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8.1 INTRODUCTION

- 8.1.1 This part of the Statement has been prepared by Stephen Moore of Moirhands.
- 8.1.2 This chapter addresses the potential noise and vibration effects arising from the Teddington Studios site redevelopment for residential use. It identifies and describes relevant planning policies, guidance, standards and legislation on noise and the criteria used to assess the potential noise and vibration effects on both existing and proposed sensitive uses.
- 8.1.3 The assessment considers the potential noise and vibration effects that may arise during the construction and operation of the development.
- 8.1.4 Limitations, constraints or assumptions which relate to the assessment are described. Baseline noise conditions have been described quantitatively and qualitatively. The direct and indirect effects of the constructional and operational phases are addressed together with any mitigation required. Residual effects have also been considered.

Scope of Assessment

- 8.1.5 The assessment considers the existing situation and the changes to the noise environment of neighbouring dwellings and the land use, resulting from the development.
- 8.1.6 It considers the noise environment to be experienced by future occupants of the development and the factors that will influence it and mitigation measures that may be needed to ensure a good standard of amenity.

Data Collection Methodology

- 8.1.7 Data for the prevailing noise environment has been collected on several occasions covering the daytime and night-time periods as well as a Sunday, at appropriate locations around the site.

8.1.8 In addition, the noise from particular sources has been gathered by measurement and by reference to established data for each of the sources of noise that have been included in the assessment.

8.1.9 Traffic data for the current situation together with estimates for the likely change following completion of the development have been obtained from the SBA, the highways consultants for the project.

8.1.10 Information submitted by PBA in relation to the proposal to introduce a hydro power scheme in the nearby weir has been used to gauge the likely impact of proposal on the Teddington Studios scheme.

8.2 POLICY CONTEXT

National Planning Policy

National Planning Policy Framework (NPPF)

8.2.1 The Department for Communities and Local Government published the National Planning Policy Framework (NPPF) 2012. Following its publication, the majority of planning policy statements and guidance notes were rescinded including Planning Policy Guidance 24 'Planning and Noise'.

8.2.2 The NPPF outlines four aims in relation to noise. These are:

- *Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not*

have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and

- *Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”*

8.2.3 There are two footnotes to the NPPF guidance. The first refers to the Explanatory Note of the Noise Policy Statement for England, which gives definitions for both “*significant adverse impacts on health and quality of life*” and “*adverse impacts on health and quality of life*” as given in the first two bullet points.

8.2.4 The second footnote indicates that the third bullet point is “subject to the provisions of the Environmental Protection Act 1990 and other relevant law”.

8.2.5 The NPPF suggests that planning decisions should be made in accordance with the Local Development Plan.

Noise Policy Statement for England (NPSE)

8.2.6 The NPSE was published in March 2010. It seeks to clarify the underlying principles and objectives in existing policy documents, legislation and guidance that relate to noise. It also sets out the long-term vision of Government noise policy which is: *‘to promote good health and a good quality of life through the effective arrangement of noise within the context of Government policy on sustainable development’*.

8.2.7 The NPSE suggests that noise should not be considered in isolation of the wider benefits of a scheme or development, and that it aims to minimise noise and noise effects as far as is reasonably practicable having regard to other matters within the planning and sustainability context.

8.2.8 The notes attached with the NPSE defines the terms used in the NPPF:

“2.20 There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level about which adverse effects on health and quality of life can be detected.

2.21 Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur”.

8.2.9 The NPSE does not in itself provide a numerical value for the SOAEL, preferring instead to state in paragraph 2.22:

“It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledge that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having

specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.”

- 8.2.10 The NPSE has three objectives, two of which relate back to the NPPF aims and a third which relates to improvement in health and quality of life:

“The first aim of the Noise Policy Statement for England

Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

2.23 The first aim of the NPSE states that the significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development (paragraph 1.8).

The second aim of the Noise Policy Statement for England

Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

2.24 The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.

The third aim of the Noise Policy Statement for England

Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental,

neighbour and neighbourhood noise within the context of Government policy on sustainable development.

2.25 This aim seeks, where possible, positively to improve health and quality of life through the pro-active management of noise while also taking into account the guiding principles of sustainable development (paragraph 1.8), recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.”

- 8.2.11 It is clear that noise that would or could lead to significant adverse effects should be avoided. There is however no definition as to what constitutes a significant adverse effect. Similarly, noise should be mitigated where it is high enough to lead to adverse effects, but not so in situations where the resultant noise still creates significant adverse effects.

Local Planning Policy

- 8.2.12 The Council has an adopted Core Strategy and Development Management document.

8.3 BASELINE CONDITIONS

Site Description

- 8.3.1 A full site description is provided in ES Part II.

The Project

- 8.3.2 A full description of the project is also given in ES Part II. In summary here, the proposal seeks to demolish the existing buildings (except Weir Cottage) and erect part four/part five/part six/part seven storey buildings to provide flats, the erection of 12, three storey houses to Broom Road, use of Weir

Cottage for residential purposes, provision of car parking spaces at basement and ground level, the closure of existing access and provision of two new access from Broom Road and the provision of a publicly accessible riverside walk together with cycle parking and landscaping.

8.3.3 Vehicular access to the completed development will be from Broom Road only.

8.3.4 The following best practice measures will be incorporated in the scheme:

- Any externally mounted fixed mechanical plant would be assessed in accordance with the advice given in BS4142
- The buildings would be designed in accordance with the relevant regulations and the party floors/walls would satisfy the performance criteria listed in Approved Document E
- Noise from demolition/construction will be minimised as far as practicable and in accordance with relevant legislation

8.3.5 For the purposes of this assessment, noise sensitive receptors are residential dwellings (those existing and those forming part of the development), hospitals, schools, churches, care homes and public open spaces.

Baseline Noise Survey

8.3.6 Noise monitoring was undertaken at representative locations around the site in order to establish the existing representative baseline noise levels. These positions are indicated in Figure 8.1 in Appendix 8.1.

8.3.7 The periods covered included the weekday daytime and evening, overnight and on a Sunday.

8.3.8 The instrument used for the survey was a Norsonics 118 precision integrating sound level meter.

- 8.3.9 Measurements were made over periods of 15 minutes during the day and 1 hour overnight. L_{eq} , L_{10} , L_{90} and L_{max} metrics were measured.
- 8.3.10 The microphone was positioned at a height of 1.5m above ground level and no closer than 3.5m to any vertical reflecting surface.
- 8.3.11 Meteorological conditions prevailing at the time of the surveys were conducive to obtaining representative measurements of the noise environment at this location.
- 8.3.12 During the weekday daytime survey, the ambient noise levels varied from 52dBA to 65dBA and the background noise levels ranged from 51dBA to 53dBA.
- 8.3.13 Overnight, ambient noise levels were in the range 47-57dBA with corresponding background noise levels in the range 38-49dBA, with L_{max} levels up to 74dBA.
- 8.3.14 Sunday daytime ambient noise levels on Broom Road were only very slightly lower than those recorded during the week.
- 8.3.15 The survey results are provided in Table 8.1 in Appendix 8.1.

8.4 PREDICTING THE IMPACTS OF DEVELOPMENT

Construction Effects

- 8.4.1 For the purpose of this assessment, the noise and vibration effects of the construction phase have been assessed only in broad terms. This is because detailed information relating to construction techniques to be used and schedules of work are not available at this early stage in the process.
- 8.4.2 A Construction Environmental Management Plan or similar protocol would be implemented by contractors to minimise noise and vibration effects, where reasonably practicable.

8.4.3 Standard construction site working hours would be applied to the site. These are Mondays to Fridays, 8:00 – 18:00hrs, Saturdays 08:00hr – 13:00hrs and not at all on Sundays or Bank Holidays.

8.4.4 Where work is required to be carried out outside these hours, an application would have to be made to the Local Authority under Section 61 of the Control of Pollution Act by way of an agreed programme of work.

8.4.5 Noise from this aspect of the scheme is temporary but would have an impact rated as a moderate to significant impact.

Construction Vibration

8.4.6 No details are available relating to the form to be taken by the foundations of the buildings. Where piling is required, this would most likely take the form of continuous flight auger piles and sheet piling for temporary works. Vibration from these types of activities would be temporary and would have negligible to minor adverse impacts.

Construction Traffic

8.4.7 HGV movement would only take place during the daytime and only during the agreed site working hours.

8.4.8 HGV movements are unlikely to generate more than a 6dBA increase in noise on the immediate local road network.

8.4.9 This is a temporary effect and would have only a moderate impact on the environs.

OPERATIONAL EFFECTS

Road Traffic Noise

8.4.10 The predicted change in the traffic noise the adjoining road network during peak hours has been calculated. These are based on road traffic data supplied to us by SBA.

8.4.11 Traffic flows were provided for the following scenarios:

2013 - existing

2016 - (do nothing)

2016 - (with development) AM & PM peak flows

2031 - (with development) AM & PM peak flows

8.4.12 Calculations of noise change have been based simply on pro-rata changes in traffic volumes for each of the roads considered. This is an acceptable method to use even though it overstates the daytime impact.

8.4.13 Table 8.2 illustrates the resultant changes.

Table 8.2 Traffic Impacts

		2013	2016 Do nothing	2016 With development	2031	% increase 2031/ 2013	Change in noise level (dBA)
Ferry Road	AM	600	605	599	720	0.2	0.8
	PM	638	643	614	742	0.16	0.65
Broom Road	AM	329	354	346	384	0.17	0.65
	PM	324	348	343	404	0.25	1.0
Kingston Road	AM	932	940	939	1126	0.21	0.8
	PM	1030	1039	1036	1241	0.21	0.8
St. Winifred's Road	AM	53	57	49	59	0.11	0.4
	PM	51	55	50	56	0.1	0.4

8.4.14 The predictions indicate that the impact of traffic from the development on the local road network would be imperceptible and is therefore of negligible significance.

Residential Suitability

8.4.15 The principal contributor to the noise environment at the site is that from traffic on Broom Road.

8.4.16 The level of noise reaching the facades of the 4 blocks of flats and the new dwellings fronting Broom Road are given in Table 8.3. Note that there would be no change to the noise environment experienced by Weir Cottage. These predictions assume a 'worst case since dwellings further from the road and neighbouring land uses will experience lower noise levels.

Table 8.3: Summary of Predicted noise levels at Residential Facades

Block	Maximum Daytime L_{eq} (dBA)	Maximum Night- time L_{eq} (dBA)	L_{max} (dBA)	Facade Reduction
A	62	55	73	32
B	62	55	73	32
C	62	55	73	32
D	65	55	73	35
Houses/F	65	58	77	35

8.4.17 Acceptable internal noise levels can be achieved in accordance with the relevant standards and guidance. The residential units will be designed to ensure that the internal noise environment in habitable rooms will meet the criteria set out in BS8233, WHO guidelines and LPA policy. Acceptable internal noise environments can be achieved with an appropriate facade specification in the form of building construction, glazing and ventilation. Planning conditions would be specified to ensure that residential amenity of future residents is secured.

- 8.4.18 There are proposals to construct a hydro power facility at Teddington Weir to the south.
- 8.4.19 Information from the PBA report submitted with the application for the scheme has been used to assess the likely impact of that development on the proposed residential scheme. Ignoring any screening of the proposed facility by existing buildings on the adjoining Lensbury site, the noise emissions for the hydropower scheme, with the specified mitigation which is to be included in the design, would be below that permitted by BS4142. The impact of the proposed hydro scheme would therefore not be significant.
- 8.4.20 There is mechanical plant associated with the adjoining Lensbury Hotel/Leisure facility. A chiller unit may require additional attenuation to bring it in line with the requirements of BS4142.
- 8.4.21 There are sports facilities in the form of football and hockey pitches and tennis courts opposite or in the vicinity of the development site. These are mainly used by a variety of education establishments. Their use is not limited to the daytime nor the weekday with plenty of activity taking place at weekends.
- 8.4.22 The Anglers Public House which is situated just beyond the northern boundary of the site has an open space area to the rear which is used as a beer garden. It also incorporates a play area with climbing frames and the like for children to play on. The use of this area does generate noise but only when the prevailing weather permits its use. The noise from this facility is likely to have a moderate impact but only on part of the proposed development.

8.4.23 Table 8.4 summarizes the impacts.

Table 8.4: Summary of Impacts

Topic Area (Noise)	Description of Impact	Geographical Importance					Impact	Nature	Significance after Mitigation
		N	R	S	D	L			
Construction	Construction Activity				*	*	Adverse	Short term	Moderate
	HGV Movements			*	*	*	Adverse	Short term	Moderate
Operation	Traffic Noise				*	*	Neutral	Long term	No effect
	Plant Noise					*	Neutral	Long term	No effect
	External Plant on adjoining development					*	Adverse	Long term	Low
	External activity noise – commercial					*	Adverse	Long term	Moderate
	External activity noise – sports					*	Adverse	Long term	Moderate
	Hydro scheme					*	Neutral	Long term	Low

KEY:

Geographical Level of Importance	Impact	Nature of Impact	Significance
National	Adverse	Long Term	Significant
Regional	Neutral	Short Term	Moderate
Sub-Regional	Beneficial		Low
District			No Effect
Local			

8.5 MITIGATION

Construction

8.5.1 Noise from construction activities would be controlled to agreed limits or through a Section 61 consent (COPA 1974).

8.5.2 All reasonably practicable steps would be employed to minimise any disturbance arising from construction noise and vibration at all neighbouring sensitive receptors.

Completed Development

8.5.3 Any plant noise would be controlled to specified and agreed limits.

8.5.4 Glazing performance would be sufficient to ensure internal acoustic comfort conditions at least matched those demanded by the Standards.

8.6 RESIDUAL IMPACTS

Construction

8.6.1 There would be no residual impact associated with this scheme.

Completed Development

8.6.2 In relation to noise from the playing fields opposite and that from neighbouring commercial development, there would be no change post-development.

8.6.3 Noise from plant in the adjoining Lensbury site could be reduced.

8.6.4 Table 8.5 below illustrates the residual impact.

Table 8.5: Summary of Residual Impacts

Topic Area (Noise)	Description of Impact	Geographical Importance					Impact	Nature	Significance after Mitigation
		N	R	S	D	L			
Construction	Construction Activity				*	*	Adverse	Short term	Moderate
	HGV Movements			*	*	*	Adverse	Short term	Moderate
Operation	Traffic Noise				*	*	Neutral	Long term	No effect
	Plant Noise					*	Neutral	Long term	No effect
	External Plant on adjoining development					*	Adverse	Long term	Moderate
	External activity noise – commercial					*	Adverse	Long term	Moderate
	External activity noise – sports					*	Adverse	Long term	Moderate
	Hydro scheme					*	Neutral	Long term	low

KEY:

Geographical Level of Importance	Impact	Nature of Impact	Significance
National	Adverse	Long Term	Significant
Regional	Neutral	Short Term	Moderate
Sub-Regional	Beneficial		Low
District			No Effect
Local			

8.7 CUMULATIVE IMPACTS

Construction

8.7.1 There are no cumulative impacts associated with construction. It is a temporary issue.

Completed Development

8.7.2 The proposed hydropower scheme has been assessed by others in relation to its impact. The analysis indicates that the cumulative impact of the scheme is negligible.

8.8 SUMMARY AND CONCLUSIONS

- 8.8.1 The proposed residential scheme would have no detrimental impact on the prevailing noise environment in the locality.
- 8.8.2 The housing element of the scheme will experience noise from traffic and from the sports facilities opposite. The extent and degree will be similar to that experienced at 'The Lodge', Weir Cottage and those dwellings on Broom Road just to the north of the sports facilities.
- 8.8.3 Some of the flats will experience noise from The Angler's beer garden but this is occasional rather than continuous.
- 8.8.4 Overall, a development of the type and scale proposed at Teddington would have negligible impact on its surroundings and from the noise standpoint, there is nothing about its environs which should prevent development of this kind in this location.