GREATER**LONDON**AUTHORITY

Planning report GLA/2020/6693/S2

20 November 2023

MSG Sphere, Land off Angel Lane, Stratford

Local Planning Authority: London Legacy Development Corporation

Local Planning Authority reference 19/00097/FUL

Strategic planning application stage 2 referral

Town & Country Planning Act 1990 (as amended); Greater London Authority Acts 1999 and 2007; Town & Country Planning (Mayor of London) Order 2008.

The proposal ('Proposed Development')

A multi-use entertainment and leisure development incorporating a Sphere (maximum height 90 metres, 96.5 metres AOD, maximum width 120 metres) covered with illuminated digital (LED) display; external podium, terraces with landscaping; and link bridges. Main venue capacity of 21,500, smaller venue capacity of 1,500, and member's lounge capacity of 1,000. Sui generis use including entertainment, assembly and leisure venue; music venue/nightclub; restaurant/members lounge/nightclub; bars, restaurants, cafes and retail; highway and access works.

The applicant

The applicant is **Stratford Garden Development Limited** (a wholly owned subsidiary of the **Madison Square Garden Company**) and the architect is **Populous**.

Key dates

GLA pre-application meetings: 29 August and 3 October 2018
GLA stage 1 report: 8 July 2019
LPA Planning Committee decision meetings: 22 March 2022 and 24 January 2023

Strategic issues summary

Residential amenity: The Proposed Development, due to the intensity, nature, and extent of external illumination, would cause significant light intrusion resulting in significant harm to the outlook of neighbouring properties, detriment to human health, and significant harm to the general amenity enjoyed by residents of their own homes. The properties most significantly impacted are within the Legacy Tower/Stratford Central, Stratford Eye, New Garden Quarter, Unite Student Accommodation. The proposed measures to mitigate visual impacts of the new nuisance-generating development on residential and other sensitive uses would not be adequate to avoid unacceptable harm, and in the case of blackout blinds would give rise to further harm to residential amenity. The Proposed Development would not be in accordance with the National Planning Policy Framework; London Plan policies D3 (Part D7), D8 (Part B), and D9 (Part C1h); and LLDC Local Plan policies BN.1 (Part 7), BN.4 (Part 5), BN.5 (Part 8), BN.16 (Parts 1 and 2) and S.1.

Urban design and tall buildings: The Proposed Development with a Sphere of 90 metres in height and 120 metres in width, by virtue of its scale, massing and design, would result in a bulky, unduly dominant and incongruous form of development, which would fail to respect the character and appearance of this part of the town centre and the site's wider setting. In addition, the proposed design concept is a highly energy intensive use, does not achieve a high sustainability standard, and does not constitute good and sustainable design. As such, the Proposed Development would be contrary to the National Planning Policy Framework; London Plan policies D3 and D9; and policies BN.1 (Part 2),

BN.4 (Parts 8, and 9), BN.5 (Parts 1, 2, 5, and 6), BN.16 (Part 9), and SP.3 (Parts 2 and 3) of the LLDC Local Plan.

Historic environment: The Proposed Development would cause 'less than substantial' harm to the significance of 16 designated heritage assets, comprising 12 listed buildings, including the Grade II* Theatre Royal; 1 registered park and garden; and 3 conservation areas. The public benefits arising from the Proposed Development would not outweigh the less than substantial harm it would cause. As such, the Proposed Development would be contrary to the National Planning Policy Framework; London Plan policies HC1, D3 (Part D11) and D9 (Part C1d); and policies BN.16 (Part 8) and BN.17 (Part 1) of the LLDC Local Plan.

The benefits and areas of compliance with Development Plan policies do not outweigh the identified harms and the conflict with Development Plan policies, and the Proposed Development is not considered to be in accordance with the Development Plan as a whole. The other material considerations that weigh for and against the scheme are as set out further in this report. They are not considered to indicate that planning permission should be granted, notwithstanding the identified conflict with the Development Plan.

Matters relating to Transport, Land use principles, Security and event management, Fire Safety, Inclusive design and access, and Environment have been satisfactorily addressed.

The London Legacy Development Corporation's decision

In this instance, the London Legacy Development Corporation has resolved to grant permission, subject to planning conditions and conclusion of a section 106 legal agreement.

Recommendation

GLA officers have concluded that to grant permission would be contrary to the Development Plan and would prejudice the implementation of the policies within the Development Plan relating to residential amenity, good design, and the conservation and enhancement of London's heritage. It is therefore recommended that the Mayor exercise his powers under Article 6 of the 2008 Order that the London Legacy Development Corporation be directed to refuse planning permission, for the reasons set out in paragraph 362 of this report.

Context

1. On 16 April 2019, the Mayor of London received documents from the London Legacy Development Corporation (LLDC) notifying him of a planning application (the 'Proposed Development') of potential strategic importance to develop the above site for the above uses. This was referred to the Mayor under the following categories of the Schedule to the Order 2008:

- 1B: "*Development with a total floorspace of more than 15,000 sq.m.*".
- 1C: "*Development which comprises or includes the erection of a building more than 30 metres high outside the City of London.*"

2. On 8 July 2019, the Mayor considered planning report GLA/4752/01[1] and subsequently advised the LLDC that the Proposed Development did not comply with the London Plan and the draft London Plan for the reasons set out in paragraph 103 of that report:

- **Land use principles:** Whilst the proposed land uses are broadly supported and the possible contributions towards London's culture and creative industries and night time economy are welcomed, the issues detailed within this report must be fully resolved before an entertainment venue of this scale and in this location can be supported in strategic planning terms.
- **Public safety, security and event management:** The capacity of the Proposed Development and number of event days raises significant concern in terms of crowd control, public transport capacity and public safety. The concerns raised by GLA officers must be fully resolved prior to Stage 2 referral.
- **Transport:** The proposals raise a number of very significant transport concerns, in particular in relation to assessment and modelling assumptions at Stratford station, highways and public transport network capacity, pedestrian flows and movements to and from the site, relationships with other major events and, overall, the impact on all users at this crucial multi-modal strategic interchange. These must be fully resolved before the application is referred to the Mayor at Stage 2.
- **Urban design:** The public realm and routes through the site should remain open, free to use, and offer the highest level of public access; and restrictions should be limited to exceptional circumstances, for example when essential for maintenance and emergency access. The impacts of the proposed external LED cladding require further assessment to demonstrate that the scheme's impact on surrounding residential properties, the setting of heritage assets, and short and long-range views would be acceptable. Furthermore, the intention to display illuminated advertisements at the scale proposed in this location raises significant concerns and could have extensive environmental, visual, and amenity impacts, which will need to be fully assessed.
- **Residential amenity:** In line with draft London Plan Policy D12, the proposal must ensure that surrounding residential amenity is not compromised. Appropriate mitigation measures must be secured to control the impacts of noise, vibrations and light pollution, including solar glare.

[1] https://planapps.london.gov.uk/planningapps/19-00097-FUL

- **Inclusive design:** In line with Policy T6.5, the applicant should justify the absence of on-site visitor blue badge parking.
- **Climate change and the environment:** Further information is required regarding energy efficiency measures, carbon savings, cooling and overheating and renewable technologies.

3. The essentials of the case with regard to the Proposed Development, the site, case history, strategic planning issues and relevant policies and guidance are as set out therein, unless otherwise stated in this report.

4. On 22 March 2022, the LLDC decided that it was minded to grant permission for the Proposed Development subject to planning conditions, conclusion of a section 106 agreement, and referral to the Mayor of London.

5. The LLDC Committee also considered a separate (non-referrable) for advertisement consent (LPA Ref: 19/00098/ADV) for the display of adverts on the Sphere's external LED facade, digital billboards, the LED ribbon display; and MSG branding and advertising on the bridge gates and upper facade terrace walls. This consent is referred to as the 'Advertising Proposals' application within this report. The Committee voted to grant advertisement consent for a period of 25 years subject to conditions and informatives, plus additional controls and a review mechanism. Given the unprecedented scale and longer than normal period of the advertising consent, and to ensure that appropriate controls would be in place to ensure that any unforeseen health and wellbeing impacts could be addressed should they arise, a five-year review was requested by the Committee, the details of which were required to be reported back to Committee for approval. This took place on 24 January 2023, when the Committee approved the additional controls and review mechanism, subject to completion of a section 106 legal agreement.

6. The 'Advertising Proposals' are not referrable to the Mayor. When considering the application for planning permission it is appropriate to acknowledge and take account of the fact that LLDC has resolved to grant consent for the Advertising Proposals, and the range of issues that it took into account in reaching that decision, as set out in Policy BN16 of the Local Plan. That consent, however, is concerned with the display of advertisements and not with the LED displays per se and their use for other purposes, including public art. The LED display structure that would allow the Advertising Proposals to operate does not have planning permission, and is part of the development for which planning permission is sought. The external LED display is an integral and significant element of the Proposed Development and the impacts of its use fall to be considered in determining whether or not planning permission should be granted. That is to be distinguished from the use of the LED display for the use of advertisements, which is the subject of the Advertising Proposals. Whilst it is acknowledged that amenity is one of the matters that was considered by LLDC when determining the Advertising Proposals, that does not mean that the displays and the impacts of their use, including on residential amenity, do not also comprise material considerations when determining the application for planning permission. It is also appropriate to recognise the significant uncertainties that were identified in the advice to LLDC's Committee as to the likely impacts of the Advertising Proposals on amenity and health. The Sphere's LED display is integral to the design of the Proposed Development, and its impacts have therefore been considered within this report, notwithstanding the decision previously made in relation to the Advertising Proposals.

7. On 7 February 2023, the Secretary of State for the Department of Levelling Up, Housing and Communities (DLUHC) issued an Article 31 Direction to the LLDC stating that he is considering whether the Proposed Development application and the Advertising Proposals application should be referred to him for determination. On 3 April 2023, the Secretary of State clarified that the Direction issued in relation to the Advertisement Proposals application was an error and the direction in respect of the Advertising Proposals application was withdrawn. There is no timeframe for the decision or any indication of the Secretary of State's views as to the merits of the Proposed Development application.

8. On 25 April 2023, the LLDC Committee resolved it was minded to grant permission subject to conditions and completion of a legal agreement for a proposal seeking to repurpose 173 existing car parking bays at Stratford International Car Park in order to provide 111 Blue Badge Car Parking spaces for use in connection with the MSG Sphere. This application is not referable to the Mayor; however, it is of relevance in terms of the provision of Blue Badge parking, as referenced in the report under 'Transport' and 'Inclusive design'.

9. On 6 November 2023, the LLDC advised the Mayor of these decisions, and the referral was acknowledged on 7 November 2023. Under the provisions of Article 5 of the Town & Country Planning (Mayor of London) Order 2008, the Mayor may allow the draft decision to proceed unchanged; or direct London Legacy Development Corporation under Article 6 to refuse the application. The Mayor has until 20 November 2023 to notify the Council of his decision and to issue any direction.

10. The environmental information for the purposes of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 has been taken into account in the consideration of this case.

11. The assessment in this report is based on the information provided in relation to the above applications, together with the obligations and conditions put forward by the applicant/LLDC in the draft section 106 agreements and draft decision notice.

12. The decision on this case, and the reasons, will be made available at GLA/2020/6693/S2[2].

Consultation

13. The Proposed Development and the Advertising Proposals have been subject to three rounds of public consultation in April-June 2019, December 2019-January 2020, and October-December 2020. On each occasion, the LLDC advertised in the local press, site notices were displayed, and letters were issued to over 8,000 neighbouring properties. Public consultation for the third consultation round during the Covid 19 pandemic was supplemented by the creation of a telephone 'hotline' that enabled submission of a response as a voice message; a webinar posted on the LLDC website and YouTube, which explained the new materials and provided information on how to access materials and how to submit comments; virtual consultation workshops; and distribution of consultation update leaflets with food parcels from Newham Council's food bank. Copies of all responses to public consultation, and any other representations made on the case, have been made available to the GLA.

[2] https://planapps.london.gov.uk/planningapps/19-00097-FUL

Responses to neighbourhood consultation

14. Following the neighbourhood consultation process, the LLDC received a total of 1,364 responses (852 in objection and 355 in support). The LLDC Committee Report states that as the Proposed Development (referable to the Mayor) and the Advertising Proposals (not referrable to the Mayor) are inextricably linked, representations received have been treated as responses to both applications, unless the respondee clearly expressed support for one application and not the other. In addition, two petitions have also been in circulation via the change.org platform, one in support (87 signatories) and the other in opposition (2,658 signatories) as at 20 November 2023.

15. The reasons for objection are collectively summarised as follows:

- Impact of light pollution from the Sphere on residential amenity and health.
- Impact of height, shape, bulk and mass on residential amenity in terms of overshadowing, loss of sunlight and daylight, and views.
- Impacts of crowd congestion and associated noise on residential amenity.
- Impact of venue noise on residential amenity.
- Shape, bulk, mass, and illumination/moving images at this scale is overbearing and out of context with the surroundings.
- Shape, bulk, mass, and illumination/moving images at this scale would cause heritage harm.
- Health impacts to passers-by arising from illumination/moving images at this scale.
- Safety impacts to cyclists, cars, and train drivers from illumination/moving images at this scale.
- Impacts on public transport infrastructure, including Stratford, Stratford International, and Maryland stations, particularly in the context of other very large venues nearby, and especially Stratford station.
- Increased traffic congestion and associated pollution.
- Impact on local car parking.
- Increased crime and anti-social behaviour associated with large crowds.
- Lots of large venues nearby and no more needed.
- Inadequate bridge connectivity.

16. The reasons for support are collectively summarised as follows:

- The Sphere would be a distinctive contribution to the Stratford skyline.
- Improvements to connectivity.
- Additional jobs, skills and training opportunities.
- An iconic visitor attraction with transformative effects on the town centre and night-time economy.

17. Some representations in support stated that this was conditional and subject to appropriate mitigation being secured to address potential transport and amenity impacts.

Responses from statutory bodies and other organisations

18. Historic England: Identified ‘less than substantial’ harm to the Stratford St. John’s Conservation Area due to the height and massing in architectural mode, and due to its

intrusive disturbance when illuminated. Raised some concerns about the accuracy of the visual depictions of the proposals.

19. Metropolitan Police: Supportive of the proposals but not of 24/7 public access through the site, which should be restricted to venue hours.

20. British Transport Police: Supportive, subject to further engagement to resolve detailed design matters in the interest of promoting crime prevention and safety.

21. London City Airport: No concerns about the operational effects of the Advertising Proposals and has capacity to support increased travel to East London, which would contribute to the local economy. Welcome the proposals, subject to submission of details of cranes and scaffolding being submitted and approved in writing in advance of construction.

22. Network Rail: Initially objected; however, the objection was removed as a result of further discussions, subject to conditions and planning obligations, including Stratford Station impacts, glare, and rail driver distraction.

23. HS1: Supportive of the Proposed Development subject to appropriate conditions to safeguard HS1 rail assets and infrastructure.

24. MTR (Elizabeth Line operator): Objected to the Proposed Development (July 2019) on grounds that Stratford station does not have capacity to support a significant uplift in demand during the evening peak period, which could not be safely accommodated without substantial physical and operational interventions. Objected to the Advertising Proposals (April 2020) on grounds that it would present a significant safety risk (signal sighting and distraction risk) to the operational railway for which there are no identified mitigations.

25. London Fire Brigade: Satisfied with the proposals subject to fire brigade access and water supplies for firefighting purposes being fully compliant with Building Regulations.

26. Natural England: The Proposed Development and Advertisement Proposals would not have an impact on any protected sites or landscapes. Directed the LLDC to their standing advice on protected species.

27. Environment Agency: No objection, recommended conditions in respect of drainage, piling, land remediation and monitoring.

28. Thames Water: Proposed conditions in respect of sustainable drainage.

29. NATS Safeguarding: The Proposed Development and Advertisement Proposals would not conflict with aviation safeguarding criteria.

30. LB Newham: Objection to both the Proposed Development and the Advertising Proposals. Supportive of the principle of development for such a use at this location and improved walking/cycling connections; however, the scale and spherical form of the building combined with the flat black surface (when LED's are off) means that the development would have an imposing and dominant impact on the surrounding townscape. When illuminated, the building would display adverts at an unprecedented scale, causing visual clutter/pollution. Identified less than substantial harm to the

Stratford St. Johns Conservation Area, the Grade II listed Town Hall, and the Gurney Memorial. Concerns also raised about highways impacts, Blue Badge parking provision, impacts on Stratford Station, location of drop-off/pick-up points, construction management, and inadequate cycle parking. Concerned that the luminosity of the Sphere would have a detrimental impact on residents and students in close proximity. Environmental Consultants, Temple, on behalf of LB Newham, reviewed the Environmental Statement and indicated that whilst it was satisfied with the conclusions in so far as they assess light intrusion and upward skyglow, it was not persuaded that the levels recommended are acceptable, and also consider that there is a lack of certainty as to how statutory nuisance might be avoided, citing that lighting flicker and moving images may pose a risk to the health of sensitive residential receptors.

31. LB Waltham Forest: The scale of the Proposed Development is not out of keeping with the scale of the surrounding shopping centre, visitor attractions, and the wider Queen Elizabeth Olympic Park. Recommended that the hours of illumination and advertisements are controlled, particularly after dark, to safeguard residential amenity and to minimise the potential impact on biodiversity.

32. LB Hackney: No objection to the Proposed Development; however, objection to the Advertising Proposals, which would be harmful to the visual amenity of Hackney Marshes and the Lower Lea Valley particularly during overcast conditions, at dusk, and during hours of darkness.

33. LB Tower Hamlets: No objection to the impacts of the Proposed Development or the Advertising Proposals. Monitoring of car parking impact may be required.

34. RB Greenwich: Objection to the Proposed Development and the Advertising Proposals. The size and prominence of the Proposed Development and the Advertising Proposals may impact upon views of the Greenwich Maritime World Heritage Site.

35. Lee Valley Park Authority: Supportive of the scheme subject to its inclusion as a consultee in the preparation of future area management plans to ensure that visitors to hockey and tennis venue events can continue to enjoy a satisfactory standard of amenity.

36. AEG (operators of the O2 Arena): Stated that the site is not the right location for a new arena and concerned that certain coincident events would have an adverse impact on the Jubilee Line capacity at North Greenwich to the detriment passenger safety. Concerns that appropriate controls have not been secured to safeguard the safety of visitors and transport users. Stated that the applicant's Environmental Statement is not legally compliant due to technical defects; inadequate explanation of the extent to which the digital display element would impact on residential occupiers in the alternative locations assessed; inadequate assessment of the effects of lighting on amenity of residents; lack of detail on operational controls that will apply to the Proposed Development both generally and where there are coincident events; omission of cumulative impacts of major schemes along the Jubilee and Central Lines; and inadequate analysis of the impact on visitors departing from the O2 at North Greenwich. Following the March 2022 Committee meeting and in light of the Committee's decisions, AEG submitted further representations in relation to the content and operation of the proposed five-year review.

37. Get Living (operators of East Village): The applicant should ensure robust joint working measures are in place that allow full coordination with the East Village management so as not to prejudice the amenity of the environment for its 6,000 residents, particularly in respect of light pollution and the coordination with events across the Queen Elizabeth Olympic Park. Requested to be part of any consultative group involved in the preparation of the Venue Operations Manual.

38. Newham Cyclists: Concerns about the level of cycle provision below London Plan standard; that the scope of Montfichet Road works should include an appropriate design that minimises conflict points between pedestrians and cyclists; and about the acceptability of cyclists sharing the carriageway with motor vehicles on Angel Lane.

39. Legacy Youth Voice: The Proposed Development would have an eye-catching design that would be iconic; however, concerns about the impact of light pollution on residential amenity. The displays should promote events at the venue and artistic content, but not commercial advertising.

40. The Unite Group: Supportive of the visual appearance of the building; however, concerns that moving images on the Sphere could distract students in site-facing rooms and affect their wellbeing. Requested that the applicant provides blackout blinds to mitigate against these effects.

41. University of East London: Recognised economic benefits, also providing an opportunity to access employment opportunities and develop linkages with the School of Media Fashion and Communication. Also, would add to the attractiveness of Stratford as a destination.

42. Theatre Royal Stratford East: The Proposed Development would complement the area's appeal as a location for entertainment and would encourage visitors. Also recognised economic benefits.

43. East London Arts & Music: The applicant has supported young people at the Academy, which has raised professional standards and the proposals would help shape the future of live music in London.

44. Newham Chamber of Commerce: Benefits of jobs created and the £50M annual revenue boost estimated by the applicant.

45. Stratford Original Business Improvement District: The area needs schemes such as this to help foster growth and inward investment. In addition to the commitment to invest and boost local jobs, commended the applicant's commitment to the London Living Wage.

46. E20: Supportive of the proposals; however, expressed concerns about the potential for spectators from the Stadium and MSG Sphere to converge simultaneously on Stratford Station. Proposed that the London Stadium is given primacy with regards to event planning and coincident events with larger capacity non-football events at the Stadium avoided; suitable management plans are agreed covering coincident football matches at the Stadium and events at the Sphere; the costs of any additional measures to the Stadium to be met by the applicant; and regular monitoring and review.

47. West Ham United Football Club (WHUFC): Welcomed the applicant's proposals to reduce its capacity and/or amend the timings of Sphere events to ensure that WHUFC fixtures and London Stadium visitors are not adversely affected; however, stated that for unforeseen coincidences, it should be the responsibility of the operators of the Sphere to coordinate a strategy to manage such a situation so WHUFC's use of the London Stadium is not unduly impacted.

48. Stop MSG: The Proposed Development would be incompatible with the nearby residential context. Advertising at the scale proposed would introduce a more metropolitan city centre character to the local residential character and identity of Maryland, which the Proposed Development would erode to the detriment of amenity. Objection to the height, scale, bulk and massing of the Proposed Development and its effects on daylight and sunlight, which would bring about noise and disturbance from crowds, increased parking pressure, traffic and congestion and crime and anti-social behaviour. The Proposed Development and Advertising Proposals would cause substantial harm to the Stratford St. John's Conservation Area and the University Conservation Area.

49. Maryland Community Group: The proposals would be overbearing and out of character with the surrounding area. Concerns that visitors would use Windmill Lane for private hire pick up and drop off, and that it will be a well-used route to the Proposed Development from Maryland Station to the detriment of residential amenity. Routes should be managed so that departing and arriving crowds only use main roads such as Angel Lane, Great Eastern Road, The Grove, Maryland Point and Leytonstone Road. Object to the night club citing residential amenity impacts.

Responses from politicians

50. Lyn Brown MP (Member of Parliament for West Ham): Not appropriate to grant permission. Concerns raised about light pollution, noise, and transport pressures, resulting in harm that outweighs the benefits of the Proposed Development.

51. Unmesh Desai AM (London Assembly Member): Objection on grounds of massing, light and noise pollution, the effect on traffic and public transport, anti-social behaviour, and disruption during construction.

52. Local Councillors Terence Paul and Nareser Osei: Objection on grounds of congestion arising from increased visitors, impacts on Stratford Station, and impact of light pollution and advertising on residents living adjacent to the Sphere.

53. Councillor Mas Patel: Concerns about impacts of the Proposed Development on air quality, noise and light pollution, and congestion.

Representations to the Mayor

54. The Mayor has received 377 written objections (as at 20 November 2023) on the application. Most of these objections also referred to the Advertising Proposals. The reasons for objection are collectively summarised as follows:

- Light pollution impact on residents' amenity, views, sleep, daylight.
- Light pollution impacts on human health, in particular those with autism, epilepsy, and other conditions with sensory sensitivity.
- Design not appropriate for a residential area.

- Light pollution impacts on birds/wildlife.
- Visual pollution on surrounding area.
- Videos and photos of the Las Vegas Sphere demonstrate negative impact.
- Excessive consumption of electricity.
- Symbol of waste and excess in the context of a climate emergency.
- The applicant states that proposal would not be financially viable without the LED screens; however, other venues in London operate without them.
- Excessive scale of the building.
- Illuminated screens not in keeping with the local area.
- Impact of excessive crowds on congestion in the local area and public transport infrastructure, particularly taking account of the London Stadium and Westfield.
- Additional crime, anti-social behaviour, and littering associated with large crowds.
- Noise impacts of large crowds on local residents.
- No need for another large venue close to the London Stadium, East Bank, Abba Voyage, and the O2.
- Incorrect location for the proposal.
- Increased air pollution.
- Scale of local resident objections.
- Benefits (revenue) accrue to the applicant, while the costs (congestion, noise, light pollution, etc) impact the local residents.
- No elected members of LLDC's planning and decisions committee supported it.
- Undemocratic and underhand links between LLDC and MSG.
- Undemocratic Committee meeting, including answers not questioned, unclear voting.
- Insufficient cycle parking provision and disruption to cycle routes.
- Traffic modelling not fit for purpose.
- Exaggerated community benefits.
- Contrary to the London Plan.

55. The Mayor has received 23 representations in support of the application (as at 20 November 2023), with reasons collectively summarised as follows:

- Benefits for local businesses and employment.
- Improved status of Stratford and London as a cultural and entertainment hub.

56. The Mayor also received responses from the following political representatives.

57. Lyn Brown MP (Member of Parliament for West Ham): Requested the Mayor to intervene to prevent the proposals from progressing, taking account of objections from all the elected representatives on the Planning Committee, from all four boroughs, as well as from local Councillors, and the Mayor of Newham; impacts on local residents arising from the scale of the building and the illuminated advertising screens; unsuitability to the Newham context; and impacts on public transport, particularly in relation to demand spikes linked to the O2, the London Stadium, and other venues.

58. Rokhsana Fiaz, Mayor of Newham: Requested the Mayor to direct refusal or take control of determination if the Secretary of State does not refer the application to himself following the Article 31 Direction, on grounds of the adverse impact on the health and wellbeing of local residents because of its scale and unsuitability and the inadequate five year advertising review mechanism.

59. Sian Berry AM (London Assembly Member): Requested the Mayor to refuse the planning application on grounds of safety (overcrowding at Stratford Station and glare on railway lines), residential amenity (illumination of display screens), and the undermining of democratic processes.

60. Unmesh Desai AM (London Assembly Member): Requested the Mayor (January and November 2023) to refuse the planning application on grounds that the size of the facade to be used as an advertising board will create a significant disturbance to residents for up to 17 hours per day; the lack of moving imagery assessment in order to assess the true impact; unacceptable mitigation in the form of blackout blinds; serious and unmitigated impacts on Jubilee Line capacity at stations further down the line from Stratford, including North Greenwich, impacting visitors leaving performances at the O2 and other venues; impacts on the highly congested Stratford Station; over 1,000 objections, including 80% from Newham, and a petition opposing the plans signed by 2,000 local residents; objections from local representatives, including the Mayor of Newham and the MP for West Ham; and significant safety concerns registered by local transport groups, operators, and trade unions.

61. London Assembly Environment Committee: As part of its Light Pollution in London Report (May 2023), one recommendation (of seven) is that the Mayor should refuse the planning application to prevent light-pollution impacts on the surrounding environment and residents; or if the planning application is judged to need determination by the Secretary of State, then the Secretary of State should refuse on the same grounds. A footnote states that the Conservative Group does not believe it is the Committee's place to ask the Mayor and the Secretary of State to make a certain decision on a live planning application as this could be considered unlawful under predetermination.

62. Councillors Nate Higgins and Danny Keeling: Requested the Mayor (9 December 2022 and 18 November 2023) to direct refusal on grounds of significant opposition, including Newham's Planning Authority, many local representatives, the Mayor of Newham, and every elected representative of the LLDC Planning Decisions Committee; safety risks due to the potential to overwhelm Stratford Station, which is already under substantial pressure, particularly between 18:00-19:30 when the station is already close to capacity; light pollution impacts on residents and students in close proximity to illuminated advertisements up to 96 metres in height; light pollution impacts on rail and road user safety due to glare; only 96 cycle parking spaces for a venue with a capacity of 22,500 people; construction and operation impacts on the local area; and insufficient control over 25 years advertising consent; the undermining of democratic processes; design flaws, financial problems and traffic congestion arising from the Las Vegas Sphere; and the need for housing on the site.

63. Zoe Garbett, Green Party candidate for Mayor of London: Requested the Mayor to refuse the application on grounds of negative impacts of artificial light; that the land should be used for more positive social benefits, such as housing; financial problems, design flaws and traffic congestion arising from the Las Vegas Sphere; significant opposition to the scheme; and climate change and ecological concerns.

64. The Mayor has also received responses from the following organisations.

65. AEG Europe (operator of the O2 North Greenwich): Requested the Mayor (13 February and 8 November 2023) to direct refusal on grounds of the impact on Stratford

Station; the impact on Jubilee line capacity; the design of the proposals and particularly the proposed LED cladding; the visual and residential amenity impacts arising from the LED cladding; and the lack of democratic consent.

66. Newham Cyclists: Requested the Mayor to direct refusal on grounds of insufficient cycle parking and potentially thousands of extra car trips to each event; building an important new cycle link between East Village and the London Aquatics Centre, only to then routinely close it at peak times (including school-run times) to allow ingress/egress to the Sphere; endangering local people by proposing a highway design for Angel Lane that constitutes at least two 'critical fails' according to the Government's LTN 1/20 standard, locking out safe cycling on Cycle Future Route 7 and building in community severance; potentially overwhelming Stratford Station, which is already dangerously congested, and providing only one extra entrance; and providing no legal mechanism for Newham Council to stop obnoxious or distracting advertising, which could pose a safety risk, by granting advertising consent for illuminated video content for 25 years.

67. Maryland Community Group: Of its membership, 47% do not support the development, while 53% either support the development or only with concerns being addressed related to health and safety risk arising from increased pressure on Stratford Station; impact of antisocial behaviour on local residents arising from visitors using Maryland Station and the 3,000 person nightclub; the need for free community space in Stratford/Maryland; public realm improvement around Maryland Station; more high-skilled jobs offered to the local community; excessive height of the building; and appropriately securing section 106 obligations to benefit residents.

68. Lightaware: Requested the Mayor to refuse the application on grounds that the LED advertising display will cause pain and discomfort for light-disabled and light-sensitive people living in or visiting the area, as well as sleep disturbance for local residents.

69. Stop MSG Sphere: Requested the Mayor to refuse the application on grounds that local residents do not want the development; light pollution and the unacceptable response of blackout blinds for residents nearby; dangerous overcrowding on local transport infrastructure and in the public realm; road safety and distraction; modal share for cycling of 0.44%; limited number of new jobs, which would mostly be low-paid and insecure; undemocratic as the LLDC will cease to exist in 2024.

Response to public consultation - conclusion

70. Having considered the local responses to public consultation, the LLDC has sought to secure various planning obligations, conditions and informatives in response to the issues raised. GLA officers have had regard to the above statutory and non-statutory responses to the public consultation process, and those representations made directly to the Mayor, where these raise material planning issues of strategic importance. As explained below, GLA officers have also had regard to the scope to address issues raised through the use of planning obligations and conditions, where relevant.

Update

71. Since consultation stage, GLA officers, the applicant, LLDC officers, and TfL officers have engaged in discussions with a view to addressing the above matters. Furthermore, as part of the Council's draft decision on the case, various planning conditions and obligations have been secured. An update against the issues raised at consultation stage and the current Development Plan is set out below, having regard to responses to the public consultation and representations made to the Mayor.

72. The applicant submitted amendments in November 2019, including:

- Removal of some of the previously proposed digital displays (not changing the Sphere displays).
- A new entrance to Stratford Station.
- Confirmation of the proposed extent of highways improvement works along Montfichet Road and Angel Lane.
- Submission of landscape lighting drawings.
- An increase in visitor cycle parking.
- Removal of events finishing after midnight.
- Changes to proposed conditions and section 106 obligations.
- Submissions of supplementary information and clarifications, including to the Environmental Statement.

73. Further documentation was submitted in August 2020, including:

- Changes to proposed conditions and section 106 obligations.
- Submissions of supplementary information and clarifications, including to the Environmental Statement.

74. It is noted that a Night-time Views document (May 2021) and a Light Spill Assessment (June 2021) were subsequently submitted to reflect the proposed maximum pre-curfew luminance of 25 cd/sq.m.; however, no other documents were updated to reflect this change and it is understood that no further public consultation was undertaken.

75. The assessment in this report is based on the information provided, together with section 106 agreements and conditions.

Relevant policies and guidance

76. Since consultation stage the development plan context has changed, with the 2021 London Plan and the London Legacy Development Corporation Local Plan 2020-2036 now together forming the Development Plan. In addition, the following are now material considerations:

- The National Planning Policy Framework 2021 and National Planning Practice Guidance 2021.
- The National Design Guide.
- The Newham Draft Local Plan (Regulation 18, December 2022).
- Public London Charter London Plan Guidance (LPG); Characterisation and Growth Strategy LPG; Optimising Site Capacity LPG; Fire Safety draft LPG; Sustainable Transport, Walking and Cycling LPG; Circular Economy Statements LPG; Whole-life Carbon Assessments LPG; 'Be Seen' Energy Monitoring

Guidance LPG; Air Quality Neutral LPG; Air Quality Positive LPG; Urban Greening Factor LPG; GLA Energy Assessment Guidance.
- London Legacy Development Corporation Night-time Economy Supplementary Planning Document; Three Mills Conservation Area Appraisal and Management Guidelines (2021).

Updated assessment

77. The following sections provide an updated assessment against the Development Plan taking account of all material considerations.

Principle of development

78. At consultation stage, the principle of major leisure and ancillary commercial uses on this vacant brownfield site in a Metropolitan Town Centre and Opportunity Area, with excellent public transport accessibility was supported. Four new bridges would also be delivered providing appropriate connection points to Stratford International Station (Bridge 1); the proposed new entrance to Stratford Station and the Northern Ticket Hall (Bridge 2); the existing Town Centre Link Bridge, which was designed to accommodate a link to the site (Bridge 3); and an access road across the HS1 corridor (Bridge 4). A vehicular/pedestrian connection would also be made to Angel Lane. The uses would promote Stratford and the wider Queen Elizabeth Olympic Park as an international destination; contribute towards London's culture and creative industries, night-time and visitor economy; and provide employment opportunities. This in-principle support of the proposed land uses at consultation stage was subject to fully resolving other matters raised, as discussed later in this report.

79. At consultation stage, the Proposed Development was also confirmed as being in accordance with Site Allocation SA3.1 'Stratford Town Centre West' (which includes five large development parcels around Westfield Shopping Centre), as now reflected in the 2020 LLDC Local Plan, which identifies the application site for a large-scale town centre use, as well as improvements to connectivity between Westfield/Montfichet Road and the town centre. The LLDC's planning powers are due to be handed back to Host Boroughs by the end of 2024, and consequently, the site forms part of Site Allocation N8.SA5 'Stratford Town Centre West' (together with a large area to the west, including Westfield Shopping Centre) in the Draft Newham Local Plan (Regulation 18, December 2022) for residential, office, other town centre uses, and open space. With specific reference to the application site, the Site Allocation states that "*Development to east of Montfichet Road should be mixed-use including residential, town centre uses in the form of ground floor active frontages and open space*" and "*should provide a link bridge to provide access to the rest of the centre*". The Proposed Development would provide town centre uses and an element of open space, but not residential uses, so it is not fully in accordance with Site Allocation N8.SA5; however, this can be given little weight at this stage as the Draft Local Plan is at an early stage of preparation and has not been subject to examination.

80. At consultation stage, the applicant was requested to explore opportunities for the smaller venue (capacity 1,500) to support local and grassroots organisations. In response, the applicant has stated that the premises licence application for the small music venue would provide more detail on these uses and operational plans; however, the Committee Report recognises that the venue would be suitable for up-and-coming talent in line with the Mayor's Rescue Plan for grassroots venues. The proposed

section 106 agreement would secure a minimum of 10 days per year, rent-free, for evening events by local musicians and community groups, and a contribution of up to £5,000 per event to operating costs.

81. A major entertainment venue is an appropriate land use for a town centre, and the proposed use is supported in principle by the London Boroughs of Newham, Waltham Forest, Tower Hamlets and Hackney. The Royal Borough of Greenwich objected to the principle of locating a venue of national/international significance in an area that has not been identified for such use. However, the current Site Allocation identifies the application site for a large-scale town centre use; Figure 7.6 and Table A1.1 of the London Plan identifies Stratford town centre as a Metropolitan Centre with a night-time economy of regional or sub-regional significance, and also identifies it for potential future upgrade to an International Centre.

82. The delivery of a large-scale venue able to provide a technologically advanced immersive experience, including provision for up-and-coming talent, would enhance Stratford's standing as a Metropolitan Centre, as well as London's status, supporting the growth and diversification of the visitor and night-time economy. The applicant's Environmental Statement (ES Chapter 5, Socio-economic) estimates that once operational, the Proposed Development would attract 2.39 million visitors per year, and would support c.£31M of additional spending within Newham, based on 956,000 visitors with an average spend of £170 (including tickets), and 75% displacement (described by the applicant as conservative). ES Chapter 5 was reviewed by LLDC's expert adviser, which broadly agreed with the findings and significant beneficial effects.

83. During the construction period, an estimated 1,160 direct jobs per year would be provided on site, or 350-500 Full Time Equivalent (FTE). The applicant has committed to a target of 35% of the construction workforce to be filled by residents from the LLDC boroughs. It is estimated the Proposed Development would support 1,300 jobs during operation, or 1,086 FTE. The applicant has committed to a target that 50% of the workforce would be from the LLDC boroughs. The current site provides no jobs or economic benefits, so almost all of the new opportunities created would be additional. Work-related learning opportunities, paid internships, funded scholarships, £2.1M towards supporting people into work, and procuring contractors paying at least the London Living Wage levels would also be provided. Based on the scale of employment and other measures, it is recognised that this would be a significant benefit to the LLDC boroughs and more widely.

84. A Community Involvement Programme of engagement and outreach activities to support local community groups, young people, local schools, and other educational institutions is secured by section 106 agreement; with operational costs to the applicant of up to £300,000 per annum in the first 5 years and £50,000 thereafter. The Smaller Music Venue would also be available for a minimum of 10 days per year, rent-free, for an evening event by local musicians and community groups, and a contribution of up to £5,000 per event to operating costs.

85. The land use proposed is in accordance with London Plan Policies SD1, SD6, SD7, SD8, SD10, E10, HC5, and HC6; however, it is necessary to have regard to the impacts of the Proposed Development and to assess whether the nature and scale of effects are acceptable. This includes giving careful consideration to the impact of the Proposed Development on townscape, the historic environment, residential amenity, climate change, transport infrastructure, and other social and environmental factors,

which are addressed below. The Proposed Development is also considered to be in accordance with LLDC Local Plan Site Allocation SA.3.1; and Policies 3.1, SP.1, B.2, B.5, and CI.1.

Security and event management

Capacity

86. The maximum capacity of the site, including outdoor areas, is 25,000 visitors and staff. The auditorium has a seated capacity of 17,566 and maximum seating/standing capacity of 21,500. The Members' Lounge has a maximum standing capacity of 1,000 and the smaller venue 1,500.

87. An indicative breakdown of events, average attendance, and frequency per year is as below:

Event type	Average attendance	Number of events	Event Days
A) Touring Concerts	15,000 – 17,500	70	70
B) Immersive Residencies	15,000 – 17,500	35	35
C) Shared Attraction	8,000	35	(Shared with B)
D) Cinematic/Theatrical	8,000	275	140
E) Corporate Events	12,000	12	36
F) Private Events and Awards	6,000	5	15
G) Sports	14,000	5	5
H) Local Community Event	5,000	10	10
Indicative Total		**447**	**311**

88. Indicative timing of events within the main auditorium are as below:

Event Type	Doors Opening Time	Event Start Time	Event Finish Time
Matinee Event (Monday – Sunday)	10:00 – 13:00	12:00 – 14:00	15:00 – 16:00
Evening Event (Monday – Saturday)	18:00 – 19:30	20:00 – 21:00	22:45 – 23:00 (unless otherwise agreed but not later than 23:30)
Evening Event (Sunday and Bank Holidays)	18:00 – 19:30	19:30 – 20:30	22:15 – 22:30

89. The proposed opening times for ancillary spaces are set out below:

Area	Opening	Close
Members Lounge/Bar/ Restaurant/ Night Club	10:00	03:00
Smaller Music Venue	22:00	04:00
Cafe	10:00	23:00

Movement and access

90. At consultation stage, due to the proposed capacities and event timings, strong concerns were raised in terms of potential adverse impacts on surrounding residential amenity (as discussed further under 'residential amenity' below); the capacity of pedestrian access routes and pedestrian amenity; the capacity of the transport network (as discussed under 'transport' below); and significant concerns were raised about the ability to coordinate event days with surrounding venues and associated crowd control and public safety. Whilst the principle of access to the site via pedestrian bridges was supported, further testing of crowd control and emergency evacuation was requested, in particular to demonstrate that Montfichet Road would continue to function in an acceptable way.

91. The site currently has almost no connectivity to its surroundings due to railway lines, and there is a significant difference in levels. In terms of the capacity of pedestrian access routes and pedestrian amenity more widely, existing provision in this part of the town centre relies on the Town Centre Link Bridge and Leyton Road/Penny Brookes Street. The proposed podium bridge connections and lift access would overcome the pedestrian access constraints that limit connectivity, as required by the Site Allocation (see also 'inclusive access' below). Bridges 1 and 2 would land on Montfichet Road, providing access to the new Stratford station entrance (delivery of which would be secured within the proposed section 106 agreement); Stratford International station; and the Stratford City bus, taxi and coach facilities. This would benefit the area more widely by providing additional pedestrian routes over the railway lines. Given the anticipated volume of pedestrians accessing the Sphere along this route (approximately 50% of all visitors), it is proposed to re-design Montfichet Road to reduce the number of vehicle lanes and increase capacity for pedestrians and cyclists.

92. The applicant has reiterated that the routes on the podium would be sufficiently wide to support the movement of large crowds. Where routes would be constrained on the podium, for example by columns supporting terraces above, they would still be wider than the footpaths on Montfichet Road and Angel Lane, and generally double the width of the other routes. The applicant states that the Sphere is as small as it can be to meet operational requirements and that elevating it to widen routes would result in a taller structure overall. The thickness of the structure of the Sphere is determined by structural, acoustic and maintenance requirements. Consequently, the applicant considers that the size and positioning of the Sphere and its routes are an appropriate balance between these constraints in access terms. Whilst it is noted that the large crowds attending events at the Proposed Development would temporarily limit more general pedestrian movements in the area; GLA officers are satisfied that the quality and width of routes on the podium would be acceptable.

93. On the advice of the Metropolitan Police, the podium design has evolved to include measures that secure the site outside of operational hours. Gates at the

entrance of the bridges have been designed so that they would not be perceived as a gate when open. Deployable gates are proposed at other parts of the site, with the required gate furniture stored within the Sphere structure so as not to reduce the width of public routes. The proposed section 106 agreement secures that the site would be open to the public between 05:00-00:00, with the site's operators permitted to close it within these hours in a limited set of circumstances, for example in the interests of safety. GLA officers are satisfied that the terms agreed offer the highest level of access, while being consistent with advice from the Metropolitan Police and the principles of the Mayor's Public London Charter. The proposed section 106 agreement also secures access to public toilets.

Event operations

94. The application includes a draft Concept of Operation (CONOPS), which sets out how the venue would be managed and operated. It includes details of coordination activities, local transport and highway management, access routes, crowd management and guest communications. It addresses requirements both when there would be events at the Proposed Development, and when there would be coincident events with the London Stadium. This would be supported by a Venue Operations Manual (VOM), which would provide detailed management arrangements to ensure the principles of the CONOPS would be achieved. The VOM would be approved and managed through LB Newham's licencing controls and the LLDC. The CONOPS sets out the detail of what should be included within the VOM.

95. At consultation stage, significant concerns were raised concerning the CONOPS and further consideration was requested to demonstrate that the Proposed Development could operate safely in conjunction with the London Stadium, also considering how its proposed event days would operate in conjunction with other events and activities, including Westfield, the Queen Elizabeth Olympic Park, and the 02 Arena.

96. It is acknowledged that events at the Proposed Development would need to be highly managed; and interfaces with highways, public realm, and stations would be set out as part of the CONOPS and VOM. Both are secured within the section 106 agreement for the Proposed Development. The balance of detail between the more strategic CONOPS setting out the principles of venue operation and the more detailed VOM is considered appropriate. Monitoring of the effectiveness of the CONOPS and the VOM, as well as updates to the VOM should adverse impacts arise, would be secured within the section 106 agreement for the Proposed Development.

Event controls

97. In order to mitigate impacts on a busy multi-modal transport interchange and Metropolitan Town Centre, and cumulative impacts with other uses in Stratford; there would also be a package of controls on event timings and capacities for both Proposed Development events and events coinciding with London Stadium events.

98. The ceasing of operation secured in the Proposed Development section 106 agreement of 23:00 Monday-Saturday and 22:30 for Sunday is in line with other London venue finish times. In exceptional circumstances, there is allowance to seek LLDC and TfL approval for later finishes to 23:30 if there is a clash with a London Stadium event,

and on agreement of a Late Night Coincident Local Area Management Plan, and any additional transport mitigation.

99. To address concerns about impacts during the evening public transport peak, including the performance of Stratford station, caps are secured on the number of mid-week high-capacity events. Between Monday and Thursday, events above 15,001 would only be permitted on 98 occasions per year, and no afternoon matinee events above 4,300 capacity would be permitted to finish after 16:00.

100. To address concerns about impacts of coincident events with the London Stadium, a package of measures are secured, including a Coincident Events Working Group to enable forward planning between local stakeholders and the preparation of Local Area Management Plans. No Main Venue event with an attendance above 18,000 would have a start/end time within one hour of a London Stadium event of 40,000-62,500. No Main Venue Saturday and Sunday afternoon events above 14,400 would coincide with London Stadium events. No Main Venue events of more than 15,000 would coincide with a London Stadium event of more than 62,500 or major sporting events. In the event of a short notice coincident event arising at the London Stadium, the applicant would be required to use reasonable endeavours to adjust the start/end time of the Main Venue event so that events are not scheduled to be within one hour of their scheduled start/end times. A live management system would be established to assist with interaction between the applicant and the London Stadium operator.

Adverse impacts and monitoring

101. The package of forward planning measures, capacity controls, and time controls for Proposed Development events and London Stadium coincident events would be secured within the Proposed Development section 106 agreement. These provide an appropriate level of confidence at this stage that impacts on the local transport network could be mitigated and accommodated.

102. A detailed package of monitoring measures and formal notices would also be secured within the Proposed Development section 106 agreement, which ensure that the impacts would not give rise to unacceptable transport impacts and disruption through crowding in the local area. This monitoring would include baseline surveys prior to the opening of the Proposed Development, and post-opening monitoring of station and non-station adverse impacts, with full details of monitoring strategies to be agreed. Potential station adverse impacts include trains being unable to stop, or full/partial closure of Stratford and/or Maryland stations. Potential non-station adverse impacts include unacceptable pedestrian density/crowding.

103. A range of controls on potential adverse impacts are secured. For example, when a station adverse impact is identified, TfL may issue a formal notice to the applicant identifying the occurrence. Early notice warnings would also allow the applicant to take immediate action to avoid subsequent adverse impacts occurring. For events finishing before 22:30, after five formal notices, the applicant would be required to pay up to £1.5M towards interventions at Stratford station. After a further five formal notices, the applicant would be required to alter start/finish times, and/or pay a further amount towards interventions at Stratford station, up to a maximum of £3M. Such alterations to start and finish times would remain in place until it is accepted that other measures would avoid adverse impacts, and TfL would retain the right to issue further

formal notices. For Proposed Development events finishing after 22:45 and coincident events with the London Stadium, and based on the number of annual occurrences and the capacity of events, the section 106 agreement would secure capacity reductions. This capacity reduction would remain until an updated Local Area Management Plan or Venue Operations Manual is agreed with the LLDC and TfL.

Security and event management - conclusion

104. GLA and TfL officers consider that the security and event management arrangements and mitigations for the Proposed Development would be in accordance with London Plan Policy D11 'Safety, security and resilience to emergency'.

Transport

Rail network and station impacts and mitigation

105. At consultation stage, significant mitigation was sought related to the transport impact of the trips generated, for congestion relief, wayfinding and signage, and/or other measures to ensure safety. Further work by the applicant identified that a new entrance to Stratford station could be created, accessed from Montfichet Road. This has been modelled and audited by TfL and Network Rail and gives a degree of confidence that the addition of the new entrance could provide an appropriate level of mitigation, as part of a package of overall infrastructure and operational measures. The modelling indicated that some localised areas of the station may see a worsening of congestion, in particular on the stairs from the subways to the upper-level platforms; however, this is addressed by the package of event capacity and date/time restrictions, as set out under 'Event controls' and 'Adverse impacts and monitoring' above.

106. The Proposed Development section 106 agreement secures that the applicant would enter into development agreements for the new station entrance works with TfL and Network Rail. The applicant would not operate any event at the Main Venue (other than test events) until the new station entrance works were completed.

107. The Proposed Development section 106 agreement secures further station modelling to inform the detailed design of the new station entrance; to test options and sensitivities; other measures to confirm station management plans; and additional station mitigation measures (such as barriers, wayfinding and signage within the station), which would be delivered prior to the Main Venue being operated.

108. The Proposed Development section 106 agreement secures that the applicant would pay for ten years of additional event day station staffing at Stratford, Stratford International DLR, Maryland, and Hackney Wick stations.

109. The Proposed Development section 106 agreement also secures Asset Protection Agreements with TfL and Network Rail.

Car and cycle use, access and parking

110. Only operational car parking would be provided within the Proposed Development. A separate planning application (as per paragraph 8 above) would provide an area within the Stratford International car park for use for disabled persons, with a mobility strategy secured by condition.

111. Further local modelling is secured in the Proposed Development section 106 agreement to inform the detailed design of Montfichet Road and Angel Lane, together with management and monitoring of the impact on the local highway network.

112. The Proposed Development section 106 agreement secures that the applicant would monitor levels of on-street parking in Controlled Parking Zones (CPZ) in the boroughs of Newham and Waltham Forest, for one year from the opening date. The applicant would pay for any consultation and implementation of amendments to those CPZs.

113. There would be 100 staff cycle parking spaces on the podium and 96 new spaces for visitors in the vicinity of the site, with monitoring of event day levels of use of existing cycle parking in the vicinity of the site for five years. Provision is made for the delivery of additional visitor cycle parking if required.

114. A contribution of £220,000 towards a new or expanded Mayor's Cycle Hire scheme (such as the relocation or expansion of an existing docking station) and £48,000 to a Newham Council Brompton bike hire is secured.

Healthy Streets and public realm

115. To deliver the necessary access bridges to Montfichet Road and vehicular access points to Angel Lane, the Proposed Development section 106 agreement secures a section 278 highway agreement to be entered into with Newham Council as the local highway authority. A scope of works has been agreed and the Montfichet Road works would extend to the junction with Penny Brookes Street and the access to Westfield Car Park B.

116. A contribution of £342,164 for four years for a bus station controller at Stratford City bus station is secured in the Proposed Development section 106 agreement, which would assist with the management of impacts on the bus network.

117. As part of the Venue Operations Manual and other Management Plans, strategies for coaches, taxi and private hire are secured.

118. A contribution of £80,000 has been secured to Legible London wayfinding strategy.

Travel Plans

119. Travel Plans for staff and visitors are considered acceptable and the Proposed Development section 106 agreement secures that they would be reviewed and updated over time by the applicant.

Rail and road safety

120. The applicant has agreed pre-commencement, pre-operation, and post-operation planning obligations with Network Rail, TfL, and HS1, which would protect rail infrastructure and minimise public safety risk as set out below.

121. The Advertising Proposals section 106 agreement would secure an Outline Visual Display and Luminance Management Strategy (VDLMS), to be submitted and approved by the LPA, TfL, and Network Rail in consultation with rail operators

(including MTR Crossrail), prior to commencement of development. This would further develop and verify the mitigation measures identified in the Rail Safety Report (August 2020) in relation to the potential impacts of the Digital Display on rail driver distraction, station operation, railway signalling and passengers, which also sets out details of proposed controls on the operation of the Digital Display. The workstreams required would follow Network Rail's Project Acceleration in a Controlled Environment (PACE) project management system, with workstreams to be progressed to enable PACE Stage One Engineering Stage 3. A Detailed VDLMS would be agreed before the Digital Display is in operation, and any mitigation measures identified must have been implemented at the applicant's cost.

122. The Advertising Proposals section 106 agreement would secure that prior to the first operation of the digital display, a Digital Display Management Strategy (DDMS), setting out mitigation measures and operational controls related to the Digital Display and consistent with the VDLMS, would be agreed in consultation with TfL and Network Rail. The DDMS would include mitigation measures and operational controls related to the LED displays with the aim of mitigating adverse impacts on human health, road user distraction, rail driver distraction and station operation. This includes restricting the display of flashing images; determining the maximum speed of moving images; determining a minimum display time for each image/display; determining the intervals between each display; restricting the display of phone numbers, websites or e-mail addresses; restricting the display of symbols that resemble any road traffic signage or signals; measures to revert the digital displays to a default display if a malfunction occurs; and zoning of display material.

123. The DDMS would be updated to include recommendations of a Digital Display Monitoring Group (DDMG), as secured in the Advertising Proposals section 106 agreement, on an annual basis. The DDMG would meet at least every three months and would consist of MSG (covering all costs), LLDC, Newham Council, TfL (in relation to public transport and traffic control systems), and Network Rail (in relation to railway safety), and any other relevant public authorities and independent members who are suitability qualified in the matters over which the DDMG has jurisdiction. The DDMG would review monitoring reports relating to the Proposed Development's impact in terms of light emissions on the rail and road networks; review the content of complaints received from people who claim to be adversely affected by the Proposed Development; issue recommendations in response, which would include, where appropriate, required mitigation measures. Where any recommendations identify mitigation measures that relate to the rail and/or road network, MSG would be required to carry out those measures within the reasonable timescales identified. Three tiers of measures relating to the LED display are secured:

- Tier 1: changes to the operation of the digital display (not including any reduction to the luminance levels or operational hours).
- Tier 2: reducing luminance levels (candelas per sq.m.) of the digital display in full or part.
- Tier 3: reducing the operational hours of the digital display.

124. Where any complaints made by persons claiming to be adversely affected by the Development (excluding vexatious complaints) have not been resolved by the applicant to the satisfaction of the person who made the complaint, the DDMG would consider what additional action, if any, was required to be taken by the applicant.

125. Network Rail and/or TfL may determine any additional mitigation measures required, including interim measures, according to the secured three tiers, and in the event that works can or should be undertaken to Network Rail/TfL assets/infrastructure, the applicant would pay those costs.

126. The potential effects on road user distraction are addressed through a Road User Distraction Assessment secured in the Advertising Proposals section 106 agreement, to be approved by the LPA, the highway authority and TfL. The results of the Assessment would identify mitigations, such as altering or repositioning road traffic signals or highway road markings, with costs to be covered by the applicant. The Assessment also requires a strategy to monitor effects on road users and how complaints and monitoring reports to the DDMG.

127. After first operation, the applicant, LPA, and highway authority would determine additional mitigation measures according to the secured three tiers as set out above, with the applicant paying the costs of any required works.

Transport – conclusion

128. The extensive and robust package of mitigation secured through conditions and section 106 obligations are considered capable of mitigating the impact of this high trip generating development. The package of physical and financial measures secured includes a new Stratford station entrance, off-site highway works, railway station event-day staffing for 10 years, a bus station controller for four years, cycle parking, a cycle hire docking station, and wayfinding.

129. The package of management and monitoring measures secures engagement on operational planning with TfL and other stakeholders for forward planning and smart scheduling of events, including limits on capacity and event finish times. The obligations provide for monitoring and reporting of both station and non-station adverse impacts. It is in the interests of the applicant to avoid adverse impacts; however, the issue of formal notices and ‘strikes’ consequent to any adverse impacts is a measure of last resort.

130. In summary, given the above package of interacting controls and measures set out above, officers are satisfied that the Proposed Development would be in general accordance with London Plan policies T1, T2, T3, T4, T5, T6, T7, T9 and D2.

131. The Proposed Development would also be in accordance with LLDC Local Plan Policies SP.4, T.1, T.2, T.3, T.4, T.5, T.6, T.7, T.8, and T.9.

Residential amenity

132. Immediately surrounding the site are the New Garden Quarter residential development to the north, and to the east the Legacy Tower/Stratford Central and Stratford Eye residential developments, a hotel (Moxy), and student accommodation (Unite). Consent has been granted for a 412 room hotel (14 storeys) in close proximity to the site (The railway Tavern, LPA Ref: 20/01004/FUL), and a live planning application is under consideration for a 41 storey student accommodation tower to the immediate south. The distance from the closest of these buildings to the facade of the Sphere would be approximately 50 metres. Further residential uses lie beyond these immediately adjacent buildings.

133. LLDC Local Plan Policy BN1 ‘Responding to place’ sets out a number of residential amenity requirements, including for proposals to respond to amenity and wellbeing by preventing overshadowing, mitigating noise and air pollution and an unacceptable provision/loss of sunlight, daylight or privacy. Policy BN4 ‘Designing development’ sets out a number of requirements, including minimising adverse impacts upon existing surrounding development and not resulting in an unacceptable loss of privacy or an unreasonable degree of overlooking towards habitable rooms and private amenity spaces. Policy BN5 ‘Proposals for tall buildings’ sets out a number of requirements, including that proposals for tall buildings will be considered unacceptable where they are likely to have a significant adverse impact on amenity of the surrounding area that relate to overlooking, daylight, overshadowing, light spill/reflection and wider amenity impacts. Policy BN16 ‘Designing advertisements’ set out requirements for proposals for advertisements to be acceptable, including where they do not have an adverse impact on amenity and do not have an adverse impact on the outlook of surrounding residential properties. Policy S.1 ‘Health and wellbeing’ requires development to not significantly adversely affect those who live and/or work within the vicinity.

134. At consultation stage, the limited distance between the application site and adjoining sensitive land uses was identified as challenging, and the requirement for compliance with London Plan Policy D13 ‘Agent of Change’ was identified. This states that new nuisance-generating development proposed close to residential and other sensitive uses should put in place measures to mitigate and manage impacts for neighbouring residents and businesses. This is not limited to noise. At consultation stage, the applicant was requested to demonstrate that the external content of the Sphere, including illuminance levels and the hours of display, would not significantly impact surrounding residential amenity. London Plan Policy D9 (Part C1h) also states that tall buildings should be designed to minimise light pollution from internal and external lighting. In support of this, paragraph 3.9.9 of the London Plan states that any external lighting for tall buildings should be minimal, energy efficient and designed to minimise glare, light trespass, and sky glow, and should not negatively impact on protected views, designated heritage assets and their settings, or the amenity of nearby residents. London Plan Policy D3 (Part D7) requires proposed development to deliver appropriate outlook, privacy and amenity.

135. In relation to residential amenity, the NPPF states that planning decisions should create places that promote health and well-being, with a high standard of amenity (paragraph 130) and limit the impact of light pollution from artificial light on local amenity (paragraph 185). Advertisements should be subject to control only in the interests of amenity and public safety, taking account of cumulative impacts (paragraph 136)

Light intrusion: impact on residential amenity and human health

136. If not properly controlled, obtrusive light can impact residential amenity and human health. Obtrusive light, for example that which keeps nearby residents awake at night, is a form of light pollution. It may also be a statutory nuisance in law. Intensity is essentially a measure of the brightness of light and is assessed in terms of candelas. This is one of the measures that is assessed when considering light nuisance.

137. The Institute of Lighting Professionals (ILP) Guidance Note for the Reduction of Obtrusive Lighting (‘GN 01/21’) identifies five (0-4) environmental zones (protected,

natural, rural, suburban, and urban). Environmental Zone 4 is characterized as having a 'high district brightness', which normally applies to town and city centres with high levels of night-time activity. GN 01/21 recommends 'pre-curfew' and 'post-curfew' maximum illuminance (intensity of light received) for Environmental Zone 4 of 25 lux and 5 lux respectively.

138. The applicant's Environmental Statement (ES Chapter 11 Light intrusion and Upward Skyglow) states that the Sphere would have a dynamic and changing facade that would emit light differently depending upon content. Two assessments were undertaken; the effect of the light emitted based upon only white LEDs (described as a worst-case scenario); and a moving image of divers swimming in the ocean, identified as containing a representative sample of white, black and coloured light. The ES concludes that these controls would meet the requirements of Environmental Zone 4 in GN 01/21, and there would be no likely significant light intrusion. It is noted that these assessments were undertaken with a maximum luminance (intensity of light emitted) of 37 candelas (cd)/sq.m. for static images and 148 cd/sq.m. for moving images; however, a planning condition (number 51 in the draft Decision Notice) would secure that the luminance of the LEDs would be limited to 25 cd/sq.m. between sunset and 23:00 ('the pre-curfew period'); 7 cd/sq.m. between 23:00 and 23:30 (or 00:00 on Friday/Saturday) (the 'post-curfew period'); and between 23:30 (or 00:00 on Friday/Saturday) and 07:00, the LEDs would be switched off or placed in standby mode. No revision to ES Chapter 11 was undertaken by the applicant; the only additional documents produced being a Night-time Views document (May 2021) containing just five night-time representations of TBHVIA views, and a Light Spill Assessment (June 2021). It is understood that no public consultation was undertaken by LLDC on these documents or the revised maximum luminance.

139. It is noted that LLDC officers also applied Environmental Zone 3 (suburban) as a sensitivity test to New Garden Quarter and Stratford Eye, as they are just outside the Metropolitan town centre boundary. Based on a maximum luminance of 25 cd/sq.m., this identified that 18 properties within Stratford Eye would exceed the post-curfew illuminance threshold, although marginally.

140. At other times (07:00 to sunset), the section 106 agreement for the Advertising Proposals would require a Digital Display Management Strategy (DDMS) to be submitted and agreed, as set out under 'Transport' above. This includes "*regulating the daytime luminance levels of the Digital Display by reference to ambient background light levels, including any measures to take into account diurnal and seasonal changes in daylight through the use of the system to monitor ambient light levels and log real time illuminance data for the Digital Display detailed in the approved Commissioning Strategy*".

141. The section 106 agreement for the Advertising Proposals also requires a Digital Public Art Content Strategy to be submitted and agreed, establishing the principles that would guide decisions about artistic content. Conditions secure that during the hours that the Sphere LED display is operational, it would be used to display content that is "*predominantly creative and artistic*" (with the exception of displaying the name of the venue) in accordance with the Strategy, and for not less than 65% of the time in any clock hour.

142. In its objection, AEG states that the assessment should have been carried out in accordance with ILP Professional Lighting Guide 05: The Brightness of Illuminated Advertisements ('PLG 05/2014'), subsequently updated as PLG 05/23. As discussed below, the GLA's expert adviser WSP, is clear that the impacts should be assessed under

PLG 05/23. LLDC officers considered that as the maximum luminance levels 25 cd/sq.m. at pre-curfew level are significantly below recommended maximum permitted luminance for illuminated signs in PLG 05/2014, that the approach in GN 01/21 is acceptable.

143. Concerning health impacts arising from light intrusion, as set out in the Environmental Statement, the applicant commissioned the Building Research Establishment (BRE) to undertake a review of scientific literature on the likely effects of the illuminated LED facade on human health, which concluded that the evidence base is limited, but considered that the risk of adverse effects from moving images and advertising is low.

144. LLDCs expert advisers reviewed the Environmental Statement, and the Committee Report identifies that they concluded that potential adverse effects on the health and wellbeing of vulnerable groups are not reflected in the assessment conclusions as they are masked by the use of an overall population sensitivity rating, leading to under-reporting of effects and the identification of non-significant effects. This includes effects on groups such as children or people with autism and learning disabilities. The advice confirmed uncertainty regarding the type and extent of effects as there is limited industry research or understanding of the impact of prolonged exposure to light on health and wellbeing; however, it concluded that with the various mitigation measures in place, significant adverse residual effects are unlikely.

145. LLDC undertook its own Equalities Impact Assessment (EqIA). This identified that the Proposed Development may differentially affect the disabled equality group through glare and distraction, flicker and stroboscopic effects, and spatial patterning effects for passers-by and nearby properties; and obtrusive light impacts on sleep and circadian rhythms for residents in nearby properties. The LLDC assessment also noted that there is limited research on the amenity/psychological effects of moving images; however, it concluded that blackout blinds would mitigate potential adverse residential amenity effects. It noted that the extent to which the visual experience would be beneficial or adverse for individuals in the public realm would depend on the content of the displays. As the content is not known, uncertainty of impact was identified.

146. Due to the uncertainty of impact and the scale of objections, many relating to the potential for light intrusion, GLA officers commissioned an expert review by WSP (attached as an Appendix to this report) of this aspect of the applicant's Environmental Statement. The expert author of the GLA commissioned WSP report was also the author of GN 01/21, and chaired and led the development of the recently updated PLG 05/23. WSP has identified significant errors and omissions in the applicant's assessment, including:

- Several of the assessments have not been undertaken correctly according to the applicable UK guidance (ILP) and therefore the obtrusive lighting/heath aspects are not correctly assessed and determined.
- The basic assumption that it is satisfactory to spill light to the maximum permitted level of 25 lux for Environmental Zone 4 onto surrounding premises windows is not well-founded, as depending upon the sensitivity of the receptor lower lighting levels can still cause wellbeing problems. The suggestion that these levels could be exceeded with a sliding scale of impact is not appropriate. This has the potential to lead to more significant harm (potentially including legal claims under light nuisance and artificial light as being prejudicial to health).

- The assessment of the Sphere LED lighting is based upon the approach taken when considering standard flat digital displays consisting of a uniform light source; however, the Sphere LED lighting consists of many individual luminaires/modules, which presents a non-uniform light source and should therefore be assessed as such.
- The design and calculation details of all external lighting in the Proposed Development is not provided.
- No detail is provided on how the Sphere digital display content has been modelled to determine its impact on the surrounding area.
- The definition of white light used for the purposes of the assessment is not provided and therefore the blue light content (a potential key human and fauna and flora adverse impact consideration) cannot be determined.
- No details have been provided as to how the baseline lighting assessments have been undertaken.
- The skyglow assessments are incorrect in that only light emitted directly upwards has been considered and this is represented in terms of illuminance based upon a series of horizontal grids above the sphere.

147. Notwithstanding the errors and omissions with the applicant's assessment, WSP concluded that the Illuminated Sphere, in conjunction with other artificial lighting within the Proposed Development and how it is operated, would be likely to have significant adverse effects on occupiers of nearby residential premises. This would be particularly so for residential and student accommodation (Unite Student accommodation, Legacy Tower/Stratford Central, Stratford Eye and New Garden Quarter). Furthermore, WSP identified a range of potential adverse obtrusive and human health, wellbeing and safety effects that it considered are not addressed sufficiently and consequently would have an adverse impact. Substantial concerns are identified regarding the impact of the illuminated Sphere and associated lighting on human health in these buildings, arising from blue light impacts; stroboscopic and flicker effects; and visible and changing light intrusion. These adverse impacts can cause annoyance, anxiety, and other adverse effects on the occupiers.

148. WSP note that the range of potential adverse effects from the external lighting identified is suggested to be managed and mitigated through planning conditions and section 106 obligations. However, it advised that it is preferable for these matters to be resolved at the application and design stage and not once the installation is operating, since if the conditions and obligations cannot be met or resolved, the LED displays would be unable to operate. In particular, the conditions and other related obligations and conditions are considered to be very limited and do not cover all expected aspects. Model conditions have been developed within the ILP PLG05/23, but are not proposed to be used.

149. Based on advice received from WSP, GLA officers consider that the Proposed Development would cause significant light intrusion to occupants of the Unite Student accommodation, Legacy Tower/Stratford Central, Stratford Eye and New Garden Quarter resulting in detriment to human health and significant harm to the general amenity enjoyed by residents of their own homes. Furthermore, the 'fall-back' mitigation proposal for blackout blinds/curtains is not an acceptable response, since light intrusion should be resolved at the application and design stage, not once the installation is operating.

Blackout blinds/curtains would themselves also unacceptably reduce levels of day/sunlight to occupiers and compromise the levels of amenity they enjoy. The proposed mechanism for complaints in relation to residential amenity is also inappropriate, since this should be addressed at application and design stage, particularly since the LED display is fundamental to the operation of the Proposed Development and the applicant would not agree for it to be permanently turned off.

150. GLA officers also have concerns about the means by which a health and wellbeing impact would be assessed for consideration by the operator, and if unresolved by the Digital Display Management Group, as secured in the section 106 agreement for the Advertising Proposals. This is defined as "*clinically significant distress or impairment in that person's social, occupational or other important areas of functioning; and/or (b) a worsening of that person's pre-existing mental or physical illness or impairment that results in that person falling within category (a) above, and in either case which is as a direct consequence of the operation of the Digital Display as evidenced by a Medical Practitioner*". GLA officers have significant concerns as to how this could be enforced. Furthermore, this appears to address only the most significant health and wellbeing impacts, which can be much broader and of a nature that a Medical Practitioner could not certify.

Residential visual amenity/intrusion

151. In objecting to the Development Proposals, AEG identified that the applicant had failed to consider the impact of the Proposed Development on residential visual receptors in the Environmental Statement. It therefore commissioned a Residential Visual Amenity Assessment (RVAA), which was submitted as part of its objection. Subsequently, the applicant commissioned its own RVAA and LLDC officers also conducted their own.

152. The applicant's Environmental Statement states that in order to consider the effect of changes to views from a residential amenity perspective, all the views assessed within the TBHVIA have been reviewed to facilitate a conclusion on the impact on residential amenity. The TBHVIA refers to the Landscape Institute's Guidelines for Landscape and Visual Impact Assessment (GLVIA), which identifies 'residents at home' as being one type of visual receptor, which has a high level of susceptibility to change. In respect to 'residents at home', the GLVIA states that it is standard practice for viewpoints to be chosen that are publicly accessible, and that the effects of development on private property are a separate consideration, which is the subject of a residential amenity assessment.

153. The Landscape Institute have produced a Technical Guidance Note (2019) covering the approach and methodology for assessing the effects on the visual component of residential amenity at nearby residential properties. The document states that residential visual amenity is a component of wider residential amenity (including noise, air quality, daylight etc.). It is the overall quality, experience and nature of views and outlook available to occupants of residential properties, including views from gardens and domestic curtilage (including balconies, patios, gardens etc.). RVAA is a process to objectively assess this, enabling a judgement to be formed as to whether a development is likely to change the visual amenity of a residential property to such an extent that it becomes a matter of public interest, given that impacts upon views from property are not normally a relevant planning consideration. The point at which a visual change becomes a matter of public interest is when the amenity effects are said to meet the 'Residential Visual Amenity Threshold'. Factors contributing to this judgement include whether a

development is overwhelming in views in all directions, ‘inescapably dominant’, or ‘unpleasantly encroaching’. There is no minimum number of properties that would need to be affected for the residential visual amenity threshold to be met; the conditions of the threshold are considered on a case-by-case basis for each individual property. It is a matter of judgement as to whether (a) the residential visual amenity threshold would be crossed for any properties, and if so, (b) whether serious harm would arise to the visual amenity of the affected property.

154. The applicant’s position is that individuals do not have a right to a view and that an assessment of visual amenity from private properties is not required by any adopted or emerging planning policies; however, for completeness, and given the unique design of the Proposed Development, it undertook an RVAA. This assessed 5,751 windows serving 3,422 rooms in residential and ‘quasi-residential’ (including student accommodation) buildings within 250 metres of the site, plus some taller more distant buildings such as Manhattan Loft Gardens. The RVAA identifies the proportion of each window frame that the Proposed Development would occupy, based on the occupant’s view being 1.6 metres above ground and 1 metre back from the window. The buildings identified as most impacted include the Unite Student Accommodation, with the Proposed Development occupying 60-100% of the frame of 423 windows; Legacy Tower/Stratford Central, with the Proposed Development occupying 40-60% of the frame of 146 windows; Stratford Eye, with the Proposed Development occupying 30-50% of the frame of 46 windows; and New Garden Quarter, with the Proposed Development occupying 30-50% of the frame of 13 windows. The RVAA concluded that the Proposed Development would not change the visual amenity of a residential property to such an extent that it becomes a matter of ‘public interest’, and that it is therefore not necessary to consider visual amenity as part of the wider residential amenity assessment. LLDC officers considered that the applicant’s RVAA has limitations since it focused on the likely positive impacts of the Proposed Development and gave limited consideration to adverse impacts on residential private amenity on the basis that the mitigation proposed would minimise the risk of adverse light and visual effects.

155. In its objection, AEG concluded that the Proposed Development would cross the threshold at which residential visual amenity becomes an issue of public interest, both when unilluminated and when illuminated. LLDC officers considered that the AEG RVAA had little regard to the planning policy context of the site and equated the loss of views with harm even when unilluminated, whereas there is a clear policy aspiration for the site to accommodate a large-scale building. Furthermore, LLDC officers identified that the AEG RVAA provided no explanation of the methodology used to convey the reflectivity of surfaces within the assessed residential properties when the Sphere displayed images; and it did not explain how light spill within visual renders had been modelled taking account of the technical specification for the Sphere facade and proposed digital display luminance restrictions. LLDC officers concluded that these omissions mean that the conclusions of the AEG commissioned analysis cannot be relied on.

156. LLDC officers acknowledged that the scale, functionality, and design of the Proposed Development would be unprecedented, and therefore undertook their own RVAA. No report was published; however, the Committee Report summarises the conclusions and some images were included as an appendix. This was based on the information submitted by both the applicant and AEG, along with technical support from LLDC’s environmental consultants, and focused on properties in close proximity to the site with overlooking windows (New Garden Quarter, Stratford Eye, the Unite Student Accommodation and Legacy Tower/Stratford Central). When unilluminated, the visual

impacts of a hypothetical mirror massing of surrounding development was assessed, finding comparable impacts to the Proposed Development. LLDC officers therefore concluded that the scale, massing and design of the Proposed Development would not meet the residential visual amenity threshold when unilluminated. When the Sphere's display is illuminated, LLDC officers found that without mitigation, there would be 61 residential properties with the potential to meet the residential amenity threshold, comprised of 33 dwellings at the New Garden Quarter (79 metres from the Sphere at the closest point) and 28 in Legacy Tower/Stratford Central (70 metres from the Sphere at the closest point), typically living and sleeping areas in single aspect homes. It also found that without mitigation, 177 single aspect student rooms in the Unite building (50 metres from the Sphere at the closest point) have the potential to meet the residential visual amenity threshold. LLDC officers identified that occupants of these student and residential properties would experience a level of visual intrusion that is greater than would be the case if the Proposed Development was a 'normal' use of the land at the scale proposed.

157. LLDC officers considered that the Proposed Development would generally improve the visual quality of the site compared to its current state; however, it was recognised that the visual experience would also depend on the currently unknown content of the LED displays, noting that even if the detail were available, it would be difficult to assign an objective value to each piece of content. LLDC officers therefore focused on the controls secured to limit luminance and hours of operation and other mitigation measures in the proposed conditions and section 106 agreement (as set out above), which they consider to be sufficient to reduce the risk of harm to residential visual amenity to an acceptable level.

158. The LLDC Committee Report states that given the unprecedented scale and nature of the proposed LED displays, and residual uncertainty (beyond the complaints process and three tiers of potential further mitigation measures that could be implemented) as to the impact of visual intrusion on residential amenity impacts because the precise nature of the displays is unknown, the proposed section 106 agreement for the Advertising Proposals also secures that the applicant would provide blackout blinds/curtains to all student and residential properties within 150 metres of the Sphere facade, on a precautionary basis.

159. It is noted that in relation to the Advertising Proposals, given the unprecedented scale and longer than normal period of the consent applied for (25 years), a five-year review was requested by LLDC Committee Members, which is secured in the proposed section 106 obligations, the details of which were reported back to the LLDC Committee for approval. The principal reason for the review was identified as being to ensure that appropriate controls would be in place to ensure that any unforeseen health and wellbeing impacts could be addressed should they arise.

160. GLA officers consider that outlook from a residential property is a component of residential amenity, and that it is an important consideration in this case due to the unprecedented scale (height/width/shape) and functionality of the Proposed Development. GLA officers have reviewed the RVAA information submitted by the applicant and AEG, as well as the summary information provided by LLDC officers.

Residential visual amenity/intrusion - unilluminated

161. Particularly taking account of the LLDC conclusions on mirror massing, GLA officers agree that the scale, massing and design of the Proposed Development would be

acceptable if the LED display was not illuminated.

Residential visual amenity/intrusion - illuminated

162. The Advertising Proposals section 106 agreement requires a Commissioning Strategy to be submitted and approved prior to first operation of the Digital Display, which would include "*calibration of the Digital Display to ensure it is taking account of ambient light levels and diurnal and seasonal changes in light conditions in order to balance brightness for people viewing the Digital Display*" and "*details of the system which is to be used in accordance with the DDMS* [Digital Display Management Strategy] *to monitor ambient light levels and log real time illuminance data for the Digital Display*". It is understood that this seeks to constantly adjust luminance during daylight hours (before sunset when maximum limits on luminance would come into effect) to account for changes in ambient light levels; however, concerns are raised about this approach, as discussed under 'light intrusion' above. Notwithstanding this, the aim of the illuminated Sphere is to be eye-catching and it would clearly be more visually prominent from surrounding properties (depending on proximity) compared to when unilluminated. When illuminated after sunset, visual intrusion to surrounding properties would be greater (depending on proximity) compared to that before sunset, even accounting for the controls on luminance, due to the greater contrast with the darker sky.

163. The submitted RVAA cannot show all potential imagery, and in particular cannot illustrate the effect of moving imagery, whether with 'public art' or advertising content. GLA officers also note media coverage about imagery on the recently completed Las Vegas Sphere (noting that it does not have the same controls on luminance as proposed here), including depictions of it as an eyeball amongst other things. The RVAA imagery shows views of the Sphere with sky/brand imagery; however, the Sphere appears barely illuminated. The imagery provided in the HBTVIA (divers swimming in the ocean) does appear brighter. Considering the imagery used on the Las Vegas Sphere, the imagery provided in the HBTVIA and the RVAA is not considered to provide a full or adequately representative indication of the potential visual impact. There is clearly significant uncertainty as to the content of the imagery, which is likely to affect the impact and cannot be defined and controlled to a sufficient degree in order to remove the uncertainty.

164. The experience from each residential property would vary depending on the orientation of the view and personal preferences of the viewer; however, GLA officers have significant concerns about the scale of harm to outlook and visual amenity to surrounding residential and student uses caused by the Sphere's illuminated LED display. The applicant's own RVAA findings, as set out above, demonstrate the large number of impacted windows/properties (in the Unite Student Accommodation, Legacy Tower/Stratford Central, Stratford Eye, and New Garden Quarter); and the large proportion of each window that would be occupied by the Sphere, in some cases approaching 100%. This applies to residential and student uses, noting that the Unite Student Accommodation would be the worst affected. It is important to consider that student rooms would nearly always have only one window (as confirmed by the LLDC analysis), and would be used for study for a considerable proportion of the time, so the impact is arguably potentially even greater than that on residential use during the daytime and should the residents not be working from home for instance. The illuminated Sphere would result in unacceptable harm to the outlook and visual amenity of these surrounding residential and student uses.

165. Furthermore, in relation to both residential and student properties, the 'fall-back'

mitigation proposal for blackout blinds/curtains for all residential and student properties within 150 metres of the Sphere, in response to the uncertainty of impact identified by LLDC is not acceptable mitigation. Since the Sphere can be illuminated from 07:00 to 23:30 (or 00:00 on Friday/Saturday), it is possible that blackout blinds/curtains would need to be drawn for a large part of the day (when occupied) for at least 61 residential properties and at least 177 student rooms. This would result in unacceptable harm to the amenity of these residential and student uses at it would remove almost all daylight, sunlight, and outlook. The importance of adequate daylight/sunlight is reflected in London Plan Policy D6 and Local Plan Policies BN1 and BN4.

166. The live application for the 41 storey student tower adjacent to the Legacy Tower/Stratford Central would also be impacted; however, since the scheme does not have consent, no assessment of this has been undertaken to date.

Daylight, sunlight, and overshadowing

167. The Committee Report contains a detailed summary of daylight, sunlight and overshadowing impacts. Of the 3,241 site-facing rooms assessed, 97% would experience either negligible or minor adverse effects, noting that the existing site is completely open and undeveloped. None of the surrounding amenity spaces (public and private) would experience a noticeable change in sunlight, and the percentage of each area that achieves two or more hours of sunlight on 21 March would remain unaltered. These impacts are considered acceptable, in accordance with London Plan Policy D6 ‘Housing quality and standards’ (Part D).

Noise

168. London Plan Policy D14 sets out requirements for developments to reduce, manage, and mitigate noise to improve health and quality of life.

169. Some objectors have raised concerns about potential noise disturbance from people leaving the venue, particularly in the residential area of Maryland. The majority (80%) of visitors are expected to use Bridges 2 and 3, which would be the most direct routes to Stratford Station, with only approximately 10% expected to use the Angel Lane exit towards Maryland. Some crowd noise is expected on all routes leading to Stratford Station, Stratford International Car Park, and Maryland Station via Windmill Lane (although the latter route will be discouraged from being used, as set out below).

170. Crowd management at entertainment venues is regulated via a Premises License, which requires the licensee to set out how it plans to meet the four licensing objectives of prevention of crime and disorder, public safety, the prevention of public nuisance, and the protection of children. This would include details of the venue’s anti-social behaviour plans and dispersal policies. Compliance would be a condition of the Premises license and there would be a robust enforceable regime and body that would need to be satisfied that all necessary operational information, policies and procedures regarding the overall management of the site are acceptable.

171. To address the amenity concerns as a matter of planning policy, the applicant has submitted a Concept of Operations Strategy (CONOPS), which sets out the principles that would guide the management and operation of the venue and its approach to crowd dispersal. The strategy proposes the deployment of marshals to remind guests to be sensitive to local residents, with local signage also used to reinforce this message on all

routes. Internal announcements would be used to remind guests to be respectful of neighbours when leaving the venue. Crowd management personnel would be deployed at Angel Lane to direct visitors away from Maryland Station and towards Stratford Station. Those guests that need to use Maryland Station would be actively discouraged from using the Windmill Lane route and given directions to use an alternative route via Angel Lane, Great Eastern Road and The Grove. The CONOPS and its periodic review and update would be secured by section 106 agreement, allowing the effectiveness of these mitigations to be monitored, and refinements made. Overall, the measures proposed are considered proportionate and reasonable, and no significant adverse impacts are expected.

172. Night-time noise from external areas on the podium and terraces has been assessed to be moderate adverse at worst at the closest receptors (Legacy Tower/Stratford Central, Moxy Hotel and Stratford Eye). The applicant considers that the worst-case assumptions are unlikely to take place during the operation of the Sphere, or only for short periods of time. To address the potential amenity issues, a noise management strategy has been secured by condition, which includes noise monitoring. Through this monitoring, the applicant proposes to evaluate the source of noise and, where appropriate, implement strategies to reduce it. In addition, measures set out under ‘Adverse impacts and monitoring’ above in relation to crowd controls would address increased noise impacts. Officers are satisfied that this would appropriately mitigate the risk.

173. The building envelope would provide a high degree of sound insulation, and significant mass that would attenuate low frequency sound. The proposed smaller music club would also be located in the lower floors of the podium, which would also reduce noise transmission. The proposed audio system within the main auditorium would use technology that allows sound to be precisely aimed towards the audience. The Proposed Development would be the first large-scale deployment of this technology within an entertainment venue, and it is anticipated to help control the noise levels incident on walls and ceilings. The music noise emission modelling indicates that noise is unlikely to be discernible at local properties during the day; and whilst a slight increase in noise may be perceived at adjacent Unite, New Garden Quarter and Legacy Tower/Stratford Central if windows are open overnight; subject to conditions securing appropriate acoustic standards specified in the ES, local receptors are not expected to experience significant adverse noise amenity effects from either music noise break out or building services plant noise.

174. Vehicles for events would enter and leave the loading bay on Angel Lane. Approximately 10 articulated vehicles and 4 tour buses are expected for a normal event and 20 articulated vehicles for a large event. Loading bay capacity would be limited to 4 tour buses and 5 articulated vehicles, so loading bay activities would need to be managed. No stacking of vehicles around the HS1 box would be permitted between midnight and 07:00. Off-site vehicle screening would form part of the delivery and servicing strategy. A condition requires details of how all elements of the Proposed Development would be serviced prior to operation, as well as a Venue Operations Manual secured in the proposed section 106 agreement, and on-going noise monitoring. With appropriate management of servicing and delivery vehicles and monitoring of effects, officers are satisfied any adverse effects resulting from use of the loading bay would be minimised and are not likely to be significant.

175. Overall, the Proposed Development would be in accordance with London Plan Policy D14.

Residential amenity impacts – conclusion

176. GLA officers consider that occupiers of the Legacy Tower/Stratford Central, Stratford Eye, New Garden Quarter, and the Unite Student Accommodation would experience a level of light intrusion that would be significantly harmful to their amenity and potentially to their health. Since the Sphere can be illuminated from 07:00 to 23:30 (or 00:00 on Friday/Saturday), it is likely that blackout blinds/curtains would be drawn for a large part of the day (when occupied) for at least 61 residential properties and at least 177 student rooms. This would result in unacceptable harm to the amenity of these residential and student uses at it would remove almost all daylight, sunlight, and outlook. The importance of adequate daylight/sunlight is reflected in London Plan Policy D6 and Local Plan Policies BN1 and BN4. The mitigation proposed is therefore not acceptable.

177. The Proposed Development would be contrary to LLDC Local Plan Policy BN.1 as it would not minimise impact within proposed and upon existing development (Part 7); Policy BN.4 as it would not minimise adverse impacts on surrounding development (Part 5); BN.5 as it would have a significant adverse effect on surrounding residential amenity due to light spill (Part 8); and Policy BN.16 as it would have an adverse impact on amenity (Part 1) and it would have an adverse impact on the outlook of surrounding residential properties (Part 2). It would be contrary to Policy S.1 as it would significantly adversely affect those who live within the vicinity.

178. It would be contrary to London Plan Policy D3 (Part D7) as it would not deliver appropriate outlook and amenity, and it would be contrary to Policy D8 (Part B), as it would not minimise intrusive lighting infrastructure, nor reduce light pollution. It would be contrary to London Plan Policy D9 (Part C1h) as it is not designed to minimise light pollution from external lighting. It would also be contrary to London Plan Policy D13 ‘Agent of Change’ as measures to mitigate light and visual impacts of the new nuisance-generating development on residential and other sensitive uses would be unacceptable.

179. The Proposed Development would also be contrary to the NPPF as it would not promote health and well-being, would not provide a high standard of amenity, and would not limit the impact of light pollution from artificial light on local amenity.

180. It is acknowledged that daylight, sunlight, overshadowing, and noise impacts arising from the Proposed Development are acceptable.

Historic environment

Legislation, policy, and guidance

181. The NPPF states that great weight should be given to a heritage asset’s conservation and that when considering the impact of a scheme, any conflict with a heritage asset’s conservation should be avoided or minimised. The NPPF continues that any harm should be clearly and convincingly justified and, if less than substantial, weighed against any public benefits.

182. London Plan Policies HC1 and D9 (Part C1d) require development proposals to conserve significance by being sympathetic to the assets' significance and appreciation within their surroundings, avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process.

183. London Plan Policy D3 requires development proposals to respond to the existing character of a place; and respect, enhance and utilise the heritage assets that contribute towards local character.

184. London Plan Policy HC2 requires that development proposals in World Heritage Sites and their settings, including any buffer zones, should conserve, promote and enhance their Outstanding Universal Value, including the authenticity, integrity and significance of their attributes, and support their management and protection. In particular, they should not compromise the ability to appreciate their Outstanding Universal Value, or the authenticity and integrity of their attributes.

185. At consultation stage, concerns were raised that when illuminated, the LED display could potentially adversely impact the setting of surrounding heritage assets; however, given the separation distances and built-up nature of the surrounding area, the height and massing of the Sphere when not illuminated was described as having a negligible impact on surrounding heritage assets. GLA officers have also reconsidered the impact of the Sphere when not illuminated based on updated application materials and the current policy context, including the new London Plan, as discussed below.

Procedural issues

186. An updated (August 2020) Townscape, Built Heritage and Visual Impact Assessment (TBHVIA) has been provided in support of the application. The nearest designated heritage assets are the Grade II* listed Theatre Royal, 210 metres to the south-east; Stratford St. John's Conservation Area, which includes a number of other designated heritage assets, 320 metres to the south-east; and the University Conservation Area, which also includes a number of designated heritage assets, 400 metres to the south-east. The site includes a brick wall and five urinals associated with the Stratford Railway Works, including two bricked up entrances, of 1900-04. Apart from the railways themselves, this section of wall is one of the few surviving structures from the Stratford Works, and as such, is a non-designated heritage asset.

187. The TBHVIA makes use of a methodology derived from the Landscape Institute's Guidelines on Landscape and Visual Impact Assessment (2013) and uses townscape analysis as a proxy for the assessment of harm. It does not therefore conform with the requirements of Historic England's *Good Practice Advice in Planning Note 3: The Setting of Heritage Assets* (2017).

188. The initial TBHVIA Study Area "*of approximately 500m from the Site for Listed Buildings and 1km for Conservation Areas, and, as identified in Figure 4-8 and Figure 4.9*" (Paragraph 4.20) was too small and did not relate meaningfully to the Zone of Visual Influence (ZVI, page 283). This resulted in additional viewpoints being requested by consultees (pages 289 and 309) to capture the effects on heritage assets that were omitted. The applicant's heritage assessment has not been updated in the light of these additional viewpoints and although some views are provided, there is no discussion of the impacts on the settings of the following assets: Maritime Greenwich World Heritage Site (WHS); St. Paul's Cathedral; St. John's House; King Edward VII Public House;

West Ham Court House; West Ham Town Hall; 30 Romford Road; 49 Broadway; the Martyr's Memorial; the Gurney Memorial; three K6 Telephone Kiosks Outside Stratford Town Hall; University Square Conservation Area; West Ham Technical Institute; the Central Library and the Passmore Edwards Museum; 60 and 62 Romford Road; 66-82 Romford Road; 54 and 56 Romford Road; Fish Island and White Post Lane Conservation Area; and Three Mills Conservation Area and listed buildings within it, including the Abbey Mills Pumping Station and associated assets and the Tide Mill (known as the Mill House) and associated assets.

189. There are no viewpoints or Accurate Visual Representations (AVRs) of the Proposed Development in the context of the University Square Conservation Area and the listed buildings within it, including the West Ham Technical Institute; the Central Library and the Passmore Edwards Museum (Grade II*); 60 and 62 Romford Road; 66-82 Romford Road; and 54 and 56 Romford Road (Grade II). The submitted Zone of Visual Influence (ZVI) shows that the Proposed Development may be visible in views west along Romford Road from these locations.

190. While an attempt has been made to represent the Proposed Development with the LEDs illuminated, it is not possible to fully represent light levels, content, or moving imagery, in a two dimensional static printed/digital image. The TBHVIA is therefore unable to show such effects accurately and reliably, as noted by Historic England in its representations. This is acknowledged to a degree in the TBHVIA (Paragraphs A4.14 and 3.60):

> *"Where the Proposed Development is shown at night-time, the lightness of the scheme and the treatment of the materials was the best judgment of the visualiser as to the likely appearance of the scheme given the intended lighting strategy and the ambient lighting conditions in the background photograph. In particular the exact lighting levels are not based on photometric calculations and therefore the resulting image is assessed by the Architect and Lighting Designer as being a reasonable interpretation of the concept lighting strategy."*

> *"The assessment assumes that, when the sphere is in active mode* [illuminated]*, it will tend to be more eye-catching, due to the increased level of light and movement emitted. The degree of that increased noticeability will be higher or lower according to the level and type of lighting and movement which is displayed (e.g. bright colours and flashing lights will be more noticeable than soft illumination)."*

191. It is also noted that when the updated TBHVIA (August 2020) was produced, the maximum pre-curfew luminance was proposed to be 37 cd/sq.m.; however, at a later stage it was decided to reduce this to 25 cd/sq.m. (as secured by condition). A Night-time Views document (May 2021) was produced to reflect this; however, this includes only five views, only two (views 11 and 12) of which are relevant to the assessment of heritage impacts. The applicant did not produce any further heritage assessment. GLA officers have taken account of this in the assessment below.

192. The LLDC Committee Report states that to address concerns that individual heritage assets had not been assessed by the applicant, LLDC officers undertook their own analysis of the effects on the setting of individual assets within the Stratford St. John's Conservation Area, and the setting of the University Square Conservation Area and assets within it, Three Mills Conservation Area, and Fish Island and White Post Lane Conservation Area, drawing on their own knowledge and additionally other

information, such as the viewpoints submitted as part of the applicant's TBHVIA. However, as discussed above, GLA officers consider that the TBHVIA views provided do not address all of the heritage assets that are potentially adversely affected.

Significance of heritage assets

Church of St John the Evangelist, listed Grade II

193. This church dates from 1832-34, with a chancel added in 1882. It was designed by Edward Blore (1787-1879) in the Gothic Revival style, specifically a mixture of Early English and Decorated elements. It is constructed in grey gault bricks with stone dressings and slated roofs. The building is ambitious in scale, with a six-bay nave, north and south aisles, a chancel and a south chapel, with a large three stage tower and steeple, the latter featuring flying buttresses and pinnacles. The building has architectural and artistic interest as a major project by Edward Blore, a significant and interesting Victorian architect (once responsible for parts of Buckingham Palace). It also reflects the shift in Gothic Revival taste from the simpler 'Commissioner's Gothic' of the 1830s (in the main body of the church) to the more archaeologically accurate Gothic Revival styles of the later 19th century, resulting from the work of A W N Pugin; these trends themselves being a reflection of changes in church practice and the increased High Church focus on the eucharist. The building is of historic interest since it is one of a group of Commissioners' Churches (or Waterloo churches) resulting from the Anglican panic about the godlessness of the new urban working classes and the Church Building Act of 1818. The building has additional historic interest derived from its high communal value as the historic spiritual focus of Stratford. The building is also a very significant local landmark, occupying a central island plot in the High Street, with its steeple dominating the immediate local scene. The group value of the associated Martyr's Memorial and churchyard railings (both listed Grade II) also contribute to significance.

194. The immediate setting of the church is its churchyard, and this contributes positively to significance through historical association, the provision of an appropriate visual setting and a sense of calm. The wider setting includes the historical contribution made to the setting of the church by Stratford St. John's Conservation Area and the well-preserved Victorian town centre of Stratford. The visual aspects of the wider setting are enhanced and sustained by the ability to appreciate the dominance of the church in local and wider views and to perceive the silhouette and outline of the church against the sky. Although some recent developments have caused harm to these aspects of setting, many views remain in which it is still possible to appreciate the dominance and outline of the church, and these are key elements of significance.

West Ham Court House, listed Grade II

195. This is a purpose-built courthouse from 1884 designed by Lewis Angell. Architectural interest is provided by the association with Lewis Angell (flourished 1864 to 1901), who was part of an architectural dynasty, an engineer and the Surveyor to the West Ham Local Board. He was the first president of the Institution of Municipal Engineers formed in 1873. He also designed the Former Public Hall and Library, 105 Barking Road, Canning Town (listed Grade II) in 1894 and the Engine House at West Ham Pumping Station, Abbey Road (listed Grade II) in 1898. The building is a bold and slightly forbidding exercise in a mildly classical, almost Georgian manner, in yellow brick with Portland stone dressings, the style unsurprisingly reminiscent of early Police

Stations. The overall effect is richly solid and confident, with particular relief provided by the two sets of Royal Arms above the entrances in the projecting entrance bays. Historical interest also lies in the communal value of the building as a civic and public building from which justice was long dispensed. The contribution made by setting to significance is discussed below.

West Ham Town Hall, listed Grade II

196. This is a purpose-built Town Hall, constructed in 1867-8 and enlarged (by Angell) in 1886. It was designed by Lewis Angell (see above) and John Giles (1830-1900). John Giles was a major Victorian architect, with listed works including the Langham Hotel, Grimsby Town Hall, numerous asylums, workhouses and hospitals, and Cavendish College, Cambridge. The building has architectural and aesthetic significance as a confidently Victorian version of the arched Cinquecento manner with rusticated stone ground floor with square headed window openings beneath an upper storey of round arched windows, divided by Corinthian columns. This is carried off with considerable panache with an asymmetrical 30 metres tall domed tower with a cupola featuring fish scale slates. The balustraded parapets are decorated with allegorical standing stone figures. It is a major visual landmark in Stratford, with the tower dominating the local scene. Historical interest also lies in the place the building occupies in the history of West Ham as a progressive and ambitious local authority in the late 19th century and the communal value of the building's civic and public function, formerly the centre of local administration. Both the Court House and the Town Hall benefit from the contribution made to significance by their mutual group value and the group value with the associated northern block and courtyard walls of Alice Billings House, listed Grade II (a former Fire Station), forming a complete late Victorian civic enclave.

197. The immediate setting of the Court House and Town Hall is the civic group of which they form a part, and this contributes positively to significance through historical association and mutually supporting original functions. The wider setting includes the historical contribution made to the setting of the Court House and Town Hall by Stratford St. John's Conservation Area and the well-preserved Victorian town centre of Stratford, in which these are key buildings in terms of history, function and visual impact. The visual aspects of the wider setting are enhanced and sustained by the ability to appreciate the dominance and silhouettes of the Court House and Town Hall in local and wider views. The view to the north-east, along West Ham Lane, is a key view, since it allows the full appreciation of the combined long facades of the Court House and Town Hall. This view is also designed to focus on the Gurney Memorial, which is located centrally within it. Although some recent developments have caused harm to these aspects of setting, many views remain in which it is still possible to appreciate the dominance and outline of the church and these are key elements of significance.

Gurney Memorial Drinking Fountain, listed Grade II

198. This is a public drinking fountain dating from 1861, designed by J Bell. It takes the form of a tapering granite obelisk with a pointed head on a granite plinth bearing quadrant basins. It also features four lamps on plinths. The fountain is in memory of Samuel Gurney (1786-1856) who was a banker and philanthropist from an influential family of English Quakers who resided for most of his life just outside Stratford. He was a partner in the Norwich banking firm of Overand, Gurney & Co, which became the

largest discounting house in the world. Gurney was an advocate of penal reform (the prison reformer Elizabeth Fry was his sister) and an anti-slavery campaigner. He was also a noted philanthropist, supporting educational charities and gifting money to the poor, as well as supporting local charitable initiatives. The fountain has historical interest because of its association with a prominent local figure with national connections and as an illustration of the late Victorian concern around the provision of public sources of clean water. It has architectural and aesthetic interest as a large and striking focal point in the streetscape, constructed of high-quality materials and to a bold design.

199. Setting is key to the significance of this asset. Its location at a prominent junction is at the heart of Stratford town centre and there is communal interest, since it is a natural place to meet. The location opposite the Town Hall is deliberate and provides group value and indicates the high status of the fountain, celebrating the civic virtues of Gurney. Although the word obelisk is Greek in origin, the form is Ancient Egyptian and was used to mark temple entrances. In the modern era, obelisks have been used to memorialise famous people (as here). The function of the form is to attract the attention and to focus the gaze towards the pyramidal pointed top. It is therefore key to significance that the obelisk is framed against open sky, and despite some lower-level modern development, this remains the case for the Gurney Memorial, which retains open sky in views generally and particularly along West Ham Lane (also in cumulative views).

Stratford St. John's Conservation Area

200. This was designated in January 1984 and the Conservation Area Character Appraisal and Management Proposals was adopted in March 2009. The 'Summary of Special Interest' finds significance in:

> "*the survival of its irregular, pre-industrial plan form, which forms a wishbone shape around the centrepiece of St. John's Church and the trees in its churchyard. The Church is very much the focal point of the conservation area, terminating views into, and within it. Stratford Broadway is a wide thoroughfare which gives prominence to the buildings on each side as well as the landmarks in the middle. The south side of the Broadway as far as the High Street forms a sequence that is rich in architectural incident and contrast with Victorian commercial and civic buildings sitting side by side with earlier domestically scaled survivals. Stratford's townscape is bolstered by the prominence and quality of its nineteenth century landmarks, most notably St. John's Church, the Old Town Hall, the old Magistrates Court and no.63 Broadway. The impact of Stratford's historic development is often still visible*."

201. St. John's Church, the Town Hall, the Court House, and the Gurney Memorial are identified as both elements of heritage value and landmarks in the Appraisal. The view north-west along West Ham Lane, past the Court House and the Town Hall and towards the Gurney Memorial is identified as a key view. The view of the east end of St. John's Church, looking west along Romford Road is also identified as a key view.

202. The setting of the Conservation Area is mixed and now includes modern development, much of it quite recent and some of it quite tall. The main contribution of the setting to significance is in the extent to which key views within and out of the

Conservation Area, which contribute to the setting of the area and the heritage assets within it, are conserved.

Former Urinals on Angel Lane

203. The site is mainly cleared land and is not located in a conservation area, nor does it contain a listed building. The site includes a brick wall that originally enclosed the Stratford Railway Works. It is constructed from London Stock bricks and has traces of former openings, marked by darker brick bullnose bricks (all entrances are bricked up), two of which were entrances to former urinals. The urinals were originally built between 1900 and 1904, as part of the enclosure to the Stratford Railway Works when expanded to incorporate Angel Place. Apart from the railways themselves, this section of wall is one of the few surviving structures from the Stratford Works, and as such, is considered to be a non-designated heritage asset. The former urinals, which incorporate five stalls, were open air public urinals. The back wall and floor of the urinals do not survive, and the fireclay urinals, which are of unknown manufacture, are in a vulnerable condition.

204. There is no agreement between the applicant and the Greater London Archaeological Service (GLAAS) on the significance of these assets. The applicant, in its TBHVIA (paragraphs 4.37 to 4.39) consider that significance is low. GLAAS, in their consultation responses dated 3 May 2019, 20 December 2019 and 21 October 2020 consider significance to be higher, stating "*In terms of undesignated standing archaeology, the Victorian/Edwardian urinals on Angel Lane merit further consideration. These were the subject of a recent detailed study commissioned by High Speed 1 (Statement of Significance Former Public Urinals at Angel Lane Stratford, Ingram Consultancy, 2018) which found them to be an important example of a rapidly vanishing aspect of London's heritage*" (3 May 2019).

Assessment of impacts

205. Notwithstanding that the TBHVIA is unable to show effects accurately and reliably, GLA officers identify the following levels of harm to the significance of designated heritage assets, both when not illuminated and when illuminated as summarised in the table below. As stated above, this takes into account the reduced luminance as reflected in the Views document (May 2021), although again noting that only two views (views 11 and 12) are relevant to the assessment of heritage impacts. The not illuminated scenario refers to the effects of the Sphere when not illuminated and during daylight hours. The illuminated scenario refers to the effects of the Sphere when illuminated, at dusk and at night and with static imagery (taking account of controls on luminance). The impacts of moving imagery are further discussed below. The scale used for the extent of less than substantial harm is very low, low, low to middle, middle, middle to high, high and very high.

Heritage asset	Category of harm	Extent of harm when illuminated	Extent of harm when not illuminated	TBHVIA View reference
Maritime Greenwich WHS	No harm	No harm	No harm	View in Appendix 7

St. Paul's Cathedral, listed Grade I	No harm	No harm	No harm	View A21
Theatre Royal, Stratford East, listed Grade II*	Less than substantial	Low	Very low	Views B39
Stratford St. John's Conservation Area	Less than substantial	Middle	Low to middle	Views 11, 11.1, 12, 12.1, 13, A25, A26, B31, B38, B38.1, B40
West Ham Park, Registered Park and Garden, Grade II	Less than substantial	Low	Very low	View 2
Victoria Park, Registered Park and Garden, Registered Park and Garden and associated listed buildings	No harm	No harm	No harm	View B27
Church of St. John the Evangelist and associated railings, listed Grade II	Less than substantial	Middle	Low to middle	Views A26, B38, B38.1
West Ham Court House, listed Grade II	Less than substantial	Middle	Low to middle	View 11, 11.1
West Ham Town Hall, (former Education Offices) listed Grade II	Less than substantial	Middle	Low to middle	View 11, 11.1
Martyr's Memorial, listed Grade II	Less than substantial	Very low	No harm	View B38, B38.1
The Gurney Memorial, listed Grade II	Less than substantial	Middle to high	Middle	View 11
3 K6 Telephone Kiosks Outside Stratford Town Hall, listed Grade II	No harm	No harm	No harm	No view provided
The Log Cabin, formerly The Yorkshire Grey, 335-337 High Street, Stratford, listed Grade II	No harm	No harm	No harm	View 7
Shop Adjoining Number 43 Water	No harm	No harm	No harm	View B40

Lane, listed Grade II				
Fish Island and White Post Lane Conservation Area	Less than substantial	Very low	No harm	View A22, A22.1
Three Mills Conservation Area and listed buildings within it including the Abbey Mills Pumping Station, listed Grade II* (and associated assets, listed Grade II) and the Tide Mill (known as the Mill House), listed Grade II (and associated assets, listed Grade II)	No harm	No harm	No harm	View B33, B34, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12
St John's House, 2 Romford Road, listed Grade II	Less than substantial	Low	Very low	No view provided
King Edward VII Public House, 47 Broadway, listed Grade II	Less than substantial	Low	Very low	No view provided
The Old Dispensary, 30 Romford Road, listed Grade II	Less than substantial	Low	Very low	No view provided
Former London and County Bank, 49 Broadway, listed Grade II	Less than substantial	Low	Very low	No view provided
University Square Conservation Area	Less than substantial	Low	Very low	No view provided
West Ham Technical Institute, the Central Library and the Passmore Edwards Museum, listed Grade II*	Less than substantial	Low	Very low	No view provided
54 and 56, 60 and 62 and 66 to 82 Romford Road, listed Grade II	Less than substantial	Low	Very low	No view provided

Direct impacts

206. In relation to the Non-Designated Heritage Asset (the Former Urinals on Angel Lane), the wall to which the urinals are attached is proposed to be demolished. The urinals would be removed and stored for 36 months, pending proposals for their reuse. It is unclear whether their removal without breakage is possible, no details are provided of storage arrangements and there is no clarity around who would seek proposals for reuse, which appears unlikely to happen. Removal from their original location would seriously harm their significance and would be highly likely to result in complete loss of the asset. The proposed section 106 agreement (Schedule 16) only allows for "*reasonable endeavours*" and thereafter disposal. In terms of NPPF Paragraph 203, the Proposed Development would highly likely result in the total loss of significance of the asset.

Indirect impacts

207. London Plan Policies HC1 and D9 (Part C1d) require development proposals to conserve significance by being sympathetic to the assets' significance and appreciation within their surroundings, avoid harm and identify enhancement opportunities. London Plan Policy D3 requires development proposals to respond to the existing character of a place; and respect, enhance and utilise the heritage assets that contribute towards local character.

208. The submitted TBHVIA cannot show all potential imagery, and in particular cannot illustrate the effect of moving imagery, whether with 'public art' or advertising content. GLA officers also note media coverage about imagery on the recently completed Las Vegas Sphere (noting that it does not have the same controls on luminance as proposed here), including depictions of it as an eyeball amongst other things. Considering the imagery used on the Las Vegas Sphere, the imagery provided in the HBTVIA, being divers swimming in the ocean, is not considered to provide a full or adequate representation of the potential visual impact. There is clearly significant uncertainty as to the content of the imagery, which is relevant to likely impact and cannot be defined and controlled to a sufficient degree.

Church of St. John the Evangelist, listed Grade II

209. When not illuminated, there would be adverse impacts on the setting of the Church of St. John the Evangelist. TBHVIA View A26 shows the Sphere as an out of scale, alien and visually obtrusive element to the east of the chancel of the church. If the viewer were to walk to the left (west), the Sphere would backdrop the chancel roof of the church, detracting from appreciation of its roofline and silhouette. The Sphere would detract from the primacy of the listed building in the view, challenging it for attention. These effects are considered to cause less than substantial harm at a low to middle level to the significance of the church.

210. When illuminated, the aim of the Sphere is to be eye-catching, and it would clearly be more distracting (depending on proximity) compared with when not illuminated. The brightly lit, colourful and static/moving imagery would be visually dominant and detract from the primacy of the listed building in the view. These effects would be more harmful at dusk and at night and more harmful still when moving imagery is in use. Based on static imagery, these effects are considered to cause less than substantial harm at a middle level to the significance of the church.

West Ham Court House, listed Grade II, West Ham Town Hall, listed Grade II and Gurney Memorial Drinking Fountain, listed Grade II

211. The impacts on the West Ham Court House, West Ham Town Hall and the Gurney Memorial are clearest in TBHVIA Views 11 and 11.1. In these views, the Court House is just behind the viewer (from where a similar view would be obtained), West Ham Town Hall is to the left, and the Grade II Gurney Memorial is straight ahead. The spherical form of the Proposed Development results in a building with great width (120 metres at its widest) and therefore a lack of slenderness, which increases the perception of the scale of the building and the visual impact of the 'alien' form. When not illuminated, the Sphere would terminate the view down the street (West Ham Lane), appearing as an alien and incongruous element in the streetscape. It would challenge the primacy of the three listed buildings in the view. These effects are considered to cause less than substantial harm at a low to middle level to the significance of the Court House and the Town Hall. The Gurney Memorial would be fully backdropped, which would wholly detract from the architectural effect of the obelisk discussed above. This effect is considered to cause less than substantial harm at a middle level to the significance of the Gurney Memorial.

212. When illuminated, the aim of the Sphere is to be eye-catching, and it would clearly be more distracting (depending on proximity) compared with when not illuminated. The brightly lit, colourful and static/moving imagery would be visually dominant and detract from the primacy of the listed buildings in the view. These effects would be more harmful at dusk and at night more harmful still when moving imagery is in use. Based on static imagery, these effects are considered to cause less than substantial harm at a middle level to the significance of the Court House and the Town Hall and at a middle to high level to the Gurney Memorial.

Stratford St. John's Conservation Area and University Square Conservation Area

213. The harms detailed above also cause harm to the contribution made by setting to the significance of the Stratford St. John's Conservation Area; since the Court House, Town Hall, and the Gurney Memorial are important listed buildings that are identified as key landmarks in the Appraisal. This harm is particularly serious since View 11/11.1 is identified as a key view in the Appraisal. The view of the east end of St. John's Church, looking west along Romford Road is also identified as a key view, and although this view is not provided in the TBHVIA, View A26, discussed above, shows similar harmful effect.

214. Although TBHVIA Views 12 and 12.1 are much less sensitive, these are views from within the St. John's Conservation Area looking out, and demonstrate how out of scale, alien and incongruous the Sphere would appear in the local streetscape that forms the setting of the Conservation Area. Similar effects are seen in View 13, which also includes the locally listed Church of Assisi (1868 by E.W. Pugin).

215. The spherical form of the Proposed Development results in a building with great width (120 metres at its widest) and therefore a lack of slenderness, which increases the perception of the scale of the building and the visual impact of the 'alien' form. When not illuminated, the Sphere would impact the setting of the Conservation Area particularly by terminating key views along streets (such as in View 11/11.1). These effects are considered to cause less than substantial harm at a low to middle level to the significance of the Conservation Area. When illuminated, the aim of the Sphere is to

be eye-catching, and it would clearly be more distracting (depending on proximity) compared with when not illuminated. These effects would be more harmful at dusk and at night and more harmful still when moving imagery is in use. Based on static imagery, these effects are considered to cause less than substantial harm at a middle level to the significance of the Stratford St John's Conservation Area.

216. There are two groups of designated heritage assets where no views are provided, and no assessment is made by the applicant. The first group are located within the Stratford St John's Conservation Area and include St John's House, 2 Romford Road; the King Edward VII Public House, 47 Broadway; The Old Dispensary, 30 Romford Road and the Former London and County Bank, 49 Broadway. The second group is in or near the University Conservation Area and include the University Square Conservation Area itself, the West Ham Technical Institute, the Central Library and the Passmore Edwards Museum and Numbers 54 and 56, 60 and 62 and 66 to 82 Romford Road. In the case of both groups, GLA officers have made their own assessment as set out above based on the information available to them at the time of writing.

Conservation conclusions

217. National Planning Policy Framework (paragraph 202) states that "*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal*". The Proposed Development is assessed to cause less than substantial harm to heritage assets as summarised in the table above, through harm to the contribution made to significance by their settings at a level ranging from very low to high. Under the NPPF (paragraphs 199-200), great weight should be given to the conservation of designated heritage assets, even where the harm would be less than substantial, and any harm should require a clear and convincing justification. Whilst great weight should be given to every asset's conservation, the more important the asset the greater the weight should be to any harm to it. Assessment of the harm against the public benefits of the Proposed Development is set out under 'Conclusion and planning balance' below.

218. The likely total loss of the non-designated heritage asset on the site should be weighed against the wider planning benefits of the scheme in accordance with the NPPF (paragraph 203).

219. The Proposed Development is contrary to London Plan Policy HC1, and Policies D3 (Part D11) and D9 (Part C1d) in relation to heritage matters.

220. The Proposed Development would also be contrary to LLDC Local Plan Policy BN.16 as it would have an adverse impact on heritage assets (Part 8); and BN.17 as it would not conserve or enhance heritage assets (Part 1).

Strategic views

221. Policy HC3 states that development proposals must be assessed for their impact on Strategic Views if they fall within the foreground, middle ground or background of that view. Policy HC4 states that development proposals should not harm, and should seek to make a positive contribution to, the characteristics and composition of Strategic Views and their landmark elements. They should also preserve and, where possible, enhance viewers' ability to recognise and to appreciate Strategically Important

Landmarks in these views and, where appropriate, protect the silhouette of landmark elements of World Heritage Sites as seen from designated viewing places. Strategically-Important Landmarks are subject to Protected Vistas made up of Landmark Viewing Corridors (the area between the viewing place and a Strategically-Important Landmark that must be maintained if the landmark is to remain visible from the viewing place) and Wider Setting Consultation Areas (the area enclosing the Landmark Viewing Corridor in the foreground, middle ground and background of the Protected Vista). More detail is provided in the London View Management Framework (LVMF) SPG.

222. Concerning LVMF Views 5A.1 and 5A.2, the Panorama view from the General Wolfe statue in Greenwich Park, representations from Royal Borough of Greenwich and Historic England raised concerns that the Proposed Development may impact the setting of the Maritime Greenwich World Heritage Site. Additional TBHVIA View A7 was provided by the applicant to assess this, which demonstrates that the Proposed Development would not be visible in the 2023 updated baseline. It is also noted that the views are orientated towards central London (including a Protected Vista of St. Paul's Cathedral) and towards the Isle of Dogs, whereas the Proposed Development would be peripheral, towards the right. After sunset and when the Sphere is illuminated, if the air was not clear, there would be a halo of light around the Sphere itself even if shielded by other development. Noting that there is some uncertainty about the extent of skyglow, as discussed under 'light intrusion' above, this effect is likely to be experienced only in relatively close proximity to the Sphere. The controls on luminance of the Sphere, shielding of its light emissions by surrounding development, light produced by other development seen within the view, and the distance of the Sphere from the viewing points, means that no harm would be caused to the characteristics and composition of the Strategic Views, and the viewers' ability to recognise and to appreciate the Strategically Important Landmark would be preserved.

223. Concerning LVMF View 9, the linear view of St. Paul's Cathedral (a Strategically Important Landmark) from King Henry's Mound (TBHVIA Viewpoint A21), the Proposed Development would be outside the Protected Vista and the Wider Setting Consultation Area. It would not be visible in the view as it would be hidden behind trees close to the viewing point. Historic England raised concerns about 'light spill' when illuminated; however, the same points in relation to LVMF views from Greenwich Park after sunset would apply, and no harm would be caused to the characteristics and composition of the Strategic View, and the viewers' ability to recognise and to appreciate Strategically Important Landmark would be preserved.

Urban design

224. The NPPF states that the creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve (paragraph 126). It states that planning decisions should ensure that developments will function well and add to the overall quality of the area; are visually attractive; are sympathetic to local character and history; establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places; optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development; and create places that promote health and well-being, with a high standard of amenity for existing and future users (paragraph 130).

225. The National Design Guide states that proposals for tall buildings require special consideration, including their location and siting; relationship to context; impact on local character, views and sight lines; how they meet the ground and the sky; and environmental impacts, such as sunlight, daylight, overshadowing and wind.

226. The design policies in Chapter 3 of the London Plan require all developments to achieve a high standard of design. These policies seek to ensure that new buildings and spaces respond to local character, enhance the public realm, and are of the highest quality architecture such that they make a positive contribution to the street and cityscapes.

227. The Mayor's Stage 1 report from July 2019 primarily considered the Development Proposal against the previous London Plan, since the current London Plan was at an early stage of preparation, with the Examination in Public on the draft Plan having only just completed at that time. The Stage 1 report recognised that the Proposed Development would improve pedestrian permeability; that active frontages had been maximised; and that public space had been located appropriately to create an inviting and engaging sequence of spaces. However, significant concerns were raised regarding the suitability of the illuminated facade, given the form, height and close relationship to surrounding sensitive uses; and the capacity of the public realm, the three pedestrian bridge links, and Angel Lane to safely manage the anticipated pedestrian flows, (which have been addressed as detailed under 'Public safety, security and event management' and 'Transport' above).

228. In terms of the context of surrounding development, the Stage 1 report noted that the Proposed Development would not be the tallest building in the area; however, given the width, nature, and external illumination, serious concerns were raised about its environmental, visual and amenity impacts, potentially contrary to the emerging (at that time) London Plan policy on tall buildings, as discussed under 'Tall buildings, height, massing, and architecture' below. The importance of public consultation and its incorporation in the evolution of the design was emphasised.

<u>Optimising development capacity</u>

229. London Plan Policy D3 requires that all development must make the best use of land by following a design-led approach that optimises the capacity of sites, including site allocations. Optimising site capacity means ensuring that development is of the most appropriate form and land use for the site. The design-led approach should identify the most appropriate form of development that responds to a site's context and capacity for growth; existing and planned supporting infrastructure capacity; that best delivers an appropriate form, layout, experience, quality and character; and respects, enhances and utilises heritage assets that contribute to local character. Other requirements for proposed development include enhancement of local context by delivering buildings and spaces that positively respond to local distinctiveness through their layout, orientation, scale, appearance and shape, with due regard to existing and emerging street hierarchy, building types, forms and proportions; delivery of appropriate outlook, privacy and amenity; responding to the existing character of a place and respect, enhance and utilise the heritage assets; be of high quality, with architecture that pays attention to detail and uses attractive, robust materials; and aim for high sustainability standards (with reference to the policies within London Plan Chapters 8 and 9) and taking into account the principles of the circular economy. Higher density

developments should generally be promoted in locations that are well connected by public transport, walking and cycling, in accordance with Policy D2.

230. Policy D4 states that the design of development proposals should be thoroughly scrutinised, and proposals referable to the Mayor must have undergone design review. LLDC's Quality Review Panel (QRP) reviewed the Proposed Development at pre-application stage, together with a further two reviews undertaken post-submission. The most recent QRP comments (November 2020) state that the scale of the building and the nature of the use are appropriate for the highly accessible town centre location. However, concerns remained about activation of spaces and routes around the Sphere; pinch points raising congestion and safety concerns; that the Sphere would rely too heavily on its illumination and would not hold sufficient architectural merit in itself; the impact of illumination on local residents, train drivers, and road users (recommending controls and mitigation); and high levels of embodied carbon and high ongoing energy use. No further discussions or meetings are detailed in the Committee Report. Some of these matters have been resolved through subsequent discussions and mitigation; however, GLA officers agree with the QRP that that the Sphere would rely too heavily on its illumination and would not hold sufficient architectural merit in itself, and significant concerns remain about the impact of illumination on local residents (as discussed under 'residential amenity' above) and high levels of embodied carbon and ongoing energy use (as discussed under 'climate change and the environment' below).

231. The applicant's aspiration is for there to be a series of illuminated MSG Spheres around the world, with the same spherical form. The external form is driven by the concept of an auditorium with a seating bowl and an internal spherical media plane around the audience. The first Sphere has recently been completed in Las Vegas, which is of a larger scale (112 metres tall and 157 metres wide) and with a facade lighting system not including integrated LEDs, also noting that it does not have the same controls on luminance as proposed here. This compares to 90 metres tall (c.30 residential storeys) and 120 metres wide for the Proposed Development.

232. The design of the Proposed Development is clearly not a response to its context (as discussed in further detail under 'Tall buildings, height, massing, and architecture'), since its form is pre-determined as a world-wide concept, and its size has simply been maximised within the constraints of the site. Stratford is not Las Vegas and is not characterised by illuminated buildings for public entertainment.

233. Policy D3 (Part 13) states that development should aim for high sustainability standards (with reference to the policies within London Plan Chapters 8 and 9) and take into account the principles of the circular economy. As discussed under 'Energy and whole-lifecycle carbon' below, whilst it is acknowledged that the Proposed Development would technically be in accordance with relevant policies in London Plan Chapters 8 and 9; the design concept clearly does not aim for or achieve high sustainability standards in terms of energy use and would fail to support low carbon objectives. The WSP report commissioned by the GLA, as discussed under 'Residential amenity' above, identifies that there are no intended observers above the sphere and all light that does not serve a purpose is a waste of energy and carbon and unsustainable. The applicant's design concept of a Sphere completely covered by illuminated LEDs, which results in very high energy loads, is inherently in conflict with this part of Policy D3. More generally, for the same reasons it is judged not to constitute a sustainable design.

234. GLA officers consider that while the proposed land use is appropriate for the site, and concerns raised at consultation stage about security, event management, and transport infrastructure, have been resolved as set out above; the Proposed Development would be in conflict with key aspects of London Plan Policy D3. It has not followed a design-led approach that optimises the capacity of the site, but instead maximises it (contrary to London Plan Policy D3 (Part A)); it would not enhance local context as it would not positively respond to local distinctiveness through its scale, appearance, and shape, with little regard to existing and emerging building types, forms and proportions (contrary to Policy D3 (Part D1)); it would not deliver appropriate outlook and amenity (Policy D3 (Part D7)); it would not respond to the existing character, nor would it respect or enhance heritage assets and architectural features that contribute towards local character (Policy D3 (Part D11)); it would not be of high architectural quality (Policy D3 (Part 12)); and it does not aim for high sustainability standards (Policy D3 (Part D13)). Overall, GLA officers conclude that the Proposed Development would not be in accordance with London Plan Policy D3.

Layout, public realm, and landscape

235. London Plan Policy D8 sets out quality requirements for public realm.

236. Concerns raised at consultation stage relating to the hours that the routes across the site would be open and Metropolitan Police feedback are discussed under 'Security and event management' above, and are considered to have been acceptably resolved.

237. The site is currently vacant and physically disconnected, contributing little to the visual amenity of the street scene or the town centre. Surrounding routes are dominated by highways and high parapets to the railway tracks. Montfichet Road would be reconfigured to reduce vehicle lanes from four to two, pedestrian footways would be widened, a new two-way cycle lane would be introduced, as well as seating, soft landscaping, and the new Stratford Station entrance.

238. Two new pedestrian bridges would connect the site to Montfichet Road. Bridge 1 would connect the north-west of the site and Bridge 2 would connect to 'The Square', the main arrival point to the Sphere. The proposed Bridge 3 from the existing Town Centre Link Bridge would also connect to this space. Above The Square would be the South Terrace, including large-scale 'woodland' planting.

239. From Angel Lane, the existing approach road would be reconfigured with landscaped stairs and access arrangements designed to prioritise the flow of pedestrians. This would connect to the 'North Hub' arrival point where a nature garden, cafe, outdoor gym, and play space are proposed. A Northern Terrace sits one level above. At consultation stage, the applicant was encouraged to incorporate play space at the southern end of the Sphere, at the lower and upper podium level; however, this location would experience heavy footfall expected in that location and is therefore primarily hard surface. The play space provided in the north-east 'hub', which would have lesser footfall and more green landscape, is therefore more appropriate.

240. The Proposed Development would clearly be in conflict with Policy D8 (Part B), which requires that "*lighting, including for advertisements, should be carefully considered and well-designed in order to minimise intrusive lighting infrastructure and reduce light pollution*". When illuminated, the Sphere would be entirely contrary to this. The Proposed Development would also deliver a relatively limited amount of urban

greening, as discussed under ‘green infrastructure’ below. Balanced against this, the Proposed Development would change the site and its immediate surroundings by providing new public realm and landscaping and introducing logical pedestrian connectivity into and across the site where none currently exists, contributing positively to activity in the town centre and beyond. Whilst it is noted that the large crowds attending events at the Proposed Development would temporarily limit more general pedestrian movements in the area; overall, the layout, public realm and landscaping proposals are supported.

Tall buildings, height, massing, and architecture

241. London Plan Policy D9 states that development plans should define what is considered a tall building (although not less than 6 storeys or 18 metres); identify suitable locations; and identify appropriate tall building heights on maps in Development Plans (Parts A and B). Policy D9 also sets out further requirements for assessing tall buildings (Part C) including visual impacts at different distances, comprised of aiding legibility and wayfinding; having exemplary architecture and materials; avoiding harm to heritage assets (or providing public benefits that outweigh any harm); not causing adverse glare; and minimising light pollution. Functional impacts should consider internal and external design; servicing; entrance capacity; area and transport capacity; maximise benefits to the area; and not interfere with communications. Environmental impacts should consider wind, daylight, sunlight, and temperature; air movement (dispersal of pollutants); and noise creation. Cumulative impacts should also be considered.

242. At consultation stage, significant concerns were raised regarding the impact of the LED display when illuminated, given the form, height and close relationship to surrounding sensitive uses. Whilst this feature of the scheme was recognised as being intrinsic to the primary function of the Development Proposal, the acceptability of a potentially visually intrusive addition to the local area was identified as dependent on the ability to sufficiently mitigate adverse impacts, including stringent controls on hours of illumination, details of the facade’s structural makeup and cladding, and the building’s maintenance strategy. Serious concerns were also raised regarding the intention to display illuminated advertisements at the scale proposed due to significant environmental, visual and amenity impacts, potentially contrary to London Plan Policy D9. Concerns were also raised about the capability of local transport, walking and cycling networks to accommodate the quantum of development.

243. The LLDC Committee Report contains an assessment against Local Plan Policy BN.5 ‘Proposals for tall buildings’, as well as London Plan Policy D9, finding the impacts to be acceptable, subject to the proposed mitigation measures. The following paragraphs set out GLA officers’ assessment against Policy D9.

244. As set out above, the proposed Sphere would be 120 metres wide at its widest point and 90 metres at its tallest point (equivalent to c.30 residential storeys). Within the immediate context, only the Legacy Tower/Stratford Central (33 storeys, 117 metres) would be taller, other tall buildings being the Stratford Eye (19 storeys, 73.7 metres) and the Unite Student Accommodation (14 storeys). The adjacent vacant site to the south had planning permission for a building of up to 18 storeys; however, this has now expired, and the site is subject to a current application for a 41 storey student accommodation building. Immediately to the north-east, the Railway Tavern, 131 Angel Lane site benefits from planning permission for a hotel of up to 14 storeys. Other than

this, areas to the north are almost exclusively lower rise (2-8 storeys), including the recently completed New Garden Quarter immediately to the north. Beyond this immediate context, tall buildings (including taller than the Proposed Development) exist in and around Stratford High Street to the south-east and Westfield to the west, with others emerging.

245. In terms of Policy D9 (Part B), the Local Plan defines tall buildings as those that are taller than a sub-area's prevailing or generally expected height, which in this location is identified as 30 metres. Stratford Metropolitan Centre is identified as an appropriate location for tall buildings; however, no specific heights are stated. In this respect, the Proposed Development is technically in conflict with Policy D9 (Part B) but limited weight is given to this breach.

246. The Draft Newham Local Plan (Regulation 18, December 2022) identifies that the site forms part of Site Allocation N8.SA5 'Stratford Town Centre West', which falls within Tall Buildings Zone 19 'Stratford Central'. Most of the Zone is identified for buildings of a maximum of 60 metres, and the accompanying map confirms that this height limit would apply to the application site. Areas further to the south and the west are identified as appropriate for up to 100 metres. The Proposed Development significantly exceeds the 60 metres maximum identified and would therefore be contrary to the Draft Local Plan Policy D4 on tall buildings and Policy D9 (Part B); however, due to its early state of preparation, limited weight can be given to the Draft Newham Local Plan at this stage.

247. It is also noted that many objections to the LLDC in response to public consultation, and to the Mayor, identify that the scale, form and massing of the Proposed Development would be out of character with the surrounding townscape.

Visual impacts

248. Policy D9 (Part C1a) requires an assessment of the visual impacts of the Proposed Development. In long-range views, a tall building should make a positive contribution to the existing and emerging skyline, and should not adversely affect local or strategic views. In mid-range views from the surrounding neighbourhood, particular attention should be paid to the form and proportions of the building, which should make a positive contribution to the local townscape in terms of legibility, proportions and materiality. In immediate views from the surrounding streets, attention should be paid to the base of the building. It should have a direct relationship with the street, maintaining the pedestrian scale, character and vitality of the street. Where the edges of the site are adjacent to buildings of significantly lower height or parks and other open spaces there should be an appropriate transition in scale between the tall building and its surrounding context to protect amenity or privacy.

249. The architect is acknowledged to be of world-class status; however, other than the low-rise podium and bridges, the external architecture is a blank sphere, which is a design intended to be reproduced at various locations worldwide. The design is clearly not a response to its context since its form is pre-determined as a world-wide concept, and its size has simply been maximised within the constraints of the site. The unique form of the Sphere, together with its exceptional scale (height/width/shape) and LED panel cladding, would be in sharp contrast to both the tall and lower rise buildings in the immediate and wider area. It would appear as an 'alien' form in its context. Consequently, it would have a much greater visual impact on the surrounding

townscape compared to a typical tall building. This would be the case when unilluminated, but more-so when illuminated as the intention is for it to be eye-catching, and more-so when illuminated with moving imagery.

250. The Advertising Proposals section 106 agreement requires a Commissioning Strategy to be submitted and approved prior to first operation of the Digital Display, which would include "*calibration of the Digital Display to ensure it is taking account of ambient light levels and diurnal and seasonal changes in light conditions in order to balance brightness for people viewing the Digital Display*" and "*details of the system which is to be used in accordance with the DDMS* [Digital Display Management Strategy] *to monitor ambient light levels and log real time illuminance data for the Digital Display*". It is understood that this seeks to constantly adjust luminance during daylight hours (before sunset when maximum limits on luminance would come into effect) to account for changes in ambient light levels; however, concerns are raised about this approach, as discussed under 'light intrusion' above. Consequently, the visual impact may further increase in some weather and seasonal conditions. After sunset, although the luminance would be subject to limits, the contrast with the darkening/night sky would provide maximum visual impact.

251. The assessment below takes account of the visual impacts when unilluminated, illuminated, and with imagery; each in long-range, mid-range, and immediate views; and in all cases cumulative impacts arising from both existing and emerging development have been assessed.

Visual impacts – unilluminated

252. When unilluminated, in most long-range views the Sphere would largely be hidden by tall and large-scaled buildings in and around Stratford town centre. Where the upper levels of the dark grey Sphere would be visible in some long-range views, the effect of distance and the context of tall buildings would result in limited prominence. As set out above, the Proposed Development would not harm strategic views nor the significance of distant heritage assets.

253. In many mid-range views from the surrounding neighbourhood (TBHVIA Views 11, 11.1, 12, 12.1, 13, 14, 14.1, 15, 16, and A26), the Sphere would have much greater visibility, appearing as a monolithic dark grey form of exceptional scale (height/width/shape), without architectural relief or variation to the facade. GLA officers do not consider that it would make a positive contribution to the skyline due to its massing and dark grey materiality, and agree with QRP comments that when unilluminated the Sphere would not hold sufficient architectural merit in its own right to be successful. Harm would be caused to the settings of heritage assets, as discussed under 'historic environment' above. It would appear as a completely alien object in its context, in terms of scale, mass, shape, and materiality. It is acknowledged that it would perform a legibility function by marking the station and crossings over the rail lines; although existing buildings perform the same function, if to a less marked degree than the Proposed Development would.

254. In immediate views from surrounding streets (TBHVIA views 18, 19, 20, and B41), railway lines provide a degree of separation to surrounding areas; however, the Sphere would be highly visible from Montfichet Road, Angel Lane, Leyton Road, and the residential, hotel, and student accommodation immediately around the site. The Sphere would dominate, even where taller buildings are visible, due to its monolithic

dark grey form of exceptional scale (height/width/shape). The Sphere would be covered in semi-matt dark grey stainless steel triangular panels (with perforations for individual LEDs), which would be light absorbent and non-reflective in order to mitigate solar glare, as required by Policy D9 (Part C1g). A condition requires the final materials to be submitted for approval and maintenance would be via a building maintenance unit within a plantroom behind the facade at upper level, and from the podium. The composition of the facade with triangular LED panels would be discernible in immediate views.

255. This materiality and colour would add to and exacerbate the effect resulting from the incongruous scale and form of the alien object in views. The podium wrapping around the Sphere and bridges connecting across the railway lines would provide some relationship between the Sphere and the surrounding streets, mitigating to a very limited degree the scale and mass of the Sphere. However, the Sphere provides no transition in scale between taller buildings to the south, and lower rise (2-8 storeys) development to the north, in particular the recently completed New Garden Quarter immediately beyond the railway box to the north, which would result in negative impacts as discussed under 'residential amenity' above. The concerns set out above relating to the alien nature of the Sphere in mid-range views and the lack of positive contribution to local townscape, also apply to immediate views; however, the impact would be greater due to closer proximity and therefore greater scale. The proposed colour and finish would have no relationship to the surrounding townscape, on which it would have a detrimental impact. Whilst highlighting the Sphere as a new and different building may have some merit, the LED panels would be devoid of the character and features required for large expanses of facade to be relatable to human scale. As discussed below, GLA officers also consider that the Proposed Development would not protect residential amenity.

Visual impacts – illuminated

256. As stated under 'Historic environment' above, it is noted that when the updated TBHVIA (August 2020) was produced, the maximum pre-curfew luminance was proposed to be 37 cd/sq.m.; however, at a later stage it was decided to reduce this to 25 cd/sq.m. (as secured by condition). A Night-time Views document (May 2021) was produced to reflect this; however, this includes only five views. GLA officers have taken account of this in the assessment below.

257. When illuminated, the Sphere would have more visual prominence in some long-range views compared to when unilluminated. However, whilst noting that there is some uncertainty about the extent of skyglow as discussed under 'light intrusion' above; the controls on luminance of the Sphere, shielding of its light emissions by surrounding development, and light produced by other development, would result in the proposal having limited prominence in long range views.

258. In many mid-range views from the surrounding neighbourhood, before sunset the illuminated Sphere would have much greater visual prominence, appearing as a monolithic form of exceptional scale (height/width/shape). This illumination would add to the incongruous scale and form of the alien object in views. Harm would be caused to the settings of heritage assets as discussed under 'historic environment' above. It would appear as a completely alien object in its context, in terms of scale, mass, and illumination; and it would not make a positive contribution to the local townscape,

although it is acknowledged that it would perform a legibility function by marking the station and crossings over the rail lines.

259. In immediate views from surrounding streets, before sunset the illuminated Sphere would be very dominant, even where taller buildings are visible, due to its illumination and exceptional scale (height/width/shape).

260. When illuminated after sunset, the visual prominence of the Sphere would be greater compared to that before sunset, even accounting for the controls on luminance, due to the greater contrast with the darker sky. Policy D9 (Part C1h) states that buildings should be designed to minimise light pollution. If the air was clear, there would not be any visible 'halo' of light, since there would be nothing in the atmosphere to scatter that light into the viewers eyes. If the air was not clear, due to mist, fog, pollution, dust, smoke, rain, snow, etc., there would be a halo of light, visible in immediate and some mid-range views, even where the Sphere itself was shielded by other development. The applicant's modelling identifies that illumination distribution would fall away relatively quickly with increasing distance, although concerns about the modelling are raised under 'Light intrusion' above. Notwithstanding this, when illuminated, the resulting light spill would clearly increase light pollution, primarily in immediate views from surrounding streets. The Proposed Development would clearly be contrary to Policy D9 (Part C1h).

261. As stated above, the submitted TBHVIA cannot show all potential imagery, and in particular cannot illustrate the effect of moving imagery, whether with 'public art' or advertising content. Proposed controls on the imagery are as set out under 'Transport' and 'Residential amenity' above; however, there is clearly uncertainty as to the content of the imagery, which cannot be defined and controlled to a sufficient degree in order to remove the uncertainty. There is clearly potential for certain content to have greater visual prominence, and GLA officers also note media coverage about imagery on the recently completed Las Vegas Sphere (noting that it does not have the same controls on luminance as proposed here), including depictions of it as an eyeball amongst other images. Considering the imagery used on the Las Vegas Sphere, the imagery provided in the TBHVIA, being divers swimming in the ocean, is not considered to provide a full representation of the potential visual impact. There is clearly uncertainty as to the content of the imagery, which cannot be defined and controlled to a sufficient degree to remove the uncertainty.

Visual impacts – conclusion

262. Overall, while it is acknowledged that the existing site makes a negative visual contribution to the local townscape; GLA officers consider that the Sphere would not make a positive impact on the visual amenity of the site and surrounding townscape or be of a high quality design as expected by policy. The Proposed Development would have a negative impact on mid-range and immediate views. The Sphere's alien form in terms of scale, massing, and appearance, which would be exacerbated when illuminated, and potentially more-so depending on image content, would be an overly dominant element. The impact would be increased after sunset due to its contrast with the darker sky. The Sphere in no way responds to the local townscape and context of the site. The proposed planning conditions and section 106 obligations would not be adequate to address these negative impacts.

Functional impacts

263. In terms of functional impacts, the safety of all users (internal and external) is appropriately secured (as detailed under 'Security and event management' above); servicing (as detailed under 'Transport' above), maintenance, and management is appropriately responded to and controlled; no unacceptable overcrowding or isolation would arise (as detailed under 'Security and event management' and 'Transport' above); the capacity of the area and its transport network is appropriately secured to be capable of accommodating the quantum of development (as detailed under 'Transport' above); jobs, services, facilities and economic benefits are considered to have been maximised; and subject to secured mitigation, no interference would arise on aviation, navigation, telecommunication, or solar energy generation on adjoining buildings. These conclusions are based on an assessment of the Proposed Development both with and without cumulative developments that have been consented but not yet built.

Environmental impacts

264. In terms of environmental impacts, wind testing has demonstrated that the introduction of the podium deck would reduce the effect of wind being washed down the facade. Further mitigation in the form of mature trees, planting, and moveable porous screens, would ensure that safe and comfortable wind conditions could be achieved in and around the site. Daylight, sunlight, overshadowing, and noise impacts would be acceptable, as set out under 'residential amenity' above. More generally, the micro-climatic conditions that would be generated by the Proposed Development have been assessed and are considered acceptable with specific regard to pedestrian crossings on adjacent roads, the Town Centre Link Bridge, train platforms, bus stops, taxi ranks, seating areas on the podium, and other nearby outdoor amenity areas. These conclusions are based on an assessment of the Proposed Development both with and without cumulative developments that have been consented but not yet built. However, the design clearly does not aim for or achieve high sustainability standards, and is therefore in conflict with London Plan Policy D3 (Part D13).

Tall buildings, height, massing, and architecture – conclusion

265. The Proposed Development would fail to comply with numerous criteria within Policy D9 Part C (visual impacts) and GLA officers conclude that the Proposed Development would be in conflict with London Plan Policy D9 overall.

Urban design - conclusion

266. The Proposed Development has not followed a design-led approach that optimises the capacity of the site, but instead maximises it (contrary to London Plan Policy D3 (Part A)); it would not enhance local context as it would not positively respond to local distinctiveness through its scale, appearance, and shape, with little regard to existing and emerging building types, forms and proportions (contrary to Policy D3 (Part D1)); it would not deliver appropriate outlook and amenity (Policy D3 (Part D7)); it would not respond to the existing character, nor would it respect or enhance heritage assets and architectural features that contribute towards local character (Policy D3 (Part D11)); it would not be of high architectural quality (Policy D3 (Part 12); and it does not aim for or achieve high sustainability standards (Policy D3 (Part D13)). Overall, GLA officers conclude that the Proposed Development would not be in accordance with London Plan Policy D3.

267. The Proposed Development would largely be in accordance with London Plan Policy D8; however, it would clearly be in conflict with Policy D8 (Part B), which requires that "*lighting, including for advertisements, should be carefully considered and well-designed in order to minimise intrusive lighting infrastructure and reduce light pollution*".

268. As a tall building, the Proposed Development would fail to comply with numerous criteria within Policy D9 Part C (visual impacts) and GLA officers conclude that the Proposed Development would be in conflict with London Plan Policy D9 overall. The Sphere would be of an alien form in terms of scale, massing, and appearance, which would be exacerbated when illuminated, and potentially more-so depending on image content. The proposal would be overly dominant element and would not respond to the local townscape and context.

269. The Proposed Development would be contrary to LLDC Local Plan Policy BN.1 as it would not respect existing typologies, nor draw design cues from the form of the area in terms of its scale (Part 2). It would be contrary to Policy BN.4 as it would not respect the scale and grain of the context (Part 8) and it would not make a positive contribution to the streetscape (Part 9). It would be contrary to Policy BN.5 as it would not be an appropriate proportion, form, massing, height and scale in context with the character of its surroundings (Part 1); it would not use materials appropriate to the height of the building (Part 2); it would not make positive contribution to the surrounding townscape, (Part 5); and it would not enhance views, vistas and sightlines (Part 6). It would be contrary to BN.16 as it would not respect the appearance, character, scale and street scene (Part 9). It would be contrary to Policy SP.3 as it would not give primary consideration to the creation of 'place'; it would not enhance its built, historic and landscape context (Part 2); and it would not maintain and promote local distinctiveness (Part 3).

270. The Proposed Development is also considered to be in conflict with the NPPF and the National Design Guide.

Fire safety

271. Policy D12 of the London Plan requires a fire safety statement to be submitted prepared by a suitably qualified third-party assessor, demonstrating how the development would achieve the highest standards of fire safety, including details of construction methods and materials, means of escape, fire safety features and means of access for fire service personnel. Policy D5 of the London Plan seeks to ensure that developments incorporate safe and dignified emergency evacuation for all building users. In all developments, where lifts are installed, as a minimum, at least one lift per core (or more subject to capacity assessments) should be suitably sized fire evacuation lift suitable to evacuate people who require level access from the buildings. The Mayor has also released Fire Safety draft London Plan Guidance.

272. A fire safety strategy was not requested at pre-application stage; however, it was noted that Fire Safety principles are detailed within the Design and Access Statement. The applicant was also requested to confirm that lifts would be available for fire evacuation purposes.

273. A Fire Statement was subsequently provided, which appropriately responds to Policies D12 and D5. The applicant has confirmed that all passenger lifts in the building are designed so that all mobility impaired occupants can be evacuated with a similar

evacuation time to other users, and protected areas are provided for people to wait during the evacuation period.

Inclusive design and access

274. London Plan Policy D5 requires new developments to achieve the highest standard of accessible and inclusive design and can be used safely, easily and with dignity by all.

275. At consultation stage, the applicant was requested to confirm that the two lifts proposed as part of Bridge 1 and 2 have the capacity to accommodate two wheelchair users and companions. This provision is based on crowd modelling studies, which are sufficient to meet demand alongside existing provision at the Town Centre Link Bridge. The lifts would be through-lifts, each with capacity to hold 21 persons, also able to accommodate a wide range and multiple mobility scooters. Rest points with seating and with space for wheelchair users have been secured in the section 278 agreement scope at regular intervals on all approaches to the Proposed Development and on the podium at a maximum of 50 metre intervals, unless it would obstruct crowds and/or emergency vehicle access.

276. Once at the Sphere, visitors would have the choice to move around it by lift, stair or escalator from each entrance lobby which provides access to all levels of the building. All lifts within the Sphere, with the exception of two, would be larger than the minimum required under Building Regulations. All stairs would be provided with handrails on both sides. Wheelchair user spaces and amenity seating for ambulant disabled people is provided across all levels within the building such that appropriate provision for disabled people is made for all categories of spectator. The fire access strategy describes the evacuation strategy for all building users, including disabled people. The strategy shows that the venue has been designed to be responsive to the needs of people with different accessibility needs.

277. At consultation stage, the applicant was requested to provide further details of on-site parking and to justify the absence of on-site visitor Blue Badge parking. Whilst most people arriving at the venue are anticipated to use the area's excellent public transport connections, it is anticipated that a significant proportion of disabled people are unlikely to use public transport as only some stations across the network have step-free access. The distance between the Stratford Station to the entrance of the Proposed Development would be in excess of 200 metres, and given the travel distances from car parks and drop off points, many disabled people may find it difficult to reach the venue unassisted. A total of 112 Blue Badge spaces are needed; however, only 37 spaces are physically able to be included within the Proposed Development, which would be used by staff and venue operators. The section 106 agreement includes an obligation to provide at least 109 Blue Badge car parking spaces. Consequently, a separate planning application (LPA Ref: 20/00362/FUL) the required spaces at Stratford International Car Park.

278. LLDC has a Built Environment Access Panel (BEAP) with expertise in inclusive design, which reviewed the scheme at pre-application stage and post-submission. The LLDC Committee Report identifies that BEAP is supportive of the Proposed Development; however, further improvements were suggested. As a result, further details of the proposed mobility assistance service would be secured in the proposed section 106 agreement; a condition secures further details on provision for wheelchair

and mobility scooter users; adequacy of lift arrangements and rest points have been confirmed; the proposed section 106 agreement attached to the Advertising Proposals secures a Digital Display Management Strategy to consider the impact of light spill on visitors; and the approach to glass floors, assistive technology, and quiet areas has been confirmed.

279. In conclusion, the Proposed Development would not be contrary to London Plan Policy D5 in relation to inclusive access.

Climate change

Energy and whole-lifecycle carbon

280. London Plan Policy SI2 'Minimising greenhouse gas emissions' states that major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the energy hierarchy: 1) be lean: use less energy and manage demand during operation; 2) be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly; 3) be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site; 4) be seen: monitor, verify and report on energy performance (Part A). Detailed energy strategies are required for development proposals (Part B), to demonstrate a minimum on-site reduction of at least 35% beyond Building Regulations, and non-residential development should achieve 15% through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided through a cash in lieu contribution to the borough's carbon offset fund (Part C). Development proposals should also calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions (Part E). Policy SI2 (Part F) states that development proposals referable to the Mayor should calculate whole life-cycle carbon emissions and demonstrate actions taken to reduce life-cycle carbon emissions. The Mayor has published a Whole Life-Cycle Carbon (WLC) Assessment LPG and GLA WLC reporting template. Policy SI3 sets out requirements for energy infrastructure; and Policy SI4 sets out requirements to manage heat risk.

281. At consultation stage (prior to publication of the 2021 London Plan), while the proposed energy strategy was generally supported; the carbon dioxide savings were expected to fall short of London Plan requirements and the applicant was required to consider the scope for additional measures aimed at achieving further carbon reductions. Modelling of additional energy efficiency measures was required, and further details were requested in line with 'be lean' (cooling and overheating), and 'be clean' (the energy centre). In relation to 'be green', further information was requested on heat pumps and energy modelling, and the applicant was required to reinvestigate the inclusion of renewable technologies, including novel forms of PV (photovoltaics) on the Sphere. It was noted that the predicted unregulated loads would be very high, in particular from the LED screens, both in absolute terms and as a proportion of the development energy loads, requiring further detailed consideration of the potential for mitigation of unregulated emissions, for example through energy efficiency measures and/or design changes.

282. In the intervening 4 years, the applicant has submitted 3 rounds of additional information to GLA officers. It is confirmed that regulated emission reductions have achieved the minimum 35% reduction, with 15% through energy efficiency measures alone, and net zero-carbon would be achieved through a carbon offset contribution of £2,624,400 (which may be re-assessed following completion of the Main Venue). However, Policy SI2 (like Policy 5.2 in the previous London Plan) is not restricted to regulated emissions alone; and the Proposed Development would result in very high unregulated emissions arising from the operation of the LED screens. The carbon emissions associated with the LED screens could have been reduced by limiting their extent across the Sphere, removing them completely, or partially replacing them with PVs (as discussed below), while still allowing operation of the Sphere as an entertainment venue; however, that would be a different development, and is not the Proposed Development being considered here. It would not align with the applicant's aspiration for there to be a series of illuminated MSG Spheres around the world.

283. Concerning on-site renewable energy, 36 sq.m. of PVs are proposed as part of the bridge structure; however, the PVs would feed into external lighting and therefore provide a slight reduction in unregulated emissions. Consequently, no reduction in regulated emissions would be achieved through the 'be green' element of the energy hierarchy. This is an extremely poor response for a development of such great scale with very significant energy use. A large part of the LED screens on the Sphere could have been replaced by PVs in response to the 'be green' element of the energy hierarchy, thereby reducing regulated emissions; however, that would be a different development, and is not the Proposed Development being considered here.

284. At consultation stage, no WLC information was provided as the London Plan 2021 and the LPG had not been published. A WLC assessment and GLA reporting template was subsequently submitted by the applicant, which provides an initial estimate of the carbon emissions of the Proposed Development.

285. As set out in the LPG, WLC benchmarks have been developed for the most typical building typologies. All developments, regardless of their scope, are expected to compare their WLC baseline against the most relevant benchmark. Whilst the benchmarks do not easily lend themselves to this building typology, the total anticipated carbon emissions exceed the benchmarks and are substantial. The applicant has provided details of further potential WLC reduction opportunities, which it states could be investigated as the design progresses, although these do not currently contribute towards the emissions reported in the applicant's WLC assessment. These are limited to cement replacement and recycled content, both of which depend upon availability at the time of procurement. The applicant was requested to identify additional opportunities; however, it did not provide any firm actions. Furthermore, a significant quantity of building elements are missing from the WLC assessment, with only 10 tonnes of fittings, furnishings and equipment (FFE), which is insufficient to include auditorium seating; lighting and audio-visual equipment, for which no allowance is made; and electricity installation and distribution, which would be significant for this scheme.

286. A substantial amount of embodied carbon would go into the construction and operation of the Proposed Development, which is clearly not net-zero carbon. Policy SI2 (Part A) is not met; however, the policy makes provision for this scenario at SI2 (Part C), and an appropriate contribution would be secured via the section 106 agreement. Policy SI2 (Part D) requires boroughs to establish and administer a carbon

offset fund, and states that offset fund payments must be ring-fenced to implement projects that deliver carbon reductions. A carbon offset fund has been established by LLDC and is in operation. The carbon offset payments secured would therefore be used to deliver carbon reductions. An energy strategy has been provided in line with Policy SI2 (Part B), noting that it remains lacking in some technical responses and is not in full accordance with the GLA Energy Assessment Guidance. In line with Policy SI2 (Part F) a WLC assessment has been provided which also remains lacking in some technical responses and is not in full accordance with the Whole Life-Cycle Carbon (WLC) Assessment LPG. Overall, the Proposed Development is therefore considered to be in compliance with the wording of Policy SI2.

287. As stated under 'Optimising development capacity' above, the design of the Proposed Development would not be in accordance with Policy D3 (Part D13) as it would not aim for or achieve high sustainability standards. The applicant's design concept of a Sphere completely covered by illuminated LEDs (as opposed to, say, an LED display covering only part of the Sphere, and/or partially replaced by photovoltaics) is inherently in conflict with this part of Policy D3. The WSP report commissioned by the GLA, as discussed under 'Residential amenity' above, identifies that there are no intended observers above the sphere and all light that does not serve a purpose is a waste of energy and carbon and inherently unsustainable.

288. Requested further information on the Olympic Park District Heating Network relating to the proposed distribution routes, connection locations, and district energy plan, has not been received; however, the Proposed Development section 106 agreement identifies that the applicant would use reasonable endeavours to connect to the district heat network. The applicant has confirmed that all non-domestic building uses would be connected to the site wide heating and cooling network; and although the requested heating and cooling schematics and plans have not been received, the Proposed Development acceptably responds to London Plan Policy SI3.

289. The Proposed Development would be in accordance with London Plan Policy SI4 'Managing heat risk'.

Circular economy

290. Policy SI7 of the London Plan requires applications referable to the Mayor to submit a Circular Economy (CE) Statement, and Policy D3 requires development proposals to integrate circular economy principles as part of the design process. The Mayor has published a Circular Economy Statements LPG and GLA CE reporting template.

291. At consultation stage, no CE information was provided as the London Plan 2021 and the LPG had not been published. A CE Statement and GLA reporting template was subsequently provided. GLA officers raised concerns that the material intensity and associated carbon emissions of the substructure, superstructure (frame), and upper floors would be very high. The applicant has acknowledged this; however, it states that it is due to the unique form of the Proposed Development, and the associated structural spans and acoustic requirements. Conversely, the reported material intensities of the external walls and roof are very low and do not account for the LED panels. GLA officers consider that these matters should have been investigated further in line with the LPG. Notwithstanding this, it is acknowledged that the applicant has taken steps to integrate circular economy principles as part of the design process, which represents

an acceptable response to Policy SI7, although the Proposed Development would not be in full accordance with the Circular Economy Statements LPG.

Environment

Urban greening, biodiversity and trees

292. London Plan Policies G1 and G5 embed urban greening as a fundamental aspect of site and building design. London Plan Policy G5 requires calculation of the Urban Greening Factor (UGF), with a target score of 0.3 for commercial developments. London Plan Policy G6 states that development proposals should protect Sites of Importance for Nature Conservation (SINCs) and other ecological areas, and aim to secure net biodiversity gain and Policy G7 states that development proposals should include new trees.

293. At consultation stage, the applicant was requested to calculate the Proposed Development's UGF and set out the likely effect on the urban heat island and mitigation measures.

294. The proposals for mature planting on the upper terrace, including trees, would represent a significant uplift in tree provision. Areas of planting are also included to the north of the Sphere, and a green roof above the Stage Box. The Proposed Development would not achieve the recommended UGF target score of 0.3; however, it is recognised that greening has had to be balanced with operational requirements for large numbers of people to move across the site, as well as transport needs around the site. Network Rail initially expressed concerns about leaf fall from the planted landscape, and some greening possibilities were discounted on this basis. Although limited in scale, the greening of the site is therefore acceptable in response to London Plan Policies G1 and G5.

295. In terms of biodiversity, the existing site is predominantly hardstanding, with some areas of scrub, and has very limited ecological value. The landscaped areas within the Proposed Development would support birds and invertebrates, resulting in a biodiversity net gain in accordance with London Plan Policy G6.

296. Some objectors raised concerns that light spill arising from both the Sphere, when illuminated, and from the public realm lighting, could harm ecological habitats and species. The nearest European protected areas for nature conservation are the Lee Valley Special Protection Area (SPA), designated for its migratory birds, 3.4 kilometres to the north-west; and the Epping Forest Special Area of Conservation (SAC), designated for its habitats, 2.9 kilometres to the north-east. Noting that there is some uncertainty about the extent of potential blue light as discussed under 'light intrusion' above, the separation distances, and extent of intervening development between the site and these protected areas are unlikely to result in light spill from the Proposed Development directly affecting habitats on those sites. Natural England did not object to the Proposed Development and did identify a significant impact on protected sites or landscapes.

297. There are five non-statutory Sites of Important Nature Conservation (SINC) within a kilometre; however, all are separated from the application site by intervening development and the Proposed Development would not bring about a change in the lighting environment that would materially change their character and function.

298. Concerning the impact of light spill on species, there is limited understanding of how artificial light impacts birds in urban areas; however, the town centre is already lit by transport infrastructure, public realm, Westfield shopping centre, and other large-scale town centre development, and no protected sites or species would be in close proximity. Consequently, the Proposed Development would not adversely impact protected sites and species, in accordance with London Plan Policy G6.

Flood risk, sustainable drainage, and water consumption

299. London Plan Policy SI12 requires development proposals to ensure that flood risk is minimised and mitigated, and that residual risk is addressed. Policy SI13 states that development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible, in line with the drainage hierarchy. Policy SI5 states that development proposals should minimise the use of mains water; incorporate measures to help achieve lower water consumption; ensure that adequate wastewater infrastructure capacity is provided; and minimise the potential for misconnections between foul and surface water.

300. At consultation stage, the Proposed Development was considered to be in accordance with London Plan Policies SI12, SI13 and SI5. It is noted that the local lead flood authority (LLFA) was concerned that the post development run-off rates would exceed greenfield rates and a condition has been applied to restrict post development peak run off rates to greenfield levels.

Air quality

301. London Plan Policy SI1 states that development proposals should not lead to deterioration of existing poor air quality; should not create any new areas that exceed air quality limits or delay compliance in areas that are currently in exceedance of legal limits; and should not create unacceptable risk of high levels of exposure to poor air quality. Development proposals must be at least Air Quality Neutral, with an Air Quality Positive Statement for larger schemes subject to Environmental Impact Assessment.

302. Some objectors have raised concerns that the Proposed Development would lead to an increase in traffic and consequently an increase in air pollution in an area that already suffers from poor air quality. LB Newham acknowledged that the impact of the Proposed Development would be negligible; however, as air quality would remain close to legal limits for some pollutants, further air quality offsetting measures were requested, including air quality monitoring, which would be secured within the proposed section 106 agreement. Conditions also secure Non-Road Mobile Machinery (NRMM) requirements and submission of an Air Quality Plan for each phase of construction.

303. The Proposed Development would be Air Quality Neutral, and the additional measures secured are likely to bring about further improvements. The Proposed Development would be acceptable in response to Policy SI1.

Proposed section 106 agreements

304. A draft section 106 agreement for the Proposed Development has been negotiated between the applicant, the LLDC, Newham Council, Transport for London, Network Rail, and the London Stadium Operator.

305. A draft section 106 agreement for the Advertising Proposals has also been negotiated between the applicant, the LLDC, Newham Council, Transport for London, and Network Rail.

306. The draft section 106 agreement for the Proposed Development includes the following provisions:

- Details of the Concept of Operations (CONOPS), to be submitted to and approved prior to any public operations by the LLDC, TfL and Network Rail, setting out how the Proposed Development would be managed and operated taking account of the proposed activities, use of transport, traffic assessment and management plans, crowd modelling, management of arriving and departing guests, liaison with local station operators, venue operations, open space management, security, noise and light management, a guest and neighbour information plan, communications strategy and stakeholder engagement, and process and procedures for emergency response.
- Details of the Venue Operations Manual (VOM) to be approved by the LLDC and TfL prior to the Main Venue and the Smaller Music Venue being opened to the public.
- Coincident Event Local Area Management Plan (LAMP), and Major Sporting Coincident Event LAMP prepared with the London Stadium Operator to confirm the crowd management measures.
- Events held in the Main Venue to finish no later than 23:00 Monday to Saturday and 22:30 on Sundays, unless otherwise agreed with LLDC and TfL in exceptional circumstances.
- Monday to Thursday capacity controls at the Main Venue, limiting the number of days per year/4-month period on which an event with a planned attendance of between 15,001 and to 21,500 can take place.
- Where events on the same day at both the Smaller Music Venue and the Main Venue would together have a capacity of more than 21,500, the Smaller Music Venue event would not end within 30 minutes of the Main Venue event.
- Restrictions to avoid Main Venue events of more than 15,000 on the same date as a London Stadium event of more than 62,500 or major sporting events; and Main Venue events of more than 18,000 and London Stadium events of 40,000-62,500 where the start/end times are within one hour of each other.
- Requirement for a London Stadium Agreement between the applicant and the London Stadium Operator setting out the process to co-ordinate events.
- Establishment of a Community Liaison Group to meet 6 times per year; with venue and reasonable costs covered by the applicant; made up of local organisations, community groups, and resident groups; able to make recommendations to the applicant.
- Development of a Community Involvement Programme of engagement and outreach activities to support local community groups, young people, local schools, and other educational institutions; with operational costs to the applicant of up to £300,000 per annum in the first 5 years and £50,000 thereafter.
- Requirements for Development Agreements between the applicant and TfL and/or LUL and Network Rail for the New Stratford Station Entrance Works, and protection of Network Rail and TfL assets.
- The applicant to carry out and complete the New Stratford Station Entrance Works to its own cost.

- Stratford station mitigation measures identified from station modelling (including signage and communication systems, barriers, and other crowd control measures).
- Establishment of an Adverse Impacts Monitoring Strategy (station and non-station) in consultation with LLDC, TfL and Network Rail; and further mitigation measures to address such impacts, including staffing at Stratford Station, and revised event times (with costs of up to £3,000,000 to the applicant).
- Prior to occupation, delivery of the Site Connections (Montfichet Road Bridge 1, Montfichet Road Bridge 2, Town Centre Link Bridge 3, and the Angel Lane Access).
- Public access to the Site Connections and the Open Space between 05:00 and midnight, subject to permitted closures; other than between the North Hub from Angel Lane at all times, subject to permitted closures.
- Removal of the Urinals and storage for 36 months to seek alternative use, after which archival recording and disposal may take place.
- Smaller Music Venue available for a minimum of 10 days per year, rent-free, for an evening event by local musicians and community groups, and a contribution of up to £5,000 per event to operating costs.
- Delivery by the applicant of off-site highway works (Montfichet Road, Angel Lane, and International Way).
- Air Quality Monitoring Contribution of £125,000.
- Brompton Docking Station Contribution of £48,000.
- Bus Station Controller Contribution of £342,164.
- Construction Environmental Health Monitoring Contribution of £280,000.
- Construction Transport Management Contribution of £50,000.
- Employment and Training Contribution of £2,100,000, together with various commitments relating to workforce representation, London Living Wage, supply chain opportunities, and education commitments.
- Operational Environmental Health Monitoring Contribution of £175,000.
- Annual Station Staffing Contribution (and process to identify sum and make payments) for additional staff at Stratford Station, Stratford International Docklands Light Railway station, Maryland station and Hackney Wick station on days when an event is held at the Main Venue; the first payment of which is at least £1,400,000.
- Wayfinding Contribution of £80,000.
- Carbon Offset Contribution of £2,624,400, subject to revised assessment following completion of the Main Venue, and reasonable endeavours to connect to the District Heat Network
- Monitoring Contribution of £100,000.
- Mitigation measures for potential loss of television reception.

307. The draft section 106 agreement for the Advertising Proposals includes the following provisions:

- Outline Visual Display and Luminance Management Strategy, to be submitted and approved prior to commencement of development, to further develop and verify the mitigation measures identified in the Rail Safety Report (August 2020) in relation to the potential impacts of the Digital Display on rail driver distraction, station operation, railway signalling and passengers, which also sets out details of proposed controls on the operation of the Digital Display, including (a) the maximum speed of moving images; (b) times and frequency of the operation of

the Digital Display; (c) works to rail and other infrastructure if necessary; (d) associated updates to as-built record information in line with Network Rail and TfL standards; and (e) operational changes, including driver awareness training and public information. A final Strategy to be agreed before the Digital Display is in operation. Should a rail safety issue be identified as a consequence of the illumination of the Digital Display that is not adequately mitigated, Network Rail and/or TfL shall determine the additional mitigation measures required in accordance with the Digital Display Management Strategy (as follows).

- A Digital Display Management Strategy (DDMS), to be updated periodically, setting out mitigation measures and operational controls related to the Digital Display with the aim of mitigating the occurrence of, or likelihood of the occurrence of Health and Wellbeing Impacts, which would consider: (a) restricting the display of flashing images; (b) determining the maximum speed of moving images; (c) determining a minimum display time for each image/display; (d) determining the intervals between each display; (e) restricting the display of phone numbers, websites or e-mail addresses; (f) restricting the display of symbols which resemble any road traffic signage or signals; (g) measures to revert the Digital Display to a default display if a malfunction occurs; (h) restricting the display of symbols which resemble any rail signage or signals; (i) zoning of display material; and (j) regulating the daytime luminance levels of the Digital Display by reference to ambient background light levels, including any measures to take into account diurnal and seasonal changes in daylight through the use of the system to monitor ambient light levels and log real time illuminance data for the Digital Display detailed in the approved Commissioning Strategy (as follows).
- A Commissioning Strategy to be submitted and approved prior to the first operation of the Digital Display to control its luminance, including (a) a gradual introduction of brightness levels; (b) the calibration of the Digital Display to ensure it is taking account of ambient light levels and diurnal and seasonal changes in light conditions in order to balance brightness for people viewing the Digital Display; (c) details of the system which is to be used in accordance with the DDMS to monitor ambient light levels and log real time illuminance data for the Digital Display; and (d) any relevant output following the Test Event, which in the opinion of Network Rail may cause a Road or Rail Impact.
- A Road User Distraction Assessment to be submitted and approved, and identified mitigation works completed (which may include road traffic signalling infrastructure, signage, or road markings at identified junctions), prior to illumination of the Digital Display. Should a road safety issue be identified as a consequence of the illumination of the Digital Display that is not adequately mitigated, the applicant and the LLDC, Newham Council and/or TfL shall determine the additional mitigation measures required in accordance with the Digital Display Management Group (see below).
- Prior to first operation of the Digital Display, the occupiers of all residential and student dwellings with a direct view of the Digital Display from a window within 150 metres from the Digital Display would be entitled to Blackout Blinds (in operation for 25 years, subject to 5 year reviews) to be provided and installed by the applicant.
- Prior to the opening date, requirement for the applicant to establish and cover reasonable costs of a Digital Display Monitoring Group (DDMG), to monitor Road or Rail Network Impacts and Health and Wellbeing Impacts. The DDMG would consist of the applicant; the LLDC (or any successor to the LLDC's planning

function); Newham Council (in its capacity as the local highway authority); TfL (in its capacity as statutory public transport service provider and traffic authority for London traffic control systems); Network Rail (in its capacity as a rail operator); and four independent members, each with at least 10 years' experience of rail network safety, road network safety, the impacts of LED lighting on human health, and a Medical Practitioner with relevant knowledge and experience relating to LED lighting impacts on human health. The DDMG would meet quarterly to consider the Quarterly DDMG Report (see below) and decide whether it agrees the applicant's position or if any additional measures are required. A cascade mechanism is identified, with Tier 1 Measures being changes to the operation of the Digital Display (identified as (a) to (j) in the DDMS above); Tier 2 Measures being a reduction in luminance levels (candelas per square metre) of the Digital Display (in full or part); and Tier 3 Measures being reducing the operational hours of the Digital Display.

- Prior to first operation of the Digital Display, Complaints Handling Arrangements, to be operated by an independent third party for 5 years, are required to be submitted and approved.
- The applicant to include in each Quarterly DDMG Report details of all complaints received, identifying each that has been resolved; each that has not been resolved, together with the evidence provided by the complainant in support of the complaint and what action has taken to resolve it; each unresolved complaint where the applicant considers that no harm is caused to the complainant, or where no further action is proposed, together with the Owner's reasons; and each complaint that the applicant considers to be vexatious.
- The DDMG would issue a Findings Report to the applicant and the LLDC following each quarterly meeting. Any unresolved complaints relating to a health and wellbeing impact where the Findings Report has recommended additional mitigation measures would be considered by the LLDC, which would instruct the applicant if the relevant Tier 1-3 Measures are required. The DDMG would instruct the applicant if the relevant Tier 1-3 Measures are required for any unresolved complaints relating to a road or rail network impact where the Findings Report has recommended additional mitigation measures. Tier 2 Measures and Tier 3 Measures cannot be recommended by the DDMG or specified for implementation by the LLDC unless all relevant Tier 1 Measures capable of resolving the Unresolved Complaint have already been implemented and the Unresolved Complaint has not been resolved.
- A Digital Display Five Year Review is required after 5 years, which would identify any required changes to the DDMS in order to address any Unresolved Complaint and a reasonable timescale for implementing such changes; any changes to the Tier 1-3 Measures; the ongoing role and functions of the DDMG (if any); and the frequency of further reviews (if any) for the remainder of the period authorised by the Advertisement Consent.
- Prior to the first operation of the Digital Display, a Digital Public Art Content Strategy is required to be submitted and approved, setting out the objectives for the display of public art on the Digital Display in the interests of amenity and public benefit, as updated periodically.

Equalities

308. The Equality Act 2010 provides that public authorities have due regard to the need to a) eliminate discrimination, harassment, victimisation and any other conduct

that is prohibited under the Act; b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it. The protected characteristics set out in the Equality Act are age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex and sexual orientation. The Equality Act acknowledges that compliance with the duties set out may involve treating some persons more favourably than others, but that this does not permit conduct that would otherwise be prohibited under the Act.

309. The applicant has submitted an Equality Impact Assessment (EQIA), which considers the effects on people with protected characteristics, both during the construction phase and when the Proposed Development is operational. LLDC officers also undertook their own EQIA, which is appended to the Committee Report. This acknowledges that the LED screens could have a negative impact on people with conditions such as epilepsy, autism and other long-term conditions; however, it is considered that any such adverse effects would be removed, or at least reduced to an acceptable level, by the mitigation measures proposed. As detailed above, these include the LED display controls on hours and luminance, the digital display management strategy, the Digital Display monitoring group, and precautionary mitigation measures (blackout blinds) for properties within the immediate vicinity of the Sphere. The LLDC EQIA concludes that the Proposed Development is unlikely to result in any material negative impacts for people with any of the relevant protected characteristics, taking account of the mitigation measures proposed. Any remaining negative impacts are considered to be minor; and positive impacts are identified for various protected groups, particularly for disabled people, young people, and children.

310. As discussed under '*Light intrusion: impact on residential amenity and human health*' above, GLA officers have significant concerns about the potential impact of the illuminated Sphere on human health for residential and student accommodation comprising the Legacy Tower/Stratford Central, Stratford Eye, New Garden Quarter, and the Unite Student Accommodation. WSP highlight a limited consideration of the potential health and wellbeing effects of light/visual/distraction effects, particularly in relation to mental health, vulnerable groups, and children.

Legal considerations

311. Under the arrangements set out in Article 5 of the Town and Country Planning (Mayor of London) Order 2008, the Mayor has the power under Article 6 to direct the local planning authority to refuse permission for a planning application referred to him under Article 4 of the Order. The Mayor may also leave the decision to the local authority. In directing refusal, the Mayor must have regard to the matters set out in Article 6(2) of the Order, including the principal purposes of the Greater London Authority, the effect on health and sustainable development, national policies and international obligations, regional planning guidance, and the use of the River Thames. The Mayor may direct refusal if he considers that to grant permission would be contrary to good strategic planning in Greater London. If he decides to direct refusal, the Mayor must set out his reasons, and the local planning authority must issue these with the refusal notice.

Financial considerations

312. Should the Mayor direct refusal, he would be the principal party at any subsequent appeal hearing or public inquiry. Government guidance emphasises that parties usually pay their own expenses arising from an appeal.

313. Following an inquiry caused by a direction to refuse, costs may be awarded against the Mayor if he has either directed refusal unreasonably; handled a referral from a planning authority unreasonably; or, behaved unreasonably during the appeal. A major factor in deciding whether the Mayor has acted unreasonably will be the extent to which he has taken account of established planning policy.

Conclusion and planning balance

314. Section 38(6) of the Planning and Compensation Act 2004 requires the application to be determined in accordance with the development plan, unless material considerations indicate otherwise. Where conflict with an up-to-date development plan is identified, permission should not usually be granted and the 'presumption in favour of sustainable development' is not engaged. The development plan should be read as a whole and whether a scheme is contrary to the development plan is a matter of planning judgement. In making that decision, it is necessary to apply the statutory tests in relation to listed buildings and conservation areas that have been identified.

315. The relevant Development Plan documents comprise the London Plan and the LLDC Local Plan. The assessment below identifies those policies considered to be the most directly relevant to judging the acceptability of the Proposed Development, and not every individual Development Plan policy that is directly engaged.

<u>Extent of breach with the Development Plan</u>

316. As set out in detail in the sections above, the Proposed Development would result in a number of breaches of the Development Plan, summarised as follows:

Residential amenity

317. The Proposed Development would be contrary to LLDC Local Plan Policy BN.1 as it would not minimise impact upon existing development (Part 7); Policy BN.4 as it would not minimise adverse impacts on surrounding development (Part 5); BN.5 as it would have a significant adverse effect on surrounding residential amenity due to light spill (Part 8); and Policy BN.16 as it would have an adverse impact on amenity (Part 1) and it would have an adverse impact on the outlook of surrounding residential properties (Part 2). It would be contrary to Policy S.1 as it would significantly adversely affect those who live within the vicinity.

318. It would be contrary to London Plan Policy D3 (Part D7) as it would not deliver appropriate outlook and amenity, and it would be contrary to Policy D8 (Part B), as it would not minimise intrusive lighting infrastructure, nor reduce light pollution. It would be contrary to London Plan Policy D9 (Part C1h) as it is not designed to minimise light pollution from external lighting. It would also be contrary to London Plan Policy D13 'Agent of Change' as measures to mitigate light and visual impacts of the new nuisance-generating development on residential and other sensitive uses would be unacceptable.

Urban design and tall buildings

319. With regards to making the best use of the land by following a design-led approach that optimises the capacity of sites, the Proposed Development would be contrary to London Plan Policy D3. It has not followed a design-led approach that optimises the capacity of the site (London Plan Policy D3 (Part A)); it would not enhance local context as it would not positively respond to local distinctiveness through its scale, appearance, and shape, with little regard to existing and emerging building types, forms and proportions (Policy D3 (Part D1)); it would not deliver appropriate outlook and amenity (Policy D3 (Part D7)); it would not respond to existing character, nor would it respect or enhance heritage assets and architectural features that contribute towards local character (Policy D3 (Part D11)); it would not be of high architectural quality (Policy D3 (Part D12)); and it does not aim for or achieve high sustainability standards (Policy D3 (Part D13)).

320. The Proposed Development would fail to comply with numerous criteria within Policy D9 Part C (visual impacts) and GLA officers conclude that the Proposed Development would be in conflict with London Plan Policy D9 overall.

321. The Proposed Development would be contrary to LLDC Local Plan Policy BN.1 as it would not respect existing typologies, nor draw design cues from the form of the area in terms of its scale (Part 2). It would be contrary to Policy BN.4 as it would not respect the scale and grain of the context (Part 8) and it would not make a positive contribution to the streetscape (Part 9). It would be contrary to Policy BN.5 as it would not be an appropriate proportion, form, massing, height and scale in context with the character of its surroundings (Part 1); it would not use materials appropriate to the height of the building (Part 2); it would not make positive contribution to the surrounding townscape (Part 5); and it would not enhance views, vistas and sightlines (Part 6). It would be contrary to BN.16 as it would not respect the appearance, character, scale and street scene (Part 9). It would be contrary to Policy SP.3 as it would not give primary consideration to the creation of ‘place’; it would not enhance its built, historic and landscape context (Part 2); and it would not maintain and promote local distinctiveness (Part 3).

Historic environment

322. The Proposed Development would cause ‘less than substantial’ harm to the significance of the following heritage assets through the impact on their settings, with the extent noted in brackets. The Grade II* listed Theatre Royal (low when illuminated, very low when not illuminated); Stratford St. John’s Conservation Area (middle when illuminated, low to middle when not illuminated); Grade II Registered Park and Garden, West Ham Park (low when illuminated, very low when not illuminated); Grade II listed Church of St. John the Evangelist (middle when illuminated, low to middle when not illuminated); Grade II listed West Ham Court House (middle when illuminated, low to middle when not illuminated); Grade II listed West Ham Town Hall (middle when illuminated, low to middle when not illuminated); Grade II listed Martyr’s Memorial (very low when illuminated); Grade II listed Gurney Memorial (middle to high when illuminated, middle when not illuminated); Fish Island and White Post Lane Conservation Area (very low when illuminated); Grade II listed St. John’s House, 2 Romford Road (low when illuminated, very low when not illuminated); Grade II listed King Edward VII Public House, 47 Broadway (low when illuminated, very low when not illuminated); Grade II listed The Old Dispensary, 30 Romford Road (low when

illuminated, very low when not illuminated); Grade II listed Former London and County Bank, 49 Broadway (low when illuminated, very low when not illuminated); University Square Conservation Area (low when illuminated, very low when not illuminated); Grade II* listed West Ham Technical Institute, the Central Library and the Passmore Edwards Museum (low when illuminated, very low when not illuminated); and Grade II listed 54 and 56, 60 and 62 and 66 to 82 Romford Road (low when illuminated, very low when not illuminated).

323. The Proposed Development would be contrary to London Plan Policy HC1, and Policies D3 (Part D11) and D9 (Part C1d) in relation to heritage matters.

324. The Proposed Development would be contrary to LLDC Local Plan Policy BN.16 as it would have an adverse impact on heritage assets (Part 8); and BN.17 as it would not conserve or enhance heritage assets (Part 1).

Extent of compliance with the Development Plan

325. As set out in detail in the sections above, the Proposed Development would be in compliance with relevant policies in the Development Plan in a number of areas, summarised as follows:

Economic and cultural

326. The delivery of a large-scale venue able to provide a technologically advanced immersive experience, including provision for up-and-coming talent, would be in accordance with the Development Plan. It would enhance Stratford's standing as a Metropolitan centre, supporting the growth and diversification of the visitor and night-time economy. The Proposed Development is estimated by the applicant to attract 2.39 million visitors per year and would support c.£31M of additional spending within Newham.

327. During construction, there would be an estimated 350-500 Full Time Equivalent (FTE) jobs, and once completed the Proposed Development is estimated to support 1,086 FTE jobs. The current site offers little in the way of jobs and economic benefits so almost all of the new opportunities created would be additional. Work-related learning opportunities, paid internships, funded scholarships, £2.1M towards supporting people into work, and procuring contractors paying at least London Living Wage levels are also secured.

328. An element of subsidised community access is also secured. The Proposed Development would be in accordance with London Plan policies SD1, SD6, SD7, SD8, SD10, E10, HC5, and HC6.

329. The Proposed Development would be in accordance with LLDC Local Plan Site Allocation SA.3.1; and Policies 3.1, SP.1, B.2, B.5, and CI.1.

Public realm and pedestrian connectivity

330. Although the Proposed Development would deliver a relatively limited amount of urban greening, it would provide an acceptable response to London Plan policies G1, G5, and G6. The delivery of podium bridge connections and lift access, together with improvements to surrounding public realm (some with controlled access), would address existing pedestrian access constraints across the railway corridor in

accordance with London Plan Policy D8. However, these connections would be closed to public access between midnight and 05:00, plus at limited other times as required, and large crowds attending events at the Proposed Development would temporarily limit more general pedestrian movements. Furthermore, when illuminated, the Proposed Development would be in partial conflict with London Plan Policy D8 (Part B) as it would not reduce light pollution.

331. The Proposed Development would be in accordance with LLDC Local Plan Policy 3.3.

Transport and station access

332. The provision of a new entrance to Stratford Station, together with new station management plans, would direct Proposed Development visitors to the station eastern subway on event days, as part of a package of infrastructure and operational measures. However, some localised areas of the station may experience congestion when events take place at the Proposed Development, and there would be no improvement in the operating capacity of the station overall. The highway works would be designed to provide improvements to the public realm, including for pedestrians and cyclists and interchange uses.

333. The Proposed Development would be in accordance with London Plan policies T1, T2, T3, T4, T5, T6, T7, T9, and D2.

334. The Proposed Development would be in accordance with LLDC Local Plan Policies SP.4, T.1, T.2, T.3, T.4, T.5, T.6, T.7, T.8, and T.9.

<u>Overall compliance with the Development Plan</u>

335. The Proposed Development would result in a number of conflicts with the policies of the adopted Development Plan as demonstrated above.

336. In terms of residential amenity, due to the number of properties affected and the scale of the impact on the affected properties; the breaches with LLDC Local Plan policies BN.1 (Part 7), BN.4 (Part 5), BN.5 (Part 8), BN.16 (Part 2), and S.1; and London Plan policies D3 (Part D7), Policy D8 (Part B), and Policy D9 (Part C1h) are considered to be very significant.

337. In terms of urban design and tall buildings, due to the scale of the Proposed Development, the breaches with London Plan policies D3 and D9, and LLDC Local Plan policies BN.1 (Part 2), BN.4 (Parts 8 and 9), BN.5 (Parts 1, 2, 5, and 6), BN.16 (Part 9), and SP.3 (Parts 2 and 3) are considered to be very significant.

338. In terms of historic environment, due to the number (16) of designated heritage assets that would be harmed, the category of harm (less than substantial), and the extent of harm (up to ‘middle to high’); the breaches with London Plan Policy HC1, and LLDC Local Plan Policies BN.16 (Part 8) and BN.17 (Part 1) are considered to be very significant.

339. Each of the main issues (residential amenity, urban design, and heritage) identified are individually considered to result in significant breaches of the Development Plan and cumulatively the breaches are substantial. These conflicts with policy are to be weighed against the parts of the Development Plan where there is

compliance, which are as set out above. It is officers view that the Proposed Development would be in conflict with the Development Plan when considered as a whole, which gives rise to a strong presumption against planning permission being granted.

Other material considerations

340. In applying weight to the harms and benefits that constitute the other material considerations that fall to be considered in assessing the merits of the Proposed Development, the following scale has been used: very limited, limited, moderate, significant, and very significant.

Heritage balance pursuant to the NPPF

341. In considering whether to grant planning permission for development that affects a listed building or its setting, section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 provides that special regard should be given to the desirability of preserving the building or its setting or any features of special architectural or history interest which it possesses. Unlike the setting of a listed building there is no statutory duty applicable to the setting of a conservation area, although it is protected as a material consideration as a matter of policy by the NPPF. Under the NPPF (paragraphs 199-200), great weight should be given to the conservation of designated heritage assets even where the harm would be less than substantial, and any harm should require a clear and convincing justification. Whilst great weight should be given to every asset's conservation, the more important the asset the greater the weight should be to any harm to it.

342. Less than substantial harm has been identified to 16 designated heritage assets, ranging from a 'middle to high' level to 'very low'. Great weight should be given to the identified less than substantial harm to significance that the Proposed Development would cause due to the impact on the setting of heritage assets. In accordance with paragraph 202 of the NPPF, this less than substantial harm needs to be weighed against the public benefits of the scheme. For the avoidance of doubt, in conducting this exercise, GLA officers have afforded great weight to the less than substantial harm identified. National Planning Practice Guidance describes public benefits as *"anything that delivers economic, social or environmental objectives"* and *"should be of a nature or scale to be of benefit to the public at large and not just be a private benefit."* The public benefits associated with the Proposed Development, as set out in detail above, comprise economic and cultural; public realm and pedestrian connectivity; and transport and station access. GLA officers consider that the public benefits do not outweigh the great weight that should be given to the harm to the significance of 16 designated heritage assets. GLA officers therefore consider that the application of the statutory tests and the NPPF in respect of listed buildings and conservation areas has not been passed, and great weight should therefore be given to the harm to the significance of 16 designated heritage assets. The harm to each heritage asset is given 'very significant' weight for the purposes of the planning balance and according to the scale used in this report.

343. Turning to the non-designated urinals, under paragraph 203 of the NPPF, a balanced judgement is required having regard to the scale of any harm or loss and the significance of the heritage asset. Any harm should require clear and convincing justification and the loss of significance of a non-designated heritage asset should be

weighed against the public benefits of the scheme. It is accepted that removal from the site in order to allow the Proposed Development is necessary, and measures would be secured to re-site the asset in an alternative location; however, should this not be possible within an identified time period, disposal of the asset is allowed.

Carbon emissions

344. The world is facing a climate emergency. This is recognised in a raft of UK Government law, policy, and guidance. The need to reduce greenhouse gas emissions and in particular carbon to prevent a rapidly deepening climate crisis is accepted worldwide.

345. The Mayor of London is committed to making London a zero carbon city by 2050 and has a legal duty to publish a London Environment Strategy that sets out the policies and programmes to achieve this. The London Plan energy hierarchy should inform the design, construction and operation of new buildings. The priority is to minimise energy demand, and then address how energy will be supplied and renewable technologies incorporated.

346. The NPPF (Paragraph 152) states that the planning system should support the transition to a low carbon future in a changing climate and help to encourage the re-use of existing resources.

347. As set out under 'Climate change' above, overall, the Proposed Development is considered to be in compliance with the wording of Policy SI2. However, as stated under 'Optimising development capacity' above, the design of the Proposed Development would not be in accordance with Policy D3 (Part D13) as it would not aim for or achieve high sustainability standards. The predicted unregulated energy loads of the Proposed Development would be very high, in particular from the LED screens, both in absolute terms and as a proportion of the development energy loads. Concerning on-site renewable energy, 36 sq.m. of PVs are proposed as part of the bridge structure; however, the PVs would feed into external lighting and therefore provide only a slight reduction in unregulated emissions. Consequently, no reduction in regulated emissions would be achieved through the 'be green' element of the energy hierarchy. This is an extremely poor response for a development of such great scale with very significant energy use. The WSP report commissioned by the GLA, as discussed under 'Residential amenity' above, identifies that there are no intended observers above the Sphere and all light that does not serve a purpose is a waste of energy and carbon and inherently unsustainable. The carbon emissions associated with the LED screens could have been reduced by limiting their extent across the Sphere, removing them completely, or partially replacing them with PVs, while still allowing operation of the Sphere as an entertainment venue. However, it is acknowledged that would be a different development, and is not the Proposed Development being considered here since it would not align with the applicant's aspiration for there to be a series of illuminated MSG Spheres around the world.

348. Overall, in terms of paragraph 152 of the NPPF, the Proposed Development would in part fail to support the transition to a low carbon future. Whilst recognising the degree of compliance with relevant policies, the scale of unregulated energy loads; the failure of the design to aim for or achieve high sustainability standards; and the lack of full compliance with GLA Energy Assessment Guidance, the Whole Life-cycle Carbon LPG and the Circular Economy LPG lead GLA officers to conclude that the high level of

carbon emissions is a material consideration that carries moderate weight against the scheme.

Draft Newham Local Plan

349. The LLDC's planning powers are due to be handed back to the Host Boroughs by the end of 2024, and consequently, the site forms part of Site Allocation N8.SA5 'Stratford Town Centre West' (together with a large area to the west, including Westfield Shopping Centre) in the Draft Newham Local Plan (Regulation 18, December 2022) for residential, office, other town centre uses, and open space. With specific reference to the application site, the Site Allocation states that "*Development to east of Montfichet Road should be mixed-use including residential, town centre uses in the form of ground floor active frontages and open space*" and "*should provide a link bridge to provide access to the rest of the centre*". The Proposed Development would provide town centre uses and an element of open space, but not residential uses, so it is not fully in accordance with Site Allocation N8.SA5.

350. The Draft Newham Local Plan identifies that the site falls within Tall Buildings Zone 19 'Stratford Central'. Most of the Zone is identified for buildings of a maximum of 60 metres, and the accompanying map confirms that this height limit would apply to the application site. Areas further to the south and the west are identified as appropriate for up to 100 metres. The Proposed Development would significantly exceed the 60 metres maximum identified and would therefore be contrary to Draft Newham Local Plan Policy D4 on tall buildings.

351. The Proposed Development would not be fully in accordance with Site Allocation N8.SA5, and would be contrary to Local Plan Policy D4; however, this can be given very limited weight against the scheme as the Draft Local Plan is at an early stage of preparation and has not been subject to examination.

Conclusion on other material considerations

352. In terms of other material considerations, GLA officers consider that the application of the statutory test and the NPPF policy tests in respect of listed buildings and conservation areas has not been passed, and significant weight should therefore be given to the harm to the significance of 16 designated heritage assets. Other material considerations weigh against the scheme, being carbon emissions, of moderate weight; and conflicts with the Draft Newham Local Plan, of very limited weight.

353. Consequently, the other material considerations do not indicate that the Proposed Development should be determined other than in accordance with the Development Plan. The Proposed Development would also conflict with the NPPF and various planning guidance documents, which reinforces the case for refusing planning permission.

<u>Overall planning balance and conclusions</u>

354. GLA officers consider that the Proposed Development would be in conflict with the Development Plan when considered as a whole, which gives rise to a strong presumption against planning permission being granted. The 'other material considerations' weigh against the scheme and do not indicate that the Proposed

Development should be determined other than in accordance with the Development Plan.

355. The Proposed Development would harm residential amenity and conflict with relevant residential amenity Development Plan policies. Due to the number of properties affected, the scale of the impact on the affected properties, the number of policies that are breached, and the very significant breach with these policies, GLA officers place very significant weight on this matter in the planning balance.

356. The Proposed Development would be harmful in terms of urban design and conflict with relevant urban design Development Plan policies. Due to the scale of breach of Development Plan policies and the particular importance of good design in buildings of this scale, GLA officers place very significant weight on this in the planning balance.

357. The Proposed Development would harm the historic environment and conflict with relevant historic environment Development Plan policies. Great weight should be given to the conservation of designated heritage assets, even where the harm would be less than substantial. As such, the less than substantial harm identified should be given very significant weight in the planning balance.

358. In terms of benefits, the Proposed Development would result in economic and cultural benefits that should be given significant weight in the planning balance; public realm and connectivity that should be given limited to moderate benefit in the planning balance; and transport and station access that should be given limited weight in the planning balance. The Proposed Development would also be in compliance with Development Plan policies relevant to these benefits, as well as other policies as set out above.

359. Overall, the benefits and areas of compliance with Development Plan policies do not outweigh the harms; the conflict with Development Plan policies; and the other material considerations; and the overall conflict with the Development Plan when considered as a whole.

Officer recommendation – Article 6: Direction that the Mayor refuse planning permission

360. Article 6 of the Mayor of London Order (2008) states that where the Mayor considers that to grant planning permission would be contrary to the spatial development strategy or prejudicial to its implementation or would otherwise be contrary to good strategic planning in Greater London, he may, within the period specified in article 5(1)(b)(i), direct the local planning authority to refuse the application.

361. As set out above, GLA officers have concluded that to grant permission would be contrary to the Development Plan and would prejudice the implementation of the policies within the Development Plan relating to residential amenity, good design, and the conservation and enhancement of London's heritage.

362. It is therefore recommended that the Mayor exercise his powers under Article 6 of the 2008 Order and direct refusal of the application for the following reasons:

- Residential amenity: The Proposed Development, due to the intensity, nature, and extent of external illumination, would cause significant light intrusion resulting in significant harm to the outlook of neighbouring properties, detriment to human health, and significant harm to the general amenity enjoyed by residents of their own homes. The properties most significantly impacted are within the Legacy Tower/Stratford Central, Stratford Eye, New Garden Quarter, Unite Student Accommodation. The proposed measures to mitigate visual impacts of the new nuisance-generating development on residential and other sensitive uses would not be adequate to avoid unacceptable harm, and in the case of blackout blinds would give rise to further harm to residential amenity. The Proposed Development would not be in accordance with the National Planning Policy Framework; London Plan policies D3 (Part D7), D8 (Part B), and D9 (Part C1h); and LLDC Local Plan policies BN.1 (Part 7), BN.4 (Part 5), BN.5 (Part 8), BN.16 (Parts 1 and 2) and S.1.
- Urban design and tall buildings: The Proposed Development with a Sphere of 90 metres in height and 120 metres in width, by virtue of its scale, massing and design, would result in a bulky, unduly dominant and incongruous form of development, which would fail to respect the character and appearance of this part of the town centre and the site's wider setting. In addition, the proposed design concept is a highly energy intensive use, does not achieve a high sustainability standard, and does not constitute good and sustainable design. As such, the Proposed Development would be contrary to the National Planning Policy Framework; London Plan policies D3 and D9; and policies BN.1 (Part 2), BN.4 (Parts 8, and 9), BN.5 (Parts 1, 2, 5, and 6), BN.16 (Part 9), and SP.3 (Parts 2 and 3) of the LLDC Local Plan.
- Historic environment: The Proposed Development would cause less than substantial harm to the significance of 16 designated heritage assets, comprising 12 listed buildings, including the Grade II* Theatre Royal; 1 registered park and garden; and 3 conservation areas. The public benefits arising from the Proposed Development would not outweigh the 'less than substantial' harm it would cause. As such, the Proposed Development would be contrary to the National Planning Policy Framework; London Plan policies HC1, D3 (Part D11) and D9 (Part C1d); and policies BN.16 (Part 8) and BN.17 (Part 1) of the LLDC Local Plan.

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Greater London Authority (GLA)

MSG SPHERE

Review of Digital Display Content and Controls

70116423-WSP-MSG-XX-RP-LI-0001-P01.3
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CONFIDENTIAL

Greater London Authority (GLA)

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CONTENTS

FIGURES

EXECUTIVE SUMMARY

This report assesses the impact of the external lighting associated with the proposed MSG Sphere and its potential for adverse impact on the surrounding amenity, observers in premises (residential, commercial, business etc), public realm users as well as environmental factors such as skyglow.

Based upon the review of the external lighting information submitted, it is considered that the proposed sphere façade lighting in conjunction with the other artificial lighting within the proposed development and how it is operated will be likely to have significant adverse effects on occupiers of premises and the night-time environment.

There are a range of potential adverse obtrusive and human health, wellbeing and safety effects from the external lighting that are identified within the MSG Environmental statement regulations 25 and clarifications report, August 2020l that we consider are not addressed sufficiently and consequently will have an adverse impact.

We consider that a number of the assessments such as that for sky glow and the effect of the sphere façade being a non-uniform light source have not been sufficiently assessed as advised within the applicable UK national obtrusive guidance. Therefore the obtrusive lighting / heath aspects are not fully assessed and determined. These issues are drawn out within the detailed sections of this report and summary.

The basic assumption that it is satisfactory to spill light to the maximum permitted level of 25 lux onto surrounding premises windows is not well-founded, as depending upon the sensitivity of the receptor lower lighting levels can still cause wellbeing problems. The suggestion that these levels could be exceeded with a sliding scale of impact is not appropriate. This has the potential to lead to more significant harm (potentially including legal claims under light nuisance and artificial light as being prejudicial to health).

Over the time taken to develop the application the sphere façade LED module performance has been reduced to 25 and 7 cd/m^2. At this level it is the applicant advises that the maximum 25 lux on windows will not be achieved. A demonstration of a sample panel, from December 2019, indicated that at 37 cd/m^2 levels the façade image may not be compromised, an assessment at 25 cd/m^2 does not seem to have been undertaken. This statement has some uncertainty to it and essentially questions if the display will be bright enough to provide the visual effect and information desired.

The application has been revised and the luminance of the digital façade is now set at 25 cd/m^2 pre curfew and 7 cd/m^2 post curfew. These settings should be made when the façade is set to white light.

The project shows a considerable adverse skyglow impact, it is advised that there will be a noticeable distinctive ‘glow’ contrasting with the night sky. There are no intended observers above the sphere and all light that does not serve a purpose is a waste of energy and carbon and can’t be considered sustainable.

There is comment that the façade will be switched off or placed in stand-by mode at defined times of the night. Stand-by mode still consumes energy and should not be used.

There is an increasing concern and interest in the potential adverse effects of artificial light by both the public and government which has seen the recent consultation by the House of Lords Science and Technology Committee and subsequent report publication. There are substantial concerns regarding the impact of the sphere façade and associated lighting on the health of surrounding sensitive receptors, this extends to blue light concerns, stroboscopic and flicker through to visible and changing light intrusion into properties that can cause annoyance, anxiety, and greater adverse effects on the occupiers.

The Arup section within the MSG environmental statement regulations and clarifications report August 2020 advises that various health and wellbeing concerns have yet to be closed out. The offer of black out blinds and regular consultations is noted.

As a general comment there is a range of potential adverse effects from the external lighting identified within the proposal, it is suggested within the application that these are managed through planning conditions and obligations.

It would be preferable for these to be resolved at the application and design stage and not once the installation is operating. If these conditions do not prove effective in avoiding unacceptable adverse effects, how would the site then operate considering that it has been constructed?

As a comment regarding the draft LLDC full planning approval, condition 51 and other related obligations and conditions are very limited and do not cover all aspects that we would expect to see, including minimum image display duration and interval between successive image changes. We would suggest that the requirements laid out in the Model conditions developed within the ILP PLG05/23 are considered.

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1 INTRODUCTION

1.1 INTRODUCTION

1.1.1. This report assesses the impact of the external lighting associated with the proposed MSG Sphere and its potential for adverse impact on the surrounding amenity, observers in premises (residential, commercial, business etc), public realm users as well as environmental factors such as skyglow.

Submitted Documents Assessed

1.1.2. The following documents have been issued by the applicant and have been reviewed as part of this report:

- Chapter 1 Introduction and EIA methodology
- Concept of operations, August 2020
- Digital display content controls, August 2020
- Environmental statement volume 2, Townscape built heritage and visual impact assessment addendum, August 2020
- Volume 1, Chapter 11: Light intrusion and upward skyglow
- Volume 3, Appendix health. Annex 2, Health impact assessment
- Volume 3, Appendix health, Annex 1 LED façade lighting impacts on human health
- Chapter 17, Mitigation and monitoring schedule
- Equality impact assessment
- Environmental statement volume 5, Daylight, sunlight, overshadowing, light intrusion and upward skyglow and solar glare
  - Annex 2, Horizontal light spill and light intrusion, drawings and technical results
- Environmental statement volume 3, Appendix ecology
  - Annex 5, light spill and ecological receptors report
- Annex 8 LLDC May 2020 further information request
- MSG environmental statement regulations and clarifications report August 2020
- Landscape Institute Technical Guidance (March 2019) (“the RVAA Guidance”) in relation to Residential Visual Amenity
- LLDC draft decision notice
- MSG Sphere night-time views May 2021
- MSG light spill assessment June 2021

It is noted that these documents advised on the lighting performance of the proposed development in terms of outputs but do not provide the assessment calculations and design data used to establish these outputs.
It is noted that in 2021 the maximum luminance of the digital façade was reduced from 37 cd/m^2 to 25 cd/m^2 and this is referenced within the Draft Decision Notice. The implication from the revised information is that this level of luminance applies to both static and dynamic displays. Whilst this change has been made this report notes this but also still considers all information provided under the August 2020 application amendment documents.

Reference Documentation Used

1.1.3. The application and understanding of digital media displays, especially of such a large scale has only recently started to be developed and is still developing. The International Commission on Illumination, or Commission Internationale De l'Eclairage (CIE) realised this a few years ago and set up a technical committee (TC4-58) to consider, understand and advise on how colourful dynamic lighting installations should be considered and assessed. This technical committee is still active and is due to report in 2025 but the basis of what is being developed has been used to update the Institution of Lighting Professionals (ILP) PLG05/23 *The brightness of illuminated advertisements and digital displays*.

1.1.4. For the consideration of obtrusive light, wellbeing implications and artificial light being prejudicial to health we draw upon the Institution of Lighting Professionals guidance note GN01/21 and the Commission Internationale De L'Eclairage (CIE) documents CIE 126 and 150 all advised below. The CIE documents are developed from international research and provide limits of artificial light to avoid adverse impacts on the surrounding environment, transportation uses and occupants within premises. It should be noted that levels of artificial light below the maximum limits advised within GN01 do nevertheless have the potential to cause negative effects, concern sensitive receptors or create adverse environmental impacts. The ILP GN01 document is referenced by most UK planning Authorities.

Core reference documentation used in the assessment is as follows:

INSTITUTION OF LIGHTING PROFESSIONALS

- GN01/21 Guidance notes for the reduction of obtrusive light
- PLG05/23 The brightness of illuminated advertisements and digital displays.

COMMISSION INTERNATIONALE DE L'ECLAIRAGE (CIE)

- CIE 150; 2017 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations; and
- CIE 126: 1997 Guidelines for Minimizing Sky Glow

LEGISLATION

- Clean Neighbourhoods and Environment Act (CNEA) 2005

  The Clean Neighbourhoods and Environment Act (CNEA) 2005 gives Local Authorities and the Environment Agency additional powers to deal with a wide range of issues by classifying artificial light emitted from defined premises as a statutory nuisance.

  The CNEA 2005 amended section 79(1) of the Environmental Protection Act 1990 to extend the statutory nuisance regime to include light nuisance stating the following.

  '(fb) artificial light emitted from premises so as to be prejudicial to health or a nuisance'.

- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017

BRITISH STANDARDS

- BS EN 12464-2:2014 Light and lighting – Lighting of workplaces. Part 2: Outdoor workplaces

OTHER RELEVENT DOCUMENTS

- Landscape Institute Technical Guidance (March 2019) (“the RVAA Guidance”) in relation to Residential Visual Amenity
- The neglected pollutants: the effects of artificial light and noise on human health, House of Lords, Science and Technology Committee 2nd report of session 2022-23 19 July 2023.
  - This report reflects the increased profile and public / political interest and concern over the adverse impacts of artificial light at night.

2 UNDERSTANDING THE PROPOSAL

2.1 UNDERSTANDING THE PROPOSAL

2.1.1. To understand the potential operation of the sphere's digital façade the online information relating to the recently commissioned MSG Sphere in Las Vegas has been considered. This has included marketing promotional material from the providers of the digital façade lighting system[2]. A direct comparison cannot be made as whist the façade digital display appears similar the optical performance of the LED modules cannot be determined at this time.

2.1.2. The applicant advises that the site will be compliant with the Institution of Lighting Professionals GN01/21 Guidance notes for the reduction of obtrusive light. This in turn through reference brings in CIE 126 and CIE150, GN01/21 essentially being a distillation of these CIE documents. ILP PLG05[3] is also advised, this was updated in 2023 (post the applicants August 2020 submission) to include digital media displays. The applicant references the previous edition of this document.

2.1.3. The assessment of the sphere façade lighting seems to have been based upon the approach taken when considering standard flat digital displays consisting of a uniform light source. This is not the case with the sphere and the façade consists of many individual luminaires / modules each around the size of an ice hockey puck or smaller, spaced apart from one another. This presents a non-uniform light source and should therefore be assessed as such. This is discussed further in section 2.2.

2.1.4. The original 2020 application advised upon operation hours for the façade with curfew being at 23.00 and turned off or placed into 'stand-by' mode at 00.00 (Sunday to Thursday) and from 00.15 on Friday and Saturday unless otherwise agreed in advance by the LLDC. The revised 2021 information and the draft planning approval document now propose as follows:

- The maximum luminance of the sphere façade shall not exceed:
  - 25 cd/m^2 between sunset and 23.00 curfew.
  - 7 cd/m^2 between 23.00 curfew and when the façade is turned off or placed into standby mode.
- The sphere façade will be turned off or placed into standby mode at 23.30 (Monday to Thursday and Sunday) until 07.00 the following day.
- The sphere façade will be turned off or placed into standby mode at midnight (Friday and Saturday) until 07.00 the following day.

These levels should be based upon the LED modules and thus the whole façade being set to white light.

[2] https://www.saco.com/msg/#:~:text=LED%20Media%20Plane,-SACO%20bespoke%20LED&text=MSG%20Entertainment%20partnered%20with%20SACO,largest%20LED%20screen%20on%20Earth

[3] PLG05/23 The brightness of illuminated advertisements and digital displays

2.1.5. The submitted August 2020 application amendment documents consider the night-time impact of the external lighting, and no mention is made of the digital displays being operational during the day, although the provision for it to be turned on Monday to Sunday after 07.00 is noted. If the displays are used during the day, then the limits of luminance advised in PLG05/23 table 10.5 should apply.

2.1.6. As a general comment it is unclear who the intended observers of the sphere's digital display are, realistically it is likely to be observers located at ground level. Under the summitted proposal, however, light will be emitted in all directions from the sphere façade rather than focussed on the intended observers. Any light emitted from a lighting installation that serves no purpose is wasteful of energy and carbon.

2.1.7. Whilst LEDs are considered an energy efficient light source the LED modules will generate heat during operation, and heat dissipation will be a critical concern for spherical LED displays. The large surface area of the display and the proximity of the LED panels can result in a significant accumulation of heat. It is likely that effective cooling systems will be required to prevent overheating, which if not controlled can affect the performance and lifespan of the LED modules.

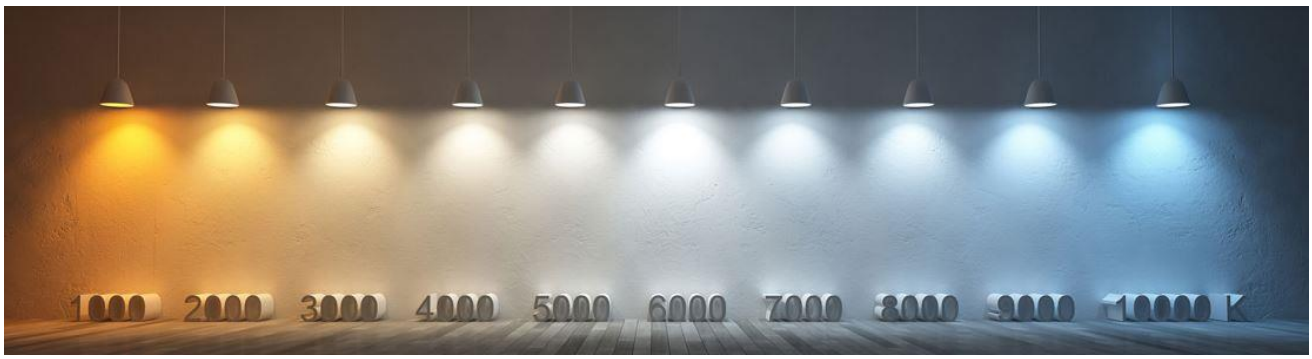
2.1.8. We have found it difficult to fully understand the proposed lighting for the sphere and the surrounding site which includes high level flood lights and low-level lighting. The details of these have not been provided and we only have calculation outputs of what is proposed but lack any input design and calculation details.

2.1.9. For planning assessment, it is normal to provide the detailed design information relating to the lighting proposals for consideration and assessment. These details do not seem to be present, and we assume have not been requested by the LLDC's lighting advisors.

2.1.10. The digital display content of the sphere façade would appear to have been modelled to determine its impact on the surrounding area, but no detail is provided regarding how this has been achieved. Reference is made to the individual LED modules that form the display and certain of their performance characteristics. The terminology used (NITS) only applies in the United States and is not relevant within the UK nor Europe. One NIT is equivalent to one cd/m^2 (Candelas per square meter) the correct terminology. The performance of these modules is provided on a range of luminance (cd/m^2) outputs but the actual intensity (cd) of them is not specified. It is unclear how the lighting model for the façade lighting has been built up and what maintenance factors have been considered for photometric calculations of impact to be created.

2.1.11. Assessments have been carried out with each LED module set to a range of luminance values when the sphere is set to all white. The definition of white light for these purposes does not seem to have been provided, and thus the colour temperature of the modules in white light mode and therefore the blue light content (a potential key human and fauna and flora adverse impact consideration) cannot be determined.

Figure 2-1 - Colour Temperature warm, neutral to cold white light[4]



2.1.12. The applicant also states that base line lighting assessments have been undertaken through survey and calculations, but no details have been provided as to how the calculation of the baseline has been undertaken, what factors have been applied and the existing lighting within the surrounding area assessed and modelled. It is noted that some day and nighttime spot photometric illuminance surveys were undertaken. The applicant as part of this has provided a range of surrounding building assessment calculations indicating vertical illuminance on windows. This is important as the base line needs to be established so the potential impacts of the proposed lighting can be assessed fully.

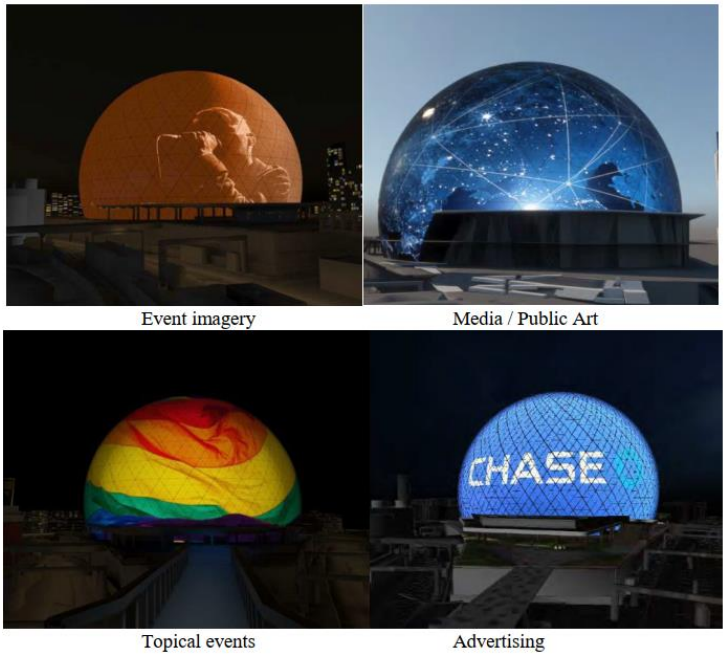
2.1.13. Without the above information it is not possible to fully determine whether the impact of the proposed lighting on the surrounding areas as described, assessed, and presented by the applicant is correct. The provision of this information would aid our full understanding of how the assessments have been undertaken. This will include the factors considered, for example, are the assessments made using initial lumens, or have maintenance factors been applied - and hence how have the illuminance levels and luminance levels been calculated?

2.1.14. It is understood that the sphere digital display will be fully programmable and capable of displaying a wide range of advertising and non-advertising content, including:

- Event imagery
- Media / public art
- Topical events
- Advertising

[4] Lightingdesign|Studio (2023) https://lightingdesignstudio.co.uk/colour-temperature/

Figure 2-2 - Images from the Digital Display Content Controls, August 2020 document



2.1.15. The focus of the application is principally on the sphere façade; however, the proposed site also contains other media screens as well as low- and high-level amenity and security lighting within the development. This is only described in general terms in the application documents and no lighting design information has been provided. This lighting has the potential to add to the overall impact of the artificial light from the sphere's façade.

2.2 LIGHTING MODULES PERFORMANCE

2.2.1. The façade display consists of many individual LED modules spaced apart and presents a non-uniform light source. It should therefore be assessed on that basis in accordance with ILP PLG05/23.

2.2.2. As well as luminance the assessment should be made by considering the intensity of each LED module, a point raised by the LLDC technical advisors[5]. If each module is, for example, 50mm in diameter then the light emitting area would be approximately 0.0019m^2 and the subsequent intensity limits can be determined from PLG05/23 Table 4. If we have the intensity, then depending upon how many modules there are per square metre and multiplying the intensity by the number of modules per square metre, the average luminance can be determined and checked for compliance against PLG05/23 Table 4. The array of luminaires can be defined in software, and it is possible to calculate the illuminance on surfaces of interest.

[5] Annex 8 LLDC May 2020 further information request

2.2.3. It is said by the applicant that each LED module has an estimated peak white light intensity of 24 Candela (based upon a 35.24 lumen LED)[6]. Each LED module would seem to consist of multiple LEDs to provide the full colour range required for the required displays. The statement regarding the intensity of each module seems to be based upon the performance of each LED chip, it is unclear if the 24 cd relates to the sum of all LED chips or each individual chip in which case the intensity would be the multiple of the chips contained within the module.

2.2.4. The issues addressed in paragraphs 2.2.5 to 2.2.7 below now appear to be moot as the 2021 submitted information and the draft LLDC planning approval now state a maximum luminance of 25 cd/m^2 between sunset and curfew shall apply compared to the 37 and 148 cd/m^2 advised under the 2020 application pack. They are addressed only for the sake of completeness.

2.2.5. The advised performance of the LED modules is confusing, the application advises on two assessment scenarios depending upon the active display type, as follows:

- The sphere displaying a static image, all white with pre and post curfew at 37 cd/m^2 / 7 cd/m^2, and
- The sphere displaying video content at 148 cd/m^2 and 30cd/m^2 at pre and post curfew times.

2.2.6. The static pre and post curfew at 37 cd/m^2 / 7 cd/m^2 have been determined following a review by the LLDC's technical advisors[7]. The previous luminance levels were considered to cause illuminance levels on adjacent premisses over those recommended by the ILP in GN01. The reduced luminance's are advised as complying with the illuminance limitation values. A demonstration of a sample panel, December 2019, indicated that at these lower levels the façade image may not be compromised. This statement has some uncertainly to it and essentially questions if the display will be bright enough to provide the visual effect and information desired.

2.2.7. It is unclear why there are two performance luminance levels advised, and this approach is incorrect. The white content is the limiting factor, and it makes no difference if the display is static or dynamic. Both static and dynamic displays will have a mix of colours depending on the imagery being displayed, darker colours will naturally have a lower luminance than lighter ones. We therefore question the proposal that dynamic / video images are permitted to have a much higher luminance.

2.2.8. Only the luminance of the LED modules is provided, and this is taken by the applicant to be the luminance of the overall façade and vertical illuminance assessments are undertaken on this basis[8]. The façade is a non-uniform light source and therefore each LED module will bring its own contribution to the illuminance of the surrounding area. As an analogy if we consider an LED road luminaire the light source is non-uniform being made up of several LEDs each with their own optic. An individual LED will not produce sufficient illuminance on the road surface and the required illuminance is therefore made up from multiple LED units each with the same optical footprint overlaying each other to achieve the required performance. The LED modules on the façade must be considered in the same vein.

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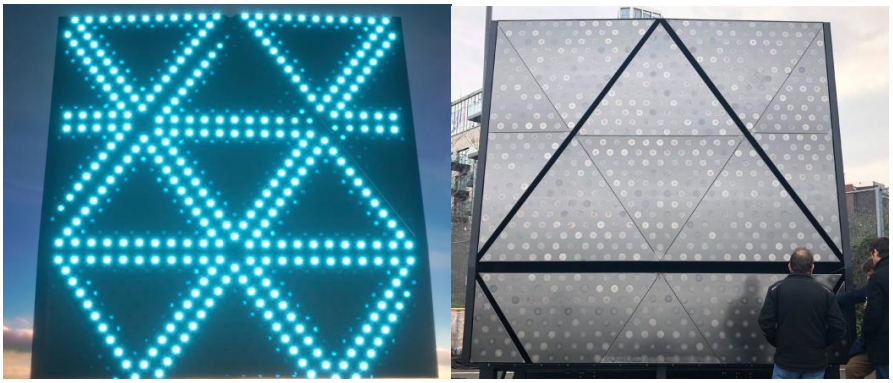
[6] Chapter 11: Light intrusion and upward skyglow, section 11.10 bullet point 2

[7] Annex 8 LLDC May 2020 further information request

[8] Environmental statement volume 3, Appendix health, Annex 1 LED façade lighting impact on human health.

Figure 2-3 - Sample digital façade panels, LED modules visible. From Volume 2, Townscape built heritage and visual impact assessment addendum.



2.2.9. It is noted that the commissioning procedure[9] advises on the process to ensure that the illuminance limits stated within ILP GN01 are not exceeded. In essence the sphere will be set to zero (blackout), the LEDs will then be set to white, and the luminance increased until the maximum permitted levels of illuminance are reached on the surrounding premises / at sensitive receptor locations. Once this maximum luminance has been achieved the controls will be capped to prevent any display content exceeding the limits required. This would therefore indicate that each LED module will be set to a specific luminance and will not change if the display content changes i.e. static to dynamic.

2.2.10. The commissioning of such media displays is normally undertaken with an all-white display, being the worst case for luminance, all other colours are generally less than this no matter what sort of display is being shown.

2.2.11. It is noted that the impact of the dynamic / video imagery is based upon a darker video of an undersea diver with minimal white light elements.[10]

Figure 2-4 - Image of the typical moving image assessed.

[9] Chapter 17, Mitigation, and monitoring schedule page 17.18 light intrusion and upward skyglow
[10] Annex 4, Illuminance distribution and upward skyglow comparison with the London stadium.

3 IMPACTS REQUIRING ASSESSMENT

3.1 IMPACT ON RESIDENTIAL AMENITY

3.1.1. In planning terms, 'amenity' is often used to refer to the quality or character of an area and elements that contribute to the overall enjoyment of an area. Residential amenity considers elements that are particularly relevant to the living conditions of a dwelling. The impact of artificial light on both the overall enjoyment of the area and living conditions of dwellings needs to be considered.

3.1.2. The applicant considers factors of noise disturbance, loss of daylight within a room, exceedances of air quality objectives or dust nuisance, and overshadowing of a residential amenity area and does make comment regarding light intrusion from the sphere's surface content and other on-site illumination when the sphere is in active mode.

3.1.3. The LLDC local plan advises as follows:

- Policy BN.1 states that amenity and wellbeing must be considered.
- Policy BN4 requires minimum of adverse impacts upon existing surrounding development.
- Policy BN5 states that proposals for tall buildings will be considered unacceptable where they are likely to have significant adverse impact on amenity.
- Policy BN.16 (b) provides specific guidance in relation to advertisements in that they should not have an adverse effect on the outlook of surrounding residential properties.
- Policy S.1 requires development to not significantly adversely affect health and wellbeing.

3.1.4. The London Plan Polices:

- D9 (C1a(iii)) 'Tall buildings' requires development proposals to protect amenity.
- D3 (Part D7) 'Optimising site capacity through the design-led approach' requires development proposals to deliver appropriate outlook and amenity.
- D13 'Agent of Change' Requires new nuisance-generating development proposed close to residential and other sensitive users to put in place measures to mitigate and manage impacts for neighbouring residents and businesses.

3.1.5. The National Planning Policy Framework (NPPF) paragraph 198c states that planning decisions should ensure that new development is appropriate for its location considering the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment,

3.1.6. As the applicant has noted the Landscape Institute has prepared Technical Guidance (March 2019) ("the RVAA Guidance") in relation to Residential Visual Amenity. The RVAA guidance states that "it is not uncommon for significant adverse effects on views and visual amenity to be experienced by people at their places of residence as a result of introducing a new development into the landscape".

3.1.7. The applicant further states that "*in active mode, the nature of the LED facade enables the proposed development to display a range of advertising and non-advertising content. This will have an effect on how the proposed development is perceived from surrounding properties and will enhance the visual interest of the local area. It is recognised that the visual experience will depend as much on the personal preferences of the viewers, as the content itself*". They go on to comment that the proposed development "*will create visual interest and intrigue from these properties. Notwithstanding this, it is recognised that the visual experience and enhanced prominence at night-time will depend as much on the personal preferences of the viewers as the content itself*".

3.1.8. Not all receptors will be affected equally, and consideration has to be given to their location, the type of receptor and one size will not fit all.

- Receptors within residential / student premisses are likely to experience the greatest impact, this is their home and their personal space.
- Receptors within hotels will receive the same impact as residents but their period of occupation is transient and whilst they may experience adverse effects it is only short term. However, this could lead to poor reviews and the loss of potential customers to the business.
- Children and older people may experience greater adverse effects than teenagers and middle-aged people, and those within different ethnic minority groups, people suffering disability and long-term illness (including metal health issues, dementia, autism, and epilepsy) will all be affected to differing degrees.

3.1.9. From the assessments made, and consideration of various provided views from properties surrounding the Sphere, the occupiers of the surrounding existing or proposed premises will be very much aware of its presence when the digital façade is operational (day and night) and the displays being presented, be they static or dynamic. This is particularly true in respect of the Unite Student accommodation, Legacy Tower / Stratford Central, Stratford eye and New Garden Quarter. The assessments provided with respect to vertical illuminance on the property windows show that the proposed development will result in light intrusion into these premises. When the sphere is in static mode this will be a constant light but when it is in dynamic mode the level of light intrusion will vary in noticeable levels of intensity and colour and due to the nature of video content these changes can be rapid and instantaneous resulting in visual disturbance and annoyance to the occupier. Conditions in residential properties will become more consistent with those experienced in an entertainment space, which is likely to prompt complaints from residents due to the rapid changes in lighting when video imagery is displayed.

3.1.10. Whilst this may not perhaps constitute a light level over that advised in ILP GN01/21 this is likely to affect the welfare of those affected and be prejudicial to their health, the effects being annoyance, stress, and anxiety. This change is likely to affect living conditions and worsen quality of life.

3.1.11. Similarly, the views available from inside these properties will be of a constantly changing light display and can have the same adverse effects.

3.1.12. Mitigation at the receptors by, for example, fitting blinds / curtains to windows, is not an adequate solution to resolve these light intrusion problems, the source of the problem needs resolution. Occupants should not feel that they must close the blinds / curtains to make the conditions inside their dwelling acceptable.

3.1.13. It is noted that the sphere façade would be subject to various controls which are discussed later within this report.

3.2 IMPACTS REQUIRING ASSESSMENT

3.2.1. The following aspects require due consideration when assessing the impact of an exterior lighting installation with respect to obtrusive light. These are reviewed in turn within this report.

- Limitation of illuminance on surrounding premises
- Intensity of light towards observers within premises (limitation of bright luminaires / LED modules within the field of view)
- Spill light (horizontal and vertical) on to adjacent premises and adjacent land
- Limitation of skyglow
- Limitation of the effect of over-lit building facades, illuminated advertisements and digital displays
- Impact on human health.

3.3 LIMITATION OF ILLUMINANCE ON SURROUNDING PREMISES

3.3.1. The approach to adverse lighting impact assessment set out within chapter 11, light intrusion and upward skyglow[11] regarding the magnitude of impact from the lighting is incorrect. Section 11.50 implies that a vertical illuminance on a window within an E4 zone (an area of high district brightness) is acceptable and considered negligible. It then suggests that levels between 26 and 30 lux would be considered minor, between 31 and 35 considered moderate and above 35 lux considered major in terms of adversity. Similar comments are made in section 11.51 for post curfew levels.

3.3.2. These statements are incorrect, the levels advised within ILP GN01/21 are maximum levels, not to be exceeded and have been determined through the research undertaken by the CIE and advised in CIE 150. It is preferable that the levels are lower and any assessed level above 25 lux may be considered as an actionable nuisance and rectification would be required. Depending upon the nature of the receptor lower levels of illuminance can be considered as having an adverse effect on their wellbeing and in order to protect amenity spill light levels should be as low as possible.

3.3.3. As discussed in section 2.2.6 a demonstration of a sample panel, December 2019, indicated that at 37 cd/m^2 that the façade image may not be compromised. This statement has some uncertainly to it and essentially questions if the display will be bright enough to provide the visual effect and information desired. It is considered that the statement discussed in 3.3.1 is provided to cover the possible concern that when the LED façade modules are set to 25 cd/m^2 / 7 cd/m^2 that the display will be compromised and therefore there will be a wish to increase its output.

3.3.4. It does seem that there is a conflict between the evidence provided in figures 11.17 and 11.18 in Chapter 11 (samples shown below regarding spill light)

[11] Chapter 11: Light intrusion and upward skyglow, sections 11.50 & 11.51

Figure 3-1 - Examples of spill light representation extracted from Chapter 11

Figure 11.17 Level of South Easterly Horizontal Light Spill from the Proposed Development when it is illuminated with a representative moving image within which the white pixels emit at 148 Nits (100 Lux Scale)

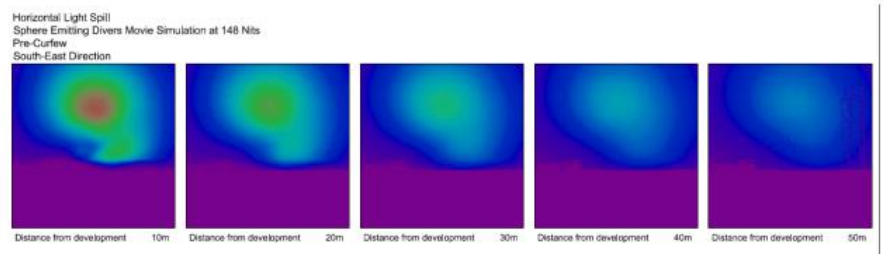
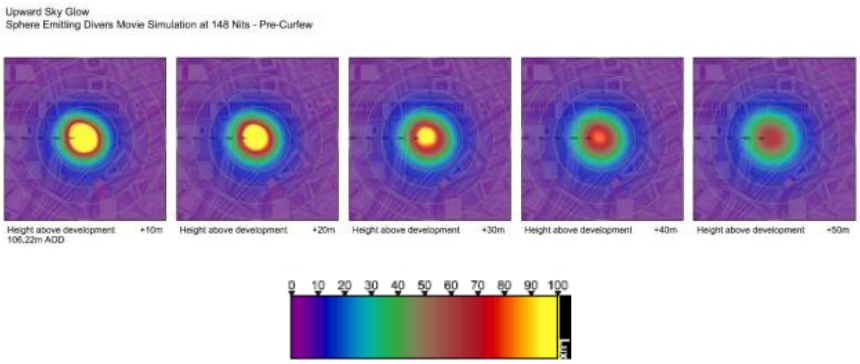


Figure 11.18 Level of Illumination Distribution from the Proposed Development when it is illuminated with a representative moving image within which the white pixels emit at 148 Nits (100 Lux Scale)



3.3.5. Both these figures indicate that the display is set to the same output of 148 NITS (cd/m^2) the grids are the same distance apart, 11.17 being vertical illuminance and 11.18 being upward illuminance assessments. It is appreciated that the vertical assessment is not the full sphere but the vast difference in illuminance at these distances for the same setting does not seem right. More light is being emitted upwards than horizontally. Grid sizes may be different, but the central assessed illuminance should be similar.

3.3.6. It is stated[12] that moving image lighting with white pixels emitting 148 and 30 cd/m^2 (nits) would generate lower illuminances than 37 and 7 cd/m^2 (nits) of uniform white light, and thus the latter set of values is used as a worst-case scenario. This comment only applies if there is a small element of white light within the moving display which is the case for the video images used for assessment[13]. This can't be guaranteed, if the video image has a high proportion of white light content at 148 cd/m^2 even for a brief period then this has the potential to impact on the surrounding properties, to a higher degree that if the sphere was set to all white.

[12] Volume 3, Appendix health, annex 1 LED façade lighting impacts on human health
[13] Annex 4 Illuminance distribution and upward skyglow comparison with London stadium.

3.4 MITIGATION

3.4.1. It is noted that the design of the sphere digital display considered the adoption of five notional zones each of which might emit different brightness levels to mitigate the effects upon the neighbouring building[14]s. The intention being that the digital display performance and output can be monitored and calibrated to mitigate the effect upon the most sensitive neighbours.

3.4.2. The Draft Decision Notice, items 50 and 51 and s106 document which advise on the sphere façade are very limited and do not cover all aspects that we would expect to see including specification of the minimum image display duration and interval between successive image changes. We would suggest that the requirements laid out in the Model conditions developed within the ILP PLG05/23 are considered.

3.4.3. With regards to monitoring, the applicant has proposed several vertical illuminance monitoring locations and the criteria against which these will be assessed. The locations for these will need careful consideration and be located on premisses closest to the proposed development. It is unclear if these will purely be data loggers for downloading and review purposes or will be connected to a control system that will immediately reduce the luminance of the display and thus the vertical illuminance of the windows. How this would work with video displays would be problematic and the over lighting may be transient for a short time depending upon video content.

3.4.4. Mitigation at the receptors by, for example, fitting blinds / curtains to windows, is not an adequate solution to resolve these light intrusion problems, the source of the problem needs resolution. Occupants should not feel that they must close the blinds / curtains to make the conditions inside their dwelling acceptable.

3.5 INTENSITY OF LIGHT TOWARDS OBSERVERS WITHIN PREMISES (LIMITATION OF BRIGHT LUMINAIRES WITHIN THE FIELD OF VIEW)

3.5.1. Intensity is essentially a measure of brightness of the light and is assessed in terms of candelas. This is one of the measures that is assessed when considering adverse lighting impacts. In the case of the sphere the LED modules may appear to the observer as just one light source but as discussed in section 2.2 above the proposed façade consists of numerous individual ice hockey puck or smaller size luminaires / LED modules spaced apart and under PLG01/21 the overall level of intensity should be considered on that basis. No such assessment seems to have been made. The intensity of each LED module is uncertain (see 2.2.3 above). Each module should be assessed on its merits based upon table 4 of ILP GN01/21. The limitation of intensity is a factor of the area of the light source visible to the observer multiplied by the square of the observation distance[15]. When considering digital facades this is a consideration for observers near the façade and multiple luminaires should be considered as one.

3.5.2. The sphere digital display should not be assessed based upon intensity alone as from a distance the whole surface is light emitting. It should be assessed under ILP PLG05/23 table 10.4 and for a

[14] Chapter 11: Light intrusion and upward skyglow, section 11.30
[15] ILP GN01/21 Guidance notes for the reduction of obtrusive light table 4

display of this size the pre-curfew luminance should not exceed 300 cd/m^2. For post curfew the display should either be turned off or reduced by 50% of the pre-curfew levels, these are maximum levels.

3.5.3. The applicant has not provided sufficient information to enable this assessment to be made.

3.5.4. We note that the base line assessment states that some of the adjacent premises' windows have illuminance levels which exceed the recommended vertical illuminance levels advised within ILP GN01 for both pre and post curfew times. It is suggested that previous planning permission has permitted this. It is very unlikely that this is the result of specific consideration and acceptance of these effects as part of the process of deciding to grant planning permission. It is caused by a mixture of different lighting installations, including street lighting (a permitted development). Further evidence is required to substantiate the claim that previous planning permission has permitted the exceedance if that is to be relied upon as a relevant factor.

3.6 SPILL LIGHT (HORIZONTAL AND VERTICAL) ON ADJACENT PREMISES AND ADJACENT LAND

3.6.1. The applicant's assessment states that horizontal spill light is not subject to any specific guidance until the point at which the light reaches the façade of a surrounding sensitive receptor[16]. It then states that horizontal spill light is assessed based upon a vertical 200m^2 assessment plane located at defined distances from the building façade.

3.6.2. These statements are incorrect, and a detailed assessment should be undertaken of the surrounding area. ILP GN01/21 'light spill' specifically states that this is a requirement for the following reasons.

"Designers must consider the task performance requirements of any adjacent lit areas and ensure that any spill light does not adversely affect these performance parameters as this could affect their safe use. This may result in a need to minimise spill and intrusive lighting values to less that might be expected for the Environmental Zone within which the installation lies."

3.6.3. Such areas should include the adjacent and neighbouring areas such as car parks, storage facilities etc. The impact of any spill light onto the adjacent road network has not been identified and assessed, it should not be of such a level that it adversely affects the driver's visibility of the road ahead and any objects or obstacles within it.

3.6.4. The expected assessment and detail provided would be horizontal illuminance iso-contour plots from the proposed site showing the light contribution to these areas, an assessment can then be undertaken to determine if these are considered adverse.

3.6.5. Such assessments have not been provided, and this will be of specific relevance when the sphere display is showing moving / video images.

3.6.6. The submission also states that horizontal spill light is considered as the amount of light falling on a 200m^2 vertical plane located at defined distances from the façade, yet in Chapter 11 clause 11.45 it

[16] Chapter 11: Light intrusion and upward skyglow, sections 11.32 & 11.33

states a 500 m^2 area. These assessments are incorrect - the assessment should be made over the whole of the affected façade. If a building is proposed but not yet built, then a virtual façade representative of the proposed building should be used.

3.6.7. As a rule, digital displays should not be a source of illumination to the surrounding area.

3.7 LIMITATION OF SKYGLOW

3.7.1. The applicant accepts that the visual prominence of the sphere façade at night will be noticeable, providing a distinctive 'glow' which contrasts with the night sky and the street scene.[17]

3.7.2. We do not understand why skyglow is being assessed based upon horizontal illuminance grids above the sphere which are calculating / assessing the upward light levels, this is a most unusual approach.

3.7.3. Skyglow is predominantly caused by light emitted between the angles 85° through to 110° from the downward vertical, and is dependent on the atmospheric conditions (humidity, aerosols, clouds, haze, atmospheric pollution, etc.). Light emitted directly upwards does not have such a great effect on skyglow but of course must be considered.

3.7.4. As noted in paragraphs 2.1.6 and 2.1.7 above this has sustainability, energy and carbon adverse implications.

3.7.5. ILP GN01 comments that light emitted just above the horizontal in a zone between 80° and 110° is extra critical for sky glow. An additional measure in these areas limits the luminous intensities (I_{80} – I_{110}) as follows:

Between 80° and 90°	< 2.0 cd/1000lm.
between 90° and 100°	< 0.5 cd/1000lm; and
between 100° and 110°	0 cd

3.7.6. Light propagating into the atmosphere is partially scattered back towards observers on the ground and that is what the observer sees. Sky glow has no units and cannot be measured.

3.7.7. This can be assessed for individual luminaires as a measure of Upward Light Output Ratio $_{(installed)}$ but as each upper module is facing upward the LOR would be 100%. As noted above, we lack the lumen output at the key angles relevant to skyglow.

3.7.8. The ILP guidance advises that:

'Some lighting schemes will require the deliberate and careful use of upward light, e.g. ground recessed luminaires, ground mounted floodlights, festive lighting, to which these limits cannot apply. However, care should always be taken to minimise any upward waste light by the proper application of suitably directional luminaires and light controlling attachments.'

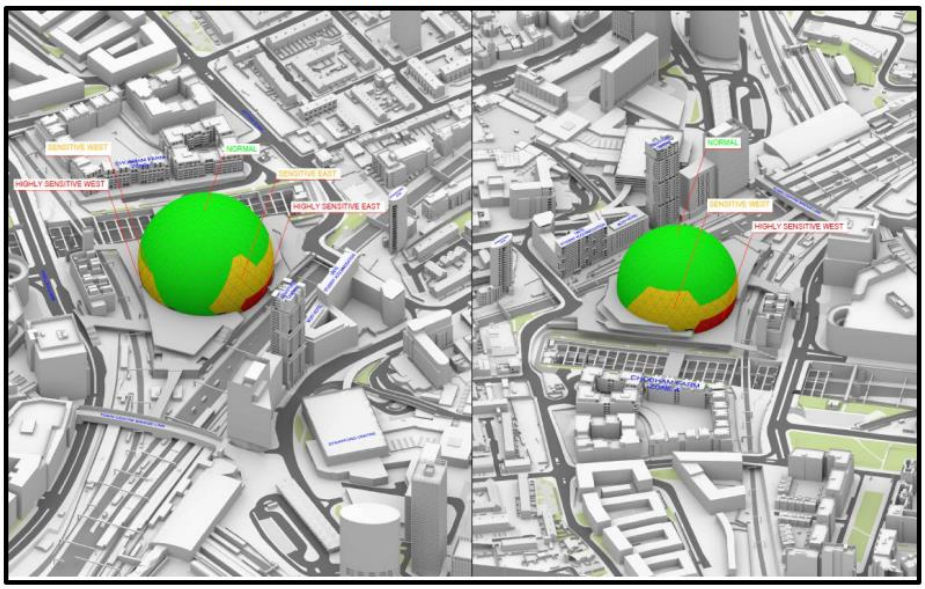
3.7.9. It is noted that the design of the sphere digital display considered the adoption of five notional zones each of which might emit different brightness levels to mitigate the effects upon the neighbouring

[17] MSG Sphere, Residential amenity assessment August 2020.

building[18]s. Chapter 11 figure 11.3 below shows these zones. The intention being that the digital display performance and output can be set to suit receptors' requirements.

Figure 3-2 - Example image of the Five Light Intrusion Sensitivity Zones, extracted from Chapter 11

Figure 11.3 The Five Light Intrusion Sensitivity Zones



3.7.10. We find it surprising that this has not been considered for the upper surfaces of the sphere with respect to all light emitted that has the potential to contribute to skyglow effects.

3.7.11. It is stated[19] that no effect scale and significance criteria are applicable to the upward skyglow as the site is within the heart of Stratford and accordingly is in a highly urbanised and built-up area. We consider this is no reason to effectively dismiss the effects of skyglow. The development should comply with the Environmental Zone criteria set out in ILP GN01 for the Environmental Zone in which it is being built.

3.7.12. We note the comparison with the adjacent stadium, but such comparisons are of limited assistance, each site should conform to the local requirements and to relevant standards and guidance.

3.8 LIMITATION OF THE EFFECT OF OVER-LIT BUILDING FACADES, ILLUMINATED ADVERTISEMENTS AND DIGITAL DISPLAYS

3.8.1. ILP PLG05/23 provides limits for pre- and post-curfew luminance, these are maximum levels. The values are maxima and may be required to be lower to meet the obtrusive spill light limitations set out within ILP GN01.

[18] Chapter 11: Light intrusion and upward skyglow, section 11.30
[19] Chapter 11 Light intrusion and upward skyglow, section 11.52

3.9 IMPACT ON HUMAN HEALTH

3.9.1. There is a growing concern and interest in the potential adverse effects of artificial light by both the public and government which has seen the recent consultation by the House of Lords Science and Technology Committee and subsequent publication of the Committee's report[20].

3.9.2. This is reflected in the '*Clean neighbourhoods and environment Act (CNEA) 2005*' which amended section 79(1) of the Environmental Protection Act 1990 to extend the statutory nuisance regime to include: '(fb) artificial light emitted from premises so as to be prejudicial to health or a nuisance'.

3.9.3. The potential for impact depends upon the types and sensitivities of receptors and this is discussed in 3.1.7 above.

3.9.4. In the application material this issue has mainly been considered within Volume 3, Appendix health, annex 1 LED façade lighting impacts on human health and annex 2 health impact assessment.

3.9.5. There is limited consideration of the potential health and wellbeing effects of light/visual/distraction effects, particularly in relation to mental health, vulnerable groups, and children.

3.9.6. The locations of potential light impact sensitive health receptors are identified in the application documents referred to above, Holden Point, Stratford Circus and One Stratford Place. It is likely that such receptors will also be found in surrounding residential, commercial and office premisses.

3.9.7. There are several aspects that should be considered and addressed.

3.9.8. There is a need to consider noticeable levels of light and visual impacts, not just clinically significant thresholds.

3.9.9. Flicker should also be considered. This can be flicker of the light source that may not be visible and can have adverse effects on human health causing headaches. This should not be an issue with the sphere façade if the LEDs have direct current drivers as indicated, if this changes to alternating current drivers then this needs to be revisited. The other source of flicker and stroboscopic effects is that which can be seen. Depending on individual sensitivity, flicker can have effects ranging from visual discomfort, fatigue and decreased visual performance to the onset of some forms of epileptic seizures. Sensitivity to flicker varies between individuals; research has found that populations more susceptible to flicker effects include children and people suffering from migraine or autism. This requires due consideration, assessment, and limits especially when considering the frequency of and type of transitions, for example fast fade or instantaneous used when changing from one static display to another and regarding moving, flashing and video displays. The ILP PLG05/23 documents provides some advice regarding this.

3.9.10. We see concern regarding flicker effects more often these days, for example advance notices on TV programmes warning about flashing lights.

3.9.11. The other heath effect is anxiety, and this relate to stress, primarily relating to the impact of visual stimulus to the observer. This is affected by feelings surrounding lighting: Do I feel happy to enter

[20] The neglected pollutants: the effects of artificial light and noise on human health, House of Lords, Science and Technology Committee 2nd report of session 2022-23 19 July 2023

my room? Is there is exterior lighting that affects me, and will it be on? What is being displayed? Do I feel a prisoner in my own home?

3.9.12. The application documents do note that concerns and issues may exist, and some commentary is provided regarding certain age groups, people with disabilities or long-term illness. Aspects such as light intrusion have been discussed in Chapter 11 and are considered elsewhere in our report. It is recognised that vulnerable groups are present within the area.

3.9.13. The Environmental Statement High Level Review undertaken by Arup noted that there is limited discussion on the potential health and wellbeing effects of light/visual/distraction effects, particularly in relation to mental health, vulnerable groups, and children. There was also limited discussion of likely light and visual related health and wellbeing effects on the local population and neighbourhood amenity effects.

3.9.14. ES Volume 3, Appendix Health – Annex 1 LED Façade Lighting Impacts on Human Health concludes that given the screen luminance limitation and the likely short-term exposure, the likelihood of health impacts arising from either disability or discomfort glare from the proposed LED façade is considered to be negligible. The comment that such impact is short-term is questionable, for those living, working, or staying close to the sphere the views from their windows will be permanent and changing in nature depending upon what is being displayed, they will be aware of its presence and the display. For example, visual disturbance and annoyance as discussed in section 3.1 and specifically paragraph 3.1.8 above.

3.9.15. The residential amenity assessment[21] report provides visual representation of the sphere façade digital display such that the impact and view of the adjacent receptors can be assessed. Many of the visualisations show that the sphere will dominate and, in some cases, almost totally occupy the view from their premises.

3.9.16. Short wavelength[22] is a consideration when assessing the potential adverse effects on human circadian system which can influence sleep quality. This is discussed only in general terms within the August 2020 application information, but as part of this discussion we need to understand the LED light sources being used and the performance of the LED when displaying white light (see above). As discussed in paragraph 2.1.11 above white light comes in a wide range of colour temperatures from warm through to cold and is considered in terms of the Kelvin temperature scale, the higher the Kelvin the colder the light source appears and the higher the blue light content. At high (cool) colour temperatures the blue light element of the white light is much higher than when considering warm or neural white light, the higher the blue light content the greater the potential for adverse effects, neutral white light should be used. This needs to be clarified.

3.9.17. It is a moot point now that the maximum luminance of the façade is to be 25 cd/m^2 as discussed in section 2.2.3) but the original review and consideration regarding static vs dynamic / video content differences in luminance is retained for reference. It is stated[23] that moving image lighting with white

[21] MSG Sphere residential amenity assessment August 2020
[22] Volume 3, Appendix health, annex 2 health impact assessment, sections 6.127 to 6.129
[23] Volume 3, Appendix health, annex 1 LED façade lighting impacts on human health

pixels emitting 148 and 30 cd/m^2 (nits) would generate lower illuminances than 37 and 7 cd/m^2 (nits) of uniform white light, and thus the latter set of values is used as a worst-case scenario. This comment only applies if there is a small element of white light within the moving display which is the case of the video images used for assessment. This can't be guaranteed, if the image has a high proportion of white light content at 148 cd/m^2 then this has the potential to impact on the surround properties, perhaps fleetingly to a higher degree that if the sphere was set to all white.

3.9.18. The Arup section within the MSG environmental statement regulations and clarifications report August 2020 advises that various health and wellbeing concerns have yet to be closed out so still remain.

4 SUMMARY

4.1 SUMMARY

4.1.1. Based upon the review of the external lighting information submitted, it is considered likely that the proposed installation and its operation will be likely to have significant adverse effects on occupiers of premises and the night-time environment.

4.2 GENERAL

4.2.1. As a general comment there are a range of potential adverse effects from the external lighting identified within the proposal. It is proposed that most of these are managed through planning condition, but we consider that these issues ought to be resolved at the planning / design stage and not once the installation is operating.

4.2.2. If these conditions do not prove effective in avoiding unacceptable impacts, how would the site then operate considering that it has been constructed?

4.2.3. We would also question how the applicable obtrusive light and impact assessment guidance documentation has been applied. Some of the considerations and assessment approaches are not standard, introduce performance level limit creep and in some cases are incorrect in application.

4.2.4. As discussed in paragraph 3.1.8 not all receptors will be affected equally and consideration has to be given to their location, the type of receptor and one size will not fit all.

4.3 SPECIFIC ASSESSMENT SUMMARY

LIGHT SPILL / INTRUSION

4.3.1. Most of the provided documentation relates to the sphere façade lighting with minimal contributing impact assessment from the other lighting - functional (high and low level mounted public realm), decorative, security and information - within the proposed development. The impact of this lighting should not be ignored.

4.3.2. The assessment of the sphere façade lighting seems to be based upon the approach taken when considering standard flat digital displays consisting of a uniform light source. This is not the case with the sphere and the façade consists of many individual luminaires / modules each around the size of an ice hockey puck or smaller, spaced apart from one another. It therefore presents a non-uniform light source and an assessment of intensity from each module needs to be undertaken.

4.3.3. The assessment of illuminance on the surrounding premises then needs to be assessed on this basis.

4.3.4. The interpretation of the applicable guidance documentation such as the ILP's GN01 is incorrect and there is a general presumption within the proposal that it is acceptable for surrounding premises to have up to 25 lux in their windows. This is an upper limit and lower levels of illuminance can still cause significant adverse effects on sensitive receptors. The assessment must therefore be more nuanced. It should be noted that this is the total illuminance on a window so includes all light sources (proposed and existing) that contribute to the light on the window and not just the façade. The assessment does not consider the impact of other light sources that would increase these levels even further.

4.3.5. The approach to adverse lighting impact assessment described within chapter 11, light intrusion and upward skyglow[24] is incorrect. Section 11.50 implies that a vertical illuminance of 25 lux on a window within an E4 zone (an area of high district brightness) is acceptable and considered negligible. It then suggests that levels between 26 and 30 lux would be considered minor, between 31 and 35 considered moderate and above 35 lux considered major in terms of adversity. Similar comments are made in section 11.51 for post curfew levels.

4.3.6. This statement is incorrect, the levels advised within ILP GN01/21 are maximum levels, not to be exceeded, it is preferable that the levels are lower and any levels over 25 lux may be considered as an actionable nuisance.

4.3.7. Over the time taken to develop the application the sphere façade LED module performance has been reduced to 25 and 7 cd/m^2. In the August 2020 amended application the applicant advises that the maximum 25 lux on windows will not be achieved at a luminance of 37cd/m^2. A demonstration of a sample panel, from December 2019, indicated that at 37 cd/m^2 levels the façade image may not be compromised, an image assessment at the amended luminance of 25 cd/m^2 does not seem to have been undertaken. This image statement has some uncertainty to it and essentially questions if the display will be compromised at further reduced luminance of 25 cd/m^2. The approach stated in 4.3.5 above which suggests 'flexibility' in illuminance limits seem to be there to suggest that the luminance of the façade can be increased if the display is considered compromised at 25 cd/m^2, this is not correct.

4.3.8. The proposed sphere's digital display commissioning process would involve the display being set to white light and the output increased until a level of 25 lux is achieved on surrounding sensitive receptors windows. It will then be locked off so it can't increase further. Again, this assumes that spill light and a level of 25 lux on windows is an acceptable norm. How this relates to the advised 37 and 7 cd/m^2 is uncertain. The commissioning process needs to be developed such that the luminance of the façade is set to 25 and 7 cd/m^2 and this should be undertaken with the façade set to white light and the levels of illuminance checked on adjacent premisses to ensure the limits advised in ILP GN01/21 are not exceeded.

4.3.9. There has been no assessment of the intensity (a measure of brightness) towards sensitive receptors from the proposed exterior lighting (sphere digital display and other urban realm associated exterior lighting such as the high-level flood lights). This is of importance as it is another metric that can be related to lighting nuisance and limits are clearly advised within the ILP Guidance.

4.3.10. The luminance of the digital display is only referenced in terms of a single LED module. This is an inappropriate approach when the luminaire / light sources are discrete and not clustered. The sphere's digital display consists of closely pitched LED modules and therefore such an approach is not applicable, and the contributory factor of adjacent light sources (LED modules) must be considered.

[24] Chapter 11: Light intrusion and upward skyglow, sections 11.50 & 11.51

SKY GLOW

4.3.11. As a general comment it is unclear who the intended observers of the sphere's digital display are. Realistically it is likely to be observers located at ground level as there are no observers above it. Under the submitted proposal light will be emitted in all directions from the sphere façade and this is not an environmentally friendly approach. The applicant accepts that the visual prominence of the sphere façade at night will be noticeable, providing a distinctive 'glow' which will contrast with the night sky and the street scene.

4.3.12. Any light emitted from a lighting installation that serves no purpose is wasteful of energy and carbon and in that respect is unsustainable.

4.3.13. The skyglow assessments are incorrect in that only light emitted directly upwards has been considered and this is represented in terms of illuminance based upon a series of horizontal grids above the sphere. This is an unusual approach to such an assessment, and we would normally expect a detailed assessment in terms of lumens emitted at the key angles of 80 to 100 degrees from the downward vertical. This information is not provided.

4.3.14. Based upon the information provided the digital display is emitting more light vertically into the atmosphere than it is horizontally towards sensitive receptors. There is a proposal for the adoption of five notional zones across the sphere each of which might emit different brightness levels to mitigate the effects upon the neighbouring building[25]s (Chapter 11 figure 11.3). The intention being that the digital display performance and output can be set to suit receptors' requirements, it is unclear why this has not been considered with respect to the prevention of skyglow.

4.3.15. The statement that the sphere emits less light vertically than the calculated impact of the adjacent West Ham United stadium (London Stadium) is of limited utility.

HUMAN HEALTH

4.3.16. There is growing concern and interest in the potential adverse effects of artificial light by both the public and government which has seen the recent consultation by the House of Lords Science and Technology Committee and subsequent report publication[26].

4.3.17. It is important to fully consider the potential impact on human health.

4.3.18. The supplied documents do note that concerns and issues may exist, and some commentary is provided regarding certain age groups, people with disabilities or long-term illness.

4.3.19. Sensitivity to flicker varies between individuals; research has found that populations more susceptible to flicker effects include children and people suffering from migraine or autism, flicker and stroboscopic effects can cause visual discomfort, fatigue and decreased visual performance to the onset of some forms of epileptic seizures.

[25] Chapter 11: Light intrusion and upward skyglow, section 11.30

[26] The neglected pollutants: the effects of artificial light and noise on human health, House of Lords, Science and Technology Committee 2nd report of session 2022-23 19 July 2023

4.3.20. ES Volume 3, Appendix Health – Annex 1 LED Façade Lighting Impacts on Human Health concludes that given the screen luminance limitation and the likely short-term exposure, the likelihood of health impacts arising from either disability or discomfort glare from the proposed LED façade is considered to be negligible. The comment that such impact is short-term is questionable, for those living, working or staying close to the sphere the views from their windows will be permanent and also changing in nature depending upon what is being displayed, they will be aware of its presence and the display.

4.3.21. The residential amenity assessment[27] report provides visual representation of the sphere façade digital display such that the impact and view of the adjacent receptors can be assessed. Many of the visualisations show that the sphere will dominate and, in some cases, almost totally occupy the view from their premises.

4.3.22. Short wavelength[28] (blue light) has the potential to give rise to adverse effects on the human circadian system which can influence sleep quality. The proposal makes many mentions of white light but does not define what it is. As discussed in section 2 of this report white light comes in a wide range of colour temperatures from warm through to cold and is considered in terms of the Kelvin temperature scale, the higher the kelvin the colder the light source appears and the higher the blue light content. It is the blue light content that can have the greatest adverse health impacts and it would be preferable if the upper limit was set at 4,000 kelvin.

[27] MSG Sphere residential amenity assessment August 2020
[28] Volume 3, Appendix health, annex 2 health impact assessment, sections 6.127 to 6.129

5 DEFINITIONS

5.1 DEFINITIONS

International definitions on terms can be gained from the CIE International Lighting Vocabulary https://cie.co.at/e-ilv key terms used within this report are summarised below.

Digital display A digital display is a uniform structure composed of components that emit light. These components may be able to change intensity and colour and may be addressed individually and controlled together. The components are sufficiently close together and are furnished with appropriate control such that they may be resolved by the human eye to display a recognisable image and/or alphanumeric text. These images may be static or change dynamically. If changed frequently then these images can be read as video or film.

Distribution	The distribution pattern of light emitted from the luminaire / light source represented by polar curves / spread of light not the task surface.
Light spill	The spill of light beyond the boundary of the task area being lit.
Nuisance	A nuisance can be defined, albeit in general terms, as an action (or sometimes a failure to act) on the part of a defendant, which is not otherwise authorised, and which causes an interference with the claimant's reasonable enjoyment of his land, or to use a slightly different formulation, which unduly interferes with the claimant's enjoyment of his land.
Obtrusive light	Light which, because of the quantitative, directional, or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information, this can include but not be limited to spill light, source intensity, disability and discomfort glare, flicker as well as sky glow.
Observer	An observer is a person who may be the intended audience for the illuminated advertisement installation or may be someone to whom it is a source of obtrusive light. Observers may be located within premises, be pedestrians, cyclists, drivers and passengers of motor vehicles, trains, trams, buses and so forth.
Premises	A house or business premise, together with its land and outbuildings, occupied by a business or person.
Skyglow	The brightening of the night sky.
Upward Light Output Ratio	the maximum permitted percentage of luminaire flux that goes directly into the sky, and this is the proportion of light that is emitted at or above the horizontal when a luminaire is mounted in its installed position.
Vertical illuminance	Vertical illuminance is the amount of light falling on a vertical surface or plane, measured in Lux.

5.2 REPORT BY

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Allan is the Technical Director for our UK Lighting & Energy Solutions Business. With 39 years' worth of experience in lighting he provides a group level role providing clients with technical advice and support to introduce innovation, develop lighting and operational systems & policies looking to produce sustainable lighting installations as well as providing specialist training.

Through his involvement with several professional bodies including the Institution of Lighting Professionals (ILP) and the International Commission of Illumination (CIE) Allan leads and contributes to research and investigations aimed at developing International and National light and lighting Standards and good practice

Allan is well placed to be aware and understand current and forth coming developments in the lighting and environmental sectors. This enables our clients to be future ready and proactive in the development of their lighting specifications, operations, and service delivery to meet these developments and changes.

Allan is a Fellow of the Institution of Lighting Professionals (ILP), a Fellow of the Society of Light & Lighting and a past President of the ILP (2011/12). Allan is an active lighting industry member chairing and contributing to specialist panels producing national guidance reports on lighting issues (obtrusive lighting, good lighting practice, application of standards to name a few), as well as being a representative on the ILP National Technical Committee.

Allan is the Executive Secretary for the National Illumination Committee (CIE-UK) part of the International Commission of Illumination and Secretary to the UK Lighting Liaison Group.

Core relevant experience

International Commission of Illumination (CIE). Allan is the UK representative on the CIE Technical Committees TC-58 'Obtrusive Light from Colourful and Dynamic Lighting and its Limitation'.

Institution of Lighting Professionals (ILP) Guidance. Allan was lead author for the revised ILP Guidance GN01/20 and /21 Guidance note for the management and assessment of obtrusive light, this is a core UK reference document for the consideration of artificial light emitted from a premise and for PLG05 The brightness of illuminated advertisements and digital displays.

Digital media displays / colourful dynamic lighting installations. UK representative on Technical Committee TC4-58 looking to develop the considerations, understanding and recommendations on how colourful dynamic lighting installations should be considered and assessed to avoid obtrusive light and skyglow effects, reporting 2025.

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