Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

SoCG between the Applicant and Blaby District Council

Document reference: 19.1

Revision: 01

24 October 2023

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(q)

October 2023

Planning Act 2008

TRITAX SYMMETRY (HINCKLEY) LIMITED

PROPOSED HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE
OFF M69 JUNCTION 2, LEICESTERSHIRE

DOC REF 19.1

Statement of Common Ground between
Tritax Symmetry (Hinckley) Limited and Blaby District Council

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1. MATTERS OF AGREEMENT AND DISAGREEMENT

1.1 Planning

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01	May 2023	TSH
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04	28/07/23	BDC
05	11/10/23	TSH
06	23/10/23	BDC
07	23/10/23	TSH

Matters agreed – Alternative Sites

Ref.		Record of agreement
1.	Chapter 4 of the submitted Environmental Statement (document reference 6.1.4) outlines the Alternative locations studied and has provided indication by the Applicant as to the reasons for the selection of HNRFI.	Agreed through this SoCG.
2.	It is agreed that the *'Executive Summary of the Leicester and Leicestershire Strategic Distribution Sector Study'* published November 2014 identified a requirement of around 115 hectares of new land for rail – served by logistics sites.	Agreed through this SoCG.
3.	Whether the Applicant has set out the alternative considerations in the evolution of design of HNRFI on the main HNRFI site by reference to the issues identified at paragraph 4.133 of chapter 4 of the Environmental Statement (document reference 6.1.4).	Agreed through this SoCG.

Matters not agreed – Alternative Sites

Ref.		
1.	None.	

Matters agreed – Need for HNRFI

Ref.		Record of agreement
1.	The need for a SRFI has been established within the joint authority evidence base. *'Warehousing and Logistics at Leicester and Leicestershire: managing growth and change'.* (April 2021 amended March 2022)	Agreed through this SoCG.
2.	That the Study above identifies a short fall of 718,875 sqm of rail served sites which should be planned for the period 2041 – and that a supply shortfall for rail served sites 'starts to emerge around the mid-2020s' (Leicester and Leicestershire Authorities' '*Statement of Common Ground relating to Strategic Warehousing and Logistics Needs)* (September 2021 paragraphs 3.4-3.5).	Agreed through this SoCG.
3.	*It is agreed that the identified business market for HNRFI is not fully served by existing and committed SFRIs within Leicester and Leicestershire as established in joint evidence report* 'Warehousing and Logistics in Leicester and Leicestershire: managing growth and change' *(April 2021 amended March 2022).*	Agreed through this SoCG.
4.	Both the 'Warehousing and Logistics at Leicester and Leicestershire Managing Growth and Change' (April 2021 amended March 2022) jointly commissioned by the local authorities in Leicestershire and the 'Market Needs Assessment' commissioned by the Applicant identify a need for rail served logistics sites, but the differing methodologies give different results. It is agreed that there is a need for rail served logistics sites and in principle HNRFI would meet this rail related need.	Agreed through this SoCG.
5.	That the '*Warehousing and Logistics'* study will form part of the evidence base for Leicester and Leicestershire planning authorities in the preparation of the reviews of their development plan in meeting future	Agreed through this SoCG.

	development needs.	
6.	Blaby District Council will not advance argument against HNRFI alleging that HNRFI will adversely impact upon the operational viability of existing or committed SRFIs.	Agreed through this SoCG.
7.	The Applicant has undertaken a *'Market Needs Assessment'* (Document 16.1) which has demonstrated HNRFI is located near to the business market it will serve and is linked to key supply chain routes.	Agreed through this SoCG.

Matters not agreed – Need for HNRFI

Ref.		**Record of agreement**
1.	None.	

Matters agreed – Strategic Rail Freight Interchanges

Ref.		**Record of agreement**
1.	That HNRFI will be developed in a form that can accommodate both rail and non-rail activities. (NPS NN paragraph 4.83)	Agreed through this SoCG.

Matters not agreed - Strategic Rail Freight Interchanges

Ref.		
1.	Whether the proposal for Hinckley National satisfies the guidance for 'good design' in the NPS (paragraphs 4.28-4.35) with particular reference to the alleged impact of Hinckley National on the surrounding landscape.	Matter not agreed
2	Requirement 10 Rail which supports the construction and occupation of up to 105,000 sqm of logistics floorspace prior to the Rail Port (Phase 1) becoming operational as set out within the submitted Planning Statement (Document reference:7.1 paragraphs 3.113 – 3.117, paragraphs 3.124 – 3.126).	Matter not agreed

	Whether this requirement is reasonable, proportionate and accords with paragraph 4.88 of the NPS NN. The explanation is further set out within the Highways Position Statement prepared by the Applicant section 14. This floorspace is the amount of floorspace Phase A may accommodate as shown on Parameters Plan 6.3.3.2B. Blaby District Council's proposed wording for Requirement 10 is as follows: **(1)** The rail freight terminal which is capable of handling a minimum of four 775m trains per day and any associated rail infrastructure must be constructed and available for use prior to the occupation of any of the warehousing. **(2)** No rail infrastructure may be removed which would impede the ability of the rail freight terminal to handle four intermodal trains per day unless otherwise agreed in writing by the relevant planning authority.	

Matters Agreed – other matters arising from the policy provisions of the development plan.

Ref.	Matters agreed	Record of Agreement
1.	It is recognised that the NPS National Networks is the primary consideration in terms of examining the merits of the DCO proposal. The Development Plan is a material consideration and provides a wider context for the HNFRI proposal.	Agreed through this SoCG.
2.	That the relevant part of the development plan for the district comprises: i. District-wide Development Plans Blaby District Local Plan Core Strategy 2013 Blaby Local Plan Delivery DPD 2019 ii. County-wide Development Plan	Agreed through this SoCG.

	Leicestershire Minerals and Waste Local Plan 2019 iii. Neighbourhood Plan Fosse Villages' Neighbourhood Plan 2021	
3.	The scale and locational requirements for a SRFI could not be accommodated within the limits of a built-up area within Blaby District.	Agreed through this SoCG.
4.	HNRFI is in conflict with the policy in the development plan for Blaby District which identifies the DCO site as being within a location designated as 'Countryside' in the Development Plan. In this respect, it is acknowledged that the NPS recognises that due to locational requirements for a SRFI, countryside locations may be required (NPS paragraph 4.84) SFRIs need logistics and can only realistically be located adjacent to railway lines and with good road access.	Agreed through this SoCG.
5.	Fosse Villages' Neighbourhood Plan It is agreed that part of the Main HNRFI site is located at the western end of Sapcote Civil Parish as shown cross hatched red on the plan attached as Appendix 1 which is taken from the Neighbourhood Plan.	Agreed through this SoCG.
6.	It is agreed that the Policy Maps contained in the Neighbourhood Plan identify *'limits to build area'* and the settlement sections of the Plan indicate that *'outside these limits land will be designated as Countryside where development will be restricted.'* The land is therefore designated as Countryside where development will be restricted in line with strategic Core Strategy Policy CS18.	Agreed through this SoCG.
7.	It is agreed that it is not the role of a Neighbourhood Plan to contain strategic planning policies.	Agreed through this SoCG

Matters not agreed – other matters arising from the policy provisions of the development plan.

Ref.		

1.	That the Planning Statement, ES or other documents give sufficiently detailed consideration of the Development Plan documents. The Applicant considers the application has had due regard to these policies.	Matter not agreed.

Matters agreed – draft national policy statement national networks.

Ref.	Matters agreed	Record of Agreement
1.	The Draft NPS is an important and relevant consideration in the decision-making process on the HNFRI. The extent to which the Draft NPS is relevant to the determination of the DCO for HNRFI is a matter for the Secretary of State to consider within the Planning Act 2008. (NPS paragraph 1.17)	Agreed through this SoCG.
2.	The Draft NPS states that *'to meet the Government's ambitions for rail freight growth there remains a need for appropriately located SRFI across all regions to enable further unlocking of the benefits.'* (NPS paragraph 3.103)	Agreed through this SoCG.

Matters not agreed – draft national policy statement national networks.

Ref.		
1.	Whether the phasing of development for HNRFI is contrary to paragraphs 4.84 of the draft NPS.	Matter not agreed.

1.2 Lighting

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	23/10/23	BDC
05	24/10/23	TSHL

Matters agreed.

Ref.	Matter agreed	Record of agreement
1.	HNRFI complies with paragraphs 5.81 – 5.89 of the NPS in relation to artificial light by proving a detailed investigation of the issues and recommending appropriate mitigation measures are identified to avoid any adverse impact upon the site or adjacent areas.	Through amended requirement 31 and the evidence shown in the new lighting technical note this is agreed through this SoCG
2.	It therefore seeks to minimise impacts of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation by complying with best practice for roads / highways and workplaces (including BS 5489, BS 13201 and BS EN 12464) as well as the reduction of obtrusive light (ILP Guidance Note 01/21).	Through requirement 31 and the evidence shown in the new lighting technical note this is agreed through this SoCG
3	Paragraphs 1.46 – 1.49 under the lighting section of the CEMP are agreed and paragraph 4.25 of the Lighting Technical Note	Agreed through this SoCG
4	The site is classified as Environmental Zone E2, and the light obtrusion criteria should be 5lux and 1 lux.	Agreed through this SoCG
6.	The skyglow, highways, railway and heritage receptors identified in the lighting strategy are agreed.	Agreed through this SoCG
7	The use of LED lighting is now industry standard, and its recommended use is a positive. The need for high mast lighting is understood to cover the large areas required	Agreed through this SoCG –

	efficiently. The Lighting Strategy sets out the performance requirements the external lighting design has used. These are thorough and in keeping with what would be expected for this type of development. The use of LEDs and performance requirements is agreed.	
8	As discussed at the workshop meeting on 29th June 2023 a quantitative lighting assessment would be beneficial to test the parameters of the lighting strategy if requested to do so by the planning inspectorate. This quantitative assessment has been provided by BWB in October 2023 and should be added to the existing lighting strategy (Document 6.2.3.2, examination reference APP-132).	Agreed through this SoCG –
9	The amended wording of Requirement 31 – *(1) No phase of the authorised development may be commenced until a report detailing the lighting scheme for all permanent external lighting to be installed in that phase has been submitted to and approved by the relevant planning authority. The report and schemes submitted and approved must be in accordance with the lighting strategy (document reference 6.2.3.2) and include the following;* *(A) a layout plan with beam orientation;* *an Isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified as being of ecological importance.;* *a quantitative light intrusion and luminous intensity assessment in accordance with ILP Guidance Note 01/21; and* *measures to avoid glare on surrounding railway and highways.* *(2) The approved lighting scheme must be implemented and maintained as approved by the relevant planning authority during operation of the authorised development and*	Agreed through this SoCG –

	no external lighting other than that approved under this requirement may be installed.	

Matters not agreed.

Ref.	Matters not agreed	Any actions rising	Comments
6.	Wording of Requirement 31	Requirement to be amended.	31 No phase of the authorised development may be occupied until a report detailing the lighting scheme for all permanent external lighting to be installed in that phase has been submitted to and approved by the relevant planning authority. The report and schemes submitted and approved must be in accordance with the lighting strategy and include the following; A layout plan with beam orientation An Isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified as being of ecological importance. A quantitative light intrusion and luminous intensity assessment in accordance with ILP Guidance Note 01/21 Measures to avoid glare on surrounding railway and highways. Response: See above comment "1.b" Response V4 – Following on from the workshop meeting on 29th June 2023 this requirement was agreed in principle following sign-off on the wording. See matters agreed. Response V5: The Applicant proposes the following amendments to the Requirement wording for further clarity:

			Lighting **1.**— (1) No phase of the authorised development is to be commenced until a report detailing the lighting scheme for all permanent external lighting to be installed in that phase has been submitted to and approved by the relevant planning authority. The reports and schemes submitted and approved must be in accordance with the lighting strategy and include the following: (a) a layout plan with beam orientation; (b) an Isolux contour map showing light spillage to 1 lux both vertically and horizontally and areas identified in the detailed ecological mitigation and management plan approved pursuant to requirement 20 as being of ecological importance; (c) a quantitative light intrusion and luminous intensity assessment in accordance with ILP Guidance Note 01/21; and (d) measures to avoid glare on surrounding railway and highways. (2) The lighting scheme for each phase must be implemented and maintained in accordance with the approved strategy for that phase and may be reviewed by the undertaker as necessary with the approval of the relevant planning authority. No external lighting other than that approved under this requirement may be installed.
7.	The lighting section in the CEMP is adequate.	Update to the CEMP to include all the lighting strategy information (para 5.56-5.63) as well	The following additional measures should be included in the CEMP lighting section: • Lighting should not be aimed towards sensitive receptors, and where possible be downward facing.

		further mitigation highlighting in the comments.	• To improve sustainability, lighting from diesel generators should be avoided. • If a construction compound is required for more than 1 year a more permanent lighting design should be required including columns to avoid overuse of temporary lighting units – these units are historically harder to control light spill than traditional column-mounted lights. • Lighting should be controlled and on timers to ensure they are only on when needed. Regular checks by a contractor should be undertaken to ensure lights are not left on when not needed. Response: This appears to be reasonable and could be incorporated. Response V4 Happy that these are agreed, it would be beneficial to see an updated CEMP including these additional lighting measures. Response V5: Matter agreed. The updated CEMP will be shared once updated
8.	The lighting strategy provides enough information to ensure that Rail and highways receptors won't be significantly impacted by glare from the development.	A quantitative lighting assessment including a glare assessment (Railway and roadway receptors).	The impact of lighting on the adjacent railway line or highway receptors is not mentioned in the later parts of the lighting strategy. This is important especially for the section of railway adjacent to the site as this is the main line between Birmingham and Peterborough with regular higher speed trains. A "Glare" assessment should be undertaken to calculate the Glare Rating Value so as not to impact train drivers on the railway line. Likewise, an assessment should be undertaken of the M69 motorway as the site is adjacent to a relatively high

			conflict zone at Junction 2. Glare in drivers' eyes in this area could impact a driver's ability to notice a car entering the main line of the motorway from the junction. Response: See above comment "1.b" Response V4 – As discussed at the workshop meeting on 29th June 2023, it would be beneficial for a quantitative assessment to be produced including a quantitative lighting assessment of glare on drivers and train drivers on the adjacent M69 and railway. Response V5: Matter agreed as per Matter Agreed Ref.8

1.3 Climate

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	24.07.2023	BDC
05	10.08.23	TSH

Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapter 18 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN). The proposal supports the DfT's NPS for National Networks by providing sustainable development through the reduction of transport based GHG emissions by encouraging a modal shift of freight from road to rail. Furthermore, this modal shift will help to reduce traffic congestion and improve air quality in the wider East Midlands region	Agreed through this SoCG
2.	ES Chapter 18 has been prepared in accordance with the National Planning Policy Framework (NPPF) (2021) by mitigating and adapting to climate change, including moving to a low carbon. The development has been designed in ways to a) avoid increased vulnerability to the range of impacts arising from climate change and b) help to reduce greenhouse gas emissions (paragraph 154). To help increase the use and supply of renewable and low carbon energy and heat, the development: a) provides a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) considers suitable areas for	Agreed through this SoCG

	renewable and low carbon energy sources, and c) identifies opportunities to draw its energy supply from renewable or low carbon energy supply systems (paragraph 155).	
3.	HNRFI supports strategic objectives required by Blaby District Council (BDC) (Policy CS21) by minimising energy use and use of valuable resources, encouraging renewable energy production in suitable locations, minimising the risk of flooding and encouraging and developing the use of more sustainable forms of transport (Including walking, cycling and public transport)'. *achieving national targets to reduce greenhouse gas emissions focusing new development in the most sustainable locations and seeking site layout and sustainable design principles which reduce energy demand and increase efficiency*."	Agreed through this SoCG
4.	ES Chapter 187 acknowledge BDC's own commitments to acknowledging a climate emergency.	Agreed through this SoCG
5.	The assessment methodology has been accepted comprising: • A Study of the baseline characteristics using both survey data and third-party information; • An Assessment of the resilience to likely climatic changes; • An Assessment of the likely effects on climatic change; Recommendations to mitigate likely significant effects	Agreed through the Scoping Opinion, additional consultation and this SoCG.
6.	The assessment is sufficient to estimate the effects GHG emissions sources, including: • Vehicular emissions during the construction stage; • Embodied carbon in construction materials; • Vehicular emissions during the operational stage; and Energy demand during the operational stage.	Agreed through this SoCG

7.	Although the Proposed Development is not an Energy NSIP, the provision of provision of roof-mounted photovoltaic arrays with a generation capacity of up to 42.4 megawatts peak (MWp) providing direct electricity supply to the building or exporting power to battery storage, and also incorporating provision of an energy centre, HNRFI supports the Draft National Policy Statement for Renewable Energy Infrastructure 2021 (NPS EN-1 – draft)	Unsure, further discussion needed
8.	The materials demand of the development will be addressed by maximising the use of reclaimed and recycled materials where practicable throughout the construction process. The demand upon the development for the provision of recycling and waste storage will be addressed in the early detailed design stages and when detailed discussions can be held with prospective operators regarding the specific operations of the proposed units. In addition, recycling and waste will be considered for the Construction Stage. Provision has been made in the scheme for the inclusion of recycling and waste storage / compaction within the identified service areas.	Agreed through this SoCG
9..	This commitment by TSH to deliver net-zero buildings should result in a significant reduction in embodied carbon sources during construction that are not anticipated to materially affect the ability of the UK to achieve its carbon reduction targets, and thus are not predicted to have a significant effect on the global climate. Opportunities for further reduction will be encouraged and captured through the incorporation of carbon targets within the procurement process.	Agreed through this SoCG
10.	The Construction Traffic Management Plan (CTMP) (document reference 17.6) will minimise and mitigate the environmental impacts of construction activities, including the reduction of GHG emissions.	Agreed through this SoCG
11.	The Framework CEMP includes good practice mitigation measures to reduce emissions	Agreed through this SoCG

	during construction, including from construction plant, for example: • Training employees in how to handle machinery to reduce GHGs; • Switching off machinery and vehicles when not in use; • Regular maintenance of machinery to ensure they work efficiently; • Using electric or alternative low/zero carbon emission machinery where possible; • Reducing water consumption where possible; and Using efficient vehicles and machinery where possible.	
12.	The increase in electrical vehicles throughout the lifespan of HNRFI will result in a decrease of direct emissions, though it will in turn increase the demand on the national grid where indirect emissions may result depending on the energy source.	Agreed through this SoCG
13.	HNRFI proposes a suite of transport and access improvements which will help reduce GHG emissions associated with the transport of employees to and from the Main HNRFI Site during the operational phase. It should be noted that the Council considers the existing sustainable travel strategy, while partially beneficial, insufficient and in need of enhancement.	Agreed through this SoCG
14.	The impacts of climate change on HNRFI during the construction stage would be managed through the outline CEMP, which would contain detailed procedures to mitigate any potential impacts associated with extreme weather events, as listed in Appendix 18.6 (document reference 6.2.18.6). This will complement best practice mitigation measures employed in the construction industry. The lead contractor will ensure appropriate measures within this outline CEMP are implemented and, as appropriate, additional measures to ensure the resilience of the proposed mitigation of	Agreed through this SoCG

	impacts during extreme weather events.	
15.	The lead contractor's Environmental Management System will consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements.	Agreed through this SoCG
16.	During operational circumstances, adaptation and resilience to climate and weather-related risks would be considered periodically through maintenance regimes. A schedule of general inspections and principal inspections of each structure should be carried out to determine condition of the structure and identify any potential maintenance requirements.	Agreed through this SoCG
17.	During the demolition of on-site structures, the re-use, recycling and reduction of construction waste will be promoted to reduce HNRFI's overall carbon footprint by reducing the need to extract raw materials.	Agreed through this SoCG
18.	Embedded emissions of HNRFI will be calculated at each stage of design as it develops to ensure that it is meeting its project specific targets and legal requirements including Building Regulations Part L and to seek to achieve a BREEAM 'Very Good' rating. This will consider both operational CO2 emissions affected by design and embodied carbon. HNRFI is committed to sourcing building materials from sustainable and, where possible, local sources whilst restricting materials which cause environmental harm. Ultimately, this strategy will reduce the overall carbon footprint and lead to a potential reduction in GHG emissions associated with HNRFI over its lifetime.	Agreed through this SoCG

Matters not agreed

Ref.	Matters not	Any actions rising	Response

	agreed		
1.	ES Chapter 18 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN). The proposal supports the DfT's NPS for National Networks by providing sustainable development through the reduction of transport based GHG emissions by encouraging a modal shift of freight from road to rail. Furthermore, this modal shift will help to reduce traffic congestion and improve air quality in the wider East Midlands region.	We aren't able to confirm compliance with the NPSNN, and guidance on the Local Impact Report suggests that it is not the Council's place to do this. I am also uncomfortable with providing blanket reassurances in respect of wider air quality improvements in the East Midlands Region	
2.	ES Chapter 18 has been prepared in accordance with the National Planning Policy Framework (NPPF) (2021) by mitigating and adapting to climate change, including moving to a low carbon economy (paragraph 7). The development has been designed in ways to a) avoid increased vulnerability to the range of impacts	We are still looking into the scheme's design merits, including from a sustainability perspective and cannot agree to these at this stage. Again, we haven't yet concluded the scheme is acceptable in this regard. The provision of solar on only 50% of the roof space still isn't accepted.	Chapter 18 sets out mitigation to ensure that all proposed development minimises vulnerability and provides resilience to climate change and will contribute to achieving national targets to reduce greenhouse gas emissions by "encouraging the use of sustainable materials and construction methods" and "supporting the Government's zero carbon buildings policy" which will be "increased progressively over the plan period, were feasible, to support the

	arising from climate change and b) help to reduce greenhouse gas emissions (paragraph 154). To help increase the use and supply of renewable and low carbon energy and heat, the development: a) provides a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) considers suitable areas for renewable and low carbon energy sources, and c) identifies opportunities to draw its energy supply from renewable or low carbon energy supply systems (paragraph 155).		Government's longer-term aspirations for sustainable design". It further meets policy by introducing "the use of renewable, low carbon and decentralised energy at the commercial [and] community scale" which "will be supported within the district". The Energy Strategy (Appendix 18.1, document reference 6.2.18.1) details the potential for renewable energy provision during the operational phase, which will greatly reduce GHG emissions compared to procuring this energy from the National Grid. This strategy has been developed to optimise potential onsite to its greatest means, therefore minimising energy consumption from on-grid and non-renewable services as much as feasible. The maximisation of all available roof space (51.4% due to structural limitations) is sufficient to meet 83% of the peak operational energy requirements (Table 18.2). Where supplementary energy is generated, it is proposed that this energy is captured and stored onsite for use during peak hours and when generation may be limited due to seasonal effects. Given this, to meet demands, inclusive of EV charging, we are not

			proposing to develop a power station. Further to our conversation, we ask that you review and provide objective reasoning and explanation where you may believe we are not compliant with policy. To our knowledge, BREEAM (Building Research Establishment Environmental Assessment Method) is not a legal requirement in Blaby and targets for new industrial buildings are not defined under Policy CS21. It is a voluntary certification scheme that provides a framework for assessing and certifying the sustainability and environmental performance of buildings. While BREEAM itself is not a mandatory requirement, by considering energy efficiency and promoting sustainable energy practices, BREEAM aims to encourage the development of buildings that are environmentally responsible and contribute to the reduction of greenhouse gas emissions. The current targets reflect the evolving understanding and priorities of potential practices and users onsite. It is therefore demonstrated that the proposals seek to support and integrate with such initiatives to achieve

			the most sustainable outcomes for the district.
3.	HNRFI supports strategic objectives required by Blaby District Council (BDC) (Policy CS21) by minimising energy use and use of valuable resources, encouraging renewable energy production in suitable locations, minimising the risk of flooding and encouraging and developing the use of more sustainable forms of transport (Including walking, cycling and public transport)'. HNRFI further contributes to *"achieving national targets to reduce greenhouse gas emissions focusing new development in the most sustainable locations and seeking site layout and sustainable design principles which reduce energy demand and increase efficiency*."	'Minimise' = 'To reduce (something, especially something undesirable) to the smallest possible amount or degree'. By only setting out to achieve BREEAM – 'Very Good' Energy use is not being fully minimised as per the Policy CS21. While the energy demand may be met by solar PV, if the building energy efficiency were better more of this energy could be used to feed back into grid acting as a carbon offset. It could be said the proposal has restricted the amount of Solar to ensure the development does not exceed 50MW (NSIP). Any structural limitations should be designed out to ensure maximum coverage. We understand BREEAM is not a legal requirement. We are pointing out that the proposal sets low ambitions for energy efficient building standards.	Under Policy CS21 it is understood that "Development which mitigates and adapts to Climate Change will be supported". We have observed that the local policy lacks defined and measurable parameters for which developments should strive. In the absence of specific benchmarks, we firmly believe that our approach aligns with policy requirements. Our commitment to responsible and thoughtful development, encompassing environmental, social, and economic considerations, reflects our dedication to fostering positive outcomes for the community and the environment. While we acknowledge the absence of explicit metrics, our actions remain in harmony with the spirit of policy objectives, ensuring that our project contributes positively to the local context. We have provided additional clarity as to why, on plan, the proposals only proved ~50% of solar PV but explained this is an erroneous perspective and the proposals have maximised all available roof space with solar PV. It should be noted that to increase the solar provision, it will inherently increase the embodied carbon in the

		Page 19 of the ES states: The Developer will apply best practice principles during construction; as set out in the mitigation, construction will aim to reduce its energy and material consumption as far as possible and install heating equipment which does not burn hydrocarbon fuels (gas, oil, biomass etc.). Surely best practice in construction means BREEAM outstanding or equivalent and maximising renewables?	structure, energy consumption as natural lighting provided by roof lights will be reduced and potentially reduce safety. Further to our conversation, we ask that you review and provide objective reasoning and explanation where you may believe we are not compliant with policy.
6.	The assessment is sufficient to estimate the effects GHG emissions sources, including: Vehicular emissions during the construction stage; Embodied carbon in construction materials; Vehicular emissions during the operational stage; and Energy demand during the operational stage.	I am not certain Blaby has the technical remit and capability to critique the figures on this. We have employed additional resource on climate change and if anything comes up in this regard, we will bring it back to you.	We have provided clarity as to why differing tools have been adopted to complete the assessment. We have acknowledged and agreed that these tools are acceptable for the means of which they intended.
10.	The Construction Traffic Management Plan (CTMP) (document reference 17.6) will minimise and mitigate the	I can't see how the CTMP is designed to significantly address GHG emissions other than through vehicles being up to moder	Whilst the CTMP does not explicitly refer to 'climate change', it includes several key aspects that will undoubtedly reduce emissions and therefore

	environmental impacts of construction activities, including the reduction of GHG emissions.	standards. GHG isn't mentioned once in the document. Maybe this point just needs to be struck out.	inherently better HNRFI's effects on Climate Change. Text amended to reflect discussions. By means of further explanation: Like the CEMP, the framework CTMP serves as a foundational document that sets out the overarching principles, objectives, and strategies for managing environmental considerations during a construction project. It establishes the commitment to environmental protection, outlines key responsibilities, and provides a general roadmap for achieving environmental sustainability. As a 'live' or 'living document' it serves as a guiding document that sets the tone for all environmental protection and sustainability throughout its phased development. It provides a structure within which detailed sub-plans are developed, agreed upon with the local authority, and implemented to manage specific environmental aspects effectively. This process ensures that the project adheres to local regulations, minimises negative impacts, and contributes to a more sustainable built environment.

1.4 Air Quality

Version	Date	Issued by
01	24/05/2023	TSH
02	16/06/2023	BDC
03	28/07/2023	TSH
04	21/09/2023	TSH
05	23/10/2023	BDC
06	24/10/2023	TSHL

Matters agreed

Ref.	Matter agreed	Record of agreement
1.	The air quality impacts would not adversely impact on the considerations set out at NPS paragraph 5.13.	Agreed through this SoCG.
2.	Methodology applied to the assessment including the following: - Construction phase dust assessment utilising Institute of Air Quality Management (IAQM) guidance; and Construction and Operational phase road traffic impact assessment utilising IAQM and Environmental Protection UK (EPUK) guidance to determine the significance of impacts at human receptor locations and Design Manual for Roads and Bridges (DMRB) guidance to determine the requirement to consider ecological designations.	Agreed through this SoCG
3.	Incorporation of mitigation measures within the HNRFI to minimise the impact of the HNRFI on local air quality, including: - Electric Vehicle (EV) charging provision; - Provision of bus stop; - Use of Photovoltaic (PV) array as primary energy source; - Site Wide Travel Plan to promote active and low emissions transport uptake to the HNRFI (only agreed in so far as air quality is concerned).	Agreed through this SoCG

4.	Paragraphs 1.77 to 1.79 under the heading Dust and Air Quality of the CEMP are agreed.	Agreed through this SoCG.
5.	Assessment of back-up Combined Heat and Power (CHP) unit emissions on local air quality.	Agreed through this SoCG.
6.	Requirement 29 Combined Heat and Power for Energy Centre is agreed.	Agreed through this SoCG
7.	That the following wording shall be added to Requirement 9 Sustainable Transport Strategy: (2) The undertaker must use reasonable endeavors to maximise the use of Euro VI compliant HGV and public transport vehicles in respect of: (a) any HGV fleets operated by occupiers of the warehouses which visit the warehouses; and (b) any public transport service provided pursuant to the sustainable transport strategy and dedicated to serving the authorised development.	Agreed through this SoCG.
8.	It can be confirmed that the 2022 version of the DEFRA Technical and Policy Guidance has been used, as detailed in paragraph 9.98 and reference 15 in Chapter 9 of the ES (document ref 6.1.9)	Agreed through this SoCG.
9.	An air quality addendum (Doc Ref: 6.4.1) has been prepared and submitted which takes consideration of the quality assessment results in accordance with the revised PM2.5 air quality objectives published in early 2023. Overall, the impact of the HNRFI is predicted to be not significant in relation to the future PM2.5 objectives.	Agreed through this SoCG.
10.	With regards to BDC's AQMA 6, whilst the LDV contributions do marginally exceed the criteria contained within the EPUK guidance, given the response on the highest predicted impact from the scheme, the current monitored concentrations within the AQMA, and the fact that there is an overall reduction to HGV within the AQMA, any impacts at this	Agreed through this SoCG.

	location are unlikely to be significant.	

Matters not agreed

<table>
<tr><th>Ref.</th><th>Matters not agreed</th><th>Any actions rising</th></tr>
<tr><td>1.</td><td>Concerns remain regarding the potential impacts on the Free Holt Ancient Woodland located immediately adjacent to the new link road, where a percentage change relative to the lower critical load (10 kg N ha-1 year-1) of up to 1.4% is predicted.
The stated N Deposition is significantly above the critical levels (>49 kg N ha^{-1} y^{-1}) and therefore, any change, no matter how small, can have a detrimental impact on this ancient woodland. Furthermore, impacts from the scheme at this location are unique, as it is not simply a case of additional traffic impacts on an existing road passing the woodland, but the introduction of a new heavily trafficked, HGV access route on the opposite side of what is, a relatively narrow area of natural importance. Therefore, further detail relating to the assessment of this area, i.e., incremental distance contributions from the boundary of all relevant roads, including the new access link, is requested.</td><td>The potential impacts on the Free Holt Ancient Woodland (AW) should be agreed through the Ecology SoCG. We are only able to agree matters relating to the air quality assessment undertaken to provide input into the ecologist's assessment.

The range in changes of nitrogen deposition across the AW are as shown in Tables 9.29 and 9.30 of Chapter 9 – Air Quality. The incremental distance contributions are shown in the table below. The changes below include contributions from the new access link. P1 is the closest point of the AW to the new access link. Additional transects were then modelled at 10m intervals, up to 200m into the AW.
<table>
<tr><th rowspan="2">Designation and distance from road centreline</th><th colspan="2">Nitrogen deposition change (kg ha-1 year-1)</th></tr>
<tr><th>2026</th><th>2036</th></tr>
<tr><td>Freeholt Wood AW_T1_P1</td><td>0.1102</td><td>0.1421</td></tr>
<tr><td>Freeholt Wood AW_T1_P2</td><td>0.0957</td><td>0.1305</td></tr>
<tr><td>Freeholt Wood AW_T1_P3</td><td>0.0841</td><td>0.1189</td></tr>
<tr><td>Freeholt Wood AW_T1_P4</td><td>0.0754</td><td>0.1102</td></tr>
<tr><td>Freeholt Wood AW_T1_P5</td><td>0.0696</td><td>0.1015</td></tr>
<tr><td>Freeholt Wood AW_T1_P6</td><td>0.0609</td><td>0.0928</td></tr>
<tr><td>Freeholt Wood AW_T1_P7</td><td>0.0551</td><td>0.0870</td></tr>
<tr><td>Freeholt Wood AW_T1_P8</td><td>0.0493</td><td>0.0812</td></tr>
<tr><td>Freeholt Wood AW_T1_P9</td><td>0.0435</td><td>0.0783</td></tr>
<tr><td>Freeholt Wood AW_T1_P10</td><td>0.0406</td><td>0.0725</td></tr>
<tr><td>Freeholt Wood AW_T1_P11</td><td>0.0377</td><td>0.0696</td></tr>
<tr><td>Freeholt Wood AW_T1_P12</td><td>0.0348</td><td>0.0667</td></tr>
<tr><td>Freeholt Wood AW_T1_P13</td><td>0.0319</td><td>0.0638</td></tr>
<tr><td>Freeholt Wood AW_T1_P14</td><td>0.0290</td><td>0.0609</td></tr>
</table></td></tr>
</table>

		<table><tr><td>Freeholt Wood AW_T1_15</td><td>0.0261</td><td>0.0609</td></tr></table> Information regarding the impact is available in the Ecology ES Chapter, ecology responses to Written Representations and the Ecology SoCG.
2.	No assessment has been undertaken of the air quality impact of queueing traffic as a result of the additional 'barrier down' time at Narborough level crossing. With residential receptors and pedestrian traffic, including school children, adjacent to these affected highways, the implication for air quality needs to be assessed by the Applicant	An assessment of the impact of additional queuing traffic as a result of additional 'barrier down' time at Narborough level crossing will be undertaken and submitted at Deadline 3.
3.	BDC requests that the Applicant undertakes damage cost analysis to determine a suitable monetary contribution to offset impacts, which BDC could then use to address existing areas of concern such as the AQMA.	A damage cost analysis was not requested by BDC during scoping or the consultation period. An assessment of damage costs is not required as part of BDC policy requirements.
4.	Regarding off-site monitoring, BDC cannot make a final determination as to whether this is required without being provided with traffic flow data.	The traffic data utilised within both the noise assessment and the air quality assessment was provided to Edward Stacey of BDC on 16th August 2023 via a WeTransfer link as part an email regarding the noise assessment works. A response was received from BDC on the 16th August 2023 confirming receipt. We can resend this if required.

1.5 Noise and Vibration

Version	Date	Issued by
01		TSHL
02		BDC
03	01.09.2023	TSHL
04	20.10.2023	BDC
05	24.10.2023	TSHL

Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapter 10 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN)	Agreed through this SoCG
2.	In accordance with requirements 27 of the draft DCO, an assessment of the expected noise impact at relevant receptors in accordance with BS4142:2014+A1:2019 Methods for rating and assessment industrial and commercial sound and BS8233:2014 Guidance on sound insulation and noise reduction for buildings shall be submitted and approved in writing by the relevant planning authority.	Agreed through this SoCG
3.	Notwithstanding the deliverability of the acoustic barriers, Requirement 28 of the draft DCO suitable controls the provision of acoustic barriers providing the following text is added at the end of the requirement: "…and maintained and retained for the lifetime of the development."	Agreed through this SoCG
4.	Construction and Operational Phase Noise and Vibration Assessment – Assessment Criteria	Agreed through this SoCG
5.	Construction and Operational Phase Noise and Vibration Assessment – Assessment Methodology	Agreed through this SoCG
6.	Construction and Operational Phase Noise	Agreed through this SoCG

	and Vibration Assessment - Selection of Sensitive Receptors	
7.	Operational Noise and Vibration Assessment - Methodology for Additional Noise and Vibration Monitoring	Agreed through this SoCG
8.	Construction Phase Noise Assessment	Part agreed through this SoCG, see matters not agreed section
9.	Construction Phase Vibration Assessment	Agreed through this SoCG
10.	Construction Phase Traffic Assessment	Agreed through this SoCG
11.	Operational Phase Noise Assessment - Modelling Inputs and Source Data	Agreed through this SoCG
12.	Operational Phase Noise Assessment - Fixed Plant Noise Levels	Agreed through this SoCG
13.	Operational Phase Noise Assessment - Off-site Rail Movements	Agreed through this SoCG
14.	Operational Phase Ground borne Vibration Assessment from off-site rail movements	Agreed through this SoCG
15.	Operational Phase Noise Assessment of A47 Link Road	Agreed through this SoCG providing that the relevant AAWT data is provided as outlined below for verification.
16.	Operational Phase Noise Assessment of Tranquility	Agreed through this SoCG
17.	Construction Phase Noise and Vibration Mitigation	Agreed through this SoCG
18.	Operational Phase Assessment of Maximum Noise Levels with Mitigation	Agreed through this SoCG
19.	Construction Phase Noise and Vibration Assessment - Residual Impacts	Agreed through this SoCG
20.	Construction and Operational Phase Noise and Vibration Assessment – Climate Change	Agreed through this SoCG
31.	Construction and Operational Noise and Vibration Assessment - Summary and Conclusions	Agreed through this SoCG

Matters not agreed

Ref.	Matters not agreed	Any actions rising
1.	Matters contained within the CEMP (Document reference: 17.1) and in particular paragraphs 1.71 – 1.76 in relation to noise and vibration impacts during the construction period.	Paras 1.71 – 1.76 simply highlight that there could be noise and vibration impacts and set out a framework of mitigation measures that could be employed. Identification of further measures can be incorporated into the phase-specific 'noise and vibration management plan' (NVMP), where required (as described in 1.73). Further discussion on this point is requested.
2.	Construction and Operational Phase Noise Assessment - Baseline Noise Survey Methodology and in particular the monitoring protocol at NMP5. Additional monitoring should be undertaken to verify the baseline conditions at the Aston Firs Caravan Site and Castlewood Mobile home park to the south of the Site. Monitoring should be undertaken over a longer period and include at least 3no. working weekdays and a full weekend period.	The CRTN measurement undertaken at NMP5 has only been used to calibrate the noise model for the base year 2019. As reported in the Noise and Vibration Chapter, the noise levels measured at NMP1 and NMP2 which were undertaken over a longer period have also been used to calibrate the noise model, and this shows good correlation between the modelled and measured results. Notwithstanding this, the predicted noise levels within the model are in excess of those which were measured at NMP1, 2 and 5, which presents a robust assessment case.
3.	Operational Phase HNRFI Noise Assessment – the acoustic design of the illustrative masterplan The applicant has not considered all	Other site constraints, particularly relating to the track alignment on site, have limited the ability to incorporate significant

	possibilities. In particular, Chapter 4 of the submitted Environmental Statement indicates that residential amenities at Elmesthorpe village, including dwellings along the unadopted Bridle Path Road were considered during the masterplan design. However, the acoustic mitigation measures include onerous 4m and 6m high barriers only 20m away from single story dwellings which does not follow good acoustic design. There is potentially to relocate internal service roads and railway lines within the Site and use the buildings to screen sound from residents which should be investigated due to the significantly onerous barriers and the residual +12 dB excess over background sound level.	acoustic screening to Elmesthorpe village through buildings on site. As the illustrative masterplan has evolved, loading bays and service yard areas have been removed from the northern facades of Units 7, 8 and 9, with these areas now fully screened from receptors to the north. Bunding is proposed adjacent to the A47 Link Road as it passes Bridge Farm, and this has been included within the earthworks model, incorporated within the noise model. Where feasible, acoustic design principles have been employed, however there are other constraints that need to be balanced.
4.	Operational Phase Noise Assessment – HGV movements, loading/unloading operations and service yard areas, including SRFI operations. The applicant's acoustic consultants have advised that the relevant standard (BS 4142) excludes HGV movements along public highways. However, the A47 link road is the only access point to the Site and would not be a public highway prior to the development coming forward. It cannot be argued that putting a rail freight terminal on an environment alien to this type of operation would not have a detrimental impact on residential amenity. The A47 link road is the only access to the Site and therefore HGV movements in accordance with BS 4142 should be assessed over a shorter time interval than DMRB which is 18-	It is not appropriate to assess noise from the A47 link road in accordance with BS4142. Whether the A47 link road was a public highway prior to the development coming forward is irrelevant. BWB's statement and BDC's statement on 3dB being just perceptible in normal conditions are the same.

	hours. The applicant has failed to thoroughly apply a holistic approach and has not considered the agent of change principle within the NPPF. Blaby District Council request that HGV movements are holistically assessed along the A47 link road to the east of the Site access towards the proposed new junction at the M69. A more detailed assessment over a shorter time period to show the true impact of regular HGV movements should be undertaken and should be referenced against the NPSE and the NPPF Additionally, Blaby District Council do not agree to the contextual argument made by the applicant that an ambient sound level increase of +3.9 dB will not be audible by residents. BWB (the appointed acoustics consultants) has told Blaby District Council that IEMA Guidelines (The IEMA Guidelines for Environmental Noise Impact Assessments) state that 3 dB changes are only perceptible under conditions in the field. However, the document actually states that a change of 3 dB is perceptible under most normal conditions and that it is a 1 dB change that is only just perceptible in laboratory conditions. The focus should be on the results of the formal BS 4142 numerical assessment which shows a +12 dB excess over background sound level even with mitigation in place.	
5.	Operational Phase Noise Assessment - Maximum Noise Levels specifically the fact that the applicant has stated a 10 dB reduction for crane movements and maximum sound levels through appropriate equipment selection. The applicant has used ‘proof of evidence’ in	Further information can be provided for Deadline 3.

	Appendix 10.7 which BWB (the appointed acoustics consultants) say proves that a 10 dB reduction can be afforded to sound levels from the crane through equipment selection. However, analysis of the 'proof of evidence' shows that there is no evidence of this at all. The 'proof of evidence' document just states that a 10 dB reduction can be afforded but doesn't offer any data to verify this. The applicant should provide numerical evidence, ideally empirical, of a 10 dB reduction. Otherwise, this statement and assessment should be removed from the overall submission and the detrimental impacts should be revised.	
6.	Operational Phase Noise Assessment of Off-site Road Traffic No tabulated data has been provided and raw AAWT data has not been presented in a usable format. In addition, predicted development contributions have been assessed against a baseline committed development scenario and therefore, no cumulative assessment in accordance with EIA guidance has been undertaken. Blaby District Council requests AAWT data used to inform the assessment be presented in excel format with street referenced names. The baseline data should not include any committed or development flows to enable cumulative or 'in combination' impacts to be determined. Assessing the proposed development against a committed scenario may significantly underestimate cumulative impacts on sensitive receptors.	AAWT has been provided to BDC's consultant in an Excel format with link IDs and the associated GIS shapefiles.
7.	Operational Phase Noise Assessment – Mitigation for HGV movements, loading/unloading operations and service yard areas, including SRFI operations	Further information on this can be provided by Deadline 3.

	The applicant has failed to consider good acoustic mitigation options in a suitable hierarchy. The mitigation measures still result in either an Adverse, or Significant Adverse impact despite the inclusion of 4m and 6m high acoustic barriers, this is not acceptable. No consideration of re-orientation of dwellings, acoustic barriers within service yards or operational restrictions have been considered and instead the applicant has chosen to use boundary screening measures only. Blaby District Council request that the assessment is conducted using a good acoustic design process taking into consideration barriers at source, reorientation of buildings and operational restrictions before boundary mitigation measures.	
8.	Operational Phase Noise Assessment - Mitigation for Off-site Road Impacts The results of the DMRB assessment show that a 6m and 4m high barrier on the boundary of Aston Firs Caravan Site and Woodfield Stables will be required to suitable reduce sound levels. However, no alternative solutions have been considered such as improved glazing and ventilation options or reorientation of the A47 link road. Furthermore, a review of the available drawings shows a proposed public footpath between the A47 link road and the aforementioned receptor and based upon the drawing there is no physical footprint available to construct such an onerous barrier. Moreover, the indicated barriers would require the removal hedgerow that bound the sites. The mitigation measure is completely alien to	The orientation of the A47 link road is influenced by several different requirements and parameters meaning that any significant changes from a noise perspective are not feasible. Improved glazing and ventilation options would be considered a last resort in accordance with a noise mitigation hierarchy. Clarity on what the ”detailed assessment of numerical values” refers to would be beneficial so a response can be provided. The 6m high barrier is the most effective available and viable solution. Further details on how it will be constructed can be provided

	this receptor and highly inappropriate in the hierarchy of design. Once a detailed assessment of numerical values is presented, consideration needs to be given to residential amenity in external areas, consideration of the effect level criteria in DMRB, consideration against the NPSE and consideration against the Noise Insulation Regulations. Blaby District Council do not accept a 6m high barrier and the applicant needs to demonstrate alternative solutions. If a barrier is the only viable solution once further assessment has been completed, the applicant needs to demonstrate how this will be constructed between the residential receptor and the public right of way and A47 link road.	by Deadline 3.
9.	Operational Phase Noise and Vibration Assessment - Residual Impacts BWB have tried to use unjustifiable context to state that the Site will not have a detrimental impact on residential amenity. When considering each section of guidance individually, the significant impact could be easily overlooked. However, when considering all impacts collectively, it cannot be ignored that the proposals are completely alien to this environment and if the only suggestions put forward by the applicant are for onerously high acoustic barriers immediately adjacent to residential receptors, then the Site is fundamentally unsuitable. Furthermore, even with the mitigation measures in place, a Significant Adverse impact is still predicted and, in accordance with the NPSE, this would be classified as a Significant Observed Adverse Effect Level which should be avoided.	Matter not agreed.

10.	Construction and Operational Noise and Vibration Assessment - Summary and Conclusions The overall summary and conclusions cannot be agreed upon until the significant matters raised above are dealt with.	Matter not agreed

1.6 Ecology

Version	Date	Issued by
01	18.05.2023	TSH
02	19.06.2023	BDC
03	28.06.2023	TSH
04	18.07.2023	BDC
05	04.10.2023	TSH

Matters agreed

Ref.	Matter agreed	Record of agreement
General Comments		
1.	ES Chapter 12 and its associated appendices and figures have been prepared in accordance with, specifically, paragraphs 5.20 to 5.38 of the National Policy Statement for National Networks (NPSNN).	Agreed through this SoCG
2a	The Ecological Mitigation Management Plan requirement (21) is agreed.	Agreed through this SoCG
2b	LUC is pleased to note the inclusion of consideration for terrestrial GCN within the EMMP	Agreed through this SoCG
3.	The Woodland access management plan requirement (33) is agreed.	Agreed through this SoCG
4	Executive summary – Paragraph 1.3. LUC agrees that the Applicant has carried out sufficient phase 1 and phase 2 species surveys	Agreed through this SoCG
5	Methodology – Paragraph 1.14 LUC agrees with the search radii employed for the majority of the ecological receptors, however standard guidance for barbastelle uses a 10km buffer, as determined by evidence on commuting and/or foraging activities.	Agreed through this SoCG
6	Extended Phase 1 Survey, Paragraph 1.28 LUC agrees that the EP1HS was undertaken within the optimal survey period for such surveys.	Agreed through this SoCG
7	Paragraphs 1.29 through to 1.39	Agreed through this SoCG

	LUC agrees that all phase 2 surveys were undertaken in accordance with standard guidance and during the optimal survey periods.	
8	Annex 4 - Bat surveys - paragraph A4.16 LUC notes that the bat emergence/re-entry surveys were undertaken during the optimal survey period for roosting bats, particularly with reference to potential summer roosts)	Agreed through this SoCG
9	Annex 4 - Bat surveys - paragraph A4.16 LUC welcomes the inclusion of updated GCN surveys to be undertaken prior to any habitat loss.	Agreed through this SoCG
10	Annex 5 - GCN surveys - paragraph A5.25 LUC welcomes the inclusion of updated GCN surveys to be undertaken prior to any habitat loss.	Agreed through this SoCG
11	LUC agrees that Metric 3.1 and associated condition sheets was the appropriate metric methodology at the time of assessment.	Agreed through this SoCG
Ecology Baseline		
12	Executive Summary, Paragraph 1.6 The Applicant states that the 'majority of the main order limits is of limited (negligible or site-level) value, however, has also stated that three LWS and seven LWS are also within the order limits.	Agreed in line with Applicant's comment
13	In general LUC agree with the outline provided regarding important ecological features within the order limits, however, does not agree that bats are only afforded 'Local' importance. Likewise, LUC does not agree that breeding birds such as lapwing and skylark are of only 'District' importance. This also applies to otters. All former European Protected Species should be of 'National' level importance irrespective of their presence within the main order limits.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
14	Paragraph 1.80 - Search radius for bird species is stated as 3km, standard guidance suggests 5km.	Agreed in line with applicant and approach to required updated surveys in 2024/25
15	LUC disagrees with the according of importance to habitats and species, which appears to be based on their abundance	Agreed in line with Ref. 13 above.

	within the order limits as opposed to their status or level of protection.	
16	Paragraph 1.117 - LUC disagrees that GCN are not included as an IEF within the EcIA, on the basis that suitable terrestrial habitat exists within the main order limits and that a number of off-site ponds were unable to be surveyed due to access restrictions. It is therefore not inconceivable that GCN are present within those off-site ponds and therefore may be present within terrestrial habitat inside the main order limits.	Agreed in line with applicant including GCN as a potential IEF and appropriate mitigation measures in line with NE rapid risk assessment and associated construction / operational works
17	Annex 4 - Bat surveys - paragraph A4.4 LUC notes that no surveys were undertaken within areas that were considered to be 'at no risk of significant adverse impacts to potentially roosting bats', LUC would hope that these areas are given suitable consideration should any changes to the project occur.	Further clarification received - Agreed
18	Annex 4 - Bat surveys - paragraph A4.18 LUC notes that no night visual aids are mentioned with regard to emergence/re-entry surveys. LUC accepts that updated BCT guidance was published after these surveys but would expect any planned pre-construction surveys are undertaken in accordance with the updated NVA guidance.	Agreed in line with applicant's comment – updated emergence surveys to include NVAs
Ecology and Biodiversity ES Chapter		
19	Paragraph 12.155 The loss of broadleaved plantation woodland appears to be offset by new woodland planting, with no consideration given to how long the new woodland plantation (and therefore ecological and landscape buffer) will take to establish (and act as replacement for existing mature trees). Without this consideration, the impact must be assessed as significant until replacement planting has been established.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
20	Paragraph 12.157 The applicant states that the 'vast majority of wet ditch habitat will be retained and provided with a reasonable buffer from the proposed development'. Clarity is needed	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under

	as to what the reasonable buffer is and what guidance has been used to determine	local authority condition discharge.
21	Paragraph 12.158 Proposals regarding the re-routing of the existing stream, reinstatement and the establishment of vegetation is unclear, given little detail as to how this will be achieved in certainty. Plans must be provided including consideration of EA flood plain guidance and detailed vegetation planting.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
22	Paragraph 12.172 Anticipated restrictions' on nighttime working is not enough to ensure adequate mitigation is included within the project with respect to bats. These mitigation measures must be outlined in full.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
23	Paragraph 12.183 LUC notes that no consideration to fragmentation of habitats is included within the operational impacts and effects. This seems remiss as such a large development proposal will certainly impact future commuting/foraging abilities for a wide range of species.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
24	Paragraph 12.204 Due to the omission of GCN as an IEF within the impact assessment, no consideration as been given to terrestrial habitat loss and potential killing/injuring of terrestrial GCN (relevant to the construction phase).	Now agreed in line with applicant including GCN as a potential IEF and appropriate mitigation measures in line with NE rapid risk assessment and associated construction / operational works
25	Mitigation measures – badger Further detail around provision of alternative sets, if required, and associated time delay in provision of alternative sett and closure of current set to be included within mitigation.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
Biodiversity Impact Assessment		
26	Biodiversity Metric 3.1 has not been provided for review with assessor comments in the baseline, nor have the condition sheets been	Agreed. Applicant confirms that a full BIA report, inclusive of condition

	included. A full BIA report, including condition assessments and rationales for each assessment is expected. The metric and associated mapping should link between one another and be clearly labelled	assessments and assessor comments will be provided at detailed design stage.
27	The full River Condition Assessment was not provided for review. This should be included as an appendix to the main report.	Agreed as above. The RCA and supporting report should detail how post development condition will be achieved which must be reviewed by a suitably qualified ecologist (SQE).
28	Intermediate 'fairly good' and 'fairly poor' condition categories have been selected for existing habitats. For example, improved grassland has been classed as being in 'fairly poor' condition. Justification of each should relate to the condition assessment criteria and should be included within the assessor comments column of the metric tool and further detailed within the report as per best practice.	Agreed as above. Applicant confirms that a full BIA report, inclusive of condition assessments and assessor comments will be provided at detailed design stage. These matters must be addressed in the detailed metric and reviewed by an SQE.
29	Paragraphs 1.11-1.17 Improved grassland has been classed as being in 'fairly poor' condition. As per the metric and condition assessment guidance, 'fairly' categories should be justified. It is detailed in the chapter that this is due to the lack of species diversity, uniform sward height and intensive grazing, however further explanation is recommended to demonstrate why this habitat should not be classified as 'poor' or 'moderate'.	Agreed in principle, however this rationale must be provided within the assessor comments and supporting BIA.
30	Paragraph 1.9 / Annex 1 It is recommended that further justification of the strategic significance is provided and disagrees that the majority of habitats should be classed as "Area/compensation not in local strategy/ no local strategy" due to habitat connectivity to the wider landscape.	SoCG discussion reached a point of agreement that strategic significance should be reviewed in the next iteration of the metric calculations with well-connected habitats being re-classified as 'location ecologically desirable but not in local strategy'. It is agreed that hedgerows will be entered as 'formally

		identified in the local strategy' in the detailed BNG metric
31	Paragraphs 1.18-1.19 It is unclear as to how off site BNG will be provided, secured and delivered.	Agreed that this will be provided at detailed design stage. Off-site BNG must be delivered through a suitable mechanism and their calculation and delivery plan must be agreed with the planning authority and reviewed by an SQE
32	Paragraph 1.22 It is noted in the Metric 3.1 guidance that newly planted trees should be categorised as 'small'. If larger size classes are to be selected, evidence is required to justify their input into the metric.	Agreed through SoCG that all newly planted trees will be re-categorised as 'small' trees.
33	Paragraph 1.25 It is unclear as to how 'moderate' condition will be achieved, as simply allowing a watercourse to naturalise will not achieve this condition, particularly as the difficulty of creation is high.	Agreed as per point 27. The RCA and supporting report should detail how post development condition will be achieved which must be reviewed by a suitably qualified ecologist (SQE).
34	Paragraph 1.28 Best practice would dictate that the hedgerows are entered into the metric as they make up part of the baseline of the site. They would then be recorded as not being lost.	Agreed through SoCG that the metric produced at detailed design stage will incorporate hedgerows as part of the baseline assessment. This must be reviewed by a SQE and approved by the planning authority
35	Paragraphs 1.32-1.33 As per the NPPF / Environment Act and current Metric guidelines, all efforts should be made to retain and enhance biodiversity on site and where habitats will be lost, new habitats of the same or higher distinctiveness should be created. Further assessment is required to reduce habitat loss and increase BNG on site. Offsetting is no longer used as appropriate terminology. Should 10% BNG	Agreed as per above through SoCG that priority will be given to achieving a net gain for biodiversity on site, however where this is not possible, an appropriate assessment of off-site BNG and delivery mechanism through which to achieve this will be

	not be met on site, an appropriate planning mechanism, such as the forthcoming register of habitat banks should be used to purchase credits or land should be acquired that will fall under the management of the proposed management company.	reviewed by a SQE and approved by the planning authority.
36	Annex 1 Other neutral grassland in the created tab has been selected as 'fairly good' as a precautionary measure. Further clarification is sought as to the rationale for not seeking to achieve 'good' condition through long term monitoring and management.	Agreed through SoCG that further refinement of post development habitat condition will be required. Where the same habitat type is expected to reach different conditions, this must be separated into its component parts and assessed individually as per metric guidelines.
37	The BIA does not make reference to BS 8683 Process for Designing and Implementing Biodiversity Net Gain (2021).	Agreed through SoCG that any future iterations of the BIA and supporting documentation will make reference to the most recent British Standard.
Woodland Access Management Plan		
38	Paragraph 3.22 Clarification is sought regarding the protection and management of new native plants. What management and monitoring measures will be in place to ensure the desired condition of these trees is reached? It is mentioned that fencing may be used, however clarification is sought as to the existing pressure from deer/other species and whether enclosures or other methods may be required depending upon the numbers of deer present.	Agreed through SoCG that no phase shall commence until a woodland access management plan has been submitted and approved by the relevant planning authority. A detailed WAMP will be produced in consultation with NE and HBBC. It is recommended that protection and monitoring measures should be put in place as part of this document.
39	Paragraph 4.1 How will woodland management and monitoring over the lifetime of the development be secured and how will this fit with BNG expectations for 30yrs + What is the proposed level of deadwood to be retained and how will this be zoned to ensure that the need to provide biodiversity	As above. It was agreed through the SoCG that clear distinctions would be made between BNG and woodland management for both on site and off-site woodland and trees.

	enhancements also considers health and safety risks.	
40	Clarification is sought as to the growing media proposed and whether measures such as the use of mycorrhizal fungi would be used to improve the establishment rate, paying particular regard to the pressures of climate change.	As above. In addition, it is recommended that growing media and long term risks from climate change such as drought and wild fires are included as part of this document.
Landscape and Ecological Management Plan		
41	A plan/map that links the BIA and LEMP proposals should be provided for review.	Agreed through SoCG that this will be provided as part of the revision to the LEMP.
42	P.g.11 Clarification is sought as to how SuDS ponds that are intended to have a dual function of biodiversity benefit and surface water attenuation, would ensure that pollution levels do not compromise the ability for species to thrive. These ponds should be designed as per the SuDS manual ch6.	Agreed through SoCG that distinctions must be made between SuDS that are intended for water quality and attenuation versus those which are intended to provide additional benefit for wildlife. The LEMP must make provision for additional maintenance for wildlife ponds that is sensitive to amphibians, invertebrates, birds and small mammals.
43	Paragraph 4.6 Again, BS 8683 Process for Designing and Implementing Biodiversity Net Gain should be referenced.	Agreed as per BIA that future iterations will refence the latest British Standard.
44	P.g.16 Clarification is sought as to what specific biosecurity measures will be in place when importing materials and plants.	SoCG did not clarify this point, however it is agreed in principle that further detail will be provided within the future iterations of the LEMP as per the Requirements. This will be an essential component of species selection, monitoring and maintenance.

45	Paragraphs 5.11-5.12 Clarification is sought as to the protocol should disease be noted within retained / new specimens e.g., Chalara.	As above.
46	Paragraph 4.13 Clarification is sought as to the proposed wet woodland mix and how these species will be managed.	SoCG did not clarify this point, however it is agreed in principle that further detail will be provided within the future iterations of the LEMP as per the Requirements.
47	Paragraphs 5.4-5.6 Clarification is sought as to how loss or remedial measures will be factored in the final BNG calculations and how any delays in achieving the desired condition will be recorded and communicated to the reviewing authority.	SoCG did not clarify this point, however, it is agreed in principle that further detail will be provided within the future iterations of the LEMP and BIA as per the Requirements. This should be reviewed by the relevant authority prior to approval of the LEMP as it will be essential to understand how biodiversity loss will be accounted for.
48	Paragraph 5.35 Clarification is sought as to the desired percentage of shading that will inform pruning activities.	SoCG did not clarify this point, however it is agreed in principle that further detail will be provided within the future iterations of the LEMP as per the Requirements
49	Paragraph 6.4 The LEMP details that monitoring of retained, enhanced and created habitats will be undertaken in accordance with the condition assessments associated with the Defra Metric, however further detail as to how this will be undertaken is required, particularly the final assessment of post development condition. Further detail is required surrounding the reporting that will be undertaken by the management company	Agreed as per point 47.

	that will detail whether the expected BNG has been achieved.	
50	P.g.15 Where new trees/shrubs are planted or works are to be undertaken in proximity to existing trees/hedges/shrubs, roots should be protected through the use of hessian matting and kept damp, particularly during any periods of extreme heat.	As per the Requirements, remedial actions and habitat specific protection measures should considered and be in place during works.
Construction Environmental Management Plan		
51	Paragraphs 1.181 – 1.190 under the section Ecology of the CEMP is agreed.	It is agreed in principle that further detail will be provided within the future iterations of the CEMP as per the Requirements.
52	Further detail is required regarding Birds - protocols regarding exclusion zones and working methodologies should nests be present Bats - further detail regarding bats and lighting such as lighting placement, lux levels, the use of hoods/cowls Badgers - covering of spoil and any other stored materials and the acoustic impact on badgers from noise and vibration	It is agreed in principle that further detail will be provided within the future iterations of the CEMP as per the Requirements. Method statements and species/habitat specific working restrictions and protocols should be included within the next revision of the CEMP.
Ecological Management and Monitoring Plan		
	The EMMP is brief and lacking detail, considering that it is relied heavily upon within the ecology ES chapter.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.
53	LUC notes that there is no general section on ecological monitoring during the works covered by the EMMP, specifically regarding record keeping and success of mitigation measures proposed.	Agreed in principle, further detail on appropriate mitigation measures to be provided through design process and agreed under local authority condition discharge.

Lighting Impacts		
54	Potential impacts from light pollution have been fully assessed within Appendix 3.2: Lighting Strategy (Document reference: 6.2.3.2) and ES Chapter 12: Ecology and Biodiversity (document reference: 6.1.12). Further details are included within the Construction Environment Management Plan (CEMP), (document reference: 17.1), which includes specific mitigation measures to ensure that lighting during the construction and operational phases will not have significant adverse impacts on wildlife. Detailed design measures will be secured through suitably worded conditions.	Agreed through this SoCG
55	In accordance with requirement 31 of the Draft DCO a scheme of all permanent external lighting that accords with the submitted Lighting Strategy (Document Reference: 6.2.3.2) will be submitted and approved prior to occupation.	TBC
56	The lighting strategy contains generic guidance with regard to bats and does not acknowledge utilising the updated ILP guidance that should be available pre-construction.	Agreed that future iterations of the lighting strategy will be produced in accordance with the Requirements. The lighting strategy should be reviewed by a SQE and approved by the relevant authority.
57	The lighting strategy also does not include detail regarding locations of ecological receptors and light spill effect	Agreed that future iterations of the lighting strategy will be produced in accordance with the Requirements. The lighting strategy should be reviewed by a SQE and approved by the relevant authority.
58	Matters contained within the CEMP (Document reference: 17.1) and in particular paragraphs 1.46 – 1.49 in relation to lighting are considered to require further detail to address lighting impacts, particularly those which relate to bats and artificial lighting, during the construction	Agreed that future iterations of the lighting strategy will be produced in accordance with the Requirements. The lighting strategy should be reviewed by a SQE and approved by the relevant authority.

	period.	
Air Quality		
59	Air modelling and assessment has been undertaken using the appropriate guidance and methodology (Chapter 9: Air Quality (document reference 6.1.9).	TBC
60	No impacts on ecological receptors are anticipated as a result of changes to air quality from the development (Chapter 9: Air Quality – table 9.22) as confirmed within ES Chapter 12: Ecology and Biodiversity (Document reference: 6.1.12) Paragraphs 12.91, 12.185, 12.187 and 12.193).	Agreed through this SoCG
61	The details at paragraphs 1.77-1.79 within the Construction Environment Management Plan (CEMP), (document reference: 17.1), include specific mitigation measures that are appropriate to avoid adverse impacts from dust pollution.	TBC
62	In accordance with Requirement 7 of the Draft DCO, a Dust Management Plan will be prepared to set out methods of dust control.	TBC
Noise and Vibration		
63	No adverse noise or vibration impacts to any designated sites anticipated. Potential impacts from noise pollution have been fully assessed within ES Chapter 10: Noise and Vibration (document reference: 6.1.10) and ES Chapter 12: Ecology and Biodiversity (document reference: 6.1.12). Further details are included at paragraphs 1.71 - 1.76 within the Construction Environment Management Plan (CEMP), (document reference: 17.1), which includes specific mitigation measures to ensure that noise pollution does not adversely impact ecological receptors.	TBC
Scope of Surveys		
64	The scope of ecological survey work as described within Appendix 12.1: Ecology Baseline (Document reference: 6.2.12.1). Ecological surveys are deemed to have been	Agreed through this SoCG

	undertaken at the appropriate time during the optimal survey period.	

Matters not agreed

Ref.	Matters not agreed	Any actions rising	Comments following SoCG
Ecology Baseline			
1	Introduction, Paragraph 1.14 The industry standard guidelines should also include for all phase 2 species specific surveys undertaken.	Update required	Not discussed during SoCG, Applicant to confirm update to document
2	Methodology, Paragraph 1.20 Best practice methodologies should be included within the industry standard guidance section.	Update required	Not discussed during SoCG, Applicant to confirm update to document
3	Methodology, Paragraph 1.24 LUC agrees with the use of aerial photography to determine potential ponds that may be used by GCN, however the standard guidance for GCN dispersal is 500m (not 250m). Noted that within Paragraph 1.47 through to 1.48 a 500m survey buffer was used for survey purposes, LUC recommends that the methodology is updated accordingly	Update required	Not discussed during SoCG, Applicant to confirm update to document
4	Paragraph 1.58 The report states that baseline information is presented for the main order limits and that	Further clarification sought	Not discussed during SoCG, Applicant to confirm update to document

	other areas within the DCO order limits are 'typically of negligible ecological importance', however no data is presented to support this assumption. It appears that phase 2 surveys were only conducted within the main order limits and not the full DCO order limits, LUC queries the ability to assume 'negligible importance' without undertaking appropriate surveys.		
5	Paragraph 1.84 Paragraph states that 'diversity and abundance of species recorded is considered to be typical … with flocks of declining farmland specialists such as those mentioned above' yet has not outlined what those species are (other than their BoCC listing). LUC notes that this information is included within the report annexes, however broad descriptions should be included within up front chapters for readers ease.	Update required	Not discussed during SoCG, Applicant to confirm update to document
6	Annex 4 - Bat surveys - table A4.1 It would be helpful to include the GLA results within the table, assuming that all buildings with three surveys were considered to be of high	Update required	Not discussed during SoCG, Applicant to confirm update to document

	suitability etc.? LUC notes that this information is included in Table A4.6, however this appears after table A4.1 so is confusing to the reader.		
7	LUC notes that no full survey results have been provided with reference to water vole, otter and badger, whilst acknowledging that there is information within the main text, as other surveys have been presented in full it would be expected that this would be applied to water vole, otter and badger. It's acknowledged that these reports are usually confidential, however for review purposes it's important to include.	Update required	Not discussed during SoCG, Applicant to confirm update to document
Ecology and Biodiversity ES Chapter			
8	Specific comments noted within the baseline ecology report that are relevant within the ES chapter are not specified, however still relevant (e.g., regarding desk study search radii, receptor value etc.)		
9	The incorrect guidance has been cited regarding biodiversity net gain and development (this should be the updated 2021 guidance)	Update required	Not discussed during SoCG, Applicant to confirm update to document
10	LUC notes that no matrix of effects is		Not discussed during SoCG, Applicant to

	included within the chapter, this is usually included to help guide the reviewer in respect to impact significance.		confirm update to document
11	Paragraph 12.207 LUC disagrees that an outline decommissioning plan is not included, despite the nature and longevity of the proposed development. This high-level assessment should state that a detailed assessment must be revisited and formally submitted and approved by the SoS in the years before decommissioning.	Disagreed	Not discussed during SoCG, Applicant to confirm update to document
12	Cumulative effects - paragraph 12.245 Whilst it is acknowledged that potential cumulative schemes are considered to be spatially divorced from the proposed development, unsubstantiated claims with regard to biodiversity net gain through both onsite and offsite measures have been stated. No long-term management plan has been included with regard to BNG and offsite measures are yet to be secured. Alongside this, there seems to be a reliance on other developments proposals with regard to both to ensure no	Disagreed	Not discussed during SoCG, Applicant to confirm update to document

	adverse impacts.		
Biodiversity Impact Assessment			
13	The scheme demonstrates the delivery of a feasible strategy to deliver at least a 10% net gain in biodiversity value.	Further review required	Further detail is required regarding refinement of the on-site calculations and confirmation of the offsite BNG proposals
Landscape and Ecological Management Plan			
14	Paragraphs 2.2-2.3 Clarification is sought as to why the LEMP is designed to cover the first 25 years post completion as opposed to 30 years+ as per the Metric 3.1 guidelines and taking into consideration the rate of establishment of more complex habitat types / their time taken to reach target condition such as woodland creation, for which a bespoke agreement would be required if the time to reach target condition is beyond 30 years.	Further clarification sought	20
15	P.g.12 Further consideration of measures such as passing under/over the road are recommended as fencing is often ineffective.	Further clarification sought	Not yet agreed. It is well documented that badger fencing is of limited benefit and thus it is recommended that further consideration be made to alternative safe passes to reduce mammal mortality.
Woodland Access Management Plan			

16	LUC does not agree that the stated '50m buffer for most of the areas of ancient woodland and woodland within the SSSI' are appropriate and more detail is required on additional mitigation measures proposed within these areas to ensure no direct impact on these receptors.	Update required	
Scope of Surveys			
17	Industry standard guidelines and best practice methodologies should be included within the chapter, thus confirming that appropriate approaches were taken.	Update required	
18	It is not agreed that sufficient surveys were undertaken that cover the DCO order limits.	Disagreed	

1.7 Landscape

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	27.07.2023	BDC
05	12.10.2023	TSH
06	20.10.2023	BDC

Matters agreed – Methodology of LVIA

Ref.	Matter agreed	Record of agreement
1.	Requirement 20 Landscape Ecological Management Plan with the following additional sentence added at the end to (2) "Following such review, any proposed amendments to the LEMP must be submitted for the approval of the relevant planning authority."	Agreed through this SoCG
2.	Requirement 22 Landscape scheme with the following new paragraph (4) added "Each written landscaping scheme must be implemented as approved by the relevant planning authority or in accordance with any variation approved in writing by the relevant planning authority."	Agreed through this SoCG

Matters not agreed – Methodology of LVIA

Ref.	Matter not agreed	Record of agreement
1.	The landscape chapter has been prepared in accordance with the National Policy Statement for National Networks (NPSNN). BDC consider the development contrary to paragraphs 5.157 and 5.158.	Matter not agreed
2.	Requirement 11 Container Stack Height should be reworded as follows: **(1)** The height of any stack of containers within the container storage area	Matter not agreed, requirement wording amended;

	approved pursuant to the details submitted in accordance with requirement 2 must; **a.** Not exceed 8.7 meters from finished floor level prior to the fifth anniversary on the date on which the container storage area first comes into use; and **b.** Not exceed 14.5 meters from finished floor level at any time thereafter. **(2)** The height of any stack of containers within the returns area approved pursuant to the details submitted in accordance with requirement 2 must: **a.** Not exceed 8.7 meters from finished floor level prior to the fifth anniversary of the date on which the returns area first comes into use; and Not exceed 14.5 meters from finished floor level at any time thereafter.	
3.	Matters contained in the CEMP relating to visual impact (para 1.80) Visual aspects of the CEMP are not Agreed through this SoCG. More detail and information is required on nighttime construction effects. It is not agreed that no significant effects would occur during the construction phase. Receptors that in the Council's opinion will experience significant effects are set out below (Paragraph 1.4).	Matter not agreed.
4.	LVIA Methodology is not agreed in respect of: The published landscape character areas in BDC (e.g., LCA 1: Aston Flamville Wooded Farmland and LCA 6: Elmsthorpe Floodplain), albeit the overall 'High' and 'Very High' sensitivity ratings for these receptors seem appropriate	Matter not agreed.
5.	The methodology for assessing night-time lighting effects. The method appears appropriate but we do not agree with its implementation for	Not Agreed

	example statements on susceptibility and value and Appendix 11.6 does not seem to give any difference in susceptibility and value between day and night, so we remain unclear on how the method has been used. For some receptors (e.g. the A47 Link Road Corridor and Off-site Rail Crossings) no separate night-time value and/or susceptibility ratings are provided, albeit the overall 'Low' sensitivity rating for these receptors seems appropriate. It is not agreed that no significant night-time effects would be experienced at Year 1 and 15. Receptors that in the Council's opinion will experience significant residual night-time effects are set out below (Paragraph 1.7).	

Matters agreed - Landscape and Visual Baseline

Ref.	Matter agreed	Record of agreement
1.	Viewpoint Locations were agreed via email correspondence in January 2021.	Email correspondence in January 2021 and Agreed through this SoCG
2.	The assessment study area was agreed following a clarification request by LUC on behalf of BDC during pre-application consultation correspondence. (Reference: Table 11.6 in document 6.1.11)	Agreed through this SoCG
3.	Landscape and townscape receptors were agreed following a clarification request by LUC on behalf of BDC during pre-application consultation correspondence. (Reference: Table 11.6 in document 6.1.11)	Agreed through this SoCG
4.	Residential dwellings to be considered in the LVIA were agreed following a clarification request by LUC on behalf of BDC during pre-application consultation correspondence. (Reference: Table 11.6 in document 6.1.11)	Agreed through this SoCG
5.	Baseline descriptions of lighting in relation to individual landscape and visual receptors.	Agreed through this SoCG
6.	Night-time construction effects for LCA 1:	Agreed through this SoCG

	Aston Flamville Wooded Farmland, LCA 6: Elmesthorpe Floodplain, and LCA 15: Stoney Stanton Rolling Farmland.	
7.	Planting growth rates assumed within the Year 15 photomontages.	Provide further information to clarify/justify.

Matters not agreed - Landscape and Visual Baseline

Ref.	Matter not agreed	Record of agreement
1.	Night-time visual assessment at construction for PVPs (9, 12, 19, 20, 22, 24, 25 and 32). Provide further information. In particular judgements and accompanying narrative on overall sensitivity (value and susceptibility), magnitude of change (scale of the change, geographical extent and duration and reversibility/proportion) and overall effects. Not agreed. It isn't clear how the 'Low' value ratings presented in Appendix 11.5 and 11.6 for all nine night-time views relate to the night-time assessment methodology presented in Appendix 11.1 (the methodology uses 'National', 'Local', 'Community' and 'Limited' categories of value). Also, it isn't clear why different receptor groups (e.g. PRoW users and motorists) are assigned the same 'Low' susceptibility rating (paragraph A1.36 of Appendix 11.1 states that 'susceptibility of receptors … reflects the different activities people undertake in hours of darkness'). It is also not agreed that no significant night-time visual effects would occur during the construction phase. Receptors that in the Council's opinion will experience significant effects are set out below (Paragraph 1.6).	Matter not agreed
2.	Night-time assessment for landscape and visual receptors at Year 1 and 15. provide further information.	Matter not agreed

	Including judgements and accompanying narrative on overall sensitivity (value and susceptibility), magnitude of change (scale of the change, geographical extent and duration and reversibility/proportion) and overall effects. Not agreed. As above, it isn't clear how the 'Low' value ratings presented in Appendix 11.5 and 11.6 for all nine night-time views relate to the night-time assessment methodology presented in Appendix 11.1; and it isn't clear why different receptors (e.g. PRoW users and motorists) are assigned the same 'Low' susceptibility rating. It is also not agreed that no significant night-time visual effects would occur at Year 1 and Year 15 phase. Receptors that in the Council's opinion will experience significant night-time effects are set out below (Paragraph 1.6 and 1.7 below).	
3.	Discrepancy between Appendix 11.5 and Table 11.23 of the LVIA chapter with regard to Year 15 night-time visual effects. For some receptors (e.g. the A47 Link Road Corridor and Off-site Rail Crossings) no separate night-time value and/or susceptibility ratings are provided, albeit the overall 'Low' sensitivity rating for these receptors seems appropriate. It is not agreed that no significant night-time effects would be experienced at Year 1 and 15. Receptors that in the Council's opinion will experience significant residual night-time effects are set out below (Paragraph 1.7	Matter not agreed

1.8 Heritage

Archaeology

Version	Date	Issued by
1	May 2023	TSH
2	22 June 2023	LCC
3	29 June 2023	TSH
4	19 July 2023	BDC
5	31 August 2023	TSH
6	18 October 2023	BDC
7	23 October 2023	TSH

Blaby Heritage

Version	Date	Issued by
1	May 2023	TSH
2	13 June 2023	BDC
3	28 June 2023	TSH
4	19 July 2023	BDC
5	31 August 2023	TSH
6	18 October 2023	BDC
7	23 October 2023	TSH

Heritage Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapter 13 has been prepared in accordance with the National Policy Statement for National Networks (NPSNN).	Agreed through this SoCG
2.	The archaeology and building recording DCO requirement is agreed as follows: Archaeology and building recording 1. (1) No phase shall commence until such time as a written scheme of investigation for that phase based on the provisions of the archaeological mitigation strategy has been submitted to and approved in writing by the relevant planning authority. The written scheme of investigation must include (a) details of the on-site recording methodology (b) details of sampling, analysis and reporting strategy	Agreed through this SoCG

	(c) details of monitoring arrangements; and (d) details of timetable and personnel. (2) No part of the authorised development on the main site shall commence until a level 3 record of the buildings of historic interest identified in the archaeological method statement has been undertaken. The record must be carried out in accordance with a written specification first agreed with the relevant planning authority in consultation with Leicestershire County Council and prepared by a competent building recorder in accordance with Historic England Understanding Historic Buildings, A Guide to Good Recording Practice, 2016 (as amended from time to time)	
3.	Paragraphs 1.91 – 1.93 under the section Archaeology of the CEMP is agreed.	Agreed through this SoCG
4.	The submitted Cultural Heritage ES Chapter 13 includes a comprehensive assessment of the impact upon the historic environment, including the setting of nearby designated heritage assets. BDC considers that all of the affected assets should be identified separately within summary Table 13.8 of the ES to give a more explicit representation of the likely effects. It is agreed that TSH will submit amended tables should the Examining Authority request it, following review of BDC's relevant reps.	Agreed through this SoCG
5.	That the assessment of the impact of HNRFI on the significance of relevant designated heritage assets within the category of 'less than substantial harm' is agreed (NPS paragraph 5.134).	Agreed through this SoCG
6.	An appropriate methodology has been employed to assess relevant heritage assets and impacts of the Proposed Development. Given the different level of significance of these assets along with the varying magnitude of change they are to experience, BDC considers that all of the affected assets	Agreed through this SoCG

	should be identified separately within Table 13.8 of the ES to give a more explicit representation of the likely effects. It is agreed that TSH will submit amended tables should the examining panel request it, following review of BDC's relevant reps.	
7.	The assessment includes a proportionate narrative in respect of the significance of heritage assets affected and does not rely solely on a tabular matrix.	Agreed through this SoCG
8.	The Cultural Heritage ES Chapter is supported by an adequate suite of completed archaeological and heritage surveys to inform the DCO Application.	Agreed through this SoCG
9.	The Cultural Heritage ES Chapter is supported by up-to-date baseline data for the DCO Site.	Agreed through this SoCG
10.	Any identified 'adverse effects' on heritage assets in EIA terms translates to 'harm' in terms of the National Planning Policy Framework (NPPF) and National Policy Statement (NPS).	Agreed through this SoCG
11.	Discussions between the applicant's heritage consultant and the BDC Conservation Officer have explored the assessment conclusions and it is agreed that the conclusions of the Cultural Heritage ES in respect of the potential effects of the Proposed Development on heritage assets have been informed by the conclusions of the Landscape and Visual Effects Chapter (document reference 6.1.11), Lighting Strategy (document reference 6.2.3.2), Noise and Vibration Chapter (document reference 6.1.10) and Air Quality Chapter (document reference 6.1.9), and as such are not limited to only visual considerations.	Agreed through this SoCG
12.	The Archaeological Mitigation Strategy (Document reference 6.2.13.7) sets out an appropriate strategy for the completion of required archaeological mitigation across the DCO Site.	Agreed through this SoCG
13.	The Archaeological Mitigation Strategy (Document reference 6.2.13.7) sets out an	Agreed through this SoCG

	appropriate strategy for the completion of required archaeological mitigation across the DCO Site	
14.	The requirements outlined in the Archaeological Mitigation Strategy (6.2.13.7) include provision for the completion of a two-phase programme of investigation, commencing with trial trenching, to be followed up with a second phase of appropriate further investigation and recording. While the principal of this work has been agreed and outlined in the AMS, the precise nature of the further work has not yet been defined. The provisions and procedures established within the AMS are anticipated to be sufficient to satisfactorily address the archaeological programme, including field work, post-excavation analysis, reporting/dissemination and archive deposition.	Agreed through this SoCG
15.	LCC Archaeology on behalf of BDC will be undertaking on-site archaeological monitoring and post-excavation review, to ensure appropriate and efficient management of the mitigation programme. The work will be undertaken at cost and will comprise review of all Written Schemes of Investigation for exploratory trial trenching, and any follow-up archaeological investigation / excavation, monitoring of all fieldwork, review of archaeological reports, and the resulting project archive. In total the anticipated monitoring requirement is 15 days with a total cost of £7,312.50. The Applicant will meet these costs through the S106 Agreement.	Agreed through this SoCG

Heritage Matters not agreed

Ref.	Matters not agreed	Any actions rising
1.	None	None

1.9 Socio-economics

Version	Date	Issued by
01	22/05/23	TSH
02	19/06/23	Blaby District Council
03	23/06/23	TSH
04	01/08/23	Blaby District Council
05	09/10/23	TSH
06	253/10/23	BDC

Matters agreed

Ref.	Matter agreed	Record of agreement
1.	Up to date employment rates have been provided in the ES.	Agreed through this SoCG
2.	The effect of the Proposed Development on community land and assets (including access to Burbage Woods and Common) has been updated to report a minor adverse effect over the long term.	Agreed through this SoCG

Matters not agreed

Ref.	Matters not agreed	Any actions rising
2	Adequacy of analysis of job skills and availability of labor - Lack of analysis of types of construction skills / occupations required and the relationship with current skill profile. Undermines ability to develop employment and skills strategy - Inclusion of an Employment and Skills Strategy for Construction workers but not operational workers - Concerns about the detail and robustness of the Employment and Skills Strategy - **Mismatch between drive time TRIP model used to determine origins of operational labor (types of occupations suitable)** [Appendix 8.1 Transport	- The evolving Employment and Skills Plan will ensure that the effects of construction and operational employment are captured locally as anticipated and will detail the availability of a local labor supply. **DOES NOT RESPOND TO THE ISSUE REGARDING THE TYPES OF CONSTRUCTION** SKILLS

	Assessment Trip Distribution Document [APP-142] selects the future worker locations based on criteria in Table 3: Census Occupational Categories' of that document. This excludes higher Occupations 1-3] **and assertion of the occupational requirements of the proposed development [Environmental Statement Volume 1: Chapter 7: Land Use and Socio-Economic Effects' in table 7.15 suggests these higher occupations will make up 33.3% of employees]. Undermines assumptions regarding catchment for labor.**	**REQUIRED, UNCLEAR IF THIS IS FORTHCOMING**
1b	Housing demand and supply impact - Insufficient information or analysis to understand the HNRFI's impact on housing demand overall and in terms of housing affordability on relevant employment sectors. - **Appears to be a misalignment between the operational employment study impact area (ES para 7.17) and the housing market area (table 7.23). With no apparent attempt to reconcile this difference, the conclusions arrived at in the ES regarding the impact of demand for workers on housing is in question**	- A review of HENA 2022 was undertaken and our understanding is that the proposed annual housing target, based on the standard method supports an employment growth of circa 90,000 jobs in the 2020-36 period with the baseline forecast growth by Cambridge Econometrics (CE) over the same period being 26,900 (Table 8.3). There is no further information on the sectoral split of jobs supported by the Standard Method. However a sectoral breakdown of baseline growth projections is provided in Section 4 of the appendices of the study by CE covering the 2019-41 period. By applying the sectoral proportions of the 2019-41 period growth (23% for Wholesale, Transport and Warehousing) to the baseline job growth we get a baseline job growth of 6,250 for the Wholesale, Transport and

		Warehousing in the 2020-36 period. In addition to the above CE provides also an aspirational growth scenario anticipating 3,900 jobs by 2030 in addition to the baseline growth for the Wholesale, Transport and Warehousing sector. This increases the projected job growth to circa 10,000 additional jobs as the timeframes do not completely match. - Once the same proportion is applied to the jobs supported by standard method the result is 21,600 additional jobs in the sector. This results into 15,350 jobs in addition to the baseline growth and 11,450 jobs in addition to the baseline and aspiration growth. - Therefore the proposed housing target could support 11,450-15,350 additional jobs in the Wholesale, Transport and Warehousing sector in Leicester and Leicestershire above the CE growth scenarios. - HNRFI is anticipated to generate 6,300-7,800 net additional jobs on site once displacement is taken into account by 2032. Therefore by adopting the standard method target of 5,713 units per annum across the area sufficient housing is anticipated to be available for the net additional jobs generated

		by HNRFI even without taking into consideration local unemployed residents finding a job in HNRFI. - Therefore the above doesn't affect the conclusions of our assessment on the effect of HNRFI on local housing. PREPARED TO AGREE **REGARDING LONG TERM HOUSING SUPPLY AND LABOUR AVAILABILITY BASED ON STANDARD METHOD** - **REMAINING INADEQUATE** / MISSING ANALYSIS OF WAGES AND HOUSING AFFORDABLITY ISSUES THAT WILL HAVE A BEARING ON LABOUR ORIGINS

1.10 Health

Version	Date	Issued by
01		TSH
02		BDC
03		TSH
04	28.07.2022	BDC
05	15/08/2023	TSH

Health Matters agreed

Ref.	Matter agreed	Record of agreement
1.	As agreed during the formal Scoping Process with the Planning Inspectorate, the approach to considering the health and wellbeing of communities, was to focus on environmental socio, cultural and economic precursors protective of the environment and health.	Agreed
2.	Appendix 7.1 Health and Equality Briefing Note (document reference 6.2.7.1) was prepared to aid signposting as to how and where health was addressed and assessed in the DCO ES.	Agreed
3.	A supplementary statement on equality was prepared in Appendix 7.2 to respond to the PINS s51 Advice letter and more clearly demonstrates the effects of the Proposed Development on those persons with protected characteristics as defined under the Equality Act 2010 (as amended). A Rule 17 response was received from the Planning Inspectorate regarding preferred terminology, and the revised Equality Statement is being resubmitted. There is no change to the assessment or conclusion.	Agreed
4.	Potential impacts on local water supply, foul water, surface water, flood risk and EMF are addressed through planning and the	Agreed

	regulatory planning process to preclude any risk or impact to health. These items can be deferred to the pertinent technical disciplines, and does not need to be addressed through a health topic at the Issue Specific Hearing	
5.	Potential changes in local air quality during both construction and operation remain within air quality objective thresholds set specifically to be protective of health for vulnerable members of the population, and the absolute change in concentration and exposure remains orders of magnitude lower than is required to quantify any measurable adverse health outcome. As such, this item can be retained under the air quality technical disciplines, and does not need to be addressed through a health topic at the Issue Specific Hearing. Iceni and BDC has requested further clarification on this point in the form of high level Quantitative Exposure Response Assessment. The Applicant's position is that this request is excessive given the negligible effect of the proposal on air quality. The Applicant will prepare a separate technical note clarifying its position at the ExA's request.	Agreed
6.	As detailed in the ES and noted in the Health and Equality Briefing Note, following the implementation of mitigation, the change in noise levels are below what is considered perceptible during the day and night time periods; as a result, design and mitigation precludes any significant health impact. The item can be deferred to the acoustic noise and vibration technical discipline, and does not need to be addressed through a health topic at the Issue Specific Hearing.	Partial Agreement (parked until the noise technical specialists are in agreement, but the Applicant's position remains that the technical discipline is there to manage unwanted sound, preclude health impacts and won't need a separate health topic at the Issue Specific Hearing).
7.	Changes in visual impact are not of an order to result in any measurable adverse health outcome. The more subjective potential effect of visual impact is adequately	Agreed

	addressed within the Visual Impact technical discipline to recognised methods and an agreed scope. The item can be deferred to the Visual Impact technical discipline, and does not need to be addressed through a health topic at the Issue Specific Hearing.	
8.	Income and employment are key determinants of health, which are addressed through the socio-economic Technical Discipline. The item can be deferred to the socio-economic Impact technical discipline, and does not need to be addressed through any additional considerations of health at Issue Specific Hearing.	Agreed
9.	Potential changes in Public Rights of Way and Green Space are addressed, assessed and mitigated within the ES, to preclude any significant adverse health outcome, manage disruption and provide alternative provision. While residual impacts at the individual level may exist, they are not of a level to quantify any change in health outcome. The item can be deferred to the technical discipline, and does not need to be addressed through a health topic at Issue Specific Hearing.	Partial Agreement (Parked, and anticipated that this can be addressed through the technical discipline that precludes health outcome, as there is no measurable risk)
10.	The health baseline applied in the Health Briefing Note was to provide further context and awareness of local circumstance priority and need. It complements the appropriate topic specific baselines contained in the ES, whose geographical scopes were agreed during scoping and vary by topic, depending on the nature of varying focus, scope, distribution characteristics and effect. The Public Health Team have reviewed the contextual health baseline in the Health and Equality Briefing Note, and while minor discrepancies exist due to the granularity of	Agreed

	data applied (ward, Super Output Area etc.) and temporal periods, these are not material. This contextual information, which complements the topic specific baseline data, has no impact on the assessment conclusions or assessment of significance. While further clarification on the geographic scope for each technical discipline within the ES has been requested to rationalise the contextual baseline in the Health and Equality Briefing Note, this has no bearing on the ES, and does not require a health topic discussion at the Issue Specific Hearing.	
11.	Mental health has been raised as a residual concern, however, none of the environmental changes are sufficient to cause any manifest mental health outcome. It is unclear if Iceni are referring to general stress and anxiety from the imposition of change, or risk perception. The potential for perception to cause anxiety can only be addressed through the factual investigation and dissemination of robust information, as contained in the ES.	Parked I am still not clear what you mean by mental health, and from what? Please can you explain what gap you have or countervailing evidence of a significant mental health impact.

Matters not agreed

Ref.	Matters not agreed	Any actions rising
12.	Concern has been raised regarding a potential breach of the Equality Act. Comments so far centre on the potential failure to consider the traveling community in proximity to the site. However, they are categorically identified in each of the pertinent technical disciplines as sensitive receptors. It was deemed unnecessary and undesirable to repeat every technical discipline receptor methodology and sensitivity rating in the Health and Equality Briefing Note.	It is hoped that this clarification text is sufficient to remove this as a disagreement. If not, the matter will proceed to the health topic Issue Specific Hearing.

	Concern has also been raised regarding discrimination against disabled individuals due to additional down time at Narborough level crossing. However, this does not discriminate against any protected characteristic as the barrier does not selectively open or close depending on age, sex, ethnicity, sexual orientation, disability etc. In other words all members of the population are equally affected by barrier down time. Furthermore, there is no significant disproportionate impact, where the Network Rail analysis of Narborough Station and crossing indicates the only possible time for additional intermodal freight trains would be for 2 trains between 4 – 7 pm. Each train would cause a maximum barrier downtime of 2.5mins. This is far less than a stopping passenger train coming from Leicester, which is 4-5 minutes. In each hour the total barrier down time would be approximately 20 minutes, with 40 minutes open which is well within Network Rail's acceptable barrier down time at a level crossing. This does not constitute a significant impact to health, equality or constitute any significant impact on emergency services. The Equality Act is to prevent illegal discrimination, foster opportunity for improved equality, and relations between those with and without a protected characteristic.	
13	Concern has been raised regarding the absence of an equality baseline to establish the presence of individuals with a protected characteristic. As previously explained, it is not appropriate or needed to set a detailed baseline for age, gender reassignment, being married or in a civil partnership, being pregnant or on maternity leave, disability, race including colour, nationality, ethnic or national origin, religion or belief, sex or sexual orientation.	It is hoped that this clarification text is sufficient to remove this as a disagreement. If not, the matter will proceed to the health topic Issue Specific Hearing which we consider to be a waste of Examination time.

	To do so firstly runs the risk of discrimination, but it also sets a level of false accuracy, as the data will never fully capture all of the characteristics, or account for how some of these characteristics vary over stages of life and none will be static spatially. As an example, if there was a baseline that indicated the absence of all protected characteristics at that time, then any individual missed in that baseline, or moved in following it, would not be considered. Equally, depending on personal circumstance and stage of life, an individual could fall within and out of the definition of a protected characteristic. Asking for a baseline that will not be accurate, or to enter this into the public domain that might result in discrimination is therefore inappropriate and contrary to the Equality Act. The correct approach is to therefore consider the hazard in general, and then consider if it presents any discrimination or disproportionate risk to any and all of the protected characteristics (irrespective of if you know they are present or not). This way you don't need to know who lives in which house, it removes false accuracy, and you have a far broader and more precautionary means to test any discrimination or disproportionate risk from what is proposed.	
14.	There remains a fundamental disagreement to the Planning Inspectorate's agreed approach and scope to the assessment of health, and that a voluntary, non-regulatory Health Impact Assessment would have been preferential. The Applicant's position remains that no evidence has been advanced to substantiate this point and that the health briefing note that it produced to help consolidate the relevant information was constructive, and a more than sufficient response to concerns raised during consultation.	Disagree Do you still want this one in there?

1.11 Contaminated Land

Version	Date	Issued by
01	12/05/2023	TSH
02	N/A	N/A
03	15/08/2023	TSH

Matters agreed

Ref.	Matter agreed	Record of agreement
1.	ES Chapters 15 and 16 have been prepared in accordance with the National Policy Statement for National Networks (NPSNN)	Agreed through this SoCG
2.	The contaminated land requirement is agreed.	Agreed through this SoCG
3.	Paragraphs 1.110 – 1.115 under the section Ground Conditions, Contamination and Hazardous Material.	Agreed through this SoCG
3.	The approach to considering contamination and the proposed remediation of the site in general is accepted. Preliminary Ground investigation has been completed which has not identified any significant contamination sources at the site. Potential contamination source may be present around existing farms including fuel storage and asbestos in farm buildings. Detailed investigation will be required and a remediation strategy prepared following examination. The remediation strategy will include contingency measures for dealing with any unidentified contamination. A verification report will be prepared to	The response to the Stage 2 Statutory Consultation and agreed through this SoCG

	demonstrate that the remediation strategy has been implemented and the site is suitable for use.	
4.	The development will include incorporation of interceptors and sealed drainage systems in operational areas, yards and chemical storage will prevent any deterioration of underlying groundwater quality during the life of the development.	The response to the Stage 2 Statutory Consultation and agreed through this SoCG
5.	There would be a watching brief during removal of any existing tanks during decommissioning and demolition	Meeting 23 November 2022 and secured through the details to be submitted as part of the contaminated land requirement.
6.	ES Chapter 17 agrees with the ambitions to reuse most demolition materials from existing buildings and barns within the development. Off-site removal to landfill is to be minimised, with the exception of any contaminants (e.g. asbestos). This is included as an aim within a Site Waste Management Plan/Materials Management Plan.	Agreed through this SoCG

Matters not agreed

Ref.	Matter agreed	Record of agreement
	n/a	

2. AGREEMENT ON THIS SOCG

This Statement of Common Ground has been jointly prepared and agreed by:

Name:

Signature:

Position:

On behalf of: **Tritax Symmetry (Hinckley) Limited**

Date:

Name:

Signature:

Position:

On behalf of: **Blaby District Council**

Date:

Appendix A

Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Technical Note for Obtrusive Light

Report Prepared by: BWB Consulting Ltd

Revision: 04

October 2023

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Regulation 14

This document forms a part of the Environmental Statement for the Hinckley National Rail Freight Interchange project.

Tritax Symmetry (Hinckley) Limited (TSH) has applied to the Secretary of State for Transport for a Development Consent Order (DCO) for the Hinckley National Rail Freight Interchange (HNRFI).

To help inform the determination of the DCO application, TSH has undertaken an environmental impact assessment (EIA) of its proposals. EIA is a process that aims to improve the environmental design of a development proposal, and to provide the decision maker with sufficient information about the environmental effects of the project to make a decision.

The findings of an EIA are described in a written report known as an Environmental Statement (ES). An ES provides environmental information about the scheme, including a description of the development, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

Further details about the proposed Hinckley National Rail Freight Interchange are available on the project website:

http://www.hinckleynrfi.co.uk/

The DCO application and documents relating to the examination of the proposed development can be viewed on the Planning Inspectorate's National Infrastructure Planning website:

https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/hinckley-national-rail-freight-interchange/

DOCUMENT ISSUE RECORD

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Appendices

1. INTRODUCTION

Instruction

1.1. BWB Consulting (BWB) was instructed by Tritax Symmetry to carry out a Technical Note to supplement the Lighting Strategy (ES Appendix 3.2, Document reference: 6.2.3.2, APP-132 to APP-134) for the Proposed Development.

1.2. This Technical Note has been produced to provide additional information to supplement the original Lighting Strategy following requests made by consultees as part of the Statement of Common Ground (SoCG) process.

1.3. The full project description is in included in Environmental Statement Volume 1: Main Statement, Chapter 3: Project Description (Document reference 6.1.3, APP-112), hereafter referred to as the 'Proposed Development'.

Scope of Works

1.1. The primary objective of this Technical Note is to reach a common agreement between Tritax Symmetry and relevant stakeholders in respect to external lighting at the Proposed Development by:

- Demonstrating, by calculated examples, that the Proposed Development can be provided with an external lighting installation that complies with the criteria as set out in the Lighting Strategy, while not exceeding the obtrusive light limitations outlined herein.
- Provide additional clarification, information and criteria for reference to applicable elements that was not specifically covered in the original Lighting Strategy.

2. RELEVANT POLICY AND GUIDANCE

2.1. Relevant international, national, and local policy documents are summarised in this section and are provided to supplement the documents referenced in Section 2 of the Lighting Strategy.

International Guidance

Glare Evaluation System (CIE 112)

2.2. This technical report describes a practical glare evaluation system for outdoor sports- and area lighting. The system can be used both for checking the glare situation of existing installations, provided suitable measuring instrumentation is available, and for predicting the degree of glare at the design stage for new installations, but the validity of the system is restricted to viewing directions below eye level. For the main categories of these applications, general glare rating limits are specified.

2.3. CIE 112 provides a nine-point glare assessment scale which is summarised in **Table 2.1.** This scale provides insight in the practical meaning of differences in glare ratings for the purposes of evaluating predicted glare.

Table 2.1: Nine-point glare assessment scale

Glare control mark GF		Glare rating GR
1	Unbearable	90
2		80
3	Disturbing	70
4		60
5	Just admissible	50
6		40
7	Noticeable	30
8		20
9	Unnoticeable	10

2.4. CIE 112 also provides recommendations for glare rating limits for various types of application. This table is summarised in **Table 2.2**.

Table 2.2: Recommended glare rating limits

Type of application		GR_{max}
Lighting for		
Safety and Security	Low Risk	55
	Medium Risk	50
	High Risk	45
Movement and Safety	Pedestrians only	55
	Slow moving traffic	50
	Normal traffic	45
Work	Very rough	55
	Rough – medium	50
	Rough – fine	45

Institute of Lighting Professionals (ILP) Guidance

ILP Professional Lighting Guide (PLG) 04 - Guidance on Undertaking Environmental Lighting Impact Assessments (2013)

2.6. This document is designed to provide and explanation of, and guidance on, the process for producing a Lighting Assessment. It can also be used as a prompt for the lighting designer on important aspects of specific projects which should be used to remove or minimise potential environmental problems.

ILP Guidance Notes for the Reduction of Obtrusive Light (Guidance Note 01/21)

2.7. This guide is intended to be used in the planning context and can be applied through planning conditions. It sets out best practice for lighting design and control of obtrusive light (light pollution), defines environmental zone categories based on their capacity to absorb lighting effects, and gives guidance on the limitation of obtrusive light in terms of sky glow, glare and light trespass for each category.

2.8. The limits for the luminous intensity (Glare) of bright luminaires are dependent on the viewing distance d, (between the observer and the bright luminaire(s)) and the projected area A_p, of the bright part of the luminaire in the direction of the observer.

2.9. The ILP GN 01/21 provides limits for the luminous intensity of bright luminaires. **Table 2.3** shows the maximum values for the luminous intensity of luminaires in designated directions where views of bright surfaces of luminaires are likely to be a nuisance to occupants of premises. This table is referenced from Commission International e L'Eclairage (CIE 150:2017) *Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations*.

Table 2.3: Limits for the luminous intensity of bright luminaires

Light technical parameter	Application conditions	Luminaire group (projected area A_p in m^2)					
		$0<A_p \leq 0.002$	$0.002<A_p \leq 0.01$	$0.01<A_p \leq 0.03$	$0.03< A_p \leq 0.13$	$0.13<A_p \leq 0.50$	$A_p>0.5$
Maximum luminous intensity emitted by luminaire (I in cd)	E0						
	Pre-curfew	0	0	0	0	0	0
	Post-curfew	0	0	0	0	0	0
	E1						
	Pre-curfew	0.29 d	0.3 d	1.3 d	2.5 d	5.1 d	2,500
	Post-curfew	0	0	0	0	0	0
	E2						
	Pre-curfew	0.57 d	1.3 d	2.5 d	5.0 d	10 d	7,500
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	500
	E3						
	Pre-curfew	0.86 d	1.9 d	3.8 d	7.5 d	15 d	10,000
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	1,000
	E4						
	Pre-curfew	1.4 d	3.1 d	6.3 d	13 d	26 d	25,000
	Post-curfew	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	2,500
Aid to gauging A_p		2 to 5cm	5 to 10cm	10 to 20cm	20 to 40cm	40 to 80cm	>80cm
Geometric mean of diameter (cm)		3.2	7.1	14.1	26.3	56.6	>80
Corresponding A_P representative area (m2)		0.0008	0.004	0.016	0.063	0.251	>0.5

NOTE:

1. 'd' is the distance between the observer and the glare source in meters;
2. A luminous intensity of 0 cd can only be realised by a luminaire with a complete cut off in the designated directions;
3. A_P is the apparent surface of the light source seen from the observer position;
4. For further information refer to Annex C of CIE 150
5. Upper limits for each zone shall be taken as those with column $A_p>0.5$

2.10. The limits for light intrusion (Illuminance in the vertical plane) for each Environmental Zone are described in **Table 2.4**, extracted from the ILP GN01/21 guidance.

Technical Note: Obtrusive Light

Table 2.4: Maximum values of vertical illuminance on properties.

Light Technical Parameter	Application Conditions	Environmental Zones				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx	1 lx	2 lx	5 lx

3. METHODOLOGY

Introduction

3.1. The original lighting model, used to generate the indicative lighting layout which was appended to the Lighting Strategy, shall be rebuilt in alternative lighting calculation software to enable additional detailed assessment of the lighting installation. AGi32 is an advanced industry standard lighting design software package, capable of undertaking luminous intensity assessments on residential receptors based on the CIE 150:2017 methodology and calculating glare rating for assessment against the CIE 112 glare assessment scale.

3.2. For the purpose of the obtrusive light assessment, all luminaires reasonably considered to contribute to any quantity of obtrusive light upon the receptors identified shall be modelled.

3.3. The Maintenance Factor for all luminaires shall be set to 1.0 to represent a worst-case scenario for the obtrusive light assessment. This shall enable the scheme to be assessed based on the "day-one" lumen output for all luminaires. This is in accordance with the recommendations of ILP PLG 04 (2013). The original indicative lighting design as part of the Lighting Strategy based on a Maintenance Factor of 0.9 in line with the applicable guidance for external lighting design to allow for the luminaire degradation over time.

3.4. In order to accurately assess obtrusive light at the identified sensitive receptors, all calculation planes and points shall be inserted into the model based on existing topographical information and the proposed earthworks levels of the Proposed Development.

3.5. The lighting model shall not consider any existing vegetation and off-site buildings. Any existing screening therefore shall not be accounted for to simulate a conservative worst-case scenario for the assessment of obtrusive light.

Obtrusive Light Limits

3.1. The following obtrusive light limitations have been established based on the methodology provided by ILP GN01/21, CIE 150 and CIE 112.

3.2. To demonstrate acceptable levels of obtrusive light, the lighting model shall prove that these limitations are not exceeded. Acceptable levels shall be proven based on an external lighting scheme that complies with the criteria as set out in the Lighting Strategy which is to be used for any proposed lighting design at detailed stage.

Residential Receptors

3.3. ILP GN01/21 and CIE 150 methodology shall be utilised to undertake obtrusive light assessments on the identified residential receptors.

3.4. As established in the Lighting Strategy, the Site has been deemed to fall into Environmental Zone E2, defined as a rural surrounding with low district brightness. Obtrusive light calculations on residential properties shall therefore be undertaken based on the criteria set out in **Table 2.3** and **2.4**. Post-curfew criteria shall be utilised in order to demonstrate the worst-case scenario.

3.5. The exact positions of the residential property windows assessed can not be accurately established therefore the full extents of all elevations of residential properties shall be calculated.

3.6. The maximum acceptable illuminance in the vertical plane (E_v) for an Environmental Zone E2

area (post-curfew) is 1 lux. The maximum allowable glare (source intensity) value is calculated from CIE 150:2017 and varies by Projected Area sq.m., Distance Factor and Viewing Angle. Calculations shall be undertaken AGi32, resulting in a confirmed PASS/FAIL result for each receptor.

Railway and Highway Receptors

3.7. The CIE 112 glare assessment methodology shall be utilised to undertake obtrusive light assessments on railway and highway receptors.

3.8. With reference to **Table 2.2** both railway and highway applications are considered as Normal Traffic Areas. The glare rating limit (GR_{max}) for this application is 45, which is also the most sensitive limit noted in CIE 112. In practical terms, with reference to **Table 2.1**, this limit is considered to fall between *Noticeable* (30) and *Just Admissible* (50).

3.9. A number of sample railway and highway receptor points shall be included in the assessment. The receptors shall be positioned 1.5m above their respective existing elevation based on the topographical information. Calculations shall be undertaken AGi32 and shall be assessed against the limits set out above.

4. OBTRUSIVE LIGHT ASSESSMENT

Lighting Model Development

4.1. The original lighting model was used to produce the indicative lighting layout which was appended to the Lighting Strategy was based on horizontal average lux levels and uniformity values. For the additional assessments proposed the original lighting model has since been reproduced in AGi32.

4.2. The new lighting model used to form the basis of this assessment replicates the Design Parameters and Performance Criteria set out in the Lighting Strategy.

4.3. This assessment has been undertaken in accordance with the methodology set out above.

4.4. The lighting model has been further developed to demonstrate that the Proposed Development can be provided with an external lighting installation that complies with the criteria as set out in the Lighting Strategy, while not exceeding the obtrusive light limitations outlined above.

4.5. The lighting model has been utilised to produce an Obtrusive Light Layout drawing which can be viewed in **Appendix 1**. This drawing illustrates the luminaires modelled, receptor locations, sample on-site calculations and horizontal lux contours. The drawing also includes a schedule of luminaires used within the model and a detailed summary of the calculation results.

4.6. **Table 4.1** summarises the key design developments that have been implemented to the lighting model and explains the reasons behind the amendments.

Table 4.1: Key Developments to the Lighting Model

Design Development	Reason
Substitution of Luminaire Type 'A', on a 'point-for-point' basis	Improved luminous intensity at angles towards sensitive receptors
Substitution of Luminaire Type 'J', on a point-for-point basis	Improved luminous intensity at angles towards sensitive receptors
Reconfiguration of Luminaire Type 'L-Twin' and 'K' at the extreme ends of the rail chord	Improved calculated glare rating on the railway

4.7. Sample on-site calculations have been provided at areas within the immediate vicinity of where design development has taken place to demonstrate the Performance Criteria as set out in the Lighting Strategy can still be achieved. The calculation results at areas which are considered to have been affected are provided in **Table 4.2**. The calculated results appear slightly higher than the target results owing to the 1.0 Maintenance Factor.

Table 4.2: Sample On-Site Calculations

Type of area, task, or activity	Target Maintained illuminance, Em (Lux)	Target Illuminance uniformity, U0	Calculated Maintained illuminance, Em (Lux)	Calculated Illuminance uniformity, U0
Container Stack	50	0.40	59.3	0.72
Railport Returns	30	0.40	35.2	0.50
Service Yard	30	0.40	36.2	0.41

Residential Receptors

4.8. Obtrusive light assessments have been undertaken at the following residential properties.

- Travellers Site (Aston Firs Caravan Park);
- Bridge Farm; and,
- Langton Farm.

4.9. Any residential properties situated further away from the Proposed Development, relative to the above properties, are reasonably assumed to experience less obtrusive light and have therefore not been considered as part of the additional assessment.

Light Intrusion

4.10. The calculated light intrusion results are summarised in **Table 4.3**.

Table 4.3: Light Intrusion Assessment

Receptor	Light Intrusion Limit (lux)	Calculated Maximum Light Intrusion (lux)	Result
Travellers Site	1.0	0.0	**PASS**
Bridge Farm	1.0	0.1	**PASS**
Langton Farm	1.0	0.0	**PASS**

4.11. **Table 4.3** demonstrates that the calculated levels of light intrusion comply with the ILP GN01/21 and CIE 150 guidance limits for Environmental Zone E2 post-curfew conditions.

Luminous intensity

4.12. The calculated luminous intensity results are summarised in **Table 4.4**.

Table 4.4: Luminous Intensity Assessment

Receptor	Luminous Intensity Limit (Cd)	Calculated Maximum Luminous Intensity (Cd)	Result
Travellers Site	See Note 1	132	**PASS**
Bridge Farm	See Note 1	306	**PASS**
Langton Farm	See Note 1	191	**PASS**

NOTE:

1. The luminous intensity limit varies for each receptor based on Projected Area sq.m., Distance Factor and Viewing Angle, in accordance with the CIE 150 methodology. AGi32 outputs a PASS result only in the instance where the specific limit is not exceeded.

4.13. **Table 4.4** demonstrates that the calculated levels of luminous intensity comply with the ILP GN01/21 and CIE 150 guidance limits for Environmental Zone E2 post-curfew conditions.

Railway and Highway Receptors

4.14. Obtrusive light assessments have been undertaken at the following railway and highways properties.

- M69 Motorway; and,
- Birmingham-Peterborough Railway.

4.15. Any railway and highway situated further away from the Proposed Development, relative to the above, are reasonably assumed to experience less obtrusive light and have therefore not been considered as part of the assessment.

Glare Rating

4.16. The calculated glare rating results are summarised in **Table 4.5**.

Table 4.5: Glare Rating Assessment

Receptor	Glare Rating Limit (GR_{max})	Calculated Glare Rating (GR)	Result
M69 North Obs 1	45	25.4	**PASS**
M69 North Obs 2	45	19.9	**PASS**
M69 North Obs 3	45	19.7	**PASS**
M69 North Obs 4	45	18.2	**PASS**
M69 North Obs 5	45	19.3	**PASS**
M69 North Obs 6	45	25.9	**PASS**
M69 South Obs 1	45	35.1	**PASS**
M69 South Obs 2	45	37.1	**PASS**
M69 South Obs 3	45	34.9	**PASS**
M69 South Obs 4	45	36.5	**PASS**
M69 South Obs 5	45	42.7	**PASS**
M69 South Obs 6	45	36.0	**PASS**
M69 South Obs 7	45	35.4	**PASS**
M69 South Obs 8	45	34.6	**PASS**
Railway Obs 1	45	31.0	**PASS**
Railway Obs 2	45	29.4	**PASS**
Railway Obs 3	45	30.1	**PASS**
Railway Obs 4	45	28.4	**PASS**
Railway Obs 5	45	30.2	**PASS**
Railway Obs 6	45	28.3	**PASS**
Railway Obs 7	45	30.2	**PASS**
Railway Obs 8	45	27.8	**PASS**

4.17. **Table 4.5** demonstrates that the calculated levels of glare on railway and highway receptors comply with the CIE 112 guidance limits for glare at Normal Traffic Areas.

Luminaire Selection

4.18. The lighting model has been produced with high quality luminaires as manufactured by Holophane Lighting, Urbis Schreder, Kingfisher Lighting and Kellwood Lighting. Manufacturer's Information can be viewed in **Appendix 2**.

4.19. The final detailed design may deviate from the lighting design presented and/or luminaires selected however any amended or updated design shall meet all parameters and criteria as set out the Lighting Strategy and demonstrate compliant levels of obtrusive light as per the assessments in this Technical Note. An adequate and safe level of lighting must be provided for site tasks, amenity, and security, whilst maintaining acceptable impact on the site surroundings, environment, railway and neighbouring properties.

Table 4.6: Proposed luminaires.

Luminaire type	Manufacturer information	Image
Column mounted Building mounted	Holophane Lighting – D-Series Mounting height 6m – 12m 2,000 – 30,000 Lumens CRI>70 Variety of optics Die-cast aluminium body IP65, IK10	
Column mounted Building mounted	Kingfisher Lighting – Zactis Mounting height 6m – 12m 16,790 - 46,768 Lumens CRI>70 Variety of optics Die-cast aluminium body IP65, IK10	
High mast	Kellwood Lighting – Ayrton Series Mounting height 20m – 25m 58,420 - 116,840 Lumens CRI>70 Variety of optics Aluminium allow body IP67, IK07	

Column Mounted A47 Link Road	Urbis Schreder – Ampera Evo 3 Mounting height 8m – 10m 600 – 21200 Lumens CRI>70 Variety of optics Die-cast aluminium body IP65, IK09	

Clarifications

Car Park Lighting

4.20. The target maintained illuminance and uniformity in car park areas shall range between 10 - 20 lux at 0.25 uniformity. This range is in line with BS EN 12464-2:2014 Light and lighting — Lighting of work places Part 2: Outdoor work places, Table 5.9.2 Parking areas, Medium traffic (10 lux) and Table 5.9.3 Parking areas, Heavy traffic (20 lux).

4.21. The final lux level shall be defined as part of the detailed design based upon the anticipated final use and/or end user criteria. The lux level shall be within the stated 10 - 20 lux.

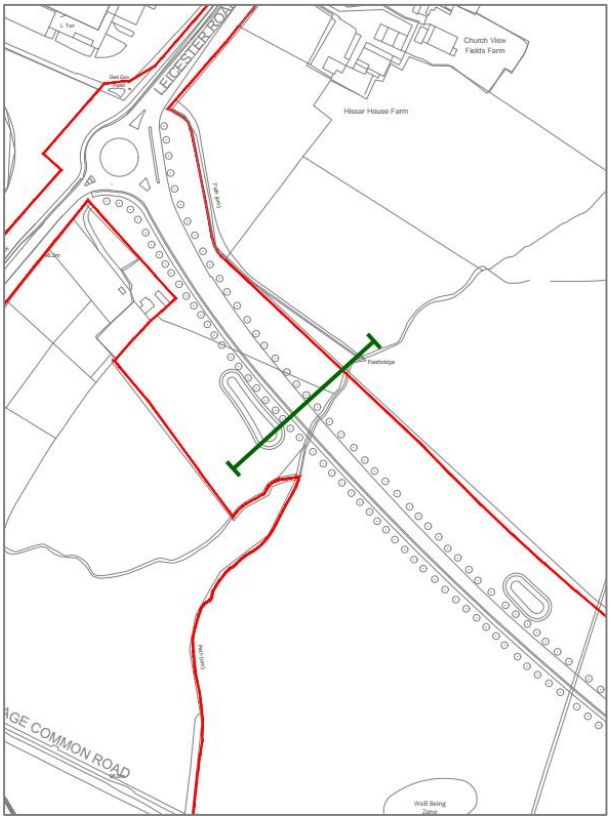
Link Road Lighting

4.22. In reference to the proposed Link Road and clauses 5.36 to 5.39 of the Lighting Strategy, the proposed Link Road connects the M69 Junction 2 with a proposed roundabout on the B4668 to provide connectivity to the A47. Both the M69 Junction 2 and the B4668 are currently illuminated by adoptable standard street lighting at the locations where the Link Road is proposed to connect.

4.23. The Link Road is currently anticipated to be illuminated between the M69 Junction 2 and the railway bridge only, the remainder of the Link Road is not currently anticipated to be illuminated and will remain unlit as existing.

4.24. At the proposed junction on the B4668 lighting will be provided to the requirements of Leicestershire Highways and to match existing which is expected to extend as far as five seconds drive time from the proposed junction as indicated in **Figure 4.1**.

Figure 4.1: Five seconds driving time from the proposed junction on the B4668



Construction Phase Lighting

4.25. In addition to the measures outlined in the Lighting Strategy, the following additional measures should also be incorporated into the CEMP:

- Lighting should not be aimed towards sensitive receptors, and where possible be downward facing.
- To improve sustainability, lighting from diesel generators should be avoided where practicable.
- If a construction compound is required for more than 1 year a more permanent lighting design should be required including columns to avoid overuse of temporary lighting units – these units are historically harder to control light spill than traditional column-mounted lights.
- Lighting should be controlled and on timers to ensure they are only on when needed. Regular checks by a contractor should be undertaken to ensure lights are not left on when not needed.

5. CONCLUSION

5.1. The Obtrusive Light Assessment provided within this report demonstrates that the Proposed Development can be provided with an external lighting installation that complies with the parameters and criteria as set out in the Lighting Strategy, while not exceeding the defined obtrusive light limitations set out in this report and the associated applicable guidance and standards identified.

5.2. The final detailed design of any phase of the Proposed Development may deviate from the lighting design presented within the Lighting Strategy and/or the Obtrusive Light layout however they shall meet all parameters and criteria as set out in the Lighting Strategy while not exceeding the defined obtrusive light limitations set out in this Technical Note.

5.3. The appointed Ecologist has reviewed the Obtrusive Light Layout included within **Appendix 1**. The appointed Ecologist concluded that the light spill indicated is an overall improvement in terms of ecological impact in comparison to the original indicative lighting design presented as part of the Lighting Strategy.

5.4. In accordance with dDCO Requirement 31, each phase of the authorised development shall not be occupied until a scheme for all permanent lighting in that phase has been submitted to and approved by the relevant planning authority. The schemes submitted and approved must be in accordance with the lighting strategy.

References

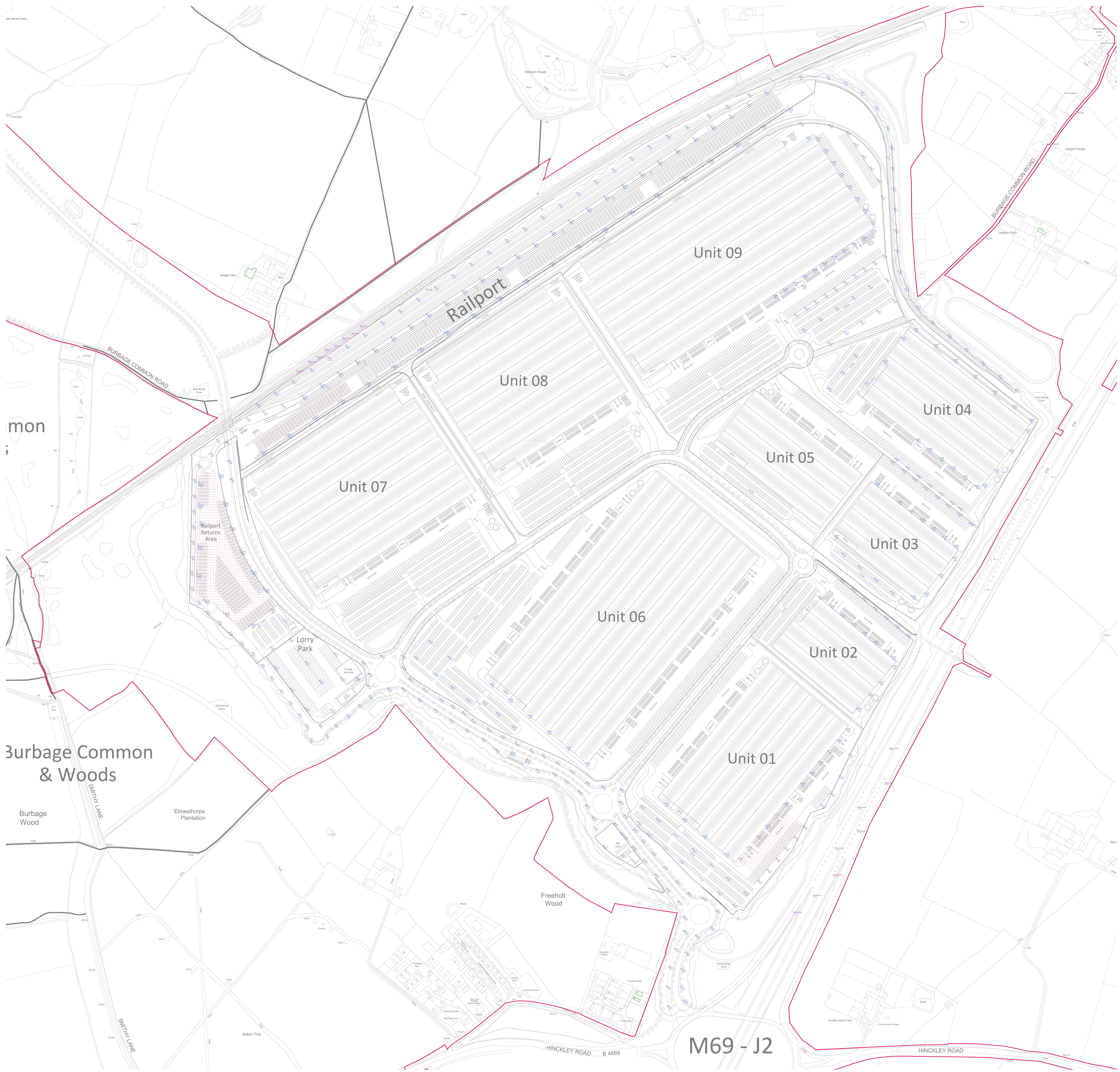
- Commission Internationale De L'Eclairage Guide on the Limitation of Effects of Obtrusive Light from Outdoor Lighting Installations (CIE 150) (2017)
- Commission Internationale De L'Eclairage Glare Evaluation System (CIE 112) (1992)
- ILP Guidance Notes for the Reduction of Obtrusive Light GN01 (2021)
- ILP Professional Lighting Guide (PLG) 04 - Guidance on Undertaking Environmental Lighting Impact Assessments (2013)

Abbreviations

CEMP	Construction Environmental Management Plan
CIE	Commission Internationale De L'Eclairage
CRI	Colour Rendering Index
EIA	Environmental Impact Assessment
ES	Environmental Statement
E_m	Maintained Illuminance
E_v	Illuminance in the Vertical Plane
GR	Glare Rating
GR_{max}	Maximum Glare Rating
ILP	Institute of Lighting Professionals
LED	Light Emitting Diode
u0	Illuminance Uniformity

APPENDICES

Appendix 1: Obtrusive Light Layout



Calculation Summary							
Label	CalcType	Obs Label	Units	Avg	Max	Min	Min/Avg
Bridge Farm House_Cd_Seg1	Obtrusive - Cd	N.A.	N.A.	287.2	306	269	0.9
Bridge Farm House_Cd_Seg2	Obtrusive - Cd	N.A.	N.A.	315.3	334	295	0.9
Bridge Farm House_Cd_Seg3	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Bridge Farm House_Cd_Seg4	Obtrusive - Cd	N.A.	N.A.	187.9	200	175	0.9
Bridge Farm House_Cd_Seg5	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Bridge Farm House_Cd_Seg6	Obtrusive - Cd	N.A.	N.A.	201.5	216	188	0.9
Bridge Farm House_Ill_Seg1	Obtrusive - Ill	N.A.	Lux	0.1	0.1	0.0	0.0
Bridge Farm House_Ill_Seg2	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Bridge Farm House_Ill_Seg3	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Bridge Farm House_Ill_Seg4	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Bridge Farm House_Ill_Seg5	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Bridge Farm House_Ill_Seg6	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Illuminance - Container Stack	Illuminance	N.A.	Lux	59.3	76	43	0.7
Illuminance - Railport Returns	Illuminance	N.A.	Lux	35.2	62	16	0.5
Illuminance - Service Yard	Illuminance	N.A.	Lux	36.2	64	15	0.4
Langton Farm House_Cd_Seg1	Obtrusive - Cd	N.A.	N.A.	185.3	191	180	1.0
Langton Farm House_Cd_Seg2	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Langton Farm House_Cd_Seg3	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Langton Farm House_Cd_Seg4	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Langton Farm House_Cd_Seg5	Obtrusive - Cd	N.A.	N.A.	109.8	120	99	0.9
Langton Farm House_Cd_Seg6	Obtrusive - Cd	N.A.	N.A.	176.1	182	170	1.0
Langton Farm House_Ill_Seg1	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Langton Farm House_Ill_Seg2	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Langton Farm House_Ill_Seg3	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Langton Farm House_Ill_Seg4	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Langton Farm House_Ill_Seg5	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Langton Farm House_Ill_Seg6	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
M69 North Area (Glare)	Glare Rating	M69 North Obs 1	N.A.	N.A.	25.4	10.0	N.A.
M69 North Area (Glare)	Glare Rating	M69 North Obs 2	N.A.	N.A.	19.9	10.0	N.A.
M69 North Area (Glare)	Glare Rating	M69 North Obs 3	N.A.	N.A.	19.7	10.0	N.A.
M69 North Area (Glare)	Glare Rating	M69 North Obs 4	N.A.	N.A.	18.2	10.0	N.A.
M69 North Area (Glare)	Glare Rating	M69 North Obs 5	N.A.	N.A.	19.3	10.0	N.A.
M69 North Area (Glare)	Glare Rating	M69 North Obs 6	N.A.	N.A.	25.9	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 1	N.A.	N.A.	35.1	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 2	N.A.	N.A.	37.1	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 3	N.A.	N.A.	34.9	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 4	N.A.	N.A.	36.5	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 5	N.A.	N.A.	42.7	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 6	N.A.	N.A.	36.0	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 7	N.A.	N.A.	35.4	10.0	N.A.
M69 South Area (Glare)	Glare Rating	M69 South Obs 8	N.A.	N.A.	34.6	10.0	N.A.
M69_TI_1	Obtrusive - TI	N.A.	%	0.0	0	0	N.A.
M69_TI_2	Obtrusive - TI	N.A.	%	0.0	0	0	N.A.
M69_TI_3	Obtrusive - TI	N.A.	%	0.0	0	0	N.A.
M69_TI_4	Obtrusive - TI	N.A.	%	0.0	0	0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 1	N.A.	N.A.	31.0	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 2	N.A.	N.A.	29.4	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 3	N.A.	N.A.	30.1	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 4	N.A.	N.A.	28.4	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 5	N.A.	N.A.	30.1	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 6	N.A.	N.A.	28.3	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 7	N.A.	N.A.	30.2	10.0	N.A.
Railway (Glare)	Glare Rating	Railway Obs 8	N.A.	N.A.	27.8	10.0	N.A.
Railway_TI_1	Obtrusive - TI	N.A.	%	0.6	1	0	0.0
Railway_TI_2	Obtrusive - TI	N.A.	%	1.2	2	1	0.8
Travelers Site 19_Cd_Seg1	Obtrusive - Cd	N.A.	N.A.	68.3	80	57	0.8
Travelers Site 19_Cd_Seg2	Obtrusive - Cd	N.A.	N.A.	38.6	46	32	0.8
Travelers Site 19_Cd_Seg3	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Travelers Site 19_Cd_Seg4	Obtrusive - Cd	N.A.	N.A.	127.3	132	123	1.0
Travelers Site 19_Ill_Seg1	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 19_Ill_Seg2	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 19_Ill_Seg3	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 19_Ill_Seg4	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 20_Cd_Seg1	Obtrusive - Cd	N.A.	N.A.	65.3	76	55	0.8
Travelers Site 20_Cd_Seg2	Obtrusive - Cd	N.A.	N.A.	35.3	41	30	0.9
Travelers Site 20_Cd_Seg3	Obtrusive - Cd	N.A.	N.A.	0.0	0	0	N.A.
Travelers Site 20_Cd_Seg4	Obtrusive - Cd	N.A.	N.A.	127.5	132	123	1.0
Travelers Site 20_Ill_Seg1	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 20_Ill_Seg2	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 20_Ill_Seg3	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.
Travelers Site 20_Ill_Seg4	Obtrusive - Ill	N.A.	Lux	0.0	0.0	0.0	N.A.

Luminaire Schedule					
Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Lumens (with dimming)
A	Single	Kingfisher Lighting 320W-Zactis-FW70 (Dimmed to 85%)	1.000	44167	37542
A-Wall	Single	Kingfisher Lighting 320W-Zactis-FW70 Wall (Dimmed to 85%)	1.000	44167	37542
B	Single	Holophane Lighting DSX2_2_LA303_SY	1.000	32174	32174
C	Single	Holophane Lighting DSX1_2_LA163_AY	1.000	15368	15368
C-Wall	Single	Holophane Lighting DSX1_2_LA163_AY Wall	1.000	15368	15368
E-6	Single	Holophane Lighting DSX0_1_LA063_BLC	1.000	4561	4561
E-8	Single	Holophane Lighting DSX1_2_LA083_BLC	1.000	6754	6754
F	Single	Holophane Lighting DSX1_2_LA163_FW	1.000	15820	15820
G	Single	Holophane Lighting DSX1_2_LA223	1.000	22511	22511
J1-Twin	Twin	Kellwood Lighting AYR3-610-850-3M Twin	1.000	76639	76639
J2-Twin	Twin	Kellwood Lighting AYR3-460-850-4M-BG Twin (Dimmed to 70%)	1.000	50766	35536
K	Single	Holophane Lighting DSX2_2_LA303_AY_BLS	1.000	24397	24397
L	Single	Holophane Lighting DSX1_2_LA163_AY	1.000	15368	15368
L-Twin	Back-Back	Holophane Lighting DSX1_2_LA163_AY Twin	1.000	15368	15368
U	Single	Urbis Ampera EVO 3 5393 80LED	1.000	19943	19943
V	Single	Urbis Ampera EVO 3 5304 60LED	1.000	17218	17218
V-Twin	Back-Back	Urbis Ampera EVO 3 5304 60LED Twin	1.000	17218	17218
W	Single	Urbis Ampera EVO 3 50010 60LED	1.000	16896	16896


Holophane
D-Series 0 Area luminaire


Holophane
D-Series 1 Area luminaire


Holophane
D-Series 2 Area luminaire


Urbis Schreder
Ampera Evo 3


Kingfisher
Zactis


Kellwood
Ayrton Series

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

Spill	
Description	Contour
5 Lux	(magenta line)
1 Lux	(green line)

Obtrusive Light - Compliance Report
CIE 150:2017, E2-Low District Brightness, Post-Curfew
Filename: HNRFI Obtrusive Light Model 230912
13/09/2023 13:27:34

Illuminance
Maximum Allowable Value: 1 Lux

Calculations Tested (20):

Calculation Label	Test Results	Max. Illum.
Travelers Site 20_Ill_Seg1	PASS	0.0
Travelers Site 20_Ill_Seg2	PASS	0.0
Travelers Site 20_Ill_Seg3	PASS	0.0
Travelers Site 20_Ill_Seg4	PASS	0.0
Travelers Site 19_Ill_Seg1	PASS	0.0
Travelers Site 19_Ill_Seg2	PASS	0.0
Travelers Site 19_Ill_Seg3	PASS	0.0
Travelers Site 19_Ill_Seg4	PASS	0.0
Langton Farm House_Ill_Seg1	PASS	0.0
Langton Farm House_Ill_Seg2	PASS	0.0
Langton Farm House_Ill_Seg3	PASS	0.0
Langton Farm House_Ill_Seg4	PASS	0.0
Langton Farm House_Ill_Seg5	PASS	0.0
Langton Farm House_Ill_Seg6	PASS	0.0
Bridge Farm House_Ill_Seg1	PASS	0.1
Bridge Farm House_Ill_Seg2	PASS	0.0
Bridge Farm House_Ill_Seg3	PASS	0.0
Bridge Farm House_Ill_Seg4	PASS	0.0
Bridge Farm House_Ill_Seg5	PASS	0.0
Bridge Farm House_Ill_Seg6	PASS	0.0

Luminous Intensity (Cd) At Vertical Planes
Maximum Allowable Value calculated from CIE 150:2017 (varies by Projected Area sq.m. and Distance Factor)

For E2-Low District Brightness, Projected Area and Distance Factors:
(0.002, 0.29) (0.01, 0.63) (0.03, 1.3) (0.13, 2.5) (0.5, 5.1)

Calculations Tested (20):

Calculation Label	Test Results
Travelers Site 20_Cd_Seg1	PASS
Travelers Site 20_Cd_Seg2	PASS
Travelers Site 20_Cd_Seg3	PASS
Travelers Site 20_Cd_Seg4	PASS
Travelers Site 19_Cd_Seg1	PASS
Travelers Site 19_Cd_Seg2	PASS
Travelers Site 19_Cd_Seg3	PASS
Travelers Site 19_Cd_Seg4	PASS
Langton Farm House_Cd_Seg1	PASS
Langton Farm House_Cd_Seg2	PASS
Langton Farm House_Cd_Seg3	PASS
Langton Farm House_Cd_Seg4	PASS
Langton Farm House_Cd_Seg5	PASS
Langton Farm House_Cd_Seg6	PASS
Bridge Farm House_Cd_Seg1	PASS
Bridge Farm House_Cd_Seg2	PASS
Bridge Farm House_Cd_Seg3	PASS
Bridge Farm House_Cd_Seg4	PASS
Bridge Farm House_Cd_Seg5	PASS
Bridge Farm House_Cd_Seg6	PASS

Threshold Increment (TI)
Maximum Allowable Value: 15 %

Calculations Tested (6):

Calculation Label	Adaptation Luminance	Test Results
M69_TI_1	10	PASS
M69_TI_2	10	PASS
M69_TI_3	10	PASS
M69_TI_4	10	PASS
Railway_TI_1	2	PASS
Railway_TI_2	2	PASS

Rev	Date	Details of issue / revision	Drw	Rev
P1	13.09.23	Issued for Information	DA	PJL

Issues & Revisions

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Client
TRITAX SYMMETRY
A TRITAX BIG BOX COMPANY

Project Title
Hinckley National Rail Freight Interchange

Drawing Title
Electrical Services Obtrusive Light Layout Proposed Site Plan

Drawn:	D. Alasfar		Reviewed:	P. J. Leonard
BWB Ref:	NTT2814	Date:	06.09.23	Scale@A0: 1:2500

Drawing Status
INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
HRF-BWB-XX-XX-DR-E-2301	S2	P1

APPENDICES

Appendix 2: Manufacturer's Information

D-SERIES

D-SERIES

HOLOPHANE®

MADE IN BRITAIN

DSX1

D-SERIES

The modern styling of the **D-Series** is striking yet unobtrusive - making a bold, progressive statement as it blends seamlessly with its environment. **D-Series** takes all the benefits of LED technology and moulds it into a high performance, high efficacy and long life area lighting luminaire.

With its exceptional 'finned' thermal management system, **D-Series** is capable of delivering over 100,000 hours LED module life. Offering a wide range of lumen packages and optical distributions, **D-Series** delivers optimised lighting application designs.

With the integrated ZD4i compatibility **D-Series** delivers a controllable luminaire that helps you realise energy consumption goals and demonstrate environmental responsibility. With its unique optics placed below each LED it ensures light is delivered where it needs to be, providing a uniform Nightime Friendly environment with minimal light pollution.

Applications

- Amenity Areas
- Car Parks
- Retail Parks
- Truck Yards
- Warehousing Exterior Areas

Optics / Light Source

- Lumen packages ranging from 2,000 - 36,000 in 3 different luminaire variants
- Fully soak tested light engines ensuring LED reliability and eliminating early failures.
- 4000K/3000K colour temperature.
- RA 70.

Approvals

Complies with EN60598

CE UK CA

IP IP65 luminaire and LED optic

Ta -40°C to +40°C

MADE IN BRITAIN

For further information please visit the Holophane website **www.holophane.co.uk**

AN ENVIABLE REPUTATION
THROUGHOUT THE WORLD

125 years of
Innovation & Excellence

When Holophane was founded in 1896 in London, headed by Pelham Trotter, it marked the start of an incredible history that has now seen Holophane become a global business revered throughout the world for its expertise, quality, innovation and excellence in lighting.

Holophane's first product was the famous patented globe in 'white' or 'rose crystal' that sold for around 2 shilling (10p). Today, Holophane continues this proud tradition with our values deeply rooted in the dedication to creating luminaires, with exceptional lighting performance, innovative patented technologies, and delivering added customer value beyond illumination.

What does it mean for our customers?

A Trusted & Reliable UK Manufacturer

From Royalty all the way to small residential projects, Holophane has been a trusted manufacturer over the decades for all manner of projects. You can be sure you are in good hands and can rely on the collective knowledge and expertise we have gathered since our inception in 1896.

Development of Innovative Products

As part of our design philosophy, Holophane are always trying to push boundaries in the development of unique product innovations. As such many of our luminaires hold UK and International design patents.

Products That Deliver Added Value

In today's world, sustainability and added value are becoming increasingly important. As such our products and solutions go further than just lighting. Many of our innovations include integrated smart connected solutions to help customers achieve further energy savings and can also enable remote monitoring.

Delivering excellent customer service

Over our 125-year history we have always been committed to delivering the best service to our customers and supporting in a myriad of ways to ensure the best possible outcomes. This goes as far as offering a free lighting design service to one-off products/ solutions to meet customers unique needs.

THE D-SERIES RANGE
3 LUMINAIRES, ONE COMPLETE PROJECT SOLUTION

The **D-Series** range has been designed not only for super optical quality and performance but also to have a cohesive family aesthetic.

Available in 3 luminaire sizes, the D-Series range offers a full outdoor lighting solution for any environment.

DSX2

30,000 - 36,000 lumens
8m mounting heights and above

DSX1

11,000 - 30,000 lumens
between 6m & 10m mounting heights

DSX0

2,000 to 10,000 lumens
up to 6m mounting heights

PRODUCT FEATURES

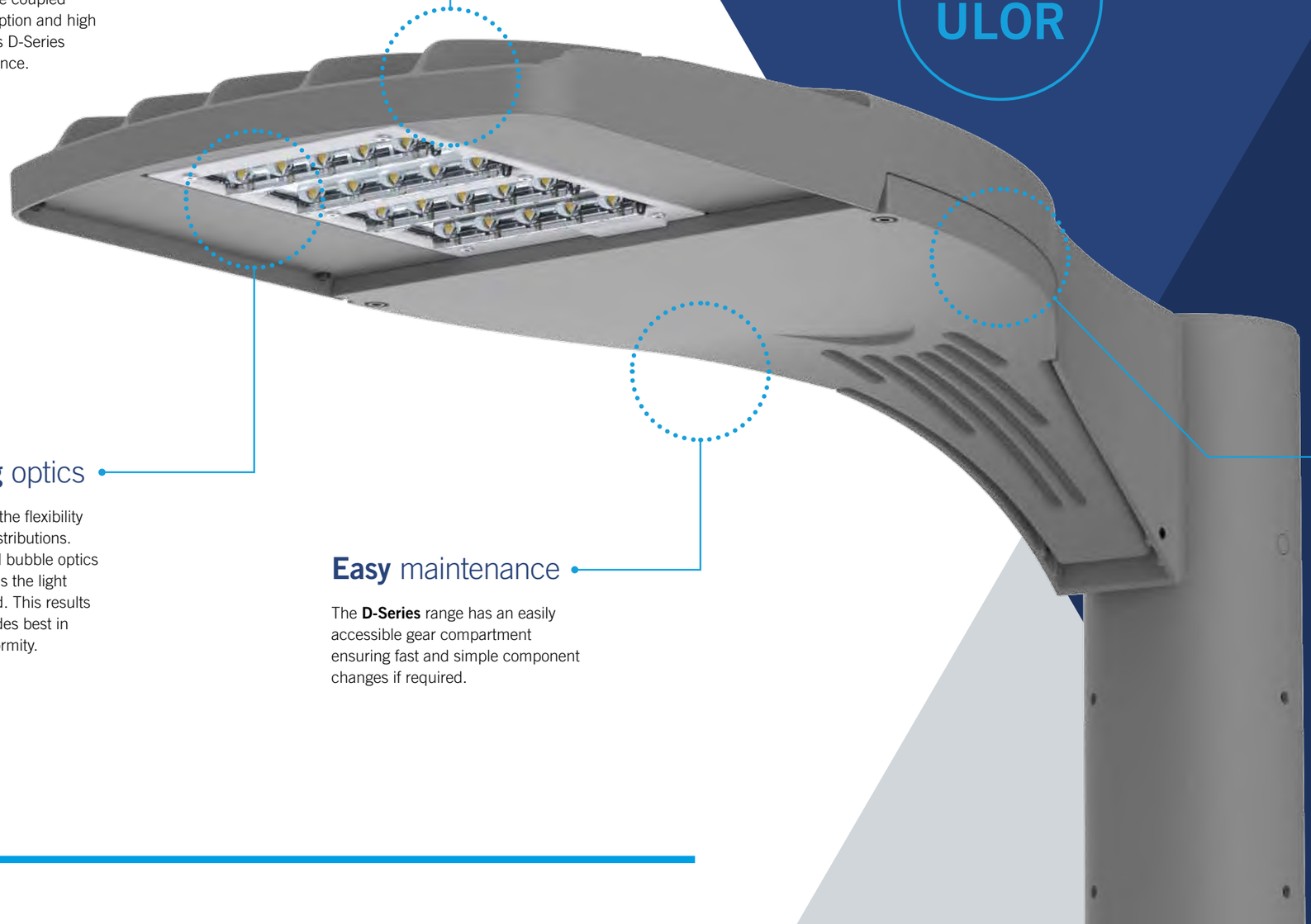
D-SERIES

ZD4i ready

0% ULOR

Enhanced Performance

The **D-Series** range features the very latest LED technologies. In conjunction with PMMA optics this delivers the best lighting performance coupled with low-energy consumption and high efficacy. This also means D-Series meets BREEAM compliance.



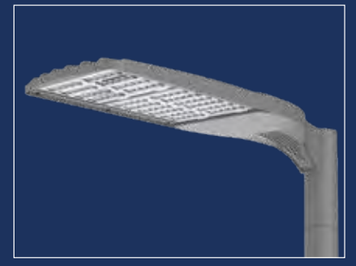
Class leading optics

The **D-Series** range has the flexibility of 4 optimised optical distributions. Through using individual bubble optics per LED D-Series controls the light exactly where it's needed. This results in a luminaire that provides best in class spacings and uniformity.

Easy maintenance

The **D-Series** range has an easily accessible gear compartment ensuring fast and simple component changes if required.

DSX1



DSX2

Connected

The **D-Series** range is ZD4i compatible when specified with the 4-pin Zhaga socket options (TZ01 or TZ02) enabling a future proof luminaire that can be used in conjunction with Controlux Air or a expanding ecosystem of third party devices and sensors.

Note: Post Top Bracket for The D-Series range is sold separately. Please enquire with your Holophane representative for the full range of mounting options.

DSXO

THERMAL MANAGEMENT

The reliability and performance of an LED luminaire is dependent on a combination of factors. Keeping the temperature of the drivers, LEDs and electronic components as low as possible is critical to maintaining the luminaire's efficiency.

One of Holophane's key luminaire design principles ensures that the **D-Series** family utilises all three heat transfer principles of conduction, convection and radiation.

Conduction

Taking heat away from electronic components, LEDs and drivers.

The **D-Series** range has drivers and LEDs that are mounted directly to thermally efficient, LM6 Aluminium to promote efficient transfer of heat from these critical components.

Convection

From luminaire heat sink chassis and LED module to ambient air.

The **D-Series** range is designed to have drivers and LEDs that are mounted separately to avoid compound heating of components. This ensures critical components are kept as cool as possible to ensure long system life.

Radiation

Surface finish and form designed to maximise heat radiation.

The **D-Series** range incorporates a large finned casting design which increases the total surface area of the luminaire and in turn helps to promote cooling through radiation.

THERMAL MANAGEMENT

DSX1

SPECIFICATION

Specification

Single-piece die-cast aluminium housing, that conforms to EN1706 AC-46500, with integral heat sink fins to optimise thermal management through conductive cooling. LED modules are IP65 with individual lenses, and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the finned housing for cooling. The LED driver is mounted in direct contact with the finned housing for cooling to promote low operating temperature and long system life. Housing is completely sealed against moisture and environmental contaminants (IP65). Installation is via the integrated mounting block and integral arm that facilitate a quick and easy installation.

3000K or warmer must be selected for IDA dark sky certification.

Features and benefits

System Longevity

- The D-Series's diecast aluminium housing acts as its primary heat sink. Its longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components and driver that extends the life of the luminaire.
- Light engine(s) consist of either 20 or 30 high efficacy LEDs (subject to chosen configuration) mounted to a metal-core circuit board to maximize heat dissipation and promote long life.

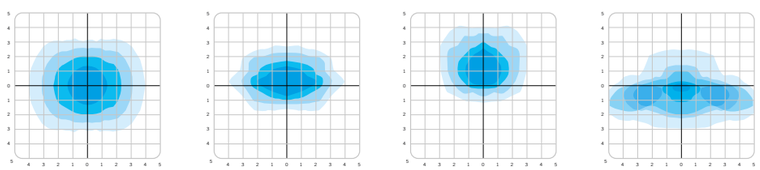
Exceptional Performance

- Offering six lumen packages ranging from 2000 lm to 36,000 lm with efficiencies of up to 143 lpw (Lumens Per Watts).
- Three optimised distributions (asymmetric, symmetric and forward throw) delivered by quality LEDs and bespoke UV stabilised optics.
- LED light engines with 0% ULOR ensuring night time friendly.

Complete Light Package

- Available with ZD4i compatibility for use with range of 3rd-party sensors and devices.
- Fully integrated into Holophane standard column range.

Light Distributions



Symmetric (.SY) | **Asymmetric** (.AY) | **Forward Throw** (.FW) | **Long & Narrow** (.NR) only available in DSX0

SPECIFICATION

DIMENSIONS & PERFORMANCE

Typical luminaire performance

Configuration	Delivered Lumens	Circuit Power (W)	Driver output current (mA)	Luminaire total number of LEDs	Luminaire efficacy (lm/W)
DSX0.1.LA02X	c.2,000	15	450	20	133
DSX0.1.LA03X	c.3,000	21	650	20	143
DSX0.1.LA04X	c.4,000	29	450	20	138
DSX0.1.LA05X	c.5,000	37	570	20	135
DSX0.1.LA06X	c.6,000	45	700	20	133
DSX0.1.LA08X	c.8,000	64	990	20	125
DSX0.1.LA10X	c.10,000	81	1250	20	123
DSX1.2.LA11X	c.11,000	105	1050	30	116
DSX1.2.LA16X	c.16,000	131	700	60	126
DSX1.2.LA22X	c.22,000	208	1050	60	113
DSX1.2.LA30X	c.30,000	286	1400	60	105
DSX2.2.LA30X	c.30,000	282	1050	100	115
DSX2.2.LA36X	c.36,000	328	1000	100	121

Note: Data is correct at time of print.
* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

Weight (with control gear)

DSX 0 8.0 kg
DSX 1 12.2 kg
DSX 2 15.0 kg

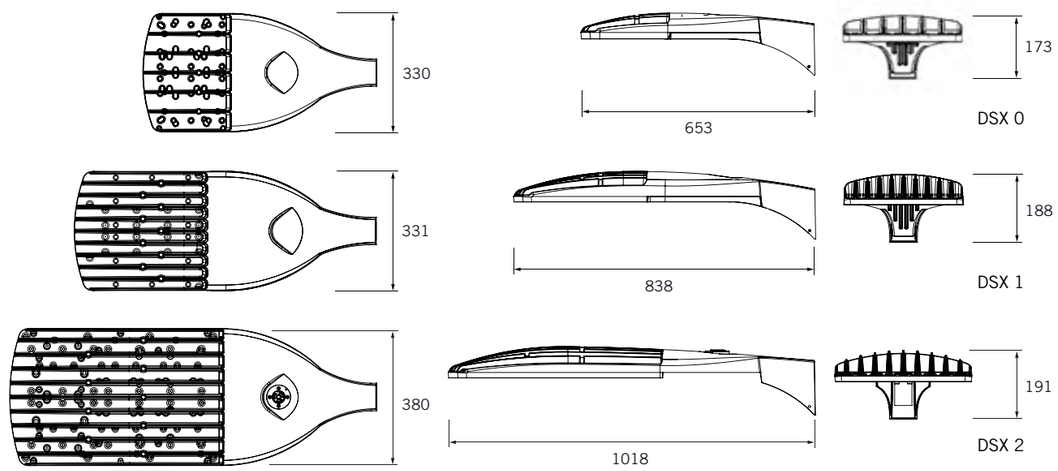
Windage (effective projected area)

DSX 0 0.09 m^2
DSX 1 0.09 m^2
DSX 2 0.10 m^2

TA

-40°C to 40°C

dimensions in mm



DSX2

ORDERING DETAILS

Code	**Luminaire** (required)
DSX0	D-Series 1 Luminaire

Code	**Series** (required)
.1	Series 1

Code	**Lamp Type** (required)
.LA02X	LED light engine producing c.2,000 lm with a nominal 3000K or 4000K colour temperature
.LA03X	LED light engine producing c.3,000 lm with a nominal 3000K or 4000K colour temperature
.LA04X	LED light engine producing c.4,000 lm with a nominal 3000K or 4000K colour temperature
.LA05X	LED light engine producing c.5,000 lm with a nominal 3000K or 4000K colour temperature
.LA06X	LED light engine producing c.6,000 lm with a nominal 3000K or 4000K colour temperature
.LA08X	LED light engine producing c.8,000 lm with a nominal 3000K or 4000K colour temperature
.LA10X	LED light engine producing c.10,000 lm with a nominal 3000K or 4000K colour temperature

Replace 'X' in lamp type code with either:
3 for 3000K
4 for 4000K

Code	**Distribution** (required)
.SY	Symmetric light distribution
.AY	Asymmetric light distribution
.FW	Forward Throw distribution
.NR	Long & Narrow distribution

Code	**Colour** (required)
.C1	Smooth White (RAL9016)
.C4	Graphite (RAL 7011)
.C6	Smooth Grey (RAL7035)
.C7	Black (RAL9005)
.C9	Metallic Silver (RAL9006)
.RAL****	RAL Colour (Customer choice)

Code	**Voltage Electrical Class** (option)
.CII	Class II

Code	**Photocell** (option)
.TSZ	Complete with miniature 70 lux factory fitted photocell. (Zodion SS12)
.T1	Complete with NEMA socket. (To accept standard NEMA Photocell, available from Holophane).
.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top
.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top
.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.TZ01	Complete with 4-Pin Zhaga Socket - 'Top' (suitable photocell/node supplied by others) with weather proof locking cap
.TZ02	Complete with 4-Pin Zhaga Socket - 'Bottom' (suitable photocell/node supplied by others) with weather proof locking cap

Control Gear (option)	
.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire
.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire
.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire
.CL****	customer specified programming

Code	**Dimming outputs** (option)
.LRD	DALI enabled
.LRT56	pre-set to dim to 50% between 12am to 6am
.LRT66	pre-set to dim to 60% between 12am to 6am
.LRT76	pre-set to dim to 70% between 12am to 6am
.LRT******	Customer specified pre-set dimming

Code	**Paint finish** (option)
.C	Enhanced Paint Finish

DSX0	.LA02X	.AY	.C7	.CII	.TSZ	.CL7	.LRD	.C

Example

Note: The specifications of the Holophane luminaire, all descriptions, illustrations, drawings and specifications in the Holophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

Code	**Luminaire** (required)
DSX1	D-Series 1 Luminaire
DSX2	D-Series 2 Luminaire

Lamp Type (required)		
.LA05X*	LED light engine producing c 5,000 lumens	With a nominal 3000K or 4000K colour temperature. Replace X with 3 for 3000K or 4 for 4000K.
.LA06X*	LED light engine producing c 6,000 lumens	
.LA08X*	LED light engine producing c 8,000 lumens	
.LA11X*	LED light engine producing c 11,000 lumens	
.LA16X*	LED light engine producing c 16,000 lumens	
.LA22X*	LED light engine producing c 22,000 lumens	
.LA30X+	LED light engine producing c 30,000 lumens	
.LA364**	LED light engine producing c 36,000 lumens	

Code	**Distribution** (required)
.AY	Asymmetric
.SY	Symmetric
.FW	Forward throw

Code	**Colour** (required)
.C1	Smooth White (RAL9016)
.C4	Graphite (RAL 7011)
.C6	Smooth Grey (RAL7035)
.C7	Black (RAL9005)
.C9	Metallic Silver (RAL9006)
.RAL****	RAL Colour (Customer choice)

Code	**Photocell** (option)
.T	Mini Photocell
.T1	Complete with NEMA socket (To accept standard NEMA Photocell, available from Holophane)
.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top
.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top
.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.TZ01	Complete with 4-Pin Zhaga Socket - Top (suitable photocell/node supplied by others) with weather proof locking top*‡
.TZ02	Complete with 4-Pin Zhaga Socket – Bottom (suitable node/presence detector supplied by others) with weather proof locking top*‡

Code	**Control Gear** (option)
.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire
.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire
.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire
.D2	DALI HF electronic control gear

Code	**Dimming outputs** (option)
.LRT56	Pre-set to dim to 50% between 12am to 6am
.LRT66	Pre-set to dim to 60% between 12am to 6am
.LRT76	Pre-set to dim to 70% between 12am to 6am

Code	**Paint finish** (option)
.C	Enhanced Paint Finish

DSX1	.LA224	.AY	.C7	.T1	.CL7	.LRT56	.C	

Example

*DSX1 only +DSX1 & 2 **DSX2 only

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D-SERIES

D-SERIES

HOLOPHANE®

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www.holophane.co.uk

AcuityBrands.
Expanding the boundaries of lighting™

DSX UK v2

HMAO

HMAO
High Mast Advanced Optix

HOLOPHANE®

MADE IN BRITAIN

HIGH MAST
HMAO

The High Mast Advanced Optix (HMAO) luminaire has been engineered for new and retrofit high mast applications. With the latest in high-efficiency LED technology it provides a complete lighting solution for the simplest through to the most complex area lighting applications.

The specially engineered optical modules come with a full range of distribution options to meet the highest performance standards and deliver outstanding visibility and uniformity.

For over 125 years Holophane has enjoyed an enviable reputation throughout the world for expertise, quality and innovation in lighting. From the earliest days, when the company pioneered its famous glass refractor, the Holophane name has been ever present as a leader in the field of luminaire and lighting design. HMAO is a continuation of this proud tradition.

Durability
Performance
Reliability

Applications

- Freight Terminals
- Industrial Facilities
- Car Parks
- Truck stops
- Ports and Docks
- Airports
- Motorways
- Toll Plazas

Overview

- 3000°K & 4000°K colour temperature.
- CRI > 70.
- Lumen packages ranging from 30,000 - 100,000 lumens.

Approvals

CE UKCA

Complies with EN60598

IP65 and IK07

-20˚C to +45˚C (L75X limited to +40˚C)

LUX Awards 2015 WINNER

MADE IN BRITAIN

For further information please visit the Holophane website **www.holophane.co.uk**

PRODUCT FEATURES

HIGH MAST HMAO

In this very competitive environment, it is becoming increasingly important to reduce operating costs and improve efficiency. Holophane is your expert when it comes to delivering the most efficient lighting solutions to help you achieve that goal.

Taking advantage of the most advanced technologies available, you can achieve an energy saving of up to 66% over existing installations. Holophane's High Mast Advanced Optix (HMAO) helps you to reduce installation and long term maintenance costs.

HMAO is available in 6, 9 or 12 optical pod configurations dependent on lumen package.

Two piece electrical housing. Upper casting can be detached/hinged to aid installation.

Advanced optical control

By combining the latest in LED technology with our advanced glass refractor optic we are able to break up the image of the LEDs with a PrismGlow effect. This reduces the glare normally associated with individual LEDs and eliminates hot stops on the working environment thus creating a more uniformed vertical and horizontal lighting solution.

Glass Refractor

The major advantage of glass over aluminium or plastic is its low electrostatic charge, which makes it less attractive to dust and dirt accumulation over time. A glass refractor has a much lower light depreciation over time than either aluminium or plastic, fewer luminaires are required, significantly reducing installation, operating and maintenance costs.

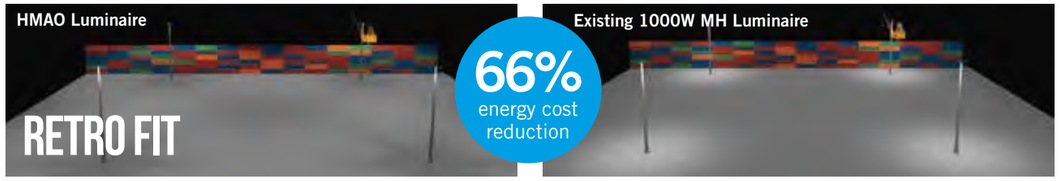
Self-cleaning Effect

The glass optics and the vertical ventilation slots in the heat-sink chassis work together in creating a self-cleaning optic. The heat generated by the LEDs helps to channel cooler and denser air across the low static optical glass surface thus preventing the settling of dust particles and enhancing the lumen maintenance of the luminaire.

Ventilated optical housing which can be rotated to suit application.

RETROFIT
NEW BUILD

Customer benefit expressed in numbers on a new build and retrofit installation.



Design Parameters

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

Product Used

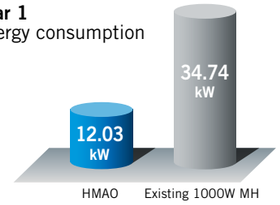
32 High Mast Advanced Optix
- Luminous flux: c45,000
- Luminous efficiency: 144 lpw

32 1000MH Luminaire
- Luminous flux: c67,000
- Luminous efficiency: 62 lp/W

Benefits

- 66% year 1 energy savings
- Improved light control
- Horizontal/vertical uniformity improved

Year 1
energy consumption



HMAO		1000W MH
32	No of Luminaires	32
32	Eav (lux)	31
0.597	Uniformity	0.552
12.03	Total Power Load kW	34.72
£4,831	Year 1 Energy	£13,940

Design Parameters

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

Product Used

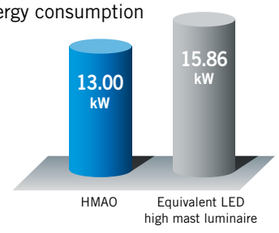
26 High Mast Advanced Optix (HMAO)
- Luminous flux: c60,000
- Luminous efficiency: 144 lpw

26 Equivalent LED High Mast Luminaire
- Luminous flux: c56,000
- Luminous efficiency: 93 lp/W

Benefits

- 19% year 1 energy savings
- 20% improvement in uniformity
- Improved vertical illumination
- Low glare

Year 1
energy consumption



HMAO		Equivalent LED high mast luminaire
26	No of Luminaires	26
30	Eav (lux)	30
0.779	Uniformity	0.651
13.00	Total Power Load kW	15.86
£5,220	Year 1 Energy	£6,368

* Designed to EN12464-2:2014 ref 5.4

SPECIFICATION

Specification

HMAO shall consist of six, nine or twelve prismatic glass refractors manufactured from borosilicate glass to ensure longevity and minimise dirt depreciation. Each glass lens houses an LED module and creates individual optical pods. Each optical pod is housed in a fully ventilated and finned housing manufactured from aluminium to maximise heat transfer. The electrical housing consists of two castings containing the drivers, 10kV surge protection and electrical termination. The luminaire chassis and electrical housing utilises all three heat transfer mechanisms of conduction, convection and radiation to ensure that the high density modules and electronic drivers are thermally managed. Mounting is via the four bolt side arm mounting with +/-5 degree tilt and suitable for 42mm and 60mm.

3000K or warmer must be selected for IDA dark sky certification.

Features and benefits

Thermally Managed Solution

- Utilises convection and conduction to thermally manage the LEDs ensuring longer life and high delivered lumen outputs to replace 400-1000 watt metal halide systems.
- Gear housing designed to maximise heat dissipation, via conduction, from critical electronic components to ensure that they are run as cool as possible to deliver a long system life.

Exceptional Optical Performance

- Glass refractor technology which delivers a wholly luminous effect that accurately controls the output of the LEDs, reduces glare with its 'PrismGlow' and delivers excellent uniformity.
- Rotatable optical assembly providing on site alignment of distributions to specific lighting requirements and ensuring equal weight distribution on existing mast head frame.
- Seven dedicated distributions designed for all types of retrofit or new installations where high mounting is required.

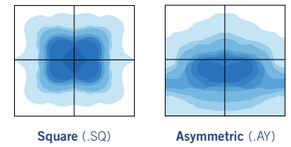
Enhanced Lumen Maintenance

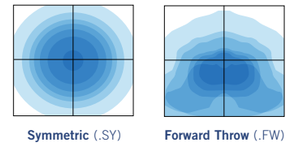
- Glass optics ensure a low electrostatic charge which make it less attractive to dust and dirt accumulation over time so improving dirt depreciation.
- Ventilated luminaire chassis works together with the glass optics to create self-cleaning system which enhances the lumen maintenance of the luminaire over time.

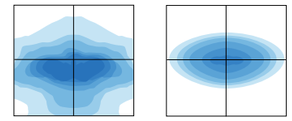
Installation Flexibility

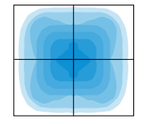
- Suitable for side entry mounting via the integrated four bolt mounting system which also offers 0 or 5 degree tilt.

Light Distributions









*Series 4 only

SPECIFICATION

HIGH MAST
SYSTEM

HMAO is available as a replacement for existing high mast luminaires or as part of a complete highmast system.

Holophane
High Mast System

The most sophisticated system on the market. This mast system consists of a headframe mounting ring for luminaire mounting, winch assembly and suitably rated switchfuse mounted in the mast base, complete with foundation set. The latched raise and lower system utilises heavy duty stainless steel cables in conjunction with three continuous contact iris action guide arms on the lowering ring. This allows all maintenance to be carried out at ground level using a portable power tool connected to the mast supply.

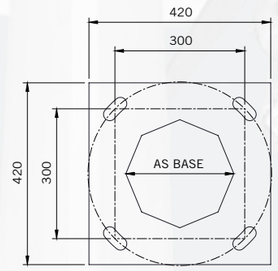
Available at heights of 15m, 20m, 25m or 30m.

Positive fail-safe latching

Continuous contact guide arms

HIGH MAST

Holophane Octagonal Column



Flange plate

	Nominal Height	Root End Diameter*	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg* (Rooted/Flange Plate)	Bending Moment (ULS) Nm
description	**A**	**B**	**C**	**C+D**	**E**	**F**	**G**	**H**	**I**	**J**		
8m standard duty	7700	246.3	1200	8900	300	600	115	130	76.1	N/A	111/113	Please contact Holophane for Information
10m standard duty	9700	308	1500	11200	300	600	115	130	76.1	N/A	167/153	
12m standard duty	11700	308	1700	13400	300	600	115	130	60.3	N/A	197/179	
12m heavy duty	11700	290	1700	13400	300	600	115	130	76.1	N/A	203/192	
15m standard duty	14700	322	1700	16400	300	600	115	130	60.3	N/A	257/240	
15m heavy duty	14700	379	2000	16700	300	600	115	130	88.9	N/A	421/398	

* Exclusion TBC

8-12m std Poles	**Flange Plate FB2**	**Bolts**	M24 x 820
15m std Poles	**Flange Plate FB2**	**Bolts**	M30

Contact Holophane for more information

Flange Plate and J-Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and J-Bolts are supplied.

std = Standard **hd** = Heavy Duty Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

ORDERING DETAILS

Code	Luminaire (required)
HMAO	High Mast Advanced Optix

Code	Series (required)
.3	Series 3
.4	Series 4

Code	Lamp Type (required)	
.L30X	LED light engine producing c.30,000 lm with a nominal 3000K or 4000K colour temperature	Series 3 only
.L35X	LED light engine producing c.35,000 lm with a nominal 3000K or 4000K colour temperature	
.L45X	LED light engine producing c.45,000 lm with a nominal 3000K or 4000K colour temperature	
.L52X	LED light engine producing c.52,000 lm with a nominal 3000K or 4000K colour temperature	
.L60X	LED light engine producing c.60,000 lm with a nominal 3000K or 4000K colour temperature	
.L70X	LED light engine producing c.70,000 lm with a nominal 3000K or 4000K colour temperature	
.L75X	LED light engine producing c.75,000 lm with a nominal 3000K or 4000K colour temperature	
.LC80X	LED light engine producing c.80,000 lm with a nominal 3000K or 4000K colour temperature	Series 4 only
.LC90X	LED light engine producing c.90,000 lm with a nominal 3000K or 4000K colour temperature	
.LC100X	LED light engine producing c.100,000 lm with a nominal 3000K or 4000K colour temperature	

Replace 'X' in lamp type code with either: 3 for 3000K 4 for 4000K

Code	Optics
.NR	Long and Narrow light distribution
.HS	High beam symmetric distribution
.AY	Asymmetric light distribution
.FW	Forward throw light distribution
.SQ	Square light distribution
.SY	Symmetrical light distribution
.SQW	Square wide light distribution**

Code	Colour
.C9	Metallic Silver RAL9006
.RAL****	RAL Colour (customer choice)

Code	Control Gear (options)
.LRD	DALI, number of addresses will vary on the lumen version configured
.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire
.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire
.CL9	Programmed to deliver 90% of the initial lumens over the life of the luminaire

Code	Photocell (options)
.TSZ	Complete with miniature 70 lux factory fitted photocell. (Zodion SS12)
.T1	Complete with NEMA socket to accept standard NEMA Photocell, available from Holophane*
.T5	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top.
.T5T	Complete with 5-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.T7T	Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top
.TZ01	Complete with 4-Pin Zhaga Socket - Top (suitable photocell/node supplied by others) with weather proof locking top.†

Code	Paint Finish (options)
.C	Enhanced Paint Finish

Code	Voltage (options)
.C-PROTEC	With 20kV/10kA surge protection

HMAO	.3	.L30X	.NR	.C9	.LRD	.TSZ	.C

Example

Note: 42/60mm side entry, 10kV/10kA surge protection as standard.
*Luminaire is IP65 when options .T1 or .T are selected. † Not available with .LRD **Series 4 only.

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

accessories

Code	
HMAO.SD90	90º shield
HMAO.SD120	120º shield
HMAO.SD180	180º shield

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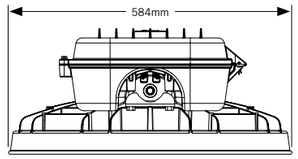
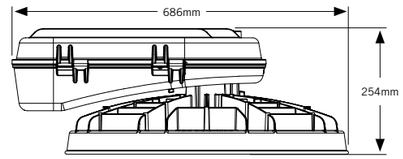
DIMENSIONS & PERFORMANCE

dimensions in mm





Typical luminaire performance

Configuration	Delivered Lumens	Power Consumption (W)	Driver output current (mA)	Luminaire total no. of LED modules	Luminaire efficacy (lm/W)	Rated life of LED module (L70B50 @Tq 25°C)
HMAO.3.L30X	c.30,000	208	640	6	144	100,000
HMAO.3.L35X	c.35,000	247	750	6	142	100,000
HMAO.3.L45X	c.45,000	313	640	6	144	100,000
HMAO.3.L52X	c.52,000	370	750	6	141	100,000
HMAO.3.L60X	c.60,000	417	640	12	144	100,000
HMAO.3.L70X	c.70,000	494	750	12	142	100,000
HMAO.3.L75X	c.75,000	555	860	12	135	100,000
HMAO.4.LC80X	c.80,000	502	792	12	159	100,000
HMAO.4.LC90X	c.90,000	583	919	12	154	100,000
HMAO.4.LC100X	c.100,000	658	1040	12	152	100,000

Weight

HMAO 23 kg

Windage

HMAO 0.120 m^2

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

Rotatable optical assembly

Four bolt mounting suitable for 42mm and 60mm side entry

Hinged upper casting

ORDERING DETAILS COLUMN

Code	
HMAOE	HMAO Octagonal column

Code	Luminaire mounting height
.10	10 metre column
.12	12 metre column
.15	15 metre column

Code	Brackets
.1S	Single head short bracket
.1L	Single head long bracket
.2S	Twin head short bracket
.2L	Twin head long bracket

Code	Bracket type
.SA60	Side arm bracket suitable for 60mm entry
.SA605	5º tilt side arm bracket suitable for 60mm entry

Code	Column category
.LMZ	For light & medium area wind zones
.HVZ	For heavy area wind zones
.HEZ	For extra heavy area wind zones

Code	Colour (bracket finish only)
.GV	Galvanised only bracket
.GV9	Galvanised and painted metallic silver (RAL 9006)

Code	Optional base type
.FB4	Flange base mounting (suitable for ground level installation only). 420 x 420 plate with 300 x 300 centres.

HMAOE	.12	.1L	.SA60	.LMZ	.GV	.FB4

Example

Note: 15m twin head for HEZ wind zone not available as standard. Please contact Holophane for further information.

accessories

Code	
HELE.FS1	Anchor bolt kit M24 x 820mm. Suitable for Octagonal columns.

Schréder
Experts in lightability™

ROAD

AMPERA EVO

MID FLEX™ LENSO FLEX™4

High-performance LED lighting solution with fast return on investment

Creating an efficient, economical and sustainable LED lighting solution was the driving force behind the development of AMPERA EVO.

AMPERA EVO is a road luminaire highlighting high performance, technical innovation, and simplicity. This innovative luminaire thus provides powerful lighting, fast and simple installation, easy lighting network management, as well as the fastest return on investment.

Available with various lumen packages - and numerous lighting distributions - the AMPERA EVO can meet all your road and urban lighting needs.

IP 66 | IK 09 | CE | ENEC | ENEC PLUS 02 | ZD4i | UKCA

URBAN & RESIDENTIAL STREETS | BRIDGES | BIKE & PEDESTRIAN PATHS | RAILWAY STATIONS & METROS | CAR PARKS | LARGE AREAS | SQUARES & PEDESTRIAN AREAS | ROADS & MOTORWAYS

Concept

AMPERA EVO comes in two separate high-pressure die cast aluminium parts for the greatest installation and maintenance ease. The two parts are connected by two tool-free side latches. The electrical connection is automatically triggered on closing via a knife-type connector. This system allows safe connection with the mains cabling and prevents from any cabling error inside the gear compartment.

AMPERA EVO is available in two sizes to offer maximum flexibility and aesthetic coherence for town and city centres. AMPERA EVO takes advantage of the latest photometric innovations. It uses the LensoFlex®4 and MidFlex™ photometric engines, which have been developed around the concepts of high performance, compactness, versatility and standardisation.

AMPERA EVO comes with the IzyFix universal fixation system adapted to post-top and side-entry mounting on any pole arms (from Ø32mm, with adapter, to Ø76mm). The IzyFix system enables the luminaire to be switched from one position to another at any time, without removing it from the pole, offering complete versatility regarding pole and bracket configuration. The inclination angle can be adjusted on-site (tilting range of 110°), in both the post-top and side-entry position, to optimise the light distribution.

AMPERA EVO is a future-proof luminaire designed for a more sustainable future. It is made of highly recyclable materials and offers tool-free access for maintenance operations. Moreover, AMPERA EVO can be equipped with various control options allowing easy remote management of lighting network, with advanced features that enable the light intensity to be adjusted to what is strictly needed, thus creating environments favourable to flora and fauna.

Tool-free opening, and a mounting with two separate parts for easy installation.

The IzyFix universal fixation system, with switching from a post-top to a side-entry position, facilitates luminaire ordering and installation.

TYPES OF APPLICATION

- URBAN & RESIDENTIAL STREETS
- BRIDGES
- BIKE & PEDESTRIAN PATHS
- RAILWAY STATIONS & METROS
- CAR PARKS
- LARGE AREAS
- SQUARES & PEDESTRIAN AREAS
- ROADS & MOTORWAYS

KEY ADVANTAGES

- Cost-effective and efficient lighting solution for a fast return on investment
- On-site adjustment from post-top to side-entry without disconnecting the luminaire from the pole thanks to IzyFix
- Tool free access: easy and safe maintenance
- Connected-ready for your future Smart city requirements
- Compatible with the Schréder EXEDRA control platform
- Zhaga-D4i certified
- Adjustable inclination on-site

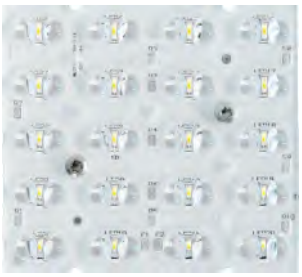
Connected-ready for your future smart city projects.

Designed for a more sustainable future.

LensoFlex®4

LensoFlex®4 maximises the heritage of the LensoFlex® concept with a very compact yet powerful photometric engine based upon the addition principle of photometric distribution. The number of LEDs in combination with the driving current determines the intensity level of the light distribution. With optimised light distributions and very high efficiency, this fourth generation enables the products to be downsized to meet application requirements with an optimised solution in terms of investment.

LensoFlex®4 optics can feature backlight control to prevent intrusive lighting, or a glare limiter for high visual comfort.



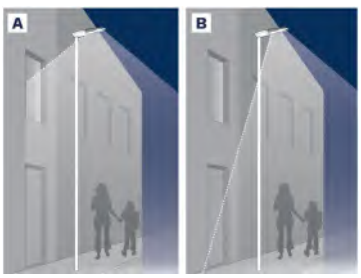
MidFlex™

The MidFlex™ photometric engine is based on the same principle as LensoFlex®2: each LED is associated with a specific lens that generates the complete photometric distribution of the luminaire. MidFlex™ takes advantage of the maturity of mid-power LEDs for professional applications. The MidFlex™ photometric engines are based on the combination of several modules of 48 mid-power LEDs tightly positioned to maximise the LED density. This concept provides high lumen packages with a limited product footprint. The MidFlex™ photometric engines offers excellent efficiency for a sustainable performance.

Back Light control

As an option, the LensoFlex®2 and LensoFlex®4 modules can be equipped with a Back Light control system.

This additional feature minimises light spill from the back of the luminaire to avoid intrusive light towards buildings.

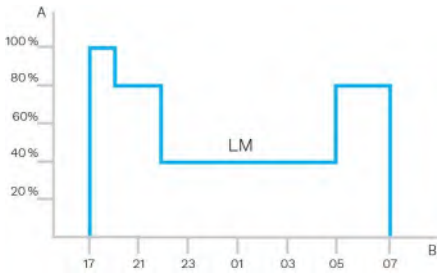


A. Without Back Light control | B. With Back Light control

Custom dimming profile

Intelligent luminaire drivers can be programmed with complex dimming profiles. Up to five combinations of time intervals and light levels are possible. This feature does not require any extra wiring.

The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.



A. Dimming level | B. Time

Daylight sensor / photocell

Photocell or daylight sensors switch the luminaire on as soon natural light falls to a certain level. It can be programmed to switch on during a storm, on a cloudy day (in critical areas) or only at nightfall so as to provide safety and comfort in public spaces.

PIR sensor: motion detection

In places with little nocturnal activity, lighting can be dimmed to a minimum most of the time. By using passive infrared (PIR) sensors, the level of light can be raised as soon as a pedestrian or a slow vehicle is detected in the area.

Each luminaire level can be configured individually with several parametres such as minimum and maximum light output, delay period and ON/OFF duration time. PIR sensors can be used in an autonomous or interoperable network.

IzyFix

The Schréder IzyFix patented high-pressure die-casted aluminium universal fixation system is an integral part of the luminaire mounted in the factory. The IzyFix system aims to fit needs worldwide by meeting IEC and ANSI 3G testing requirements. It is intended to simplify life for customers and installers in the process of purchasing and installing luminaires for various applications.

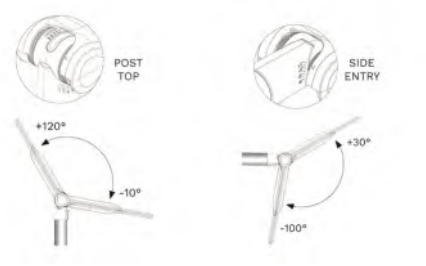
From post-top to side-entry in one movement

The innovative design allows changing from a side-entry to a post-top position – even with luminaires ordered with factory pre-cabling – without any switching work on the fixation or disconnection from the pole. Therefore the type of mounting (horizontal or vertical) does not have to be considered when ordering. This unique feature also eases installation. After setting the correct position, an accessory is provided to cover the resulting space and ensure further protection of the luminaire.

Best-in-class tilting range

The IzyFix universal fixation system enables a best-in-class range of mounting angle of 130°*, to ensure maximum lighting performance for all kinds of road scenarios and offer the possibility of installing the luminaire in extreme situations as well. With a setting mark on the body and angles on the spigot, adjusting is carried out in 5° increments by loosening two screws. The wide tilting range enables more comfortable access to the gear compartment during field maintenance.

*Depending on the size and shape of the luminaire, the inclination angle may be reduced. For more accurate information, always consult the installation sheets.

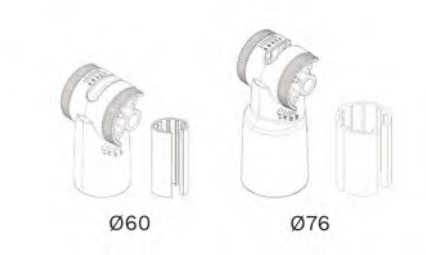


Variation for all poles

Due to the many different applications used worldwide, Schréder has created a range of fixation systems and reducers to satisfy all needs that might come up on the market.

IzyFix Ø60mm - suitable for:
- Ø32mm spigot (with reducer)
- Ø42-48mm spigot
- Ø60mm spigot

IzyFix Ø76mm - suitable for:
- Ø32mm spigot (with reducer)
- Ø42-48mm spigot (with reducer)
- Ø60mm spigot
- Ø76mm spigot



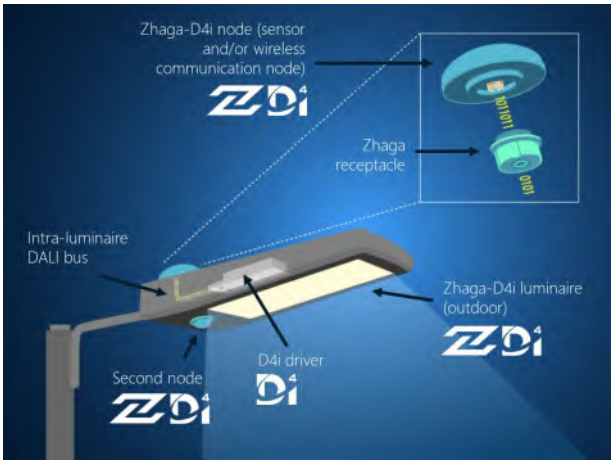
The Zhaga consortium joined forces with the DiiA and produced a single Zhaga-D4i certification that combines the Zhaga Book 18 version 2 outdoor connectivity specifications with the DiiA's D4i specifications for intra-luminaire DALI.

Standardisation for interoperable ecosystems

As a founding member of the Zhaga consortium, Schréder has participated in the creation of, and therefore supports, the Zhaga-D4i certification program and the initiative of this group to standardise an interoperable ecosystem. The D4i specifications take the best of the standard DALI2 protocol and adapt it to an intra-luminaire environment but it has certain limitations. Only luminaire mounted control devices can be combined with a Zhaga-D4i luminaire. According to the specification, control devices are limited respectively to 2W and 1W average power consumption.

Certification program

The Zhaga-D4i certification covers all the critical features including mechanical fit, digital communication, data reporting and power requirements within a single luminaire, ensuring plug-and-play interoperability of luminaires (drivers) and peripherals such as connectivity nodes.



Cost-effective solution

A Zhaga-D4i certified luminaire includes drivers offering features that had previously been in the control node, like energy metering, which has in turn simplified the control device therefore reducing the price of the control system.

2 sockets: top and bottom

The Zhaga socket is small and suited to applications where aesthetics is essential. The architecture of Zhaga-D4i also foresees the possibility of putting two sockets on one luminaire, allowing for instance, the combination of a detection sensor and a control node. This also has the added value of standardising certain detection sensor communications with the D4i protocol.

Schréder EXEDRA is the most advanced lighting management system on the market for controlling, monitoring and analysing streetlights in a user-friendly way.

Standardisation for interoperable ecosystems

Schréder plays a key role in driving standardisation with alliances and partners such as uCIFI, TALQ or Zhaga. Our joint commitment is to provide solutions designed for vertical and horizontal IoT integration. From the body (hardware) to the language (data model) and the intelligence (algorithms), the complete Schréder EXEDRA system relies on shared and open technologies.

Schréder EXEDRA also relies on Microsoft™ Azure for cloud services, provided with the highest levels of trust, transparency, standards conformance and regulatory compliance.

Breaking the silos

With EXEDRA, Schréder has taken a technology-agnostic approach: we rely on open standards and protocols to design an architecture able to interact seamlessly with third-party software and hardware solutions. Schréder EXEDRA is designed to unlock complete interoperability, as it offers the ability to:

- control devices (luminaires) from other brands
- manage controllers and to integrate sensors from other brands
- connect with third-party devices and platforms

A plug-and-play solution

As a gateway-less system using the cellular network, an intelligent automated commissioning process recognises, verifies and retrieves luminaire data into the user interface. The self-healing mesh between luminaire controllers enables real-time adaptive lighting to be configured directly via the user interface.

Tailored experience

Schréder EXEDRA includes all advanced features needed for smart device management, real-time and scheduled control, dynamic and automated lighting scenarios, maintenance and field operation planning, energy consumption management and third-party connected hardware integration. It is fully configurable and includes tools for user management and multi-tenant policy that enables contractors, utilities or big cities to segregate projects.

A powerful tool for efficiency, rationalisation and decision making

Data is gold. Schréder EXEDRA brings it with all the clarity managers need to drive decisions. The platform collects massive amounts of data from end devices and, aggregates, analyses and intuitively displays them to help end-users take the right actions.

Protected on every side

Schréder EXEDRA provides state-of-the-art data security with encryption, hashing, tokenisation, and key management practices that protect data across the whole system and its associated services.

GENERAL INFORMATION

Recommended installation height	4m to 15m+ | 13' to 49'+
Circle Light label	Score ≥90 - The product fully meets circular economy requirements
Driver included	Yes
CE mark	Yes
ENEC certified	Yes
ENEC+ certified	Yes
Zhaga-D4i certified	Yes
UKCA marking	Yes
Testing standard	EN 60598-1 IEC TR 62778 EN 62262 LM 79-08 (all measurements in ISO17025 accredited laboratory) LM 80 (all measurements in ISO17025 accredited laboratory)

HOUSING AND FINISH

Housing	Aluminium
Optic	PMMA
Protector	Tempered glass
Housing finish	Polyester powder coating
Standard colour(s)	AKZO grey 900 sanded
Tightness level	IP 66
Impact resistance	IK 09
Vibration test	Compliant with ANSI C 136-31 standard, 3G load Compliant with modified IEC 68-2-6 (0.5G)
Access for maintenance	Tool-less access to gear compartment

OPERATING CONDITIONS

Operating temperature range (Ta)	-40°C up to +50°C / -40° F up to 122°F

· Depending on the luminaire configuration. For more details, please contact us.

ELECTRICAL INFORMATION

Electrical class	I, II
Nominal voltage	220-240V AC – 50-60Hz
Surge protection options (kV)	10
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-3-3 / EN 61547
Control protocol(s)	1-10V, DALI
Control options	AmpDim, Bi-power, Custom dimming profile, Photocell, Remote management
Socket	Zhaga (optional) NEMA 7-pin (optional)
Associated control system(s)	Schréder EXEDRA
Sensor	PIR (optional)

OPTICAL INFORMATION

LED colour temperature	2200K (WW 722) 2700K (WW 727) 3000K (WW 730) 3000K (WW 830) 4000K (NW 740) 5700K (CW 757)
Colour rendering index (CRI)	>70 (WW 722) >70 (WW 727) >70 (WW 730) >80 (WW 830) >70 (NW 740) >70 (CW 757)
ULOR	0%
ULR	0%

· ULOR may be different according to the configuration. Please consult us.

· ULR may be different according to the configuration. Please consult us.

LIFETIME OF THE LEDS @ TQ 25°C

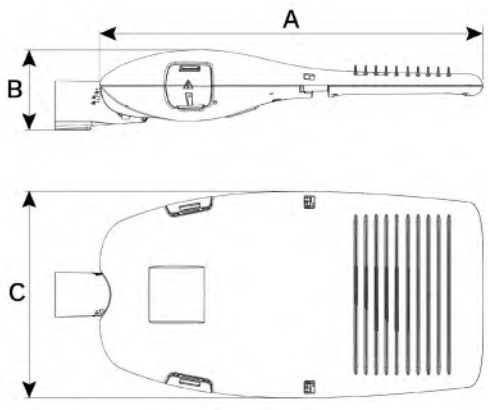
All configurations	100,000h - L95

· Lifetime may be different according to the size/configurations. Please consult us.

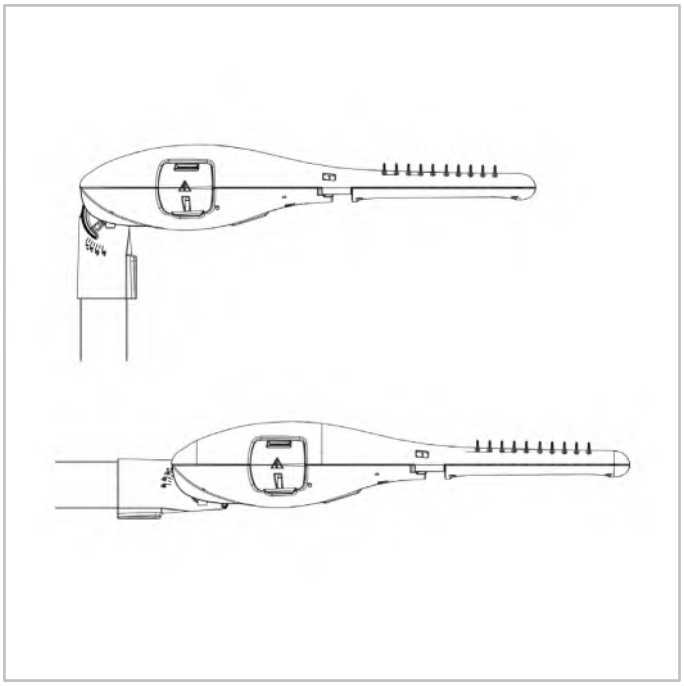
DIMENSIONS AND MOUNTING

AxBxC (mm | inch)	AMPERA EVO 1 : 524x128x308 | 20.6x5.0x12.1 AMPERA EVO 3 : 679x143x365 | 26.7x5.6x14.4
Weight (kg | lbs)	AMPERA EVO 1 : 5.9-7.3 | 13.0-16.1 AMPERA EVO 3 : 8.9-10.4 | 19.6-22.9
Aerodynamic resistance (CxS)	AMPERA EVO 1 : 0.04 AMPERA EVO 3 : 0.04
Mounting possibilities	Side-entry slip-over – Ø32mm Side-entry slip-over – Ø42mm Side-entry slip-over – Ø48mm Side-entry slip-over – Ø60mm Side-entry penetrating – Ø60mm Post-top slip-over – Ø32mm Post-top slip-over – Ø42mm Post-top slip-over – Ø48mm Post-top slip-over – Ø60mm Post-top slip-over – Ø76mm Post-top penetrating – Ø60mm

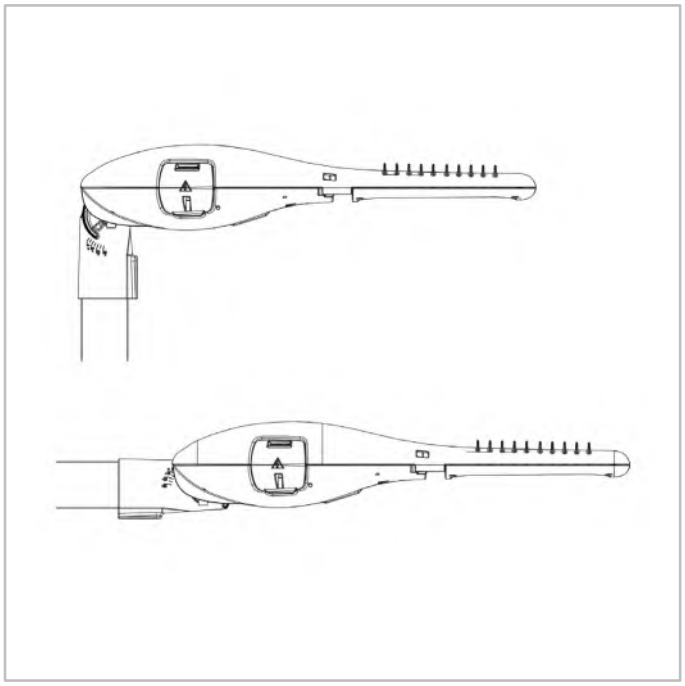
· *For more information about mounting possibilities, please consult the installation sheet.*



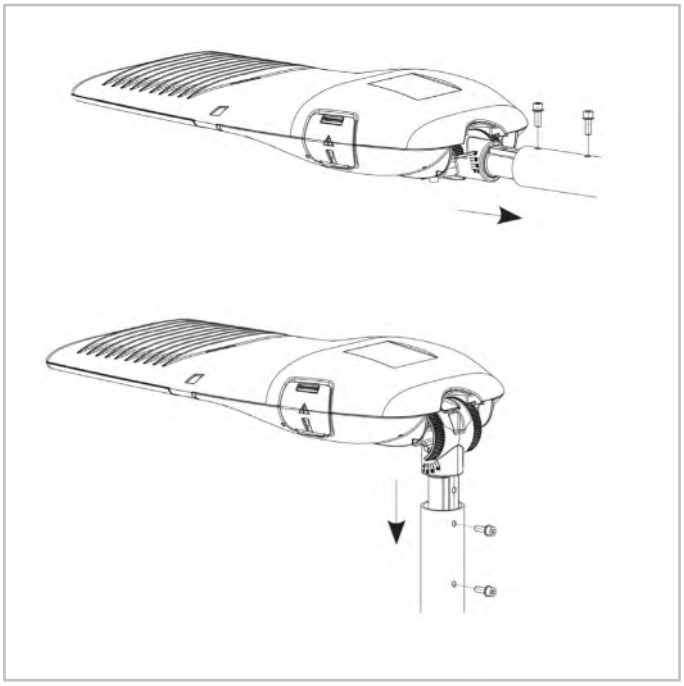
AMPERA EVO | Slip-over mounting for Ø32-60mm spigot - 2xM10 screws



AMPERA EVO | Slip-over mounting for Ø32-76mm spigot - 2xM10 screws



AMPERA EVO | Penetrating fixation for Ø60mm spigot - 2xM8 screws



Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 722		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Cool White 757		Power consumption (W)	Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	
AMPERA EVO 1	10	200	600	700	700	800	800	900	700	900	800	1000	800	1000	7.8	128	LENSO FLEX 4
	10	300	900	1100	1000	1200	1200	1400	1100	1300	1200	1500	1200	1400	10.8	139	LENSO FLEX 4
	10	350	1000	1200	1200	1400	1300	1600	1200	1500	1400	1700	1400	1600	12.3	138	LENSO FLEX 4
	10	400	1200	1400	1400	1600	1500	1800	1400	1700	1600	1900	1500	1800	13.8	138	LENSO FLEX 4
	10	500	1400	1700	1700	2000	1800	2200	1700	2000	1900	2300	1900	2200	17	135	LENSO FLEX 4
	10	600	1700	2000	1900	2300	2100	2500	2000	2400	2200	2700	2200	2600	20.4	132	LENSO FLEX 4
	10	700	1900	2200	2200	2600	2400	2800	2200	2700	2500	3000	2500	2900	23.6	127	LENSO FLEX 4
	10	800	2100	2500	2400	2900	2600	3100	2500	2900	2800	3300	2700	3200	26.9	123	LENSO FLEX 4
	10	870	2200	2600	2600	3000	2800	3300	2600	3100	3000	3500	2900	3400	29.4	119	LENSO FLEX 4
	20	200	1300	1500	1500	1700	1600	1900	1500	1800	1700	2000	1700	2000	13.8	145	LENSO FLEX 4
	20	300	1900	2200	2100	2500	2400	2800	2200	2600	2500	3000	2400	2900	19.8	152	LENSO FLEX 4
	20	350	2100	2500	2500	2900	2700	3200	2500	3000	2900	3400	2800	3300	22.9	148	LENSO FLEX 4
	20	400	2400	2900	2800	3300	3000	3600	2900	3400	3200	3800	3100	3700	25.9	147	LENSO FLEX 4
	20	500	2900	3500	3400	4000	3700	4400	3500	4100	3900	4600	3800	4500	32.3	142	LENSO FLEX 4
	20	600	3400	4000	3900	4600	4300	5100	4000	4800	4500	5400	4400	5200	38.9	139	LENSO FLEX 4
	20	700	3800	4500	4400	5200	4800	5700	4500	5400	5100	6100	5000	5900	45.5	134	LENSO FLEX 4
	20	800	4200	5000	4900	5800	5300	6300	5000	5900	5600	6700	5500	6500	52.5	128	LENSO FLEX 4
	20	870	4500	5300	5200	6100	5700	6700	5300	6300	6000	7100	5800	6900	57	125	LENSO FLEX 4
	30	200	1900	2300	2200	2600	2400	2900	2300	2700	2600	3100	2500	3000	19.1	162	LENSO FLEX 4
	30	300	2800	3300	3200	3800	3600	4200	3300	4000	3800	4500	3700	4400	28.2	160	LENSO FLEX 4
	30	350	3200	3800	3700	4400	4100	4800	3800	4600	4300	5100	4200	5000	32.9	155	LENSO FLEX 4
	30	400	3600	4300	4200	5000	4600	5400	4300	5100	4900	5800	4700	5600	37.5	155	LENSO FLEX 4
	30	500	4400	5200	5100	6000	5500	6600	5200	6200	5900	7000	5700	6800	47	149	LENSO FLEX 4
	30	600	5100	6100	5900	7000	6400	7600	6100	7200	6800	8100	6700	7900	56.5	143	LENSO FLEX 4
	30	700	5800	6800	6600	7900	7300	8600	6800	8100	7700	9100	7500	8900	66.5	137	LENSO FLEX 4
	30	800	6400	7500	7300	8700	8000	9500	7500	8900	8500	10100	8300	9800	76	133	LENSO FLEX 4
	30	870	6800	8000	7800	9200	8500	10100	8000	9500	9000	10700	8800	10400	86	124	LENSO FLEX 4

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 722		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Cool White 757		Power consumption (W)	Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	
AMPERA EVO 1	40	200	2600	3100	3000	3500	3300	3900	3100	3700	3500	4100	3400	4000	25.9	158	LENSO FLEX 4
	40	300	3800	4500	4300	5100	4800	5600	4500	5300	5000	6000	4900	5800	37.8	159	LENSO FLEX 4
	40	350	4300	5100	5000	5900	5500	6500	5100	6100	5800	6900	5600	6700	44	157	LENSO FLEX 4
	40	400	4900	5800	5600	6600	6100	7300	5800	6800	6500	7700	6300	7500	50	154	LENSO FLEX 4
	40	500	5900	7000	6800	8000	7400	8800	7000	8300	7800	9300	7600	9100	62	150	LENSO FLEX 4
	40	600	6800	8100	7900	9300	8600	10200	8100	9600	9100	10800	8900	10500	76	142	LENSO FLEX 4
	40	700	7700	9100	8900	10500	9700	11500	9100	10800	10300	12200	10000	11900	88	139	LENSO FLEX 4
	40	800	8500	10100	9800	11600	10700	12700	10100	11900	11300	13500	11100	13100	101	134	LENSO FLEX 4
	40	870	9000	10700	10400	12300	11400	13500	10700	12700	12000	14300	11700	13900	110	130	LENSO FLEX 4
	48	100	-	-	-	-	2000	2100	-	-	2100	2200	-	-	15.9	138	MID FLEX
	48	117	-	-	-	-	2300	2400	-	-	2500	2600	-	-	18.4	141	MID FLEX
	48	133	-	-	-	-	2600	2800	-	-	2800	2900	-	-	20.9	139	MID FLEX
	48	167	-	-	-	-	3200	3300	-	-	3400	3500	-	-	26.2	134	MID FLEX
	48	200	-	-	-	-	3700	3900	-	-	3900	4100	-	-	31.7	129	MID FLEX
	48	233	-	-	-	-	4200	4400	-	-	4500	4600	-	-	37.3	123	MID FLEX
	48	266	-	-	-	-	4700	4900	-	-	4900	5100	-	-	44	116	MID FLEX
	48	300	-	-	-	-	5100	5300	-	-	5300	5600	-	-	50	112	MID FLEX
	96	100	-	-	-	-	4100	4300	-	-	4300	4500	-	-	29.8	151	MID FLEX
	96	117	-	-	-	-	4700	4900	-	-	5000	5200	-	-	34.8	149	MID FLEX
	96	133	-	-	-	-	5300	5600	-	-	5600	5800	-	-	39.8	146	MID FLEX
	96	167	-	-	-	-	6500	6700	-	-	6800	7100	-	-	50	142	MID FLEX
	96	200	-	-	-	-	7500	7900	-	-	7900	8300	-	-	61	136	MID FLEX
	96	233	-	-	-	-	8500	8900	-	-	9000	9300	-	-	72	129	MID FLEX
	96	266	-	-	-	-	9400	9800	-	-	9900	10300	-	-	84	123	MID FLEX
	96	300	-	-	-	-	10200	10600	-	-	10700	11200	-	-	96	117	MID FLEX

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

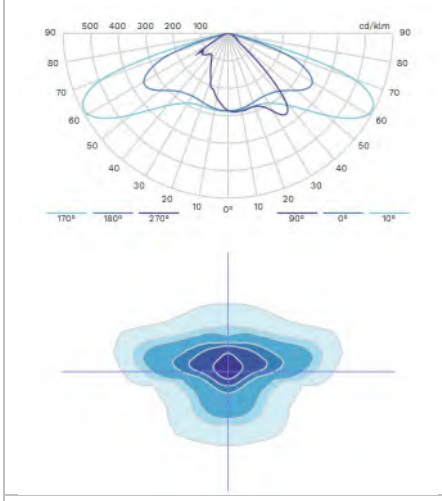
Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 722		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Cool White 757		Power consumption (W)	Luminaire efficacy (lm/W)	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	Photometry
AMPERA EVO 3	40	200	2600	3100	3000	3500	3300	3900	3100	3600	3500	4100	3400	4000	25.9	158	LENSO FLEX 4
	40	300	3800	4400	4300	5100	4800	5600	4500	5300	5000	5900	4900	5800	37.8	156	LENSO FLEX 4
	40	350	4300	5100	5000	5900	5500	6400	5100	6000	5800	6800	5600	6600	44	155	LENSO FLEX 4
	40	400	4900	5700	5600	6600	6200	7200	5800	6800	6500	7600	6400	7500	50	152	LENSO FLEX 4
	40	500	5900	6900	6800	8000	7400	8700	7000	8200	7900	9300	7700	9000	62	150	LENSO FLEX 4
	40	600	6900	8000	7900	9300	8600	10100	8100	9500	9200	10700	8900	10500	76	141	LENSO FLEX 4
	40	700	7700	9100	8900	10400	9700	11400	9200	10700	10300	12100	10100	11800	88	138	LENSO FLEX 4
	40	800	8500	10000	9800	11500	10800	12600	10100	11900	11400	13400	11100	13000	101	133	LENSO FLEX 4
	40	900	9300	10900	10700	12500	11700	13700	11000	12900	12400	14500	12100	14100	118	123	LENSO FLEX 4
	40	1000	9900	11600	11400	13400	12500	14700	11800	13800	13200	15500	12900	15100	132	117	LENSO FLEX 4
	50	200	3300	3800	3800	4400	4100	4800	3900	4500	4400	5100	4300	5000	31.8	160	LENSO FLEX 4
	50	300	4700	5500	5400	6400	6000	7000	5600	6600	6300	7400	6200	7200	46.5	159	LENSO FLEX 4
	50	350	5400	6400	6200	7300	6800	8000	6400	7500	7300	8500	7100	8300	54	157	LENSO FLEX 4
	50	400	6100	7200	7000	8200	7700	9000	7200	8500	8200	9600	8000	9300	61.5	156	LENSO FLEX 4
	50	500	7400	8700	8500	10000	9300	10900	8800	10300	9900	11600	9600	11300	77	151	LENSO FLEX 4
	50	600	8600	10100	9900	11600	10800	12700	10200	11900	11500	13400	11200	13100	93	144	LENSO FLEX 4
	50	700	9700	11400	11100	13100	12200	14300	11500	13400	12900	15200	12600	14800	109	139	LENSO FLEX 4
	50	800	10700	12500	12300	14400	13500	15800	12700	14800	14300	16700	13900	16300	127	131	LENSO FLEX 4
	50	900	11600	13600	13300	15600	14600	17100	13700	16100	15500	18100	15100	17700	145	125	LENSO FLEX 4
	50	1000	12400	14600	14300	16700	15600	18300	14700	17200	16600	19400	16100	18900	163	119	LENSO FLEX 4
	60	200	3900	4600	4500	5300	5000	5800	4700	5500	5300	6200	5100	6000	37.8	164	LENSO FLEX 4
	60	300	5700	6700	6500	7700	7200	8400	6700	7900	7600	8900	7400	8700	55	162	LENSO FLEX 4
	60	350	6500	7700	7500	8800	8200	9600	7700	9100	8700	10200	8500	10000	64	159	LENSO FLEX 4
	60	400	7300	8600	8400	9900	9200	10800	8700	10200	9800	11500	9500	11200	73	158	LENSO FLEX 4
	60	500	8800	10400	10200	11900	11100	13100	10500	12300	11800	13800	11500	13500	92	150	LENSO FLEX 4
	60	600	10200	12000	11800	13800	12900	15100	12100	14200	13700	16000	13300	15600	112	143	LENSO FLEX 4
	60	700	11500	13500	13300	15500	14500	17000	13600	16000	15400	18000	15000	17600	131	137	LENSO FLEX 4
	60	800	12700	14900	14600	17100	16000	18700	15000	17600	16900	19800	16500	19300	151	131	LENSO FLEX 4
	70	200	4600	5400	5300	6200	5800	6800	5500	6400	6100	7200	6000	7000	43.5	166	LENSO FLEX 4
	70	300	6600	7800	7600	9000	8400	9800	7900	9200	8900	10400	8700	10100	63.5	164	LENSO FLEX 4
	70	350	7600	8900	8800	10300	9600	11300	9000	10600	10200	11900	9900	11600	74	161	LENSO FLEX 4
	70	400	8600	10000	9800	11500	10800	12600	10100	11900	11400	13400	11100	13100	85	158	LENSO FLEX 4
	70	500	10300	12100	11900	13900	13000	15300	12200	14300	13800	16200	13400	15800	106	153	LENSO FLEX 4
	70	600	12000	14000	13800	16100	15100	17700	14200	16600	16000	18700	15600	18200	129	145	LENSO FLEX 4
	70	700	13500	15800	15500	18100	16900	19900	15900	18700	18000	21000	17500	20500	152	138	LENSO FLEX 4

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

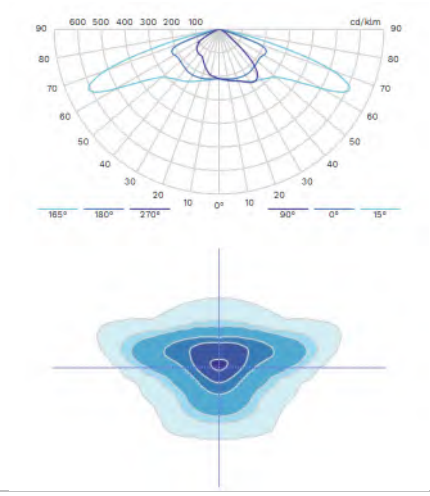
Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 722		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Cool White 757		Power consumption (W)	Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Up to	
AMPERA EVO 3	70	830	15200	17800	17500	20500	19100	22400	18000	21100	20300	23800	19800	23200	180	132	LENSO FLEX 4
	80	200	5300	6200	6000	7100	6600	7800	6200	7300	7000	8200	6800	8000	47.5	173	LENSO FLEX 4
	80	300	7600	8900	8700	10200	9600	11200	9000	10600	10100	11900	9900	11600	72	165	LENSO FLEX 4
	80	350	8700	10200	10000	11800	11000	12900	10300	12100	11600	13600	11300	13300	84	162	LENSO FLEX 4
	80	400	9800	11500	11200	13200	12300	14400	11600	13600	13100	15300	12700	14900	96	159	LENSO FLEX 4
	80	500	11800	13800	13600	15900	14900	17400	14000	16400	15700	18500	15300	18000	121	153	LENSO FLEX 4
	80	600	13700	16000	15700	18400	17200	20200	16200	19000	18200	21400	17800	20800	147	146	LENSO FLEX 4
	80	730	15800	18600	18200	21300	19900	23400	18800	22000	21100	24800	20600	24100	182	136	LENSO FLEX 4
	96	67	-	-	-	-	2900	3000	-	-	3000	3200	-	-	20	160	MID FLEX
	96	100	-	-	-	-	4200	4400	-	-	4500	4600	-	-	29.8	154	MID FLEX
	96	117	-	-	-	-	4900	5000	-	-	5100	5300	-	-	34.8	152	MID FLEX
	96	133	-	-	-	-	5500	5700	-	-	5800	6000	-	-	39.8	151	MID FLEX
	96	167	-	-	-	-	6600	6900	-	-	7000	7200	-	-	50	144	MID FLEX
	96	200	-	-	-	-	7700	8000	-	-	8100	8400	-	-	61	138	MID FLEX
	96	233	-	-	-	-	8700	9000	-	-	9200	9500	-	-	72	132	MID FLEX
	96	267	-	-	-	-	9600	10000	-	-	10100	10500	-	-	84	125	MID FLEX
	96	300	-	-	-	-	10100	10500	-	-	10700	11000	-	-	92	120	MID FLEX
	144	67	-	-	-	-	4400	4500	-	-	4600	4800	-	-	30.4	158	MID FLEX
	144	100	-	-	-	-	6400	6600	-	-	6700	6900	-	-	44.5	155	MID FLEX
	144	117	-	-	-	-	7300	7600	-	-	7700	8000	-	-	52	154	MID FLEX
	144	133	-	-	-	-	8200	8500	-	-	8700	9000	-	-	59	153	MID FLEX
	144	167	-	-	-	-	10000	10400	-	-	10500	10900	-	-	74	147	MID FLEX
	144	200	-	-	-	-	11600	12000	-	-	12200	12700	-	-	91	140	MID FLEX
	144	233	-	-	-	-	13100	13500	-	-	13700	14200	-	-	107	133	MID FLEX
	144	267	-	-	-	-	14500	15000	-	-	15200	15800	-	-	126	125	MID FLEX
	144	300	-	-	-	-	15700	16300	-	-	16500	17100	-	-	145	118	MID FLEX
	192	67	-	-	-	-	5800	6000	-	-	6100	6400	-	-	39.7	161	MID FLEX
	192	100	-	-	-	-	8500	8800	-	-	9000	9300	-	-	58	160	MID FLEX
	192	117	-	-	-	-	9800	10100	-	-	10300	10700	-	-	68	157	MID FLEX
	192	133	-	-	-	-	11000	11400	-	-	11600	12000	-	-	78	154	MID FLEX
	192	167	-	-	-	-	13300	13800	-	-	14000	14500	-	-	98	148	MID FLEX
	192	200	-	-	-	-	15500	16100	-	-	16300	16900	-	-	120	141	MID FLEX
	192	233	-	-	-	-	17500	18100	-	-	18400	19100	-	-	142	135	MID FLEX
	192	270	-	-	-	-	19500	20200	-	-	20500	21200	-	-	167	127	MID FLEX

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

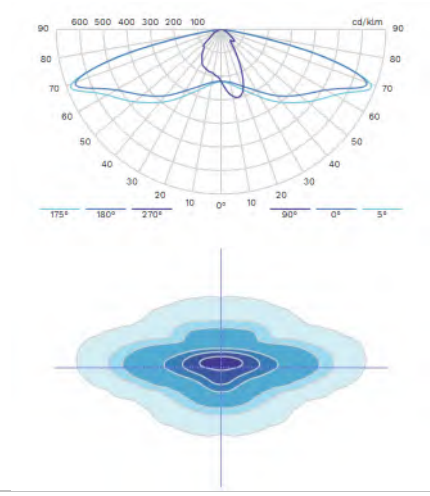
MID FLEX™ 5195



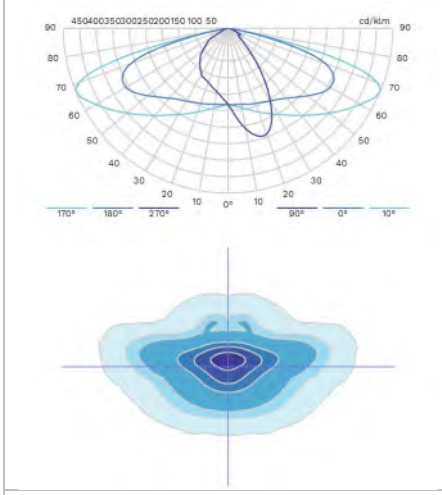
MID FLEX™ 5196



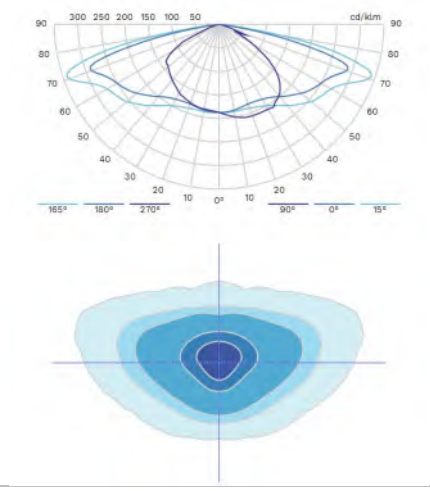
MID FLEX™ 5256



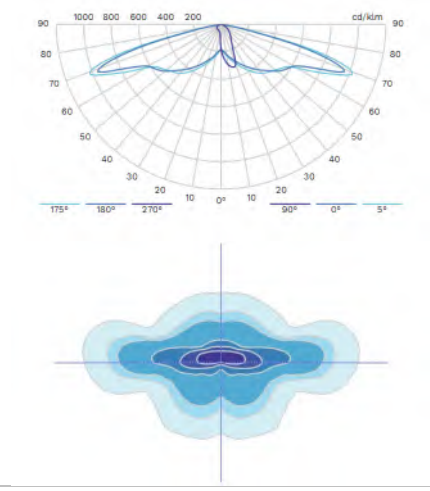
MID FLEX™ 5259



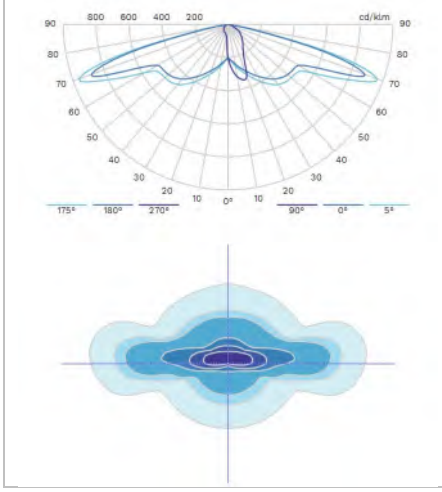
MID FLEX™ 5261



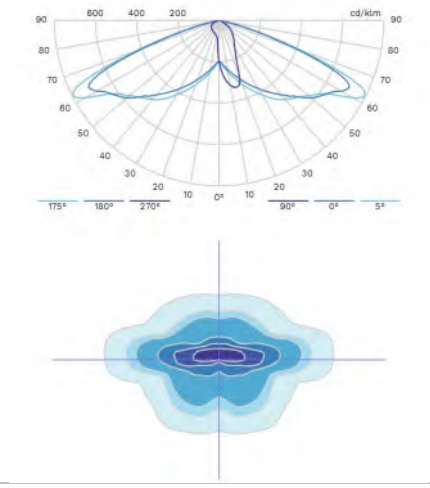
LENSO FLEX™4 5300



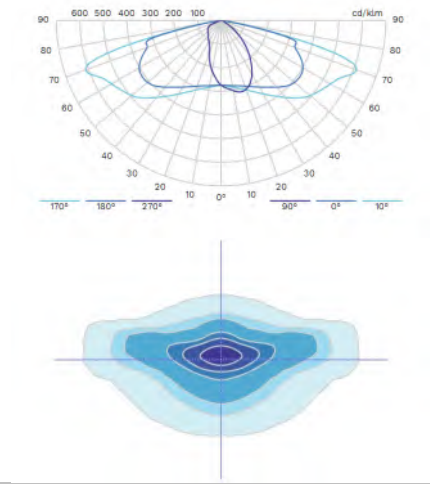
LENSO FLEX™4 5300 BL



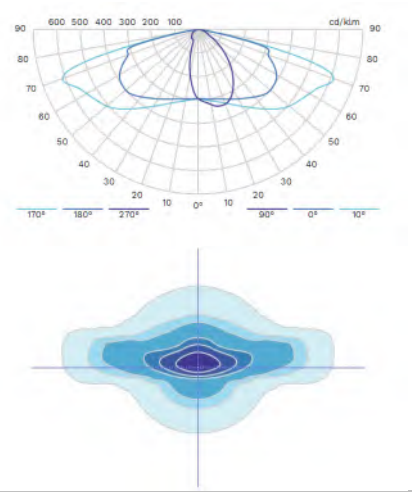
LENSO FLEX™4 5300 GL



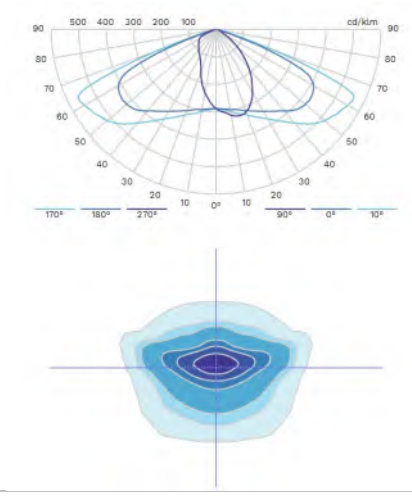
LENSO FLEX™4 5301



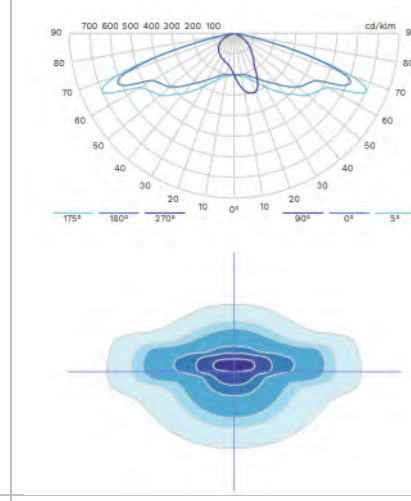
5301 BL



5301 GL



5302



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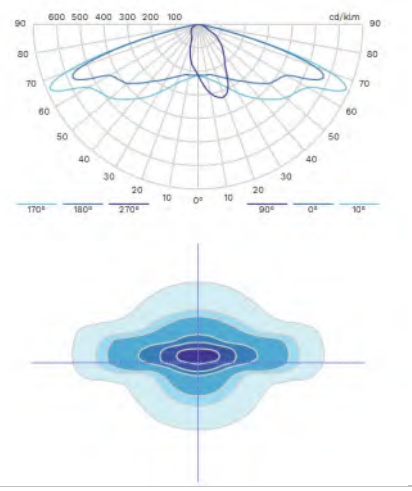
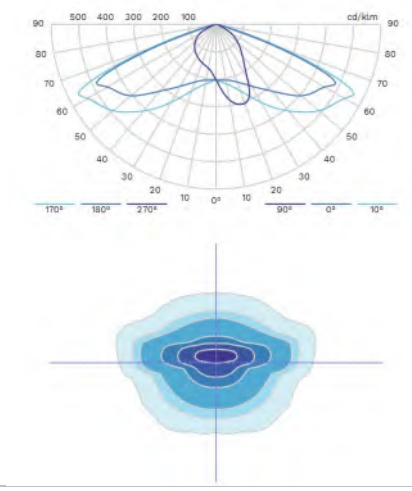


5302 GL



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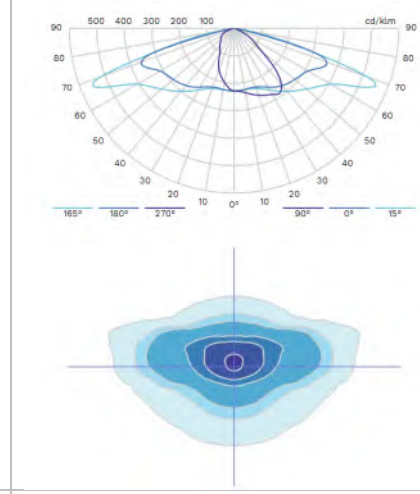

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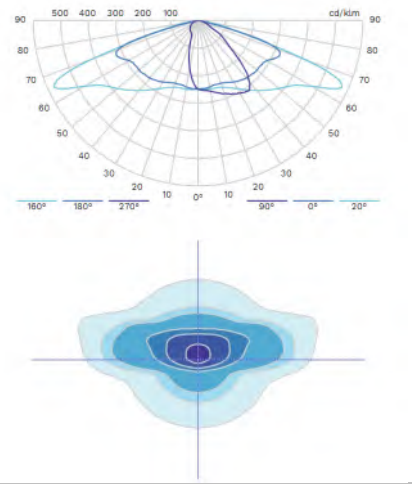
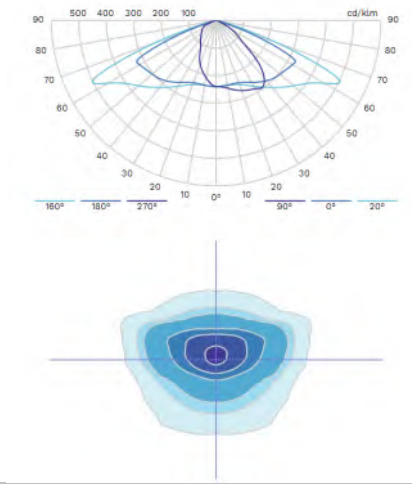
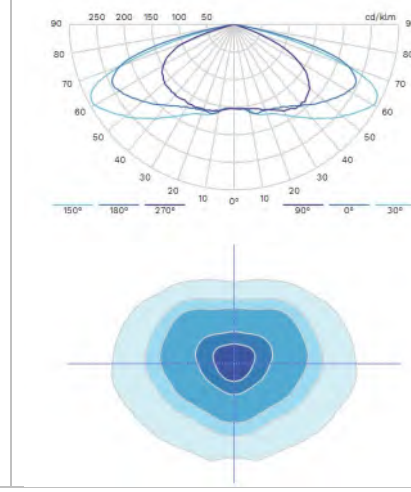


5303 GL



5304



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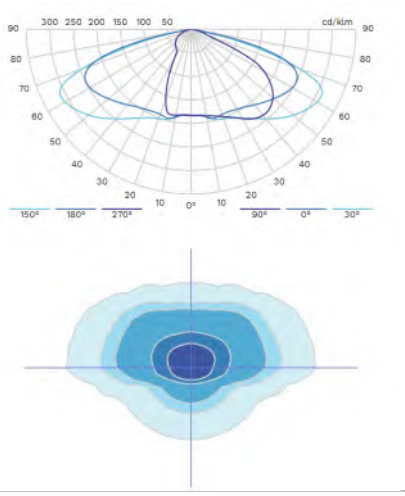

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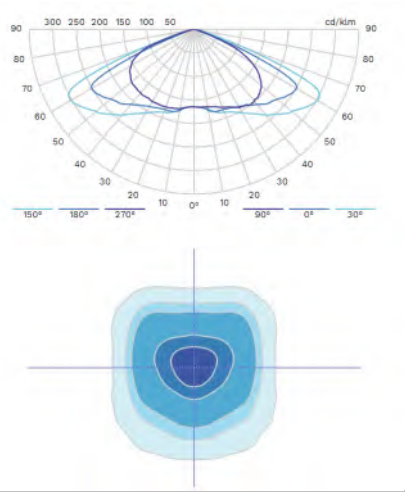

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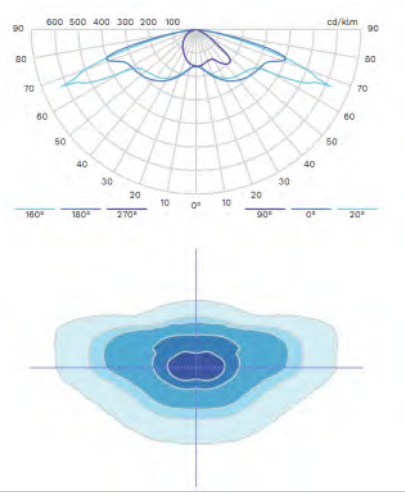

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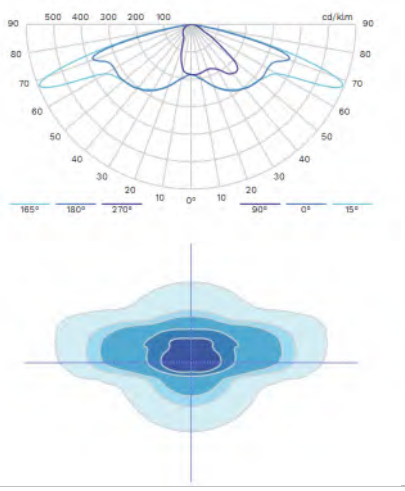

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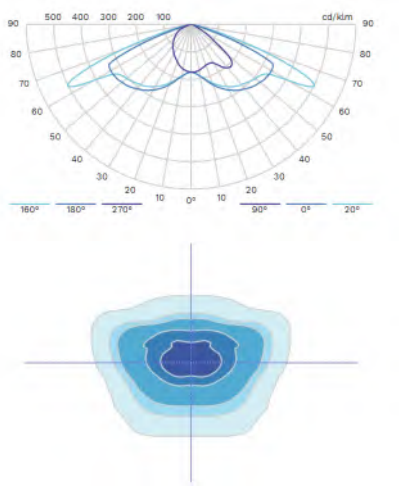

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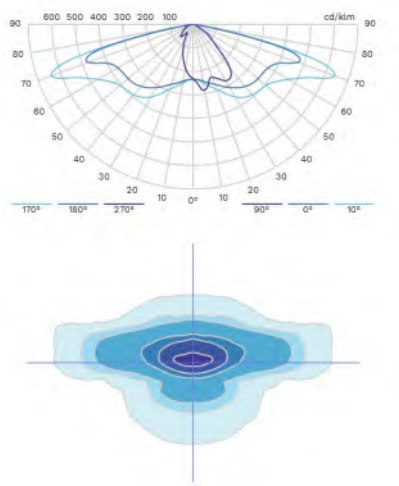
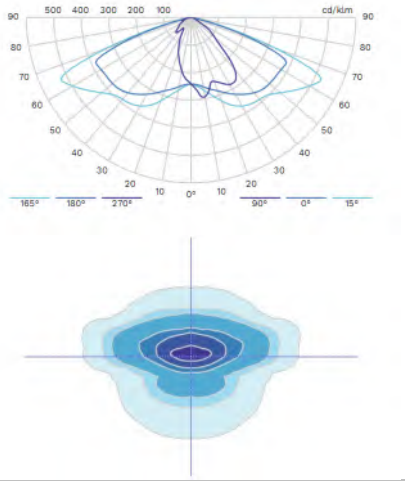


5306 GL



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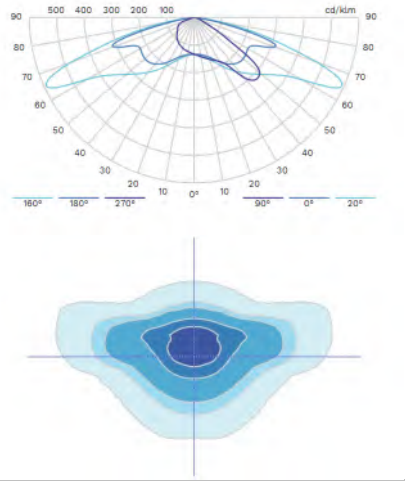
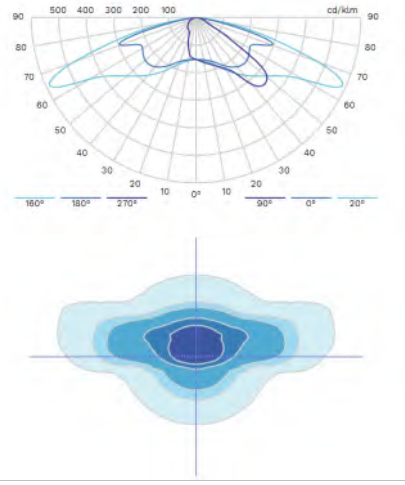
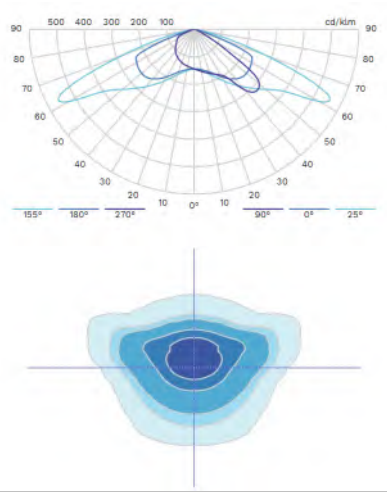


5307 BL



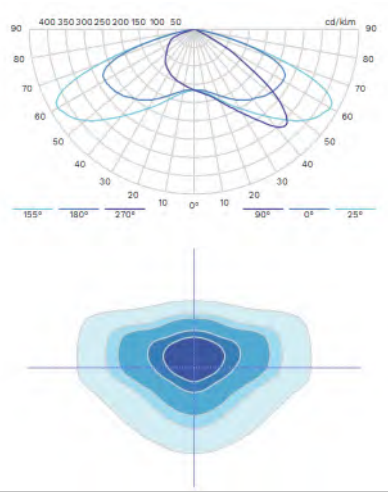
LENSO FLEX™4

5307 GL



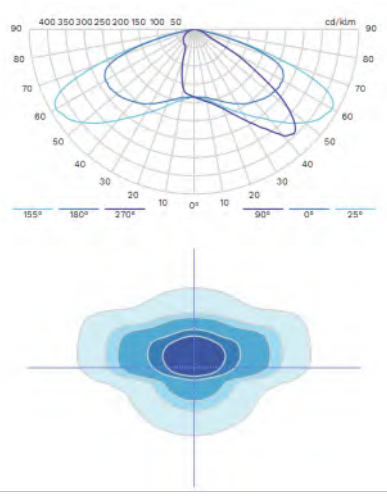
LENSO FLEX™4

5308



LENSO FLEX™4

5308 BL



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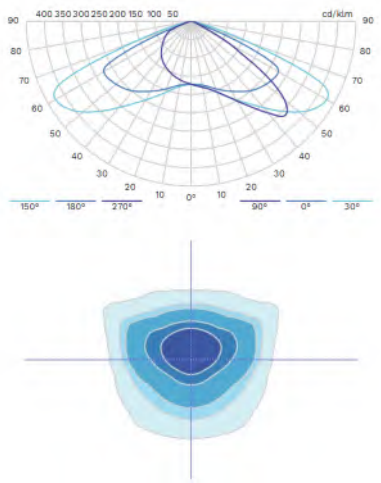

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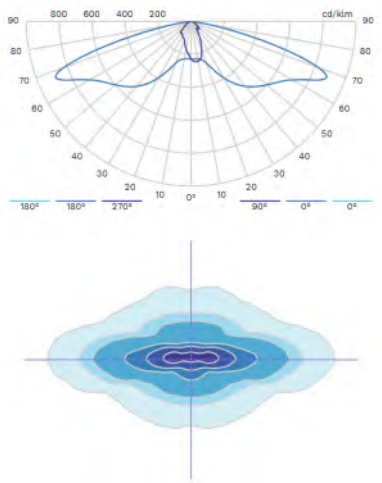

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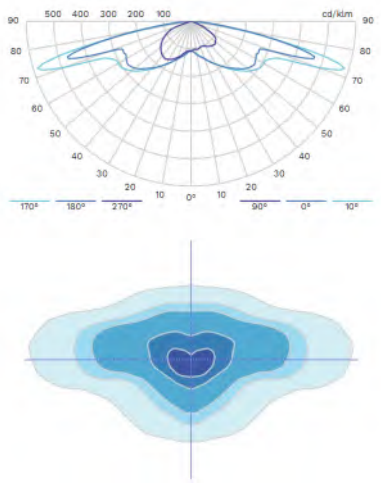

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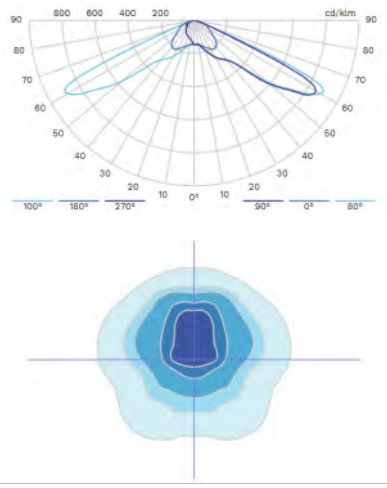

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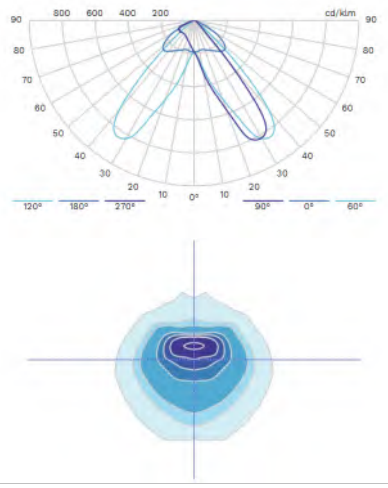

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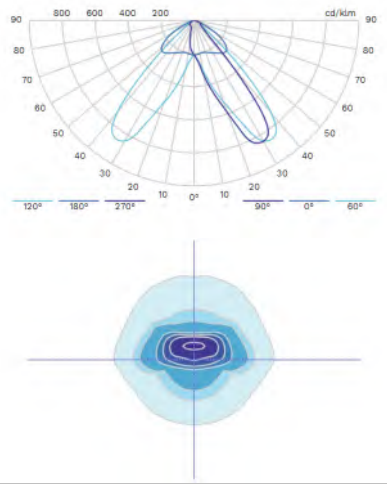

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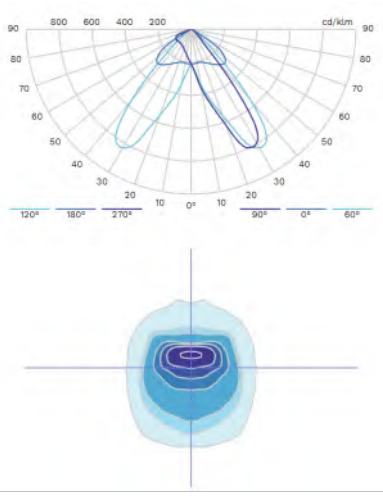

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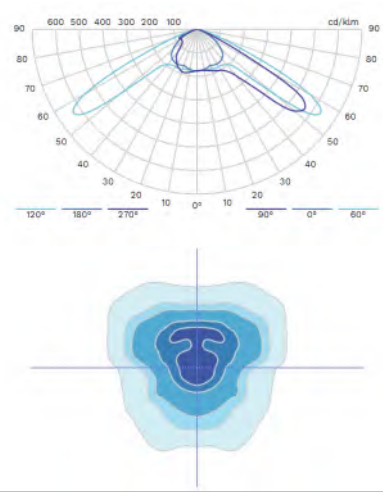

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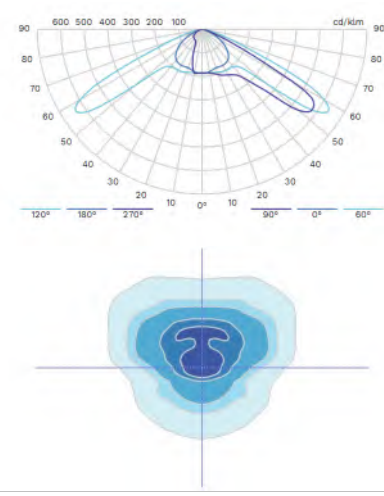

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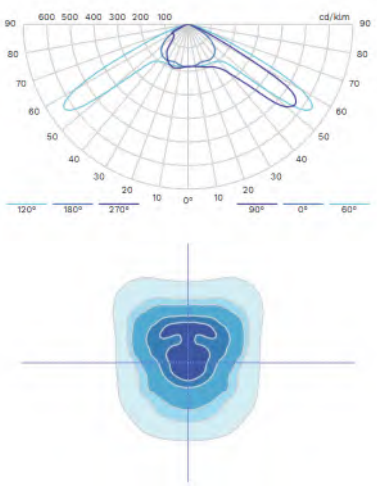

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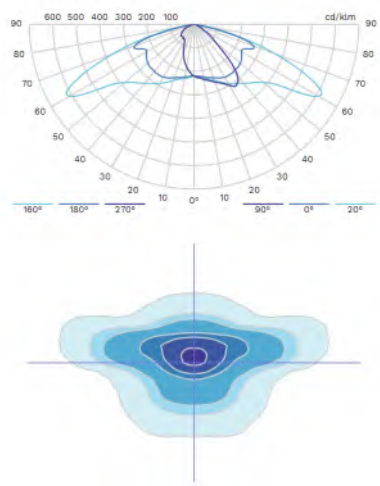

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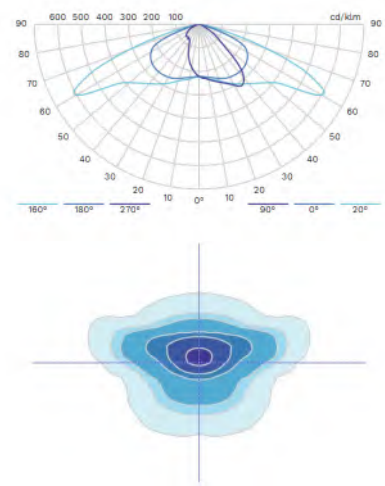

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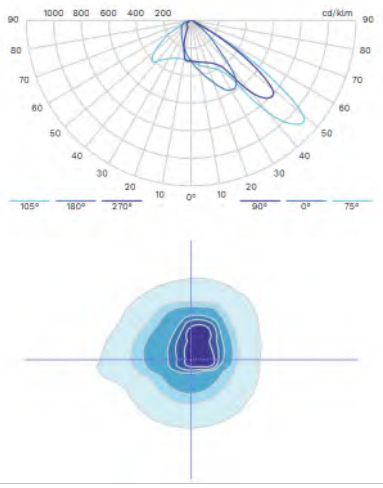

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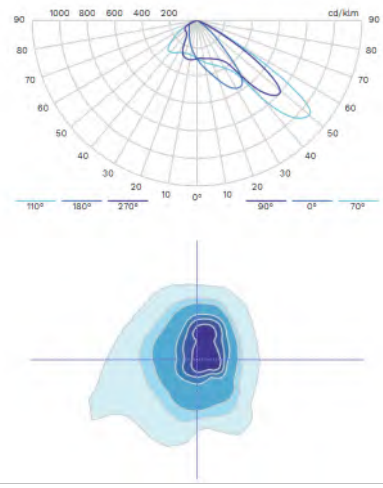

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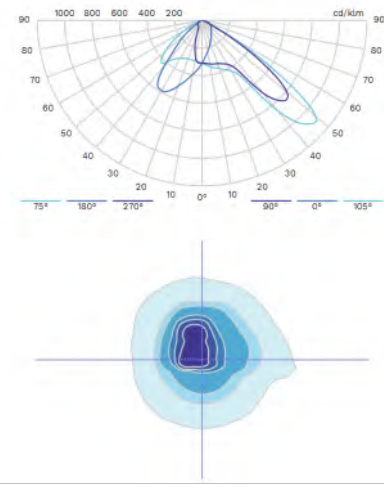

LENSO FLEX™4

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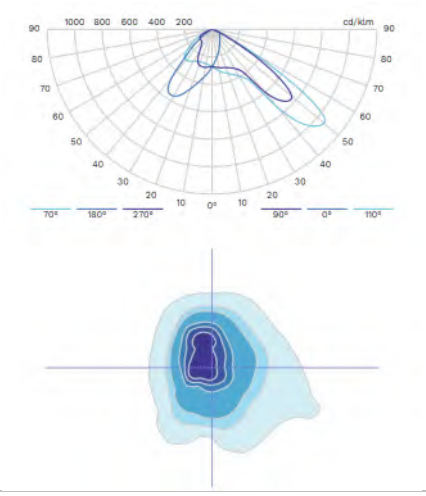

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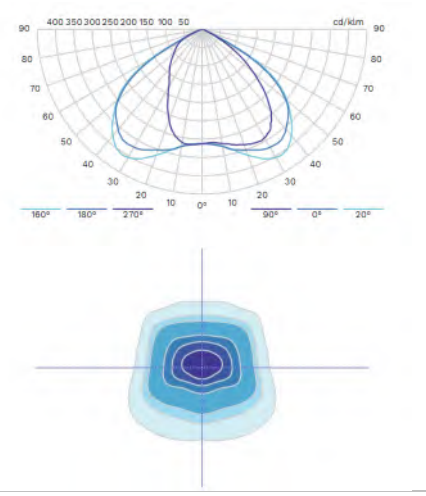

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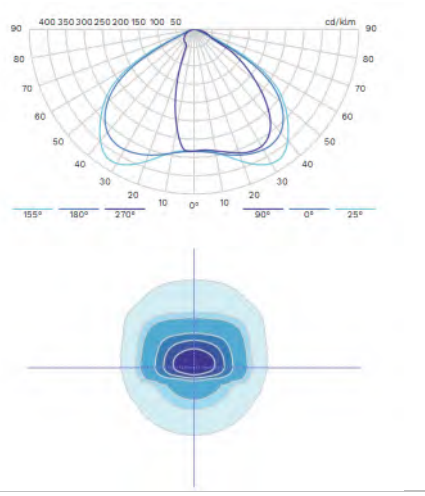

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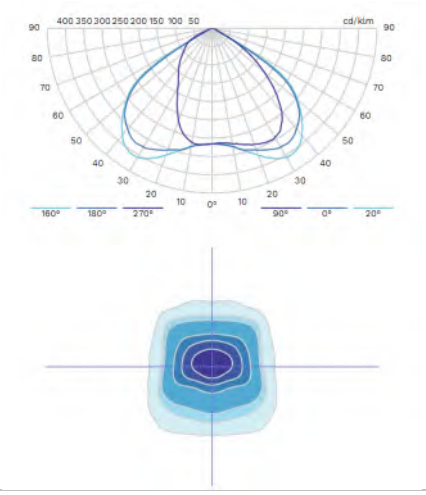

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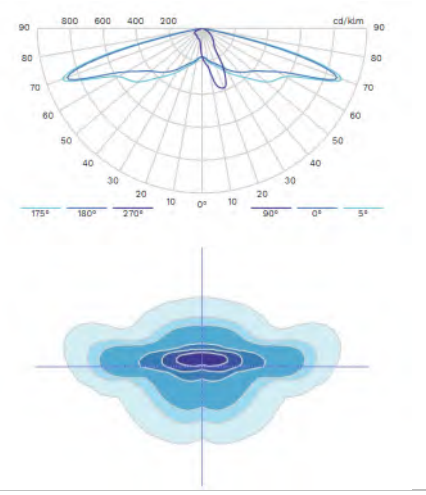

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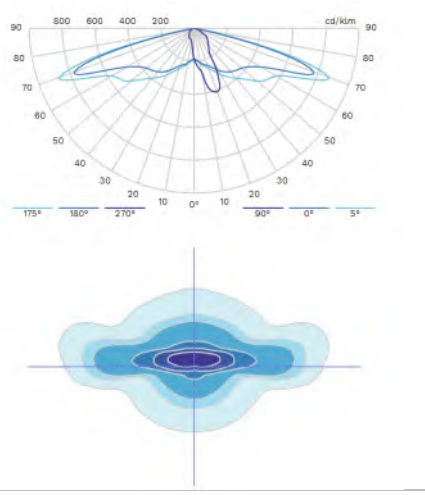

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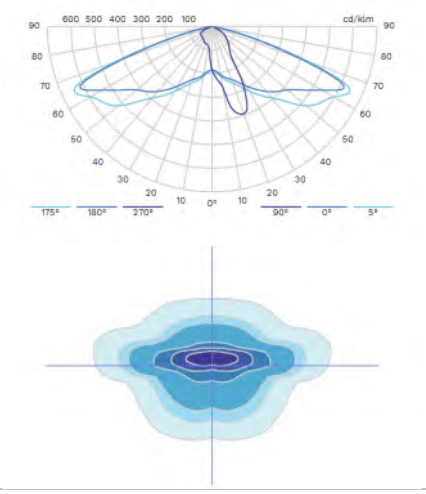

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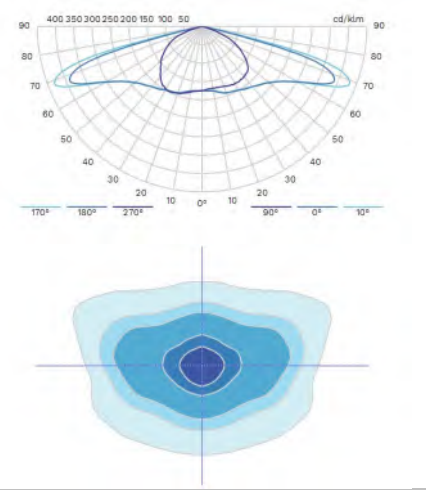

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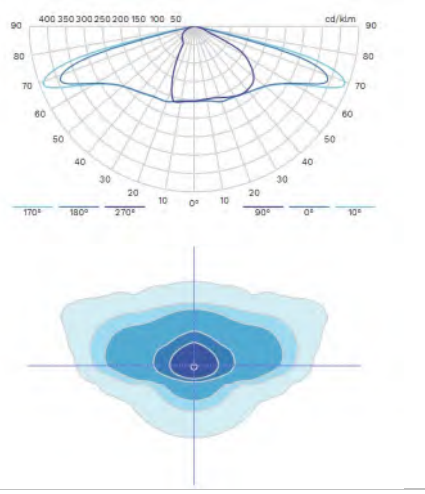

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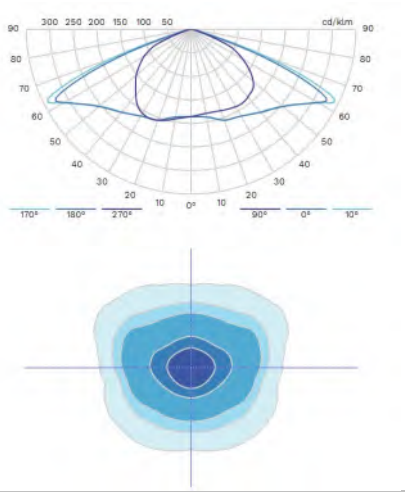

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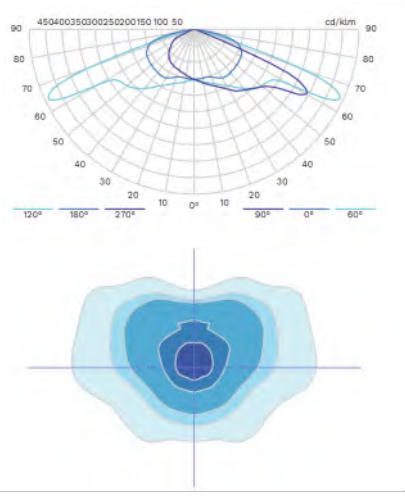

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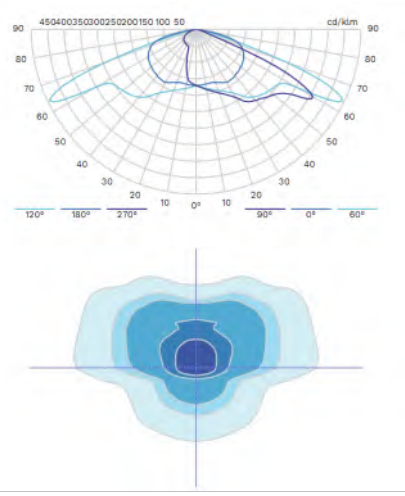

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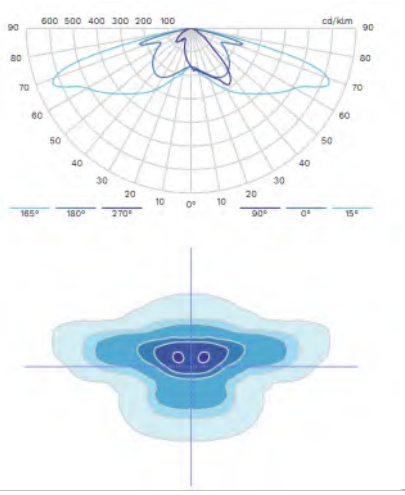

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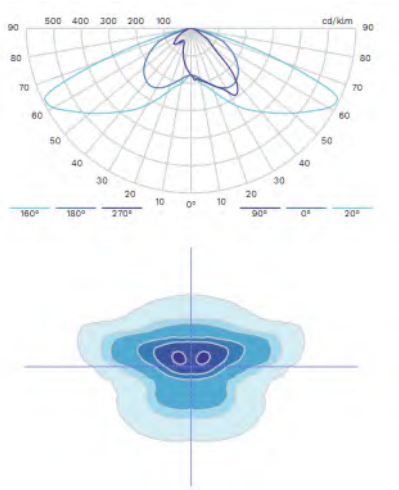

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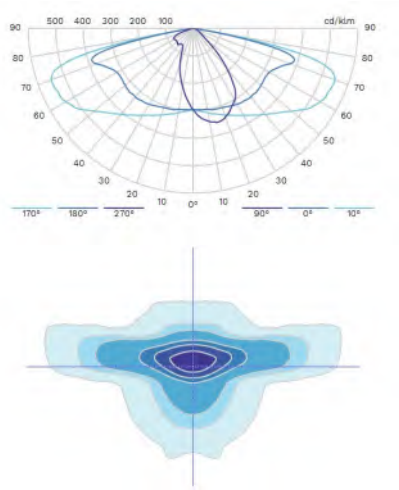

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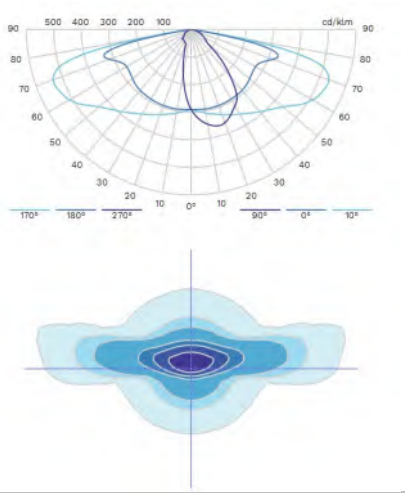

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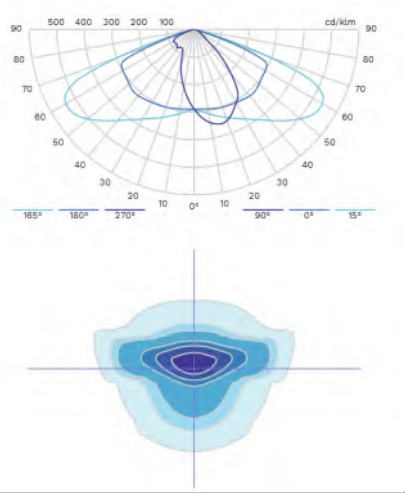

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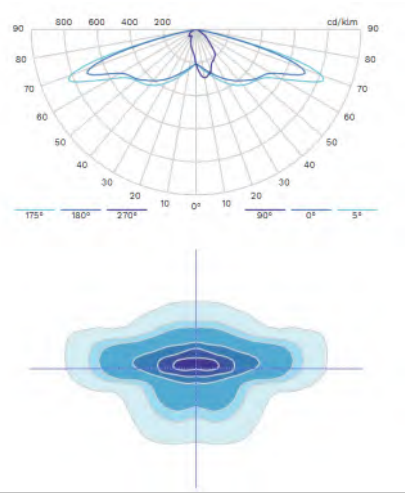

LENSO FLEX™4

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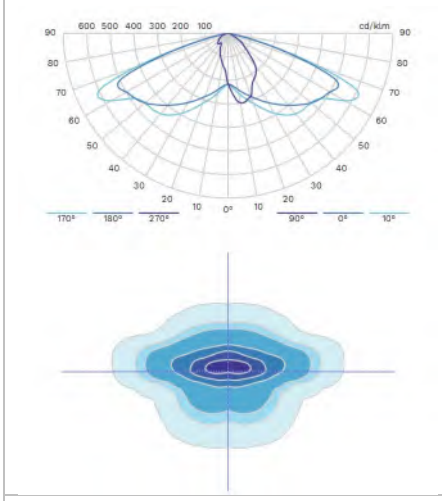

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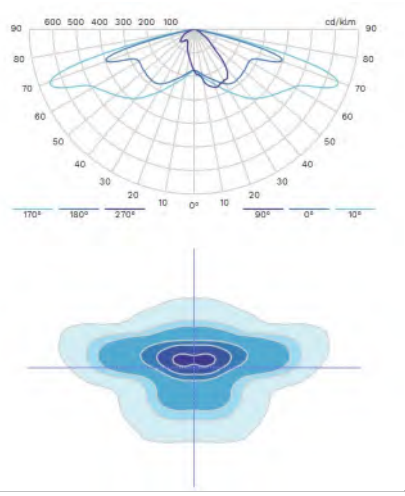

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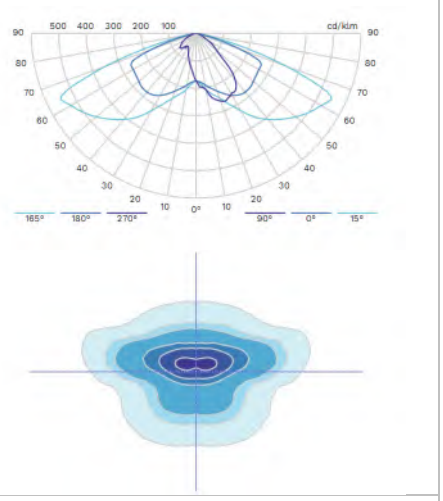

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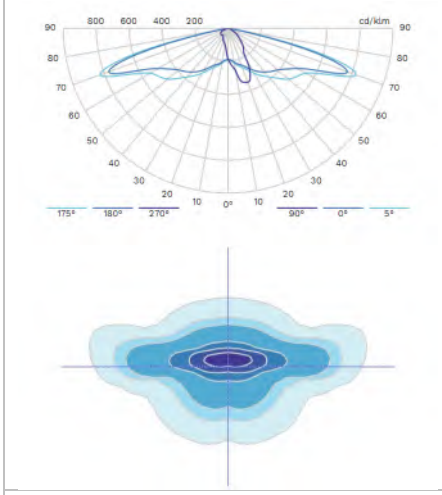

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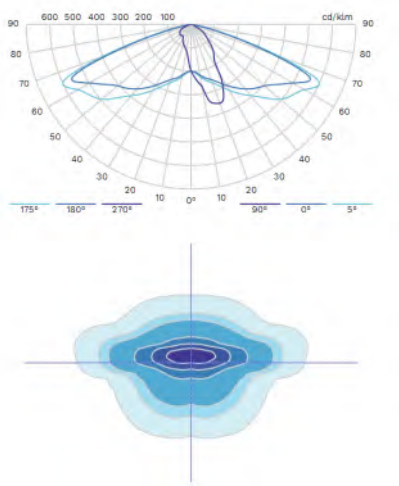

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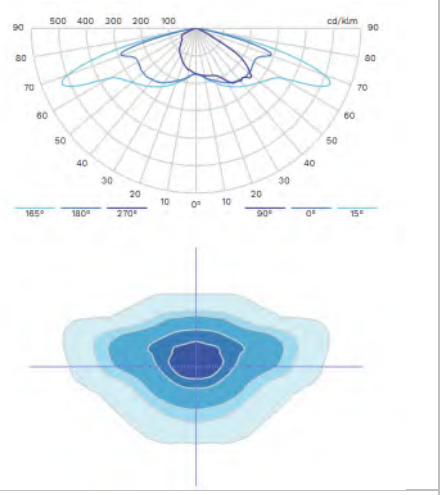

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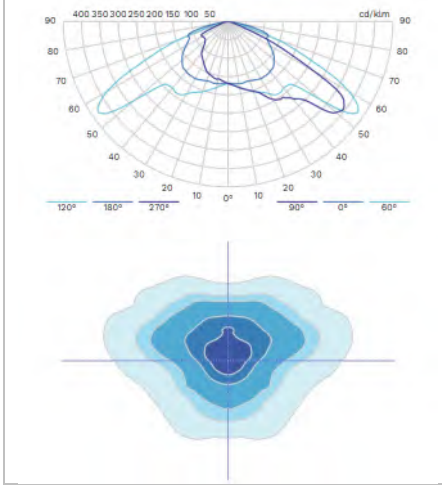


KELLWOOD LIGHTING

Advanced industrial lighting hardware, developed for application in marine, municipal, transport, logistics zones, or largescale internal projects

460W-920W series range - Impact, ingress, optional marine-grade corrosion, & vibration resistance as standard - >120lm/W family efficacy, - 15+ general purpose & task-specific optics - Advanced colour rendering capabilities - Integrated, standalone, & wireless network intelligent control options

CE, RoHS, DLC, UL, CB, international product marks

Ayrton 3 Series

Mast, Tower, & High Bay Light

CDN:SPEC139REV9

EST. 1985

ENGINEERING

ELECTRICAL

LIGHTING

Technical Specifications Summary

Performance Summary:				
Code (Series-Wattage/Size)	AYR3-460	AYR3-610	AYR3-770	AYR3-920
Nominal Power	450W	600W	750W	900W
Luminaire Efficacy @ CRI>70, 5000K CCT	127lm/W	127lm/W	121lm/W	121lm/W
Lumen Output @ CRI>70, 5000K CCT	58,420lm	77,470lm	97,790lm	116,840lm
Lumen Maintenance (TM21 Reported)	L90B10 ≥80,000 hours @ Tj 80°C, 25°C Ambient			
Lumen Maintenance (TM21 Calculated)	L80B10 ≥100,000 hours @ Tj 80°C, 25°C Ambient			
Certification	CE, RoHS, DLC, UL, CB			
Product Warranty	5 Years, 2 Years (Emergency)			

Light Source and Photometric Parameters:	
Chip Brand, Model, & Size	Nichia 3535 NVSL219C
Chip Efficacy @ CRI>70, 5000K CCT	174lm/W @ 350mA @25°C
Light Emmission	Direct
CCT	5000K, (3000K, 4000K, 5700K optional)
CRI	≥70, ≥80
SDCM	≤5
Diffusers	Clear, (Frosted optional)
Symmetric Light Distribution	10°, 25°, 40°, 60°, 90°, 120°, 150°
Asymmetric Light Distribution	IESNA Type 1M, 2M, 3M, 3L, 4S, 4M
Optical Accessories	Backspill Guard

Electrical Parameters[1]:				
System Operating Power	460W	610W	770W	920W
Driver Brand	Philips			
Driver Model	Xitanium 929001401680			
Typical Driver Lifetime	100,000 hours @TCase 70°C			
Input Voltage	220-240VAC, (120-277VAC (D3), 347-480VAC optional)			
Input Frequency	50-60Hz			
Qty of Drivers per Light	3	4	5	6
Inrush Current Per Driver @ 230VAC measured at 50% Ipeak (Peak/Duration)	46A/440µs			
Recommended Lights per Circuit (16A Type B MCB)	≤3pcs	≤2pcs		≤1pc
Power Factor	>0.95			
THD	<10%			
Insulation Class	Class I			
Surge Protection/Fusing	10kA, (20kA optional) | TVS (Transient Voltage Suppressors on individual LED Modules)			

Environmental Parameters:	
IP Rating	IP67
IK Rating	IK10
Ambient Usage Tolerance	-40°C to 50°C
Ambient Storage Tolerance	-40°C to 50°C
Driver automatic turn-off temperature	TCase 85°C - Power to LEDs is reduced

Technical Specifications Summary

Code (Series-Wattage/Size)	AYR3-460	AYR3-610	AYR3-770	AYR3-920
Physical/Mechanical Parameters:				
Product Dimensions: LxWxH (mm)	765 x 635 x 83	885 x 635 x 83	1065 x 635 x 83	1185 x 635 x 83
Spigot Diameter (mm)	60			
Minimum Tenon Length (mm)	120			
Qty of LED Chips	216	288	360	432
Qty of Modules	6	8	10	12
Windage	0.072m²	0.079m²	0.089m²	0.096m²
Electrical Connection	Terminal Block or 800mm cable			
Fixture Weight[2]	19.63kg	23.21kg	27.45kg	30.72kg
Fixture Primary Material(s)	Aluminium Alloy and Stainless Steel Fasteners			
Fixture Finish	AzkoNobel Powder Coat (Marine-Grade 100 micron corrosion resistant polyester optional)			
Lens(es) Materials	UV Stabilised Polycarbonate			
Dimming/Controls Parameters:				
Dimming Options	1-10V, DALI			
Built-in Controls	Photocell, NEMA Socket and Cap			
Compatible intelligent lighting systems	Wireless Controls and Monitoring			
Options/Accessories:				
Mounting Styles	Universal Bracket, Slip Fit, Cable Suspension			
Available Product Colours	Grey (RAL 7004), Black (RAL 9011), White (RAL 9010)			

[1] Electrical Parameter data is for D1 drivers, unless otherwise stated
[2] Excludes bracketry. Refer to the Packaging Weights & Dimensions data sheet for bracketry and accessory weights

Features Summary

Mounting Options

Universal bracket, slip fit, cable suspension

Optional Fitting Colours

Grey RAL:7004, black RAL:9001, white RAL:9010, bronze RAL:8014, custom (subject to MOQ)

Special Features

Integrated spirit level, Wago internal quick-connectors, safety wire & carabiner secondary securing system, 3G vibration tolerance as per ANSI C136.31-2010, bird spikes

Environmental Protection

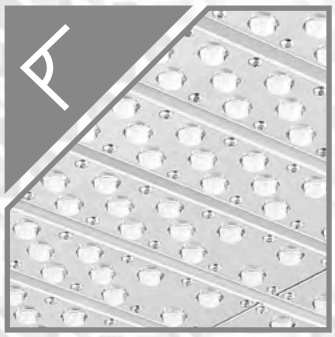
IP67, copper-free aluminium chassis & modules c/w corrosion-resistant powder coat & anodisation finishes - Salt spray testing reports available - 304 stainless steel exposed fixtures

Impact Protection

IK09 rated

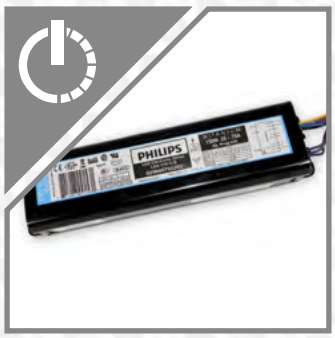
Windage

460W model 0.072m²
610W model 0.079m²
770W model 0.089m²
920W model 0.096m²



Distribution

>15no. optic variants are available for general & task-specific applications - Optional back-spill guards available



Driver Protocols

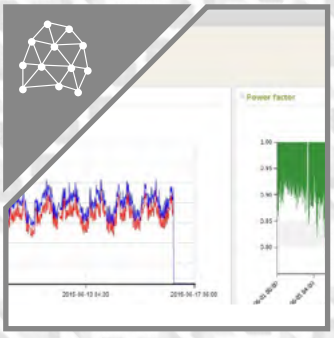
Non-dimming, 0-10V, DALI

Sensor(s)

Integrated, standalone (single or multiple luminaires per sensor options)

Sensor Functions

Occupancy, multi-step dimming, photocell, daylight harvesting

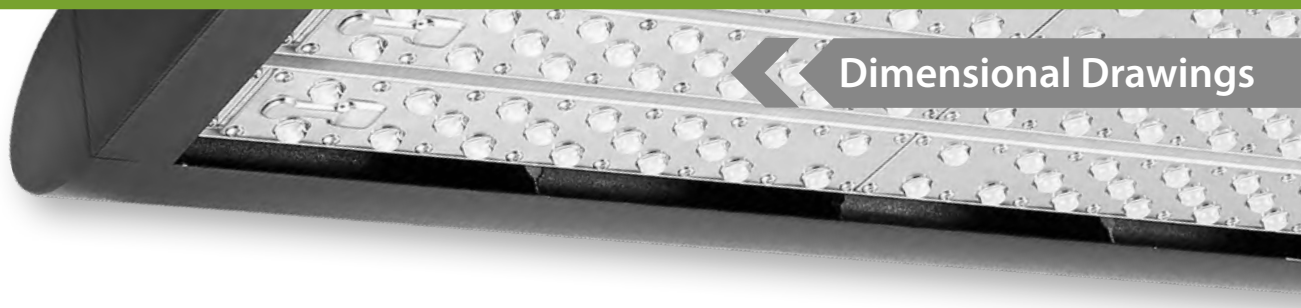


Advanced Controls

System energy reporting, data monitoring, IoT (wireless/wired) networks

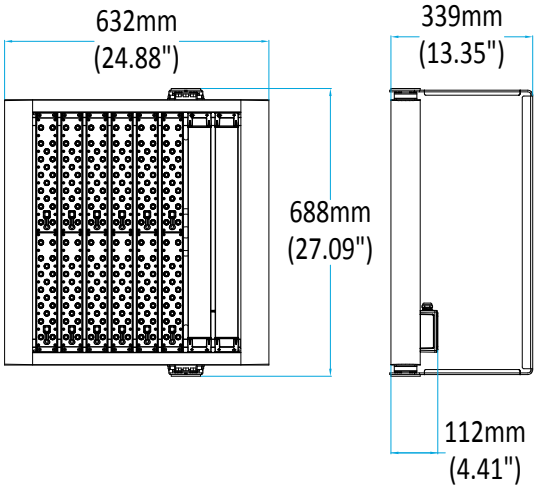
Electrical Protection

10KA, 20KA, integrated surge protection device

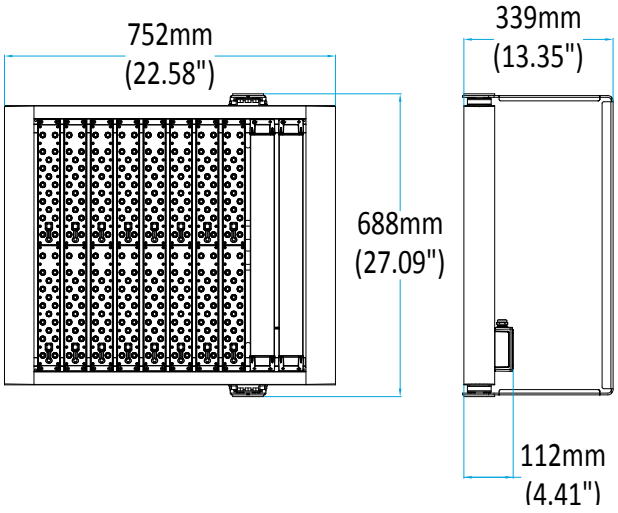


Dimensional Drawings

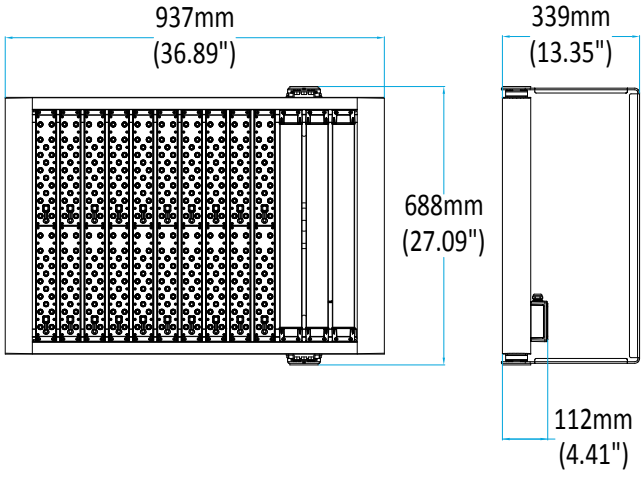
Universal Bracket - 460W



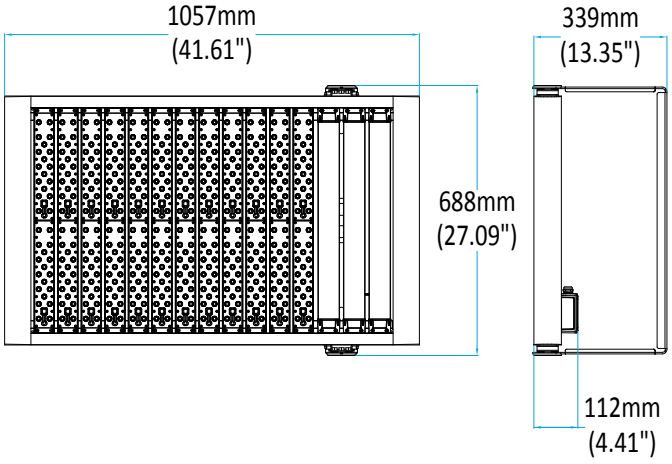
Universal Bracket - 610W



Universal Bracket - 770W

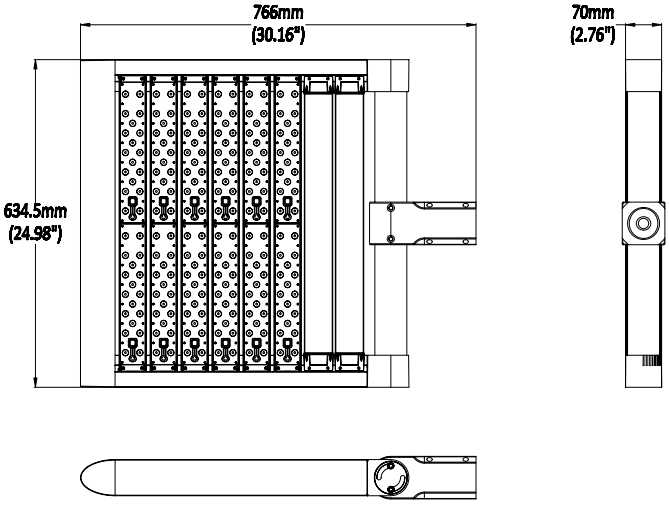


Universal Bracket - 920W

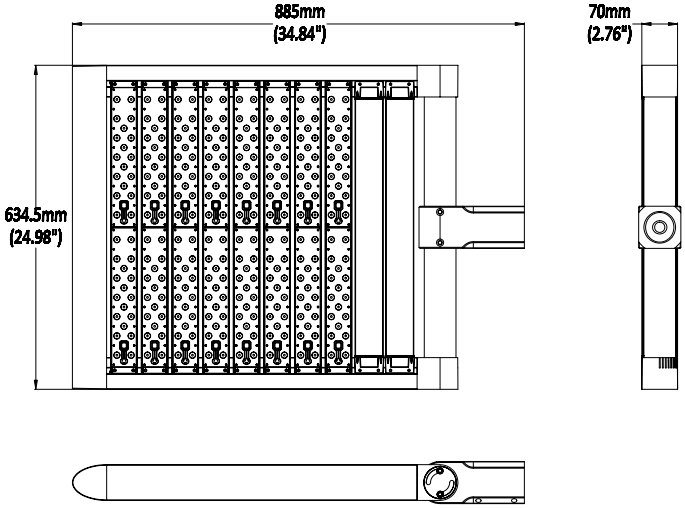


Dimensional Drawings

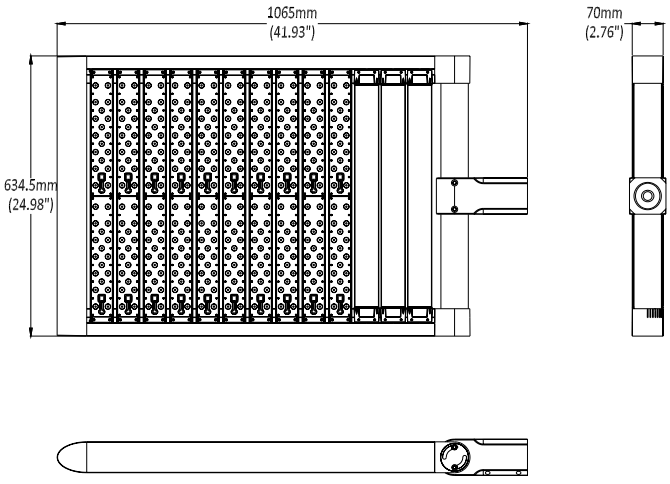
Slip Fit - 460W



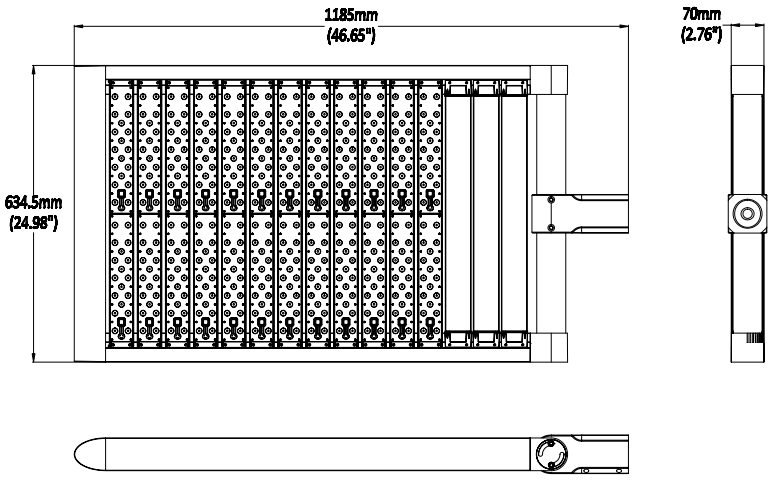
Slip Fit - 610W



Slip Fit - 770W

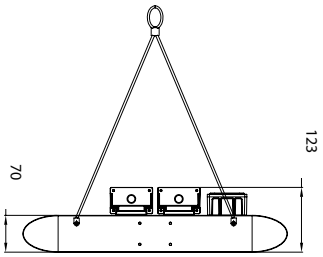


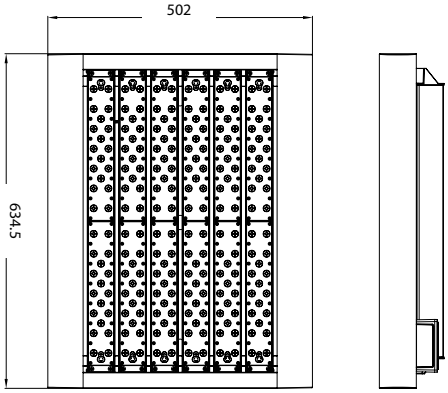
Slip Fit - 920W



Dimensional Drawings

Cable Suspension - 460W





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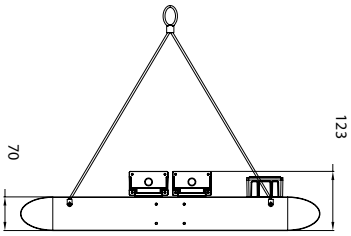

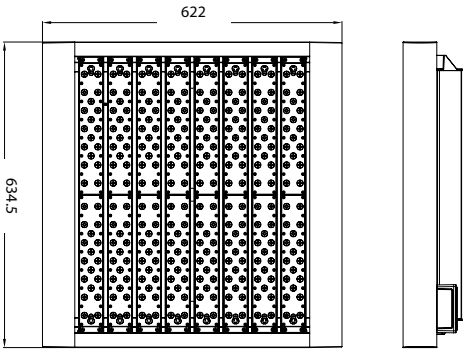

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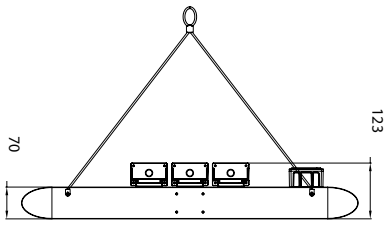

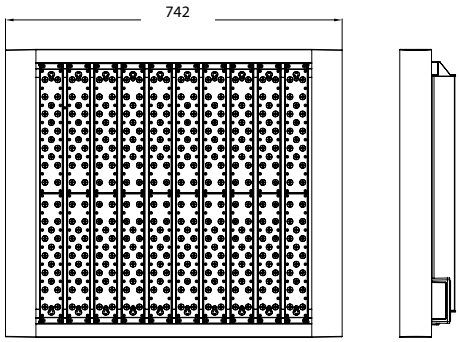

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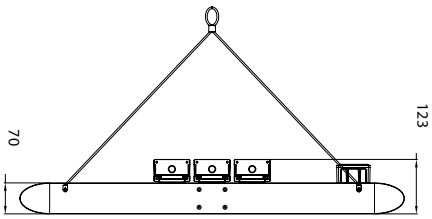
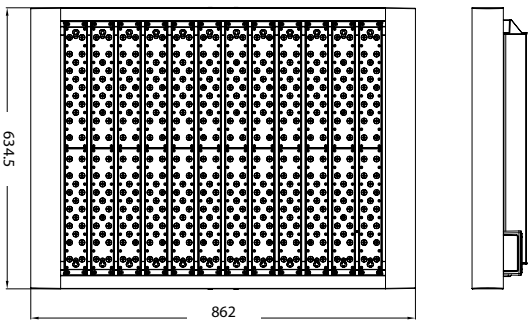


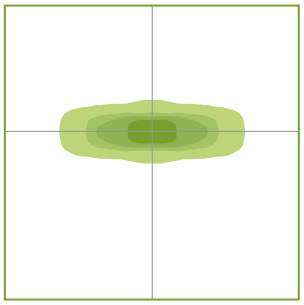


Please note - images shown are intended to be illustrative only. For exact data, please refer to specific product photometry, available for download from our website.

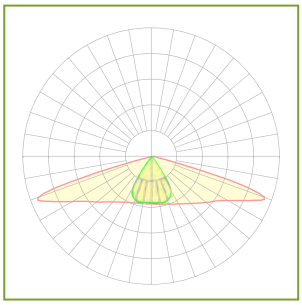
Indicative Product Photometry

IESNA Type 1 Medium

ISOLUX DIAGRAM



POLAR DIAGRAM



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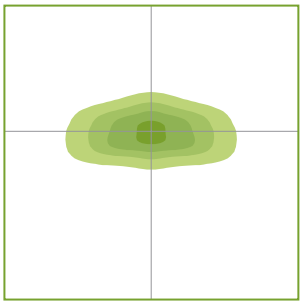

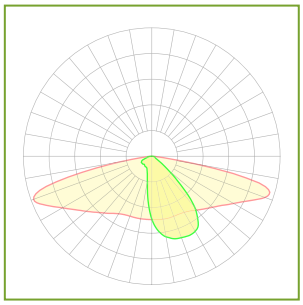

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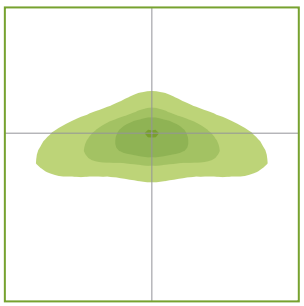

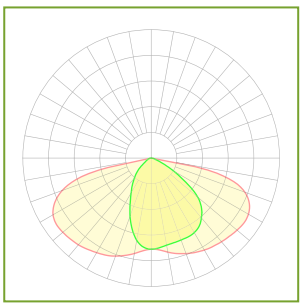

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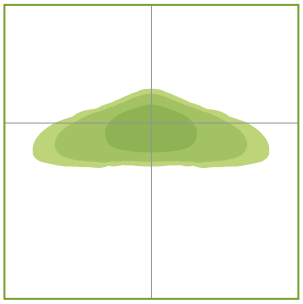

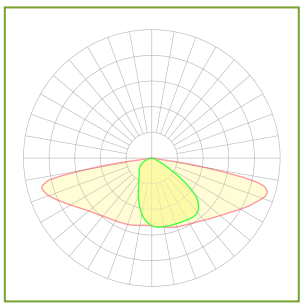

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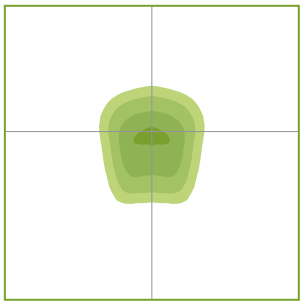

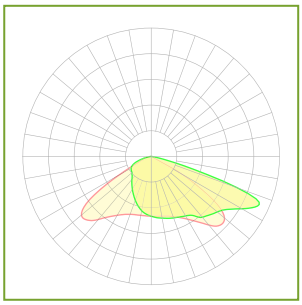

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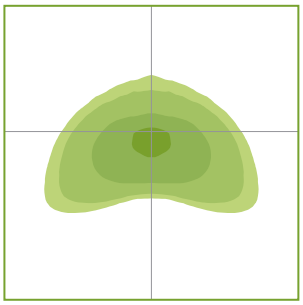
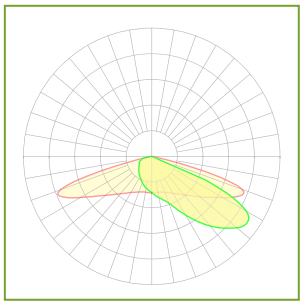
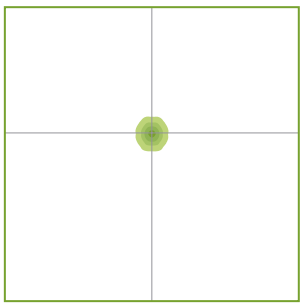
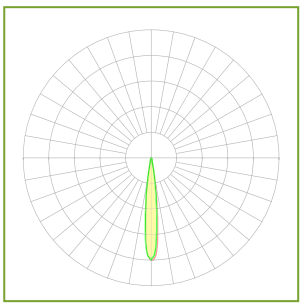


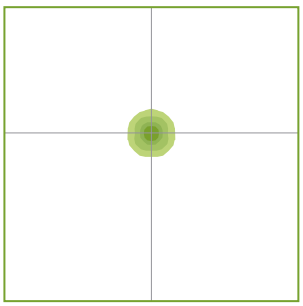


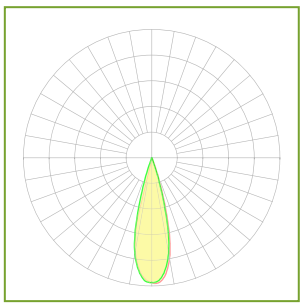
10° Optic



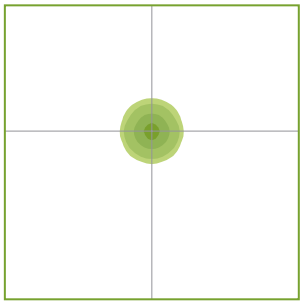


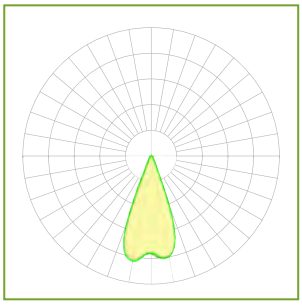
25° Optic



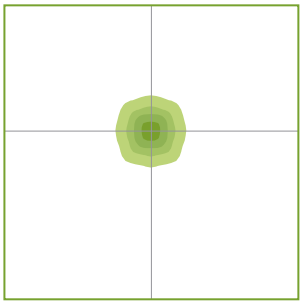


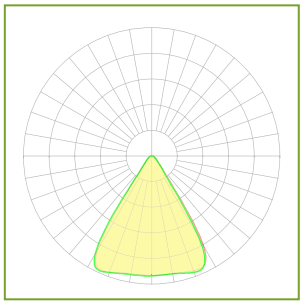
40° Optic





60° Optic



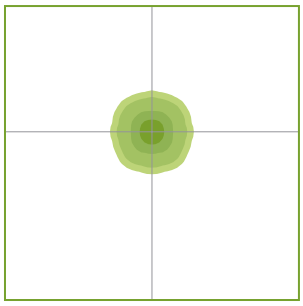


Please note - images shown are intended to be illustrative only. For exact data, please refer to specific product photometry, available for download from our website.

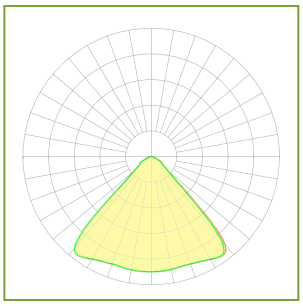
Indicative Product Photometry

90° Optic

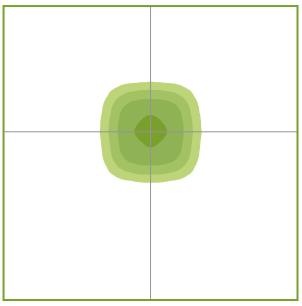
ISOLUX DIAGRAM

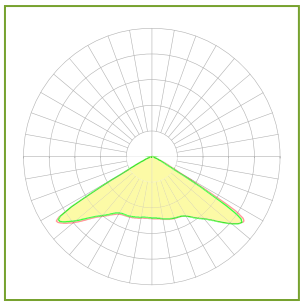


POLAR DIAGRAM

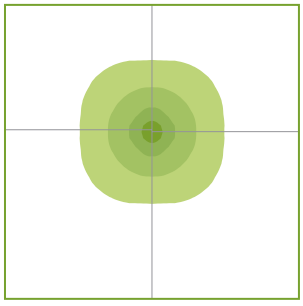


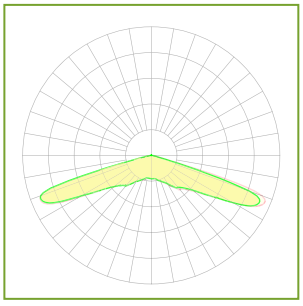
120° Optic





150° Optic





Diffusers

This series is available with the following diffusers. Each diffuser will have a varying effect on photometric distribution and intensity. Please refer to downloadable photometrics for exact data.

Clear Optic (Various Beam Angles)

Frosted Diffuser (117°)

Backspill Guards

Optional backspill guards are available for the above Type 3 and Type 4 optics.
These modify the light distribution to reduce/eliminate backward light trespass. An illustrative example is shown below:

Product Ordering Codes

Standard product code fields are presented as:
Further customisation may be available - please contact us if required

PRODUCT	POWER	CRI & CCT	OPTIC	DRIVER	MOUNTING	COLOUR	MODIFICATIONS
AYR3	460 460W	730 CRI >70, 3000K	1M IESNA TYPE I MEDIUM	D1 NON-DIM	UB UNIVERSAL BRACKET	GR GREY	PH1 PHOTOCELL
	610 610W	740 CRI >70, 4000K	2M IESNA TYPE II MEDIUM	D2 1-10V	SF SLIP FIT	BL BLACK	BG BACKSPILL GUARD
	770 770W	750 CRI >70, 5000K	3M IESNA TYPE III MEDIUM	D3 DALI	CS CABLE SUSPENSION	WH WHITE	SP2 SURGE PROTECTION DEVICE (20KV)
	920 920W	757 CRI >70, 5700K	3L IESNA TYPE III LONG		US UNIVERSAL BRACKET - 304 STAINLESS STEEL	GR2[1] GREY - MARINE GRADE	
		830 CRI >80, 3000K	4S IESNA TYPE IV SHORT			BL2[1] BLACK - MARINE GRADE	
		840 CRI >80, 4000K	4M IESNA TYPE IV MEDIUM			WH2[1] WHITE - MARINE GRADE	
		850 CRI >80, 5000K	10 10° CIRCULAR				
		857 CRI >80, 5700K	25 25° CIRCULAR				
			40 40° CIRCULAR				
			60 60° CIRCULAR				
			90 90° CIRCULAR				
			120 120° CIRCULAR				
			150 150° CIRCULAR				
			FR FROSTED DIFFUSER				

[1] Upgraded AkzoNobel polyester powder coat for increased salt corrosion resistance.

GENERAL NOTES:
1. IF MORE THAN ONE MODIFICATION IS REQUIRED, SEPARATE EACH MODIFICATION WITH A HYPHEN AT THE END OF THE PRODUCT CODE

2. PLEASE ENSURE SELECTION OF COMPATIBLE DRIVER FOR OCCUPANCY SENSORS WITH DIMMING FUNCTIONALITY

3. PLEASE NOTE THAT MODIFICATIONS WHICH AFFECT LIGHT OUTPUT HAVE SEPARATE PHOTOMETRIC FILES IDENTIFIED WITH ..."+(MODIFICATION)"

4. ALTERNATIVE DRIVERS MAY BE AVAILABLE - PLEASE CONTACT OUR OFFICE FOR FURTHER DETAILS

5. IF PRODUCT IS CUSTOMISED, CODES WILL BE ALTERED AS NECESSARY

Product Ordering Code Examples:
AYR3-460-757-1M-D1-GR
AYR3-920-850-1M-D2-BL-PH1-BG

DRIVER MANUFACTURER			
POWER	D1	D2	D3
460 460W	Philips	Philips	Philips
610 610W	Philips	Philips	Philips
770 770W	Philips	Philips	Philips
920 920W	Philips	Philips	Philips

CONTACT OUR OFFICE FOR FURTHER INFORMATION ON DRIVER PARAMETERS

ACCESSORIES
AYR3-BS BIRD SPIKES

Kingfisher Lighting

Part of the Luceco group of companies

Datasheet

ZACTIS

Product Description

Zactis is a high-performance flat-to-ground LED flood light perfect for sports, high mast and area applications. As well as facilitating easy installation and maintenance, the sleek, low-profile design, reduces the load together with decreasing windage.

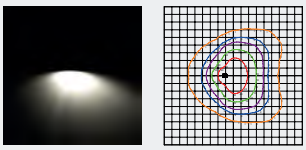
Specification Text

The luminaire shall be manufactured from high-pressure die-cast aluminium. It shall have an LED efficacy of up to 134.0 lm/W and will be capable of producing up to 43,026 luminaire lumens at 2700K, 4000K, with a CRI >70. It shall have an asymmetric forward throw optic and is rated at IP65 and IK08.

Specification

Weight:	15.0 - 16.5kg
Windage:	0.1m²
Material:	Die-cast Aluminium
Paint finish:	RAL7016 Anthracite Grey Marine Grade
Embodied Carbon:	236 - 289 kg CO^2e

Optics



Asymmetrical Forward Throw Optic 70°

Key Features

- 125.0 - 320.0W
- 16,447 - 43,026 Luminaire Lumens
- Efficacy up to 134 lm/W
- 2700K, 4000K, CRI >70
- Lifetime >100,000hr, L70

Kingfisher Lighting

Part of the Luceco group of companies

LED | IP65 | IK08 | DIM | Marine Grade Finish | Control Compatible

Mounting Options

- Stirrup Mount

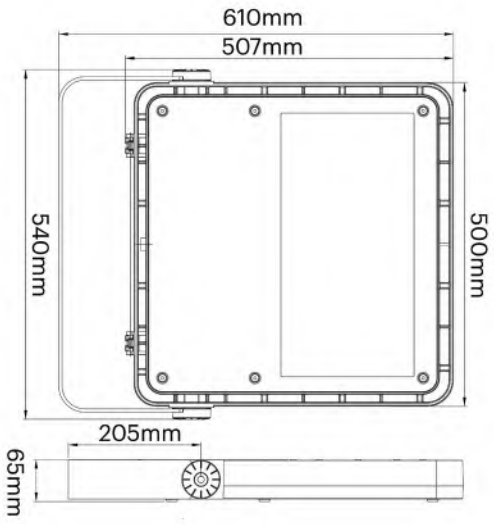
Other Options

- Part Night Dimming
- Colour Temperature Options
- Photocell Option
  Contact for details

DESIGNED & ENGINEERED IN THE UK

Circular Economy Score	
0 to 0.5	Very poor circular economy performance
0.5 to 1.5	Some circular economy functionality
1.5 to 2.5	Definite/ substantial progress to circularity
2.5 to 4.0	Excellent circularity

Code	Power	Luminaire Lumens	Drive Current	Optic	CCT(K)	IP	IK	Weight kg	Paint Finish	Driver Included
ZAC-FW70-27.5-125D	125.0	16,447	645	Asymmetrical Forward Throw Optic - 70°	2700	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-27.7-160D	160.0	20,166	808		2700	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-27.5-250D	250.0	33,327	645		2700	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-27.7-320D	320.0	43,026	808		2700	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.5-125D	125	17,125	645		4000	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.7-160D	160	21,920	808		4000	IP65	IK08	15.0	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.5-250D	250	34,250	645		4000	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc
ZAC-FW70-4.7-320D	320	44,156	808		4000	IP66	IK08	16.5	RAL7016 Anthracite Grey Marine Grade	Driver Inc



All measurements in mm

Appendix B

See below most recent PROW discussions which have taken place with LCC and attached plans submitted to LCC

LCC Comments	Applicants Response	LCC Response	Applications further response
General comment – missing details of widths, surfacing, gradients, fencing etc. Therefore, unable to confirm if alternative routes proposed are acceptable.	We have generally allowed a minimum width of 3m for new/diverted public rights of way. Where space allows, we have provided wider corridors for verge strips, land drainage, fencing etc. and would propose that we agree the details of these at the detailed design stage. Similarly, surfacing materials and requirements for fencing will vary depending upon usage and location, and will be subject to detailed assessment and consultation with LCC. We would therefore look to agree these as part of the detailed design process. Gradients of new PRoWs are designed to be as gentle as possible and generally no steeper than 1 in 20. If there are any particular areas of concern, we are happy to look more closely, but in general would welcome the opportunity to discuss the geometric design	I am afraid that the assumptions made in respect of widths do not accord with the Leicestershire Highway Design Guide (see Appendix). The minimum width for PRoW provision is 4m (2m surfacing with 2 x 1m verges), increasing to 5m for bridleways. When we met, Fiona mentioned that there were drawings available in the application submission that showed further details. I would be grateful if these document references could be provided as we have been unable to locate them. As we discussed, whilst the specific details of the PRoW can be finalised at detailed design stage (albeit we cannot find that this is covered by a requirement given that the only reference is to the PRoW Strategy which does not appear to provide any reassurances on design parameters) we need to be satisfied that where PRoW are to	Requirement 4(2)d Detailed Design Approval covers this matter, details of cycle tracks, footpaths and bridleways, including highway crossing points for pedestrian, bicycle and equestrian traffic must be submitted. Please find attached annotated PROW plan to confirm that the proposed new and diverted PRoW can be delivered to standards.

	of PRoWs in more detail during the detailed design process.	be diverted, the diverted route can be delivered to standards. To date we have not seen any information to demonstrate that is the case, and can find no commitment in the application submission to specific design parameters.	
U52 No details provided of proposed underpass – suitable for equestrian use?	The underpass will be suitable for equestrian use. We are in the process of producing a plan and section of the proposal and will issue this as a sketch in due course.	We look forward to receiving the details of the underpass for review.	Please find attached plan showing the underpass.
Is there proposed to be a direct connection to the link road?	Please refer to ES Figure 11.14 which shows connectivity to the link road via a permissive path from U52	ES Figure 11.14 appears to refer to "Site Character and Context":	Figure 11.14 is the Public Rights of Way Strategy, figure 11.4 is Site Character and Context.
		This does not include for the link road or PRoWs. As we discussed when we met, we cannot find a drawing that demonstrates that a connection is deliverable given level differences between the PRoW, the link road, and given the constraints of maintaining the existing private access. Please	As noted above the plan that was referred to illustrates the permissive path, we do not have a PRoW link. The annotated PROW plan that we have produced illustrates this link, its width and that the longitudinal gradient is suitable.

		can you provide the drawing reference that demonstrates this?	
V35/1 This should be stopped up inside red line boundary where duplicated by proposed bridleway.	Stopping up V35/1 within the red line would leave sections outside of the red line with no connectivity. It is therefore not proposed to stop any of this right of way up as it is not affected by the proposed works.	In which case, we will agree to disagree, and our concerns remain in respect of the enclosure of the PRoW with acoustic fencing, and the duplication of routes for future maintenance.	There is not a duplication of routes, the existing PRoW gives access to Freeholt route on a public footpath through Aston Firs and direct access for Aston Firs Residents. The new route provides bridleway access north of the woodland. The plan below illustrates how PRoW V35 would pass through the acoustic fence in accordance with LCC PRoW Standards.
Railway crossings			
Footpath diversion is 440m, current route is 20m. What is the justification given the distance from the development? Who owns existing bridge structure and where does the responsibility rest for future maintenance?	The Thorney Fields Farm is at a distance from the site, however Network Rail have identified Thorneyfields Farm level crossing as a directly affected crossing for the reasoning that a situation could arise whereby a 775m train may have to wait nearby on the mainline to enter the terminal. A waiting train on the mainline could block views of trains coming in the other direction at speeds of up to 90 mile per hour,	Thank you for the clarification. Please can you point us to the documents that confirm Network Rail ownership and future maintenance responsibility.	Land Plan Sheet 2 of 8 identifies plot 55 which is the bridge over the railway line. The Book of Reference confirms that Network Rail own and occupy the bridge. As the bridge is a Network Rail asset which they both own and occupy it is their responsibility to maintain their asset.

	Network Rail have determined a safety risk is present whereby a pedestrian may attempt the crossing in this situation. The existing bridge structure is in the ownership of Network Rail and future maintenance for the bridge will continue to rest with Network Rail.		
T89/1 – Elmesthorpe Alternative provision inadequate (narrow footpath over Station Road bridge).	The alternative provision is via highways maintained footways utilising Bostock Close, a proposed crossing point over Station Road and the footway on the south western side of Station Road over the railway bridge. This is a well used route and considered to be a much safer alternative to either the level crossing or the stepped access onto the north eastern side of Station Road Bridge which requires the use of a stile and for users to climb over a safety barrier onto a narrow hardened verge and the use of the south western footway to cross the railway bridge. The Surveillance Group Ltd. was commissioned by Network Rail to undertake a 9-	When we met Fiona stated that a Road Safety Audit/Assessment had been carried out of the diverted route, please can you arrange for this to be forwarded. For the benefit of doubt, consideration is not just in respect of existing users of the PRoW, but future users particularly since the submitted Sustainable Transport Strategy relies on PRoWs to provide walking connections to the site.	We have undertaken a risk assessment on the alternative route provided in replacement of the closed section of this PROW and we consider that our proposal is considerably safer than the current arrangements for crossing the railway in this location. Our proposal removes a level crossing as noted in red above, as well as the arrangement on the B581 bridge which has a stile over a section of steel safety barrier. Instead, we are encouraging users to utilise existing footways alongside the public highway and providing a crossing point with tactile paving to cross the B581 (not currently available for either users of footways or PROWs). Given that

	Day Detailed Traffic Census at the Elmesthorpe Level Crossing between 13th November and 21st November 2021. During this period, the crossing was used by 12 pedestrians, which equated to an average of 1.3 (2) people per day. This was consistent with previous surveys.		these works involve amendments to public highway through the addition of an uncontrolled crossing, the proposal will be added to the RSA Brief for offsite works.
V23 & U50 – North of application site Missing details of alternative provision including how the route connects to the link road.	Please see Access and Rights of Way Plan Sheet 1. Connection to the link road is via the permissive path noted above in relation to U52.	As above, please provide a drawing that demonstrates that a connection is deliverable given level differences between the PRoW, the link road, and given the constraints of maintaining the existing private access.	The permissive path has been added to the annotated PROW plan that we have included. This shows the path, its width and demonstrates that the gradient is suitable for a path of this type.
U8- Outwoods No details of proposed structure provided. Who will adopt the structure and be responsible for its ongoing maintenance (NR have said in their RR they will not). This is not something that LCC will consider adopting.	Work is ongoing with Network Rail to determine the design of the bridge; the bridge however will be to a Network Rail specification. The relevant representation made by Network Rail suggesting that LCC Highways take on the bridge is acknowledged however it is expected that this would be a	Thank you for the confirmation. We assume that the bridge design parameters will be set out in a requirement, and Network Rail's future responsibilities will be covered in the DCO? Please can you clarify.	4(2)a covers the matter of Detailed Design Approval for rail infrastructure, Network Rail are currently engaged on the design of this bridge. Network Rails future responsibilities will be covered by Network Rail's Network Licence.

Question deliverability noting restricted access route and limited red line boundary.	Network Rail asset and this point has been reported to Network Rail. Details of the deliverability of this bridge is contained at Appendix 1.1 of the CEMP submitted as part of the DCO application.		

3m wide permissive path between link road and PROW

4m corridor width to north of screening bund for footpath

Bridleway crosses link road via underpass

3m wide surfaced connection with 1m verges to underpass

Existing Burbage Common Road used as Bridleway

2m wide surfaced footpath connection to link road.

Connection to Smithy Lane

Bridleway corridor 10m wide

Corridor width locally reduced to 3.1m as permitted in para 27 of LCC Rights of Way Guide

Bridleway corridor 5m wide

Bridleway corridor 10m wide

Bridleway crosses link road via pegasus crossing

Bridleway connection to Burbage Common Road

2m wide footpath with 1m wide verges

Min 3m wide surfaced bridleway in green corridor with min 1m wide verges

Min 3m wide surfaced bridleway in green corridor with min 1m wide verges

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

- EXISTING PUBLIC RIGHT OF WAY RETAINED
- EXISTING PUBLIC BRIDLEWAY RETAINED
- NEW PUBLIC FOOTPATH CREATED
- NEW PUBLIC BRIDLEWAY CREATED

LCC Rights of Way Guide Parameters

Status of path	specified width (to be surfaced)	width of grass verges on either side of path (min.)
Footpath	2.00 metres	1.00 metre
Bridleway	3.00 metres	1.00 metre
Restricted Byway	4.00 metres	1.00 metre
Byway	4.00 metres	1.00 metre

Rev	Date	Details of issue / revision	Drw	Rev
P03	28.09.23	Permissive path labelled	DF	SC
P02	13.09.23	Minor Updates to EDP comments	DF	SC
P01	12.09.23	Preliminary Issue	DF	SC

Issues & Revisions

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Client: TRITAX SYMMETRY — A TRITAX BIG BOX COMPANY

Project Title: **HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE**

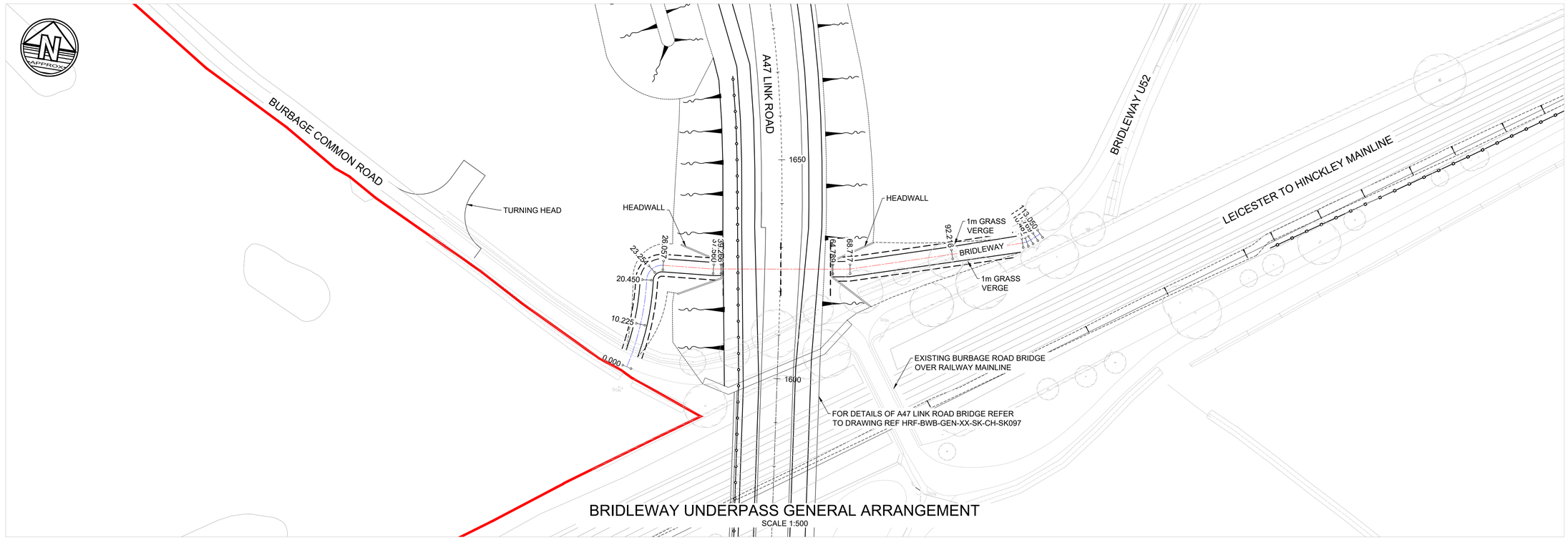
Drawing Title: **ANNOTATED PUBLIC RIGHTS OF WAY**

Drawn:	D Fraser	Reviewed:	S Carter
BWB Ref:	NTT2814	Date:	12.09.23
Scale@A1:	1:5000		

Drawing Status: **PRELIMINARY**

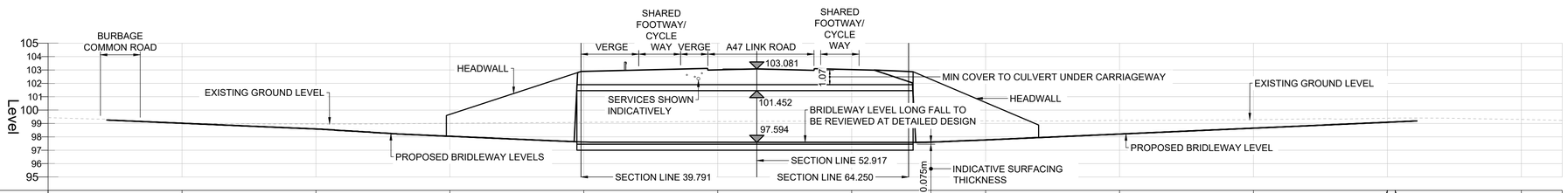
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
HRF-BWB-GEN-XX-SK-CH-SK099	S2	P03

X:\NTT\NTT2814_Hinckley Rail Freight Interchange\02. Project Delivery\01. WIP\Sketches\HRF-BWB-GEN-XX-SK-CH-SK099_PROW Widths and Gradients.dwg



BRIDLEWAY UNDERPASS GENERAL ARRANGEMENT

SCALE 1:500

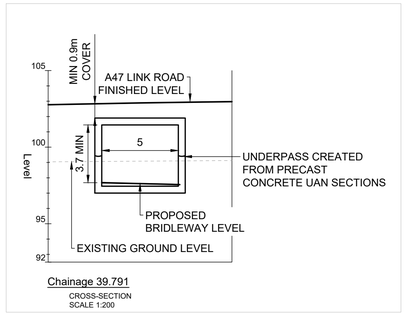


Chainage	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000 / 100.577	110.000
Existing Levels	99.011	98.961	99.013	99.087	99.147	99.162	99.190	99.233	99.267	99.394 / 99.405	99.306
Proposed Carriageway Levels	99.018	98.590	98.045	102.892	103.010	103.029	97.771	98.211	98.650	99.093 / 99.100	
Proposed Bridleway Levels	99.019	98.590	98.045	97.614	97.596	97.590	97.771	98.211	98.650	99.093 / 99.127	
Level Difference	0.008	-0.371	-0.968	-1.472	-1.551	-1.593	-1.419	-1.022	-0.637	-0.301 / -0.279	
Horizontal Geometry	R: 59.075 L: 20.450	R: 3.500 L: 5.607	L =11.503	L =1.706	L =25.523	L =3.928	L =23.499	L =16.281	R: 5.000 L: 1.990	R: 53.159 L: 2.563	

BRIDLEWAY UNDERPASS LONGSECTION

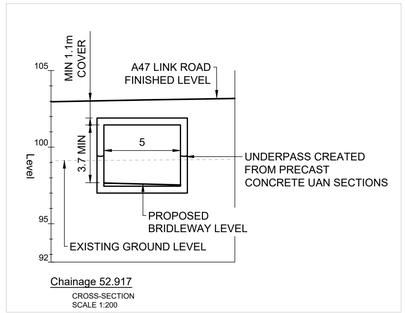
SCALE: H 1:200,V 1:200. DATUM: 95.000

(TAKEN ALONG BRIDLEWAY CENTRLINE ALIGNMENT)



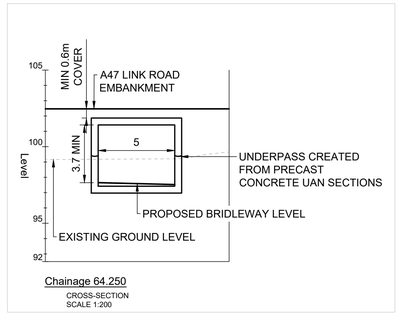
Chainage 39.791

CROSS-SECTION
SCALE 1:200



Chainage 52.917

CROSS-SECTION
SCALE 1:200



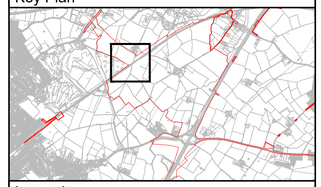
Chainage 64.250

CROSS-SECTION
SCALE 1:200

Notes

1. DO NOT SCALE THIS DRAWING. ALL DIMENSIONS MUST BE CHECKED/ VERIFIED ON SITE. IF IN DOUBT ASK.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
3. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE. ALL LEVELS IN METRES UNLESS NOTED OTHERWISE.
4. ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
5. DRAINAGE INCLUDING LONG FALL OF THE STRUCTURE IS TO BE CONFIRMED DURING DESIGN DEVELOPMENT.

Key Plan



Legend

- DCO BOUNDARY
- HIGHWAY NOISE FENCE
- BRIDLEWAY ALIGNMENT

Health, Safety & Environmental Information

1. IT IS THE RESPONSIBILITY OF EVERY PERSON INVOLVED WITH THESE WORKS TO NOTIFY THEIR SUPERVISOR IMMEDIATELY OF ANY CONCERNS THAT THEY HAVE OR THAT HAVE BEEN REPORTED TO THEM REGARDING ANY HEALTH, SAFETY OR ENVIRONMENTAL MATTER.
2. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY SHORING AND BRACING TO EXCAVATIONS.
3. REFER TO HRF-BWB-GEN-ZZ-RA-CH-00002_BRIDLEWAY UNDERPASS DRA
4. A DESIGN RISK ASSESSMENT HAS IDENTIFIED THE FOLLOWING RESIDUAL HAZARDS:

OPERATION:

U005 STANDING WATER RESULTING IN HAZARD ESPECIALLY DURING COLD WEATHER

U011 WATER LEAKING THROUGH CULVERT JOINTS

CONSTRUCTION:

U010 EXISTING/PROPOSED SERVICES AND OTHER REQUIREMENTS

U003 GROUND CONDITION AND SUITABILITY OF THE PROPOSED FORM OF CONSTRUCTION

DESIGN:

U007 INTERFACE WITH THE BRIDGE. CHANGES TO CARRIAGEWAY, AND BRIDGE LEVELS MAY ADVERSELY IMPACT THE UNDERPASS LEVELS AND THE FORM OF CONSTRUCTION

U001

Rev	Date	Details of issue / revision	Drw	Rev
P01	21.09.23	Preliminary Issue	MJT	DM

Issues & Revisions

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Client

TRITAX SYMMETRY

A TRITAX BIG BOX COMPANY

Project Title

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

Drawing Title

BRIDLEWAY UNDERPASS GENERAL ARRANGEMENT

Drawn:	M. Truman	Reviewed:	D. Mayadunne
BWB Ref:	NTT2814	Date:	21.09.23
Scale@A1:	See Dwg		

Drawing Status

FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
HRF-BWB-SBR-ZZ-DR-CB-1700	S2	P01