

EXHIBIT LIST

Reference No: HOL/10018

Petitioner: EUSTON STANDARD PACK

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Construction Noise and Residential Mitigation at Euston

Assessment methodology

The Promoter's policy was developed through a detailed process. Reviewed by independent professionals, it represents the Promoter's interpretation of the Government's Noise Policy Statement for England (NPSE).

Aims of the NPSE follow established concepts from toxicology that are applied to noise impacts, for example, by the World Health Organisation. The NPSE extends to the concepts of LOAEL and SOAEL.

- LOAEL – Lowest Observed Adverse Effect Level – the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level – the level above which significant adverse effects on health and quality of life can occur

The setting of LOAELs and SOAELs underwent review with relevant government bodies (Defra), having due regard for established practice, research results and guidance in national and international standards, as well as independent academic review.

Assessment methodology

For dwellings, the LOAELs set by the Promoter include :

- 65 dB for the 0800-1800 LAeq at the façade and
- 45 dB for the 1 hour LAeq at the façade during 2200-0700

Where baseline levels are higher (as arises in part of the Euston area for example at night) significant effects are judged against thresholds that match the baseline.

For dwellings, the SOAELs set by the Promoter include :

- 75 dB for the 0800-1800 LAeq at the façade and
- 55 dB for the 1 hour LAeq at the façade during 2200-0700

Construction noise predictions

The construction noise predictions in the SES2 and AP3ES include basic level mitigation but are conservative. It is expected that the contractor will achieve lower levels under the requirements of the draft CoCP (Section 13) and Section 61 process that will include best practicable means e.g.:

- Quieter methods of working
- Quieter plant options;
- Scheduling less work at night;
- Faster working, less overlapping activities so lower numbers of plant; and
- Noise barriers close to plant.

The measures identified in the draft CoCP include application of the section 61 consent procedure and the HS2 noise insulation and temporary rehousing policy.



Approach to construction noise mitigation

Section 13 of the draft Code of Construction Practice sets out how the Nominated Undertaker and its contractors will control and reduce noise and vibration arising from the works.

Best Practicable Means (BPM) will be used to minimise noise and vibration at neighbouring residential properties and other sensitive receptors.

The measures proposed will be detailed by the contractor in prior consent applications to LB Camden under section 61 of the Control of Pollution Act 1974.

The contractor will be required to monitor construction noise and vibration, including agreed arrangements for responding to exceedances of noise targets, for responding to complaints and reporting.

The Nominated Undertaker will also commence a survey within six months of the start of the main works to consider health impacts experienced by residents that may be attributed to noise from the construction of HS2. The results of this may be used to review the criteria for noise mitigation, noise thresholds and construction hours.

HS2 – Noise insulation and temporary rehousing policy

- The aim of the policy is to protect residents so that significant adverse effects on their health and quality of life from construction noise are avoided. HS2 Information Paper E23 gives details.
- The noise insulation thresholds match the SOAELs with more detailed time periods.

Noise insulation and temporary rehousing thresholds

To be eligible a resident must own or occupy a private dwelling and the dwelling must be one in which the predicted or actual noise exceeds the relevant threshold for:

- a period of 10 or more days of working in any 15 consecutive days during construction; or
- for a total of 40 days or more in any 6 consecutive months during construction

Day	Time (hours)	Averaging Period T	Noise Insulation trigger level LAeq,T (dB) */**	Temporary re-housing trigger level LAeq,T (dB) */**
Monday to Friday	0700 - 0800	1 hour	70	80
	0800 - 1800	10 hours	75	85
	1800 - 1900	1 hour	70	80
	1900 - 2200	1 hour	65	75
Saturday	0700 - 0800	1 hour	70	80
	0800 - 1300	5 hours	75	85
	1300 - 1400	1 hour	70	80
	1400 - 2200	1 hour	65	75
Sunday & Public Holiday	0700 - 2200	1 hour	65	75
Any day	2200 - 0700	1 hour	55	65

*Proposed Scheme construction sound only. Trigger levels are defined as 1m in front of the closest facade of a habitable room.

** Where the current ambient noise level is greater than the noise insulation trigger level:

- a) the ambient noise level shall be used as the noise insulation trigger level, and
- b) the ambient noise level +10dB shall be used as the temporary rehousing trigger level.

Noise Insulation Package

Noise insulation measures which will be offered to residents with the aim of avoiding significant adverse effects will include:

- Secondary glazing for eligible windows, to reduce the amount of construction noise transmitted into homes;
- Supplementary ventilation, if required under the relevant specifications; and
- Blinds for south, east and west facing windows to minimise solar gain on sunny days.

Ventilation

- Supplementary ventilation, if required, will be offered as part of the noise insulation package.
- The purpose of the supplementary ventilation is that eligible properties affected by construction noise can maintain adequate ventilation, following the installation of secondary glazing.
- The supplementary ventilation offered will be compliant with the Building Regulations and Noise Insulation (Railway & Other Guided Transport) Regulations.

Noise Insulation - Procedure

Annex B of Information Paper E23 provide further details of the process being adopted routewide for delivering noise insulation which will include the following activities:

- Nominated Undertaker assesses eligibility;
- Nominated Undertaker notifies owners;
- Survey of property undertaken;
- Offer of noise insulation made;
- Contractor installs noise insulation; or
- Resident has noise insulation installed and is reimbursed.

HS2 has agreed a specific approach with LB Camden with the aim of ensuring that the Noise Insulation scheme at Euston can be fully implemented before the works which trigger the requirement for insulation start.

Noise Insulation – Agreed approach at Euston

Site inspections and further assessment have confirmed that there are approximately 1,300 individual dwellings at Euston which may be eligible for noise insulation.

Potentially eligible individual property owners were informed in April 2016 and information events have been held.

A separate study is to be carried out by an Independent Assessor due to concerns raised by LB Camden regarding the indirect effects of secondary glazing and the closing of windows due to adverse noise effects. HS2 Ltd is in the process of seeking to appoint the Independent Assessor in consultation with LB Camden.

Noise insulation will be installed in phases, with the intention that it is provided ahead of those works which trigger the requirement for noise insulation in each area.

Noise Insulation – Listed Buildings

There are additional considerations when installing noise insulation within listed buildings, such as that it can be removable without affecting the fabric of the building.

Where secondary glazing is fitted, guidance from Historic England's *Energy Efficiency and Historic Buildings - Secondary Glazing for Windows* will be followed.

The external appearance of the façade should be maintained as far as is reasonably practicable, for example glazing bars and frames to be aligned with existing.

Ventilation openings should be designed and located to maintain external appearance of façade.

It will be the responsibility of the Nominated Undertaker to secure any permissions that may be required, for example, listed building consent. In cases where a resident chooses to receive a grant for the noise insulation, they will be responsible for obtaining the necessary permissions and consents. In many instances, the standard removable secondary glazing will not require listed building consent, but this will be a matter to be resolved by the Nominated Undertaker and LB Camden, as local planning authority.

Special cases

HS2 Information Paper E23, 'Control of Construction Noise and Vibration' paragraph 5 under Appendix B sets out the circumstances under which buildings or their occupants may be treated as special cases for noise mitigation.

In response to the launch of the Noise Insulation Scheme in March 2016 and public events, a number of residents have come forward and HS2 are considering their cases.

Response to petitioners' concerns

Petitioners have raised concerns about the thresholds for noise insulation and rehousing, in particular in relation to peak noise levels rather than the use of long period average noise levels (LAeq).

Concerns about exposure to tonal and impulsive noise are recognised in the NPSE and relevant guidance, such as BS5228.

It is not practicable, at this stage, to provide predictions for peak construction noise levels, but the tonal and impulsive character of noise will be taken into consideration when granting section 61 consents. See the footnote on page 3 of IP E23.

The contractors will be required to monitor peak noise levels, using parameters such as LAmax or LA01, and take appropriate action to control this noise.

Temporary rehousing arrangements

Temporary rehousing eligibility will be identified at least six months prior to the start of each phase of work or such time appropriate to the scale and nature of the works in a particular location

The temporary rehousing package will include:

- Temporary alternative accommodation;
- Removals;
- Storage and insurance of personal effects;
- Insurance for the house while vacated;
- Where appropriate, pets to go into kennels, catteries etc; and
- Where appropriate, the disconnection and later reconnection of gas, water, electricity etc.

Temporary rehousing will be arranged by the Nominated Undertaker. Alternatively, eligible persons can choose to make arrangements themselves.

Temporary rehousing arrangements

The Nominated Undertaker will bear the reasonable costs associated with temporary rehousing together with the continuing, unavoidable costs of maintaining the existing home during rehousing period, less the costs the eligible persons would have paid if they stayed in their own house over the same period.

The type of rehousing offered will depend on the duration of the relocation. For short durations hotel accommodation may be appropriate. For longer periods, alternative rented accommodation would be more suitable. In all cases account will be taken of the eligible person's existing accommodation as far as possible.

The accommodation offered will be governed by what is available at the time and the eligible person's reasonable requirements.

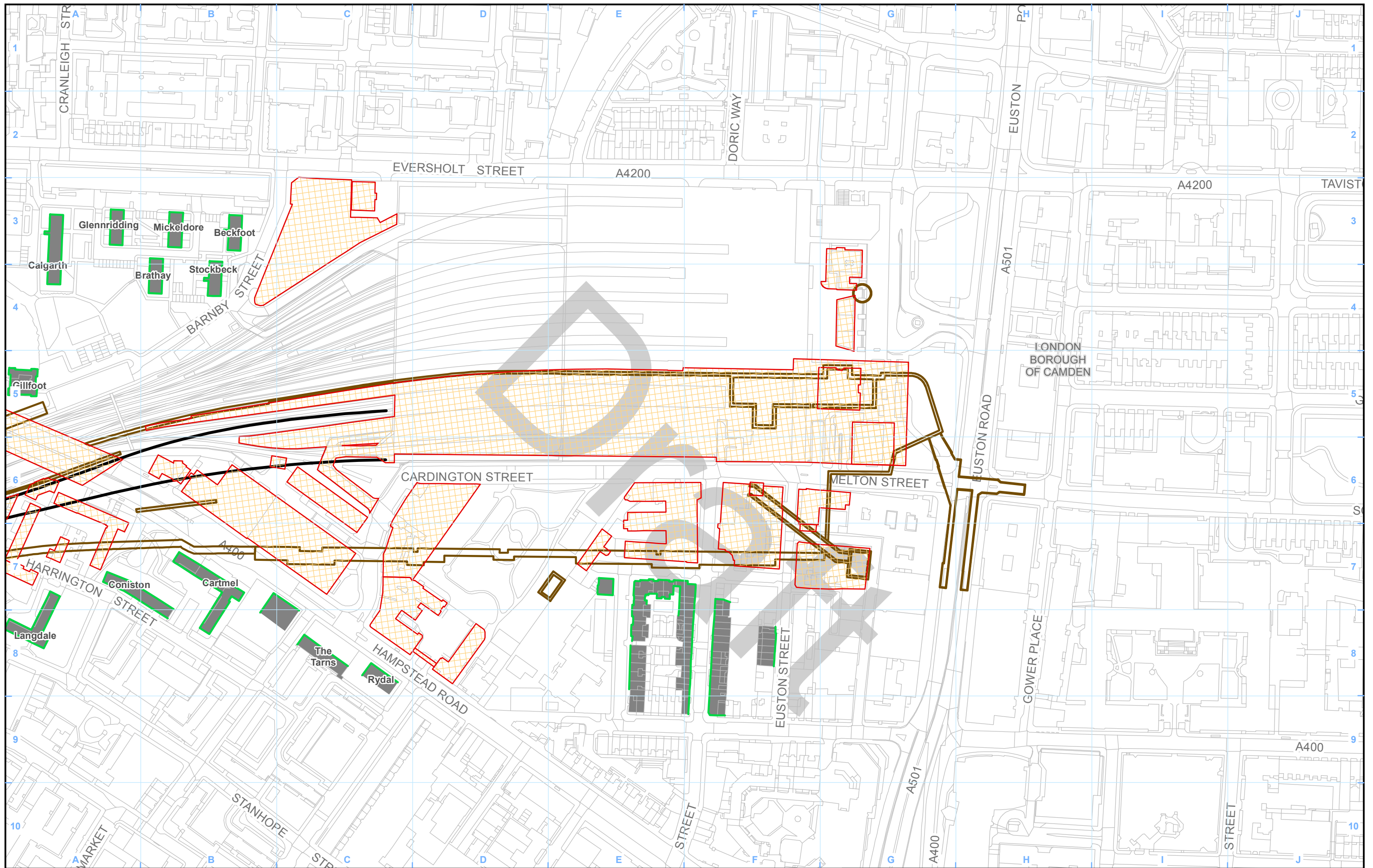
CFA1- Noise insulation maps







The maps show residential buildings in CFA1 identified in the SES2 and AP3ES as potentially eligible for noise insulation.

Site inspections and further assessment since these maps were published in December 2015 have identified a small number of additional eligible buildings and confirmed which facades of residential buildings will be eligible.

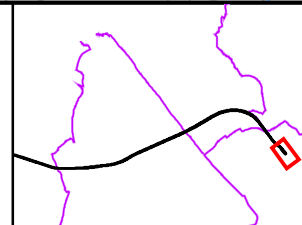
Buildings added to the maps are:

- Two LB Camden replacement housing blocks on Hampstead Road
- One property in Mornington Place
- One property in Mornington Terrace/Clarkson Row
- One property adjoining the Edinboro' Castle PH, Mornington Terrace
- Ambleside House, Augustus Street
- St Pancras Church House, Lancing Street.



- Legend**
-  Route in tunnel
 -  Route on surface
 -  Demolitions
 -  Foundations/engineering substructures
 -  Residential buildings potentially eligible for noise insulation
 -  Building façade eligible for noise insulation


Residential buildings potentially eligible for noise insulation without further on-site mitigation expected from contractor through Section 61 process. Based on the AP2, AP3 and AP4 amendments, and SES, SES2 and SES3 changes as relevant.



Map Number SV-06-001

Map Name
Residential buildings potentially eligible for noise insulation


Community Forum Area CFA1:
 Euston - Station and Approach

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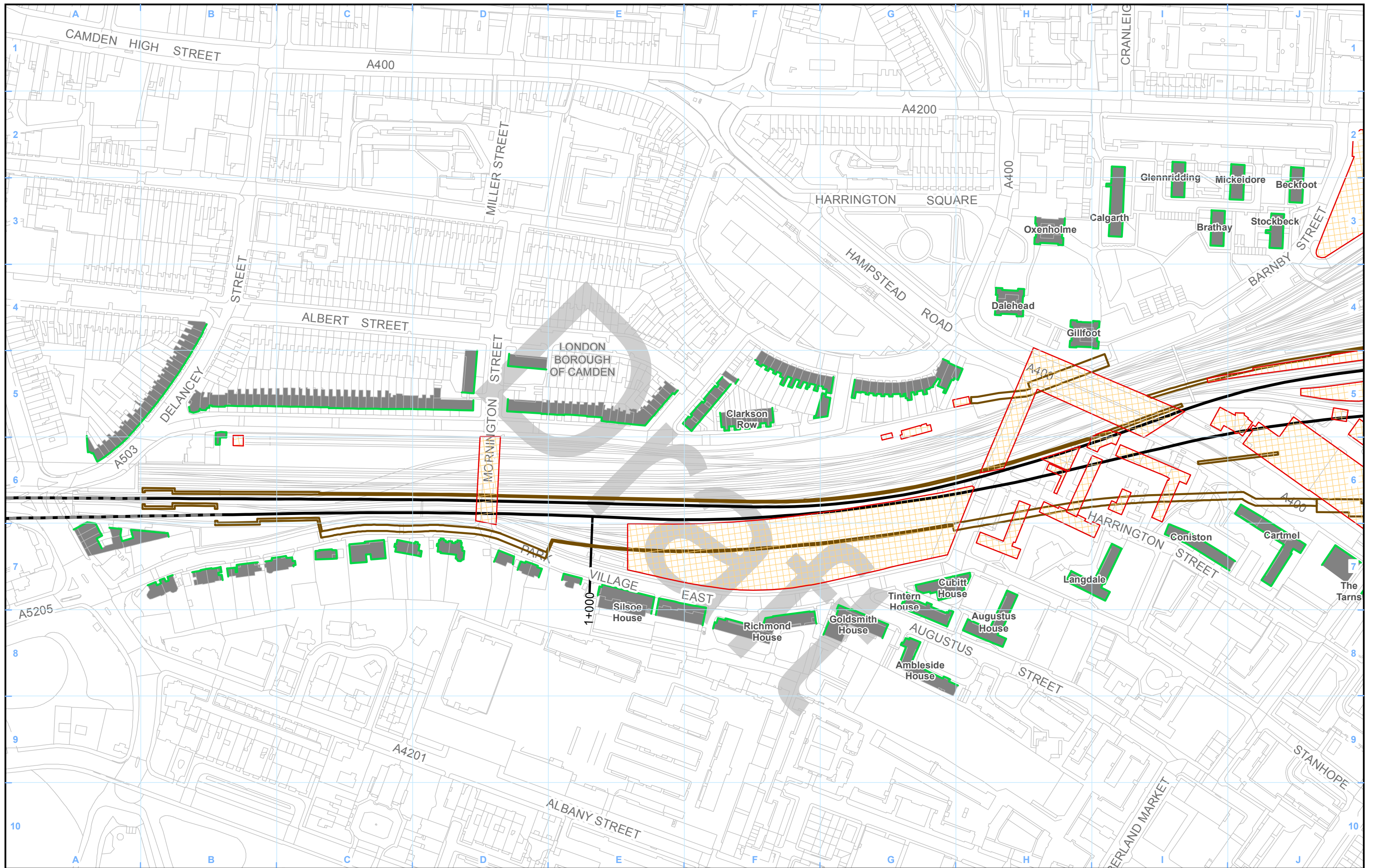
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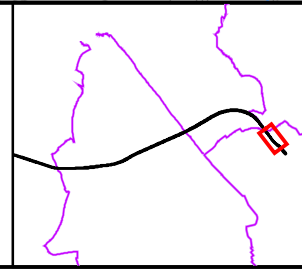


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- Legend**
- Route in tunnel
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 - Building façade eligible for noise insulation

Residential buildings potentially eligible for noise insulation without further on-site mitigation expected from contractor through Section 61 process. Based on the AP2, AP3 and AP4 amendments, and SES, SES2 and SES3 changes as relevant.



Map Number SV-06-002

Map Name
Residential buildings potentially eligible for noise insulation

Community Forum Area CFA1:
 Euston - Station and Approach

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