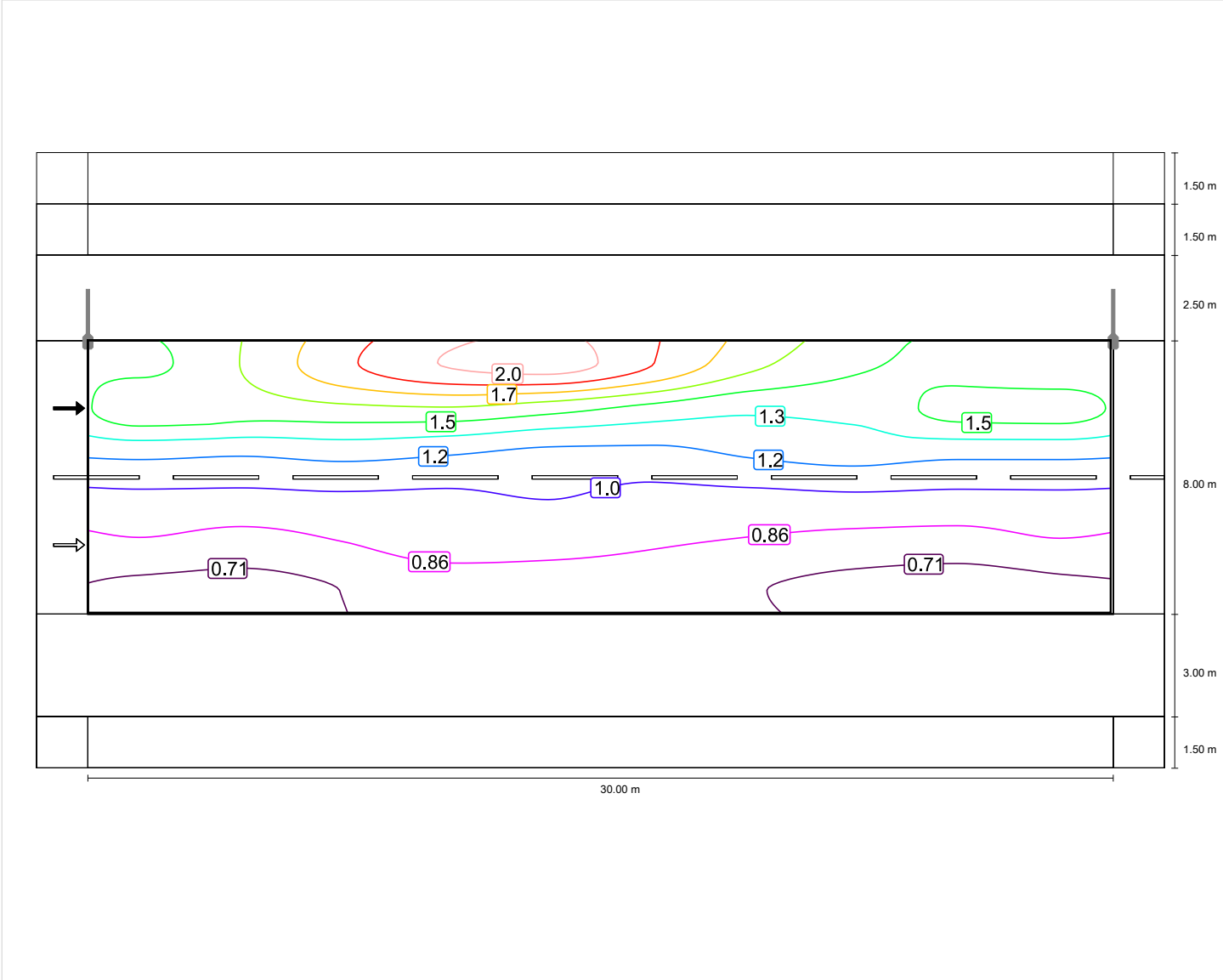
Luminance with new lamp



Scale: 1 : 200

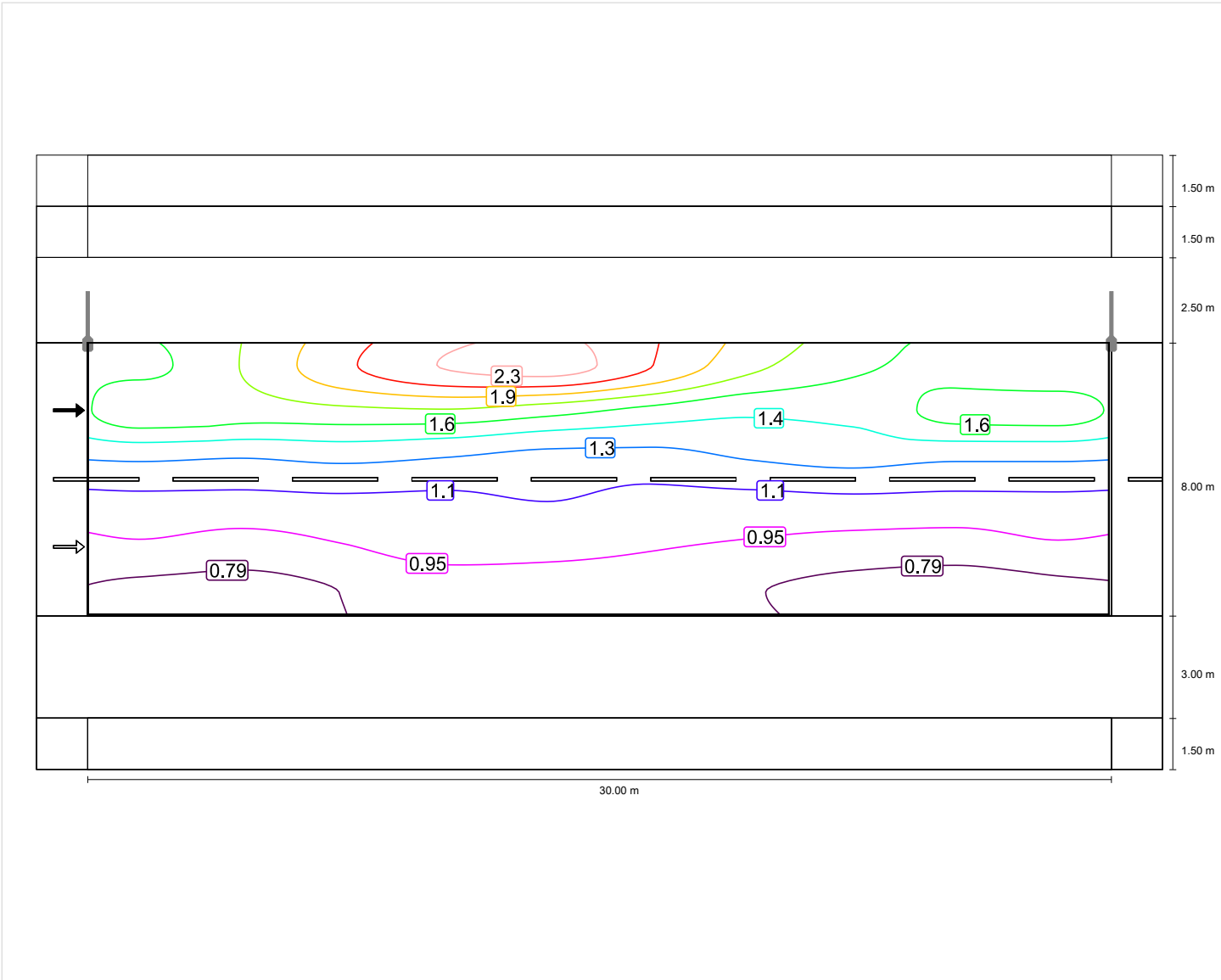
Observer 2

Luminance with dry roadway



Scale: 1 : 200

Luminance with new lamp



Scale: 1 : 200

## Sidewalk 1 (P4)

Maintenance factor: 0.90

Grid: 10 x 3 Points

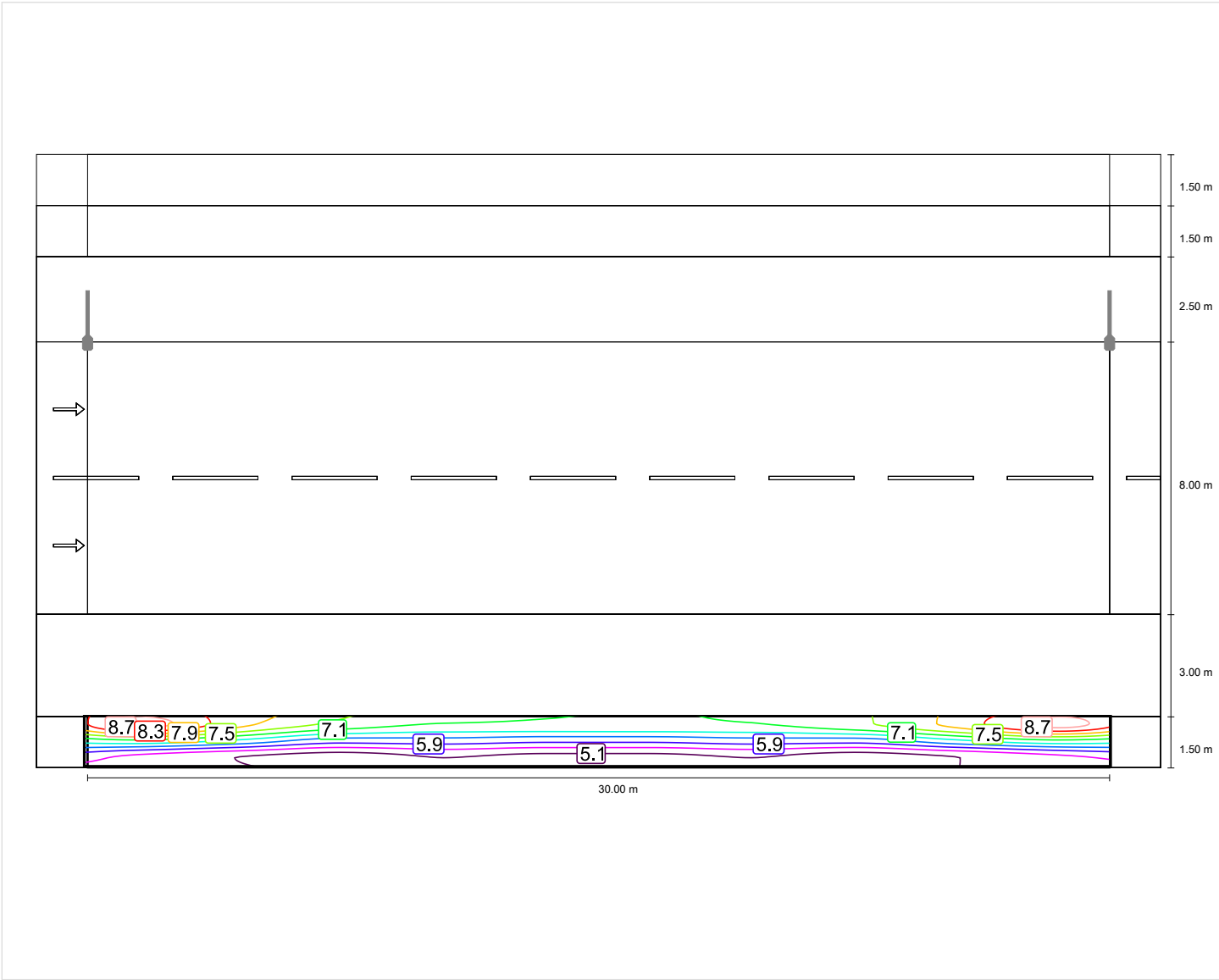
Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 6.41	✓ 4.92

Sidewalk 1 (P4)

Maintenance factor: 0.90  
Grid: 10 x 3 Points

Em [lx] ≥ 5.00 ≤ 7.50	Emin [lx] ≥ 1.00
✓ 6.41	✓ 4.92

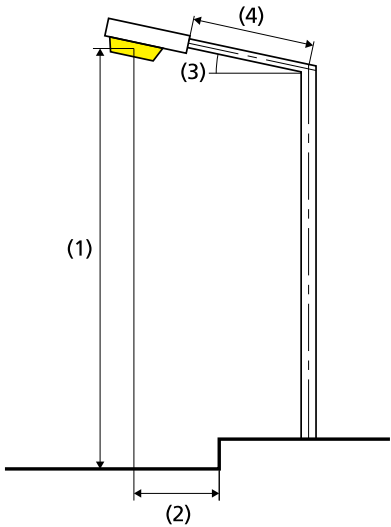
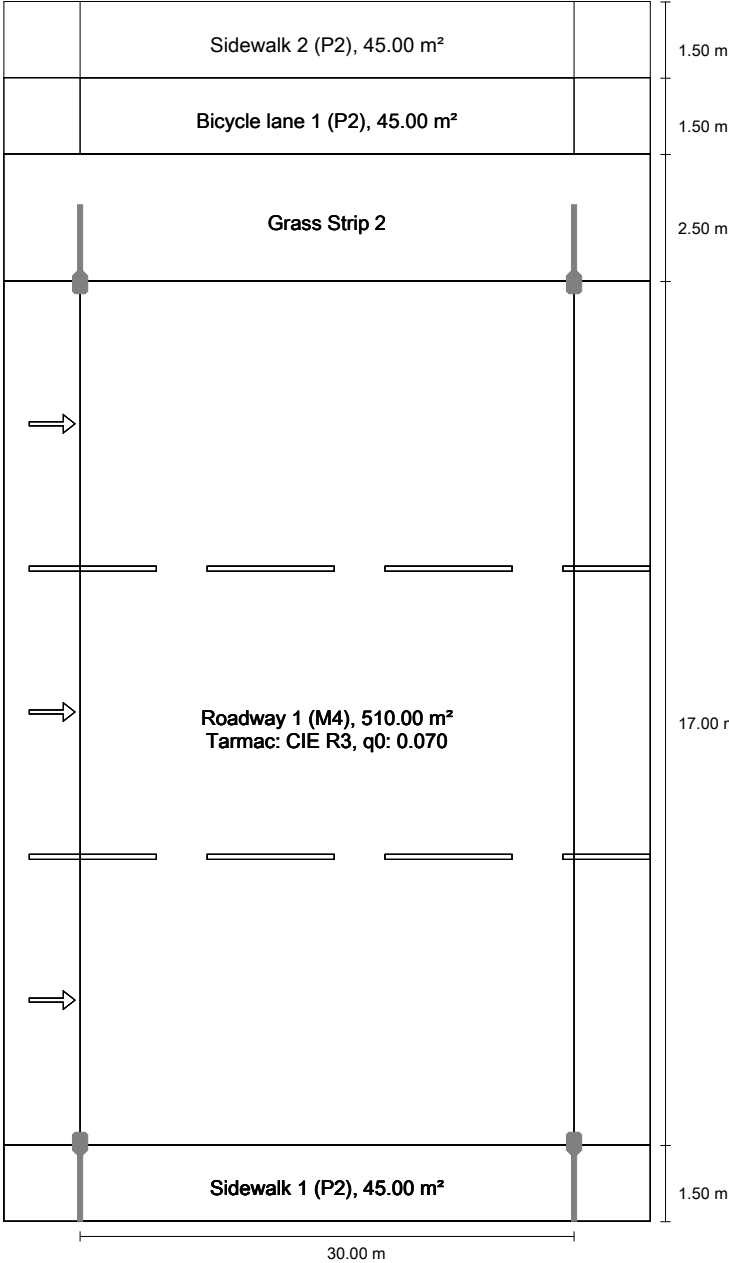
Horizontal illuminance



Scale: 1 : 200

Ventspils, Durbes iela (Rūpniecības ielas krustojums) according to EN 13201:2015

CREE XSPD02210E30K\_24-Q1 XSP1D - E - Type 210 - Q1 3K



The pole distance of this luminaire arrangement determines the length of the valuation fields.

Lamp:	1x5 MD-A1450 Q1 3K 12V
Luminous flux (luminaire):	5931.64 lm
Luminous flux (lamp):	6775.00 lm
Operating Hours	
4000 h:	100.0 %, 49.0 W
W/km:	3234.0
Arrangement:	both sides opposite
Pole distance:	30.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.500 m
Light centre height (1):	8.000 m
Light overhang (2):	0.000 m

ULR:	0.00
ULOR:	0.00
Maximum luminous intensities	
at 70°:	837 cd/klm
at 80°:	33.1 cd/klm
at 90°:	0.00 cd/klm
Luminous intensity class:	G*3
Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	
Arrangement complies with glare index class D.5	

Results for valuation fields  
Maintenance factor: 0.90

## Sidewalk 2 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.91	✓ 6.96

## Bicycle lane 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.60	✓ 8.59

## Roadway 1 (M4)

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	Tl [%]
✓ 1.08	✓ 0.64	✓ 0.66	✓ 0.86	* 12

## Sidewalk 1 (P2)

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.95	✓ 7.18

\* Informative, not part of the valuation

## Results for energy efficiency indicators

Power density indicator (Dp) 0.003 W/lxm²

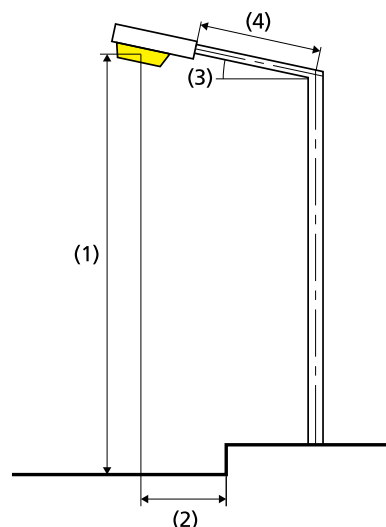
EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.

## Energy consumption density

Arrangement 1: XSP1D - E - Type 210 - Q1 3K (392.0 kWh/yr) 0.6 kWh/m² yr

Arrangement 2: XSPM - E - Type 210 - Q4 3K (132.0 kWh/yr) 0.2 kWh/m² yr

## CREE XSPM02210E30K\_24-Q4 XSPM - E - Type 210 - Q4 3K



Lamp:	1x3 MD-A1450 Q4 3K 12V
Luminous flux (luminaire):	3732.34 lm
Luminous flux (lamp):	4263.00 lm
Operating Hours	
4000 h:	100.0 %, 33.0 W
W/km:	1089.0
Arrangement:	single side top
Pole distance:	30.000 m
Boom inclination (3):	0.0°
Boom length (4):	1.500 m
Light centre height (1):	8.000 m
Light overhang (2):	0.000 m

ULR: 0.00

ULOR: 0.00

## Maximum luminous intensities

at 70°: 837 cd/klm

at 80°: 33.1 cd/klm

at 90°: 0.00 cd/klm

Luminous intensity class: G\*3

Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.

Arrangement complies with glare index class D.5

## Sidewalk 2 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.91	✓ 6.96



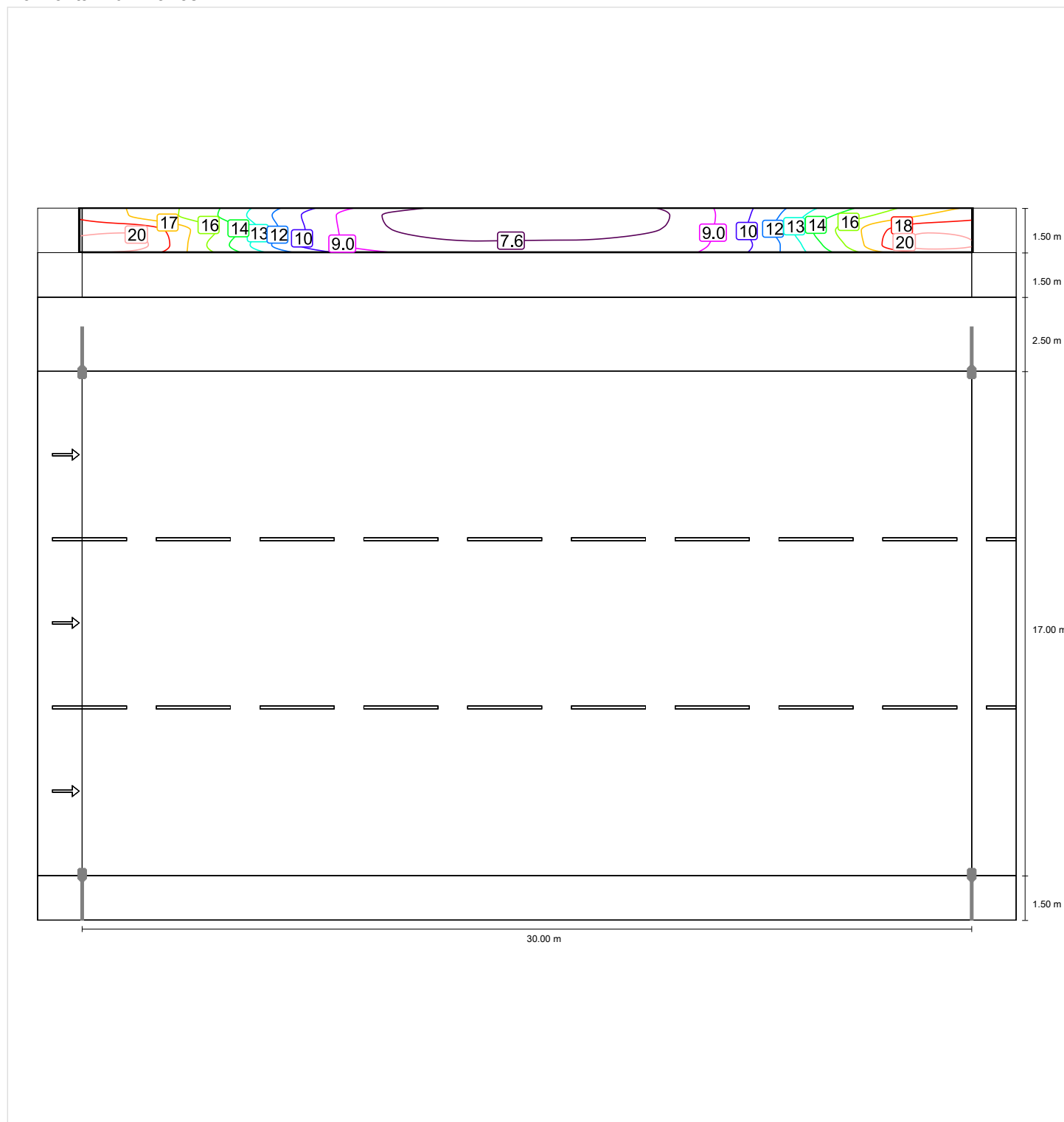
## Sidewalk 2 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

Em [lx]	Emin [lx]
≥ 10.00	≥ 2.00
≤ 15.00	
✓ 11.91	✓ 6.96

### Horizontal illuminance



Scale: 1 : 200

## Bicycle lane 1 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.60	✓ 8.59

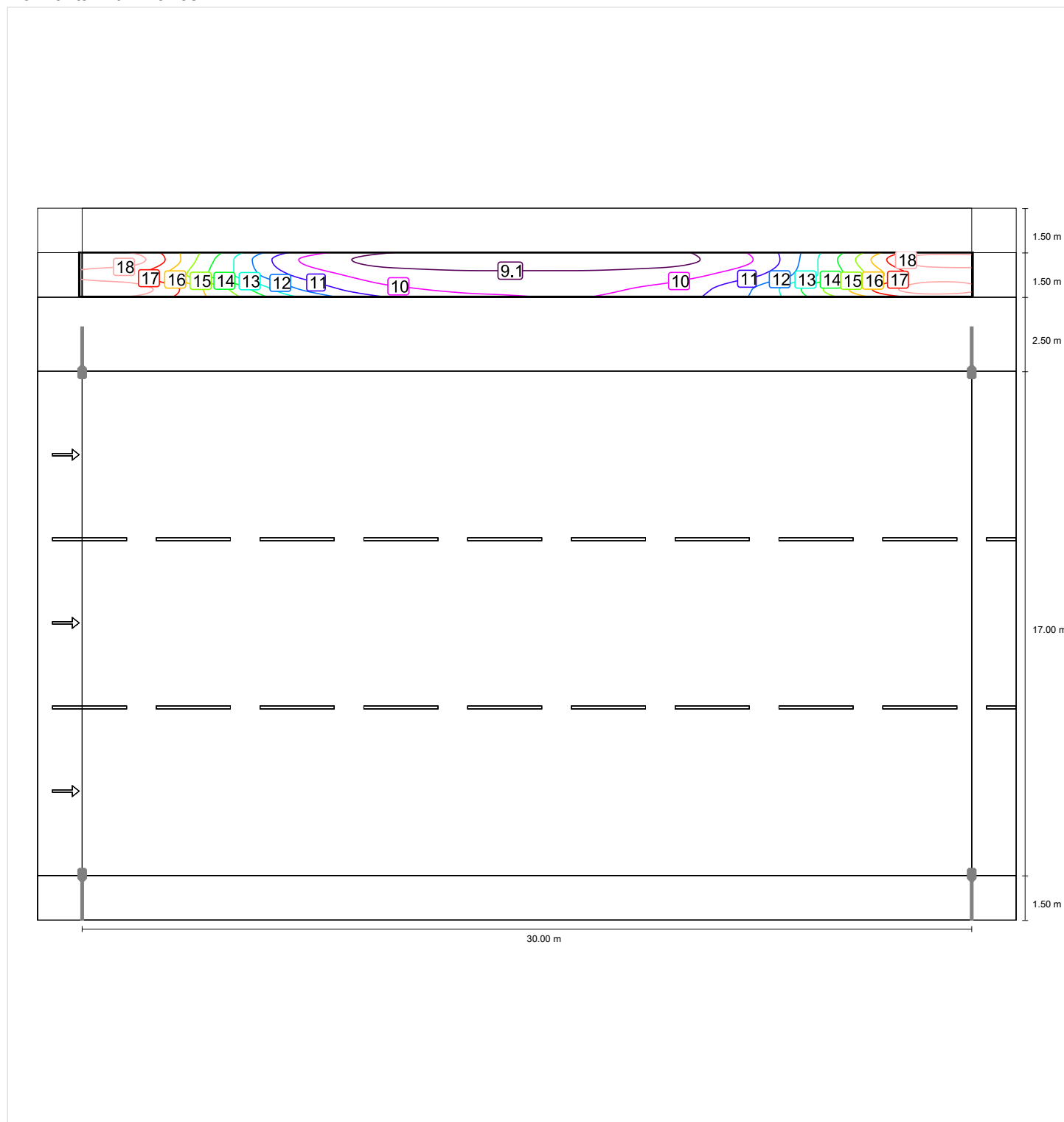
## Bicycle lane 1 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 12.60	✓ 8.59

### Horizontal illuminance



Scale: 1 : 200

## Roadway 1 (M4)

Maintenance factor: 0.90

Grid: 10 x 9 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 1.08	✓ 0.64	✓ 0.66	✓ 0.86	* 12

\* Informative, not part of the valuation

Assigned Observer (3):

Observer	Position [m]	Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%]
Observer 1	(-60.000, 4.333, 1.500)	1.09	0.64	0.88	11
Observer 2	(-60.000, 10.000, 1.500)	1.10	0.65	0.66	7
Observer 3	(-60.000, 15.667, 1.500)	1.08	0.66	0.88	12

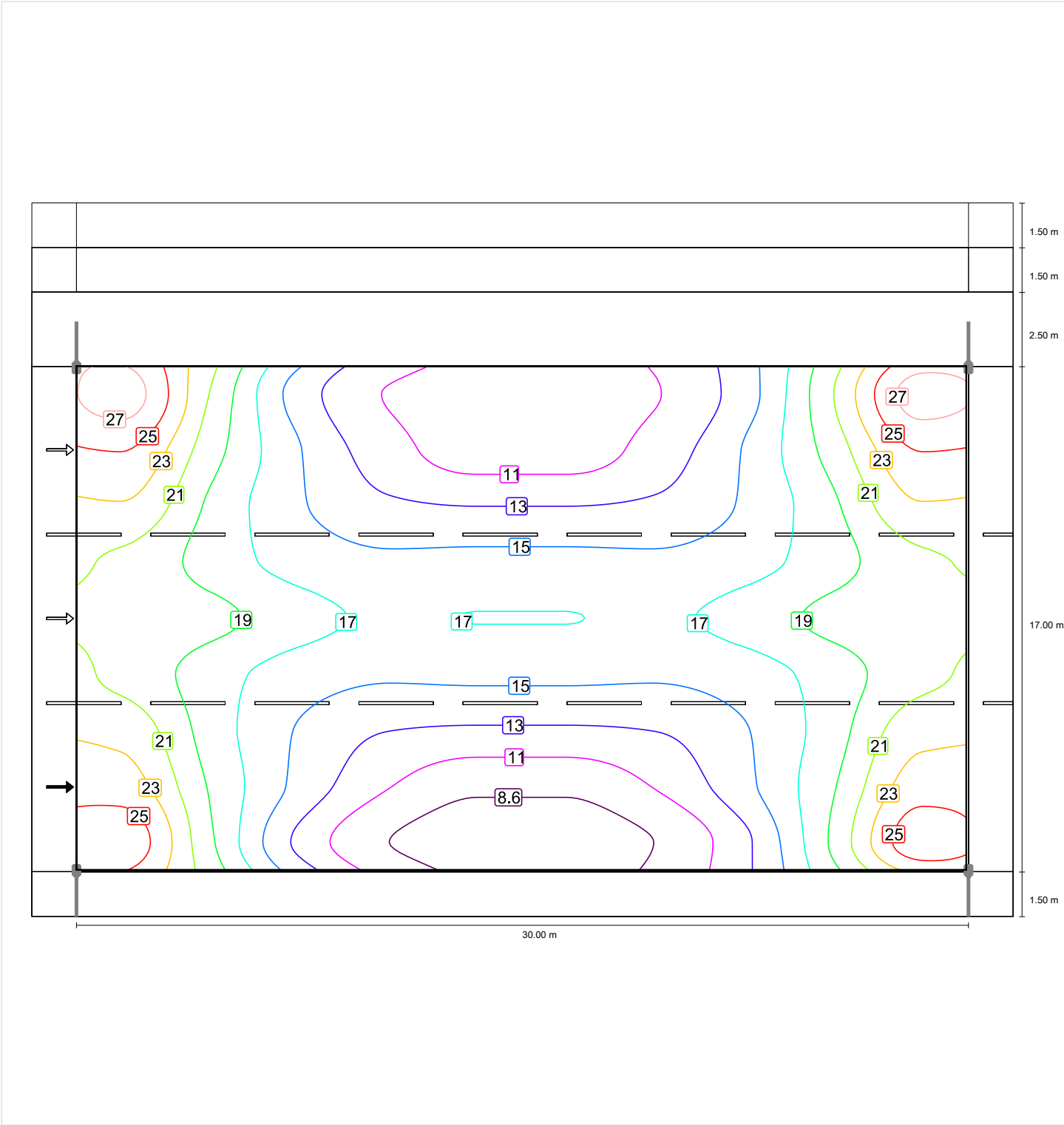
Roadway 1 (M4)

Maintenance factor: 0.90  
Grid: 10 x 9 Points

Lm [cd/m²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	EIR ≥ 0.30	TI [%]
✓ 1.08	✓ 0.64	✓ 0.66	✓ 0.86	* 12

\* Informative, not part of the valuation

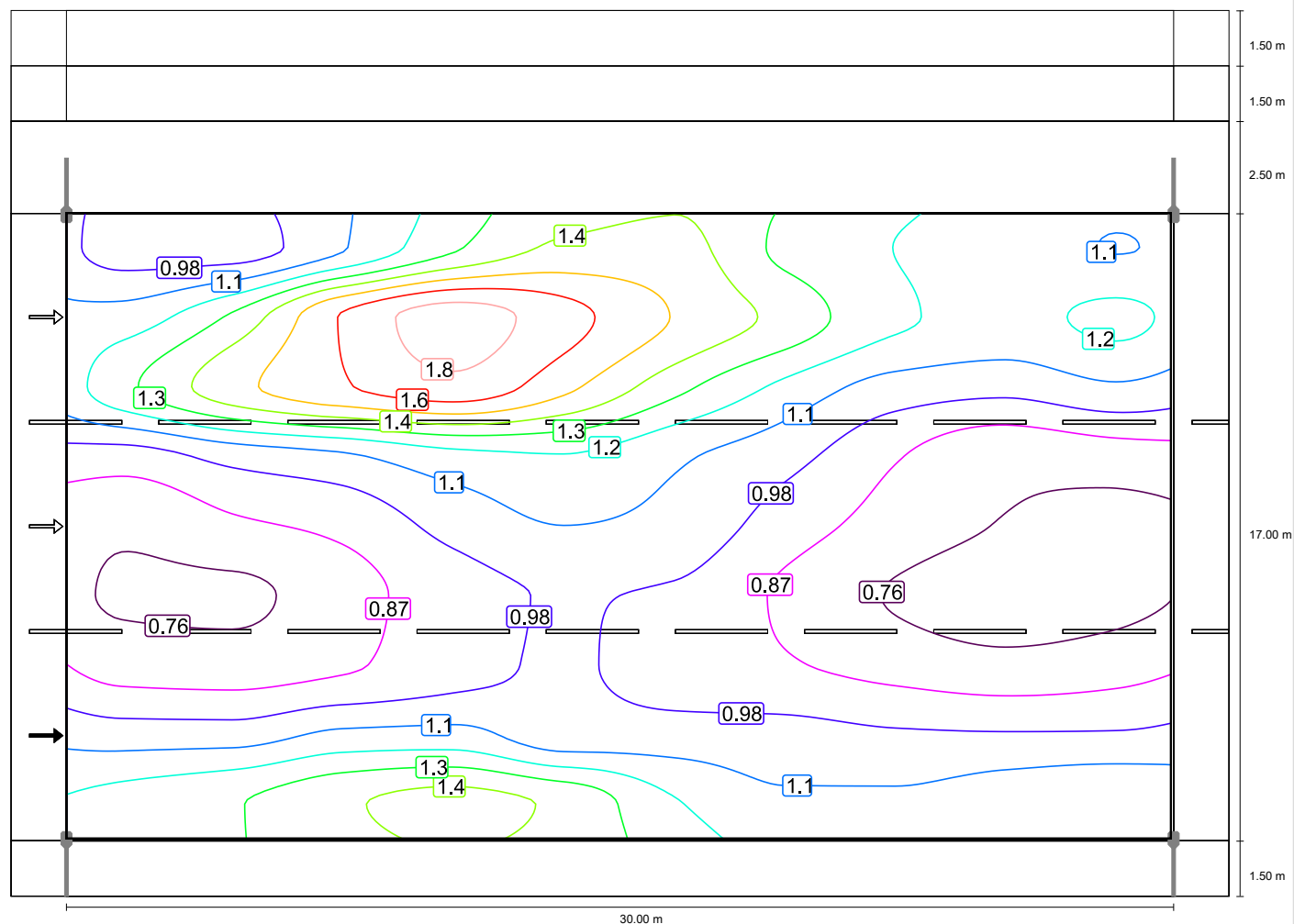
Horizontal illuminance



Scale: 1 : 200

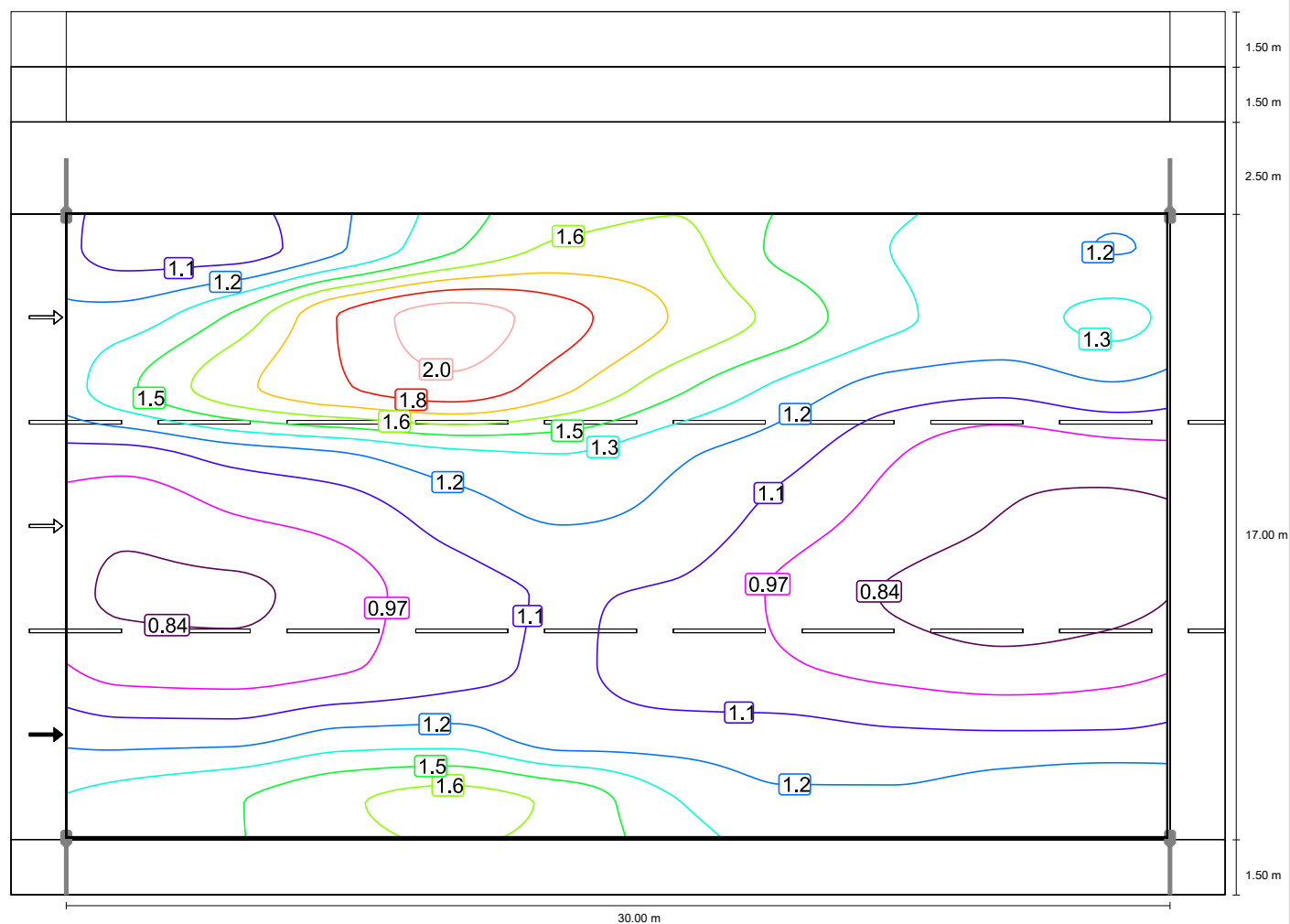
## Observer 1

## Luminance with dry roadway



Scale: 1 : 200

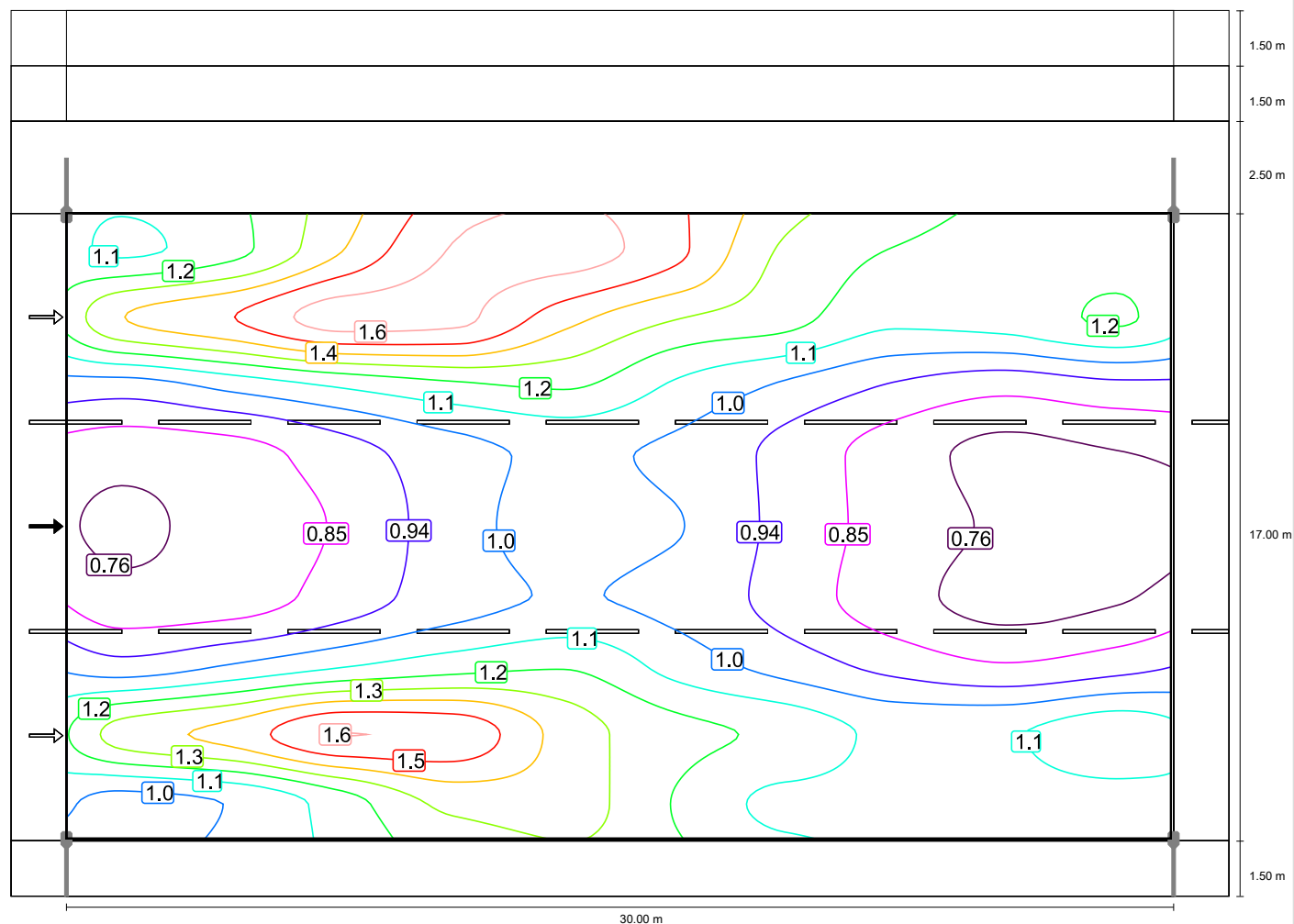
# Luminance with new lamp



Scale: 1 : 200

## Observer 2

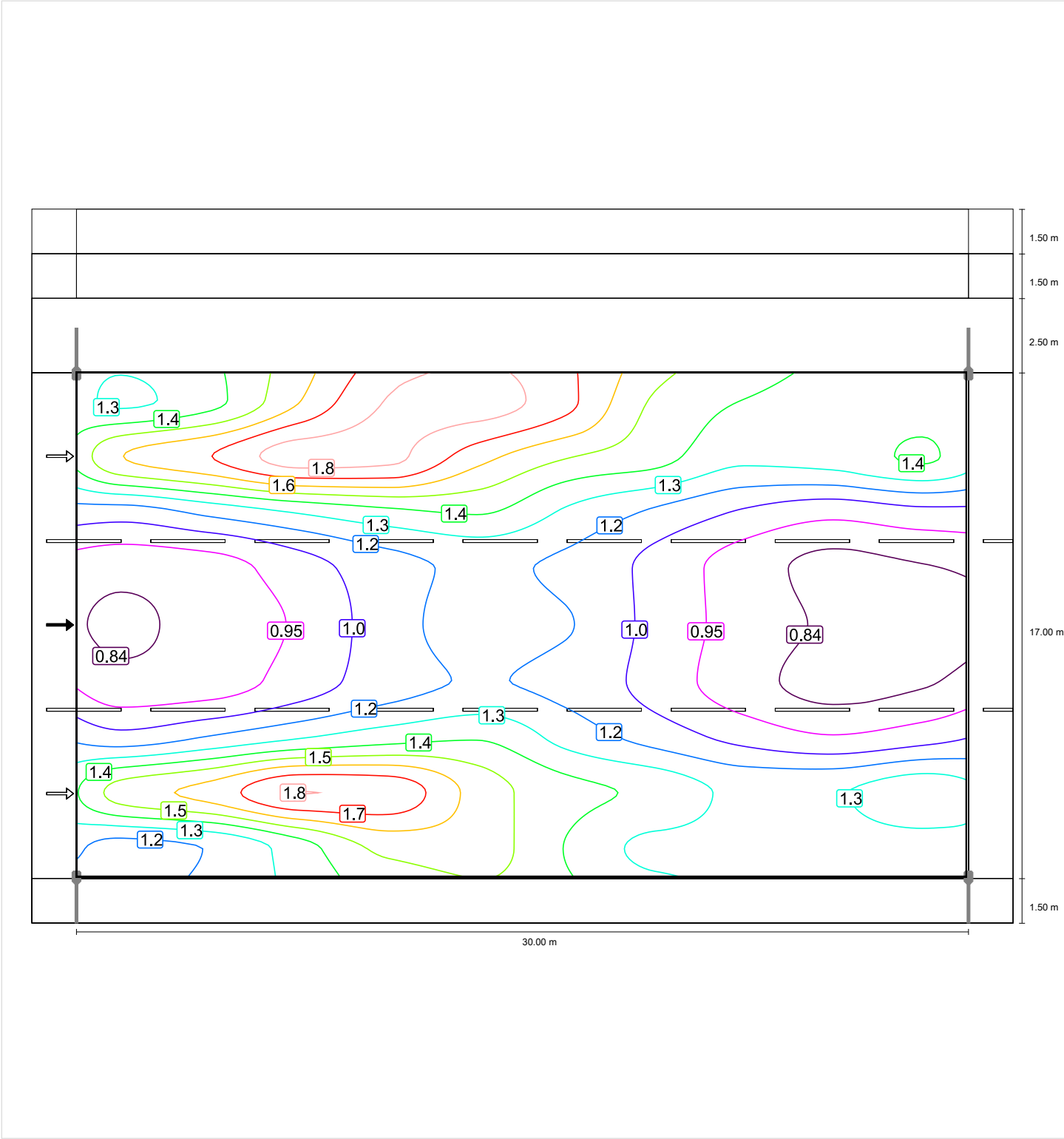
### Luminance with dry roadway



Scale: 1 : 200

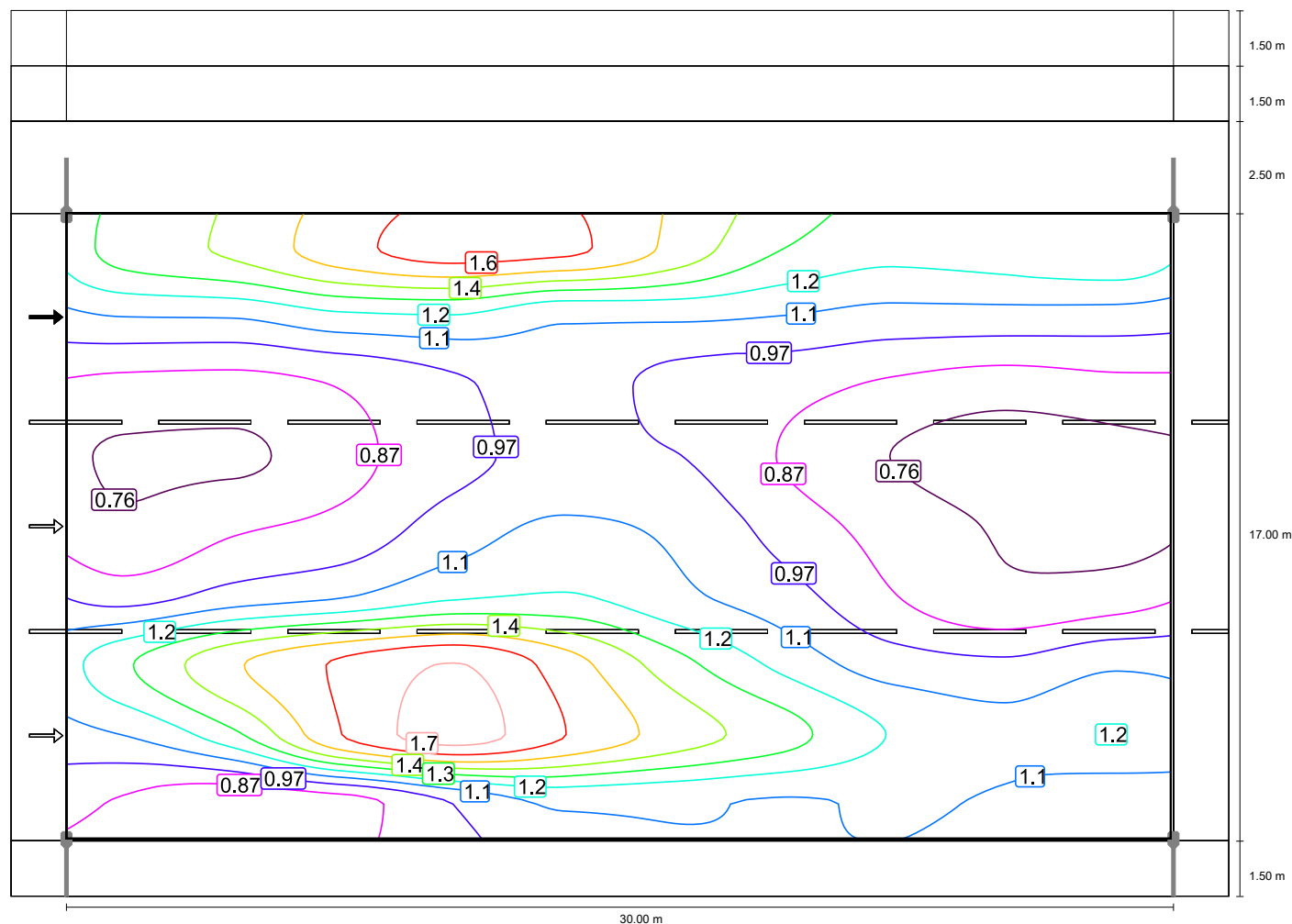


Luminance with new lamp



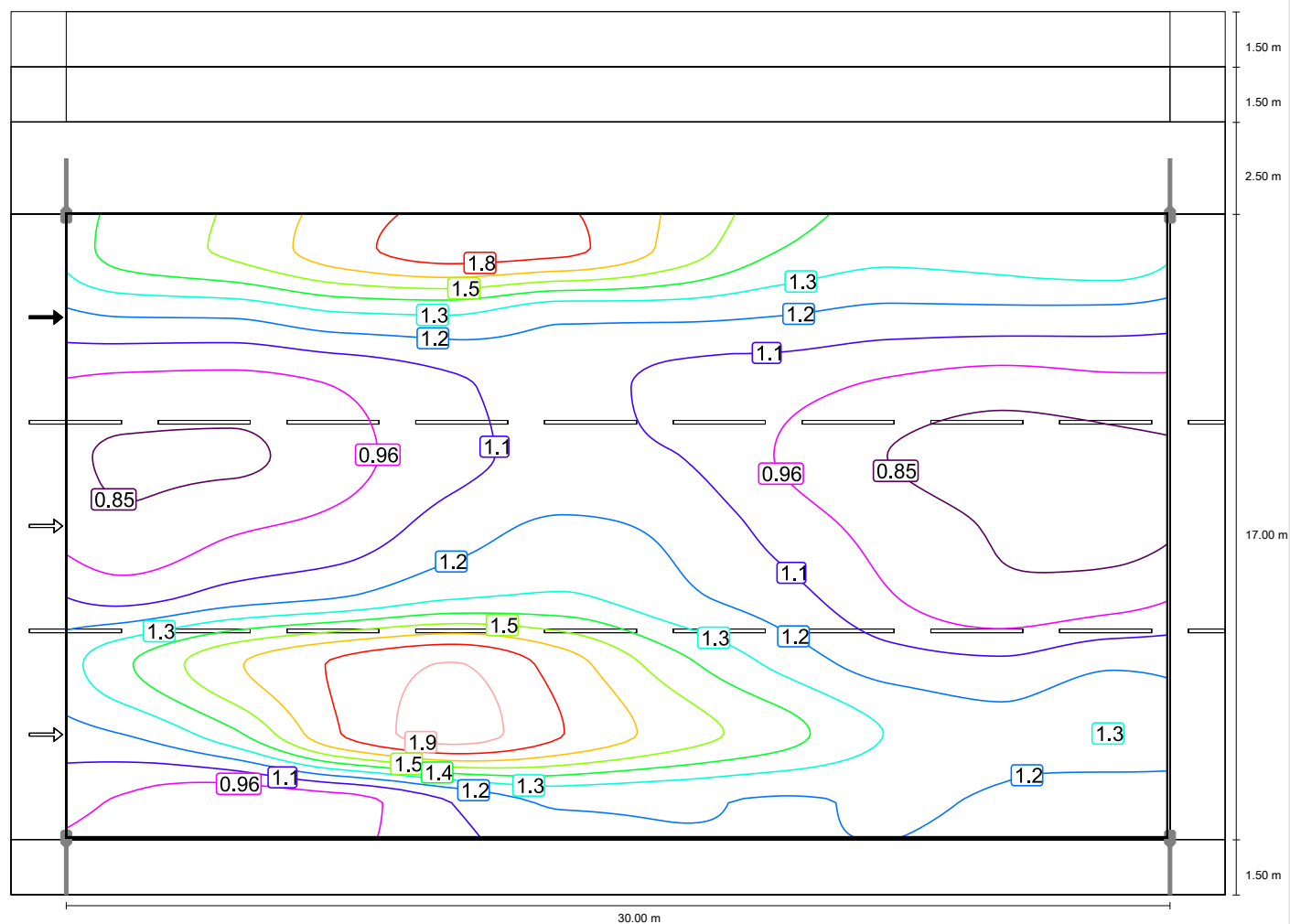
## Observer 3

### Luminance with dry roadway



Scale: 1 : 200

# Luminance with new lamp



Scale: 1 : 200

## Sidewalk 1 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.95	✓ 7.18

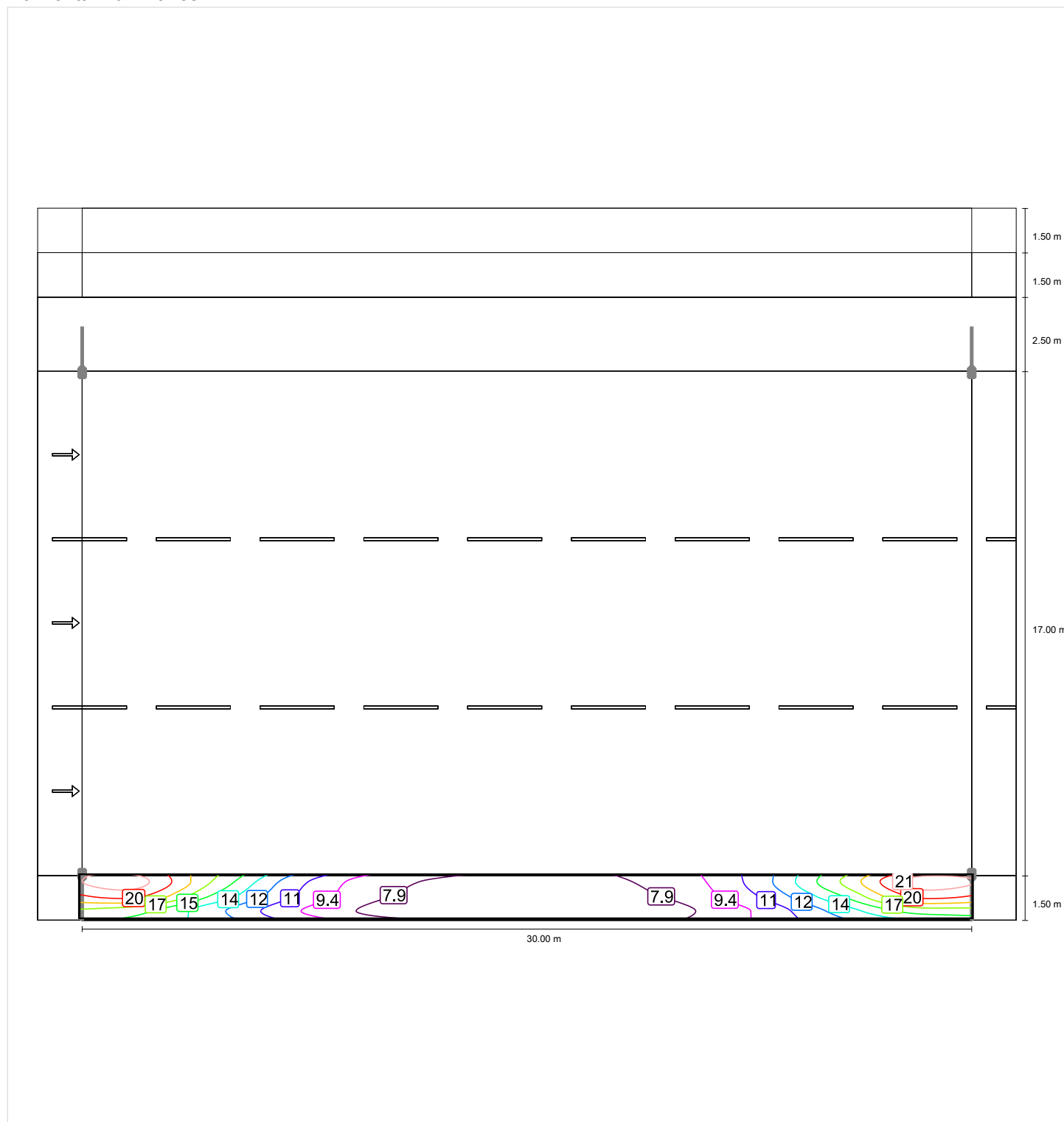
## Sidewalk 1 (P2)

Maintenance factor: 0.90

Grid: 10 x 3 Points

Em [lx] ≥ 10.00 ≤ 15.00	Emin [lx] ≥ 2.00
✓ 11.95	✓ 7.18

### Horizontal illuminance



Scale: 1 : 200