The London Resort Development Consent Order

BC080001

Environmental Statement
Volume 2: Appendices

Appendix 15.5 – Construction noise and vibration mitigation

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Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
Regulation 5(2)(a)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Regulation 12(1)

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Appendix 15.5 Construction and Operational Noise and Vibration Mitigation

CONSTRUCTION NOISE MITIGATION

15.5.1 The proposed mitigation detailed within this section will be secured through the outline CEMP (document reference 6.2.3.2) and as the CEMP remains a live document throughout the construction stages, it will be managed and updated accordingly by the Principal Contractor.

15.5.2 Examples of mitigation measures that can be used to control construction noise are found in Section 8 of BS 5228-1:2009+A1:2014:

- Selecting quieter plant and equipment for the Earthworks, Piling, Paving, General Construction activities (detailed in Table 15.3.3 in Appendix 15.3);
- Turning equipment off when they are not in use (general construction);
- Providing enclosures around fixed plant like power generators or using mains power (General Construction);
- Ensuring that all plant and equipment is well maintained;
- Keep internal haul routes well maintained and avoid steep gradients (Earthworks, Paving);
- Use rubber linings in chutes and dumpers to reduce impact noise (Earthworks, Paving);
- Minimise drop heights of materials (Paving);
- Start plant up sequentially rather than simultaneously (General Construction);
- Move fixed plant away from identified noise sensitive receptors (General Construction);
- Modify existing plant with noise attenuation packages such as acoustic enclosures and attenuators;
- For impact driven piling, a non-metallic dolly between the hammer and the driving helmet should be used (Piling);
- Introducing an acoustic shroud for impact driven piles (Piling);
- Choose a quieter piling method (Piling); and

CONSTRUCTION VIBRATION MITIGATION

15.5.3 Examples of mitigation measures that can be used to control construction vibration are found in Section 8 of BS 5228-22009+A1:2014:

- Substitute plant and/or methods with less obtrusive plant and/or methods (General Construction);
- Where reasonably practical, move vibrating equipment away from identified NSRs (General Construction);
- Vibration isolation of stationary plant (General Construction);
- Selecting less intrusive methods of piling (Piling);
- Employ cut-off trenches which are analogous to noise barriers (Piling); and
- Pre-auguring before installing the piles (Piling).

OPERATIONAL NOISE MITIGATION

15.5.4 Example mitigation measures that can be used to control the noise due to the operation of London Resort are provided below:

Road traffic noise

15.5.5 Acoustic modelling shows that the impact from road traffic noise is mostly confined to NSRs with an unobstructed line of sight to the new Access Road. Options for mitigating these low magnitude impacts include: earth bunds, low height roadside noise barriers, reduced vehicle speeds or the choice of lower noise road surfaces.

Rides and attractions

15.5.6 Acoustic modelling shows the magnitude of noise impact to be low magnitude impacts, but due to the height of some rides, it is possible for the sound to travel over further distances. Mitigation of mechanical 'clanking' noises is best provided at source through the use of strict noise performance criteria given to the ride manufacturers. The sound of people screaming can be mitigated through the deliberate positioning of 'scream zones' (where the motion of the ride encourages screams) in locations where the orientation of the ride minimises the sound reaching the NSRs.

Infrastructure compounds

15.5.7 Limiting noise levels have been set for infrastructure compounds proposal to prevent noise impacts on local NSRs.

Passenger Ferry

15.5.8 Acoustic modelling shows the noise level due to the operation of the passenger ferry to be greatest when it is manoeuvring close to shore. The propagation of noise can be mitigated by the positioning of buildings to act as noise screens and by using carefully positioned noise barriers.

Outdoor London Resort events

15.5.9 Noise from loudspeaker systems used for outdoor events can be controlled by the following mitigation measures:

- Limiting the sound pressure level of loudspeaker systems to levels below the existing ambient noise level at NSRs;
- Optimising line array loudspeaker directivities to control noise emissions within the London Resort entertainment locations, reducing noise spill out of the external areas;
- Design external events spaces, so that loudspeakers are directed away from existing NSRs.