



Land at Lynchmead Road

Lighting Impact Assessment

DATE: 21.03.23

PROJECT No. 1070

PREPARED FOR: Mead Realisations
Ltd



Land at Lynchmead Road

Lighting Impact Assessment

PROJECT: 1070

CURRENT REVISION: 0.1

DATE OF ISSUE: 21.03.23

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Rev	Date	Details
0.1	21.03.23	First Issue



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1 Introduction

1.1 General

This Lighting Assessment is provided by The Lighting Bee Ltd, a specialist lighting design consultancy with experience and knowledge in lighting impact assessments, mitigation and lighting design in relation to light sensitive ecological receptors.

The author of this report is a fully qualified Lighting Designer and Chartered Electrical Engineer, with full membership of the Institute of Lighting Professionals, Society of Light and Lighting, and Chartered Institute of Building Services Engineers.

The Lighting Bee Ltd have been commissioned by Mead Realisations Ltd to undertake a Lighting Impact Assessment for the proposed residential development at Lynchmead Farm, located in Weston-Super-Mare, North Somerset.

1.2 Scope of the Report

The aim of this Lighting Impact Assessment is to provide an assessment of the impact of the external, internal, and street lighting from the proposed development on sensitive ecological receptors. The report outlines the lighting strategy and mitigation measures that the assessment is based on. Lighting impacts in terms of obtrusive light are excluded from the scope of this report.

Due to the ecological sensitivity of the site, with light sensitive bat species utilising the site for foraging and commuting, there is a requirement to ensure that dark corridors and zones are maintained.

This lighting assessment has been prepared for the outline planning application stage. It is based on an illustrative site layout, and house types provided by the Project Architect. The strategy outlines the proposed lighting (including any assumptions), and mitigation measures to demonstrate predicted impacts on to the proposed dark zones.

It is anticipated that the lighting strategy and assessment will be updated based on the developed/ detailed site layouts at the reserved matters application stage, to ensure that light spill from any street lighting, external lighting and internal light spill from buildings will meet the ecological requirements outlined.

Within this report the proposed land take area will be referred to as the 'site'.

1.3 Structure of the Report

This report has been broken down into the following sections:

Section 2 - Outlines the proposed lighting strategy and describes the assessment methodology

Section 3 - Describes the proposed mitigation measures for the site

Section 4 - Considers the residual impacts of the proposed lighting strategy



Section 5 - Concludes the lighting impact assessment

1.4 Site Location

The site address is Lynchmead Farm, Weston-Super Mare, North Somerset.

The site consists of two parcels of land to the north of Ebdon Road. Approximate OS grid reference to the centre of the site is ST 35921 64330.

1.5 Key Sensitive Receptors

The majority of the site boundaries have been identified as being ecologically sensitive with dark corridors for bats proposed to the north, west and east, in addition to dark corridors that cross the western parcel. The extent of the proposed dark zones are shown on the Key Plan in Appendix B of this report.

For further information refer to the ecological reports provided by EAD ecology.

2 Proposed Lighting

2.1 General

The site has been modelled and calculations provided, using industry standard software. All proposed dwellings have been modelled in detail, with internal and external lighting to establish potential lighting impacts to the proposed dark zones and establish any required mitigation measures.

Due to the configuration of the site layout, there is also potential for the proposed external private lighting to the front and rear of the plots, and any street lighting to the roads to impact on the dark zones. Therefore, this has been modelled and included in the assessment.

The lighting strategy and assessment process for each lighting element is outlined in the following sections.

An iterative process has been applied to establish the required mitigation measures, and therefore, results are not shown for each area/ scenario prior to mitigation. Section 3 details the mitigation measures that are deemed to be required and have been applied.

The calculation model is based on AutoCAD drawings provided by the Project Architect. Each plot is modelled based on the plans, elevations and site layout provided by the Project Architect. The modelling of each house type is based on the plans shown in Appendix G.

2.2 Internal Lighting and External Lighting Calculations

The combined impact of internal light spill and the external building mounted lighting has been calculated using Dialux Evo Lighting Software. All dwellings have been modelled in 3D, including all glazed elements. Dialux Evo is a computer calculation package which utilises 3D modelling to model the real-world output of chosen light fittings. From these calculations, drawings illustrating the illuminance levels have been produced so that the lighting scheme's impact can be assessed.

Vertical calculation planes (2m in height) have been included to show predicted levels of illuminance along the dark corridors. Refer to Appendix B for a key plan showing the positions and references of the vertical calculation planes.

The calculation model (illustrated by illuminance levels on a drawing) does not include any proposed or existing planting/ hedgerows/ trees on site. The model does include close boarded fencing where it is proposed to be adjacent to the dark zones. Following a review of the site topography, it was not deemed necessary to include any changes in ground levels in the calculation model.

The calculation model is intended to represent the worst case scenario, with internal lighting outputs calculated with all the luminaires switched on, and with no internal obstructions modelled, such as curtains or blinds. The calculations are based on the luminaires at full output, with a maintenance factor of 1, to represent the worst case scenario. The Visible Light Transmittance of the window glazing has been set to 80%, as this represents typical double glazing. Levels of internal design illuminance have been based on the requirements for communal residential buildings outlined in SLL Lighting Guide 9: Lighting for communal

residential buildings, as there are no set levels of design illuminance for private dwellings. Refer to table 2.1.

Levels of lighting would typically initially be based on pendant lighting as this is typically provided and represents the worst case. However, due to the proximity of the dark zones levels of lighting have been based on recessed lighting (down lights) throughout all the units, instead of pendants, to minimise light spill to the ecological dark zones. Typical downlights with beam angles of 30-40 degrees have been modelled. Refer to Section 3 for full details of the mitigation measures applied.

Table: 2.1: Levels of design illuminance from SLL Lighting Guide 9: Lighting for communal residential buildings

Room Type	Level of design illuminance (lux)
Kitchen	200
Dining	150
Lounge	100
Hall/Stairs	100
Bathroom	150
Toilet	100
Bedroom	100

The images below show the 3D calculation model for the site.

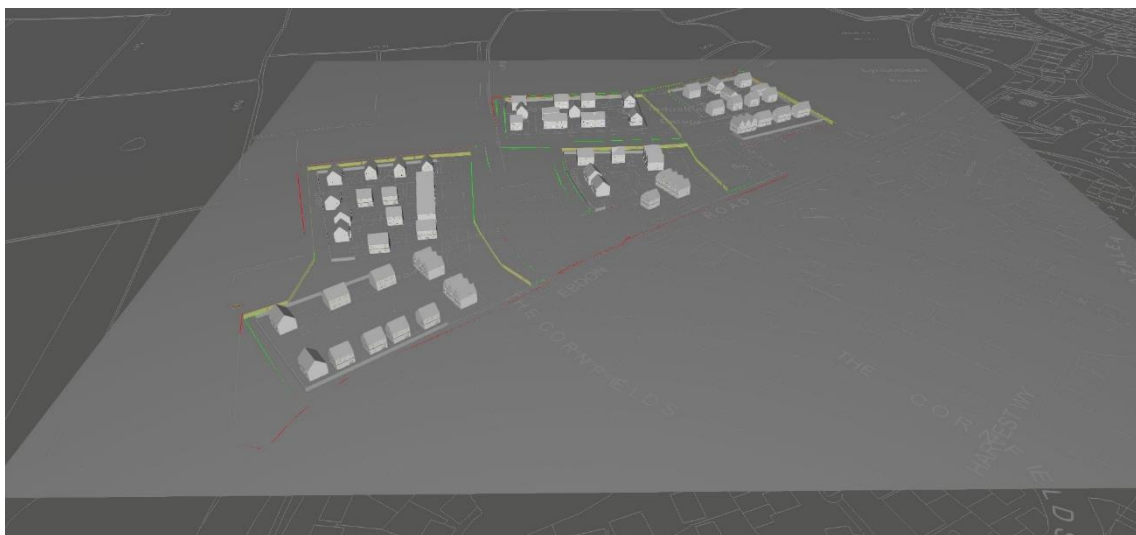


Figure 2.1: 3D view of the calculation model – viewed facing north

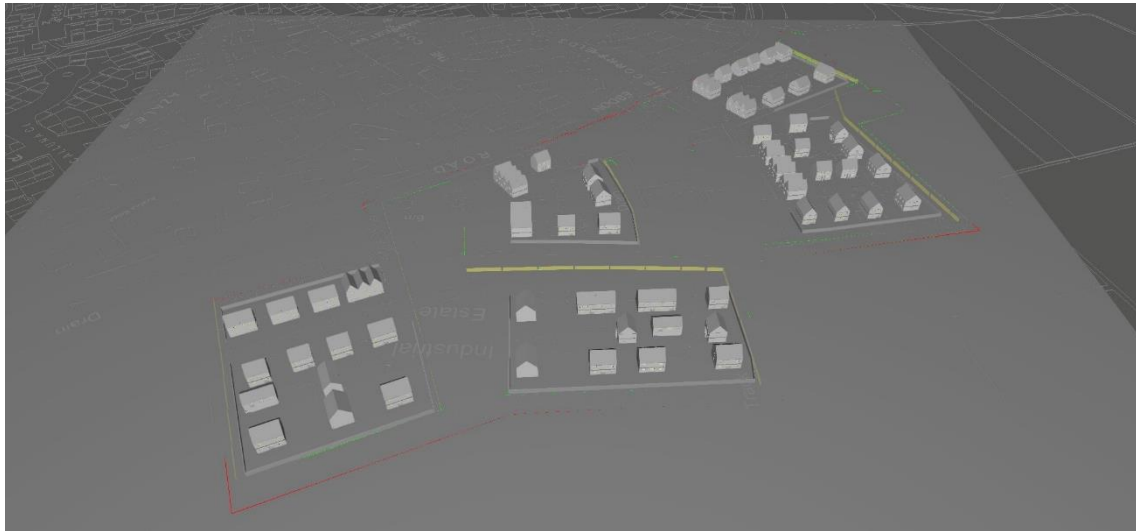


Figure 2.2: 3D view of the calculation model– viewed facing south

The results from the calculation model produces the isolines detailed on the accompanying drawing, shown in Appendix C, which represent levels of illuminance at ground level.

Results have also been produced to show the levels of illuminance falling on vertical calculation planes placed along the edge of the proposed dark zone. Refer to Appendix B, for the locations and references related to the vertical calculation planes, and Appendix D for the results.

2.3 External Private Lighting to the Dwellings

An external wall mounted light with integrated PIR (movement) detection for operation is proposed to the front and rear of each dwelling. Downward directional wall lights have been specified to minimise the lighting impacts on bats. The luminaires will utilise GU10 lamps and it is proposed that the developer will fit LED lamps with a warm white colour temperature of 3000K. These luminaires are included in the calculation model. Refer to Appendix C.

Manufacturers information for the downward directional wall light that the calculations are based on is shown in Appendix E.

2.4 External/ Street Lighting Strategy – Site wide

Due to the ecological sensitivity of the site and the locations of the proposed dark zones, street lighting to BS 5489 and adoptable S38 standards is not proposed, as the resulting levels of illuminance will be too high at the proposed dark zones. If required, roads within the site may need to remain private and under a management company. Low level bollard lighting is proposed within the courtyard areas, with no lighting proposed to the roads throughout the site, in accordance with the Clients instruction and site risk assessment.

An indicative external lighting strategy has been prepared for the planning application stage for the development on this basis.



2.5 Impact Assessment and Significance Criteria

The significance of effect will be informed by considering the level of illuminance predicted at the edge of the proposed dark zones.

In accordance with the Bats and Artificial Lighting in the UK (2018) guidance, levels of illuminance will be calculated horizontally at ground level, and on the vertical calculation planes 2m in height at the north eastern boundary.

Illuminance levels of greater than 0.5 lux horizontally at ground level and vertically up to 2m in height are considered to be significant.

3 Mitigation Measures

Mitigation of the effects of the lighting installation during the operational phase will be achieved by providing the proposed lighting and mitigation measures outlined in this report.

The mitigation measures included are summarised below. Also, refer to the Lighting Mitigation Plan in Appendix F:

- Recessed downlight luminaires to be provided to all rooms with apertures that are adjacent to the proposed dark zones. (Typically, downlight luminaires used, and sold for use, in residential properties will have beam angles of 30-40 degrees. The recessed nature of downlights, and smaller beam angles reduces light spill, compared with pendant luminaires.)
- External lighting will be minimal and limited to building mounted lighting only to the front and rear entrances of each dwelling, and low level bollard lighting to the courtyard areas, as shown on the Mitigation Plan.
- The external building mounted luminaires to the front and rear entrances will be downward directional wall lights. These luminaires will utilise LED lamps and will therefore emit no UV light, and will have a warm white colour temperature of 3000K.
- Building mounted external lighting will operate on PIR (movement) detectors. The bollard luminaires are proposed to operate dusk till dawn via photocell, with a 7 day programmable time switch to be provided to allow the timings of operation to be reduced if required.
- To ensure that no additional private external lighting is installed, covenants will need to be put in place to prevent it being added in the future.
- 1.8m high timber close boarded fence to be provided to block light spill in the locations shown on the Mitigation plan.

Further mitigation measures beyond this are not deemed to be required.

4 Predicted Impacts from Artificial Lighting

Light spill from the combined internal and external calculated at the edge of the proposed dark zones is predicted to be <math><0.5</math> lux both horizontally at ground level, and vertically on the calculation planes (up to 2m in height) included. (Testing has been undertaken to ensure that the vertical plane results (up to 2m in height) are still acceptable if the planes are moved further behind the fence, checking there is no predicted over spill below 2m.)

The lighting impacts from the proposals with the mitigation measures outlined are therefore not considered to be significant.

It should also be noted that the calculation model represents the worst case scenario, with all lights switched on simultaneously, and no blinds or curtains included, and the screening effect of any vegetation and planting not being included, levels of illuminance will be further reduced when these factors are taken into account.

The images below show the calculation model and summarise the results. Refer to the drawing showing levels of illuminance predicted horizontally at ground level in Appendix C, and the vertical plane calculation results in Appendix D for further detail.

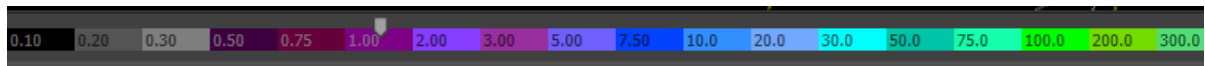


Figure 4.1: False colour scale- levels of illuminance measured in Lux. For ease, levels above 0.5 lux are coloured, and levels below 0.5 lux are shown in shades of grey/black

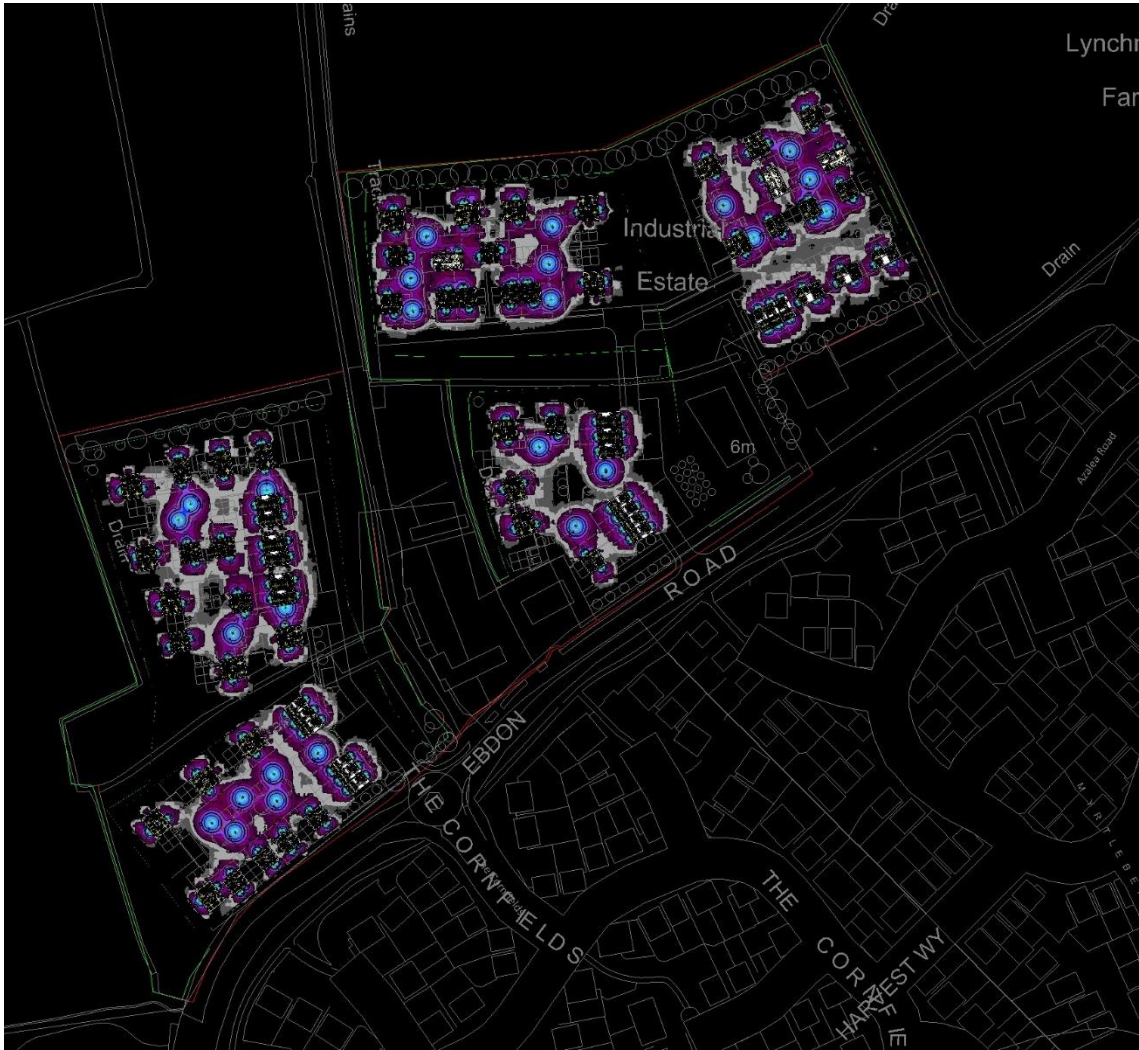


Figure 4.2: Plan view of the calculation model

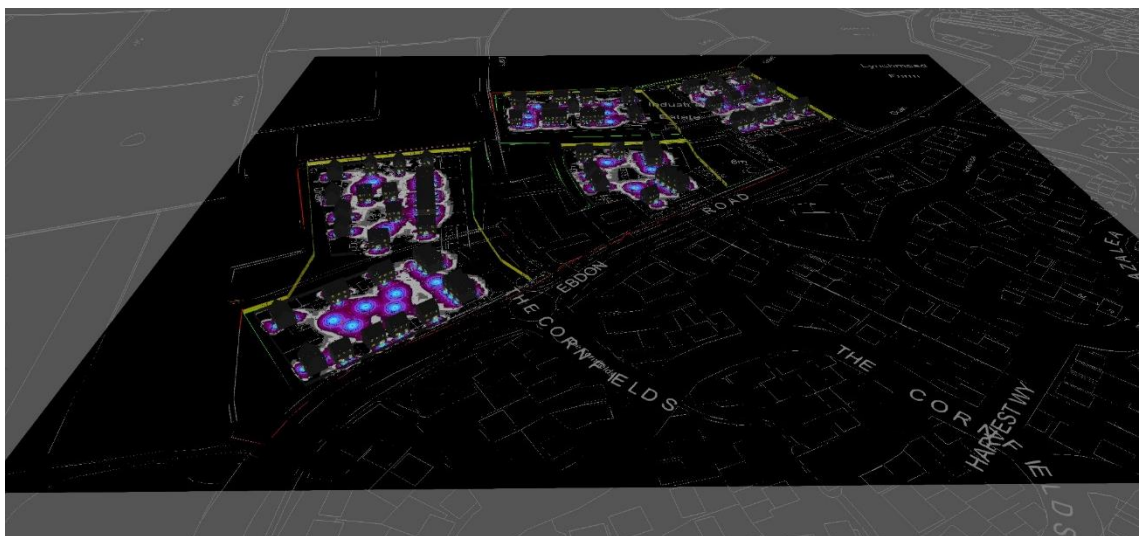


Figure 4.3: 3D view of the calculation model – viewed facing north

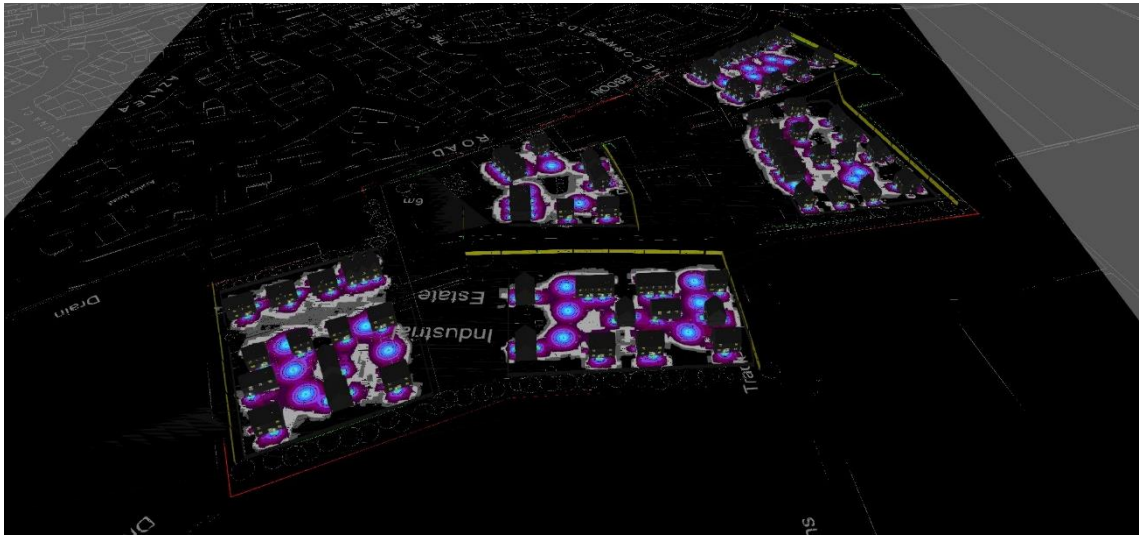


Figure 4.4: 3D view of the calculation model – viewed facing south

5 Conclusion/ Summary

The aim of this Lighting Impact Assessment is to provide an assessment of the impact of the external, internal, and street lighting from the proposed development on sensitive ecological receptors. The report outlines the lighting strategy and mitigation measures that the assessment is based on.

Due to the ecological sensitivity of the site, with light sensitive bat species utilising the site for foraging and commuting, there is a requirement to ensure that dark corridors and zones are maintained. The majority of the site boundaries have been identified as being ecologically sensitive with dark corridors for bats proposed to the north, west and east, in addition to dark corridors that cross the western parcel.

This lighting assessment has been prepared for the outline planning application stage. It is based on an illustrative site layout, and house types provided by the Project Architect. The strategy outlines the proposed lighting (including any assumptions), and mitigation measures to demonstrate predicted impacts on to the proposed dark zones.

It is anticipated that the lighting strategy and assessment will be updated based on the developed/ detailed site layouts at the reserved matters application stage, to ensure that light spill from any street lighting, external lighting and internal light spill from buildings will meet the ecological requirements outlined.

This Lighting Impact Assessment is based on the adoption of the internal, external and street lighting strategy and mitigation measures, including criteria, luminaries, switching methods, lamp types, etc. outlined in this report.

The site has been modelled and calculations provided, using industry standard software. The impact of light spill from internal and external lighting has been calculated using Dialux Evo Lighting Software.

Light spill from the combined internal and external calculated at the edge of the proposed dark zone is predicted to be <math><0.5</math> lux both horizontally at ground level, and vertically on the calculation planes included at each point, with the mitigation measures included.

It should be noted that the calculation model represents the worst case scenario, with all lights switched on simultaneously, no blinds or curtains included, and the screening effect of any vegetation and planting not being included, levels of illuminance will be further reduced when these factors are taken into account.

In conclusion, the lighting impacts from the proposals with the proposed mitigation applied, are not predicted to be significant.



Lighting Terminology

APPENDIX A



Lighting Terminology and Abbreviations

Glossary of terms

For the purpose of this report, the definitions given below apply. For further definitions the International Lighting Vocabulary (ILV), published by the CIE, can be found at <http://eiv.cie.co.at/>

Colour Rendering Index (CRI): A scale of the colour appearance of an object under a particular light source compared to its colour appearance under a reference light source. Expressed on a scale of 1 to 100 Ra, where 100 Ra represents the colour rendering of natural daylight i.e. perfect colour.

Curfew: The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by a government controlling authority, usually the local government (CIE, 2003).

Disability Glare: Glare which impairs the vision of objects but may not cause discomfort.

Discomfort Glare: Glare causing discomfort which may not impair the ability to see objects.

Environmental Zones: Area where specific activities take place or are planned and where specific requirements for the restriction of obtrusive light are recommended. Zones are indicated by the zone rating (E1... E4) (CIE, 2003).

Illuminance: Illuminance is the quantity of light, or luminous flux, falling on a unit area of a surface. It is designated by the symbol E. The unit is the lux (lx). One lux equals one lumen per square metre (lm/m²).

Horizontal Illuminance: Illuminance incident on a horizontal surface or calculation plane.

Vertical Illuminance: Illuminance incident on a vertical surface or calculation plane.

Isolux Diagram: A diagram showing lines joining points of equal illuminance. Sometimes also referred to as Isolines.

Light Pollution: The spillage of light into areas where it is not required.

Light Intrusion: Light that impacts on a surface outside of the area designed to be lit by a lighting installation.

Obtrusive Light: Spill light which because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information (CIE, 2003).

Photocell: A unit which senses light to control luminaires.

Residential Property: Land upon which a dwelling exists (CIE, 2003).



Sky Glow: The brightening of the night sky caused by artificial lighting resulting from the reflection of radiation (visible and non-visible), scattered from the constituents of the atmosphere (gas molecules, aerosols and particulate matter), in the direction of observation. It comprises two separate components as follows:

(a) *Natural sky glow* - That part of the sky glow which is attributable to radiation from celestial sources and luminescent processes in the Earth's upper atmosphere.

(b) *Man-made sky glow* - That part of the sky glow which is attributable to man-made sources of radiation (e.g. outdoor electric lighting), including radiation that is emitted directly upwards and radiation that is reflected from the surface of the Earth (CIE, 2003).

Spill Light (Stray Light): Light emitted by a lighting installation which falls outside the boundaries of the property for which the lighting installation is designed (CIE, 2003).

Upward Light Ratio: The maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.

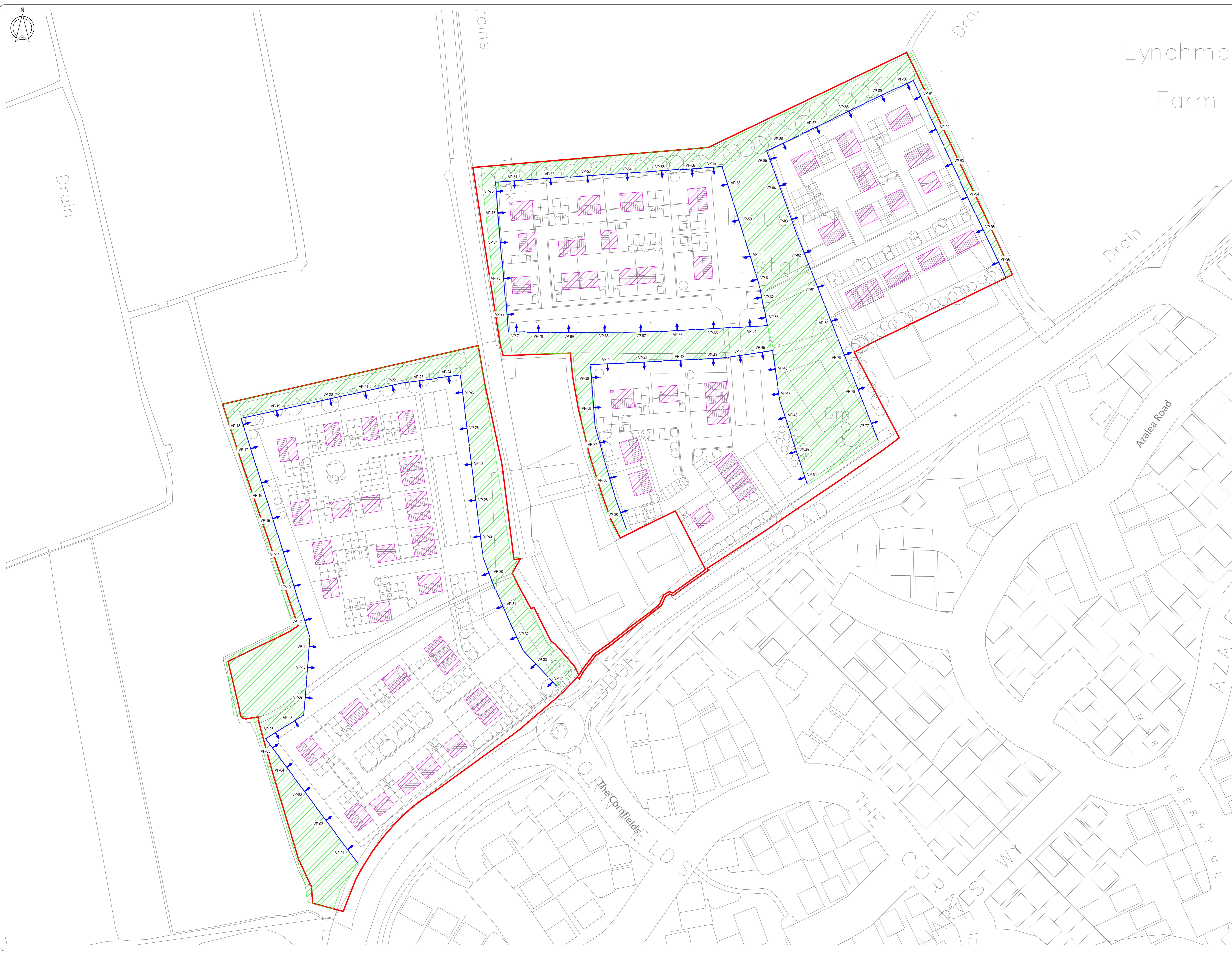
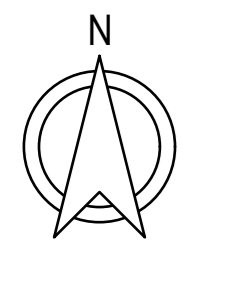
Abbreviations

CIBSE	Chartered Institute of Building Services Engineers
CIE	International Commission on Illumination
CNEA	Clean Neighbourhoods and Environment Act
ILP	Institute of Lighting Professionals
SLL	Society of Light and Lighting



Key Plan Showing Locations
and References for Vertical
Calculation Planes

APPENDIX B



Lynchmead Farm

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- Legend**
- Buildings that have been modeled to assess light spill from internal lighting
 - VPXX = Vertical calculation plane - reference, direction and length denoted
 - Dark corridor - levels of illuminance to be <math>< 0.5 \text{ Lux}</math>
 - Site Boundary

- Notes**
1. Do not scale from this drawing.
 2. All measurements are in millimeters unless stated otherwise.
 3. The vertical calculation planes are 2m high. Refer to plans for length of each vertical calculation plane.
 4. This drawing should be read in conjunction with the Lighting Impact Assessment report.

Rev	Primary Issue	18/08	21/03/21
	Details	By / Revised	Date



CLIENT
Mead Realisations Ltd

PROJECT TITLE
Land at Lynchmead Road
Weston-Super-Mare

DRAWING TITLE
Lighting Impact Assessment
Key Plan Showing Locations and References

SCALE AT A0
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1070-LB-EX-XX-DR-E-7080-01

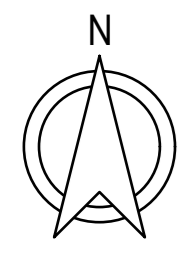
STATUS
Preliminary

DATE
P01



Site Plan showing Levels of Horizontal Illuminance at Ground Level from Combined Light Spill from Internal and External Lighting

APPENDIX C



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Luminaire Legend

- X1 IP44 rated downward directional wall luminaire, mounted at 1.8m AFFL with integrated PIR movement sensor. WALL E PIR in black manufactured by Aurora Lighting or equal and approved.
Fitted with a GU10 lamp holder. Developer to provide an LED 3000K (375 Lumens / Maximum 5.5W) lamp to be installed.
- X2 IP65 3000K LED 1m high downward directional bollard luminaire with 360° distribution. Pharoa DS (1.510m) manufactured by DW Windsor or equal and approved.

Legend

- = Dark corridor - level of illuminance to be <0.5 Lux
- = Site Boundary

Notes

1. This drawing has been provided to show the predicted impact from the combined internal and external lighting proposed. Only the lighting that has the potential to impact on the proposed dark zones been modelled.
2. Luminaire positions are indicative and will be subject to final site layout.
3. Levels of illuminance are calculated and shown at ground level. Calculations are based on luminaires at full output / maintenance factor = 1 to represent the worst case scenario.
4. Isoline contours represent values of illuminance calculated in lux.
5. The figures shown on the contours represent levels of illuminance measured in lux. Lux contours are shown down to a value of 0.2 lux.
6. The lighting design has been provided in accordance with the Client's requirements, instruction and risk assessment. The lighting provided is intended to aid in wayfinding only - and not to provide task illuminance.
7. Luminaires have been specified that have 3000K warm white LED light sources. Downward directional luminaires have been selected, that have 0% upward light output for wall mounted luminaires and 0.02% upward light output for bollard luminaires to limit the impact on bats and to comply with the requirements of an E2 zone.
8. All external wall mounted luminaires to operate via integral PIR motion sensors activated on a short 1 minute timer.
9. This drawing should be read in conjunction with the Lighting Impact Assessment report.
10. Refer to accompanying Designers Risk Assessment for design risks identified.
11. Do not scale from this drawing.
12. All measurements are in millimeters unless stated otherwise.

Rev	Details	By / Revised	Date
P01	Preliminary Issue	18/10/23	21/03/23



CLIENT
Mead Realisations Ltd

PROJECT TITLE
Land at Lynchmead Road
Weston-Super-Mare

DRAWING TITLE
Lighting Impact Assessment
Levels of Horizontal Illuminance Shown at
Ground Level from Internal & External Lighting
Full Output Shown (MF=1)

SCALE AT A0
1:500
DISCIPLINE
Lighting

DRAWING NUMBER
1070-LB-EX-XX-DR-E-7080-11
Project - Discipline - Zone - Level - Type - Note - HWS Class - Sequential Number

STATUS
Preliminary

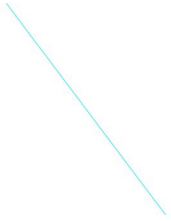
REVISION
P01



Results for Levels of Illuminance
on Vertical Calculation Planes
from Combined Light Spill from
Internal and External Lighting

APPENDIX D

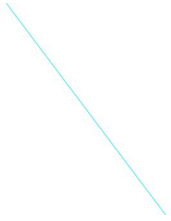
Site 1 (Light scene 1)
Vertical Plane 1



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 1 Perpendicular illuminance (adaptive) Height: 1.000 m	0.036 lx	0.027 lx	0.045 lx	0.75	0.60

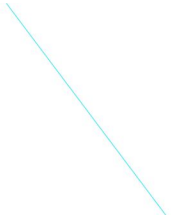
Site 1 (Light scene 1)
Vertical Plane 2




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 2 Perpendicular illuminance (adaptive) Height: 1.000 m	0.080 lx	0.077 lx	0.082 lx	0.96	0.94

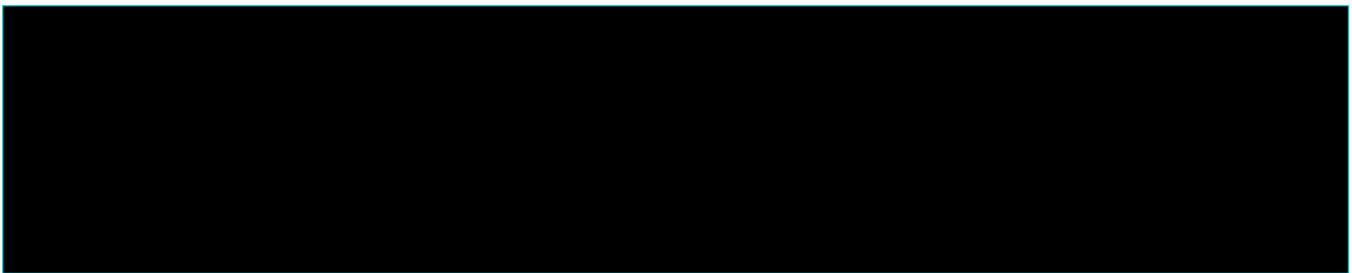
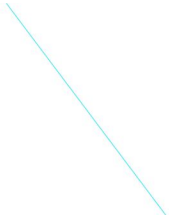
Site 1 (Light scene 1)
Vertical Plane 3



 0.10 [lx]

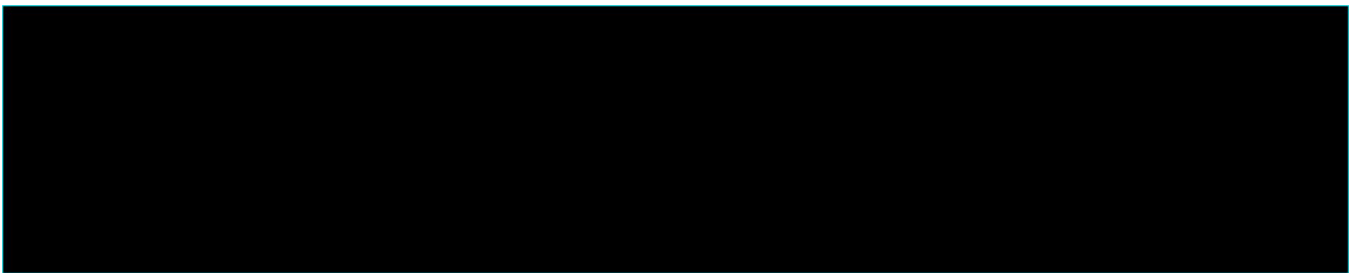
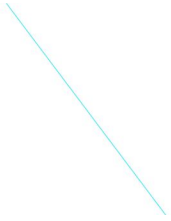
Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 3 Perpendicular illuminance (adaptive) Height: 1.000 m	0.038 lx	0.035 lx	0.044 lx	0.92	0.80

Site 1 (Light scene 1)
Vertical Plane 4



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 4 Perpendicular illuminance (adaptive) Height: 1.000 m	0.088 lx	0.061 lx	0.11 lx	0.69	0.55

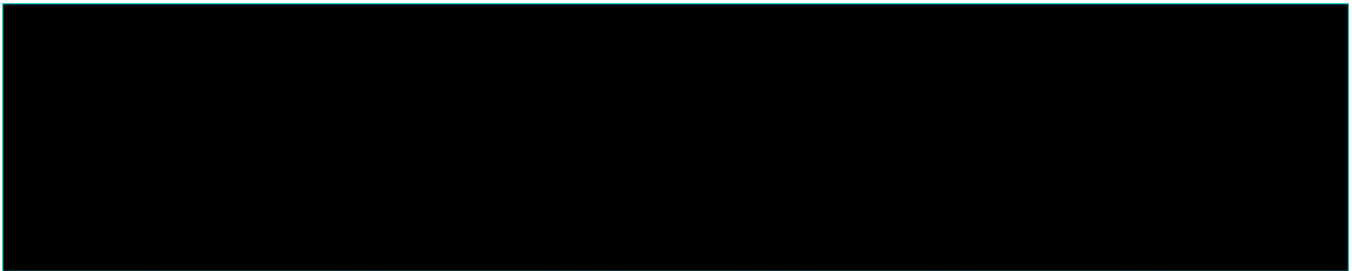
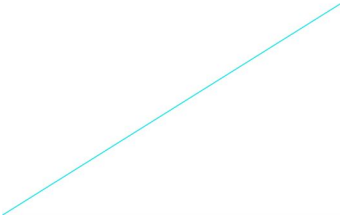
Site 1 (Light scene 1)
Vertical Plane 5



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 5 Perpendicular illuminance (adaptive) Height: 1.000 m	0.020 lx	0.003 lx	0.027 lx	0.15	0.11

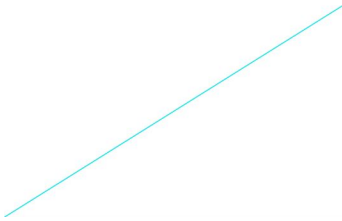
Site 1 (Light scene 1)
Vertical Plane 6



0.10 [lx]

Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 6 Perpendicular illuminance (adaptive) Height: 1.000 m	0.009 lx	0.002 lx	0.011 lx	-	0.18

Site 1 (Light scene 1)
Vertical Plane 7



0.10 [lx]

Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 7 Perpendicular illuminance (adaptive) Height: 1.000 m	0.021 lx	0.007 lx	0.027 lx	0.33	0.26

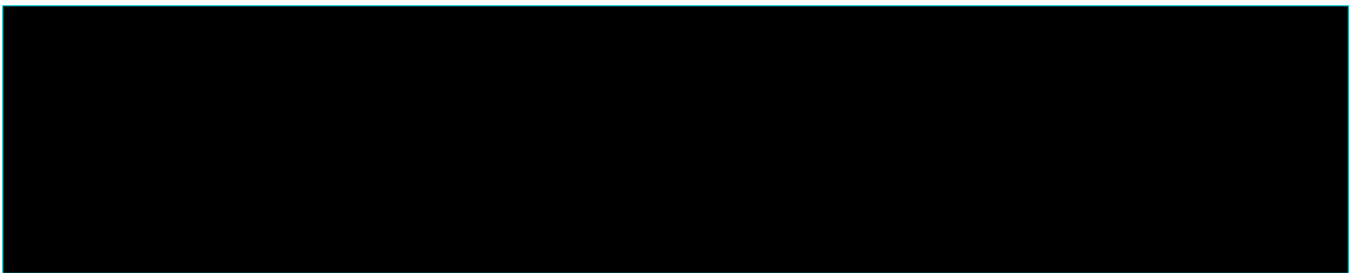
Site 1 (Light scene 1)
Vertical Plane 8




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 8 Perpendicular illuminance (adaptive) Height: 1.000 m	0.036 lx	0.029 lx	0.039 lx	0.81	0.74

Site 1 (Light scene 1)
Vertical Plane 9



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 9 Perpendicular illuminance (adaptive) Height: 1.000 m	0.020 lx	0.009 lx	0.031 lx	0.45	0.29

Site 1 (Light scene 1)

Vertical Plane 10



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 10 Perpendicular illuminance (adaptive) Height: 1.000 m	0.018 lx	0.011 lx	0.025 lx	0.61	0.44

Site 1 (Light scene 1)
Vertical Plane 11



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 11 Perpendicular illuminance (adaptive) Height: 1.000 m	0.026 lx	0.013 lx	0.029 lx	0.50	0.45

Site 1 (Light scene 1)

Vertical Plane 12



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 12 Perpendicular illuminance (adaptive) Height: 1.000 m	0.075 lx	0.062 lx	0.079 lx	0.83	0.78

Site 1 (Light scene 1)

Vertical Plane 13



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 13 Perpendicular illuminance (adaptive) Height: 1.000 m	0.055 lx	0.054 lx	0.055 lx	0.98	0.98

Site 1 (Light scene 1)

Vertical Plane 14



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 14 Perpendicular illuminance (adaptive) Height: 1.000 m	0.092 lx	0.071 lx	0.099 lx	0.77	0.72

Site 1 (Light scene 1)

Vertical Plane 15



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 15 Perpendicular illuminance (adaptive) Height: 1.000 m	0.032 lx	0.013 lx	0.043 lx	0.41	0.30

Site 1 (Light scene 1)

Vertical Plane 16



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 16 Perpendicular illuminance (adaptive) Height: 1.000 m	0.048 lx	0.047 lx	0.048 lx	0.98	0.98

Site 1 (Light scene 1)
Vertical Plane 17



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 17 Perpendicular illuminance (adaptive) Height: 1.000 m	0.017 lx	0.003 lx	0.025 lx	0.18	0.12

Site 1 (Light scene 1)

Vertical Plane 18



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 18 Perpendicular illuminance (adaptive) Height: 1.000 m	0.018 lx	0.014 lx	0.019 lx	0.78	0.74

Site 1 (Light scene 1)

Vertical Plane 19




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 19 Perpendicular illuminance (adaptive) Height: 1.000 m	0.033 lx	0.032 lx	0.033 lx	0.97	0.97

Site 1 (Light scene 1)

Vertical Plane 20



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 20 Perpendicular illuminance (adaptive) Height: 1.000 m	0.061 lx	0.031 lx	0.065 lx	0.51	0.48

Site 1 (Light scene 1)

Vertical Plane 21



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 21 Perpendicular illuminance (adaptive) Height: 1.000 m	0.054 lx	0.051 lx	0.056 lx	0.94	0.91

Site 1 (Light scene 1)
Vertical Plane 22



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 22 Perpendicular illuminance (adaptive) Height: 1.000 m	0.072 lx	0.062 lx	0.074 lx	0.86	0.84

Site 1 (Light scene 1)

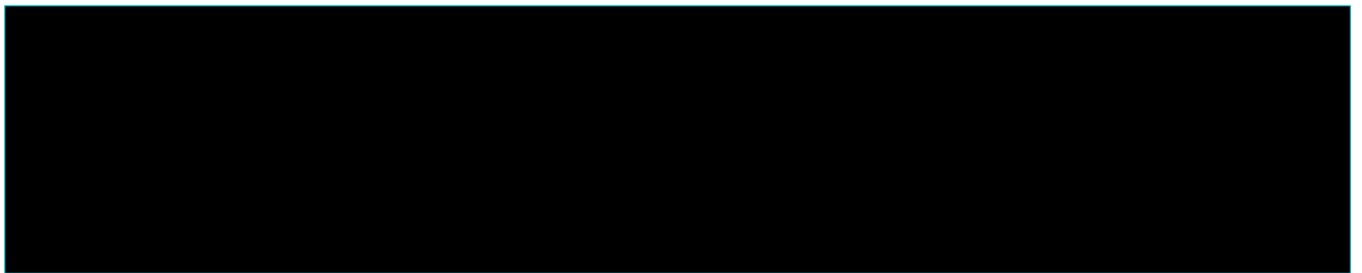
Vertical Plane 23



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 23 Perpendicular illuminance (adaptive) Height: 1.000 m	0.034 lx	0.031 lx	0.036 lx	0.91	0.86

Site 1 (Light scene 1)
Vertical Plane 24



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 24 Perpendicular illuminance (adaptive) Height: 1.000 m	0.046 lx	0.010 lx	0.057 lx	0.22	0.18

Site 1 (Light scene 1)

Vertical Plane 25



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 25 Perpendicular illuminance (adaptive) Height: 1.000 m	0.045 lx	0.037 lx	0.048 lx	0.82	0.77

Site 1 (Light scene 1)

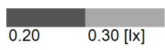
Vertical Plane 26



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 26 Perpendicular illuminance (adaptive) Height: 1.000 m	0.14 lx	0.14 lx	0.14 lx	1.00	1.00

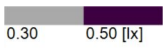
Site 1 (Light scene 1)
Vertical Plane 27



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 27 Perpendicular illuminance (adaptive) Height: 1.000 m	0.26 lx	0.25 lx	0.27 lx	0.96	0.93

Site 1 (Light scene 1)

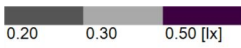
Vertical Plane 28



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 28 Perpendicular illuminance (adaptive) Height: 1.000 m	0.34 lx	0.33 lx	0.34 lx	0.97	0.97

Site 1 (Light scene 1)

Vertical Plane 29



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 29 Perpendicular illuminance (adaptive) Height: 1.000 m	0.30 lx	0.29 lx	0.31 lx	0.97	0.94

Site 1 (Light scene 1)

Vertical Plane 30



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 30 Perpendicular illuminance (adaptive) Height: 1.000 m	0.17 lx	0.17 lx	0.17 lx	1.00	1.00

Site 1 (Light scene 1)

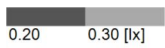
Vertical Plane 31



0.20 [lx]

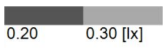
Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 31 Perpendicular illuminance (adaptive) Height: 1.000 m	0.19 lx	0.18 lx	0.19 lx	0.95	0.95

Site 1 (Light scene 1)
Vertical Plane 32



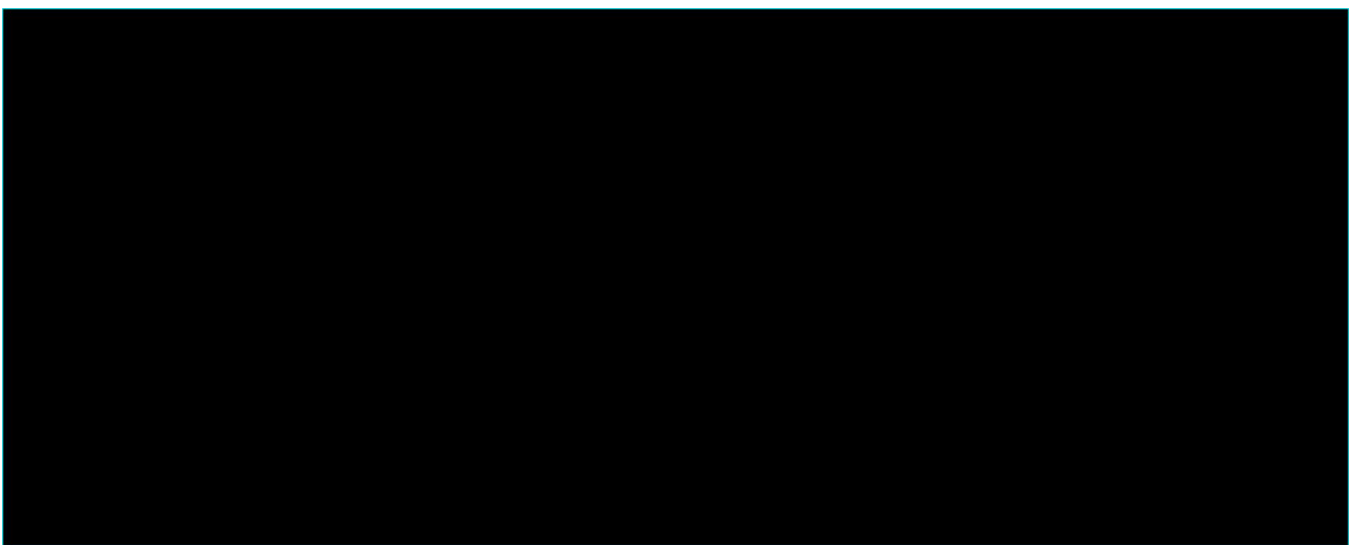
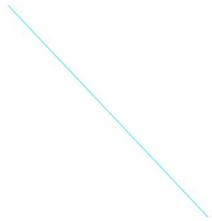
Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 32 Perpendicular illuminance (adaptive) Height: 1.000 m	0.20 lx	0.16 lx	0.21 lx	0.80	0.76

Site 1 (Light scene 1)
Vertical Plane 33



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 33 Perpendicular illuminance (adaptive) Height: 1.000 m	0.20 lx	0.19 lx	0.20 lx	0.95	0.95

Site 1 (Light scene 1)
Vertical Plane 34



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 34 Perpendicular illuminance (adaptive) Height: 1.000 m	0.16 lx	0.13 lx	0.16 lx	0.81	0.81

Site 1 (Light scene 1)

Vertical Plane 35



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 35 Perpendicular illuminance (adaptive) Height: 1.000 m	0.030 lx	0.029 lx	0.031 lx	0.97	0.94

Site 1 (Light scene 1)

Vertical Plane 36



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 36 Perpendicular illuminance (adaptive) Height: 1.000 m	0.10 lx	0.10 lx	0.10 lx	1.00	1.00

Site 1 (Light scene 1)
Vertical Plane 37

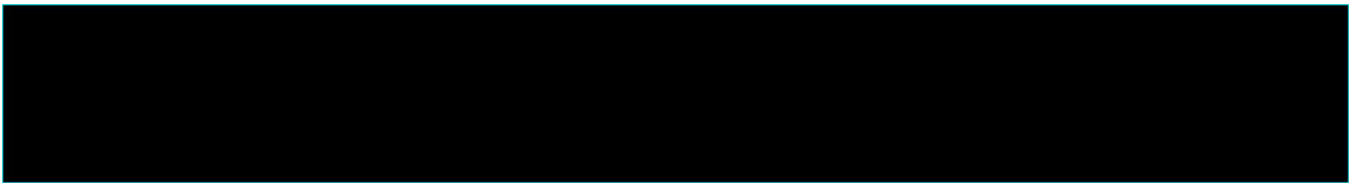



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 37 Perpendicular illuminance (adaptive) Height: 1.000 m	0.052 lx	0.051 lx	0.053 lx	0.98	0.96

Site 1 (Light scene 1)

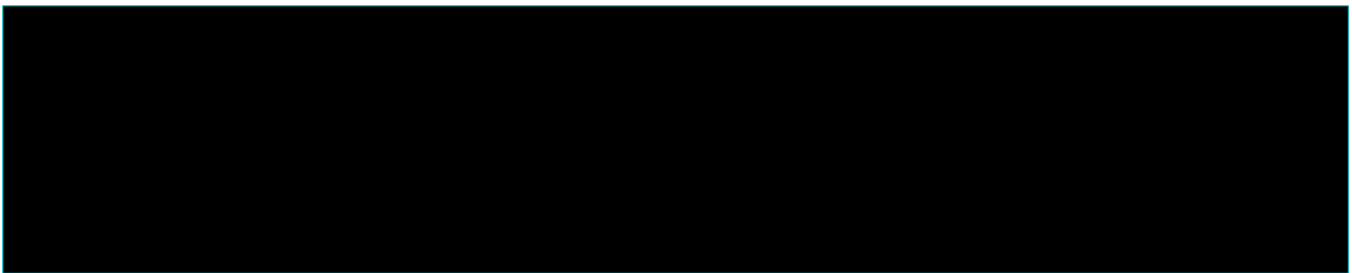
Vertical Plane 38



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 38 Perpendicular illuminance (adaptive) Height: 1.000 m	0.033 lx	0.030 lx	0.036 lx	0.91	0.83

Site 1 (Light scene 1)
Vertical Plane 39



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 39 Perpendicular illuminance (adaptive) Height: 1.000 m	0.037 lx	0.015 lx	0.041 lx	0.41	0.37

Site 1 (Light scene 1)

Vertical Plane 40



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 40 Perpendicular illuminance (adaptive) Height: 1.000 m	0.050 lx	0.047 lx	0.053 lx	0.94	0.89

Site 1 (Light scene 1)

Vertical Plane 41



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 41 Perpendicular illuminance (adaptive) Height: 1.000 m	0.045 lx	0.041 lx	0.049 lx	0.91	0.84

Site 1 (Light scene 1)

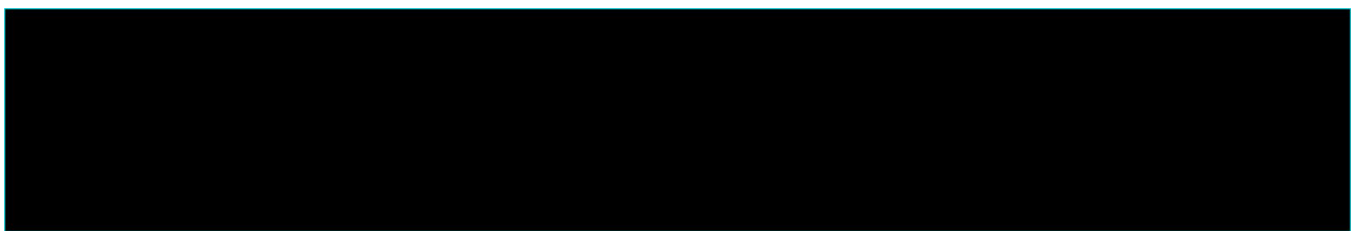
Vertical Plane 42



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 42 Perpendicular illuminance (adaptive) Height: 1.000 m	0.035 lx	0.020 lx	0.051 lx	0.57	0.39

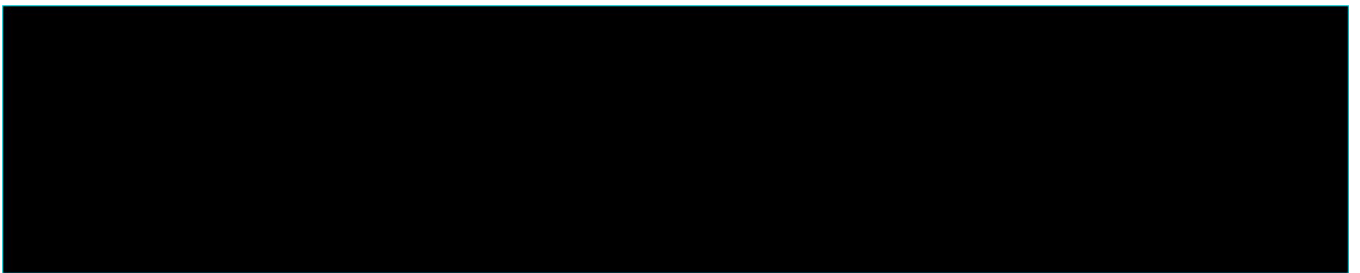
Site 1 (Light scene 1)
Vertical Plane 43




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 43 Perpendicular illuminance (adaptive) Height: 1.000 m	0.015 lx	0.009 lx	0.016 lx	0.60	0.56

Site 1 (Light scene 1)
Vertical Plane 44



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 44 Perpendicular illuminance (adaptive) Height: 1.000 m	0.082 lx	0.035 lx	0.091 lx	0.43	0.38

Site 1 (Light scene 1)
Vertical Plane 45



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 45 Perpendicular illuminance (adaptive) Height: 1.000 m	0.080 lx	0.005 lx	0.094 lx	0.063	0.053

Site 1 (Light scene 1)

Vertical Plane 46



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 46 Perpendicular illuminance (adaptive) Height: 1.000 m	0.16 lx	0.16 lx	0.16 lx	1.00	1.00

Site 1 (Light scene 1)
Vertical Plane 47



0.20 0.30 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 47 Perpendicular illuminance (adaptive) Height: 1.000 m	0.26 lx	0.23 lx	0.27 lx	0.88	0.85

Site 1 (Light scene 1)

Vertical Plane 48

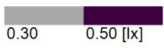


0.20 0.30 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 48 Perpendicular illuminance (adaptive) Height: 1.000 m	0.26 lx	0.26 lx	0.26 lx	1.00	1.00

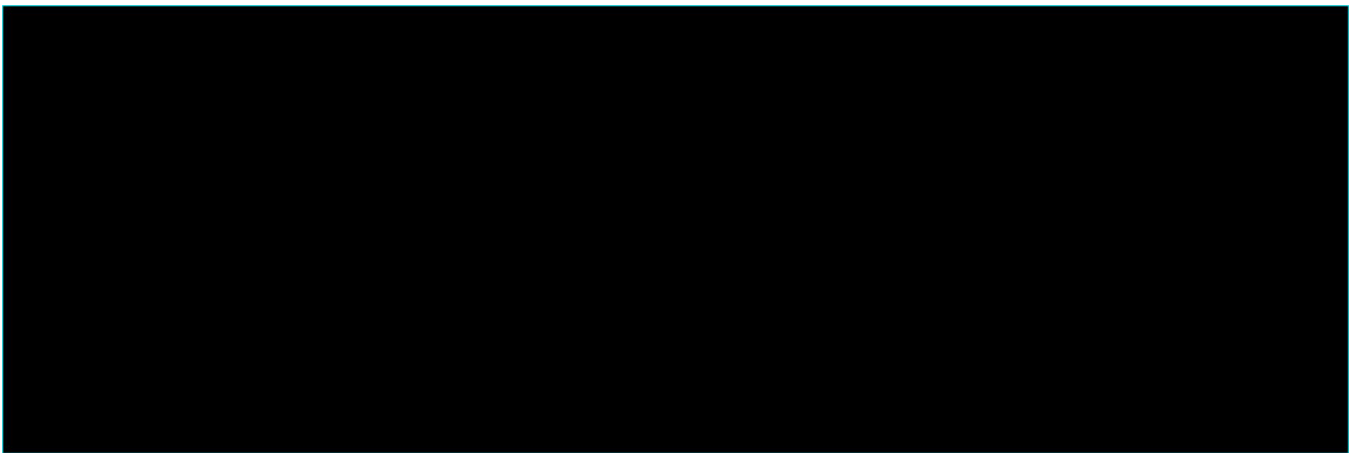
Site 1 (Light scene 1)

Vertical Plane 49



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 49 Perpendicular illuminance (adaptive) Height: 1.000 m	0.32 lx	0.32 lx	0.33 lx	1.00	0.97

Site 1 (Light scene 1)
Vertical Plane 50



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 50 Perpendicular illuminance (adaptive) Height: 1.000 m	0.18 lx	0.18 lx	0.18 lx	1.00	1.00

Site 1 (Light scene 1)

Vertical Plane 51



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 51 Perpendicular illuminance (adaptive) Height: 1.000 m	0.044 lx	0.036 lx	0.048 lx	0.82	0.75

Site 1 (Light scene 1)

Vertical Plane 52



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 52 Perpendicular illuminance (adaptive) Height: 1.000 m	0.025 lx	0.022 lx	0.030 lx	0.88	0.73

Site 1 (Light scene 1)

Vertical Plane 53



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 53 Perpendicular illuminance (adaptive) Height: 1.000 m	0.061 lx	0.046 lx	0.068 lx	0.75	0.68

Site 1 (Light scene 1)

Vertical Plane 54



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 54 Perpendicular illuminance (adaptive) Height: 1.000 m	0.047 lx	0.037 lx	0.052 lx	0.79	0.71

Site 1 (Light scene 1)

Vertical Plane 55



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 55 Perpendicular illuminance (adaptive) Height: 1.000 m	0.020 lx	0.015 lx	0.025 lx	0.75	0.60

Site 1 (Light scene 1)

Vertical Plane 56



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 56 Perpendicular illuminance (adaptive) Height: 1.000 m	0.009 lx	0.007 lx	0.011 lx	-	0.64

Site 1 (Light scene 1)

Vertical Plane 57



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 57 Perpendicular illuminance (adaptive) Height: 1.000 m	0.026 lx	0.024 lx	0.027 lx	0.92	0.89

Site 1 (Light scene 1)

Vertical Plane 58



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 58 Perpendicular illuminance (adaptive) Height: 1.000 m	0.027 lx	0.005 lx	0.039 lx	0.19	0.13

Site 1 (Light scene 1)

Vertical Plane 59



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 59 Perpendicular illuminance (adaptive) Height: 1.000 m	0.034 lx	0.017 lx	0.039 lx	0.50	0.44

Site 1 (Light scene 1)

Vertical Plane 60



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 60 Perpendicular illuminance (adaptive) Height: 1.000 m	0.029 lx	0.005 lx	0.039 lx	0.17	0.13

Site 1 (Light scene 1)
Vertical Plane 61

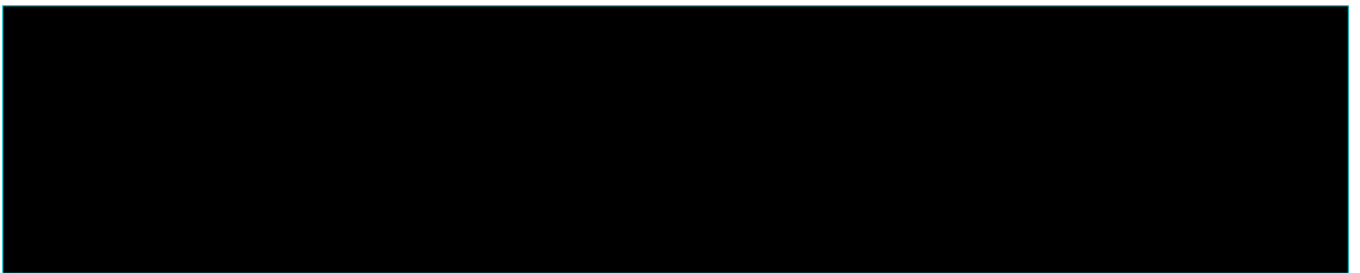


0.10 [lx]

Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 61 Perpendicular illuminance (adaptive) Height: 1.000 m	0.024 lx	0.007 lx	0.030 lx	0.29	0.23

Site 1 (Light scene 1)

Vertical Plane 62



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 62 Perpendicular illuminance (adaptive) Height: 1.000 m	0.030 lx	0.012 lx	0.044 lx	0.40	0.27

Site 1 (Light scene 1)
Vertical Plane 63



0.10 [lx]

Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 63 Perpendicular illuminance (adaptive) Height: 1.000 m	0.048 lx	0.043 lx	0.053 lx	0.90	0.81

Site 1 (Light scene 1)
Vertical Plane 64



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 64 Perpendicular illuminance (adaptive) Height: 1.000 m	0.034 lx	0.033 lx	0.035 lx	0.97	0.94

Site 1 (Light scene 1)

Vertical Plane 65




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 65 Perpendicular illuminance (adaptive) Height: 1.000 m	0.066 lx	0.056 lx	0.076 lx	0.85	0.74

Site 1 (Light scene 1)

Vertical Plane 66



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 66 Perpendicular illuminance (adaptive) Height: 1.000 m	0.16 lx	0.15 lx	0.16 lx	0.94	0.94



Site 1 (Light scene 1)
Vertical Plane 67



0.20 0.30 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 67 Perpendicular illuminance (adaptive) Height: 1.000 m	0.24 lx	0.24 lx	0.25 lx	1.00	0.96

Site 1 (Light scene 1)

Vertical Plane 68



0.20 0.30 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 68 Perpendicular illuminance (adaptive) Height: 1.000 m	0.26 lx	0.25 lx	0.26 lx	0.96	0.96

Site 1 (Light scene 1)

Vertical Plane 69



0.20 0.30 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 69 Perpendicular illuminance (adaptive) Height: 1.000 m	0.27 lx	0.26 lx	0.29 lx	0.96	0.90

Site 1 (Light scene 1)
Vertical Plane 70



0.20 0.30 [lx]

Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 70 Perpendicular illuminance (adaptive) Height: 1.000 m	0.23 lx	0.21 lx	0.24 lx	0.91	0.88

Site 1 (Light scene 1)
Vertical Plane 71



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 71 Perpendicular illuminance (adaptive) Height: 1.000 m	0.18 lx	0.17 lx	0.20 lx	0.94	0.85

Site 1 (Light scene 1)
Vertical Plane 72



Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 72 Perpendicular illuminance (adaptive) Height: 1.000 m	0.14 lx	0.040 lx	0.17 lx	0.29	0.24

Site 1 (Light scene 1)

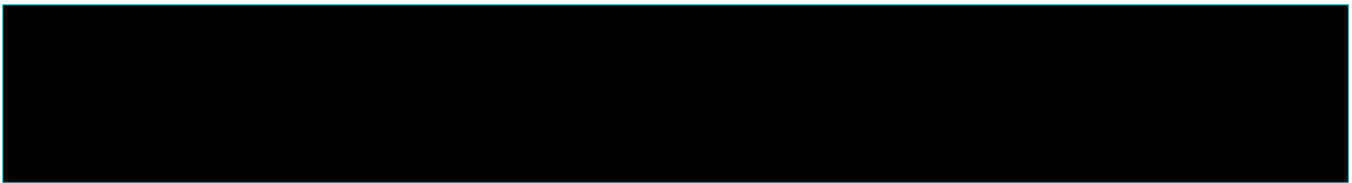
Vertical Plane 73



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 73 Perpendicular illuminance (adaptive) Height: 1.000 m	0.023 lx	0.008 lx	0.039 lx	0.35	0.21

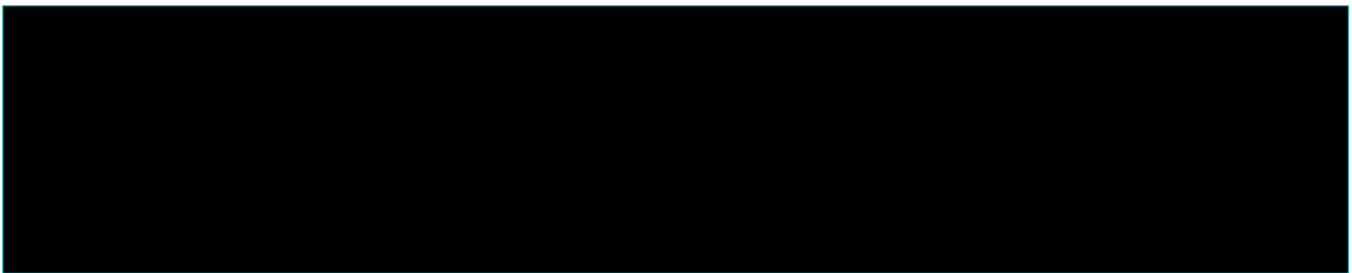
Site 1 (Light scene 1)
Vertical Plane 74



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 74 Perpendicular illuminance (adaptive) Height: 1.000 m	0.062 lx	0.060 lx	0.064 lx	0.97	0.94

Site 1 (Light scene 1)
Vertical Plane 75



 0.10 [lx]

Properties	\bar{E}	E_{min}	E_{max}	g_1	g_2
Vertical Plane 75 Perpendicular illuminance (adaptive) Height: 1.000 m	0.014 lx	0.013 lx	0.015 lx	0.93	0.87

Site 1 (Light scene 1)
Vertical Plane 76



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 76 Perpendicular illuminance (adaptive) Height: 1.000 m	0.014 lx	0.014 lx	0.015 lx	1.00	0.93

Site 1 (Light scene 1)

Vertical Plane 77



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 77 Perpendicular illuminance (adaptive) Height: 1.000 m	0.006 lx	0.006 lx	0.006 lx	-	-

Site 1 (Light scene 1)

Vertical Plane 78



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 78 Perpendicular illuminance (adaptive) Height: 1.000 m	0.006 lx	0.002 lx	0.007 lx	-	-

Site 1 (Light scene 1)

Vertical Plane 79



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 79 Perpendicular illuminance (adaptive) Height: 1.000 m	0.005 lx	0.004 lx	0.006 lx	-	-

Site 1 (Light scene 1)

Vertical Plane 80




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 80 Perpendicular illuminance (adaptive) Height: 1.000 m	0.031 lx	0.023 lx	0.033 lx	0.74	0.70

Site 1 (Light scene 1)

Vertical Plane 81



0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 81 Perpendicular illuminance (adaptive) Height: 1.000 m	0.19 lx	0.19 lx	0.19 lx	1.00	1.00

Site 1 (Light scene 1)

Vertical Plane 82




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 82 Perpendicular illuminance (adaptive) Height: 1.000 m	0.082 lx	0.079 lx	0.084 lx	0.96	0.94

Site 1 (Light scene 1)

Vertical Plane 83




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 83 Perpendicular illuminance (adaptive) Height: 1.000 m	0.015 lx	0.011 lx	0.016 lx	0.73	0.69

Site 1 (Light scene 1)

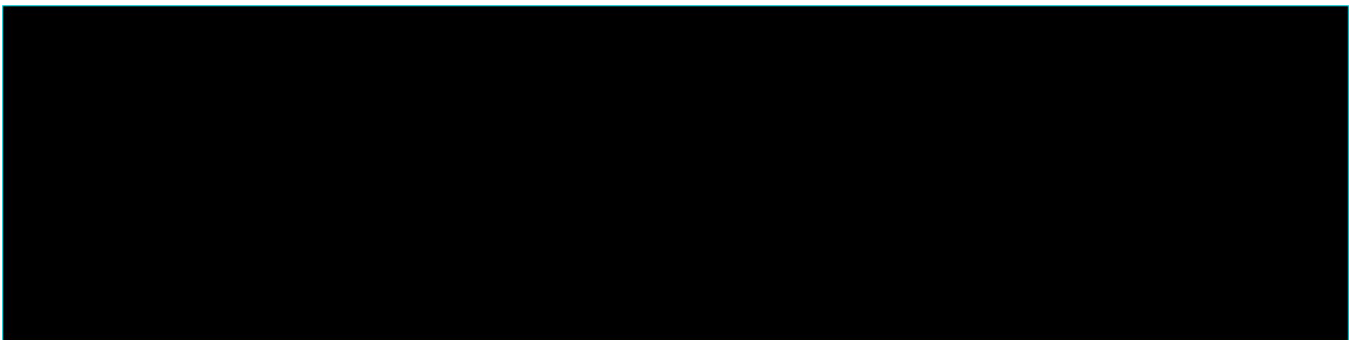
Vertical Plane 84



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 84 Perpendicular illuminance (adaptive) Height: 1.000 m	0.018 lx	0.017 lx	0.019 lx	0.94	0.89

Site 1 (Light scene 1)
Vertical Plane 85

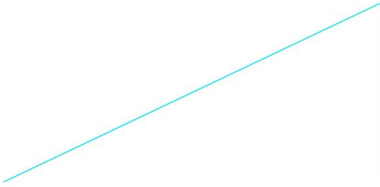


0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 85 Perpendicular illuminance (adaptive) Height: 1.000 m	0.012 lx	0.012 lx	0.012 lx	1.00	1.00

Site 1 (Light scene 1)

Vertical Plane 86

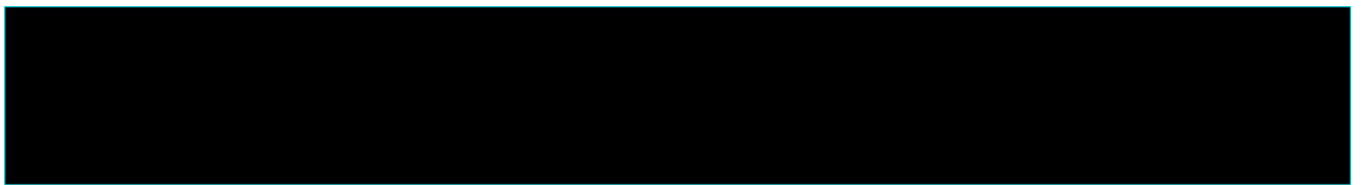
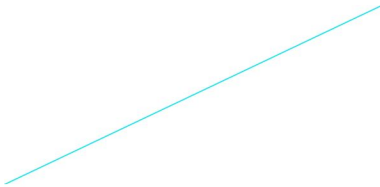



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 86 Perpendicular illuminance (adaptive) Height: 1.000 m	0.049 lx	0.036 lx	0.055 lx	0.73	0.65

Site 1 (Light scene 1)

Vertical Plane 87

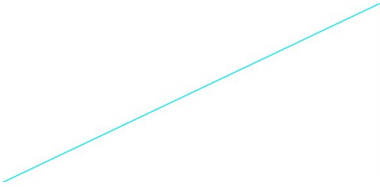



0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 87 Perpendicular illuminance (adaptive) Height: 1.000 m	0.031 lx	0.017 lx	0.034 lx	0.55	0.50

Site 1 (Light scene 1)

Vertical Plane 88

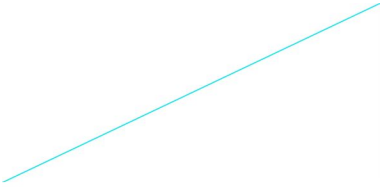


0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 88 Perpendicular illuminance (adaptive) Height: 1.000 m	0.021 lx	0.018 lx	0.023 lx	0.86	0.78

Site 1 (Light scene 1)

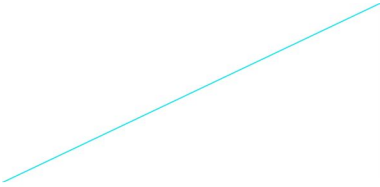
Vertical Plane 89




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 89 Perpendicular illuminance (adaptive) Height: 1.000 m	0.051 lx	0.048 lx	0.053 lx	0.94	0.91

Site 1 (Light scene 1)
Vertical Plane 90



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 90 Perpendicular illuminance (adaptive) Height: 1.000 m	0.010 lx	0.007 lx	0.020 lx	0.70	0.35

Site 1 (Light scene 1)

Vertical Plane 91



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 91 Perpendicular illuminance (adaptive) Height: 1.000 m	0.057 lx	0.044 lx	0.063 lx	0.77	0.70

Site 1 (Light scene 1)

Vertical Plane 92




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 92 Perpendicular illuminance (adaptive) Height: 1.000 m	0.033 lx	0.029 lx	0.035 lx	0.88	0.83

Site 1 (Light scene 1)
Vertical Plane 93




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 93 Perpendicular illuminance (adaptive) Height: 1.000 m	0.014 lx	0.006 lx	0.018 lx	0.43	0.33

Site 1 (Light scene 1)

Vertical Plane 94



0.10 0.20 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 94 Perpendicular illuminance (adaptive) Height: 1.000 m	0.16 lx	0.079 lx	0.17 lx	0.49	0.46

Site 1 (Light scene 1)

Vertical Plane 95



 0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 95 Perpendicular illuminance (adaptive) Height: 1.000 m	0.072 lx	0.065 lx	0.084 lx	0.90	0.77

Site 1 (Light scene 1)

Vertical Plane 96




0.10 [lx]

Properties	\bar{E}	E_{\min}	E_{\max}	g_1	g_2
Vertical Plane 96 Perpendicular illuminance (adaptive) Height: 1.000 m	0.037 lx	0.027 lx	0.041 lx	0.73	0.66



Luminaire Data Sheets and
Manufacturers Data

APPENDIX E



Pharola DS

for dark skies compliant
schemes



Pharola DS

IP66 | IK10 | CLASS I

Features:

- 0% ULOR
- International Dark Sky Association approved (3,000K CCT only)
- Slim and elegant, yet sturdy and robust
- 4,000k neutral and 3,000k warm white options available

Options:

Pharola DS (1m)

Pharola DS (2.2m)

Optical control:

Symmetric

Light Source:

9 x high power LEDs up to 1,523lm (4,000K) and 1,477lm (3,000K)

L70 lifetime prediction:

In excess of 100,000 hours

Total circuit watts:

20W

Colour temperature:

4,000K (neutral white) or 3,000K (warm white)

Colour rendering index:

>70Ra (4,000K) >80Ra (3,000K)

Upward light output ratio (ULOR):

0%



Mounting:

Integral root (as standard)

Flange / buried flange mount

Switching and control:

Switch: On/off

Colours:

DB703 Textured metallic dark grey

RAL 9005 Black

RAL 9006 Textured aluminium

RAL 9007 Textured metallic grey

RAL 9016 White

Other RAL colours available on special request

Materials:

Head components: Aluminium

Bollard base: Galvanised steel

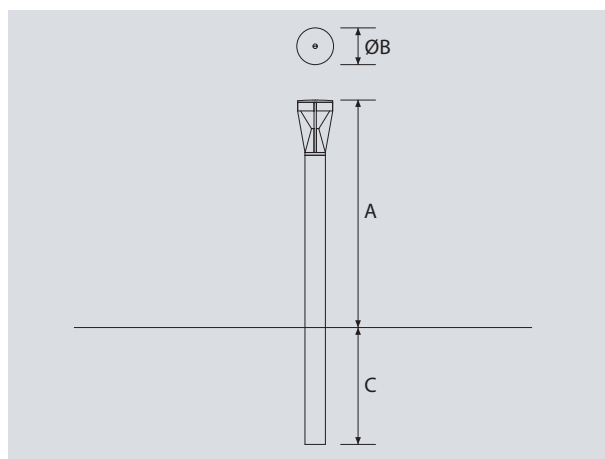
Seals: Silicone

Glazing: Toughened glass

Finish: Fine texture polyester powder coat

Installation and maintenance:

Supplied with single flexible cable for easy installation



	Dimensions (mm)			Weight (kg)
	A	B	C	
Pharola DS 1	1000	89	500	15
Pharola DS 2	2200	89	500	23

DW Windsor

Pindar Road, Hoddesdon, Hertfordshire, EN11 ODX

T: +44(0)1992 474600 | E: info@dw Windsor.com

dw Windsor.com



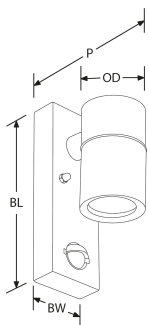


Product Description: WallE™ PIR IP44 Down Wall Light

The PIR sensor wall light makes it ideal for accent lighting focusing on areas or features you want to light up, only at times when motion is detected up to 8m within it's 120° detection range. Fitted with a GU10 lamp holder to allow you to select the correct lamp for the application. Available in white, black or stainless steel finish. Not suitable for coastal application.

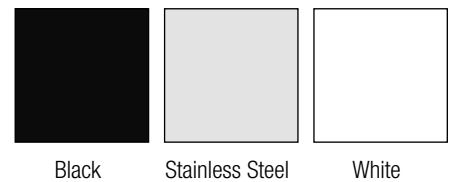
SKU Code	Finish Colour	SKU Type
EN-WL6BLK	BLACK	PIR
EN-WL6SS	STAINLESS STEEL	PIR
EN-WL6W	WHITE	PIR

Line Drawing



Polar Curve

Colour



Black

Stainless Steel

White

Product Features:

- 304 stainless steel or aluminium
- IP44 rated
- PIR sensor 120° detection beam range up to 8m
- Adjustable hold time 10 seconds to 4 minutes
- Screw on cover for easy lamp change
- For use with GU10 lamps - lamp not included
- 3 year warranty

Product Specs:

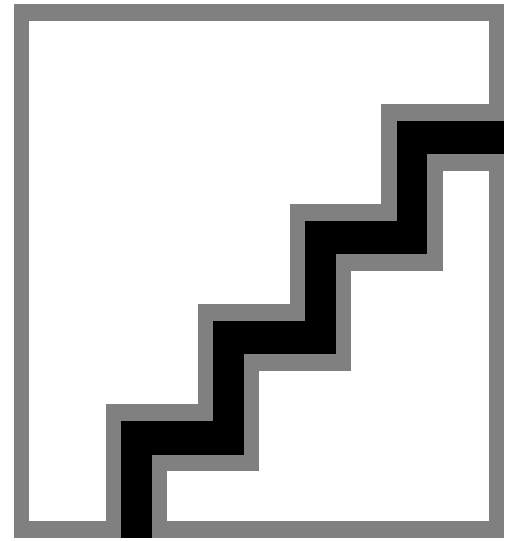
Input Voltage	220~240V	IP Rating	IP44
Length (mm)	80	Overall Diameter (mm)	60
Weight (Kg)	0.489	Projection (mm)	96
Product Type	Wall Lights		

Compliance & Approvals:



Warranty:

This product has a warranty period of 3 Years. Warranties may be available on certain products as indicated in the product description. Warranties are valid from the date of purchase. The warranty is invalid in the case of improper use, installation, tampering, removal of the Q.C. date label or installation in an improper working environment or installation. Should this product fail during the warranty period it will be replaced free of charge, subject to the correct installation of the original product and subsequent return of the faulty unit. Aurora does not accept responsibility for any installation costs associated with the replacement of this product and Aurora reserves the right to alter specifications without prior notice.



CorePro LEDspot MV



Corepro LEDspot 4.6-50W GU10 827 36D UK

CorePro LEDspots are a perfect fit for spot lighting and deliver warm halogen-like light. They are compatible with most existing fixtures with a GU10 or E14 holder and are designed as a retrofit replacement for halogen or incandescent spots. LEDlamps deliver huge energy savings and minimize maintenance cost.

Product data

General information		Power (Rated) (Nom)	
Cap base	GU10 [GU10]		4.6 W
EU RoHS compliant	Yes	Lamp current (nom.)	39 mA
Nominal lifetime (nom.)	15000 h	Wattage equivalent	50 W
Switching cycle	50000	Starting time (nom.)	0.5 s
Technical type	4.6-50W	Warm-up time to 60% light (nom.)	0.5 s
Tier	CorePro	Power factor (nom.)	0.5
		Voltage (Nom)	220-240 V
Light technical		Temperature	
Colour Code	827 [CCT of 2,700 K]	T-Case maximum (nom.)	80 °C
Beam Angle (Nom)	36 °		
Luminous flux (nom.)	355 lm	Controls and dimming	
Luminous intensity (nom.)	700 cd	Dimmable	No
Colour designation	Warm white (WW)		
Correlated Colour Temperature (Nom)	2700 K	Mechanical and housing	
Luminous efficacy (rated) (nom.)	77.00 lm/W	Bulb shape	PAR16 [PAR 2 inch]
Colour consistency	<6		
Colour rendering index (nom.)	80	Approval and application	
LLMF at end of nominal lifetime (nom.)	70 %	Energy Efficiency Class	F
Luminous flux in 90° cone (rated)	355 lm	Suitable for accent lighting	Yes
Operating and electrical		Energy consumption kWh/1,000 hours	5 kWh
Input frequency	50 to 60 Hz		387358

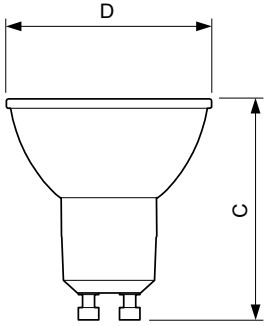
CorePro LEDspot MV

Product data

Full product code	871869675251701
Order product name	Corepro LEDspot 4.6-50W GU10 827 36D UK
EAN/UPC – product	8718696752517
Order code	75251701
SAP numerator – quantity per pack	1

Numerator – packs per outer box	10
SAP material	929001215268
Net Weight (Piece)	0.045 kg

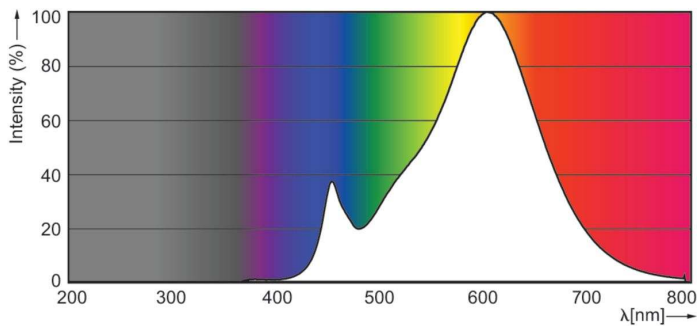
Dimensional drawing



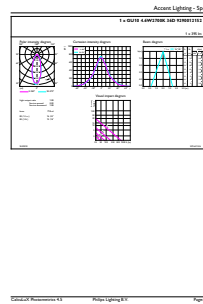
Corepro LEDspot 4.6-50W GU10 827 36D UK

Product	D	C
Corepro LEDspot 4.6-50W GU10 827 36D UK	50 mm	54 mm

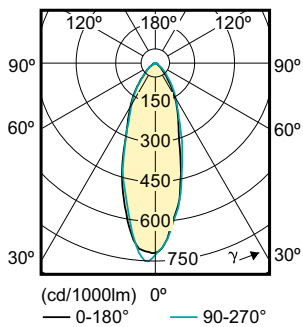
Photometric data



Spectral Power Distribution Colour



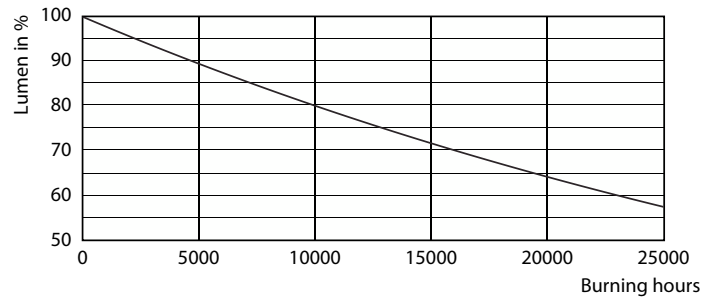
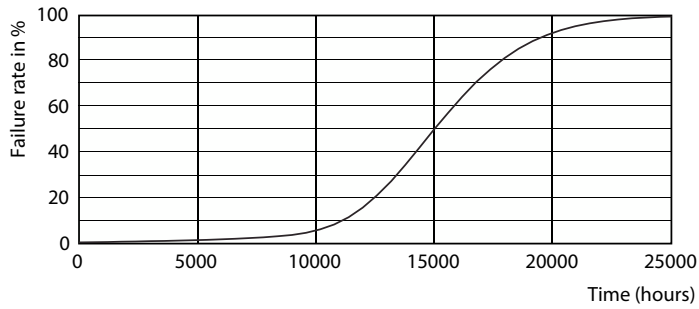
Accent Lighting Spots



Light Distribution Diagram

CorePro LEDspot MV

Lifetime



Life Expectancy Diagram

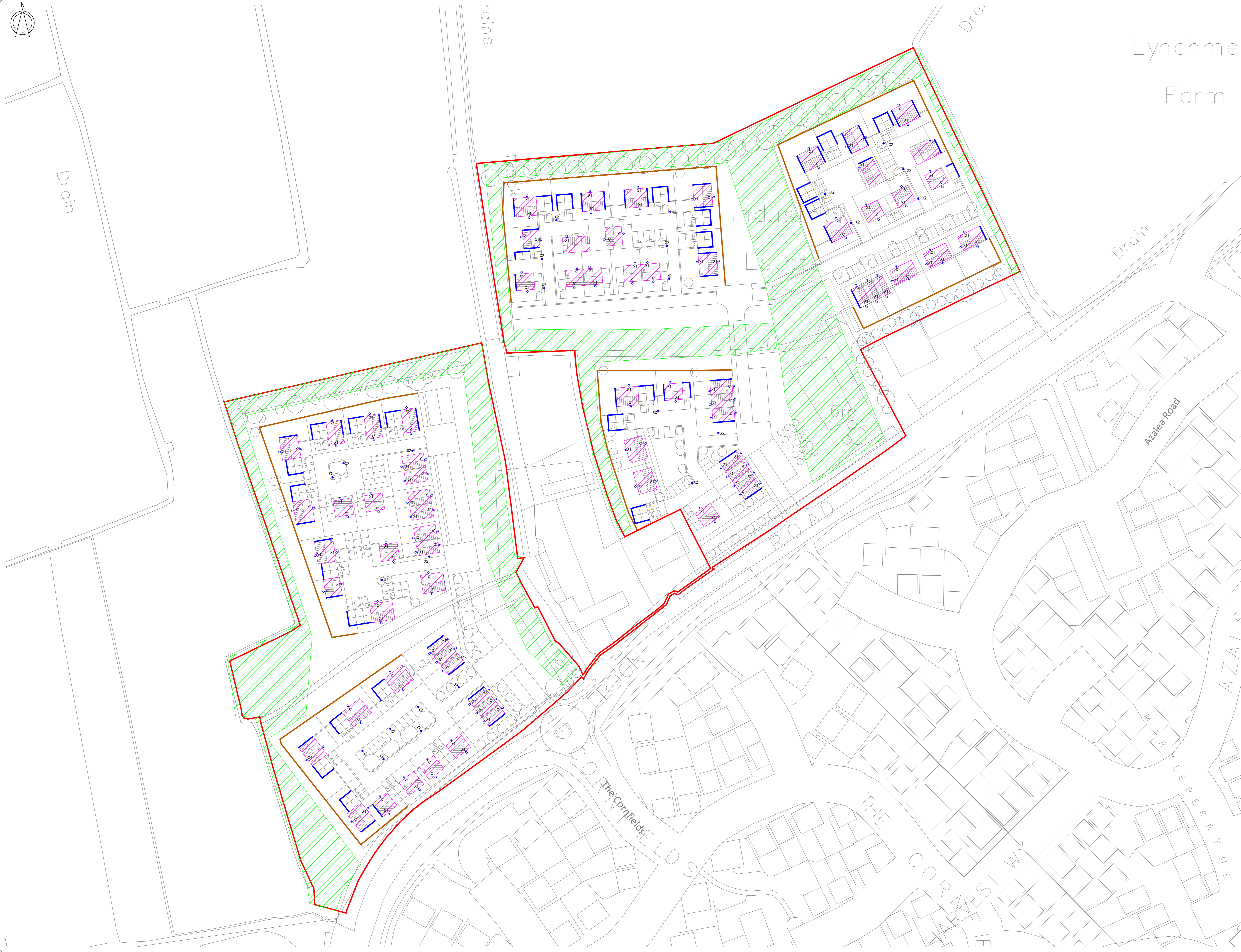
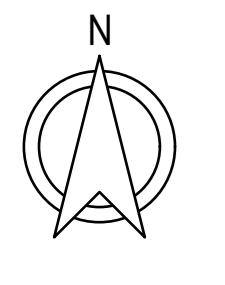
Lumen Maintenance Diagram





Lighting Mitigation Strategy

APPENDIX F



This Drawing is protected by Copyright. It may not be reproduced in any form or by any means in any process without the written consent of The Lighting Bee Ltd. All Dimensions to be checked on Site and verified prior to commencing Works. I shall be liable for the accuracy of all dimensions. The Contractor shall be responsible for providing their own Working and Construction drawings prior to commencing their installation. All these drawings are used for Construction purposes it is done so at the Contractor's Risk.

Luminaire Legend

- X1 IP44 rated downward directional wall luminaire, mounted at 1.8m AFFL with integrated PIR movement sensor. WALL E PIR in black manufactured by Aurora Lighting or equal and approved.
Fitted with a GU10 lamp holder. Developer to provide an LED 3000K (375 Lumens) / Maximum 5.5W lamp to be installed.
- X2 IP65 3000K LED 1m high downward directional bollard luminaire with 360° distribution. Pharoa DS (1.510m) manufactured by DW Windsor or equal and approved.

Legend

- Recessed downlight luminaires to be provided throughout these buildings. Refer to Lighting Assessment Report for full details
- No external lighting to be provided to these elevations
- Minimum 1.8m high close boarded fencing to be provided
- Dark corridor - level of illuminance to be <0.5 Lux.
- Site Boundary

Notes

- Do not scale from this drawing.
- All measurements are in millimeters unless stated otherwise.
- This drawing should be read in conjunction with the Lighting Impact Assessment report.

Rev	Details	By / Revised	Date
P01	Preliminary Issue		18/10/21



CLIENT
Mead Realisations Ltd

PROJECT TITLE
**Land at Lynchmead Road
Weston-Super-Mare**

DRAWING TITLE
**Lighting Impact Assessment
Mitigation Strategy**

SCALE AT A0
1:500

DISCIPLINE
Lighting

DRAWING NUMBER
1070-LB-EX-XX-DR-E-7080-21

STATUS
Preliminary

DATE
P01

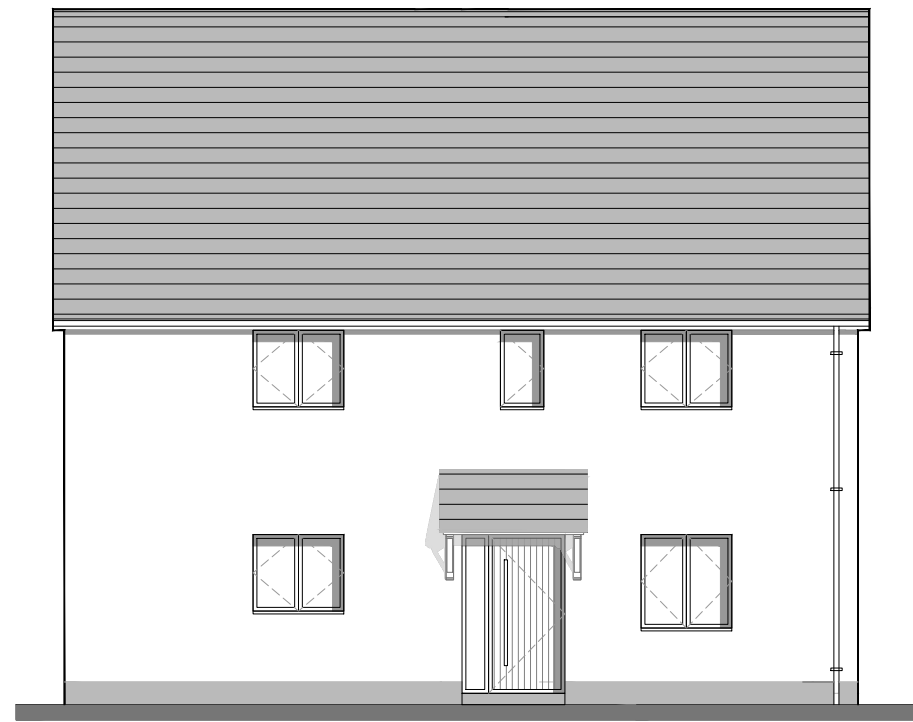


House Types that the Assessment is
Based On

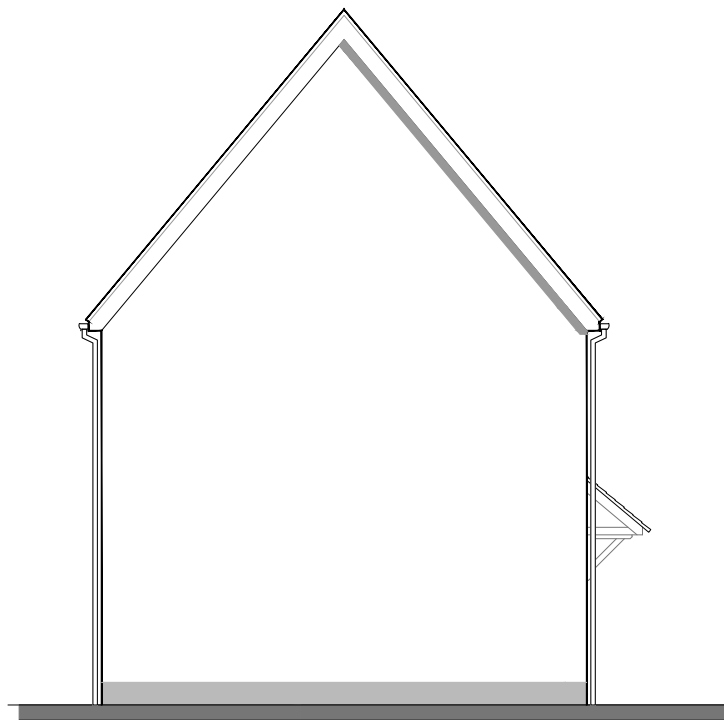
APPENDIX G



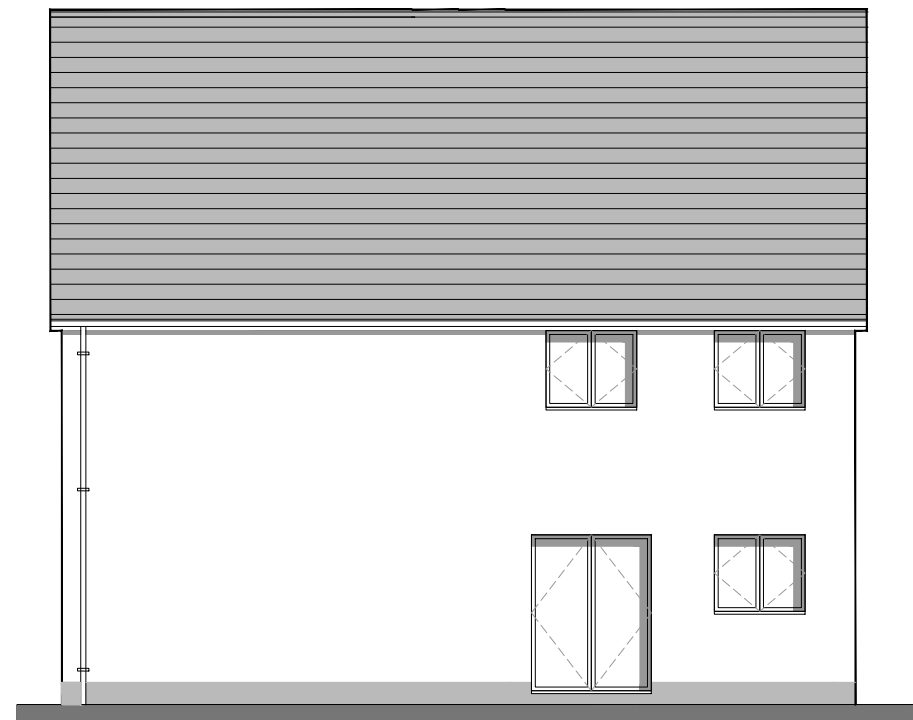
FRONT ELEVATION



SIDE ELEVATION






REAR ELEVATION



SIDE ELEVATION

1B HTA

2 x 50 m² / 538 ft²

- KEY
-  Black Painted Render Plinth
 -  Render
 -  Concrete tile Roof

scale 1:100



REV	NOTES	DATE
	Lynchmead Farm, Weston-super-Mare	-
	1B HTA - Elevations	GB / DE
180809 HT 01 01	1:100 @ A3	Feb 2023

CliftonEmerydesign

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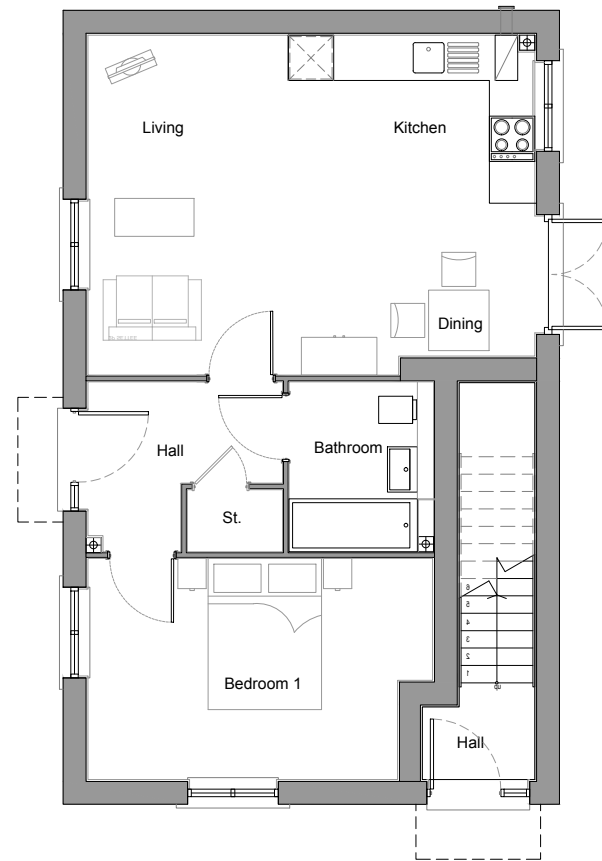
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1B HTA

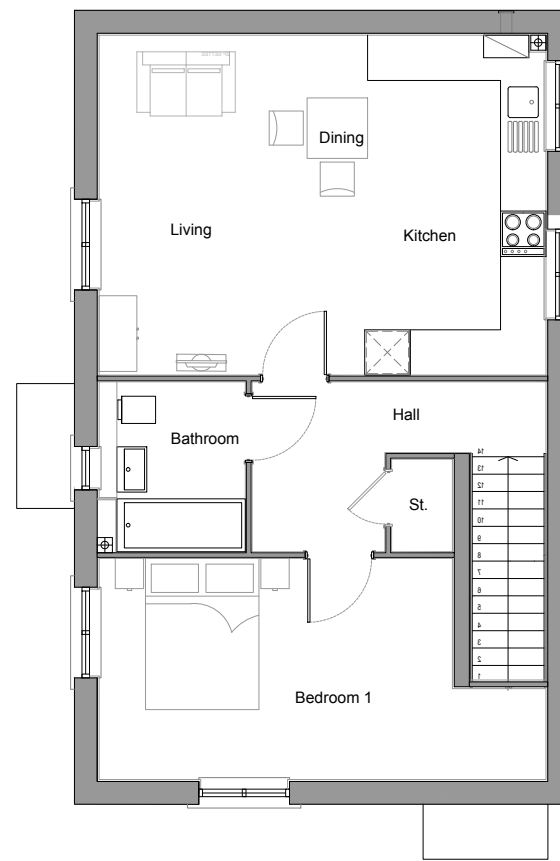
2 x 50 m² / 538 ft²

KEY

	Black Painted Render Plinth
	Render
	Concrete tile Roof



GROUND FLOOR PLAN



FIRST FLOOR PLAN

scale 1:100



REV	NOTES	DATE
	Lynchmead Farm, Weston-super-Mare	-
	1B HTA - Floor Plans	GB / DE
180809 HT 01 02	1:100 @ A3	Feb 2023

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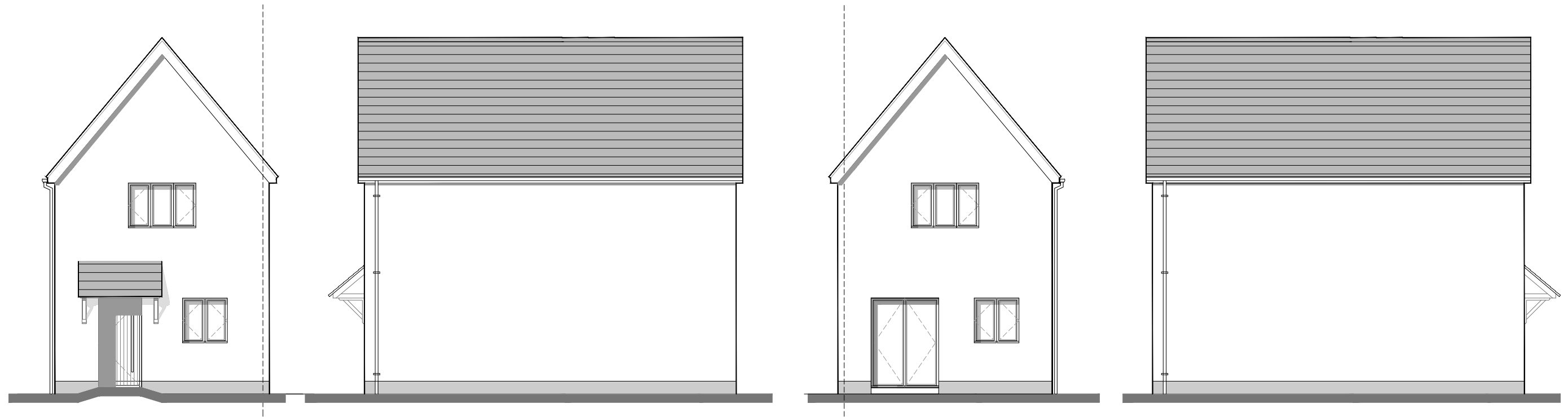
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2B HTB

70.6m² / 760 ft²

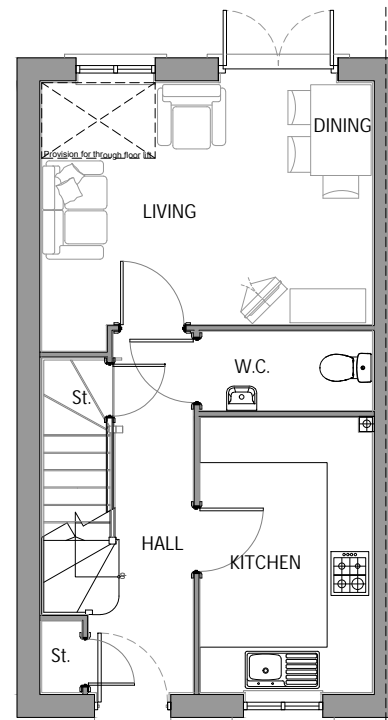


FRONT ELEVATION

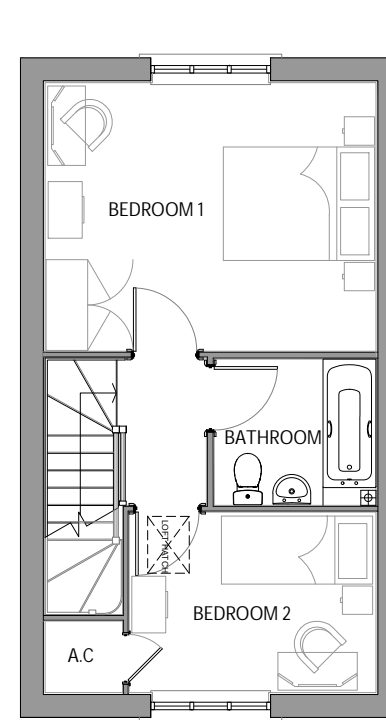
SIDE ELEVATION

REAR ELEVATION

SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

scale 1:100



REV	NOTES	DATE
	Lynchmead Farm, Weston-super-Mare	-
	2B HTB - Elevations and Floor Plans	GB / DE
180809 HT 02 01	1:100 @ A3	Feb 2023

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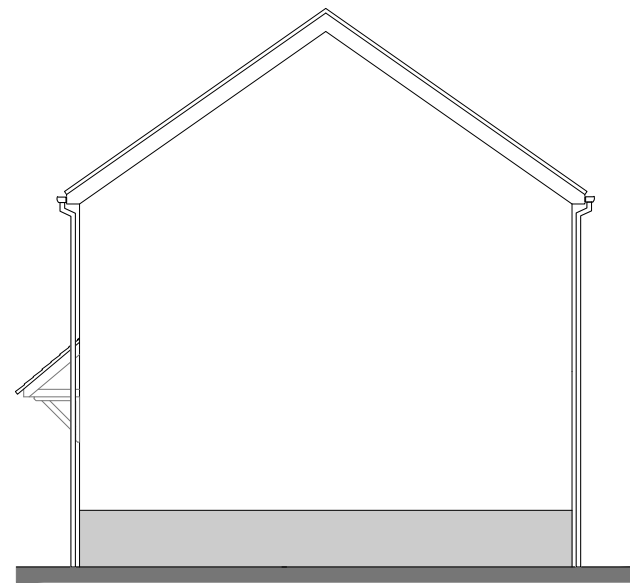
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2B HTC

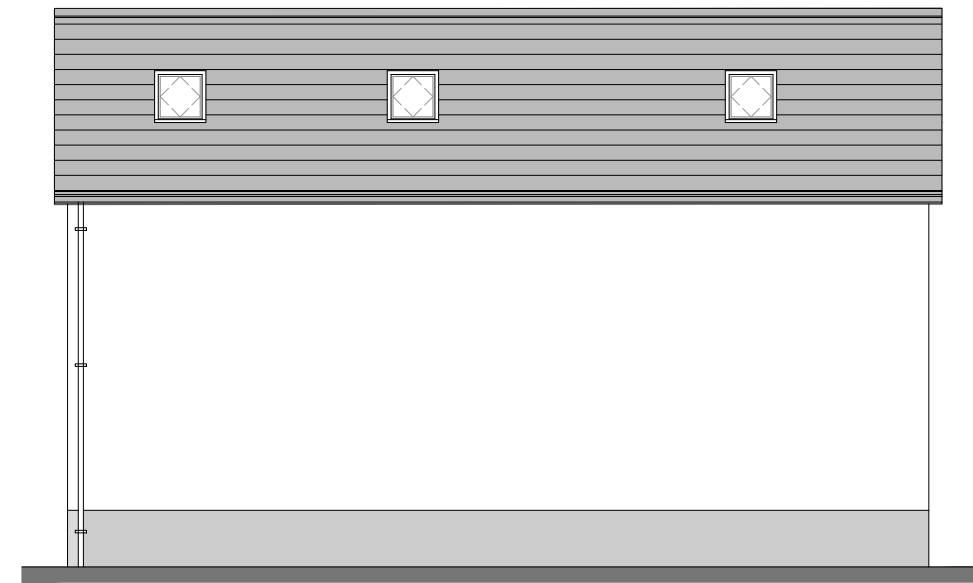
68.58 m² / 738 ft²



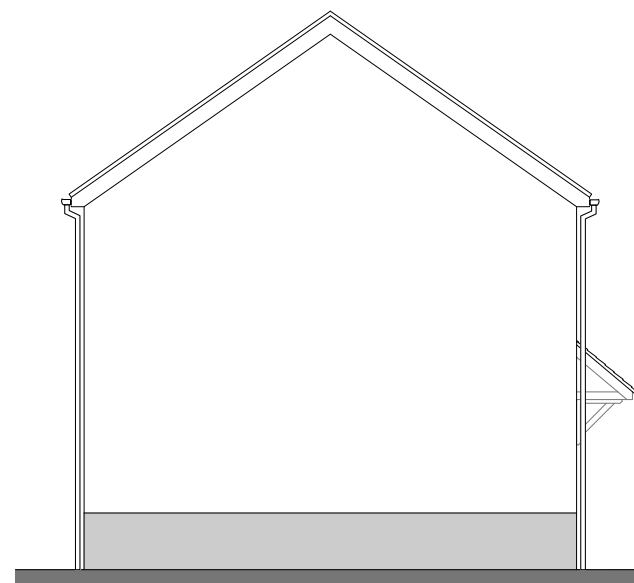
FRONT ELEVATION



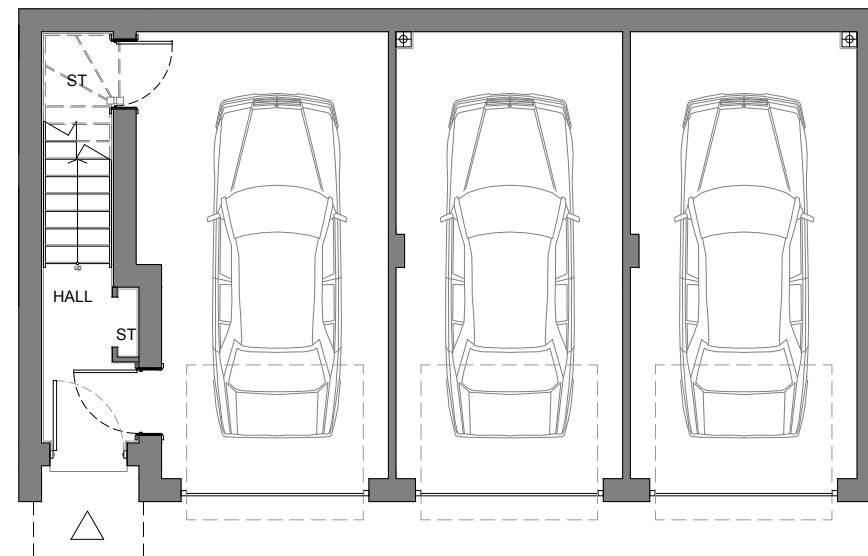
SIDE ELEVATION



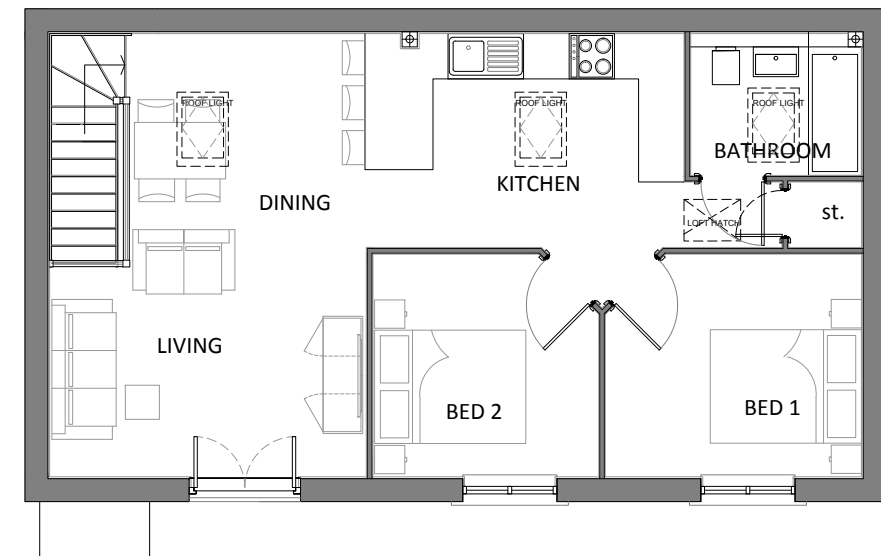
REAR ELEVATION



SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

scale 1:100



REV	NOTES	DATE
-	Lynchmead Farm, Weston-super-Mare 2B HTC - Elevations and Floor Plans	-
180809 HT 03 01	1:100 @ A3	Feb 2023

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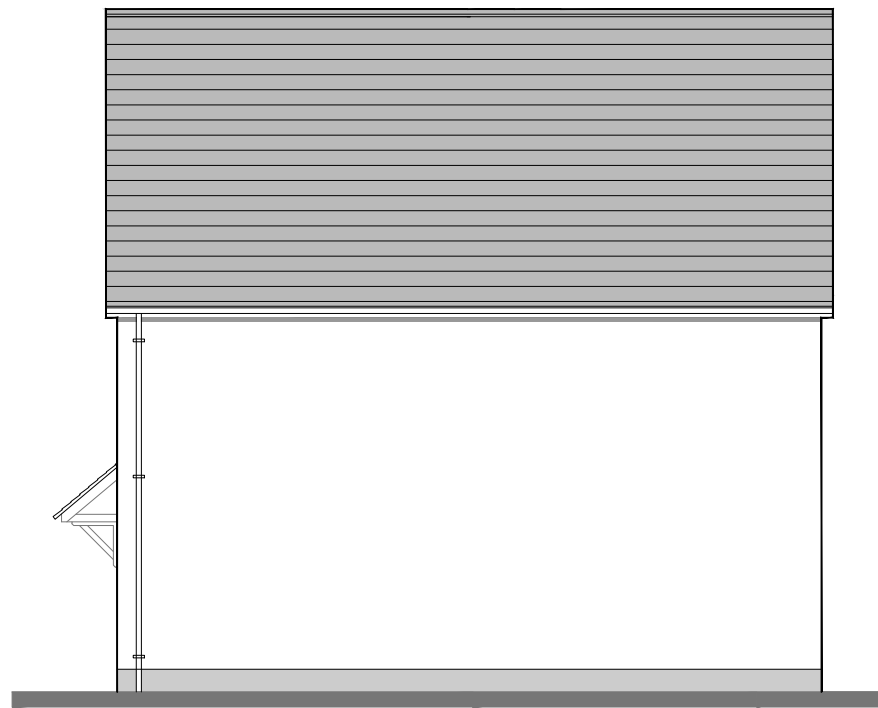
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3B HTD

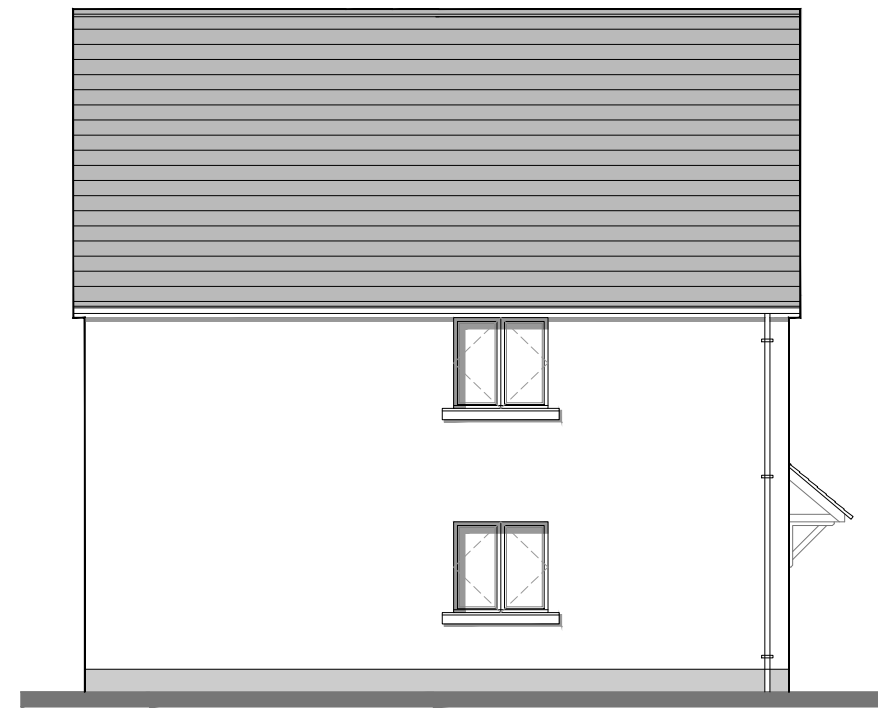
93.22 m² / 1003 ft²



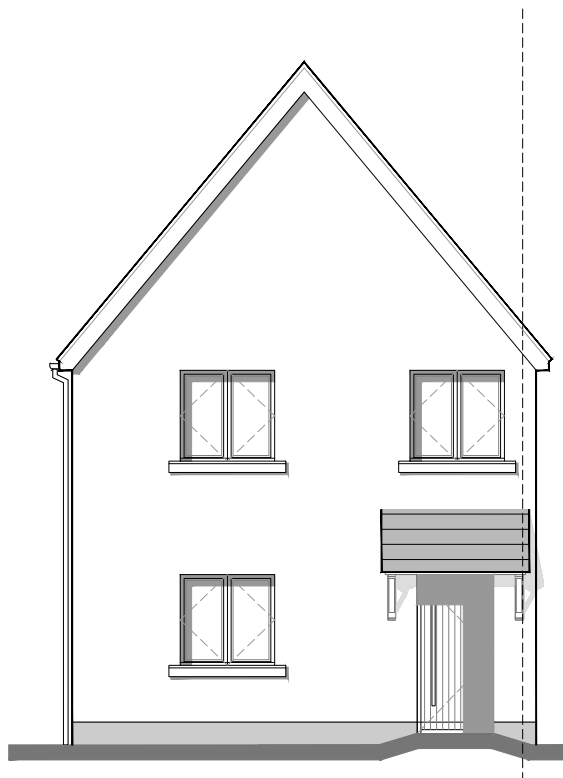
SIDE ELEVATION



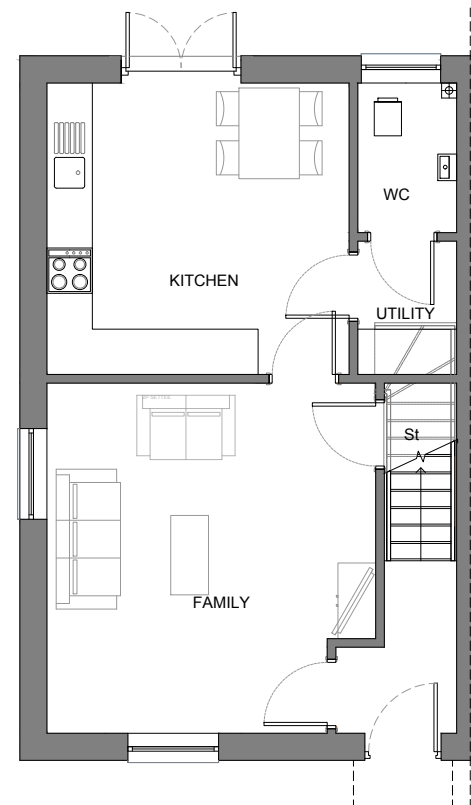
REAR ELEVATION



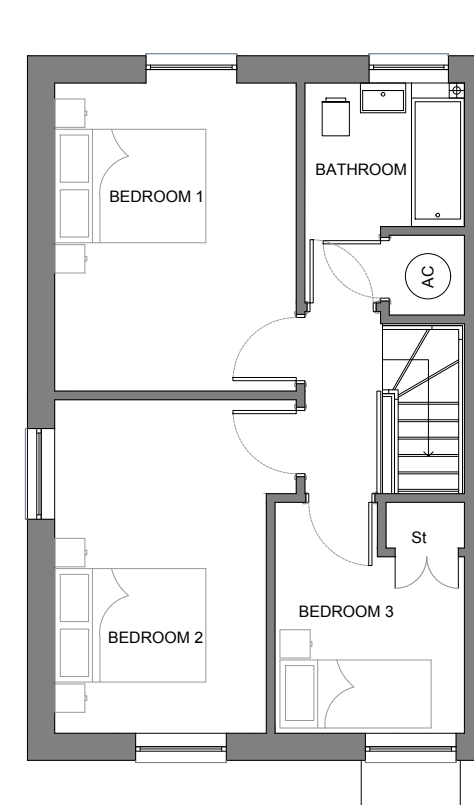
SIDE ELEVATION



FRONT ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

scale 1:100



REV	NOTES	DATE
-	Lynchmead Farm, Weston-super-Mare 3B HTD - Elevations and Floor Plans	-
180809 HT 04 01	1:100 @ A3	Feb 2023

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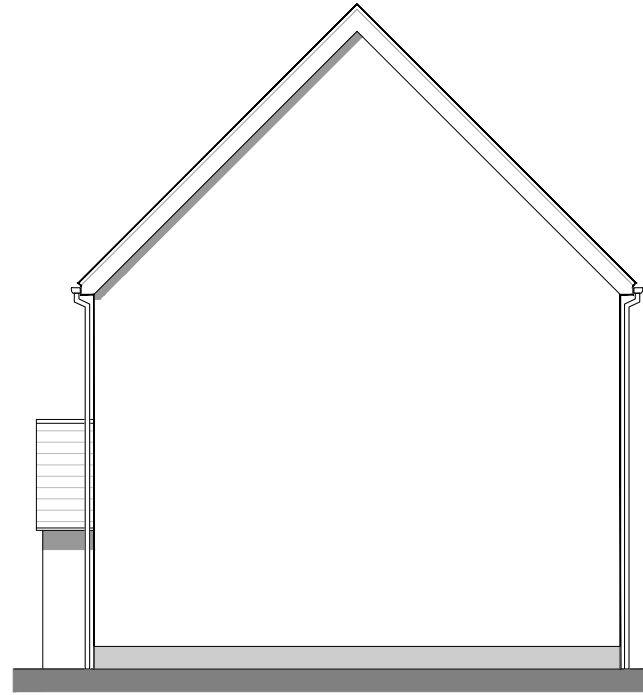
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3B HTE
92.48m² / 995 ft²



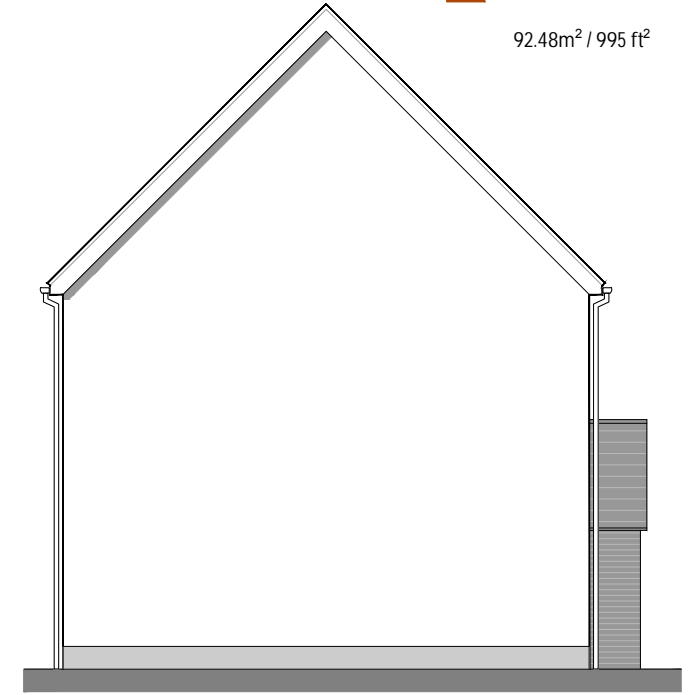
FRONT ELEVATION



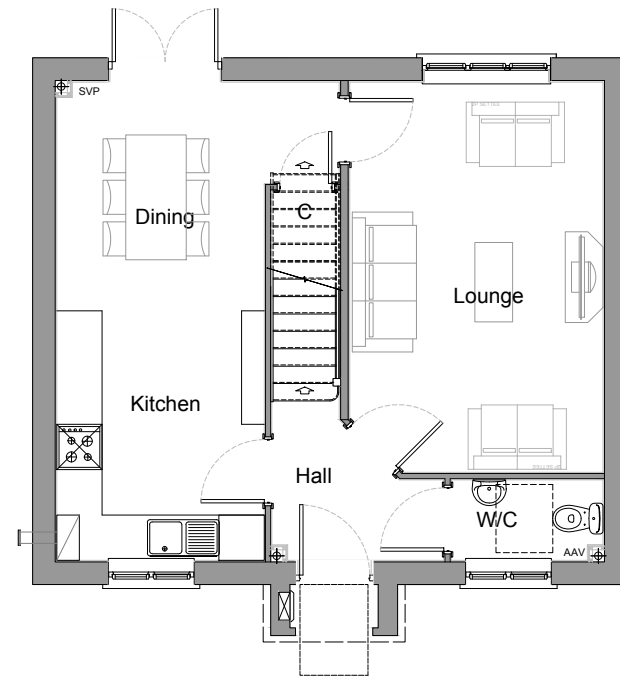
SIDE ELEVATION



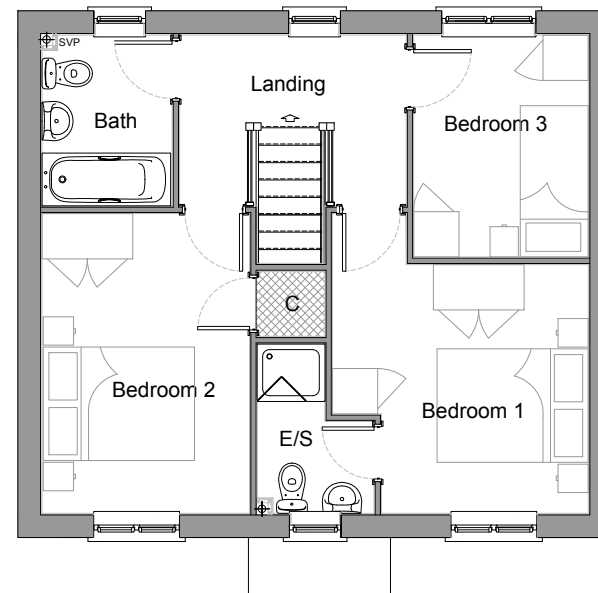
BACK ELEVATION



SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

scale 1:100



REV	NOTES	DATE
-	Lynchmead Farm, Weston-super-Mare 3B HTE - Elevations and Floor Plans	-
180809 HT 05 01	1:100 @ A3	Feb 2023

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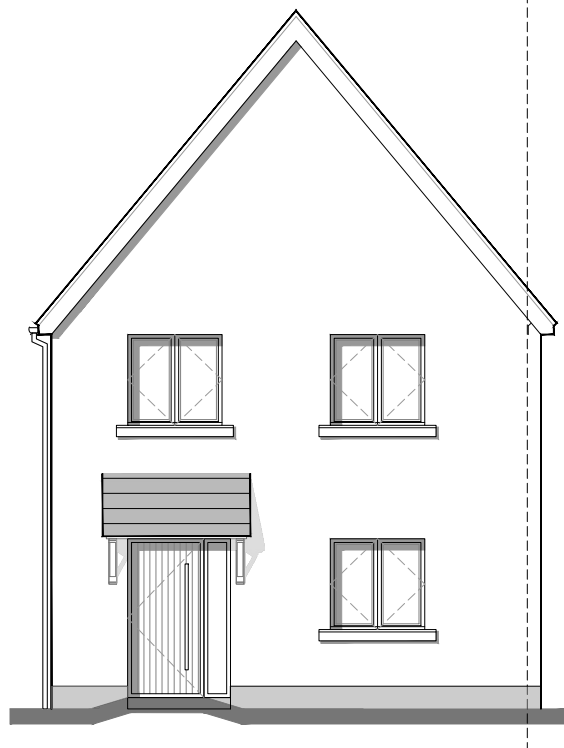
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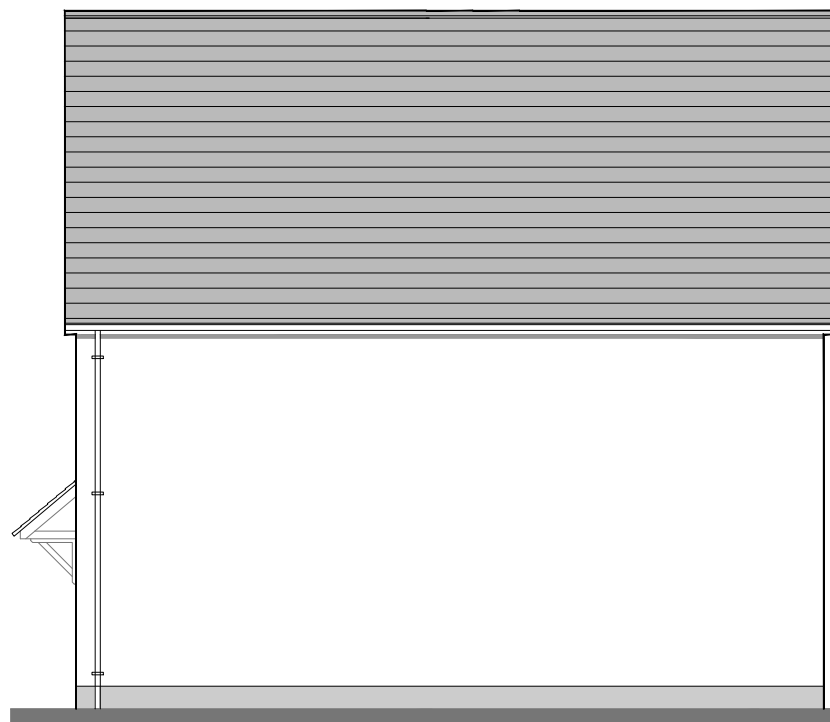
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4B HTF

107.5 m² / 1157 ft²



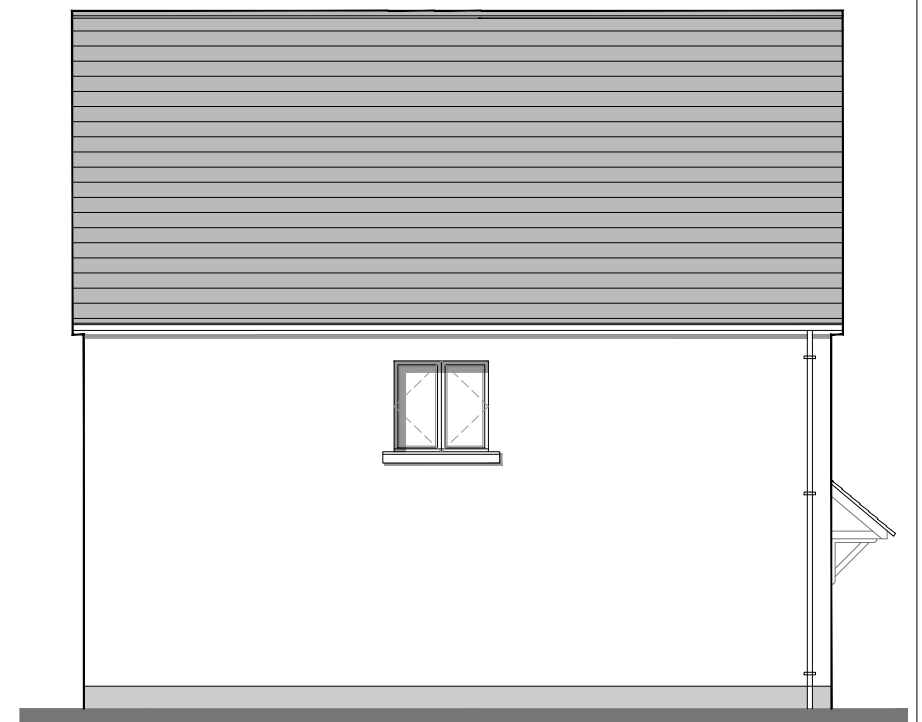
FRONT ELEVATION



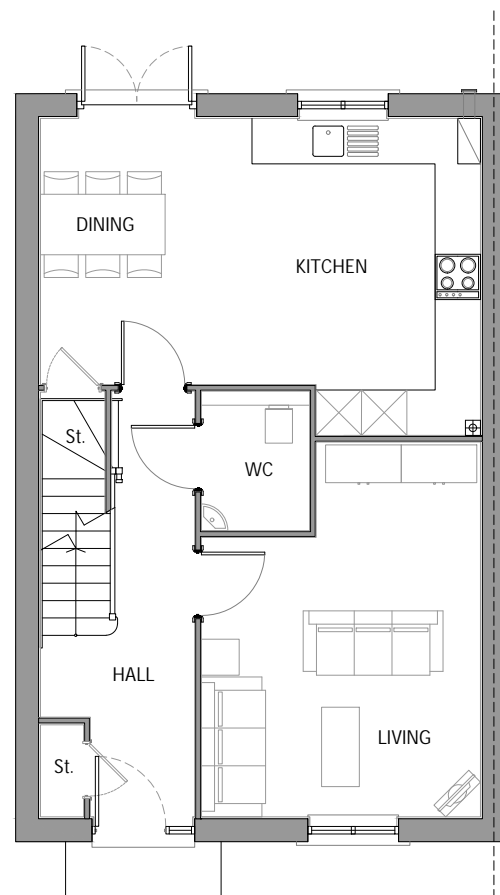
SIDE ELEVATION



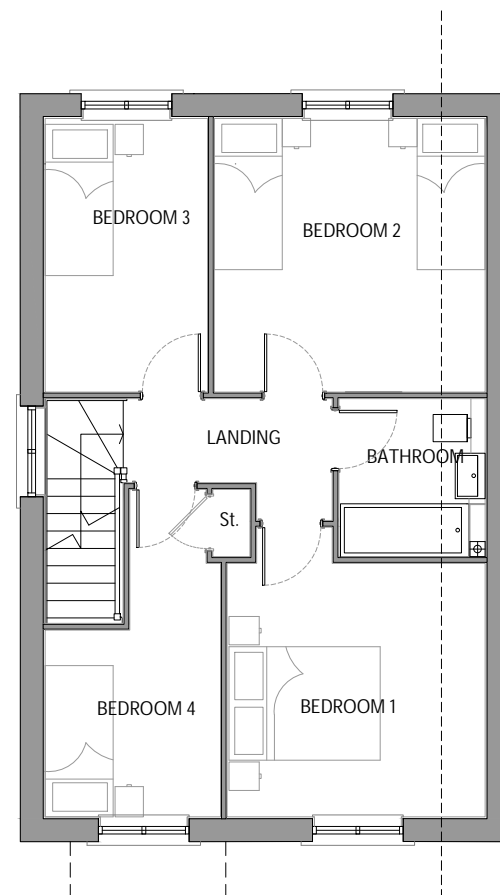
REAR ELEVATION



SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

scale 1:100



REV	NOTES	DATE
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	4B HTF - Elevations and Floor Plans	GB / DE
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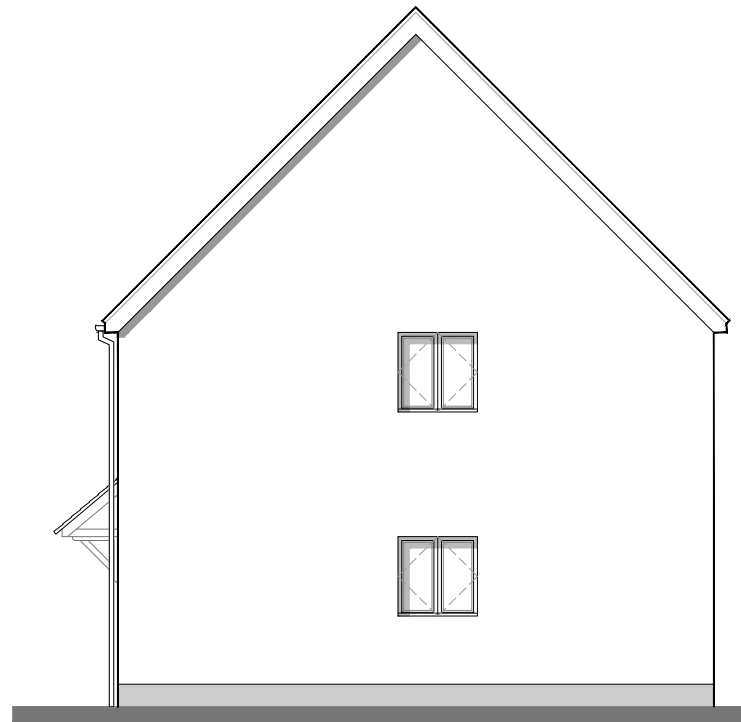
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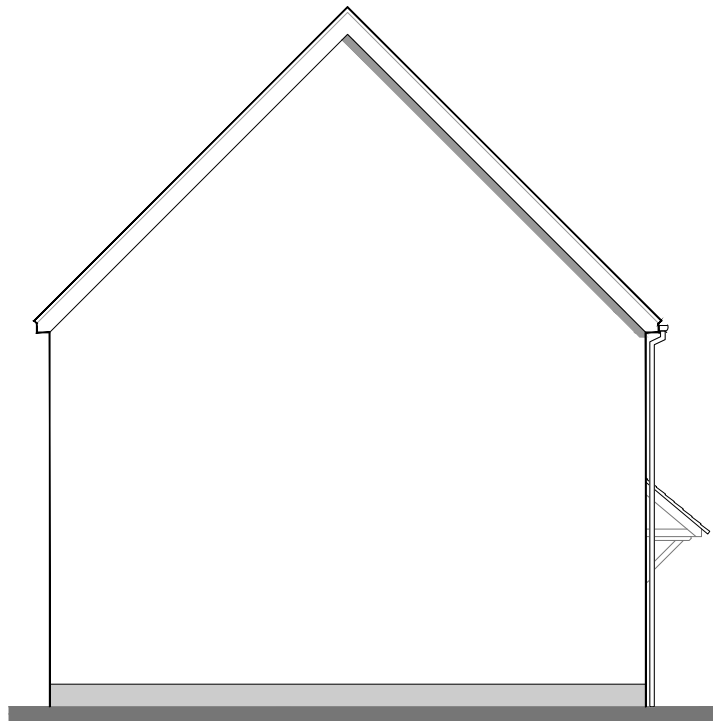
FRONT ELEVATION



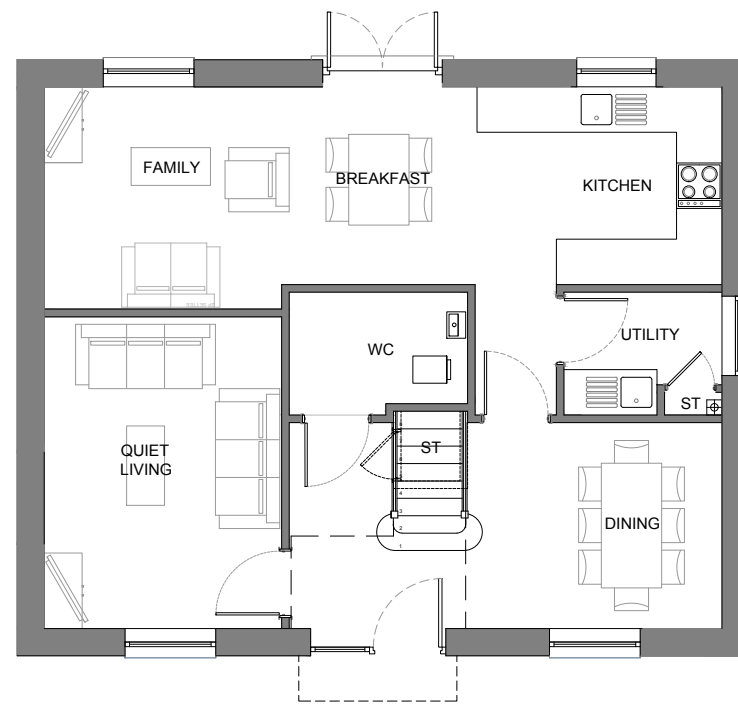
SIDE ELEVATION



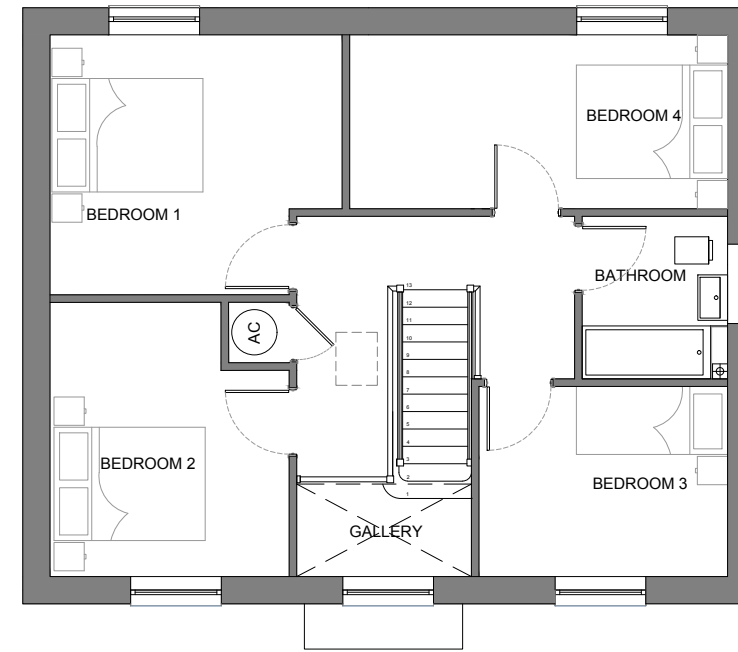
REAR ELEVATION



SIDE ELEVATION



GROUND FLOOR PLAN



FIRST FLOOR PLAN



REV	NOTES	DATE
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