EIA Screening Request

Alperton Manufacturing Estate, Alperton, Wembley, HA0 1NR

Prepared For
Alperton Limited

6777
February 2018
1 INTRODUCTION

1.1 This Report is presented to accompany a formal request for an Environmental Impact Assessment Screening Opinion (the ‘Screening Request’) under Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the ‘Regulations’) from the London Borough of Brent (the ‘Council’).

1.2 The Screening Request concerns a residential-led, mixed-use scheme, comprising approximately 700 residential units; an element of commercial floorspace (retail/employment); an element of D1 community use; a new access road and associated development including landscaping and demolition of existing buildings on Site (the ‘Proposed Development’), on an area of land measuring approximately 2.68 hectares at the former Alperton Manufacturing Estate, Alperton, HA0 1NR (the ‘Site’).

1.3 The Proposed Development is described in general terms within this Report in order to establish the principles of the development and whether there is a requirement for Environmental Impact Assessment (‘EIA’) to be undertaken.
2 STATUTORY BASIS

2.1 This Report has been prepared in accordance with the Regulations. The Report also takes into consideration non-statutory guidance (Planning Practice Guidance, Environmental Impact Assessment) (2017) (the ‘EIA Guidance’), which provides an overview of the indicative requirements of the screening thresholds.

2.2 Under Regulation 2(1) “EIA Development” is defined as development which is either:

“(a) Schedule 1 development; or

(b) Schedule 2 development likely to have significant effects on the environment by virtue of factors such as its nature, size or location.”

2.3 Regulation 2(1) defines “Schedule 2 development” as:

“development, other than exempt development, or a description mentioned in Column 1 of the table in Schedule 2 where –

(a) any part of that development is to be carried out in a sensitive area; or

(b) any applicable threshold or criterion in the corresponding part of Column 2 of that table is respectively exceeded or met in relation to that development”

2.4 Applications for dwellinghouses are classed as “urban development projects” under Part 10 of Schedule 2 to the Regulations and therefore require screening if it meets the following criteria (or is located in a ‘sensitive area’):

i. The development includes more than 1 hectare of urban development which is not dwellinghouse development; or

ii. The development includes more than 150 dwellings; or

iii. The overall area of the development exceeds 5 hectares.

2.5 The EIA Guidance indicates that in general, the more environmentally sensitive the location, the lower the threshold will be, at which significant effects are likely. In addition, the guidance suggests that “only a very small proportion of Schedule 2 development will require an Environmental Impact Assessment”. It should also not be presumed that developments above the indicative thresholds in Schedule 2 should always be subject to EIA.
2.6 The EIA Guidance sets out a range of indicative criteria and thresholds, which states that “Environmental Impact Assessment is unlikely to be required for the redevelopment of land unless the new development is on a significantly greater scale than the previous use, or the types of impact are of a markedly different nature or there is a high level of contamination”.

2.7 The EIA Guidance also sets out further criteria specifically relating to sites which have not previously been intensively developed. These criteria include:

(i) area of the scheme is more than 5 hectares; or
(ii) it would provide a total of more than 10,000m² of new commercial floorspace; or
(iii) the development would have significant urbanising effects in a previously non-urbanised area (e.g. a new development of more than 1,000 dwellings).

2.8 Accordingly, although the Proposed Development is of a character defined under Article 10(b) Urban Development Projects to Schedule 2 of the Regulations. Development proposals that fall within this category will be subject to an EIA only if they are likely to have significant environmental effects by virtue of factors such as its nature, size or location.

2.9 Schedule 3 of the Regulations sets out the considerations that are to be applied in determining whether significant environmental effects may be present, sufficient to require formal EIA for a particular project. These can be summarised as:

1. Characteristics of the Proposed Development;
2. Nature of the receiving environment; and
3. Characteristics of the potential environmental impacts arising from the proposals.

2.10 The Proposed Development must consider the likely significant effects on the environment, as per Section 1 and Section 2 (see 4.2 of this Report) of Schedule 3 of the Regulations, with regards to the factors specified in Regulation 4(2), taking into account:

a) the magnitude and spatial extent of the impact (for example geographical area and size of the population likely to be affected);
b) the nature of the impact;
c) the transboundary nature of the impact;
d) the intensity and complexity of the impact;
e) the probability if the impact;
f) the expected onset, duration, frequency and reversibility of the impact;

g) the cumulation of the impact with the impact of other existing and/or approved development;

h) the possibility of effectively reducing the impact.

2.11 While the Proposed Development includes more than the 150-dwelling threshold identified in paragraph 2.4 above, it is the Applicant’s view that a formal EIA is not required as its construction and operation are unlikely to have ‘significant urbanising effects’ on the environment, as the Site is already extensively developed. These reasons are explained further in this Report.

2.12 The Proposed Development will continue to be the subject of consultation and design evolution; therefore, the predictions made in this Report are based on a number of assumptions and practical experience of similar projects.

2.13 In the event of issues arising subsequently which had not been predicted at this stage, the Applicant will ensure these are addressed in further work prior to the submission of the detailed planning application to the Council.
3 THE PROPOSED DEVELOPMENT SITE & SURROUNDS

3.1 The Site measuring 2.68 hectares, is entirely brownfield land and is currently in use for a mixture of industrial and commercial purposes. Therefore, the Site can be considered to be an ‘urbanised environment’.

3.2 To the north east and south west the Site is adjoined by a mix of residential and other industrial/commercial development. To the north west the neighbouring properties are predominantly residential. To the south east, the Site fronts on to the Grand Union Canal, with further residential development on the far side of the Canal. The impacts of the Proposed Development are discussed in more detail in Section 5 of this Report, however it is considered that the proposed use of the Site (mainly residential) will result in significant environmental improvements from the existing uses.

3.3 The Site itself is approximately 400m east of Alperton Underground Station on the Piccadilly Line and has a PTAL rating of 2/3.
3.4 The redevelopment of the Site provides an opportunity for the provision of high-quality housing and other employment generating uses in a sustainable brownfield location. The Proposed Development will provide long-term security to the Site, which although in use would benefit greatly from additional investment and modernisations.

3.5 The Proposed Development will comprise a high-quality mixed-use development for up to 700 residential dwellings, in the form of 1, 2 and 3-bedroom flats and 3-bedroom houses and will include a proportion of affordable housing, subject to a viability appraisal. The Proposed Development will be split across a number of blocks, which will not exceed 14-storeys in height.

3.6 The Proposed Development also includes a new access road linking Mount Pleasant to Woodside End. The new access road will provide a new adopted route through the site. In addition, a pedestrian and cycle route along the canal towpath will further enhance the sustainability of the Site. The Proposed Development will also include non-residential floorspace and significant amenity space, public realm and landscaping improvements. In order to do this, existing buildings will be demolished and the Site cleared.

3.7 The precise nature and layout of the Proposed Development, will be subject to ongoing design evolution in consultation with the Council and GLA, but at this time it is considered that the Proposed Development will be delivered in accordance with the wider Alperton Masterplan, and as described in this Report.
## 4 THE SITE IN CONEXT

### 4.1 The Site itself is wholly located outside of a ‘sensitive’ area as defined within the Regulations, including:

- National Park;
- UNESCO World Heritage List;
- Area of Outstanding Natural Beauty (AONB);
- Scheduled Monument;
- Sites of Special Scientific Interest (SSSI);
- Special Areas of Conservation (SAC); and
- Special Protection Areas (SPA).

### 4.2 The Site is not located within any of the following natural environmental areas as listed within Schedule 3 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, although it is located in a densely populated area which is expected with an “urban development project”:

i) wetlands; riparian areas, river mounts;
ii) coastal zone and the marine environment;
iii) mountain and forest areas;
iv) nature reserves and parks;
v) European sites and other classified or protected under national legislation;
vi) areas in which there has already been a failure to meet the environmental quality standards, laid down under Union legislations and relevant to the project, or in which it is considered that there is such a failure;
vii) landscapes and sites of historical, cultural or archaeological significance.

### 4.3 In addition to the above designations, it is also important to recognise other important environmental designations and heritage assets, such as flooding and Listed Buildings.

### 4.4 A review of the Environment Agency’s Flood Map shows that the Site is entirely located within an area defined by Flood Zone 1 (see Figure 2). This Zone suggests that there is a less than 0.1% (1 in 1,000) chance of flood occurring each year. However, opportunities remain to improve surface water drainage and consequently reduce flood risk on the Site. As the Site is over 1ha
in size, any subsequent application for planning permission will be supported by a Flood Risk Assessment.

Figure 2: Environment Agency Flood Zone Map

4.5 A review of the Government’s magic.gov.uk\(^1\) website (see Figure 3) has shown that there are no significant heritage assets on the Site or immediately adjacent to the Site. The nearest heritage asset of value is the Grade II Listed ‘Garden Wall to North of Twyford Abbey’, which is located approximately 575m to the south east.

4.6 A search of the wider area (2km buffer), shows that within 2km there are no other environmental designations (e.g. SSSI, Ramsar, AONB) beyond Listed Buildings. However, given the intervening built environment it is considered unlikely that the setting of these designations will be impacted as a result of the Proposed Development. Furthermore, it is considered unlikely to significantly alter the receiving environment when compared to the existing development on Site, as it and its surrounds are already extensively developed.

\(^1\) [http://www.magic.gov.uk/](http://www.magic.gov.uk/)
Figure 3: Extract from magic.gov.uk (with 2.5km buffer)
5 ENVIRONMENTAL ISSUES FOR CONSIDERATION

5.1 This section of the Report identifies the potential environmental effects that may arise as a result of the construction and operation of the Proposed Development and considers whether these effects are likely to be significant.

5.2 Table 1 below sets out the potential environmental issues associated with the Proposed Development, and suggests that its construction and operation will not result in any significant impacts on the environment. For the most part the contents of the following table originates from the supplementary reports submitted as part of this request. As such this table should be read in conjunction with the full reports to provide a full understanding the Proposed Development. The full reports can be found in the appendices to this Report.

<table>
<thead>
<tr>
<th>Aspect Of Proposed Development Giving Rise To Potential Impact</th>
<th>Potential Impact</th>
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</thead>
<tbody>
<tr>
<td>Construction Potential effects on landscape and views during construction</td>
<td>There will be changes to views from the public footpaths and other nearby receptors during construction; however, these will be temporary in nature and will evolve throughout the life of the construction programme. As a result, any harm in visual terms is considered to be negligible.</td>
</tr>
<tr>
<td>Operation There are no protected views surrounding the Site</td>
<td>Short ranged views of the Proposed Development will be limited due to intervening flora, fauna and built environment. Furthermore, it is envisaged that no element of the scheme will not exceed 14-storeys in height, which will limit longer range views of the Site. It is accepted that the Site is currently occupied by a number of low-level industrial style units. Therefore, any development will change the nature of the Site and its visual appearance. When viewed in combination with surrounding development, both existing and proposed the resulting change is considered to be negligible, as there a number of taller block which already break the skyline. As a result, the Proposed</td>
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</table>
Development would not result in significant change and/or harm in terms of townscape.

The Proposed Development seeks to enhance the Site and create a development of high architectural quality, which will make a positive contribution to the visual perception of the area and potentially mitigate against any perceived visual impact.

At ground level, the Proposed Development will incorporate significant landscape and public realm enhancements which will enhance the visual impact for nearby residents, when compared to what is currently on the Site.

<table>
<thead>
<tr>
<th>Traffic and Transport</th>
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<tbody>
<tr>
<td><strong>Aspect Of Proposed Development Giving Rise To Potential Impact</strong></td>
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<tr>
<td>Construction Increase in traffic during construction</td>
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<tr>
<td>Operation Effects on the local highways network as a result of additional housing provision</td>
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</tbody>
</table>
Travel Plan will be led by the TA, which will include a full multi-modal assessment of trips.

The Site is currently an employment/industrial area, which creates its own significant trip generation, including a large proportion of HGVs and other good vehicles of varying sizes. This trip generation is understood to have detrimental impacts on nearby residential roads (e.g. Woodside End/Woodside Place).

Once operational it is envisaged that the Proposed Development will have positive implications on the surrounding highway network compared to present activities.

### Socio-Economic Effects

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<thead>
<tr>
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</table>
| **Construction**  
Creation of temporary employment | Construction employment will be created and may support further revenue and employment in the local economy, through indirect or supplier effects and induced or income multiplier effects.  
There is potential for temporary disturbance during construction as a result of deliveries, activities to nearby receptors and possibly temporary footway interruptions. However, this is unlikely to have a significant effect on local residents. |
| **Operation**  
Provision of new housing. | The provision of new housing will attract new residents to the area and it is likely that there will be additional expenditure locally.  
Also, importantly it will provide much needed opportunities for local people to remain in the Alperton area and there will be an element of affordable housing provided in line with planning policy.  
This expenditure will assist local businesses and support local jobs; therefore, it is concluded that in terms of socio-economics the Proposed Development will have positive impact. In addition, as part of the planning permission there will be substantial contributions through CIL and S106 agreements which will be distributed locally. |
### Noise

<table>
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<tr>
<th>Aspect Of Proposed Development Giving Rise To Potential Impact</th>
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</table>
| **Construction**  
  Temporary increased noise due to construction activities and traffic | During the demolition and construction phases of the Proposed Development, there is likely to be an increase in noise creating activities on nearby receptors. However, these works will be temporary in nature and as construction works progress, noise levels will reduce due to on Site screening and built development increasing which will help to buffer sound generated. In addition, the effects will be controlled through the adoption a Construction Environmental Management Plan (CEMP) and the effective use of planning conditions, such as controlled working and the use of noise attenuation equipment. |
| **Operation**  
  Potential change in the local noise environment | It is considered that due to the location of the Site, the main potential sources of noise will be from traffic on Mount Pleasant and internal roads. Furthermore, the proximity of the Northfields and Abbey Wharf schemes are considered to not materially change the Site’s current noise conditions. The Proposed Development will be constructed in line with the relevant criteria to ensure that there is sufficient insulation/ double glazing to reduce internal noise levels to acceptable levels (if they are exceeded). From existing levels, there will be a gradual increase in noise as the Proposed Development becomes occupied, but any change in levels will be barely perceptible and can be mitigated through design and landscaping. Noise from commercial elements can be controlled, where necessary, through the restriction of trading and servicing hours to ensure that there is no significant impact on local residents. However, the proposed commercial uses will be inherently compatible with a residential area, unlike some of the existing uses on the Site. |
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<tr>
<th>Aspect Of Proposed Development Giving Rise To Potential Impact</th>
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| **Construction**<br>Increased effects on air quality due to construction traffic | The increase in traffic will be short term and should not result in any significant effects on air quality. However, the implementation of a Construction Environment Management Plan (CEMP) and other planning conditions can be used to mitigate and minimise any impacts. It should also be noted that dust may arise from construction activities, but will not lead to significant impacts and appropriate mitigation measures and procedures will be included in the CEMP. These mitigation measures may include:  
- No idling vehicles  
- Erect solid screens or barriers around dusty activities or the Site’s boundary  
- Loads entering and exiting the Site are covered  
- Where practicable use mains or battery powered generators over fuel burning  
- Other dust suppression measures e.g. damping down with water.  
- All constructions vehicles and equipment to comply with relevant EU stage ratings.  
The entire Site sits within an Air Quality Management Area (AQMA) and careful consideration will be required within any future application for planning permission to ensure that the impacts on Air Quality (including NO₂) are fully considered during construction. |
| **Operation**<br>It is likely that air quality will improve over time. This is as a result of improvements in vehicle and fuel technology and is expected to; lead to an overall decrease in emissions. | It is understood that the Proposed Development is unlikely to generate significant changes in local traffic flows once operational, compared to the current situation. Therefore, air quality objectives are not expected to be exceeded. However, it is widely acknowledged that there is no safe level of exposure to air pollution, and as such, the following mitigation measures are proposed to further enhance the Proposed Development:  
- 1 electric vehicle ‘rapid charge’ point per 10 residential dwellings or 1,000m² of commercial floorspace; |
Any CHP units to meet minimum emissions standards (as set out by the Institute of Air Quality Management)

### Nature Conservation

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| **Construction**  
An updated habitats survey will be carried out in relation to the proposals. | The Site is currently in use as an industrial area and as such the loss of buildings, hardstanding and small areas of peripheral vegetation will result in negligible impacts on ecology.  

It should be noted by the Council that site walkover surveys suggest that that is unlikely to support suitable any protected species.  

However, further survey work is on-going to support any subsequent application for planning permission.  

Ahead of the commencement of construction additional walkover surveys will take place, to rule out the potential for any ecological disturbance.  

Removal of trees and shrubbery will be carried out outside of bird nesting season. |
| **Operation** | The Proposed Development will incorporate significant landscaping proposals, which will result in an overall enhancement to the Site, which will mitigate and enhance the potential for habitat creation. These measures will include:  
- green/ brown roofs;  
- bat and bird boxes;  
- native and/or wildlife friendly tree and shrub species; and  
- establish areas of species-rich wildflower grassland. |
### Cultural Heritage

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<tr>
<td><strong>Construction</strong>&lt;br&gt;The application will be accompanied by a report on cultural heritage</td>
<td>Construction activities have the potential to affect buried archaeological remains, although given the brownfield nature of the Site it is deemed unlikely that any ground works will require any additional archaeological supervision.&lt;br&gt;&lt;br&gt;In the unlikely event that anything is unearthed; works will cease pending further investigation in consultation with the Greater London Archaeological Advisory Service.</td>
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<tr>
<td><strong>Operation</strong></td>
<td>It is not expected that operational activities will affect the cultural heritage of the local area; as there are significant distances between the Site and any designated heritage assets.&lt;br&gt;&lt;br&gt;However, this will be investigated further as part of the application for planning permission. In any event, any potential impacts can be mitigated, through high quality design, the siting of development and the consideration of landscaping and other public realm enhancements.</td>
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### Hydrology and Flood Risk

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<tr>
<td><strong>Construction</strong>&lt;br&gt;There will be no effects on hydrology and flood risk during construction, as the Site is wholly located in Flood Zone 1.</td>
<td>None predicted, although consideration will be given to the location of plant, machinery and laydown areas to ensure that during construction there will be no increases or impacts from surface water run-off.</td>
</tr>
<tr>
<td><strong>Operation</strong>&lt;br&gt;The proposed development is unlikely to have significant effects on hydrology and flood risk, due to it being located in Flood Zone 1.</td>
<td>The Proposed Development will incorporate SuDS and other on-site drainage features to ensure that it does not give rise to increased risk for flood elsewhere from surface water run-off. The Proposed Development will comply with the NPPF, the London Plan and local planning policy. As a result, it is deemed to be an appropriate development in this location.&lt;br&gt;&lt;br&gt;Nevertheless, due to its size and location, the application will be supported by a Flood Risk and Surface Water Drainage Assessment.</td>
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### Ground Conditions and Contamination

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| Construction Potential soil contamination during construction | An initial review of the Site demonstrates that there is the potential for contaminates to be present on Site, given its historic and current industrial use.  
These initial surveys suggest there are likely to be over ground and underground fuel storage tanks on, although the exact number and locations will be confirmed by more detailed surveys. It is also noted that many of the buildings are likely to have asbestos in the roof structures/ cladding, as is common occurrence in buildings of this type and age. However, the Site is situated on London Clay and it is considered unlikely to contain any groundwater and therefore the risk associated through migration with the groundwater is considered to be low.  
In the event that contamination is discovered during construction, the Site would be remediated by a suitably qualified contractor and any pollutants discovered would be removed or disposed of in accordance with best practice techniques and legal requirements. Best practice construction techniques will be implemented during construction, including provision for the management of spills to avoid ground contamination. |
| Operation | Development of the Site will not result in any additional effects on geology and ground conditions, as the operational uses are benign with no industrial uses considered as part of the Proposed Development. |

### Sunlight and Daylight

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<tr>
<td>Construction</td>
<td>During construction consideration will be given to the location of plant and machinery, so as to avoid any detrimental impact on nearby properties. The Proposed Development will be constructed in phases and further consideration will be given to the placement of plant and machinery, each phase of the development does</td>
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</table>
not impact on itself and those parts which are already occupied.

| Operation | The Site will be designed to comply with the relevant guidance including the ‘Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (BRE Report, 2011)’ and relevant planning policy. Design of the Site will take in account the phases and neighbouring properties so as to ensure there are no detrimental effects in terms sunlight, daylight or overshadowing. |

5.3 The Applicant submitted a request for a screening opinion to the Council in 2013. The proposals were for up to 640-unit residential units within the same 2.8ha Site. The above table confirms that the receiving environment has not altered significantly in the period since the Council issues a negative EIA screening decision. However, the Council confirmed in their 2013 response that the effects of cumulative development will need to be taken into consideration. As a result, the Applicant has considered large-scale proposed and approved schemes within the immediate vicinity of the Site. These developments include:

- **16/4478 (Inland Homes)** - Demolition of existing buildings at Abbey Wharf, Delta Centre and all of 152 Mount Pleasant and redevelopment to provide a residential-led, mixed-use development of up to 6 storeys comprising 135 residential units (34 x 1bed, 79 x 2bed and 22 x 3bed) and 247sqm of commercial space (A1, A2, A3, B1, D1 and D2), landscaped amenity space, car and cycle parking and associated works. | All Units at Abbey Wharf & Delta Centre and All of 152, Mount Pleasant, Wembley, HA0 (Approved 18 December 2017).

- **18/0321 (St George Developments plc)** - Hybrid planning application for the redevelopment of Northfield industrial estate: Outline planning permission for the demolition of existing buildings and structures on the site, all site preparation works and redevelopment to provide new buildings ranging from 35.75m AOD to 111.95m AOD in height, with a total floorspace (GEA) of up to 309,400 sq m (excluding basement up to 42,000 sq m GEA) to accommodate 2,900 homes (Use Class C3), business and storage and distribution (Use Classes B1a, B1c and B8), commercial (Use Classes A1, A2, A3, A4 and A5), community and leisure (Use Classes D1 and D2) including community centre and nursery, new basement level including energy centre, associated storage, cycle and vehicle parking, new vehicular accesses, associated highway works to Beresford Avenue, landscaping and creation of new public and private open space, ancillary facilitating works, various temporary meanwhile uses, interim works and infrastructure. Full planning permission for demolition of existing buildings and structures on the site, all site preparation works and the development of Phase 1 (Buildings A, B, C and D ranging from 1 to 14 storeys in height) to comprise 402 homes (Use Class C3); 910 sq m (GEA) of business floorspace Use Class
B1a); 1,290 sq m (GEA) of commercial floorspace (Use Classes A1, A2, A3, A4 and A5); and 1,610 sq m (GEA) of community and leisure floorspace (Use Classes D1 and D2), including a community centre and nursery; together with new basement level including energy centre, associated storage, cycle and vehicle parking, new vehicular accesses, associated highway works to Beresford Avenue, landscaping and creation of new public and private open space, ancillary facilitating works, various temporary meanwhile uses, interim works and infrastructure. | Former Northfield Industrial Estate & units 2-18 Beresford Avenue & Abbey Works Estate, Wycombe Road, Wembley, HA0 & Ace Corner & Capital House, North Circular Road, London, NW10 (Target date for decision 4 May 2018)

5.4 As a result of the Site benefiting from a ‘Site Specific Allocation’, it has been tested through the Council’s Sustainability Appraisal associated with the Core Strategy and Site Specific Allocations Development Plan Document. The allocation and the detailed appraisal of the Alperton Growth Areas, would strongly reinforce support for the area as a sustainable location for residential development. The sustainability appraisal would have considered all the potential environmental impacts, including those potentially cumulative effects. As a result, using this information and our own site specific surveys (as appended to this document), we feel that any future application for planning permission would not require an EIA, as the Proposed Development is considered unlikely to cause significant detrimental effects on the receiving environment.

5.5 **Table 1** above demonstrates that the Proposed Development will not result in any significant environmental effects. Furthermore, it is envisaged that any perceived impacts from the Proposed Development can be mitigated, so that the impacts are no longer deemed to be significant or long term for construction activities. However, the Council’s opinion is required in the first instance to confirm that EIA is **not** required.
6 CONCLUSIONS

6.1 This Report has described the likely environmental effects associated with the Proposed Development for the purposes of Regulation 6(2) of the Regulations.

6.2 It clearly identifies that the Site is wholly located outside of any ‘sensitive area’ as defined by the Regulations and given that Proposed Development is to be built on previously developed Brownfield Land, it is considered highly unlikely “to have significant effects on the environment by virtue of factors such as its nature, size or location”, as set out in the Regulations.

6.3 By reason of the foregoing, the Applicant seeks the Council’s formal opinion for the purposes of Regulation 6(6) of the Regulations that an EIA is not required, in line with the provisions made at Regulation 5(5).

6.4 Nevertheless, it is intended that any subsequent planning application will be accompanied by a full set of technical reports required by the Council and its consultees, in order to meet its validation requirements and allow them to fully consider the Proposed Development.
APPENDIX 2 – SUPPORTING ENVIRONMENTAL REPORTS
Air Quality Assessment for the Proposed Development at Abbey Industrial Estate, Alperton, West London

Report to Zedhomes Ltd / Alperton Ltd

February 2018
<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>Air quality assessment for the proposed development at Abbey Industrial Estate, Alperton, West London</th>
</tr>
</thead>
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<tr>
<td><strong>Customer</strong></td>
<td>Zedhomes Ltd / Alperton Ltd</td>
</tr>
<tr>
<td><strong>Recipient</strong></td>
<td>Phil Jones</td>
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<tr>
<td><strong>Report Reference</strong></td>
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<td><strong>Author(s)</strong></td>
<td>Richard Claxton</td>
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<tr>
<td><strong>Reviewed by</strong></td>
<td>Melanie Hobson</td>
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<td><strong>Date</strong></td>
<td>7th February 2018</td>
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## Contents

1. **Introduction** .................................................................................. 1
   1.1 The Location of the Development .................................................. 1
   1.2 Assessment Criteria ..................................................................... 1
   1.3 Local Air Quality Management .................................................... 2
   1.4 The DMRB Screening Method ..................................................... 3

2. **Methodology** .................................................................................. 3
   2.1 Local Pollutant Concentrations .................................................... 4
      2.1.1 Local monitoring data ........................................................... 4
      2.1.2 Background mapped data ...................................................... 5
   2.2 Traffic data .................................................................................. 5
   2.3 Model Input Data ........................................................................ 6
   2.4 Conversion of NO\textsubscript{x} to NO\textsubscript{2} ............................. 8
   2.5 Model Verification ...................................................................... 8

3. **Results** ........................................................................................ 8
   3.1 Results of the Dispersion Modelling ............................................ 8
   3.2 Mitigation Measures .................................................................... 10
   3.3 Mitigating the Impacts of the Construction Phase ...................... 11

4. **Summary and Conclusions** .......................................................... 12

Appendix A – Model Verification ....................................................... 13

Appendix B – Traffic Data ................................................................. 13
1 Introduction

Aether has been commissioned by Zedhomes Ltd / Alperton Ltd to undertake an air quality screening assessment for the proposed development of up to 700 Residential units, with some commercial use, infrastructure and ancillary works at Abbey Industrial Estate, Alperton. This assessment follows a previous assessment for the same site produced in August 2013. The site plans have since altered, and the assessment has therefore been updated to account for this, as well as to account for updated background information.

A transport assessment is to be completed, however it is understood that the development is unlikely to generate significant changes in local traffic flows compared to the current industrial/commercial site use, which generates traffic and parking overflow. A new through road is to be constructed, which is considered. Air pollutant emitting on-site energy generation is planned, however the details are unknown at this stage. This impact may therefore need to be screened at a later date.

The expected completion date of the proposed development is 2023. The assessment has therefore been completed for 2024, the expected first full year of occupation.

The assessment utilises the Design Manual for Roads and Bridges (DMRB)\(^1\), a screening tool designed to assess the impact of traffic emissions at sensitive receptor locations.

1.1 The Location of the Development

The proposed development lies on Mount Pleasant in Alperton, within the London Borough of Brent. There are no major roads within immediate proximity of the site, with the Grand Union Canal bordering the site to the south. The location is presented in Figure 1 (Section 2 of this report).

1.2 Assessment Criteria

A summary of the air quality objectives relevant to the Alperton development, as set out in the UK Air Quality Strategy\(^2\), is presented in Table 1 below.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Concentration</th>
<th>Measured as</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen Dioxide (NO(_2))</td>
<td>40 µg/m(^3)</td>
<td>Annual mean</td>
</tr>
<tr>
<td></td>
<td>200 µg/m(^3)</td>
<td>Hourly mean not to be exceeded more than 18 times per year (99.8th percentile)</td>
</tr>
<tr>
<td>Particulate Matter (PM(_{10}))</td>
<td>40 µg/m(^3)</td>
<td>Annual mean</td>
</tr>
<tr>
<td></td>
<td>50 µg/m(^3)</td>
<td>24 hour mean not to be exceeded more than 35 times a year (90.4th percentile)</td>
</tr>
</tbody>
</table>

The oxides of nitrogen (NO\(_x\)) comprise principally of nitric oxide (NO) and nitrogen dioxide (NO\(_2\)). NO\(_2\) is a reddish brown gas (at sufficiently high concentrations) and occurs

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\(^1\) Highways Agency’s Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1 Air Quality, May 2007

\(^2\) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007), Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
as a result of the oxidation of NO, which in turn originates from the combination of atmospheric nitrogen and oxygen during combustion processes. NO₂ can also form in the atmosphere due to a chemical reaction between NO and ozone (O₃). Health based standards for NOₓ generally relate to NO₂, where acute and long-term exposure may adversely affect the respiratory system.

Particulate matter is a term used to describe all suspended solid matter, sometimes referred to as Total Suspended Particulate matter (TSP). Sources of particles in the air include road transport, power stations, quarrying, mining and agriculture. Chemical processes in the atmosphere can also lead to the formation of particles. Particulate matter with an aerodynamic diameter of less than 10 µm is the subject of health concerns because of its ability to penetrate deep within the lungs and is known in its abbreviated form as PM₁₀.

Further information on the health effects of air pollution can be found in the reports produced by the Committee on the Medical Effects of Air Pollutants³.

As defined by the regulations, the air quality objectives for the protection of human health are applicable:

1. Outside of buildings or other natural or man-made structures above or below ground
2. Where members of the public are regularly present.

Using these definitions, the annual mean objectives will apply at locations where members of the public might be regularly exposed such as building façades of residential properties, schools and hospitals and will not apply at the building façades of offices or other places of work, where members of the public do not have regular access. The 24 hour objective will apply at all locations where the annual mean objective would apply together with hotels. Therefore in this assessment the annual mean and 24 hour mean objectives will apply at all floors of the residential development. The hourly objective will apply at all locations where members of the public could reasonably be expected to spend that amount of time. Therefore, in this assessment the hourly objective will also apply at all levels of the development.

1.3 Local Air Quality Management

Local authorities are required to periodically review and assess the current and future quality of air in their areas. Where it is determined that an air quality objective is not likely to be met, the authority must designate an Air Quality Management Area (AQMA) and produce an Air Quality Action Plan (AQAP).

The proposed development site lies in the London Borough of Brent, which declared an AQMA⁴ for the annual mean nitrogen dioxide (NO₂) objective and the daily particulate matter (PM₁₀) objective in 2006. The proposed development site falls within the AQMA. An AQAP was produced in 2017⁵.

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³ https://www.gov.uk/government/collections/comeap-reports
⁴ https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=329
⁵ https://www.brent.gov.uk/services-for-residents/environment/air-quality/air-quality-reports/
1.4 The DMRB Screening Method

A screening assessment has been undertaken. This is because the development is small, generating little additional traffic or emissions and no air quality constraints have been identified.

The Highways Agency’s Design Manual for Roads and Bridges (DMRB), a screening tool that can be used to predict concentrations of pollutants in the vicinity of roads, has been used. The methodology has been used for many years in support of planning applications for new residential/commercial developments and road building projects.

The DMRB model is only able to provide an estimate of ground level pollutant concentrations. Studies have shown that generally air pollution levels decline with height and therefore it is likely that higher floor levels will be subject to lower concentrations.

The screening method predicts annual average ground level concentrations at sensitive receptors by applying average roadside emission dispersion curves and correcting for vehicle type and speed. The screening method incorporated the latest vehicle classifications at the time of publication; however, these have now been superseded and the DMRB model is expected to be updated shortly.

The most recent version of the DMRB (1.03c) was issued in July 2007 and requires the following information to assess the impact at sensitive receptor locations:

- Annual average daily traffic (AADT) flows
- Annual average speed
- Distance from road link to sensitive receptor
- Fleet composition (percentage of heavy duty vehicles).

Two scenarios have been modelled:

- The baseline (2016), which matches the most recent year of available traffic and local monitoring data.
- 2024 (the assumed first year of occupation) assuming an increase in traffic on local roads from 2016. It has been assumed that there is no change in the number of vehicles using the site (see Section 2.2).

Due to the uncertainty surrounding the emission outputs from the DMRB model, a worst-case scenario in 2024 has been modelled. It has been assumed that there will be no improvements in the traffic fleet or background concentrations from 2016. This assumption is likely to have a greater impact on the assessment results in terms of ensuring a "worst-case" compared to accounting for any minor changes in local traffic generation, which is not well understood at this time.

2 Methodology

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6 Due to DMRB being optimistic in its future estimation of vehicle emissions, the model has been run using vehicle emission factors for 2004 (rather than 2016), so as to provide a worst case estimate. This is generally agreed to be the year in which emissions stopped declining as expected.
2.1 Local Pollutant Concentrations

It is good practice to include up-to-date local background pollutant concentrations in the assessment model, and also to verify modelled outputs against local monitoring data where available. This section provides an overview of the local data available for use in the assessment.

2.1.1 Local monitoring data

The London Borough of Brent has three automatic monitoring sites which monitor both nitrogen dioxide (NO₂) and particulate matter (PM₁₀). None of the automatic monitors lie within close proximity to the development site. NO₂ concentrations are also measured passively at 25 diffusion tube sites across the Borough. Two of these diffusion tube sites lie within 1km of the development site. Details of these are given in Table 2.

Monitoring results have been taken from the Council’s latest Annual Status Report (ASR)⁷.

Table 2: Monitoring sites within 1km of the development

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Site Type</th>
<th>Pollutant(s)</th>
<th>Grid Reference</th>
<th>Distance to Kerb (m)</th>
<th>Approx. Distance to development site (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - Bridgewater Road</td>
<td>R</td>
<td>NO₂</td>
<td>517921, 183716</td>
<td>2</td>
<td>640</td>
</tr>
<tr>
<td>54 - Ealing Road</td>
<td>R</td>
<td>NO₂</td>
<td>518221, 183206</td>
<td>1</td>
<td>670</td>
</tr>
</tbody>
</table>

Note: R = roadside

The diffusion tubes were analysed by Gradko International Ltd, who participate in the Proficiency scheme⁸. Whilst diffusion tubes provide an indicative estimate of pollutant concentrations, they tend to under or over read. The data is therefore corrected using a bias adjustment factor. There are two types of bias adjustment factor – local and national. The local factor is derived from co-locating diffusion tubes (usually in triplicate) with automatic monitors, whereas the national factor is obtained from the average bias from all local authorities using the same laboratory. Brent Borough Council has applied a national bias adjustment factor of 0.94 to their 2016 diffusion tube results.

Monitoring results are presented in Table 3. The data shows that the annual mean NO₂ objective was exceeded at both diffusion tube sites across recent years. Diffusion tubes do not provide information on hourly exceedances, but research⁹ identified a relationship between the annual and 1 hour mean objective, such that exceedances of the latter were considered unlikely where the annual mean was below 60 μg/m³. Therefore, it is possible that the 1 hour mean objective has been exceeded at site 7 - Bridgewater road in recent years.

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⁸ This is a national QA/QC scheme.

⁹ As described in Box 5.2 of LAQM Technical Guidance (TG16).
Table 3: Monitoring results: 2014-2016

<table>
<thead>
<tr>
<th>Objective</th>
<th>Site Name</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual mean NO₂ (µg/m³)</td>
<td>7 - Bridgewater Road</td>
<td>69</td>
<td>62</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>54 - Ealing Road</td>
<td>50</td>
<td>47</td>
<td>52</td>
</tr>
</tbody>
</table>

Note: Values exceeding the 40 µg/m³ annual mean objective are shown in bold, values above 60 µg/m³ are also italicised.

2.1.2 Background mapped data

Background pollutant concentration maps are available from the Defra LAQM website\(^{10}\) and data has been extracted for Brent for this assessment. These 2015 baseline, 1 kilometre grid resolution maps are derived from a complex modelling exercise that takes into account emissions inventories and measurements of ambient air pollution from both automated and non-automated sites.

The estimated mapped background NOₓ, NO₂ and PM\(_{10}\) concentrations around the development site are 48 µg/m³, 30.1 µg/m³ and 19 µg/m³ respectively in 2016 (the baseline year used in the assessment). The background maps also provide projections to future years. For 2024 (the first estimated year of occupation), the concentrations obtained for the same pollutants are 31.5 µg/m³, 21.4 µg/m³ and 18 µg/m³ respectively.

Due to the lack of a nearby urban background monitoring site, the 2016 mapped background concentrations have been used in this assessment. To provide a conservative estimate, the projected improvements in background air quality by 2024 have not been used in the dispersion modelling.

2.2 Traffic data

In the absence of any traffic count data being available for the surrounding minor roads, estimates are based upon average values for an ‘average road’ and ‘urban minor road’ for London, from the DfT National Road Traffic Survey, 2017\(^{11}\). Therefore there will be uncertainty in the model input. All roads within 200 metres of the modelled receptors have been included in the assessment. The values are shown in Appendix B.

For the purpose of this assessment, the RTF\(^{12}\) model has been utilised to project traffic growth. It has been assumed that traffic on local roads will increase by 11% between 2016 and 2024.

The proposed development will include a change in car parking spaces and composition. A meaningful change in local traffic generation as a result of the development is not expected, and no resulting increase / decrease in daily car trips has therefore been taken into account in the assessment with development in 2024; Results (Section 3 of this report) therefore refer to concentrations modelled in 2024 regardless of whether the development takes place or not. As a result, the assessment and its conclusions are

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focused on the exposure of residents to currently elevated levels of pollutant concentrations, rather than assessing the impacts of the development per se.

An average speed of 27 kph has been assumed on all surrounding roads, which is the average traffic speed for Outer London during PM peak hours\(^\text{13}\). This provides a worst-case scenario, as it is the slowest time period reported, resulting in highest exhaust emissions.

\section*{2.3 Model Input Data}

The DMRB model requires distances to sensitive receptors from the centre of each of the road links. These have been measured using the Architect’s plans and are presented in Table 4 below along with a summary of the other DMRB input parameters for each road link.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
Receptor & Road link & Distance to link centre (m) & 2016 AADT* & Average speed (kph) & % HDV \\
\hline
A & Woodside Avenue & 11 & 2,200 & 27.00 & 2.2 \\
 & Woodside Place & 71 & 2,200 & 27.00 & 2.2 \\
 & Woodside Close & 75 & 2,200 & 27.00 & 2.2 \\
 & New through road & 60 & 2,200 & 27.00 & 2.2 \\
B & Mount Pleasant & 35 & 5,500 & 27.00 & 5.9 \\
 & Woodside Close & 33 & 2,200 & 27.00 & 2.2 \\
 & New through road & 60 & 2,200 & 27.00 & 2.2 \\
C & Mount Pleasant & 110 & 5,500 & 27.00 & 5.9 \\
 & New through road & 60 & 2,200 & 27.00 & 2.2 \\
D & Woodside Avenue & 76 & 2,200 & 27.00 & 2.2 \\
 & Woodside End & 106 & 2,200 & 27.00 & 2.2 \\
 & New through road & 60 & 2,200 & 27.00 & 2.2 \\
\hline
\end{tabular}

\textit{Note:} * For 2024 AADT data see Appendix B
\end{table}

Four sensitive receptor locations have been selected for the assessment:

- A: NW corner of the site
- B: NE corner of the site
- C: SE corner of the site
- D: SW corner of the site

These sites have been chosen to reflect the extremities of the site and their proximity to road traffic sources. These are shown in Figure 1 below.

A new through road is to be constructed, as presented in Figure 2. The road will provide access from the site to Alperton Underground station and the traffic flow is considered

Air quality assessment for the proposed development at Abbey Industrial Estate

likely to match that of the surrounding minor roads (with minimal impact on background air quality).

Figure 1: The locations of the receptors used in the modelling

Figure 2: The location of the new through road
2.4 Conversion of NO$_x$ to NO$_2$

Recent evidence shows that the proportion of primary NO$_2$ in vehicle exhaust has increased\(^\text{14}\). This means that the relationship between NO$_x$ and NO$_2$ at the roadside has changed from that currently used in the DMRB model. A NO$_x$ to NO$_2$ calculator (Published in October 2017)\(^\text{15}\) has therefore been developed and has been used in conjunction with the DMRB model to obtain a more accurate picture of NO$_2$ concentrations.

2.5 Model Verification

Model verification refers to checks that are carried out on model performance at a local level. This involves the comparison of predicted versus measured concentrations. Where there is a disparity, the first step is to check the input data and the model parameters in order to minimise the errors. If required, the second step will be to determine an appropriate adjustment factor that can be applied.

In the case of NO$_2$, the model should be verified for NO$_x$ as the initial step and should be carried out separately for the background contribution and the source (i.e. road traffic). Once the NO$_x$ has been verified and adjusted as necessary, a final check should be made against the measured NO$_2$ concentration.

In this case, the nearest roadside NO$_2$ measurement sites are not representative of the development location. No appropriate sites have been identified and it has therefore not been possible to verify modelled concentration estimates. However, the estimated pollutant contribution from the local roads is small and a worst-case scenario has been used in that there is no improvement in the traffic fleet’s emissions between 2004 and 2024 has been assumed. Therefore, there can be reasonable confidence in the predicted concentrations.

3 Results

3.1 Results of the Dispersion Modelling

Table 5 and 6 below presents the estimated pollutant concentrations in 2016 and 2024. Given the inherent uncertainties in the modelling, background pollutant concentrations and vehicle fleet emission factors have been maintained at 2016 levels in the development year scenario to provide a conservative estimate. Traffic growth has been predicted based on the RTF model.

It is worth noting that DMRB is only able to provide pollutant concentration estimates at ground level, and concentrations are likely to be reduced at higher floors of the development site (see Section 3.2).

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\(^\text{15}\) [http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOXNO2calc](http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOXNO2calc)
Air quality assessment for the proposed development at Abbey Industrial Estate

Nitrogen dioxide:

Table 5: Estimated annual mean nitrogen dioxide concentrations in 2016 (base year) and 2024 ($\mu$g/m$^3$) at ground level.

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Annual mean in 2016</th>
<th>Annual mean in 2024</th>
<th>NO$_2$ Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>32.2</td>
<td>32.4</td>
<td>0.22</td>
</tr>
<tr>
<td>B</td>
<td>33.4</td>
<td>33.8</td>
<td>0.36</td>
</tr>
<tr>
<td>C</td>
<td>30.9</td>
<td>30.9</td>
<td>0.08</td>
</tr>
<tr>
<td>D</td>
<td>30.8</td>
<td>30.9</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Note: Exceedances of the objectives are highlighted

In the base year (2016) the annual average NO$_2$ concentration is predicted to be below the annual mean objective of 40 $\mu$g/m$^3$ at all receptors at ground level. The concentrations are highest at receptor B, as these locations are closer to Mount Pleasant, the main pollution source in terms of estimated traffic flows.

DMRB is not able to produce a short-term statistic for NO$_2$. However, the guidance states that authorities may assume that exceedances of the 1 hour objective are only likely to occur where annual mean concentrations are 60 $\mu$g/m$^3$ or above. Therefore, it is considered unlikely that this objective will be exceeded at any of the receptors modelled.

In 2024, NO$_2$ concentrations are expected to increase by a maximum of 0.4 $\mu$g/m$^3$ but will still be below objective levels. This increase is as a result of the general predicted increase in traffic in the area. This is however a conservative estimate as vehicle emissions are expected to improve in the future as a result of tighter regulations.

Particulate matter (PM$_{10}$):

Table 6: Estimated annual mean PM$_{10}$ concentrations in 2016 (base year) and 2024 ($\mu$g/m$^3$)

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Annual mean 2016</th>
<th>Annual mean 2024</th>
<th>PM$_{10}$ Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>19.7</td>
<td>19.7</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>B</td>
<td>20.0</td>
<td>20.1</td>
<td>0.1</td>
</tr>
<tr>
<td>C</td>
<td>19.2</td>
<td>19.2</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>D</td>
<td>19.2</td>
<td>19.2</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

In 2016, DMRB predicts total annual average PM$_{10}$ concentration at all of the ground floor receptors modelled to be well under 40 $\mu$g/m$^3$, therefore below the long-term air quality objective for the protection of human health. In addition, only 3 exceedances of the daily mean are expected; 35 are allowed per year and therefore this objective is also predicted to be met.
Air quality assessment for the proposed development at Abbey Industrial Estate

In 2024, annual mean concentrations are expected to increase negligibly as a result of general increases to local traffic levels. No exceedances of the annual or daily mean objective are predicted.

It is worth noting that the results above consider ground level only. As heights increase - for example, to residential levels first floor and above, concentrations can be expected to decrease further.

3.2 Mitigation Measures

No specific mitigation is required as predicted NO₂ and PM₁₀ concentrations are below the objectives at all locations and the impact of the development is negligible. Going forward, improvements in the traffic fleet are expected (particularly with the introduction of Euro 6/VI vehicles) and therefore it is likely that the NO₂ and PM₁₀ concentrations will generally decrease, particularly at roadside locations.

However, it is widely acknowledged that there is no safe level of exposure to air pollution, and as such, the developer is encouraged to consider mitigation measures in order to minimise air pollutant emissions arising from the site.

In order to minimise potential cumulative effects from major developments, the Institute of Air Quality Management (IAQM) has provided guidance on the principles of good practice which should be applied to all major development. Examples of good practice include:

1. The provision of at least 1 Electric Vehicle (EV) “rapid charge” point per 10 residential dwellings and/or 1,000 m² of commercial floor space. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made.
2. Where the development generates significant additional traffic, a detailed travel plan should be implemented. *Not applicable*
3. All gas-fired boilers to meet a minimum standard of < 40 mg NOₓ/kWh
4. All gas-fired CHP plant to meet a minimum emissions standard of:
   - Spark ignition engine: 250 mg NOₓ/Nm³
   - Compression ignition engine: 50 mg NOₓ/Nm³
   - Gas turbine: 50 mg NOₓ/Nm³
5. A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of:
   - Solid biomass boiler: 275 mg NOₓ/Nm³ and 25 mg PM/Nm³

16 [https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution](https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution)
17 Major developments can be defined as developments where:
   - The number of dwellings is 10 or above
   - The residential development is carried out on a site of more than 0.5ha where the number of dwellings is unknown
   - The provision of more than 1000 m² commercial floor space
   - Development carried out on land of 1ha or more
   - Developments which introduce new exposure into an area of existing poor air quality (e.g. an AQMA) should also be considered in this context.
The suggested emission benchmarks above represent readily achievable emission concentrations by using relatively simple technologies. They can be bettered by using more advanced control technology and at additional cost over and above the ‘typical’ installation.

3.3 Mitigating the Impacts of the Construction Phase

Emissions and dust from the construction phase of a development can have a significant impact on local air quality. The IAQM has produced a document titled ‘Guidance on the assessment of dust from demolition and construction’ published in May 2015. This guidance contains a methodology for determining the significance of construction developments on local air quality using a simple four step process:

- **STEP 1:** Screen the requirement for a more detailed assessment
- **STEP 2:** Assess the risk of dust impacts
- **STEP 3:** Determine any required site-specific mitigation
- **STEP 4:** Define post mitigation effects and their significance.

The risk of dust emissions from a demolition/construction site causing loss of amenity and/or ecological impacts is related to a number of factors, including: the activities being undertaken; the duration of these activities; the size of the site; the mitigation measures implemented and meteorological conditions. In addition, the proximity of receptors to the site and the sensitivity of these receptors to dust, impacts the level of risk from dust emissions. Receptors include both ‘human receptors’ and ‘ecological receptors’. The former refers to a location where a person or property may experience adverse effects for airborne dust or dust soiling, or exposure to PM$_{10}$, over a time period relevant to the air quality objectives (see Table 1). Ecological receptors are defined as any sensitive habitat affected by dust soiling, through both direct and indirect effects.

Following assessment of the impacts of dust as a result of the development, a qualitative risk impact level can be assigned, ranging from ‘negligible’ to ‘high risk’. Based on the designated risk impact level, the mitigation measures which are appropriate for all sites and are applicable specifically to demolition, earthworks, construction and trackout can be determined. Examples of the general measures include:

- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site
- Ensure all vehicles switch off engines when stationary – no idling vehicles
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable
- Ensure all loads entering and leaving the site are covered
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation

The use of the outlined IAQM methodology for assessing the impacts of dust from demolition/construction is considered to be current best practice. Therefore, it is recommended that the developer refers to the relevant IAQM documentation, to help reduce the impact of dust and vehicle exhaust emissions, and liaises with the Local Authority to come up with an acceptable dust management strategy.

In addition to the IAQM guidance referred to above, the Mayor of London has introduced standards to reduce emissions of pollutants from construction and

19 [http://iaqm.co.uk/guidance/](http://iaqm.co.uk/guidance/)
demolition activity and associated equipment. In August 2014 the Mayor adopted the Control of Dust and Emissions from Construction and Demolition Supplementary Planning Guidance following extensive consultation. The SPG includes the world’s first non-Road Mobile Machinery Low Emission Zone (NRMM LEZ) combining standards to address both nitrogen oxide (NOₓ) and particulate matter (PM) emissions.

From 1st September 2015, construction equipment used on the site of any major development within Greater London has been required to meet the EU Stage IIIA as a minimum; and construction equipment used on any site within the Central Activity Zone or Canary Wharf has been required to meet the EU Stage IIIB standard as a minimum. Some exemptions are provided where pieces of equipment are not available at the emission standard stipulated or in the volumes required to meet demand in a construction environment as dynamic as London. From September 2020, the requirements become more stringent.

### 4 Summary and Conclusions

An air quality assessment has been undertaken for the proposed development at Abbey Industrial Estate, Alperton, West London.

A conservative approach has been taken in that no improvement in the pollutant background concentrations or road transport emission factors has been assumed between the base year (2016) and the first year of occupation (2024). With expected improvements to the traffic fleet, improvements in pollutant concentrations may however materialise.

A quantitative screening assessment has been carried out using the DMRB method to determine the impact of emissions from road traffic on sensitive receptors.

Predicted concentrations have been compared with the air quality objectives. The results of the assessment indicate that both nitrogen dioxide and particulate matter concentrations are below objective levels in both the base year and first year of occupation. Therefore, no mitigation is required. Instead other measures outlined, such as providing secure and covered cycle storage and electric charging points, should be considered to reduce the emissions arising from the development. In addition, the developer is encouraged to refer to the IAQM’s ‘Guidance on the assessment of dust from demolition and construction’, in order to minimise the impact of this phase on local air quality.

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20 [https://nrmm.london/](https://nrmm.london/)
Appendix A – Model Verification

Model verification has not been applied in this assessment, as no locally representative air quality monitoring was identified.

Appendix B – Traffic Data

Table B.1: Traffic data for 2016 (and prediction for 2024 with development)

<table>
<thead>
<tr>
<th>Road links</th>
<th>Annual Average Daily Traffic (AADT)</th>
<th>% Heavy Duty Vehicles (HDV)</th>
<th>Speed (kph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mount Pleasant</td>
<td>5,500 (6,109)</td>
<td>5.9</td>
<td>27</td>
</tr>
<tr>
<td>Woodside Avenue</td>
<td>2,200 (2,444)</td>
<td>2.2</td>
<td>27</td>
</tr>
<tr>
<td>Woodside Place</td>
<td>2,200 (2,444)</td>
<td>2.2</td>
<td>27</td>
</tr>
<tr>
<td>Woodside End</td>
<td>2,200 (2,444)</td>
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<td>2.2</td>
<td>27</td>
</tr>
</tbody>
</table>
CONTENTS

1.0 EXECUTIVE SUMMARY 1

2.0 INTRODUCTION, CONTEXT AND PURPOSE 2

3.0 METHODOLOGY 4

4.0 RESULTS AND EVALUATION 6

5.0 DISCUSSION AND RECOMMENDATIONS 11

6.0 CONCLUSION 13
1.0 EXECUTIVE SUMMARY

1.1 In January 2018, ACD Environmental Ltd was commissioned by Michael Shwartz Group on behalf of Alperton Ltd to carry out a desk based ecological appraisal of a parcel of land at Alperton, West London (OS grid reference TQ 185 837), hereinafter referred to as the ‘Site’. Plans are being drawn up to re-develop the Site into residential housing with a commercial element. A planning application will be submitted in the near future.

1.2 A desk based appraisal has been undertaken to examine the likely ecological interest of the Site and the surroundings and to establish the principle of development at the Site. The desk based appraisal has been informed through online mapping and aerial photography resources, a search of the Multi-Agency Geographic Information for the Countryside website (MAGIC) database and a background data search with Greenspace Information for Greater London (GIGL).

1.3 There is one Site of Special Scientific Interest (SSSI) and six Local Nature Reserves (LNRs) within 5km of the Site. All are sufficiently removed from the Site to be unaffected by a development at the Site. Part of the London’s Canals Site of Importance for Nature Conservation (SINC) lies adjacent to the Site. Measures are proposed to protect the canal and its potential associated species during the demolition, construction and occupation phases of a development at the Site.

1.4 The Site itself is likely to be mainly of negligible ecological interest, comprising industrial buildings and hardstanding. The potential for protected species is likely to be negligible. It is recommended that an Extended Phase 1 Survey is undertaken to confirm the findings of this desk based appraisal, assess the buildings’ potential to support roosting bats, nesting birds and to determine the presence/absence of any invasive species.

1.5 Based on the information assessed, there is not likely to be any significant effect or cumulative effect of a development at the Site on ecology. Therefore, this should not be a matter for an Environmental Impact Assessment (EIA) but instead a consideration within the normal planning application process.

1.6 Whilst it is not considered that ecological issues would constrain the principle of a development at the Site, the development proposals and masterplan would need to take into account of the mitigation and enhancements outlined within this report to ensure that the development proposals would be in conformity with national, county and local policy.
2.0 INTRODUCTION, CONTEXT AND PURPOSE

Introduction

2.1 In January 2018, ACD Environmental was commissioned by Michael Shwartz Group on behalf of Alperton Ltd to carry out a Desk Based Ecological Appraisal of a parcel of land at Alperton, West London (OS grid reference TQ 185 837; Image 1).

![Image 1: Site location and boundary shown in red.](image)

Context

2.2 Plans are being drawn up to re-develop the Site into residential housing with a commercial element. A masterplan for the Site has been produced, which will form the basis of a planning application in the near future.

Purpose

2.3 The purpose of this desk based appraisal is to:

- Ascertain the general ecological value of the Site by:
  - Identifying and assessing the main habitats and plant communities likely to be present;
  - Appraising the likely wildlife use of the Site;
- Assess any ecological impacts of a development at the Site;
• Assess the cumulative effect of other proposals within the local area within the context a development at the Site;

• Assess the principle of a development at the Site with regard to ecology; and

• Recommend further surveys.
3.0 METHODOLOGY

Online Mapping and Aerial Photography

3.1 A variety of online mapping and aerial photography resources were used to look at aspects of the Site.

Background Data Search

3.2 The Government’s MAGIC website\[ http://magic.defra.gov.uk/MagicMap.aspx \] was accessed on 23\(^{rd}\) January 2018 for information on the location of statutory designated sites within a 5km radius of the Site.

3.3 GiGL was contacted in January 2018 to provide background records on non-statutory sites and protected species within a 2km radius of the Site.

Habitats and Species Evaluation and Impact Assessment

3.4 The habitats and species evaluations are made with reference to the Chartered Institute of Ecology and Environmental Management’s (CIEEMs) Guidelines for Ecological Report Writing\[ 2 \] and Guidelines for Preliminary Ecological Appraisal (PEA)\[ 3 \]. The habitats and species evaluations are made with reference to the CIEEM’s Guidelines for Ecological Impact Assessment (EcIA)\[ 4 \].

3.5 These guidelines aim to give a degree of consistency in approach to evaluating the importance of the ecological features within a site and any effects or impacts a scheme will have upon them.

3.6 Firstly, the species or habitats must be valued and a commonly used framework involves assigning a level of geographical importance to ecological receptors. This framework incorporates a wide range of legislation and governmental guidance in assessing each feature’s value.

3.7 Next, the impacts of the proposed scheme have to be predicted, taking into account different stages and activities within the development process. These impacts then have to be assessed for their significance, based upon the value of the species or habitat in question. The assessment of impact significance is done before and after any proposed mitigation to give an overall indication of significance.

3.8 The value of specific ecological receptors (sites, habitats or species) is assigned

---

according to their level of importance using the following terms:

- International value;
- UK value;
- National value (i.e. England/Northern Ireland/Scotland/Wales);
- Regional value;
- County value;
- District value (or Unitary Authority, City, or Borough);
- Local or Parish value; and
- Of value within the zone of influence or a larger defined area.

**Cumulative effects**

3.9 The cumulative impact assessment is made with reference to the CIEEM’s Guidelines for Ecological Impact Assessment[^4], where cumulative effects are defined as:

> "Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location."

3.10 The likely distribution of the effects of a development at the Site on each designation/habitat/species was determined and was used to establish a zone of influence.

3.11 Likely and known effects of the proposed developments (awaiting determination, ongoing appeals and developments referenced within the local plan) and approved developments (consented or permitted developments/no consent required) were considered. Consideration was also given to recently constructed developments, of which the effects may not have yet been fully realised within the established zone of influence.

3.12 Where impacts of the approved and proposed developments were similar to the predicted impacts of a development at the Site, the impact was taken forward for cumulative effect assessment.
4.0 RESULTS AND EVALUATION

Context

4.1 The Site comprises industrial buildings and hardstanding, surrounded mainly by residential development, with some additional industrial land to the east. Immediately to the east, an application has been approved to demolish the existing buildings and redevelop the area to provide a residential-led, mixed-use development of up to six storeys comprising 136 residential units.

Data Search Results

Designated Sites

4.2 Statutory designated sites are the most significant ecological receptors. The statutory designated nature conservation sites within 5km of the Site are as follows:

- Brent Reservoir SSSI, which lies 3.7km to the north-east of the Site and is designated for its bird interest;
- Fox Wood LNR, which lies 1.4km to the south of the Site; and
- A further six LNRs are present within 5km of the Site.

4.3 LNRs are notified under Section 21 of the National Parks and Access to the Countryside Act 1949 (as amended) by local authorities and are of Local Value. They are intended for public appreciation and enjoyment of wildlife. The LNR designation does not afford special protection; however, LNRs are protected under legislation and planning policy.

4.4 SINCs are recognised by the Greater London Authority and London borough councils as important wildlife sites. There are three tiers to the sites:

- Sites of Metropolitan Importance for Nature Conservation (SMINC);
- Sites of Borough Importance for Nature Conservation (borough I and borough II; SB1INC and SB2INC); and
- Sites of Local Importance for Nature Conservation (SLINC).

4.5 The nearest non-statutory designated nature conservation sites are as follows:

- London’s Canals SMINC, which lies adjacent to the southern boundary of the Site;
- One Tree Hill SB2INC, which lies 0.6km to the north-west of the Site;
• Abbey Estate Wayleave SLINC, which lies 0.2km to the south of the Site;
• Alperton Community School Scrub SLINC, which lies 0.3km to the north-east of the Site; and
• Heather Park Drive Embankment SLINC, which lies 0.4km to the north-east of the Site.

4.6 A further 30 SINCs of between local to metropolitan importance lie within a 2km radius of the Site.

4.7 SSSIs are of National Value, LNRs are of Local Value, SMINC are of Regional Value, SBINCs are of County Value and SLINCs are of Local Value.

 Protected Species Records

4.8 The results of the background data search for protected species are summarised below.

 Amphibians

4.9 The data search returned four records of great crested newt Triturus cristatus. The distance of the nearest record was 1.8km to the west of the Site. Records of common frog Rana temporaria and common toad Bufo Bufo within the wider landscape were also returned.

 Badger

4.10 No records of badger Meles meles were returned by the data search.

 Birds

4.11 The data search returned records of 36 bird species.

4.12 Records returned for birds which could use the canal were as follows: kingfisher Alcedo atthis, shoveler Anas clypeata, teal Anas crecca, grey heron Ardea cinerea, mute swan Cygnus olor, herring gull Larus argentatus, lesser black-backed gull L. fuscus and water rail Rallus aquaticus.

4.13 Records returned for birds of prey species were as follows: kestrel Falco tinnunculus, peregrine falcon F. peregrinus and tawny owl Strix aluco. One record of peregrine falcon were returned by the data search. Its location was not provided due to the sensitive nature of the record.
4.14 One record of golden oriole *Oriolus oriolus* was returned by the data search. The location was not provided due to the sensitive nature of the record.

4.15 Numerous records of house sparrow *Passer domesticus*, song thrush *T. philomelos* and starling were returned by the data search. A small number of records were returned of grey heron. The above four species are London Biodiversity Action Priority (BAP) species. The house sparrow and song thrush records were within 0.4km of the Site, the starling records were within 0.2km of the Site and the grey heron records were as close as 0.5km of the Site.

4.16 The remaining records included: swift *Apus apus*, stock dove *Columba oenas*, swallow *Hirundo rustica*, grey wagtail *Motacilla cinerea*, bullfinch *Pyrrhula pyrrhula* and mistle thrush *T. viscivorus*.

**Bats**

4.17 The data search returned several records of bats, comprising: Daubenton’s *Myotis daubentonii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus* and undetermined *Myotis* species.

**Reptiles**

4.18 The data search returned two records of slow worm *Anguis fragilis*. The distance of the nearest record was 0.7km to the west of the Site.

**Water vole**

4.19 A single record of water vole *Arvicola amphibius*, within 1.6km to west of the Site, from 2005, was returned by the data search.

**Otter**

4.20 No records of otter *Lutra lutra* were returned by the data search.

**Habitats**

4.21 The Site appears to support industrial buildings and hardstanding, with little vegetation present, apart from in some limited locations on the boundaries (e.g. the boundary with the canal to the south).

4.22 The buildings and hardstanding are of limited value to wildlife and are assessed as being of **negligible value**. The small areas of peripheral vegetation are likely to be between **negligible value** and **value within the zone of influence only**.
4.23 Given the urban context of the Site and adjacent waterway, there is a low potential for the Site to support invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981.

Fauna

4.24 The habitats within the Site present limited opportunities for wildlife. The background data search returned no records for protected species within the Site or its immediate surroundings.

4.25 The buildings are likely to offer low - negligible\(^5\) opportunities for bat roosts because they are set within an urban context, impacted by light spill and constructed from materials that do not typically support bat roosts. Given the context of the Site, it is considered that the Site is unlikely to support bat roosts of the UKs rarer or rarest bat species. The canal may be used as a commuting route and foraging area by low numbers of common bat species although it lacks vegetation and is impacted by the urban context of the area and light spill. The bat commuting interest is therefore assessed as being low - negligible\(^5\).

4.26 The large industrial buildings are set within an urban context and are unlikely to support rare or notable bird species. However, common bird species may use the Site for nesting purposes. The canal may be used as a commuting route and foraging area by low numbers of birds. Foraging opportunities are limited to the watercourse itself as banks are steep, formed of man-made structures and lack vegetation. The bird interest is assessed as being of value within the zone of influence only.

4.27 The remaining protected species interest is likely to be negligible.

Identified Ecological Receptors

4.28 Based on the current knowledge of the Site, the following ecological receptors have been identified:

- Designations: Brent Reservoir SSSI, Fox Wood LNR and a further six LNRs that are present within 5km of the Site and 35 SINCs that are present within 2km of the Site;
- Habitats: peripheral vegetation within the Site; and
- Species: birds and bats.

4.29 The following designations, habitats and species have been scoped out of further assessment due to a paucity of records and suitable habitats:

- Species: amphibians, badgers, otter, reptiles and water vole.
5.0 DISCUSSION AND RECOMMENDATIONS

Designated Sites

5.1 The Site lies within a SSSI Impact Risk Zone (SSSI IRZ); however, this does not pose a constraint on residential development within the Site as residential development in this area is not listed as having likely impacts to the SSSIs present within the wider landscape. The remaining statutory designated sites are sufficiently spatially separated from the Site so as to be unaffected by a residential development at the Site.

5.2 The canal, which is covered by a non-statutory designation (SMINC), could be affected by the demolition, construction and occupation phases of a development at the Site. To avoid impacts, the following should be undertaken:

- Employ industry best practice to avoid run-off, dust and noise impacting the canal and its associated habitats and species; and
- Design temporary construction lighting and design a sensitive occupation phase lighting scheme to avoid impacting the canal and its associated habitats and species.

5.3 The overall residual impacts should be negligible.

Habitats

5.4 The loss of the buildings and hardstanding and small areas of peripheral vegetation will result in negligible impacts.

5.5 Creation of new habitats, in the form of landscaping, gardens and open space will result in a net enhancement to the Site.

5.6 Employ industry best practice to contain and safely remove invasive species from the Site (if present). It is an offence to plant or allow to be released into the wild, a species which is listed as invasive under Schedule 9 of the Wildlife and Countryside Act 1981.

Fauna

5.7 It is unlikely that the buildings within the Site support any protected species; however, this should be subject to further investigation. Even if present, given the type of habitats and the proposals, mitigation/compensation will be readily achievable within a development at the Site.
Cumulative effects

5.8 A development at the Site will be able to mitigate for the protected species interest (if any) and will be able to employ industry best practice to reduce any impacts to a negligible level. Other developments within the surrounding area will be/are required to mitigate for protected species impacts (if any) and employ industry best practice to reduce impacts to a negligible level. Therefore, given the urban context, the nature and types of impacts and the species concerned, the combined overall residual impacts of development within the local area are highly unlikely to result in a cumulative effect. The likelihood of cumulative effects is assessed as being insignificant.

Recommendations

5.9 The Site should be subject to an Extended Phase 1 Survey to confirm the findings of this desk based appraisal, assess the buildings’ potential to support roosting bats and nesting birds and to determine the presence/absence of any invasive species.

Enhancements

5.10 The National Planning Policy Framework (NPPF) encourages development to provide net gains in biodiversity where possible. It is recommended that the following enhancements could be provided within a development at this site:

- Include green/brown roofs;
- Install bat boxes on elevations of the buildings adjacent to the canal;
- Install bird nest boxes into the external walls of new buildings;
- Install swift nest boxes onto the external walls of new buildings;
- Use native and/or wildlife friendly tree and shrub species; and
- Establish areas of species-rich wildflower grassland within areas of amenity grassland.
6.0 CONCLUSION

6.1 The desk based appraisal of the Site indicates that the Site is of negligible ecological value and that the Site is unlikely to support protected species. Cumulative effects as a result of this development in combination with developments in the local area are highly unlikely to occur.

6.2 Consequently, it is not considered that ecological issues would constrain the principle of development within the Site. However, the development proposals and masterplan would need to take into account of the mitigation and enhancements outlined within this report to ensure that the development proposals would be in conformity with national, county and local policy.

6.3 Extended Phase 1 Survey should be undertaken to confirm the findings of this desk based appraisal, assess the buildings' potential to support roosting bats and nesting birds and to determine the presence/absence of any invasive species.
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ECOLOGICAL SURVEYS * PROTECTED SPECIES LICENSING * MITIGATION * IMPACT ASSESSMENT
ARBORICULTURAL SITE MONITORING AND SUPERVISION * ARCHAEOLOGY
LANDSCAPE & VISUAL IMPACT ASSESSMENT * LANDSCAPE AUDIT * PROJECT MANAGEMENT
EXPERT WITNESS* LANDSCAPE DESIGN & PLANNING LANDSCAPE MANAGEMENT
Report For:

Zedhomes Ltd / Alperton Ltd

Phase I DESK TOP STUDY REPORT
Revision A – Updated Walk Over Survey

Site location:

Alperton Industrial Estate,
Mount Pleasant,
Wembley,
London
HA0 1NR

January 2018
Report No. 12286
# CONTENTS

LIST OF ABRIVATIONS II

DESK STUDY GENERAL NOTES ERROR! BOOKMARK NOT DEFINED.

DOCUMENT INFORMATION AND CONTROL SHEET B

REPORT ISSUE RECORD C

EXECUTIVE SUMMARY D

PRELIMINARY RISK ASSESSMENT – DESK TOP STUDY - PHASE 1 REPORT 1

1 Context and Objectives of this report 1
   1.1 Introduction 1
   1.2 Report Objectives 1
   1.3 Timescales of the Assessment 1
   1.4 Level of Technical Confidence Expected 1
   1.5 Management Constraints 2

2 Broad Characteristics of the site 2
   2.1 The Site 2
   2.2 Existing Site Use 2
   2.3 Surrounding Land Uses 2
   2.4 Site Reconnaissance 2

3 Details of Searches Undertaken 5

4 Information on Historical and Current Activities on the Site and Surrounding Area 5
   4.1 Discussion of the Development History 5

5 Details of the Intended Future Use of the Site 9

6 References of Planning Applications & Discussion with Local Authority 9

7 Environmental Settings 9
   7.1 Superficial Deposits and Solid Geology 9
   7.2 Hydrology 9
   7.3 Hydrogeology 9
   7.4 Implication of groundwater contamination 10
   7.5 Flooding 10

8 Site Drainage and Other Potential Man Made Pathways 10

9 Regulatory Data 10

10 Consultation with Environment Agency 14

11 Consultation with Appropriate Bodies/Local Sources 14

12 Review and Summery of Previous Reports with References 14

13 Identification of Potential Contaminants of Concern and Source Areas 14

14 Outline Conceptual Model 16

15 Discussion on Sources of Contamination 23

16 Next Steps 24
   16.1 Soil Assessment 24
   16.2 Groundwater Assessment 24
   16.3 Vapour Risk Assessment 25
   16.4 Working Brief 25

APPENDIXES

Appendix 1 Conceptual Model

Appendix 2 Site Plans

Appendix 3 Photos

Appendix 4 Ordnance Survey Map Records

Appendix 5 ‘Envirocheck’ Report
TABLES AND FIGURES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Site Detail</td>
<td>2</td>
</tr>
<tr>
<td>Table 2</td>
<td>Walk Over Inspection Risk</td>
<td>5</td>
</tr>
<tr>
<td>Table 3</td>
<td>Historic Maps Assessment</td>
<td>6</td>
</tr>
<tr>
<td>Table 3a</td>
<td>Historic Maps Assessment ....... Continued</td>
<td>7</td>
</tr>
<tr>
<td>Table 4</td>
<td>Overview of Historic Map Assessment Risk</td>
<td>8</td>
</tr>
<tr>
<td>Table 5</td>
<td>Geological Information</td>
<td>9</td>
</tr>
<tr>
<td>Table 6</td>
<td>Sensitivity of Environmental Receptors in the Vicinity of the Site</td>
<td>10</td>
</tr>
<tr>
<td>Table 7</td>
<td>Summery of Regulatory Data - Sources</td>
<td>11</td>
</tr>
<tr>
<td>Table 8</td>
<td>Summary of Regulatory Data - Receptors</td>
<td>12</td>
</tr>
<tr>
<td>Table 9</td>
<td>BGS Estimated Chemistry Data</td>
<td>12</td>
</tr>
<tr>
<td>Table 10</td>
<td>Geological Hazards</td>
<td>13</td>
</tr>
<tr>
<td>Table 11</td>
<td>Summary of Contemporary Trade Entries</td>
<td>13</td>
</tr>
<tr>
<td>Table 12</td>
<td>Table of Source Risk</td>
<td>15</td>
</tr>
<tr>
<td>Table 13</td>
<td>CIRIA Contaminated Land Risk Assessment Table</td>
<td>16</td>
</tr>
<tr>
<td>Table 14</td>
<td>Risk Assessment A</td>
<td>17</td>
</tr>
<tr>
<td>Table 15</td>
<td>Risk Assessment B</td>
<td>18</td>
</tr>
<tr>
<td>Table 16</td>
<td>Risk Assessment C</td>
<td>19</td>
</tr>
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<td>Risk Assessment D</td>
<td>20</td>
</tr>
<tr>
<td>Table 18</td>
<td>Risk Assessment E</td>
<td>21</td>
</tr>
<tr>
<td>Table 19</td>
<td>Overview of Risk Assessments - Proposed Site Use</td>
<td>22</td>
</tr>
<tr>
<td>Table 20</td>
<td>Pollutant Risk</td>
<td>23</td>
</tr>
<tr>
<td>Table 21</td>
<td>Overview of Works</td>
<td>26</td>
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LIST OF ABRIVATIONS

BGS  British Geological Society  
CIRIA  Construction Industry Research and Information Association  
EA  Environment Agency  
EPDC  Epping Forest District Council  
GL  Ground Level  
GW  Groundwater  
HESI  Herts & Essex Site Investigations  
LAPPC  Local Authority Pollution Prevention and Control  
NOS  Not Otherwise Specified (waste material)  
NHBC  National House-Building Council  
OS  Ordnance Survey  
SPZ  Source Protection Zone  
TPH  Total Petroleum Hydrocarbons  
PAH  Poly Aromatic Hydrocarbons
DESK STUDY GENERAL NOTES

This report has been prepared based on the findings of investigations into the site conditions using current available data which has been recovered from Envirocheck to provide environmental data in relation to the site and surrounding area. Where possible, local sources have been researched to gain a better understanding of the site conditions. As part of this review, research has been undertaken with the Local Authority and the Environment Agency as to the site condition.

We can confirm that this report has been prepared based on the information gained and that this information is not exhaustive and that subsequent research may reveal additional facts that may influence the reporting. Where possible, this information has been researched.

All geological information has been researched using the British Geological Society website, (the geology viewer). The disclaimer associated with this portal confirms ‘The British Geological Society accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from Non-BGS sources and may not represent current interpretation.

The ‘Copyright' within this report including plans and all other prepared documents prepared by Herts & Essex Site Investigations, (HESI), is owned by HESI and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete copies of this report may, however, be made and distributed by the client as an expedient in dealing with matters relating to this commission.

The accuracy of map extracts cannot be guaranteed and it should be recognized that different conditions on site may have existed between subsequent to the various map surveys.

We can confirm that within the assessment of the site, various websites have been visited and as such, we cannot confirm the validity of these sites and as such, this information is accepted de facto and without prejudice. Anyone relying on these sources does so at their own risk, however, Herts & Essex Site Investigations does undertake all reasonable care to ensure this data is relevant and correct.

It should be confirmed that the extent of review of this report has undertaken a broad review of on site features which would promote a contamination ground risk, however, this does not include ecological features and in particular Japanese Knotweed which should be reviewed under separate cover.

A review of the site will be made to confirm the extent of obvious Asbestos product or sheet materials either on the surface of the site soils or evident above ground, however, does not constitute a full Asbestos Survey by any means. This should be sought under separate cover.
DOCUMENT INFORMATION AND CONTROL SHEET

Client:
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Document Status and Approval Schedule

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1 Final
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All final copy reports are issued to the client on paper headed with Herts & Essex Site Investigations to assist in the identification of copied reports. Additionally, final copies are printed ‘Velum’ coloured paper for easy identification of final copy reports.

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<td>January 2018</td>
</tr>
<tr>
<td>4</td>
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</tbody>
</table>

Revision A – Updated Walk Over Survey
EXECUTIVE SUMMARY

Client: Zedhomes Ltd / Alpertons Ltd

Site Location: Alpertons Estate, Mount Pleasant, Wembley, London HA0 1NR

Proposed Development:
The proposed development has not been confirmed as under full planning, although, it is initially considered to develop a number of residential units across the site which will include private gardens, front landscaping, driveways, a pathway and road system linking the site up and additionally, a twelve storey block of flats. Initial plans are enclosed within this report which provide proposals to date.

Site Settings and Previous Uses:
The site is recorded as an open parcel of land from the earliest map record until 1896 when a large excavation covered through the centre of the site. This excavation was obviously backfilled in 1936 at some point with an unknown material. The site at this time was developed to form various works across the site area which generally increased over time in density until present day.

Surrounding the site, open land is recorded in place from the earliest map record until 1936 when housing generally developed across the area and steadily increased over time. To the northeast and east of the site, additional commercial works are in place.

Nearest Surface Water Feature:
The nearest surface water feature is recorded to the south of the site which is recorded as the Grand Union Canal. This is located directly adjacent to the site.

Ground Conditions:
- Geology:
  - Made Ground: Nominal depths of made ground are anticipated underlying the site.
  - London Clay: London Clay will be present until depth.
- Aquifer:
  - Not Classified
  - Unproductive Aquifer

Groundwater Abstractions:
The nearest groundwater abstraction well is recorded as 891 meters to the southwest of the site which is recorded as Other Industrial / Commercial, Public Service.

Source Protection Zone:
The site is not recorded within a Source Protection Zone, and none are in place surrounding the site.

Potential Sources of Contamination:
- On Site:
  - Roads / Gullies;
  - Vehicle repair Workshops;
  - Spray Workshops;
  - Vehicle Parts;
  - Drainage;
  - Food Outlets;

- Off site:
  - Food Outlets;
  - Asbestos;
  - Sewage Pumping Station;
  - Works.

Previous Investigations:
No reports relating to contaminated land are known to us at the time of writing this report relating to the site.

Recommendations:

- Proposed Site Investigation:
  
  We would suggest that a range of potential sources of contamination relating to the historical land use of the site and the surrounding land uses, may be in place within the upper subsoil and potentially have migrated in to the lower geology that is underlyng any superficial fill deposit.

  Vapour risk is also potentially in place from on site sources. As such, a vapour and land gas risk assessment will be required to classify the risk.

  Considering the potential sources of contamination detailed above and within this report, we would suggest that some further works are carried out. These works should incorporate intrusive investigations to assess the upper and lower geology, recover samples and assess subsoil conditions through visual observations and chemical testing. With this in mind, we consider the following to form an appropriate way forward.

Next Steps:
- Intrusive shallow based excavation using window sampler to assess the geological conditions and recover samples from the locations shown on the enclosed plan;
- Install standpipes for the monitoring of both vapour risks and groundwater elevation and sampling;
- Vapour risk assessment;
- Groundwater risk assessment, if risk is encountered;
- Targeted sampling to assess on site source risk;
- Spatial sampling for use in statistical analysis;
- Consideration through the site assessment as to the presence of Asbestos product within the site and subsoil within the site;
- Visual observations of the subsoil encountered to make initial assessment of the potential risk from contamination.
- Watching brief to record assess and report on unexpected contamination.
PRELIMINARY RISK ASSESSMENT – DESK TOP STUDY - PHASE 1 REPORT

1 Context and Objectives of this report

1.1 Introduction

We have been asked by Michael Shwartz Group on behalf of Zedhomes Ltd / Alperton Ltd to undertake an investigation of the above site in order to assess the potential environmental impact of the existing and historical use of the site on the proposed development sufficient to document that the site poses a reduced impact on future users and the environment.

At this stage, we have been asked to carry out this report with further works proposed if required, although, will potentially be required dependant upon the findings of this report. We would suggest that the protocols for the investigation of the site should form this desk top study, an intrusive investigation and environmental report, a remediation strategy report and a final validation report, where required. This is the basis on which this report has been prepared and as such, these protocols are expected to follow this report.

1.2 Report Objectives

The proposed development is likely to form the development of a basement. The site will remain residential land.

The objectives of the project were as follows:

- To anticipate regulatory action;
- To assess the site for Part IIA;
- To ensure development is ‘suitable for use’ status;
- To assess the site in other regulatory contexts;
- To inform acquisition, transfer or sale plans;
- To support funding decisions;
- For valuation purposes;
- For insurance purposes

1.3 Timescales of the Assessment

The timescales for the site investigation process are based on immediate site investigation data and the assessment of the site conditions based on this report at present. The scope of this report which define the following:-

- Any immediate risks identified within the site that may promote a high risk to the immediate site conditions;
- Any current site use features that would promote a risk that required quick action;
- Any construction or medium term risks within the site which may be present during the construction process within the site;
- Any long term risks within the site that may require long term assessments or interim monitoring;
- Any risks within the site that may change upon the change in use of the site to form the proposed development.

1.4 Level of Technical Confidence Expected

The scope of this report has been prepared in order to assess the historical impact of the site and any previous site uses on the existing and proposed development scheme. The level of risk will be prepared and assessed based on historical mapping and environmental information which has been gained to support the development of this report.

Whilst this is the case, gaps in map records and information will be in place that would reduce the readers confidence of the information sought. As such, this report has been prepared as a preliminary or Indicative Report with a Medium Confidence Level.
1.5 Management Constraints
The site investigation has been prepared based on a budget which has been agreed with the client. The desk top study fees have been agreed at this time which will dictate a way forward within any environmental report. The environmental report has been proposed with a budget at this time, although, dependant upon the findings of this report, these fees may alter.

2 Brief Characteristics of the site

2.1 The Site

The site is located within an area of a commercial and residential area of Wembley, North London, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 2, Sheet 1.

<table>
<thead>
<tr>
<th>Table 1 Site Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site Address</strong> :</td>
</tr>
<tr>
<td><strong>Site assessed under</strong></td>
</tr>
<tr>
<td><strong>Current use of land :</strong></td>
</tr>
<tr>
<td><strong>Previous use of site, (if known)</strong></td>
</tr>
<tr>
<td><strong>Grid Reference</strong></td>
</tr>
<tr>
<td><strong>Site Area</strong></td>
</tr>
<tr>
<td><strong>Local Authority</strong></td>
</tr>
<tr>
<td><strong>Gradient of the site</strong></td>
</tr>
<tr>
<td><strong>Proximity of Controlled Waters, (if known)</strong></td>
</tr>
</tbody>
</table>

2.2 Existing Site Use

The existing use of the site is recorded as a multi use commercial industrial estate which has a number of different vehicle repair workshops in amongst a concrete hardstanding estate. Some of the units are in use as food development workshops. The estate in general appears to forma poorly maintained dilapidated and run down estate. Many of the vehicles in the estate are part broken and dismantled.

2.3 Surrounding Land Uses

The site is located in residential area of the London, details of which are as follows :-

- To the north of the site, residential developments are recorded in place;
- To the east of the site, commercial buildings are in place;
- To the south of the site, the Grand \Union Canal is in place beyond which residential housing is in place;
- To the west of the site, the northern section has residential housing wiht the southern section having commercial food outlets.

2.4 Site Reconnaissance

The site walk over visit was undertaken in August 2014, on which the weather conditions were recorded as sunny with a slight cloud cover.
Access

Access into the site can be gained from three locations which include Woodside Place, (to the north western section), Woodside End, (to the South western section), and Mount Pleasant, (to the north east section).

Once entered into the site, free access is available across all road access routes, although, no access is available into any of the buildings or to gain access via the buildings. Staff and Owners were generally non compliant in allowing access anywhere onto the properties direct.

Site Area

The site is recorded as a rectangular parcel of land which has a commercial land use. Our walk over inspection began from Mount Pleasant access where the main access route led to the various avenues of the site. All road systems have concrete patches where services have been installed and maintained through the site, most of which were pot holed and in poor condition.

No access was available into the main buildings across the site, although, one could see into the buildings passing through the site. As such, a detailed review of features on site and potentially pollutive uses specific to buildings would be difficult to quantify and as such, a general review of the site is made.

The site has a number of poorly maintained and generally badly managed vehicle repair workshops. The workshops have oil staining on the floors storage of a number of pollutive oils and fluids within and generally poorly maintained operations. Vehicles are broken up and parts spread and sold for placement in other vehicles. Some workshops were also in use as vehicle spray workshops, although, the workshops were very much makeshift workshops with plastic sheeting providing protection. Most of the garages within the site included a large waste deposit of old engine parts which were generally piled up in areas of space within each garage.

We would suggest that the health and safety operations in each of the many workshops was generally poor and little effort would have been made to maintain a level of hygiene or cleanliness.

The general lie of the land was a gradual slope from the northwest of the site to the south east of the site and as such, the general slope led towards the main river.

To the south east of the site, centrally within the proposed development area, a small building was recorded in place which is understood to be a pumping station for sewage. No further details of this are known.

To the south east corner of the site, a slightly larger area of open space was recorded which is in use as a small breakers yard with numerous cars and vehicles strewn across the area. This included oils and debris in place surrounding the vehicles.

The southern boundary of the site was identified as a post and wire fence with a Canal beyond.

Above or below ground fuel or oil storage tanks

Above ground fuel tanks, oil containers or storage of oils are likely to be in place across the site, although, limited evidence was witnessed during the walk over inspection. It should be noted that no access was available into the main buildings across any sections of the site and as such, a full review would provide targets for investigation.

It was discussed on site that the likelihood of underground fuel tanks in the site area was limited, although historically, some discussion had been made to confirm fuel tanks may have been in place centrally within the site, (see plans).

Asbestos Containing Materials

It is best practice to assume that Asbestos Containing Material is present on site until a full site access agreement can be made. A full Asbestos Survey should be made across the site. Asbestos is certainly present within the roof structures as cladding.
**Surrounding Area**

Surrounding the site, residential housing is present across the north of the site which includes housing and gardens.

To the east of the site, further works are recorded in place which are similar to that in place within the site. The works include a tire changing facility and motor vehicle garage. Some of the units are apparently in use as food development outlets, although, the exact status is unknown.

To the south of the site, the main EA River / Canal is in place which is recorded as the Grand Union Canal. From a review of water in the main river, the water was clean and one could see to the base of the river, although, the usual debris, (shopping trolley and cans containers), was evident.

To the west of the site, further works are in place to the south with residential housing to the north.

**Site Levels and Ground Cover**

The site is recorded as a fairly uniform slope from the north west of the site down to the main EA River to the south east. It is unknown whether inspection pits for the maintenance and working of vehicles are in place relating to garages, although, this is considered likely.

The site in essence is laid to hard cover in the form of concrete with some potholes and cracks in place in general.

**Current site activities**

The site is in use as a vehicle repair workshop in a number of different outlets across the site, although, it is understood that some food development outlets are also in place. A single small buildings to the south east is recorded as a pumping station.

**Effluent, Site Drainage and Services**

Drainage has not been reviewed as part of this site investigation. It would be prudent to undertake a review of the drainage to assess the potential pathways for contamination to migrate from any source areas. Drainage is likely to be blocked and / or saturated and as such, a survey is recommended.

**Revised Walk Over Survey – January 2018**

A review to the existing walk over survey has been completed based on an assessment of the site in January 2018. The findings of the revised walk over survey confirm that little changes are in place across the site. We would suggest that the health and safety in place has not improved and includes randomly placed car parts and engines with waste rubbish and parts of vehicles strewn across the area.
Table 2  Walk Over Inspection Risk

<table>
<thead>
<tr>
<th>Feature</th>
<th>Location</th>
<th>Elevation</th>
<th>Is Risk Present?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads</td>
<td>On Site</td>
<td>At G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Garages</td>
<td>On Site</td>
<td>At G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Vehicle Repair Workshops</td>
<td>On Site</td>
<td>At G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Vehicle Spray Workshops</td>
<td>On Site</td>
<td>At G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Vehicle Parts</td>
<td>On Site</td>
<td>At G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Drainage</td>
<td>On Site</td>
<td>At G.L</td>
<td>✓</td>
</tr>
<tr>
<td>Food Development Outlets</td>
<td>On Site</td>
<td>At G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Asbestos</td>
<td>On Site / Off Site</td>
<td>At / Above G.L.</td>
<td>✓</td>
</tr>
<tr>
<td>Sewage Pumping Station</td>
<td>On Site</td>
<td>At and Below G.L.</td>
<td>✓</td>
</tr>
</tbody>
</table>

3  Details of Searches Undertaken

Within this report, various searches have been undertaken in order to assess the risk associated with the development of the site from the historical and current use of the site and surrounding area. These include:

- Environmental Data Search 1 : 10,000;
- Environmental Data Search 1 : 2,500;
- Site Sensitivity Maps and Data Sheets;
- Historical Maps;
- Internet Search;
- Local Authority Search;
- Consultation with Site Owner / Architect.

4  Information on Historical and Current Activities on the Site and Surrounding Area

The history of the site’s land-use and development from Victorian times onwards has been researched from Ordnance Survey, (O.S.) maps. Extracts of the O.S. Maps and plans are presented in Appendix 4. Reference to historical maps provides invaluable information regarding the land use/history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive map references.

4.1  Discussion of the Development History

A summary of the historical development history of the site and surrounding area, based on the information obtained from the above sources is provided in Table 3.
<table>
<thead>
<tr>
<th>Date</th>
<th>On Site Feature</th>
<th>On Site Mitigation (considering all possible pathways)</th>
<th>Off Site Feature</th>
<th>Off Site Mitigation (considering all possible pathways)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1868</td>
<td>Open Land</td>
<td>No Source</td>
<td>Canal, 5m, S</td>
<td>No Source</td>
</tr>
<tr>
<td>1880</td>
<td>Source Map Scale 1:10,560</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1896</td>
<td>Excavation Through Centre</td>
<td>No Source</td>
<td>Housing, NE, 5m</td>
<td>No Source</td>
</tr>
<tr>
<td>1914</td>
<td>Source Map Scale 1:2,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1920</td>
<td>Source Map Scale 1:10,560</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1936</td>
<td>Engineering / Iron / Ice cream Works</td>
<td>Possible Soil, Possible GW Possible Vapour</td>
<td>More Housing, All Direction, 5m</td>
<td>No Source</td>
</tr>
<tr>
<td>1946</td>
<td>Aerial Photo 1:1,250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>Source Map Scale 1:1,056</td>
<td>Engineering Works, E, 10m</td>
<td>Possible Soil, Possible GW Possible Vapour</td>
<td></td>
</tr>
<tr>
<td>1957</td>
<td>Source Map Scale 1:1,250</td>
<td>Additional Disinfectant Works, Adhesive Tape Works, Food Production Works</td>
<td>Possible Soil, Possible GW Possible Vapour</td>
<td></td>
</tr>
<tr>
<td>1958</td>
<td>Source Map Scale 1:2,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>Source Map Scale 1:10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>Source Map Scale 1:2,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>On Site Feature</td>
<td>On Site Mitigation (considering all possible pathways)</td>
<td>Off Site Feature</td>
<td>Off Site Mitigation (considering all possible pathways)</td>
</tr>
<tr>
<td>-------</td>
<td>----------------</td>
<td>--------------------------------------------------------</td>
<td>-----------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>1976</td>
<td>Source Map Scale 1:10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>Source Map Scale 1:10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>Source Map Scale 1:1,250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>Source Map Scale 1:10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>Source Map Scale 1:10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified Risk</td>
<td>Distance &amp; Direction</td>
<td>Year</td>
<td>Is risk in place?</td>
<td>Considering All Pathways</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>----------------------</td>
<td>------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Open land</td>
<td>On Site</td>
<td>1868-1896</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Excavation Through Site</td>
<td>On Site</td>
<td>1896-1936</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Infilled Land, (from excavation)</td>
<td>On Site</td>
<td>1936 to present</td>
<td>✓</td>
<td>Possible Soil Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible Groundwater Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible Vapour Risk</td>
</tr>
<tr>
<td>Various Works</td>
<td>On Site</td>
<td>1936 to present</td>
<td>✓</td>
<td>Possible Soil Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible Groundwater Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible Vapour Risk</td>
</tr>
<tr>
<td>Engineering Works</td>
<td>Off Site, 10m, E</td>
<td>1950 to Present</td>
<td>✓</td>
<td>Possible Soil Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible Groundwater Risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible Vapour Risk</td>
</tr>
</tbody>
</table>
5  **Details of the Intended Future Use of the Site**

The proposed development has not been confirmed as under full planning, although, it is initially considered to develop a number of residential units across the site which will include private gardens, front landscaping, driveways, a pathway and road system linking the site up and additionally, a twelve storey block of flats. Initial plans are enclosed within this report which provide proposals to date.

6  **References of Planning Applications & Discussion with Local Authority**

After a review of the Brent Council Planning Portal, we can confirm that no applications are in place for this Estate.

7  **Environmental Settings**

7.1  **Superficial Deposits and Solid Geology**

The ground conditions have been reviewed using on line BGS mapping which can confirm that the site is incorporates no superficial geological deposits and therefore London Clay is present underlying the site to depth.

<table>
<thead>
<tr>
<th>Geological Unit</th>
<th>Brief Description</th>
<th>Anticipated thickness, (m)</th>
<th>Aquifer Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial Deposits/Drift</td>
<td>Filled/Re-worked ground Made Ground, (Potentially Contaminated Stratum).</td>
<td>0.30-1.00m+</td>
<td>Not Classified</td>
</tr>
<tr>
<td>Solid Geology Deposits</td>
<td>London Clay Brown / Blue Clay</td>
<td>20-30m</td>
<td>Unproductive Stratum</td>
</tr>
</tbody>
</table>

7.2  **Hydrology**

The nearest surface water feature is recorded as on site which from the data is recorded as the Grand Union Canal. This is recorded as running to the west of the site area.

The nearest discharge consent is recorded as 549 meters to the southwest of the site.

7.3  **Hydrogeology**

By examination of the Environment Agency Website, no superficial deposits or drift deposits are recorded in place. The underlying Bedrock is recorded as an Unproductive Stratum and is therefore unlikely to contain volumes of groundwater that would be abstracted for drinking water purposes.

Pollution incidents to controlled waters are recorded as 189 meters to the west of the site which is recorded as a Minor Incident from Oils - Unknown. The nearest significant incident is recorded as 241 meters to the south west of the site recorded as from Miscellaneous - Unknown.

The nearest groundwater abstraction well is recorded as 891 meters to the southwest of the site which is recorded as Other Industrial / Commercial, Public Service.

The site is not recorded within a Source Protection Zone, and none are in place surrounding the site.
7.4 Implication of groundwater contamination

Considering the information gained, we can confirm that the site lies within a deposit which is unlikely to contain any form of groundwater or body of water, risk associated with migration of contamination to a groundwater system will be minimal and impact on groundwater is considered at worst low.

Considering the information gained, we can confirm that the river system adjacent to the site is likely to be in direct pathways for contamination to migrate from the site area to the river system. The general slope gradient is from the site area towards the river and as such, risk may be in place.

As the site has undergone excavation and has historically formed a pit which has been backfilled. As such, the site may form a sump for groundwater to sit locally. The impact on a groundwater system may need examination and assessment dependant upon the findings locally.

With the above in mind, groundwater may be present as part of a sump or soakaway resulting from the area being excavated heavily historically. Groundwater will locally leach and pond within this area and as such, may be present specific to backfilled material. Limited scope for this to discharge off site is in place as, from the information gained, the excavation was limited to an on site feature.

Migration through surface water run off, (i.e. surface water leaching through near surface made ground soils) is in place which may mobilise to the surface water feature directly adjacent to the site. Some assessment of this will be required.

7.5 Flooding

The site does not lie within an area which is susceptible to flooding and as such no flood risks are required based on the analysis provided.

Within Table 6, the sensitivity of the identified receptors within the vicinity of the site to contamination along with pathways from the site is recorded.

Table 6  Sensitivity of Environmental Receptors in the Vicinity of the Site

<table>
<thead>
<tr>
<th>Receptor Type</th>
<th>Receptor(s)</th>
<th>Sensitivity</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater</td>
<td>Unproductive Stratum Low</td>
<td>Limited scope for ground water to be in place or migration of groundwater to a receptor</td>
<td></td>
</tr>
<tr>
<td>Surface Water</td>
<td>Grand Union Canal Moderate Possible risk of migration to the river system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flooding</td>
<td>The Site Low</td>
<td>The site does not lie within an area susceptible to flooding.</td>
<td></td>
</tr>
<tr>
<td>Ecological</td>
<td>None - - - -</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8 Site Drainage and Other Potential Man Made Pathways

Drainage is recorded as in place within the site although, has not been reviewed as part of the site assessment. A full drainage survey is recommended as it would appear to be in poor condition.

9 Regulatory Data

Information relating to the potential hazards associated with environmental regulatory controls are summarised in Table 7 & 8. This information is recorded in full within the Envirocheck data provided within Appendix 5. The salient points recorded within this data are re-created below.
<table>
<thead>
<tr>
<th>Data</th>
<th>On Site</th>
<th>Off Site</th>
<th>Distance from site.</th>
<th>Is potential risk in place?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge Consent</td>
<td>None</td>
<td>Sewage Discharge - Freshwater Stream / River</td>
<td>847, SW</td>
<td>X</td>
</tr>
<tr>
<td>Local Authority Pollution Prevention and Controls</td>
<td>None</td>
<td>Re-Spraying Road Vehicles</td>
<td>218m, E</td>
<td>X</td>
</tr>
<tr>
<td>Pollution Incidents to Controlled Waters</td>
<td>None</td>
<td>Minor Incident - Miscellaneous</td>
<td>189m, W</td>
<td>X</td>
</tr>
<tr>
<td>Substantiated Pollution Incident Register</td>
<td>None</td>
<td>Significant Incident - Urban Run Off</td>
<td>241m, SW</td>
<td>X</td>
</tr>
<tr>
<td>Historical Landfill Site</td>
<td>None</td>
<td>Deposited Waste includes Inert, Industrial and Household Waste</td>
<td>710m, E</td>
<td>X</td>
</tr>
<tr>
<td>Licensed Waste Management Facility</td>
<td>Metal Recycling Site</td>
<td>Glass Waste</td>
<td>417m, SW</td>
<td>✓</td>
</tr>
<tr>
<td>Local Authority Recorded Landfill Site</td>
<td>None</td>
<td>Unknown</td>
<td>636m, E</td>
<td>X</td>
</tr>
<tr>
<td>Registered Waste Transfer Site</td>
<td>None</td>
<td>Various Wastes</td>
<td>825m, E</td>
<td>X</td>
</tr>
<tr>
<td>Radon Potential - Radon Protection Measures</td>
<td>The property is in a lower probability radon area, as less than 1% of homes are above the action level</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
### Table 8  Summary of Regulatory Data - Receptors

<table>
<thead>
<tr>
<th>Data</th>
<th>On Site</th>
<th>Off Site</th>
<th>Distance from site</th>
<th>Is potential risk in place?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Surface Water Feature</td>
<td>None</td>
<td>Grand Union Canal</td>
<td>5m, S</td>
<td>✓</td>
</tr>
<tr>
<td>Water Abstractions</td>
<td>None</td>
<td>Other Industrial, Commercial And Public Service</td>
<td>891m, SW</td>
<td>X</td>
</tr>
<tr>
<td>Source Protection Zone</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 9  BGS Estimated Chemistry Data

<table>
<thead>
<tr>
<th>BGS Estimated Soil Chemistry Pollutant</th>
<th>BGS Urban Soil Chemistry Averages (mg / kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
</tr>
<tr>
<td>Arsenic</td>
<td>1.00</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.30</td>
</tr>
<tr>
<td>Chromium</td>
<td>13.00</td>
</tr>
<tr>
<td>Lead</td>
<td>11.00</td>
</tr>
<tr>
<td>Nickel</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Considering the background concentrations present, limited human health risk is anticipated within this area.
### Table 10  Geological Hazards

<table>
<thead>
<tr>
<th>Geological Hazard</th>
<th>Distance &amp; Direction</th>
<th>Feature</th>
<th>Risk Assessment Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGS Recorded Mineral Site</td>
<td>None</td>
<td>No Hazard</td>
<td>No Risk</td>
</tr>
<tr>
<td>Coal Mining</td>
<td>On Site</td>
<td>No Hazard</td>
<td>No Risk</td>
</tr>
<tr>
<td>Collapsible Ground</td>
<td>On Site</td>
<td>No Hazard</td>
<td>No Risk</td>
</tr>
<tr>
<td>Compressible Ground</td>
<td>On Site</td>
<td>No Hazard</td>
<td>No Risk</td>
</tr>
<tr>
<td>Ground Dissolution Features</td>
<td>On Site</td>
<td>No Hazard</td>
<td>No Risk</td>
</tr>
<tr>
<td>landslide</td>
<td>On Site</td>
<td>Very Low</td>
<td>No Risk</td>
</tr>
<tr>
<td>Running Sand</td>
<td>On Site</td>
<td>No Hazard</td>
<td>No Risk</td>
</tr>
<tr>
<td>Shrinking or Swelling Clay</td>
<td>On Site</td>
<td>Moderate</td>
<td>Geotechnical Risk</td>
</tr>
</tbody>
</table>

### Table 11  Summary of Contemporary Trade Entries

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Trade Use</th>
<th>Distance &amp; Direction from Site</th>
<th>Is potential risk in place?</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naz Motors</td>
<td>Mechanical Engineers</td>
<td>On Site</td>
<td>✓</td>
<td>LLAPP is in place for this feature</td>
</tr>
<tr>
<td>E. Meyer &amp; Co</td>
<td>Car Body Repairs</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>JJ Motor Body Repairs</td>
<td>Car Body Repairs</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Original Motors</td>
<td>Car Body Repairs</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>MS Tyres</td>
<td>Tyre Dealers</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Coronation Cables</td>
<td>Cable &amp; Wire Equipment</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Euro Technical Service London Ltd</td>
<td>Cable &amp; Wire Equipment</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>IJ Bailey</td>
<td>Garage Services</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Kings Motors</td>
<td>Garage Services</td>
<td>On Site</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Additional Trades are recorded widespread across the site

*NB The above information is taken from the Envirocheck trade directories*
10 Consultation with Environment Agency

Consultation has not been made with the Environment Agency, information gained from Envirocheck and the EA web site has given sufficient information at this stage. The risks associated with the site do not promote a significant groundwater issue and as such, no discussion with the Environment Agency is required at this stage.

11 Consultation with Appropriate Bodies/Local Sources

No consultation has been made with other sources.

12 Review and Summery of Previous Reports with References

No previous reports are in place relating to the site area.

13 Identification of Potential Contaminants of Concern and Source Areas

Potential sources of contamination are brought forward for further risk assessment which are detailed in Table 12 :-
<table>
<thead>
<tr>
<th>Source Risk</th>
<th>Date</th>
<th>Location</th>
<th>Location to Target On Site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Walk Over Survey</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road, Garages, Vehicle Repair Works, Vehicle</td>
<td>Site Wide</td>
<td>Site Wide</td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td>Spray Workshops, Vehicle Parts, Drainage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food development Companies</td>
<td>Various</td>
<td>Various</td>
<td>Various Locations - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td>Asbestos Cladding</td>
<td>Site Wide</td>
<td>Site Wide</td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td><strong>Historical Maps</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewage Pumping Station</td>
<td>South Central</td>
<td>South central Section</td>
<td>Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td>Infilled Land</td>
<td>1936 to Present</td>
<td>Central Section</td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td>Various Works</td>
<td>1936 to Present</td>
<td>Site Wide</td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td>Engineering Works</td>
<td>1950 to Present</td>
<td>Site Wide</td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td><strong>Envirocheck Report</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licensed Waste Management Facility</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
<tr>
<td>Various Vehicle Repair Workshops</td>
<td></td>
<td></td>
<td>Site Wide - Soil Assessment Vapour Assessment</td>
</tr>
</tbody>
</table>
14 Outline Conceptual Model

What must now be considered is what contamination should be identified as a potential hazard as a result of the use of the site specific areas. In order to undertake this task, the *Contaminated Land Reports, (CLR10)*, has been used which details some trades and potential sources of contamination. In addition to this, the Department of Environment Industry Profiles have been incorporated which detail trade, and also, specific site usage of the trade and contaminant sources.

The information below incorporates a hazard assessment of the features surrounding the site that could potentially impact on the proposed development. This is based on the information below :-

<table>
<thead>
<tr>
<th>Probability</th>
<th>Consequence</th>
<th>Severe</th>
<th>Medium</th>
<th>Mild</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Likelihood</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Moderate/Low Risk</td>
<td></td>
</tr>
<tr>
<td>Likely</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Moderate/Low Risk</td>
<td>Low Risk</td>
<td></td>
</tr>
<tr>
<td>Low Likelihood</td>
<td>Moderate Risk</td>
<td>Moderate/Low Risk</td>
<td>Low Risk</td>
<td>Very Low Risk</td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td>Moderate/Low Risk</td>
<td>Low Risk</td>
<td>Very Low Risk</td>
<td>Very Low Risk</td>
<td></td>
</tr>
<tr>
<td>Source (Potential Contaminating Use)</td>
<td>Potential Contaminants</td>
<td>Receptors</td>
<td>Pathways</td>
<td>Associated Hazard, [Severity]</td>
<td>Proposed Site Use Risk Assessment</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------</td>
<td>-----------</td>
<td>----------</td>
<td>-------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Roads, Garages, Vehicle Repair Workshops, Vehicle Spray Workshops, Vehicle Parts, Drainage.</td>
<td>TPH's, Naphthalene, VOC's, Semi VOC's, PCB's.</td>
<td>Site Users Construction Workers.</td>
<td>Direct contact; Inhalation dust and fibers.</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dermal contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td>On Site.</td>
<td>Adjoining Land Owners</td>
<td>Direct contact; Inhalation dust and fibers.</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Low Likely</td>
<td>Moderate / Low</td>
</tr>
<tr>
<td>Also Envirocheck Data, And Contemporary Trade Directory</td>
<td>Controlled Surface Water; Leaching, lateral migration of shallow groundwater to a target receptor.</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
<td>Possible risk in place</td>
</tr>
<tr>
<td></td>
<td>Ground Water; Abstraction Well.</td>
<td>Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td>Medium</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Flora</td>
<td>Plant Uptake Direct Contact</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Low Likely</td>
<td>Moderate / Low</td>
</tr>
<tr>
<td></td>
<td>Asbestos</td>
<td>Site Users Construction Workers.</td>
<td>Inhalation dust and fibers (from Asbestos within the building)</td>
<td>Severe</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation dust and fibers (from asbestos within the soil)</td>
<td>Severe</td>
<td>Likely</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Metals Metalloids PAH's</td>
<td>Site Users Construction Workers.</td>
<td>Direct contact; Inhalation dust and fibers; Dermal contact;</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Controlled Surface Water;</td>
<td>Leaching, lateral migration of shallow groundwater to a target receptor.</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td>Ground Water; Abstraction Well.</td>
<td>Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td>Medium</td>
<td>Unlikely</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>TPH's, Naphthalene, VOC's, Semi VOC's, PCB's, Sulphate, pH, TPH's</td>
<td>Buildings; Construction Materials; Services</td>
<td>Direct contact with contaminated soils;</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct contact with contaminated groundwater</td>
<td>Medium</td>
<td>Likely</td>
</tr>
<tr>
<td>Source (Potential Contaminating Use)</td>
<td>Potential Contaminants</td>
<td>Receptors</td>
<td>Pathways</td>
<td>Associated Hazard, [Severity]</td>
<td>Proposed Site Use Risk Assessment</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------------</td>
<td>-----------</td>
<td>----------</td>
<td>-----------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td><strong>Food Development Companies</strong></td>
<td>TPH's, Naphthalene.</td>
<td>Site Users Construction Workers.</td>
<td>Direct contact; Inhalation dust and fibers. Dermal contact</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Various Locations</strong></td>
<td></td>
<td></td>
<td>Direct contact; Inhalation dust and fibers. Dermal contact</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Adjoining Land Owners</strong></td>
<td></td>
<td></td>
<td>Direct contact; Inhalation dust and fibers. Dermal contact</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Low Likelihood Moderate / Low Possible risk in place</td>
</tr>
<tr>
<td><strong>Controlled Surface Water</strong></td>
<td></td>
<td></td>
<td>Leaching, lateral migration of shallow groundwater to a target receptor</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Ground Water; Abstraction Well</strong></td>
<td></td>
<td></td>
<td>Leaching, migration through fissures / cracks which may migrate to a groundwater receptor</td>
<td>Medium</td>
<td>Unlikely Low No Risk</td>
</tr>
<tr>
<td><strong>Flora</strong></td>
<td></td>
<td></td>
<td>Plant Uptake Direct Contact</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Asbestos</strong></td>
<td></td>
<td></td>
<td>Inhalation dust and fibers (from Asbestos within the building)</td>
<td>Severe</td>
<td>Likely High Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation dust and fibers (from asbestos within the soil)</td>
<td>Severe</td>
<td>Likely High Possible risk in place</td>
</tr>
<tr>
<td>** Metals Metalloids PAH's**</td>
<td></td>
<td></td>
<td>Direct contact; Inhalation dust and fibers; Dermal contact;</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Controlled Surface Water</strong></td>
<td></td>
<td></td>
<td>Leaching, lateral migration of shallow groundwater to a target receptor</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Ground Water; Abstraction Well</strong></td>
<td></td>
<td></td>
<td>Leaching, migration through fissures / cracks which may migrate to a groundwater receptor</td>
<td>Medium</td>
<td>Unlikely Low No Risk</td>
</tr>
<tr>
<td><strong>TPH's, Naphthalene, Sulphate, pH, TPH's</strong></td>
<td>Buildings; Construction Materials; Services</td>
<td></td>
<td>Direct contact with contaminated soils;</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct contact with contaminated groundwater</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
</tbody>
</table>
### Table 16  Risk Assessment C

<table>
<thead>
<tr>
<th>Source (Potential Contaminating Use)</th>
<th>Potential Contaminants</th>
<th>Receptors</th>
<th>Pathways</th>
<th>Associated Hazard, [Severity]</th>
<th>Proposed Site Use Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sewage Pumping Station</strong></td>
<td>TPH's, Naphthalene, Biocides</td>
<td>Site Users Construction Workers.</td>
<td>Direct contact; Inhalation dust and fibers. Dermal contact</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>On Site</strong></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Towards South / Centre</strong></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Adjoining Land Owners</strong></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Controlled Surface Water</strong></td>
<td></td>
<td></td>
<td>Ingestion of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Ground Water; Abstraction Well</strong></td>
<td></td>
<td></td>
<td>Controlled Surface Water; Leaching, lateral migration of shallow groundwater to a target receptor.</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Flora</strong></td>
<td></td>
<td></td>
<td>Ground Water; Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td>Medium</td>
<td>Unlikely Low No Risk</td>
</tr>
<tr>
<td><strong>Asbestos</strong></td>
<td>Site Users Construction Workers.</td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Low Likelihood Moderate / Low Possible risk in place</td>
</tr>
<tr>
<td><strong>Metals Metalfoids PAH’s</strong></td>
<td>Site Users Construction Workers.</td>
<td></td>
<td>Direct contact; Inhalation dust and fibers; Dermal contact;</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Controlled Surface Water</strong></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Ground Water; Abstraction Well</strong></td>
<td></td>
<td></td>
<td>Controlled Surface Water; Leaching, lateral migration of shallow groundwater to a target receptor.</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>TPH's, Naphthalene, Biocides Sulphate, pH, TPH’s</strong></td>
<td>Buildings; Construction Materials, Services</td>
<td></td>
<td>Direct contact with contaminated soils;</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Direct contact with contaminated groundwater</strong></td>
<td></td>
<td></td>
<td></td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td>Source (Potential Contaminating Use)</td>
<td>Potential Contaminants</td>
<td>Receptors</td>
<td>Pathways</td>
<td>Associated Hazard, [Severity]</td>
<td>Proposed Site Use Risk Assessment</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------</td>
<td>-----------</td>
<td>----------</td>
<td>-------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Asbestos Cladding</td>
<td>Asbestos</td>
<td>Site Users</td>
<td>Inhalation dust and fibers (from Asbestos within the building)</td>
<td>Severe</td>
<td>High Likelihood</td>
</tr>
<tr>
<td>On Site</td>
<td></td>
<td>Construction Workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof Structures</td>
<td></td>
<td></td>
<td>Inhalation dust and fibers (from asbestos within the soil)</td>
<td>Severe</td>
<td>High Likelihood</td>
</tr>
</tbody>
</table>
### Table 18: Risk Assessment E

<table>
<thead>
<tr>
<th>Source (Potential Contaminating Use)</th>
<th>Potential Contaminants</th>
<th>Receptors</th>
<th>Pathways</th>
<th>Associated Hazard, [Severity]</th>
<th>Proposed Site Use Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infilled Land, On Site</strong></td>
<td>TPH's, Naphthalene, VOC's, Methane CO2</td>
<td>Site Users Construction Workers.</td>
<td>Direct contact; Inhalation dust and fibers. Dermal contact</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Adjoining Land Owners</strong></td>
<td></td>
<td>Direct contact; Inhalation dust and fibers. Dermal contact</td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Controlled Surface Water</strong></td>
<td></td>
<td>Leaching, lateral migration of shallow groundwater to a target receptor.</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ground Water; Abstraction Well.</td>
<td>Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td>Medium</td>
<td>Unlikely Low No Risk</td>
<td></td>
</tr>
<tr>
<td><strong>Flora</strong></td>
<td></td>
<td>Plant Uptake Direct Contact</td>
<td>Inhalation dust and fibers (from Asbestos within the building)</td>
<td>Severe</td>
<td>Likely High Possible risk in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Inhalation dust and fibers (from asbestos within the soil)</td>
<td>Severe</td>
<td>Likely High Possible risk in place</td>
</tr>
<tr>
<td><strong>Asbestos</strong></td>
<td>Site Users Construction Workers.</td>
<td>Direct contact; Inhalation dust and fibers; Dermal contact;</td>
<td>Ingestion of home grown produce</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
<tr>
<td><strong>Metals</strong></td>
<td>Site Users Construction Workers.</td>
<td>Leaching, lateral migration of shallow groundwater to a target receptor.</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
<td></td>
</tr>
<tr>
<td><strong>Metalloids</strong></td>
<td>Ground Water; Abstraction Well.</td>
<td>Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td>Medium</td>
<td>Unlikely Low No Risk</td>
<td></td>
</tr>
<tr>
<td><strong>PAH's</strong></td>
<td>Buildings; Construction Materials; Services</td>
<td>Direct contact with contaminated soils;</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct contact with contaminated groundwater</td>
<td>Medium</td>
<td>Likely Moderate Possible risk in place</td>
</tr>
</tbody>
</table>
### Table 19: Overview of Risk Assessments - Proposed Site Use

<table>
<thead>
<tr>
<th>Receptors</th>
<th>Pathways</th>
<th>Vehicle Repair Works</th>
<th>Food development Companies</th>
<th>Sewage Pumping Station</th>
<th>Asbestos Cladding</th>
<th>Infilled Land</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site Users</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>Direct Contact, Inhalation of Dust and Fibres, Dermal Contact</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Owners</td>
<td>Ingestion of home grown vegetation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Inhalation of vapours from soils</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Inhalation of vapour from contaminated groundwaters</td>
<td>◌X</td>
<td>◌X</td>
<td>◌X</td>
<td>◌X</td>
<td>◌X</td>
</tr>
<tr>
<td></td>
<td>Inhalation of land gas vapours</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
</tr>
<tr>
<td></td>
<td>Inhalation Asbestos dust and fibers (from Asbestos within the building)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Inhalation Asbestos dust and fibers (from asbestos within the soil)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Adjoining Land</strong></td>
<td>Direct Contact, Inhalation of Dust and Fibres, Dermal Contact</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Owners</td>
<td>Ingestion of home grown vegetation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Inhalation of vapours from soils</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Inhalation of vapours from contaminated groundwaters</td>
<td>◌X</td>
<td>◌X</td>
<td>◌X</td>
<td>◌X</td>
<td>◌X</td>
</tr>
<tr>
<td><strong>Flora</strong></td>
<td>Plant Uptake / Direct Contact</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Groundwater;</strong></td>
<td>Leaching, lateral migration of shallow groundwater to a River or surface</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Abstraction</td>
<td>water receptor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well &amp; Surface</td>
<td>Leaching, lateral migration of shallow groundwater system underlying the</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Water</td>
<td>site and subsequent abstraction well or SPZ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Buildings</strong></td>
<td>Direct contact with contaminated soils.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Direct contact with contaminated groundwater</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
<td>◌</td>
</tr>
</tbody>
</table>

*NB:* Due to Severe Consequence from Asbestos and Explosive Gases, some risk is assessed and potentially in place and therefore highlighted above.

GW Only: Some risks have been assessed as a direct result of potential mobilisation of groundwater contamination that may influence the site. A pictorial conceptual model has been reproduced within this report to confirm the above findings.
## Discussion on Sources of Contamination

The assessments of the site have drawn conclusions of historical and ongoing land uses which may impact on the proposed development which will be further considered through location, (either on or off site) and nature of risk. These are discussed below:

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Pollutant Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vehicle Repair Workshops</strong></td>
<td><strong>Risk Assessment A</strong></td>
</tr>
<tr>
<td></td>
<td>Soil &amp; Vapour Risk</td>
</tr>
<tr>
<td></td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band), VOC's, Semi VOC's, PCB's</td>
</tr>
<tr>
<td></td>
<td><strong>Soil Sampling &amp; Vapour Assessment</strong></td>
</tr>
<tr>
<td><strong>Food Development Companies</strong></td>
<td><strong>Risk Assessment B</strong></td>
</tr>
<tr>
<td></td>
<td>Soil &amp; Vapour Risk</td>
</tr>
<tr>
<td></td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band)</td>
</tr>
<tr>
<td></td>
<td><strong>Soil Sampling &amp; Vapour Assessment</strong></td>
</tr>
<tr>
<td><strong>Sewage Pumping Station</strong></td>
<td><strong>Risk Assessment C</strong></td>
</tr>
<tr>
<td></td>
<td>Soil &amp; Vapour Risk</td>
</tr>
<tr>
<td></td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band), Biocides</td>
</tr>
<tr>
<td></td>
<td><strong>Soil Sampling &amp; Vapour Assessment</strong></td>
</tr>
<tr>
<td><strong>Asbestos Cladding</strong></td>
<td><strong>Risk Assessment D</strong></td>
</tr>
<tr>
<td></td>
<td>Soil</td>
</tr>
<tr>
<td></td>
<td><strong>Soil Sampling</strong></td>
</tr>
<tr>
<td><strong>Infilled Land</strong></td>
<td><strong>Risk Assessment E</strong></td>
</tr>
<tr>
<td></td>
<td>Soil &amp; Vapour Risk</td>
</tr>
<tr>
<td></td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band), VOC's, Methane, CO2</td>
</tr>
<tr>
<td></td>
<td><strong>Soil Sampling &amp; Vapour Assessment</strong></td>
</tr>
<tr>
<td><strong>Spatial Sampling, (General Assessment)</strong></td>
<td><strong>Soil Sampling &amp; Vapour Assessment</strong></td>
</tr>
<tr>
<td></td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos.</td>
</tr>
</tbody>
</table>
16 **Next Steps**

Considering the above and the proposed use of the site area, we would suggest that an appropriate way forward would be as follows:

16.1 **Soil Assessment**

Considering the site area, we would suggest that the most appropriate way forward would be to undertake a series of window sampler boreholes across the site to provide general and spatial sampling of the subsoil to provide the necessary coverage of the site conditions.

Soil sampling will be completed recovering samples in appropriate containers for analysis by the analytical chemist. All sampling will be sent directly to the chemist in cool boxes to retain the integrity of the soil sample. Appropriate GQRA or DQRA assessments will be completed and reported in an Environmental Report as and when this is available and where appropriate.

16.2 **Groundwater Assessment**

**Groundwater Receptors**

As part of the justification for groundwater risk assessments or limitations of any groundwater assessments required, the following should be considered:

- Soil contamination has a potential to be in place and may include oil plumes, fuels and degrading oils across the site which may have migrated into the drainage systems;
- Due to the excavation of a large volume of soil from the main site area and subsequent replacement of these soils, the area may act as a sump for groundwater resulting in saturated soils which increase migration potential for the general site. As the area was not excavated outside the site area, migration off site through this mechanism is unlikely;
- Groundwater may be present within the replaced section of infill within the site and as such, this, as a result of contamination, have become contaminated, although, as it effectively is in place as a result of disturbed ground within the site only, migration potential is removed;
- The London Clay underlying the site will prevent migration to a lower groundwater target receptor. The London Clay is also unlikely to allow migration off site to outside receptors;
- The surface water river system which is directly off site to the east is recorded as the Grand Union Canal. The site is also recorded as a general slope down to this point of the site and as such, surface water run off is to this direction and may cause pollution to preferentially leach this direction. No evidence of contamination was recorded within the river system.
- By examination of the Environment Agency Website, and other published data the site is not recorded within a Source Protection Zone.

**Human Health Risk**

- In light of the London Clay underlying the site and possible migration of pollution on site, some degree of groundwater assessment will be required to consider human health risks.

**Method of Groundwater Assessment**

In order to gain an understanding of the groundwater system and the level of risk in place, we can confirm that the following works should be completed:

- The Geology within the site should be confirmed;
- The potentially perched water system resulting from infilled land has a possibility to be saturated and as such, some groundwater may be in place. Whilst this is the case, any water system will be restricted and not able to migrate off site. Unless grossly contaminated soils or groundwater are recorded, limited assessments are required.
16.3 Vapour Risk Assessment

Considering the potential for vapour risk to be in place from VOC’s and TPH as well and land gas risk from in filled land, risk assessments must be completed.

Considering the above, we would suggest that soil testing is undertaken to assess whether contamination that may promote a vapour risk is in place within the site area,

If risk is considered in place (although this is noted as a low likelihood) a standpipe should be installed within the site with response zones placed within the upper made ground and vapour risk assessments completed as follows :-

- Install standpipes to allow vapour risk to be considered from the upper made ground;
- Assess vapour risk over a minimum of six monitoring rounds to comply with CIRIA C665 to consider risks to buildings, CLR 11 and R & D Publication 66;
- Monitoring should be completed over falling or low atmospheric pressures or in periods where ground conditions are frozen to provide the worst case scenario for the site, although, the site is laid to hard cover which will restrict natural ventilation of any gases.
- Reporting of land gas and vapour risk/ can be completed assessing soils in situ using a Photo Ionisation Detector for Volatile Organic Compounds, (which include BTEX), Flow rates should also be noted for reporting purposes.

16.4 Working Brief

It should be noted that this investigation is undertaken in order to identify the extent of contamination as a result of historic and ongoing use. Should any areas of the site be encountered within the development that appear potentially contaminated through visual or olfactory assessment outside that discussed within this report, consultation with ourselves should be undertaken in order to identify the risk associated with the material.
### Table 21: Overview of Works

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Assessment of:</th>
<th>Proposed Method of Assessment</th>
<th>Proposed Site Works to Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Soils Vapour and Gas</td>
<td>Ground and Surface Water</td>
<td>Recover samples of the made ground; Assessment of the underlying natural soils to consider contamination; Vapour Risk Assessment Analysis of soil samples for GQRA Assessment. Reporting</td>
</tr>
<tr>
<td><strong>Human Health</strong></td>
<td>✓</td>
<td>✓</td>
<td>Window Sampling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assessments only required if gross contamination is encountered</td>
</tr>
<tr>
<td><strong>Surface Water</strong></td>
<td>X</td>
<td>✓</td>
<td>Assessments only required if gross contamination is encountered</td>
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<tr>
<td><strong>Ground Water</strong></td>
<td>X</td>
<td>✓</td>
<td>Recover samples of the made ground; Assessment of the underlying natural soils to consider contamination; Vapour Risk Assessment Analysis of soil samples for GQRA Assessment. Reporting</td>
</tr>
<tr>
<td><strong>Services &amp; Building</strong></td>
<td>✓</td>
<td>✓</td>
<td>Window Sampling</td>
</tr>
<tr>
<td><strong>Geotechnical Assessment</strong></td>
<td>✓</td>
<td><strong>N/A</strong></td>
<td>X</td>
</tr>
</tbody>
</table>

**NB**: Initial assessments of the site should be undertaken using Leachate Testing and water sampling if required.
Report For:

Zedhomes Ltd / Alpertone Ltd

Phase II ENVIRONMENTAL REPORT

Site location:

Alpertone Industrial Estate,
Mount Pleasant,
Wembley,
London
HA0 1NR

September 2014
Report No. 12286
### CONTENTS

**DOCUMENT INFORMATION AND CONTROL SHEET**  
**REPORT ISSUE RECORD**  
**EXECUTIVE SUMMARY**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction 1</td>
</tr>
<tr>
<td>2</td>
<td>Report Objectives 1</td>
</tr>
<tr>
<td>2.1</td>
<td>Limitations 1</td>
</tr>
<tr>
<td>2.2</td>
<td>Planning Condition 1</td>
</tr>
<tr>
<td>3</td>
<td>Site Location and National Grid Reference 1</td>
</tr>
<tr>
<td>4</td>
<td>Review of Previous Reports or Documents Relating to the Site 2</td>
</tr>
<tr>
<td>4.1</td>
<td>Site Details 2</td>
</tr>
<tr>
<td>4.2</td>
<td>Risks derived from DTS 2</td>
</tr>
<tr>
<td>5</td>
<td>Details of Preparatory Work 2</td>
</tr>
<tr>
<td>6</td>
<td>Details of Investigation Objectives. 2</td>
</tr>
<tr>
<td>7</td>
<td>Summary of Work Undertaken 3</td>
</tr>
<tr>
<td>7.1</td>
<td>Investigation Works Completed 3</td>
</tr>
<tr>
<td>7.2</td>
<td>Historic Investigation 3</td>
</tr>
<tr>
<td>8</td>
<td>Location Plans for Exploratory Excavations 3</td>
</tr>
<tr>
<td>9</td>
<td>Description of Site Works and on/off Site Observations 3</td>
</tr>
<tr>
<td>10</td>
<td>Contamination Assessment 4</td>
</tr>
<tr>
<td>10.1</td>
<td>Contamination 5</td>
</tr>
<tr>
<td>10.2</td>
<td>Human Health Risk 7</td>
</tr>
<tr>
<td>10.3</td>
<td>Source 9</td>
</tr>
<tr>
<td>10.4</td>
<td>Statistical Analysis 10</td>
</tr>
<tr>
<td>10.5</td>
<td>Human Health Source Conclusions 11</td>
</tr>
<tr>
<td>10.6</td>
<td>Ground and Surface Water Source 11</td>
</tr>
<tr>
<td>10.7</td>
<td>Land Gas Assessments 11</td>
</tr>
<tr>
<td>10.8</td>
<td>General Source Risk Conclusions 12</td>
</tr>
<tr>
<td>11</td>
<td>Risk Assessment Based on Source Risk 13</td>
</tr>
<tr>
<td>12</td>
<td>Implications of the End Use of the Site 15</td>
</tr>
<tr>
<td>13</td>
<td>Outline Remediation Measures 15</td>
</tr>
<tr>
<td>13.1</td>
<td>Cover Systems - NHBC 15</td>
</tr>
<tr>
<td>14</td>
<td>Waste Disposal 17</td>
</tr>
<tr>
<td>15</td>
<td>Overview 17</td>
</tr>
</tbody>
</table>

**APPENDIXES**

**Appendix 1** Conceptual Model  
**Appendix 2** Plans  
**Appendix 3** Excavation Logs  
**Appendix 4** Chemical Test Data
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
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<tbody>
<tr>
<td>Table 1</td>
<td>Site Detail</td>
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<tr>
<td>Table 2</td>
<td>Pollutant Risk</td>
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<td>Table 3</td>
<td>Sampling and Testing Schedule</td>
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<td>Table 4</td>
<td>Table of Source risk contamination based on GQRA</td>
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<td>Statistical Analysis</td>
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<td>Outline Remediation Measures for end use of the site</td>
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DOCUMENT INFORMATION AND CONTROL SHEET

Client:
Zedhomes Ltd / Alperton Ltd
C/O Michael Shwartz Group
2nd Floor,
Compass House,
Pynnacles Close,
Stanmore
Middlesex.
HA7 4AF

Owner:
Unknown

Purchaser:
Unknown

Regulatory Body:
Unknown

Developer:
Unknown

Environmental Consultants:
Herts & Essex Site Investigations.
The Old Post Office,
Wellpond Green,
Standon,
Ware,
Hertfordshire.

Project Manager:
C.S.G

Principal Author:
C.S.G

Tel: 01920 822233
Fax: 01920 822200
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Web: http://www.hesi.co.uk

Document Status and Approval Schedule

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Prepared by:
Chris Gray
Signature / Date

Technical review by:
Rebecca Chamberlain
Martyn Smith
Signature / Date

Checked By:
Rebecca Chamberlain
Chris Gray
Signature / Date
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</tr>
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EXECUTIVE SUMMARY

Client: Zedhomes Ltd / Alperton Ltd

Site Location: Alperton Estate, Mount Pleasant, Wembley, London HA0 1NR

Proposed Development:

The proposed development has not been confirmed as under full planning, although, it is initially considered to develop a number of residential units across the site which will include private gardens, front landscaping, driveways, a pathway and road system linking the site up and additionally, a twelve storey block of flats. Initial plans are enclosed within this report which provide proposals to date.

Site Setting and Previous Uses:

The site is recorded as an open parcel of land from the earliest map record until 1896 when a large excavation covered through the centre of the site. This excavation was obviously backfilled in 1936 at some point with an unknown material. The site at this time was developed to form various works across the site area which generally increased over time until present day.

Surrounding the site, open land is recorded in place from the earliest map record until 1936 when housing generally developed across the area and steadily increased over time. To the northeast and east of the site, additional commercial works are in place.

Nearest Surface Water Feature:

The nearest surface water feature is recorded to the south of the site which is recorded as the Grand Union Canal. This is located directly adjacent to the site.

Ground Conditions:

<table>
<thead>
<tr>
<th>Geology</th>
<th>Aquifer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made Ground</td>
<td>Not Classified</td>
</tr>
<tr>
<td>London Clay</td>
<td>Unproductive Stratum</td>
</tr>
</tbody>
</table>

Groundwater Abstractions:

The nearest groundwater abstraction well is recorded as 891 meters to the southwest of the site which is recorded as Other Industrial / Commercial, Public Service.

Source Protection Zone:

The site is not recorded within a Source Protection Zone, and none are in place surrounding the site.

Potential Sources of Contamination:

On Site:
- Roads / Gullies;
- Vehicle repair Workshops;
- Spray Workshops;
- Vehicle Parts;
- Drainage;
- Food Outlets;

Off Site:
- Asbestos;
- Sewage Pumping Station.

Previous Investigations:

No reports relating to contaminated land are known to us at the time of writing this report relating to the site.

Outline Conclusions:

It has been identified that the site has levels of contamination which promote a human health risk across the site.

The extent of site assessment and classification of risk within the site is recorded as follows:

- The site identified levels of risk from Arsenic, Lead, and PAH’s and will require remediation measures which will likely incorporate removal of the source layer of contamination to a depth of 0.60 m and replacement of the cell with clean soil;
- No groundwater risk has been identified based on our assessment of the site;
- Vapour Risk Assessments are ongoing. Initial assessments confirm low risks;
- No risk to water main pipework has been identified;
- Outline remediation measures have been suggested within this report in Table 10.
- Confirmation from the Local Authority that the level and extent of contamination risk to human health is in place and appropriately assessed;
- Submission of this report as an interim report to the EA for consultation and Local Authority to confirm the condition of the site and the level and extent of assessment and proposals within this report are acceptable;
- Develop a Remediation Strategy Report.

Reference: CSG / 12286
(Alperton Redevelopment) AKA Abbey Industrial Estate, Mount Pleasant Wembley HA0 1NR
INVESTIGATION WORKS AND RISK ASSESSMENT REPORTING

1 Introduction

We have been asked by Michael Shwartz Group on behalf of Zedhomes Ltd / Alperton Ltd to undertake an investigation of the above site in order to assess the potential environmental impact of the historical use of the site on the proposed development.

2 Report Objectives

The objectives of this report are to assess and define the extent of contamination within the site as a result of the investigation works undertaken to date.

2.1 Limitations

The opinions expressed within this document and the comments and recommendations given, are based on the information gained, to date within a desktop study previously undertaken on the site. The interpretation of the data has been made by Herts & Essex Site Investigations.

Within any site investigation, materials sampled represent only a small proportion of the materials present on site. It is therefore possible that other conditions prevailing at the site which have not been revealed within the scope of this report, have not been taken into account. Where suspect materials are encountered during any further or future works within the site, additional specialist advice should be sought to assess whether any new information will materially affect the recommendations given within any physical ground investigation.

2.2 Planning Condition

After a review of the Brent Council Planning Portal, we can confirm that no applications are in place for this Estate.

3 Site Location and National Grid Reference

The site is located within an area of a commercial and residential area of Wembley, North London, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 2, Sheet 1.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Site Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Address</td>
<td>The Alperton Estate, Mount Pleasant, Wembley, London HA0 1NR</td>
</tr>
<tr>
<td>Site assessed under</td>
<td>Clients due diligence and to aid in the planning process</td>
</tr>
<tr>
<td>Current use of land</td>
<td>Multi use commercial estate with multiple vehicle repair workshops and some food development outlets.</td>
</tr>
<tr>
<td>Previous use of site, (if known)</td>
<td>As above</td>
</tr>
<tr>
<td>Grid Reference</td>
<td>NGR 518550, 183760</td>
</tr>
<tr>
<td>Site Area</td>
<td>Approximate area – 2.36 Hectares</td>
</tr>
<tr>
<td>Local Authority</td>
<td>Brent Council Planning</td>
</tr>
<tr>
<td>Gradient of the site</td>
<td>The site forms a relatively level area of land with no appreciable variation in level but with a general gradient to the southeast towards the main river.</td>
</tr>
<tr>
<td>Proximity of Controlled Waters, (if known)</td>
<td>The nearest surface water feature is recorded as adjacent to the main site on the southern boundary which is recorded as the Grand Union Canal, (Paddington Branch)</td>
</tr>
</tbody>
</table>
4  Review of Previous Reports or Documents Relating to the Site

4.1  Site Details

- A Desk Top Study report compiled by Herts & Essex Site Investigations, (August 2014);
- The proposed development has not been confirmed as under full planning, although, it is initially considered to develop a number of residential units across the site which will include private gardens, front landscaping, driveways, a pathway and road system linking the site up and additionally, a twelve storey block of flats. Initial plans are enclosed within this report which provide proposals to date;
- The site is recorded as an open parcel of land from the earliest map record until 1896 when a large excavation covered through the centre of the site. This excavation was obviously backfilled in 1936 at some point with an unknown material. The site at this time was developed to form various works across the site area which generally increased over time in density until present day;
- Surrounding the site, open land is recorded in place from the earliest map record until 1936 when housing generally developed across the area and steadily increased over time. To the northeast and east of the site, additional commercial works are in place;
- The nearest surface water feature is recorded to the south of the site which is recorded as the Grand Union Canal. This is located directly adjacent to the site;
- The nearest groundwater abstraction well is recorded as 891 meters to the southwest of the site which is recorded as Other Industrial / Commercial, Public Service;
- The site is not recorded within a Source Protection Zone, and none are in place surrounding the site.

4.2  Risks derived from DTS

As a result of the works undertaken, the following have been confirmed as the following:

On Site

- Roads / Gullies;
- Vehicle repair Workshops;
- Spray Workshops;
- Vehicle Parts;
- Drainage;
- Food Outlets;
- Food Outlets;
- Asbestos;
- Sewage Pumping Station.

Off site

- Works.

5  Details of Preparatory Work

Preparatory works had originally been agreed with the client to gain access and undertake excavations within the site. This incorporates free access within the road network and some yard areas, no access to within the commercial unit was possible at the time of the site works.

6  Details of Investigation Objectives.

Within the scope of this report, the objectives will form the following:

- To anticipate regulatory action and provide sufficient data to overcome and answer any outstanding queries they may raise;
- Provide the relevant authorities sufficient information to satisfy any regulatory requirements set for the site;
- To ensure that the development, on completion, will be fit for the proposed use with all risk assessed and removed.
- It is proposed within this investigation to assess the suitability of the site for a new development which will incorporate residential structure and associated landscaping;
In order to assess this suitability for development, it is proposed to use a source-pathway-receptor analogy, which, if broken, presents a reduced risk to the development.

It is proposed to assess, where possible, sources of contamination within the site as a result of historical or ongoing use and whether these uses have pathways to receptors within the proposed development.

7 Summery of Work Undertaken

The scope of the works involved excavation of boreholes to gain a better and more visual understanding of the site conditions. This was undertaken at locations around the site and broadly confirmed the findings of the visual inspection of the site.

Samples were taken in containers dependant upon the proposed sampling regime required and placed in cool boxes where they were transported directly to the analytical chemist for assessment. These works included the following:

7.1 Investigation Works Completed

The investigation works completed as a single section which are detailed below:

1. The main site is formed by a number of different trades operations to include vehicle repair workshops, some food outlets and vehicle parts.

Main Investigation - August 2014

- 3 No Competitor Rig Windowless Sampler Boreholes sunk within the site in order to determine the ground conditions at shallow depths within the site, (up to 4 meters) - Date of Works - August 2014;
- 8 No Hand Dug and Hand Augured Boreholes sunk within the site in order to determine the ground conditions at shallow depths within the site, (up to 3.5 meters) - Date of Works - August 2014;
- 3 No Shell & Auger Boreholes sunk within the site, to a depth of 15m) - Date of Works - August 2014;
- In-situ Testing;
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (August 2014).

7.2 Historic Investigation

- Prior to our involvement in the development of the site, no historic investigations are known to us.

8 Location Plans for Exploratory Excavations

The plans which detail the location of the site, existing site use, proposed site use and identification of features on the site that may promote a risk are shown in Appendix Two. The plans also confirm the location of the excavations made on the site and detail areas where risk has been identified for pictorial reference.

The areas of risk will be dictated by the risk classification given in this report and confirm where risk is in place relevant to the proposed end land use classification.

9 Description of Site Works and on/off Site Observations

In order to provide an easy understanding of the proposed development, we can confirm that the site will assess as a single section of land with the same proposed land use.
The Site.

The site has been reviewed and we can confirm that the geology within the site is as follows:

- **Made Ground** was recorded within the excavations and was present to depths of between 0.15 meters to 3.40 meters within the site where excavation resulting from the historical works;
- **London Clay** recorded as present underlying any superficial made ground deposits. The London Clay extends to depth and was not exceeded by the works undertaken;
- **Groundwater** has been identified as sporadic and with no specific groundwater elevation, direction or feature. The groundwater appears to form a variable feature dependant upon the infilling locally.
### 10.1 Contamination

In order to assess the site, the site will be considered based on the historic land use of the site which will depict the extent of testing undertaken to consider risk within the area and additionally, the site will consider the proposed land use for assessment of whether target values have been exceeded for that particular land use. Considering the above, we will assess the site based on the following:

**Table 2 Pollutant Risk**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Risk Assessment</th>
<th>Pollutant</th>
</tr>
</thead>
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<tr>
<td>Vehicle Repair Workshops</td>
<td>Risk Assessment A</td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band), VOC's, Semi VOC's, PCB's</td>
</tr>
<tr>
<td>Food Development Companies</td>
<td>Risk Assessment B</td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band)</td>
</tr>
<tr>
<td>Sewage Pumping Station</td>
<td>Risk Assessment C</td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band), Biocides</td>
</tr>
<tr>
<td>Asbestos Cladding</td>
<td>Risk Assessment D</td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Hydrocarbons (aliphatic/ aromatic 8-Band), VOC's, Methane, CO2.</td>
</tr>
<tr>
<td>Infilled Land</td>
<td>Risk Assessment E</td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos.</td>
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<tr>
<td><strong>Spatial Sampling, (General Assessment)</strong></td>
<td>Soil Sampling &amp; Vapour Assessment</td>
<td>Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos.</td>
</tr>
</tbody>
</table>

Table 2 brings forward the risk assessments derived from the desk top study and confirms the location, justification and end use classification of the site for the variable uses. As a result of the varied history and proposed use, this may provide an easier undertaking of the site assessment.
<table>
<thead>
<tr>
<th>Existing Land Use</th>
<th>Proposed Land Use</th>
<th>Window Sampler No.</th>
<th>Depth (m)</th>
<th>Sample Type</th>
<th>Risk Assessment Undertaken, Brought Forward from DTS</th>
<th>Targeted Risk</th>
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<td>Developed Section</td>
<td>Parking Area</td>
<td>BH1</td>
<td>0.80m</td>
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<td>Parking Area</td>
<td>Residential Land</td>
<td>BH2</td>
<td>0.60m</td>
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<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>BH3</td>
<td>0.40m</td>
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<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>WS2</td>
<td>0.25m</td>
<td>Made Ground</td>
<td>Risk Assessment A, B, C, D, E.</td>
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<td>Parking Area</td>
<td>Residential Land</td>
<td>WS3</td>
<td>0.20m</td>
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<td>Parking Area</td>
<td>Residential Land</td>
<td>WS8</td>
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<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>WS9</td>
<td>0.50m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>WS11</td>
<td>0.40m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>WS11</td>
<td>1.00m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>BH3</td>
<td>1.65m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>BH3</td>
<td>0.80m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking Area</td>
<td>Residential Land</td>
<td>BH2</td>
<td>1.50m</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.2 **Human Health Risk**

As part of a generic assessment of the subsoil conditions, a comparison has initially been made using Generic Quantitative Assessment Criteria, (GQRA), values for contaminants derived by LQM / CIEH, (2nd Edition), and Atkins ‘AtRiskSoils’ to evaluate whether the levels of contamination measured at the site exceed the human health risk levels which have been derived for the site. For the proposed land use of this site, we can confirm that Generic Quantitative Assessment Criteria have been identified for the site.

It is possible that where exceedance of these values are recorded, a more Detailed, Qualitative Risk Assessment, (DQRA), could be completed using site specific scenarios and toxicological properties of the subsoil and site conditions to derive Site Specific Assessment Criteria, (SSAC), for the site. The assessment of testing has been completed as follows and reports the initial risks considered in place compared to GQRA.

For ease of assessment, we can confirm that the site will be considered based on single zone of development as detailed below :-

- **Zone 1**  **The Site**  **Residential Land Use Standards**

By comparison of the data recovered from the sample analysis against the human health risk assessments, it can be seen that exceedance of the relevant generic guidance values have been identified which are detailed as follows .
<table>
<thead>
<tr>
<th>Location</th>
<th>Depth</th>
<th>Arsenic</th>
<th>Lead</th>
<th>Naphthalene</th>
<th>Benzo(a)anthracene</th>
<th>Chrysene</th>
<th>Benzo(ghi)fluoranthene</th>
<th>Benzo(k)fluoranthene</th>
<th>Benzo(a)pyrene</th>
<th>Dibenzo(a,h)anthracene</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH1</td>
<td>0.80m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH2</td>
<td>0.60m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH3</td>
<td>0.40m</td>
<td></td>
<td>560</td>
<td>1.9</td>
<td>6.5</td>
<td>9.0</td>
<td>6.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS2</td>
<td>0.25m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS3</td>
<td>0.20m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS3</td>
<td>1.50m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS5</td>
<td>0.30m</td>
<td>180</td>
<td>610</td>
<td>29</td>
<td>25</td>
<td>36</td>
<td>15</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS7</td>
<td>0.35m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS8</td>
<td>0.25m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS9</td>
<td>0.50m</td>
<td>680</td>
<td>36</td>
<td>43</td>
<td>38</td>
<td>15</td>
<td>31</td>
<td>5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS11</td>
<td>0.40m</td>
<td>300</td>
<td>2.9</td>
<td>6.5</td>
<td>8.8</td>
<td>9.4</td>
<td>5.8</td>
<td>1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS11</td>
<td>1.00m</td>
<td>370</td>
<td>5.6</td>
<td>25</td>
<td>29</td>
<td>26</td>
<td>10</td>
<td>20</td>
<td></td>
<td>3.2</td>
</tr>
<tr>
<td>BH3</td>
<td>1.65m</td>
<td>430</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH3</td>
<td>0.80m</td>
<td>540</td>
<td>4.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH2</td>
<td>1.50m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Residential Exposure Level**

|             | 37 | 276 | 1.5 | 4.7 | 8   | 6.5 | 9.6 | 0.94 | 0.86 |

* Indicates the value which forms the lowest trigger level.
Some PAH’s are additionally tested within the VOC List. The highest values have been taken.
For the purposes of assessment, Soil Organic Matter values of 2.5% has been used.
All measurements are given in mg/kg. 

**Made Ground**

**Natural Soils**

Reference: CSG / 12286
(Alperton Redevelopment) AKA Abbey Industrial Estate, Mount Pleasant Wembley HA0 1NR
10.3 Source

Based on the information gained, we can confirm that some areas of the site have recorded contamination in place which can be confirmed as follows:

- The main site which is in essence commercial trade uses and has been backfilled with infilled ground as a result of historical excavation of Clay is obviously backfilled with a contaminated material. This is likely derived from ash and clinker fragments within the make up of the soils as exhibited with PAH contamination in most samples tested. The resultant risk is likely to confirm widespread contamination in place across all infilled sections, (i.e. most sections of the site);
- External to the main pit area, we consider the depth of infilled to be minimal and unlikely to contain significant levels of contamination and additionally if present, likely to be isolated / shallow.
- We would confirm that the investigation to date has been minimal and whilst useful in confirming the absence of Asbestos Containing Materials, significant fuels and hotspots of significant contamination;
- It is however confirmed that the ‘worst affected’ areas of the site have yet to be investigated and were not available for review under the current investigation. Additional works are required;
- Where natural soils were tested, no contamination was identified above a residential land use standard;
- Based on the analysis undertaken, all elements of the made ground should be classed as contaminated.

We can confirm that the testing completed was NOT undertaken in line with the proposed targeted risk assessment and can confirm that source pollutants were identified which would promote a risk. Additional works are required.

Statistical analysis should be considered the next appropriate assessment tool to consider whether risk is in place from initial assessment of source pollutants. This is included within the report.

The statistical analysis has been completed utilising the dataset from each site and as such, the conclusion of the statistical analysis will relate to the each site individually.
### 10.4 Statistical Analysis

Statistical analysis has been completed on the samples recovered from the site in order to further risk assess the site. Based on the information present, we can confirm the following results were achieved from the assessment:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>No samples tested</th>
<th>Confidence Level</th>
<th>Outliers Present</th>
<th>Upper 95\textsuperscript{th} Percentile</th>
<th>GQRA Value</th>
<th>Test Results, (Pass / Fail)</th>
<th>Is Risk Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>15</td>
<td>6%</td>
<td>Yes</td>
<td>34.33</td>
<td>37</td>
<td>Outliers Present, Upper 95th Percentile Passes, Low Confidence</td>
<td>Likely isolated risk to WS5</td>
</tr>
<tr>
<td>Lead</td>
<td>15</td>
<td>7%</td>
<td>No</td>
<td>300.6</td>
<td>276</td>
<td>No Outliers, Upper 95th Percentile Fails, Low Confidence</td>
<td>Additional Information Required.</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>15</td>
<td>64%</td>
<td>Yes</td>
<td>0.98</td>
<td>1.5</td>
<td>Outliers Present, Upper 95th Percentile Passes, Low Confidence</td>
<td>Likely isolated risk to WS3 and WS11</td>
</tr>
<tr>
<td>Benzo[a]anthracene</td>
<td>15</td>
<td>0%</td>
<td>No</td>
<td>8.74</td>
<td>4.7</td>
<td>No Outliers, Upper 95th Percentile Fails, No Confidence</td>
<td>Likely widespread risk</td>
</tr>
<tr>
<td>Chrysene</td>
<td>15</td>
<td>0%</td>
<td>Yes</td>
<td>9.56</td>
<td>8</td>
<td>Outliers Present, Upper 95th Percentile Fails, No Confidence</td>
<td>Likely widespread risk</td>
</tr>
<tr>
<td>Benzo[b]fluoranthene</td>
<td>15</td>
<td>0%</td>
<td>No</td>
<td>10.04</td>
<td>6.5</td>
<td>No Outliers, Upper 95th Percentile Fails, reasonable Confidence</td>
<td>Likely widespread risk</td>
</tr>
<tr>
<td>Benzo[k]fluoranthene</td>
<td>15</td>
<td>94%</td>
<td>No</td>
<td>4.3</td>
<td>9.6</td>
<td>No Outliers, Upper 95th Percentile Passes, Good Confidence</td>
<td>No Risk</td>
</tr>
<tr>
<td>Benzo[a]pyrene</td>
<td>15</td>
<td>0%</td>
<td>No</td>
<td>8.02</td>
<td>0.94</td>
<td>No Outliers, Upper 95th Percentile Fails, reasonable Confidence</td>
<td>Likely widespread risk</td>
</tr>
<tr>
<td>Dibenzo[a,h]anthracene</td>
<td>15</td>
<td>0%</td>
<td>Yes</td>
<td>1.53</td>
<td>0.86</td>
<td>Outliers Present, Upper 95th Percentile Fails, No Confidence</td>
<td>Likely widespread risk</td>
</tr>
</tbody>
</table>

**Statistical Analysis Assessment**

The statistical analysis confirms that the risks associated with the site are likely to be widespread across the site. Additional sampling could be completed, although, the information is likely to return a result of risk is present.

**Targeted assessments still remain to be completed to areas which were not accessible.**
10.5 Human Health Source Conclusions

Risk based on assessments of the site confirm that risk is in place as follows:

**Targeted Risks**

- No targeted risks have been identified, although, additional work is still required in order to assess the site to areas which are not currently available to access.

**Spatial Risks**

- Spatial sampling and assessments confirm that risk is likely to be widespread to the proposed main residential development within the site with risks identified from Lead, and PAH's.

10.6 Ground and Surface Water Source

The nearest surface water feature is recorded as on site which from the data is recorded as the Grand Union Canal. This is recorded as running to the west of the site area.

The nearest discharge consent is recorded as 549 meters to the southwest of the site.

By examination of the Environment Agency Website, no superficial deposits or drift deposits are recorded in place. The underlying Bedrock is recorded as an Unproductive Stratum and is therefore unlikely to contain volumes of groundwater that would be abstracted for drinking water purposes.

Pollution incidents to controlled waters are recorded as 189 meters to the west of the site which is recorded as a Minor Incident from Oils - Unknown. The nearest significant incident is recorded as 241 meters to the south west of the site recorded as from Miscellaneous - Unknown.

The nearest groundwater abstraction well is recorded as 891 meters to the southwest of the site which is recorded as Other Industrial / Commercial, Public Service.

The site is not recorded within a Source Protection Zone, and none are in place surrounding the site.

Based on the testing completed, the underlying London Clay will prevent migration potential off site to an off site receptor. Whilst groundwater has been identified in place, this is primarily perched water resulting from surface water run off from the surrounding land ponding within the infill section which has occurred historically. Whilst the groundwater has a potential to be contaminated from soils and sources in place, risk associated with this is minimal.

10.7 Land Gas Assessments

In accordance with CLR11, BS 10175:2011, BS 8485:2007, CIRIA C665 and CIRIA R149, we can confirm that the assessment of land gas risk has been undertaken.

The purpose of this visit was to establish whether reasonable assessments and investigative works could be undertaken within the proposed site works to confirm the extent and nature of gas risk and any mitigation measures could or would need to be implemented.

Gas monitoring installations were then installed within the site within BH1, BH2 and BH3, (installed to a depth of 10 meters) and considering risk from the upper made ground and lower migratory land gas risk from infilled ground surrounding and within the site.

Gas testing is ongoing and will be reported when available. At present low levels of land gas have been recorded.
10.8 General Source Risk Conclusions

The risk classification from the site has been identified as follows:-

The Site

- The site has not been investigated in full due to the limitations in access across the site. It is possible that areas of the site will contain levels of contamination which are elevated or targeted as a risk. As such, the full assessment of the site will require completion;
- The primary risk associated with the site forms the infilling of the site historically where excavation of London Clay has taken place and infilling has subsequently caused depths of made ground across the site;
- The made ground within the site has been sampled tested and confirmed as contaminated by Lead and various Polycyclic Aromatic Hydrocarbons.
- Remediation is required across the area where pathways to receptors are identified;
- Isolated contamination has been identified from Arsenic in Window Sampler 3;
- Vapour Risk assessments are ongoing;
- Groundwater risk is identified as Low.

Remediation works are therefore likely to be required where pathways are in place to receptors. This report will define where risk may be in place, although, a remediation strategy report should be completed to confirm the extent of best suited works to remove the risk.

It is considered unlikely that detailed qualitative risk assessments, (DQRA), would be required to assess risks further due to the level of exceedance of the GQRA’s used.
## 11 Risk Assessment Based on Source Risk

Considering the presence of contamination which has been identified above, we confirm the following outlines the assessment of the site completed and way forward for the site.

### Table 6 Risk Assessment A

<table>
<thead>
<tr>
<th>Source</th>
<th>Receptors</th>
<th>Pathway</th>
<th>Mitigation / Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Metals</strong></td>
<td>Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.</td>
<td>Direct contact</td>
<td>Risk is in place as widespread across the site from Lead and Isolated to WS3 from Arsenic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion dust and soil</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of soils attached to vegetation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of asbestos fibers</td>
<td>Not Applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours, (gas and organic)</td>
<td>No vapour risk from Lead and Isolated Arsenic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explosive risk from Land Gas</td>
<td>Not Applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>No risk in place from Lead or Arsenic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>No vapour risk from Lead. No groundwater present based on short term observations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct contact with contaminated ground waters</td>
<td></td>
</tr>
<tr>
<td><strong>Surface Water.</strong></td>
<td></td>
<td>Lateral migration of shallow groundwater to a target receptor.</td>
<td>No groundwater recorded based on short term observations. Groundwater risk has been removed from our assessments.</td>
</tr>
<tr>
<td><strong>Ground Water; Abstraction Well.</strong></td>
<td>Migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td>Plant uptake; Direct contact.</td>
<td>Plant Risks are considered Low based on assessments with ICRCL old exposure levels. No specific plant risk assessment criteria is in place to date.</td>
</tr>
<tr>
<td><strong>Plants; Vegetation.</strong></td>
<td></td>
<td>Direct contact with contaminated soils;</td>
<td>Lead and Arsenic pose a low risk to the built environment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct contact with contaminated groundwater</td>
<td>Groundwater risk has been removed from our assessments.</td>
</tr>
<tr>
<td><strong>Buildings; Construction Materials.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Receptors</td>
<td>Pathway</td>
<td>Mitigation / Discussion</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>---------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>PAH’s</strong></td>
<td>Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.</td>
<td>Direct contact</td>
<td>Risk is in place as widespread across the site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion dust and soil</td>
<td>Risk is in place as widespread across the site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of soils attached to vegetation</td>
<td>Not Applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of asbestos fibers</td>
<td>Not Applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours, (gas and organic)</td>
<td>No vapour risk from PAH contamination identified*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explosive risk from Land Gas</td>
<td>Not Applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ingestion of contaminated water through water main pipework</td>
<td>No risk in place from PAH contamination identified*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation of vapours through contaminated ground waters</td>
<td>No vapour risk from PAH contamination identified*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct contact with contaminated ground waters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surface Water.</td>
<td>Lateral migration of shallow groundwater to a target receptor.</td>
<td>On site soils do not pose a significant risk to ground waters or surface waters.</td>
</tr>
<tr>
<td></td>
<td>Ground Water; Abstraction Well.</td>
<td>Migration through fissures / cracks which may migrate to a groundwater receptor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plants; Vegetation.</td>
<td>Plant uptake; Direct contact.</td>
<td>Plant Risks are considered Low based on assessments with ICRCL old exposure levels. No specific plant risk assessment criteria in place</td>
</tr>
<tr>
<td></td>
<td>Buildings; Construction Materials.</td>
<td>Direct contact with contaminated soils; Direct contact with contaminated groundwater</td>
<td>PAH’s pose a low risk to the built environment. No groundwater contamination is likely</td>
</tr>
</tbody>
</table>

* Some PAH pollutants can form Volatile Organic Compounds, although, none of the identified pollution forms a VOC
12 Implications of the End Use of the Site

Within the assessment of the site completed within this report, we can confirm that existing source – pathway – receptor risk assessments are now in place based on actual site data. Based on the change in use of the site through this proposed development, it is possible that pathways to receptors will be either removed or enhanced such that risk may be in place / removed.

The end use risks based on pathways are discussed below and relate to the site as a whole:

- **Hard Landscaping** - will effectively cap off any contamination and remove risk, although, the placement of hard surfaces across the site should be confirmed as part of the planning application and not form a system of remediation that homeowners could remove as part of the ongoing habitation.

- **Soft Landscaping** - will form an area where risk is in place and as such, remedial measures are likely to be required.

- **Under Buildings** - will effectively cap off any contamination and remove risk. Vapour risk assessments are ongoing.

- **Services** - By examination of the UKWIR, (Guidance for the selection of water supply pipes to be used in brownfield sites) we can confirm the risks associated with human health from water main feeds have been considered in place, as such, preventative measures will be required for the site. We would suggest that consultation with the relevant statutory authority will be required which may lead to all existing water mains being retained and any new water main installations being in ‘Protect-Aline’ pipework.

13 Outline Remediation Measures

Considering the above, we would suggest that the following outline remediation measures could be employed in order to develop the site based on the existing data. This will be based on the assumption that the entire site is contaminated.

13.1 Cover Systems - NHBC

The remedial measures are likely to include one of the following cover systems for the site:

Engineered cover systems – designed to provide the complete separation of the receptor from the hazard and to perform a number of functions including limiting upward migration of contaminants due to capillary rise and controlling the downward infiltration of water.

Simple cover systems – to provide a reduction of the hazard to human health and to provide a suitable medium for plant growth.

Consultation within NHBC guidance documents, (Cover Systems for Land Regeneration), confirm that maximum depths of cover will be required for residential sites and overcome the inherent issues with earthworm activity, burrowing animals, effects of trees and plants, digging during garden activities and intermixing of leaf fall. Justification of this is included within the NHBC guidance document.

It is also recorded that as part of the review, a questionnaire was sent out to various Developers, Consultants and Regulators who all confirmed variable degrees of cover system based on the level of contamination which ranged from 0.30 meters to 3.00 meters, although, the report by NHBC removes these as conservative and the suggestion of a 0.60 meter cover system adopted by the report as a maximum depth of cover required to be sufficient.

It should be noted that these cover systems do not overcome the risks from soil gases, hydrocarbons, highly elevated Mercury or Arsenic, the groundwater or any controlled waters, significant contamination, deep excavations, services, slopes or areas where rabbit or badger populations are significant.
### Table 8  
**Outline Remediation Measures for end use of the site**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Mitigation Measure</th>
<th>Depth to remove risk</th>
<th>Confirmation required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communal Areas</td>
<td>Excavate and remove soils which are assessed to form a risk and placement of clean inert soils to a minimum depth of 0.60 meters. (See Cover Systems above for justification)</td>
<td>0.60m excavation and replacement of clean inert soils tested to confirm the infilled soils fall below the human health residential land use standards – Confirm level of contamination.</td>
<td>Validation Works will be required. Validation of sides and base of excavation and validation of any soils brought onto the site.</td>
</tr>
<tr>
<td>Shrub Planting Areas</td>
<td>Hard landscaping will remove any risks through pathway removal. Must be a permanent feature, (not patio’s).</td>
<td>None</td>
<td>Confirmation from relevant authority</td>
</tr>
<tr>
<td>Hard Landscaping</td>
<td>Hard landscaping will remove any risks through pathway removal. Must be a permanent feature, (not patio’s).</td>
<td>None</td>
<td>Confirmation from relevant authority</td>
</tr>
<tr>
<td></td>
<td>Patio’s should assume a soft landscape finish.</td>
<td>None</td>
<td>Confirmation from relevant authority</td>
</tr>
<tr>
<td></td>
<td>Additionally, confirmation will be required from the Local or relevant Authority that hard landscaping areas will require specific permission to remove any and / or all hard surfaces which may expose contamination to human receptors.</td>
<td>None</td>
<td>Confirmation from relevant authority</td>
</tr>
<tr>
<td>Under Buildings</td>
<td>Vapour risk assessments are ongoing</td>
<td>None</td>
<td>To Be Confirmed with the relevant statutory authority</td>
</tr>
<tr>
<td>Water Main</td>
<td>Any new water main installations can be installed using conventional pipework.</td>
<td>None</td>
<td>To Be Confirmed with the relevant statutory authority</td>
</tr>
<tr>
<td>Controlled Waters –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Water</td>
<td>Groundwater risks removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controlled Waters –</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Water</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
14 Waste Disposal

For the purposes of disposal of the contaminated waste off site, we would suggest that as of the 16th July 2005, the Waste Acceptance Criteria came into force which classifies waste soils within landfill sites.

We would suggest that this could be undertaken by testing subsoil / muck away samples for ‘CLR8 Metals’, (which is more economical), where soils are to be taken to a ‘Lined Landfill Site’. Where open landfills are in place, full WAC assessments will be required.

Considering the upper FILL and lower natural subsoil across the site, we would suggest that the classification for the purposes of muck away should be confirmed with the closest relevant landfill site where pricing should be sought dependent upon the individual characteristics of the landfill site and haulier.

We would suggest that records are retained of any materials removed off site with confirmation of any imported materials brought onto the site for the purposes of placement in soft landscaped areas.

It is imperative that segregation of waste products or materials are maintained during the disposal process so as to minimise the mixing of different classification waste materials which would unnecessarily increase costs of muck away and also landfill wastes of a hazardous nature which would otherwise be classed as clean.

15 Overview

It has been identified that the site has levels of contamination which promote a human health risk across the site.

The extent of site assessment and classification of risk within the site is recorded as follows :-

- The site identified levels of risk from Arsenic, Lead, and PAH’s and will require remediation measures which will likely incorporate removal of the source layer of contamination to a depth of 0.60 m and replacement of the cell with clean soil;
- No groundwater risk has been identified based on our assessment of the site;
- Vapour Risk Assessments are ongoing. Initial assessments confirm low risks;
- No risk to water main pipework has been identified.
- Outline remediation measures have been suggested within this report in Table 10.
- Confirmation from the Local Authority that the level and extent of risk to a groundwater system is reduced;
- Confirmation from the Local Authority that the level and extent of contamination risk to human health is in place and appropriately assessed;
- Submission of this report as an interim report to the EA for consultation and Local Authority to confirm the condition of the site and the level and extent of assessment and proposals within this report are acceptable;
- Develop a Remediation Strategy Report.
Dear Phil

RE MOUNT PLEASANT INDUSTRIAL ESTATE, ALPERTON

The site of the Mount Pleasant Industrial Estate, Alperton, London, has been reviewed for its below ground archaeological potential and the associated archaeological desk based assessment is appended to this letter.

The site comprises a plot of land primarily occupied by industrial buildings. The site does not lie within close proximity to any designated archaeological assets, nor does it lie within an Archaeological Priority Area as defined by the London Borough of Brent.

In line with the NPPF and relevant planning policy, a desk based archaeological assessment has been prepared by CgMs to establish the significance and value of known buried heritage assets and the potential for the presence of unknown buried heritage assets. A qualitative assessment of the potential effects of the proposed development on below ground heritage assets has been undertaken and the need for mitigation has been reviewed.

To inform the archaeological potential of the site, the desk based assessment has been based on the followed:

- A review of the Greater London Historic Environment Record together with relevant local archives, including a historic map regression exercise; and
- The findings of readily available historical archaeological desk based assessments and previous investigations carried out on or near the site.

It is anticipated that on the basis of the evidence to date, the site has a generally low archaeological potential for all past periods of human activity. Post-depositional impacts within the site have been severe and cumulative, and comprise 19th and 20th century clay extraction and development.

It is considered that given the low archaeological potential of the study site and the likely high negative impact of past development, the proposed development would be unlikely to have either a significant or widespread archaeological impact on below ground deposits, and it is therefore proposed that archaeology should be scoped out of the EIA and subsequent ES. No further archaeological mitigation measures are considered necessary.

Many thanks
Yours sincerely

Richard von Kalinowski-Meager BA MA PG Cert FSA MIIfA Director
ARCHAEOLOGICAL
DESK BASED
ASSESSMENT

Mount Pleasant
Industrial Estate
Alperton
Brent

January 2018
Local Planning Authority:
London Borough of Brent

Site centred at:
TQ 1859 8374

Author:
Richard Meager BA MA PG Cert
FSA MCIfA

Approved by:
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FSA MCIfA

Report Status:
Draft for client comment

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CgMs Ref:
RM/24116
CONTENTS

Executive Summary
1.0 Introduction and Scope of Study
2.0 Development Plan Framework
3.0 Geology and Topography
4.0 Archaeological and Historical Background, with Assessment of Significance
   (Including map regression exercise)
5.0 Site Conditions and the Proposed Development
   (Review of Potential Impact on Heritage Assets)
6.0 Summary and Conclusions

Sources Consulted

LIST OF ILLUSTRATIONS

Fig. 1 Site Location
Fig. 2 Summary of cultural heritage designations (data from GLHER)
Fig. 3 1754 John Rocque’s Map of Middlesex
Fig. 4 1807 Ordnance Survey Drawing
Fig. 5 1818 Harrow Inclosure Map
Fig. 6 1864 Ordnance Survey
Fig. 7 1896 Ordnance Survey
Fig. 8 1914 Ordnance Survey
Fig. 9 1936 Ordnance Survey
Fig. 10 1956 Ordnance Survey
Fig. 11 1974 Ordnance Survey
Fig. 12 2013 Google Earth Image
Fig. 13 Current Site Survey

Appendix One: Herts & Essex Site Investigations Phase II Environmental Report, Abbey Industrial Estate, Mount Pleasant 2014
EXECUTIVE SUMMARY

The site of the Mount Pleasant Industrial Estate, Alperton Brent has been reviewed for its below ground archaeological potential.

No archaeological designated heritage assets as defined in the NPPF are recorded on or in close proximity to the study site. The site is not located within an Archaeological Priority Area as defined by the London Borough of Brent.

The site can be considered to have a generally low archaeological potential for all past periods of human activity.

Past post depositional impacts are considered severe as a result of previous development.

Proposals comprise the residential redevelopment of the site.

On the basis of the available information no further archaeological mitigation measures are recommended in this particular instance.
1.0 INTRODUCTION AND SCOPE OF STUDY

1.1 This archaeological desk-based assessment has been researched and prepared by CgMs Heritage (Part of the RPS Group) on behalf of Zed Homes Ltd/Alperton Ltd.

1.2 The subject of this Assessment comprises the site of the Mount Pleasant Industrial Estate, Alperton. The site is centred at TQ 1859 8374 within the London Borough of Brent (see Figs. 1-2 and Plate 1).

1.3 No archaeological designated heritage assets as defined in the NPPF are recorded on or in close proximity to the study site. The site is not located within an Archaeological Priority Area as defined by the London Borough of Brent (see Figure 2).

1.4 Zed Homes Ltd/Alperton Ltd have however commissioned CgMs Consulting to establish the archaeological potential of the site, and to provide guidance on ways to accommodate any archaeological constraints identified.

1.5 In line with relevant planning policy and guidance, this desk-based assessment comprises an examination of evidence on the Greater London Historic Environment Record (GLHER) and other sources, including Brent Archives. The report also includes the results of a comprehensive map regression exercise.

1.6 The Assessment thus enables relevant parties to assess the archaeological potential of various parts of the site and to consider the need for design, civil engineering, and archaeological solutions to the archaeological potential identified.
2.0 DEVELOPMENT PLAN FRAMEWORK

2.1 Legislation regarding archaeology, including scheduled ancient monuments, is contained in the Ancient Monuments and Archaeological Areas Act 1979, amended by the National Heritage Act 1983 and 2002, and updated in April 2014.


2.3 Section 12 of the NPPF, entitled Conserving and Enhancing the Historic Environment provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 12 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment
- Conservation of England’s heritage assets in a manner appropriate to their significance, and
- Recognition of the contribution that heritage assets make to our understanding of the past.

2.4 Section 12 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 128 states that planning decisions should be based on the significance of the heritage asset, and that level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient to review the potential impact of the proposal upon the significance of that asset.

2.5 Heritage Assets are defined in Annex 2 of the NPPF as: a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. They include designated heritage assets (as defined
in the NPPF) and assets identified by the local planning authority during the process of decision-making or through the plan-making process.

2.6 Annex 2 also defines *Archaeological Interest* as a heritage asset which holds or potentially could hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

2.7 A *Designated Heritage Asset* comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area.

2.8 *Significance* is defined as: The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset’s physical presence, but also from its setting.

2.9 *Setting* is defined as: The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

2.10 In short, government policy provides a framework which:
- Protects nationally important designated Heritage Assets (which include World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields or Conservation Areas)
- Protects the settings of such designations
- In appropriate circumstances seeks adequate information (from desk based assessment and field evaluation where necessary) to enable informed decisions
- Provides for the excavation and investigation of sites not significant enough to merit *in-situ* preservation.

2.11 The NPPG reiterates that the conservation of heritage assets in a manner appropriate to their significance is a core planning principle, requiring a flexible and thoughtful approach. Furthermore, it highlights that neglect and decay of heritage assets is best addressed through ensuring they remain in active use that is consistent with their
conservation. Importantly, the guidance states that if complete, or partial loss of a heritage asset is justified, the aim should then be to capture and record the evidence of the asset’s significance, and make the interpretation publically available. Key elements of the guidance relate to assessing harm. An important consideration should be whether the proposed works adversely affect a key element of the heritage asset’s special architectural or historic interest. Additionally, it is the degree of harm, rather than the scale of development, that is to be assessed. The level of ‘substantial harm’ is considered to be a high bar that may not arise in many cases. Essentially, whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the NPPF. Importantly, harm may arise from works to the asset or from development within its setting. Setting is defined as the surroundings in which an asset is experienced, and may be more extensive than the curtilage. A thorough assessment of the impact of proposals upon setting needs to take into account, and be proportionate to, the significance of the heritage asset and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

2.12 In considering any planning application for development, the planning authority will be mindful of the framework set by government policy, in this instance the NPPF, by current Development Plan Policy and by other material considerations.

2.13 The relevant Strategic Development Plan framework is provided by the London Plan Consolidated with Alterations Since 2011. The Further Alterations to the London Plan (FALP) were adopted 10 March 2015. This document includes the revised early minor alterations to the London Plan, which were published in October 2013. There were no changes to Policy 7.8 Heritage Assets and Archaeology; slight amendments were made to the wording of Policy 7.10 World Heritage Study sites, cross referencing this policy with the Supplementary Planning Guidance document for the setting of World Heritage Study sites prepared in 2012. Recent Minor Alterations to the London Plan (MALP), published 14 March 2016, concern housing standards and parking, with no alteration to heritage policies.

2.14 Policy in the Consolidated London Plan relevant to the study site includes the following:

**POLICY 7.8 HERITAGE ASSETS AND ARCHAEOLOGY**

**STRATEGIC**
A. LONDON’S HERITAGE ASSETS AND HISTORIC ENVIRONMENT, INCLUDING LISTED BUILDINGS, REGISTERED HISTORIC PARKS AND GARDENS AND OTHER NATURAL AND HISTORIC LANDSCAPES, CONSERVATION AREAS, WORLD HERITAGE SITES, REGISTERED BATTLEFIELDS, SCHEDULED MONUMENTS, ARCHAEOLOGICAL REMAINS AND MEMORIALS SHOULD BE IDENTIFIED, SO THAT THE DESIRABILITY OF SUSTAINING AND ENHANCING THEIR SIGNIFICANCE AND OF UTILISING THEIR POSITIVE ROLE IN PLACE SHAPING CAN BE TAKEN INTO ACCOUNT.

B. DEVELOPMENT SHOULD INCORPORATE MEASURES THAT IDENTIFY, RECORD, INTERPRET, PROTECT AND, WHERE APPROPRIATE, PRESENT THE SITE’S ARCHAEOLOGY.

PLANNING DECISIONS

C. DEVELOPMENT SHOULD IDENTIFY, VALUE, CONSERVE, RESTORE, RE-USE AND INCORPORATE HERITAGE ASSETS, WHERE APPROPRIATE.

D. DEVELOPMENT AFFECTING HERITAGE ASSETS AND THEIR SETTINGS SHOULD CONSERVE THEIR SIGNIFICANCE, BY BEING SYMPATHETIC TO THEIR FORM, SCALE, MATERIALS AND ARCHITECTURAL DETAIL.

E. NEW DEVELOPMENT SHOULD MAKE PROVISION FOR THE PROTECTION OF ARCHAEOLOGICAL RESOURCES, LANDSCAPES AND SIGNIFICANT MEMORIALS. THE PHYSICAL ASSETS SHOULD, WHERE POSSIBLE, BE MADE AVAILABLE TO THE PUBLIC ON-SITE. WHERE THE ARCHAEOLOGICAL ASSET OR MEMORIAL CANNOT BE PRESERVED OR MANAGED ON-SITE, PROVISION MUST BE MADE FOR THE INVESTIGATION, UNDERSTANDING, RECORDING, DISSEMINATION AND ARCHIVING OF THAT ASSET.

LDF PREPARATION

F. BOROUGHS SHOULD, IN LDF POLICIES, SEEK TO MAINTAIN AND ENHANCE THE CONTRIBUTION OF BUILT, LANDSCAPED AND BURIED HERITAGE TO LONDON’S ENVIRONMENTAL QUALITY, CULTURAL IDENTITY AND ECONOMY AS PART OF MANAGING LONDON’S ABILITY TO ACCOMMODATE CHANGE AND REGENERATION.

G. BOROUGHS, IN CONSULTATION WITH ENGLISH HERITAGE, NATURAL ENGLAND AND OTHER RELEVANT STATUTORY ORGANISATIONS, SHOULD INCLUDE APPROPRIATE POLICIES IN THEIR LDFS FOR IDENTIFYING, PROTECTING, ENHANCING AND IMPROVING ACCESS TO THE HISTORIC ENVIRONMENT AND HERITAGE ASSETS AND THEIR SETTINGS WHERE APPROPRIATE, AND TO ARCHAEOLOGICAL ASSETS, MEMORIALS AND HISTORIC AND NATURAL LANDSCAPE CHARACTER WITHIN THEIR AREA.

POLICY 7.9 HERITAGE-LED REGENERATION

STRATEGIC

A. REGENERATION SCHEMES SHOULD IDENTIFY AND MAKE USE OF HERITAGE ASSETS AND REINFORCE THE QUALITIES THAT MAKE THEM SIGNIFICANT SO THEY CAN HELP STIMULATE ENVIRONMENTAL, ECONOMIC AND COMMUNITY REGENERATION. THIS INCLUDES BUILDINGS, LANDSCAPE FEATURES, VIEWS, BLUE RIBBON NETWORK AND PUBLIC REALM.
PLANNING DECISIONS

B. THE SIGNIFICANCE OF HERITAGE ASSETS SHOULD BE ASSESSED WHEN DEVELOPMENT IS PROPOSED AND SCHEMES DESIGNED SO THAT THE HERITAGE SIGNIFICANCE IS RECOGNISED BOTH IN THEIR OWN RIGHT AND AS CATALYSTS FOR REGENERATION. WHEREVER POSSIBLE HERITAGE ASSETS (INCLUDING BUILDINGS AT RISK) SHOULD BE REPAIRED, RESTORED AND PUT TO A SUITABLE AND Viable USE THAT IS CONSISTENT WITH THEIR CONSERVATION AND THE ESTABLISHMENT AND MAINTENANCE OF SUSTAINABLE COMMUNITIES AND ECONOMIC VITALITY.

LDF PREPARATION

C. BOROUGHS SHOULD SUPPORT THE PRINCIPLES OF HERITAGE-LED REGENERATION IN LDF POLICIES.

2.13 A new London Plan has been prepared in draft and is open for consultation until March 2018. Chapter 7 ‘Heritage and Culture’ contains relevant draft policies HC1 to HC7. Of particular relevance to sites containing non-designated heritage assets is draft policy HC1 as follows:

HC1 Heritage and Conservation Growth

A. Boroughs should, in consultation with Historic England and other relevant statutory organisations, develop evidence that demonstrates a clear understanding of London’s historic environment. This evidence should be used for identifying, understanding, conserving, and enhancing the historic environment and heritage assets, and improving access to the heritage assets, landscapes and archaeology within their area.

B. Development Plans and strategies should demonstrate a clear understanding of the historic environment and the heritage values of sites or areas and their relationship with their surroundings. This knowledge should be used to inform the effective integration of London’s heritage in regenerative change by:

1. setting out a clear vision that recognises and embeds the role of heritage in place-making
2. utilising the heritage significance of a site or area in the planning and design process
3. integrating the conservation and enhancement of heritage assets and their settings with innovative and creative contextual architectural responses that contribute to their significance and sense of place
4. delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing.

C. Development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets’ significance and appreciation within their surroundings. The cumulative impacts of incremental change from development on heritage assets and their settings, should also be actively managed. Development proposals should seek to avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process.
D. Development proposals should identify assets of archaeological significance and use this information to avoid harm or minimise it through design and appropriate mitigation. Where applicable, development should make provision for the protection of significant archaeological assets and landscapes. The protection of undesignated heritage assets of archaeological interest equivalent to a scheduled monument should be given equivalent weight to designated heritage assets.

Where heritage assets have been identified as being At Risk, boroughs should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use.

2.14 Brent’s Core Strategy document, adopted 12 July 2010, does not contain policy specifically relating to archaeology. The Development Management Polices document, adopted in November 2016, contains the following policy relevant to archaeology:

**DMP7 BRENT’S HERITAGE ASSETS**

Proposals for or affecting heritage assets should:

a. demonstrate a clear understanding of the archaeological, architectural or historic significance and its wider context;

b. provide a detailed analysis and justification of the potential impact (including incremental and cumulative) of the development on the heritage asset and its context as well as any public benefit;

c. retain buildings, structures, architectural features, hard Landscaping and spaces and archaeological remains, where their loss would cause harm;

d. sustain and enhance the significance of the heritage asset, its curtilage and setting, respecting and reinforcing the streetscene, frontages, views, vistas, street patterns, building line, siting, design, height, plot and planform and ensure that extensions are not overly dominating;

e. contribute to local distinctiveness, built form, character and scale of heritage assets by good quality, contextual, subordinate design, and the use of appropriate materials and expertise, and improving public understanding and appreciation;

f. where demolition is proposed within a conservation area detailed plans for any replacement building will be required to allow consideration of whether the replacement would contribute positively to the character or will be applied to ensure construction of the approved scheme is implemented together with agreed mitigation measures appearance of the area. In cases where demolition is permitted conditions and/or legal agreements will be applied to ensure construction of the approved scheme is implemented together with agreed mitigation measures.

2.14 In terms of designated heritage assets as defined above and as shown on Figure 2, no nationally designated Scheduled Monuments, Historic Battlefield sites, Historic Wreck sites or Historic Parks and Gardens lie within the vicinity of the study site. In addition,
the site does not lie within an Archaeological Priority Area as designated by the London Borough of Brent.

2.15 In line with relevant planning policy and guidance, this desk based assessment seeks to clarify the site’s archaeological potential and the need or otherwise for additional mitigation measures.
3.0 GEOLOGY AND TOPOGRAPHY

3.1 Geology

3.1.1 The solid geology of the general study area is shown by the Institute of Geological Sciences (IGS 1979) as London Clay deposits forming the London Basin. Overlying the London Clay is a series of gravel terraces deposited during periods of glacial and interglacial conditions (Bridgland 1996).

3.1.2 Further detail is provided by British Geological Survey Sheet 256 (North London: 1994) which shows the study site to be underlain by deposits of London Clay, within an area with the notation ‘worked ground, some wholly or partially backfilled’.

3.1.3 Site specific geotechnical data (Appendix 1) confirms the underlying London Clay solid geology. Made Ground is recorded across the study site, with a general thickness of between 0.15m and 2m. A window sample in the central area of the study site indicates a 3.4m thickness of Made Ground, which is most likely evidence for previous clay extraction activity at the study site (see Figure 7 and 4.6.4 below).

3.2 Topography

3.2.1 The study site is level at c.30m Above Ordnance Datum (AOD).

3.2.2 The Grand Junction Canal, which opened in 1801, runs along the site’s southern boundary. The course of the River Brent flows to the south of the canal.
4.0 **ARCHAEOLOGICAL AND HISTORICAL BACKGROUND, WITH ASSESSMENT OF SIGNIFICANCE**  
(Including Historic Map Regression exercise)

4.1 Timescales used in this report:

**Prehistoric**
- Palaeolithic: 450,000 - 12,000 BC
- Mesolithic: 12,000 - 4,000 BC
- Neolithic: 4,000 - 1,800 BC
- Bronze Age: 1,800 - 600 BC
- Iron Age: 600 - AD 43

**Historic**
- Roman: AD 43 - 410
- Anglo Saxon/Early Medieval: AD 410 - 1066
- Medieval: AD 1066 - 1485
- Post Medieval: AD 1486 - 1749
- Modern: AD 1750 - Present

4.2 **Introduction**

4.2.1 What follows comprises a review of archaeological findspots within a 1km radius of the study site, also referred to as the study area, held on the Greater London Historic Environment Record (GLHER), together with a historic map regression exercise charting the development of the study area from the eighteenth century onwards until the present day.

4.2.2 In terms of designated heritage assets, as defined above in paragraph 2.7 and as shown on Figure 2, no nationally designated Scheduled Monuments, Historic Battlefield sites, Historic Wreck sites or Historic Parks and Gardens lie within the vicinity of the study site. In addition, the site does not lie within an Archaeological Priority Area as defined by the London Borough of Brent.

4.2.3 In general there are few GLHER findspots within the study area, with the bulk of the entries comprising documentary references relating to Medieval settlement. The map regression demonstrates that the site remained open land until the construction of the
industrial estate across the site during the middle and later parts of the twentieth century.

4.2.4 Several recent archaeological interventions have revealed negative or neutral archaeological information. Evaluation at 149 Ealing Road to the northwest of the site revealed Post Medieval and Modern remains (ELO11374, TQ18202 84130), as did evaluations at 414A and 416 Ealing Road, southwest of the study site (ELO2676, TQ1812 8321). Evaluations at the Park Royal Guinness site to the southeast revealed modern truncation and residual earlier material (ELO3109, TQ1903 8270). Evaluation at Abbeyfields also to the southeast revealed no archaeological remains (ELO732, TQ1926 8295). Modern remains were also identified during evaluations at Twyford Abbey Road to the southeast (ELO7474, TQ18957 82951).

4.3 **Prehistoric - Palaeolithic, Mesolithic, Neolithic, Bronze Age and Iron Age**

4.3.1 The sole find of early prehistoric date identified on the GLHER within the one kilometre study area search radius comprises a Palaeolithic handaxe identified at St James’ Gardens, Alperton Brent to the west of the study site (MLO246, TQ1800 8400).

4.3.2 From around 4000 BC the mobile hunter-gathering economy of the Mesolithic gradually gave way to a more settled agriculture-based subsistence. The pace of woodland clearance to create arable and pasture-based agricultural land varied regionally and locally, depending on a wide variety of climatic, topographic, social and other factors. The trend was one of a slow, but gradually increasing pace of forest clearance.

4.3.3 By the 1st millennium, i.e. 1000 BC, the landscape was probably a mix of extensive tracts of open farmland, punctuated by earthwork burial and ceremonial monuments from distant generations, with settlements, ritual areas and defended locations reflecting an increasingly hierarchical society.

4.3.4 No finds of later prehistoric date have been identified within the one kilometre study area search radius. The potential of the study site for these periods can therefore be categorised as low.
4.4 **Roman**

4.4.1 There are no finds of Roman material recorded from a 1km radius of the study site. During this period the study site is thought to have lain in a sparsely populated area predominantly comprising of pastureland.

4.4.2 Overall the archaeological potential of the study site for this period can be defined as very low.

4.5 **Anglo Saxon & Medieval**

4.5.1 Settlement at West Twyford to the south of the study site is believed to have been established by the Saxon period (054658/00/00-MLO73249; TQ1832 8290).

4.5.2 Archaeological discoveries within the one kilometre search radius include residual pottery of possible Saxon date at Twyford Abbey Road to the southeast (MLO66178, TQ19048 83199).

4.5.3 The site of the manorial mill is known on the River Brent to the south of the site (051066/00/00-MLO21693; TQ1840 8320).

4.5.4 During the Anglo-Saxon period the study site probably lay in an area of pastureland and overall its archaeological potential for this period can be defined as low.

4.5.5 Alperton never attained village status in the Later Medieval or Post Medieval periods, instead the settlement comprised a nucleation of farmsteads. The site of a farmstead of Medieval origin has been identified to the north of the site. In 1199 the name was spelt ‘Alprinton’ translating as a farm or estate in Ealhbeorht’s Territory (050888/00/00-MLO11304; TQ1831 8419). Tenements, first referenced in the mid fourteenth century, are located to the northwest of the site (052795/00/00-MLO68342, TQ1820 8390; 052795/00/00-MLO68343, TQ1830 8420), with another south of Alperton Green to the southwest (051061/00/00-MLO20232; TQ1810 8360). Another tenement is recorded to the southwest of the site in the settlement of Vicars Green (051063/00/00-MLO20530; TQ1825 8325; 051062/00/00-MLO5420, TQ1820 8340). The site of a bridge over the River Brent, first recorded 1432-3, lies to the southwest (052796/00/00-MLO68344, TQ1824 8317).
4.5.6 The site’s archaeological potential for the Medieval period can be identified as low. Evidence of agricultural activity and land division could conceivably be present.

4.6 **Post Medieval and Modern (including map regression exercise)**

4.6.1 John Rocque’s Survey of Middlesex (Fig 3: 1754) shows the site lying within open land southeast of the settlement of ‘Apperton’, within the northeastern part of ‘Apperton Field’. No change is shown on the 1807 Ordnance Survey Drawing (Fig 4).

4.6.2 The Grand Junction Canal opened in 1801 forming the study site’s southern boundary. The Harrow Inclosure Map (Fig 5: 1818) shows the presence of the canal with the study site divided into five open fields. During the nineteenth century the Alperton area became known for brick and tile production (Weinreb, Hibbert & Keay 2008: 21-2).

4.6.3 The First Edition Ordnance Survey (Fig 6: 1864) shows the site remaining within open fields, with field boundaries within the southeast, southwest and northwest, and another to the northeast containing two small buildings.

4.6.4 The Second Edition Ordnance Survey (Fig 7: 1894) shows a sub-rectangular depression within the central/northern part of the site, and the absence of the enclosure and buildings in the northeastern corner. This feature may indicate clay extraction activity and a Window Sample within this area indicates a 3.4m depth of made ground and appears to confirm this (Herts & Essex 2014 & Appendix 1). The Third Edition Ordnance Survey (Fig 8: 1914) shows the study site as open fields.

4.6.5 The Revised Ordnance Survey (Fig 9: 1936) shows the development of the Alperton area, and the construction of industrial buildings within the northern and central parts of the site, including an Ice Cream Manufactory, an Engineering Works and an Iron Foundry. The Grand Junction Canal along the southern boundary had merged in the late 1920s with the Regents Canal and the Warwick Canal to form the Grand Union Canal ([http://www.canalmuseum.org.uk/history/grandjun.htm](http://www.canalmuseum.org.uk/history/grandjun.htm)). The 1956 Ordnance Survey (Fig 10) shows the site fully occupied with the ‘Abbey Manufacturing Estate’ combining several different uses, and a builder’s yard in the northwest area. Minor amendments to the buildings are shown on the 1974 Ordnance Survey (Fig 11).
4.6.6 The northwest area of the site was cleared by 2013 (Fig 12), whilst the current site survey (Fig 13) shows the study site largely unchanged.

4.6.7 The archaeological potential of the study site for the Post Medieval and Modern periods can be identified as low.

4.7 **Assessment of Significance**

4.7.1 Existing national policy guidance for archaeology (the NPPF as referenced in section 2) enshrines the concept of the ‘significance’ of heritage assets. Significance as defined in the NPPF centres on the value of an archaeological or historic asset for its ‘heritage interest’ to this or future generations.

4.7.2 No archaeological designated heritage assets as defined in the NPPF are recorded on or in close proximity to the study site.

4.7.3 Overall it would appear that while it is possible that archaeological remains may be present within the study site boundary, the balance of probability is that these will purely be of local importance.
5.0 SITE CONDITIONS AND THE PROPOSED DEVELOPMENT
(Review of potential impact upon Heritage Assets)

5.1 Site Conditions

5.1.1 The site is currently occupied by an industrial estate primarily of single to two storey masonry buildings, constructed between the 1930s and the 1950s, with subsequent amendments and alterations (Fig 12 and Plate 1).

5.1.2 The construction of the buildings currently occupying the study site can be considered likely to have had a severe, negative archaeological impact through the cutting of foundations and services.

5.1.3 Agricultural/horticultural use of the study site prior to development can be considered likely to have had a moderate, widespread negative archaeological impact.

5.2 The Proposed Development

5.2.1 Detailed development proposals are not currently available and are known to comprise the residential redevelopment of the site with associated access and landscaping.

5.3 Review of Potential Development Impacts upon Heritage Assets

5.3.1 In view of the study site’s archaeological potential, combined with the potential for past depositional impacts, the redevelopment proposals are considered unlikely to have a significant or widespread negative archaeological impact.
6.0 SUMMARY AND CONCLUSIONS

6.1 The site of the Mount Pleasant Industrial Estate, Alperton Brent has been reviewed for its below ground archaeological potential.

6.2 In accordance with relevant planning policy and guidance, a desk based assessment has been undertaken to clarify the archaeological potential of the study area.

6.3 No archaeological designated heritage assets as defined in the NPPF are recorded on or in close proximity to the study site. The site is not located within an Archaeological Priority Area as defined by the London Borough of Brent.

6.4 The study site can be considered to have a generally low archaeological potential for all past periods of human activity.

6.5 Past-post depositional impacts within the study site are considered to have had a severe negative archaeological impact.

6.6 Proposals include the residential redevelopment of the site.

6.7 On the basis of the available information we do not recommend any further archaeological mitigation measures in this particular instance.
**SOURCES CONSULTED**

1. **General**
   - Brent Archives
   - British Library
   - Greater London Historic Environment Record
   - London Metropolitan Archives

2. **Internet**
   - [http://www.british-history.ac.uk/](http://www.british-history.ac.uk/)
   - [http://list.english-heritage.org.uk/](http://list.english-heritage.org.uk/)
   - [http://planningguidance.planningportal.gov.uk](http://planningguidance.planningportal.gov.uk)
   - [http://www.canalmuseum.org.uk/history/grandjun.htm](http://www.canalmuseum.org.uk/history/grandjun.htm)
   - [http://gerald-massey.org.uk/Canal/c_chapter_10.htm](http://gerald-massey.org.uk/Canal/c_chapter_10.htm)
   - [http://www.brent-heritage.co.uk/alperton.htm](http://www.brent-heritage.co.uk/alperton.htm)

3. **Bibliographic**
   - Brent Council *Places in Brent Alperton u/d*
   - Bridgland Quaternary River terrace deposits as a framework for the Lower Palaeolithic record in Gamble & Lawson (eds.) *The English Palaeolithic Reviewed* 1996
   - Department of Communities and Local Government *National Planning Policy Framework* 2012
   - Gibbard *The Pleistocene History of the Lower Thames Valley* 1994
   - Greater London Archaeological Advisory Service *Standards for Archaeological Work* June 2009 consultation draft (unpublished document)
   - Herts & Essex Site Investigations *Phase II Environmental Report, Abbey Industrial Estate, Mount Pleasant* 2014


London County Council *Names and Streets and Places in the Administrative County of London* 1955


Victoria County History *Middlesex Volume 4* 1971

Weinreb, Hibbert & Keay (eds.) *The London Encyclopaedia* 2008

Wymer *The Lower Palaeolithic Occupation of Britain* 2 volumes 1999

4. **Cartographic**

1754 John Rocque’s Map of Middlesex

1807 Ordnance Survey Drawing

1818 Harrow Inclosure Map

1864 Ordnance Survey

1896 Ordnance Survey

1914 Ordnance Survey

1936 Ordnance Survey

1956 Ordnance Survey

1974 Ordnance Survey

2013 Ordnance Survey

1994 British Geological Survey Sheet 256 (North London)
Figure 1: Site Location

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Figure 2: Summary of cultural heritage designations (data from GLHER)
Figure 3: 1754 John Rocque's Map of Middlesex

Site Location

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Site Boundary

Figure 5:
1818 Harrow Inclosure Map

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Not to Scale:
Illustrative Only
Figure 6: 1864 Ordnance Survey
Figure 12: 2013 Google Earth Image
Site Boundary

Figure 13: Current Site Survey

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Appendix One: Herts & Essex Site Investigations Phase II Environmental Report, Abbey Industrial Estate, Mount Pleasant 2014
Alperton Redevelopment AKA Abbey Industrial Estate, Mount Pleasant Wembley HA0 1NR
Existing Site Plan with Sample Locations
### Barehole One

<table>
<thead>
<tr>
<th>Description of Strata</th>
<th>Depth (m)</th>
<th>Thickness (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete reinforced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm brown gravelly slightly clayey fill with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>brick ash and clinker</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Firm dark grey black organic clay</td>
<td>1.00</td>
<td>0.80</td>
</tr>
<tr>
<td>Firm becoming stiff brown slightly silty clay</td>
<td>1.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Stiff grey slightly silty clay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Water Level

<table>
<thead>
<tr>
<th>Sample No</th>
<th>Type</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B</td>
<td>1.00</td>
</tr>
<tr>
<td>1</td>
<td>U</td>
<td>1.70</td>
</tr>
<tr>
<td>2</td>
<td>U</td>
<td>3.00</td>
</tr>
<tr>
<td>3</td>
<td>U</td>
<td>4.00</td>
</tr>
<tr>
<td>4</td>
<td>U</td>
<td>5.00</td>
</tr>
<tr>
<td>5</td>
<td>U</td>
<td>6.50</td>
</tr>
<tr>
<td>6</td>
<td>U</td>
<td>8.00</td>
</tr>
<tr>
<td>7</td>
<td>U</td>
<td>9.50</td>
</tr>
</tbody>
</table>

#### Remarks:

- **Key:**
  - U: Undisturbed Sample
  - D: Disturbed Sample
  - W: Water Sample
  - S: Standard Penetration Test (SPT)
  - N: Vane Shear Strength (kPa)

**Scale:** 1:50
<table>
<thead>
<tr>
<th>Description of Strata</th>
<th>Depth</th>
<th>Thickness (m)</th>
<th>Layer</th>
<th>Installation</th>
<th>Water Level</th>
<th>Samples</th>
<th>SPT N-Value</th>
<th>Casing Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As above</td>
<td>6.00</td>
<td></td>
<td></td>
<td>DRC</td>
<td></td>
<td>8 U</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9 U</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 U</td>
<td>4.00</td>
<td></td>
</tr>
</tbody>
</table>

Borehole closed at 15.00m

Remarks:

Key:
- U = Undisturbed Sample
- B = Bull Sample
- C = Cleaned Sample
- W = Water Sample
- D = D.R.C. Sample
- N = N-Value Sample
- R = R.P.T. N-Value Sample
- T = Trench Strength (kN/m^2)

Scale 1:50
### Description of Strata

<table>
<thead>
<tr>
<th>Description of Strata</th>
<th>Depth (m)</th>
<th>Thickness (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete reinforced</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Firm brown gravelly slightly clayey fill with brick and flint gravel</td>
<td>0.50</td>
<td>0.40</td>
</tr>
<tr>
<td>Loose dark grey brown gravelly sand fill with glass brick concrete ash and clinker</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Loose dark grey brown clayey gravelly sand fill with brick and flint gravel</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>Firm becoming stiff brown slightly silty clay</td>
<td>2.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Stiff grey slightly silty clay</td>
<td>7.50</td>
<td></td>
</tr>
<tr>
<td>Stiff grey slightly silty clay</td>
<td>9.50</td>
<td>5.50</td>
</tr>
</tbody>
</table>

**Remarks:**

- **Key:**
  - U - Undisturbed Sample
  - B - Buk Sample
  - D - Disturbed Sample
  - G - Gravel
  - S - Sand
  - C - Clay
  - W - Water Sample
  - N = Sample Number
  - N.S.R.T = N-Value
  - V = Vane Shear Strength (kN/m²)

**Scale:** 1:50
<table>
<thead>
<tr>
<th>Description of Strata</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.50</td>
</tr>
<tr>
<td></td>
<td>9 U 12.50</td>
</tr>
<tr>
<td></td>
<td>10 U 14.00</td>
</tr>
<tr>
<td></td>
<td>15.00</td>
</tr>
</tbody>
</table>

Borehole closed at 15.00m

Key:
- U - Undisturbed Sample
- B - Bulk Sample
- D - Disturbed Sample
- W - Water Sample
- N - SPT N-value
- V - Vane Strength (kN/m²)
## Borehole Three

### Description of Strata

<table>
<thead>
<tr>
<th>Description of Strata</th>
<th>Depth (m)</th>
<th>N-Value (KPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete reinforced</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Soft clayey gravelly slightly organic sandy</td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>topsoil FILL with brick and ash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm becoming stiff brown slightly silty CLAY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stiff grey slightly silty CLAY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:

- **Key**: U - Undisturbed Sample, D - Dry Sample, S - Saturated Sample, W - Water Sample, N - N-Value, N-S.P.I. - N-Value Strength (KPa/m³)
- **Scale**: 1:50

---

**Appendix No.**: 2  
**Sheet No.**: 5  
**Job No.**: 12286  
**Date**: Aug 2014
### HERTS & ESSEX SITE INVESTIGATIONS

**Address:** The Old Post Office, Welwyn Green, Standon, Ware, Herts. SG11 1NJ  
**Telephone:** Ware (01920) 822233  
**Fax:** Ware (01920) 822200

---

#### (Alperton Redevelopment) AKA Abbey Industrial Estate, Mount Pleasant Wembley HA0 1NR

**Borehole Three Continued**

<table>
<thead>
<tr>
<th>Description of Strata</th>
<th>Depth</th>
<th>Thickness (m)</th>
<th>Legend</th>
<th>Installation Inclined</th>
<th>Water Level No.</th>
<th>Samples Type</th>
<th>Depth (m)</th>
<th>S.P.T. N-Value</th>
<th>Vane Strength (kN/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As above</td>
<td></td>
<td>7.75</td>
<td>DRY</td>
<td></td>
<td>9</td>
<td>U</td>
<td>11.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>U</td>
<td>12.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>U</td>
<td>14.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

- **Key:** U - Undisturbed Sample  | D - Disturbed Sample  
- **Legend:** S - Soil Sample  | W - Water Sample  
- **Installation Inclined:** F - Field Samples  | V - Vane Strength (kN/m²)

**Scale:** 1:50

**Date:** Aug 2014
<table>
<thead>
<tr>
<th>DEPTH BELOW G.L.</th>
<th>THICKNESS OF STRATA</th>
<th>DESCRIPTION OF STRATA</th>
<th>LEGEND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Not under-IgCro carried out in this window - see back log</td>
<td></td>
</tr>
</tbody>
</table>

**SCALE:** 1:20

- B: BULK SAMPLE
- D: DISTURBED SAMPLE
- U: UNDISTURBED SAMPLE
- V: SHEAR VANE TEST (Rv/m²)
- W: WATER SAMPLE
- N: SPT 'N' VALUE
- V: WATER STRUCK
- S: WATER STANDING

**Window Sample One**

**Job No.:** 12286

**Appendix No.:** 2

**Sheet No.:** 7

**Date:** Aug 2014

**Location:** (Alberton Redevelopment) AKA Abbey Industrial Estate, Mount Pleasant Wembley HA9 1NR
<table>
<thead>
<tr>
<th>DEPTH BELOW G.L.</th>
<th>THICKNESS OF STRATA</th>
<th>DESCRIPTION OF STRATA</th>
<th>LEGEND</th>
<th>INSTALLATION</th>
<th>NO.</th>
<th>TYPE</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.15</td>
<td>0.15</td>
<td>Clay</td>
<td></td>
<td>NONE INSTALLED</td>
<td>1</td>
<td>T</td>
<td>0.25m</td>
</tr>
<tr>
<td>1.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>B</td>
<td>1.00m</td>
</tr>
<tr>
<td>2.08</td>
<td></td>
<td>Window sampler seized at 2.08m</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SCALE 1:20

LEGEND:

B = BULK SAMPLE
D = DISTURBED SAMPLE
U = UNDISTURBED SAMPLE
V = SHEAR VANE TEST (Kn/m²)
N = SPT 'N' VALUE
W = WATER SAMPLE
S = WATER STANDING
**Window Sample Three**

<table>
<thead>
<tr>
<th>DEPTH BELOW G.L.</th>
<th>THICKNESS OF STRATA</th>
<th>DESCRIPTION OF STRATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.15</td>
<td></td>
<td>Concrete</td>
</tr>
<tr>
<td>0.40</td>
<td></td>
<td>Fine grained concrete fill</td>
</tr>
<tr>
<td>0.40</td>
<td></td>
<td>Tan brown clayey sandy fill</td>
</tr>
<tr>
<td>0.80</td>
<td></td>
<td>Tan brown gravelly sandy clay fill with fine brick fragments and thin gravel</td>
</tr>
<tr>
<td>1.00</td>
<td></td>
<td>Tan, Neuilly gravelly sandy clay fill</td>
</tr>
</tbody>
</table>

**Legend**

- B: BULK SAMPLE
- D: DISTURBED SAMPLE
- U: UNDISTURBED SAMPLE
- Y: SHEAR VANE TEST (Kn/m²)
- F: FEBRUARY
- S: SCALE
- T: TIME
- W: WATER SAMPLE
- V: WATER VOLUME
- N: SPT N VALUE
- A: ADDITIONAL

**Water Levels**

- **No. 1**
  - **Type:** T
  - **Depth:** 0.20m
  - **Casing Level:** 0.20m

- **No. 2**
  - **Type:** N
  - **Depth:** 1.50m
  - **Casing Level:** 1.50m
<table>
<thead>
<tr>
<th>DEPTH BELOW G.L.</th>
<th>THICKNESS OF STRATA</th>
<th>DESCRIPTION OF STRATA</th>
<th>LEGEND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NO.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TYPE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DEPTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WATER LEVELS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Casing LEVELS</td>
</tr>
</tbody>
</table>

SCALE: 1:20

- **B**: Bulk Sample
- **D**: Disturbed Sample
- **U**: Undisturbed Sample
- **V**: Shear Vane Test (Kn/m²)
- **W**: Water Sample
- **N**: SPT 'N' Value
- **Z**: Water Standing
- **D**: Water Struck
### Window Sample Five

<table>
<thead>
<tr>
<th>DEPTH BELOW G.L.</th>
<th>THICKNESS OF STRATA</th>
<th>DESCRIPTION OF STRATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>s.l.</td>
<td>Concrete (non-reinforced)</td>
</tr>
<tr>
<td>0.50</td>
<td>s.l.</td>
<td>Treated Lime to a depth of 4m.</td>
</tr>
<tr>
<td>0.75</td>
<td>s.l.</td>
<td>Clayey grey brown moderately stiff clayey silt.</td>
</tr>
<tr>
<td>1.25</td>
<td>s.l.</td>
<td>Soft grey brown, moderately stiff clayey silt with thin A and thin B layer.</td>
</tr>
<tr>
<td>2.00</td>
<td>s.l.</td>
<td>Bedding of original strata with depth</td>
</tr>
<tr>
<td>2.30</td>
<td>s.l.</td>
<td>Water sample recorded at 2.30m</td>
</tr>
<tr>
<td>2.50</td>
<td>s.l.</td>
<td>Water sample recorded at 2.50m</td>
</tr>
</tbody>
</table>

**SCALE:** 1:20

- **G:** BULK SAMPLE
- **D:** DISTURBED SAMPLE
- **U:** UNDISTURBED SAMPLE
- **V:** SHEAR VANE TEST (Kn/m²)
- **A:** SPI 'N' VALUE
- **W:** WATER SAMPLE
- **T:** WATER STRUCK
- **V:** WATER STANDING

**LEGEND:**

- **1:** Installaion No. 1
- **2:** Installation No. 2

**INSTALLATION:**

- **T:** 0.30m
- **Y:** 1.00m
- **B:** 2.50m

**WATER LEVELS:**

- **1.20:**
### Window Sample Six

<table>
<thead>
<tr>
<th>Depth Below G.L.</th>
<th>Thickness of Strata</th>
<th>Description of Strata</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.10</td>
<td>Homogenous</td>
<td></td>
</tr>
<tr>
<td>0.20</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.30</td>
<td></td>
<td>Lightweight Soil</td>
<td></td>
</tr>
<tr>
<td>1.50</td>
<td></td>
<td>Homogenous</td>
<td></td>
</tr>
</tbody>
</table>

**Legend**
- **B**: Bulk Sample
- **D**: Disturbed Sample
- **U**: Undisturbed Sample
- **V**: Shear Vane Test (kPa/m²)
- **N**: SPT 'N' Value
- **W**: Water Sample
- **T**: Water Struck
- **P**: Water Standing

**Scale**: 1:20
## Window Sample Seven

<table>
<thead>
<tr>
<th>Depth Below G.L.</th>
<th>Thickness of Strata</th>
<th>Description of Strata</th>
<th>Legend</th>
<th>Installation Installed</th>
<th>No.</th>
<th>Type</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.30</td>
<td>0.50</td>
<td>Silt (black, very organic, very sandy clay fill with truncated/flat gravel)</td>
<td></td>
<td>None Installed</td>
<td>1</td>
<td>Y</td>
<td>0.35m</td>
</tr>
</tbody>
</table>

### Legend
- B: Bulk Sample
- D: Disturbed Sample
- U: Undisturbed Sample
- W: Water Sample
- T: Shear Vane Test (kN/m²)
- N: SPT 'N' Value
- Y: Water Struck
- Z: Water Standing

### Scale
1:20
<table>
<thead>
<tr>
<th>SCALE</th>
<th>1:20</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER STRAND</td>
<td>WATER STAND</td>
</tr>
<tr>
<td>BULK SAMPLE</td>
<td>DISTURBED SAMPLE</td>
</tr>
<tr>
<td>15cm</td>
<td>15cm</td>
</tr>
<tr>
<td>DEPTH</td>
<td>0.3m</td>
</tr>
<tr>
<td>0.3m</td>
<td>0.5m</td>
</tr>
<tr>
<td>DESCRIPTION OF STRATA</td>
<td>LAYER 2</td>
</tr>
<tr>
<td>SOIL DESCRIPTION</td>
<td>CLAY WITH SMALL AMOUNTS OF SAND</td>
</tr>
<tr>
<td>THICKNESS OF STRATA</td>
<td>0.12m</td>
</tr>
<tr>
<td>LEGEND</td>
<td>NONE INSTALLED</td>
</tr>
<tr>
<td>TYPE</td>
<td>NO</td>
</tr>
<tr>
<td>DEPTH</td>
<td>1.5m</td>
</tr>
<tr>
<td>WATER LEVELS</td>
<td>DRY</td>
</tr>
<tr>
<td>CASING LEVELS</td>
<td>DRY</td>
</tr>
</tbody>
</table>

Alston Redevelopment, AKA Abbey Industrial Estate, Mount Pleasant, Wembley, HA0 1NR

HERTS & ESSEX SITE INVESTIGATIONS
### Window Sample Nine

<table>
<thead>
<tr>
<th>Depth Below G.L.</th>
<th>Thickness of Strata</th>
<th>Description of Strata</th>
<th>Logo Installed</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.15</td>
<td>0.15</td>
<td>Soft dark grey silty moderately silty clayey grey firm fill with brick fragments and fine gravel</td>
<td>No Installed</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Water Levels**

<table>
<thead>
<tr>
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<th>Date</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T</td>
<td>0.30m</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>1.50m</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>3.00m</td>
</tr>
</tbody>
</table>

**Legend**

- B: Bulk Sample
- D: Disturbed Sample
- U: Undisturbed Sample
- V: Shear Vane Test (Kn/m²)
- W: Water Sample
- N: SPT 'N' Value
- WATER STRUCK
- WATER STANDING

**Scale:** 1:20
**Window Sample Ten**

<table>
<thead>
<tr>
<th>DEPTH BELOW G.L.</th>
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<th>DESCRIPTION OF STRATA</th>
<th>LEGEND</th>
<th>INSTALLATION INSTALLED</th>
<th>NO.</th>
<th>TYPE</th>
<th>DEPTH</th>
<th>WATER LEVELS</th>
<th>CASING LEVELS</th>
</tr>
</thead>
</table>

Not underlain Q3b except at 1.15m below ground level. In the location of a lime bounce level.
### Window Sample Eleven

<table>
<thead>
<tr>
<th>Depth Below G.L.</th>
<th>Thickness of Strata</th>
<th>Description of Strata</th>
<th>Legend</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.15</td>
<td>0.15</td>
<td>Tarmee</td>
<td></td>
</tr>
<tr>
<td>0.30</td>
<td>0.15</td>
<td>Type II</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soft/dense, very grey, black, slightly silty, slightly sandy, slightly weathered, grey, thin gravel. With some dark fragments, such as black flakes and some gravel. Can be found.</td>
<td></td>
</tr>
</tbody>
</table>

#### Installation Details

<table>
<thead>
<tr>
<th>No</th>
<th>Value</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T</td>
<td>0.40m</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>1.50m</td>
</tr>
</tbody>
</table>

Window Sample located at 1%.

**Scale:** 1:20

- **0**: Bulk Sample
- **D**: Disturbed Sample
- **U**: Undisturbed Sample
- **V**: Shear Vane Test (kN/m²)
- **W**: Water Sample
- **N**: SPT 'N' Value
- **T**: Water Struck
- **S**: Water Standing
1. INTRODUCTION - TRANSPORTATION AND ACCESS

1.1 Summary and Baseline Context

1.1.1. The site is located approximately 700 metres east of Alperton Underground Station within the London Borough of Brent. The site is presently used for industrial/employment purposes and is bounded by Mount Pleasant Road and existing residential development to the north, Abbey Wharf industrial estate to the east, the Grand Union Canal to the south and Woodside End to the west.

1.1.2. The baseline conditions relating to transportation and access will be identified using a combination of site observations, traffic surveys, desktop studies and reviews of available information such as information provided by TfL and LBB. Site visits will be undertaken to determine the general operation of the existing development.

1.1.3. The site is served by a main vehicle access from Mount Pleasant along the eastern side of the site along with an additional access from Woodside End on the western side of the site.

1.1.4. Alperton Underground Station is located on the Piccadilly Line. This section of the Piccadilly Line benefits from a peak hour frequency of 10 trains per hour in both directions. Slightly further afield is Stonebridge Park Overground and Underground station (approximately 1.3km to the east) which benefits from both Bakerloo and Overground services. The site is additionally served by local bus route numbers 79, 83, 112, 224 and 297. The bus routes have a combined frequency of 26 buses per hour in the peak hour. The nearest bus stops to the site (serving the 112 and 224 routes) are on Mount Pleasant, approximately 160 metres from site access. As such it is considered that the majority of the residential units within the development would be within 400 metres walking distance of a bus stop.
1.1.5. The site is located within the Alperton Growth Area as identified in the Alperton Masterplan SPD suitable for the construction of new homes. The Alperton SPD also outlines LB Brent’s aspiration for a new strategic highway connection to run east-west through the site improve connectivity from surrounding development to Alperton Underground Station and central amenities for journeys by foot and cycle. This connection would benefit both uses within the proposed development site and existing and proposed uses surrounding the site, facilitating sustainable travel across Alperton. For information the neighboring industrial estate to the immediate east of the site has planning consented for residential development.

2. POTENTIAL IMPACTS

2.1 Overview

2.1.1. A Transport Assessment will be proposed to support a future planning application on the site. It is considered that the Transport Assessment will sufficiently address the environmental effects of changes in traffic as a result of the Proposed Development. This will be determined using pre-defined significance criteria for each mode of travel, as set out within the Institute of Environmental Management and Assessment (IEMA) publication ‘Guidelines for Environmental Impact Assessment’ (2004) (referred to as the IEMA Guidelines) (Ref. 14). The criteria would be based on the net uplift in trips associated with the site as a result of the Proposed Development. The significance criteria will establish the magnitude of any beneficial or adverse traffic and transport effects of the Proposed Development.

2.1.2. The key areas that would be assessed within the Transport Assessment to determine the transportation and access effects of the Proposed Development (both during the demolition and construction phase and once the scheme is complete and occupied) are as follows:

- **Severance** – the perceived division that can occur within a community when it becomes separated by a major traffic artery considering a series of factors that separate people from places and other people. Such division may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself.
- **Pedestrian delay** – this is defined in the IEMA Guidelines as an issue which is affected by changes in the volume, composition and/or speed of traffic that may affect the ability of people to cross roads. Typically, increases in traffic levels result in increased pedestrian delay, although increased pedestrian activity itself also contributes.
- **Pedestrian amenity** – this is defined in the IEMA Guidelines as the relative pleasantness of a journey and can include fear and intimidation if they are relevant. As with pedestrian delay, amenity is affected by traffic volumes and composition along with pavement width and pedestrian activity.
- **Driver Delay** – this is identified in the IEMA Guidelines as an issue, which can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system.
- **Accidents and Safety** – these are not defined in the IEMA Guidelines, which suggests that professional judgement will be required to assess the implications of local circumstances, or factors which may increase or decrease the risk of accidents. The full results of the accident analysis will be reported in the Transport Assessment (TA).
2.2 Demolition and Construction Impacts

2.2.1. The principal transport issues, to be considered as a result of the Proposed Development during the demolition and construction phase are:

- Traffic generation;
- Construction vehicle routing; and,
- Impacts on the existing highway network, junctions and local on street parking if applicable.

2.2.2. The site benefits from convenient access to Mount Pleasant, the A4089 (Ealing Road) and the onward strategic highway network. It is considered that there will be no major obstacles to construction vehicle access.

2.3 Complete and Operational Impacts

2.3.1. The principal operational transport issues to be considered as a result of the completion of the proposed Development during the steady state are:

- Traffic Generation;
- Vehicle Routing;
- Highway network and junction impact;
- Road Safety;
- Parking; and,
- Public / sustainable transport capacity.

2.3.2. A full multi-modal assessment of the trips generated by the proposed development will be prepared as part of the Transport Assessment. In this respect it is clear that the site benefits from an extant consent for operational industrial uses which has its own trip generation characteristics, including a large proportion of goods vehicles of varying sizes.

2.3.3. Initial indications show that the level of net traffic generation resulting from this development is unlikely to be significant and could be adequately accommodated on the surrounding highway network. Detailed scoping discussions will be carried out with the Highway Authority during the preparation of the Transport Assessment to ensure that any off-site impacts are tested and suitably mitigated.

2.3.4. Drawing on historical records, existing site observations, new traffic and parking surveys, industry guidance and a full scoping agreement with the local Highway Authority, the Transport Assessment (TA), will assess the potential effects of the Proposed Development on the five key areas defined above (severance, pedestrian delay, pedestrian amenity, driver delay and accidents and safety).
2.3.5. Key receptors for the assessment of effects will be existing residential properties on Mount Pleasant and of consented residential development at Abbey Wharf.

2.4 Outline Scope of Assessment

General

2.4.1. The transportation and access impact assessment will be included within the TA and will consider the likely transport impact of the Proposed Development during demolition and construction in the steady state.

2.4.2. The TA will be prepared in accordance with TfL’s Transport Assessment Best Practice Guidance document (April 2010). The TA will be based on a separate TA Scoping Report, which will be agreed with the LBB and TfL as part of the pre-application process for the Proposed Development. Following the submission of the TA Scoping Report, pre-application meetings will be held with both TfL and LBB to agree the scope of the TA.

2.4.3. The Transport Assessment will include a review of relevant planning policy documents at national, regional and local levels that will be considered in respect of the Proposed Development. This would shape the design of the scheme and identify whether any mitigation measures are required, and provide an assessment of the residual effect. Our initial assessment indicates that the proposed development would be policy compliant from a highways and transportation perspective.

2.4.4. The Transportation Assessment will set out the methodology to be applied to assess the potential effects of the Proposed Development, in terms of transport and access. In undertaking the assessment, reference will be made to the IEMA Guidelines and guidance published by the Department for Transport (DfT) in order to identify significance criteria applicable to the assessment. Where there are no existing available thresholds of significance, interpretation and judgement will be applied based on professional experience and knowledge of the Site and the surrounding area.

Baseline Assessment

2.4.5. The scope of the existing peak hour traffic flows will be ascertained at the pre-application stage with LB Brent, together with any additional surveys deemed necessary through the TA scoping process. This would provide details of the volume and vehicle classification of traffic currently generated by the existing use on the site, and on the surrounding road network.

2.4.6. On-street parking capacity will be assessed using an extensive survey methodology. Future parking scenarios will be forecasted and compared alongside existing parking stress levels.
2.4.7. A baseline walking and cycling assessment of the existing key routes surrounding the Site will be undertaken using a Pedestrian Environment Review System (PERS) audit and Cycle Environment Review System (CERS) audit.

Assessment of Transport Effects of the Proposed Development

2.4.8. National, regional and local planning policy and best practice guidance as well as local policies relating to transport, including the LBB Long Term Transport Strategy 2015-2035 (Ref. 37), will be used to inform the assessment.

2.4.9. The methodology to be utilised in the Transport Assessment will reflect the guidance for preparing respective transportation ES chapters namely:

- The Guidelines for the Environmental Assessment of Road Traffic published by The Institute of Environmental Assessment in 1993 (now IEMA) (Ref. 38);
- Volume 11 of the Design Manual for Roads and Bridges (DMRB) (Highways Agency) – Environmental Assessment (Ref. 39); and
- The Department for Communities and Local Government (DCLG) Planning Practice Guidance on Environmental Impact Assessment and Travel Plans, Transport Assessments and Statements in Decision Taking (Ref. 40).

2.4.10. The proposed geographical scope of the assessment will be determined based on the results of the TA Scoping and will include an agreed schedule of committed schemes and developments and the distribution of Proposed Development trips onto the local transport network.

2.4.11. Operational residential (and any ancillary commercial use) weekday peak hour multimodal flows will be calculated based upon a combination of Trip Rate Information Computer System (TRICS) daily person trip rates and 2011 Census Journey to Work data. This will be compared with surveyed data. These will also be factored to 24-hour Annual Average Daily Traffic (AADT) flows for the purposes of the road traffic noise and air quality assessments.

Demolition and Construction Phase

2.4.12. Predicted peak construction traffic will be calculated using either a first-principles approach based on the likely worst-case construction scenario or assessment based upon information provided by a construction contractor. The Proposed Development construction traffic flows, along with baseline traffic flows, will be used to determine the potential effects.

2.4.13. The potential mitigation measures associated with the construction phase of the Proposed Development will be managed for the duration of the works using a Construction Method Statement (CMS) and CEMP that will be agreed with LBB and TfL prior to the commencement of construction.
3. MITIGATION MEASURES AND RESIDUAL IMPACT

Access

3.1.1. The site is currently served by the existing site access on Mount Pleasant. It also benefits from vehicular access via Woodside End and Woodside Place. Initial investigations would suggest that the Mount Pleasant site access junction could be improved to accommodate a ghosted right turn priority junction of sufficient design to accommodate traffic generated by the proposed development.

3.1.2. The existing carriageway width in the vicinity of the site access is approximately 8.3m. It is considered that this could be widened in order to accommodate a ghost island junction by what would appear to be land already in public highway use. The amount of widening required is unlikely to unduly effect the existing trees on both sides of the junction.

3.1.3. In order to control on-street car parking in the vicinity of the proposed site access junction, it is likely to be necessary to install new waiting restrictions so as to optimise the safe operation of the junction. The implications of this would be to displace some existing parking outside existing properties in the vicinity of the site access junction further along Mount Pleasant. However it would appear from initial site observation that a proportion of this parking is associated with existing use on the site. Preliminary evidence therefore suggests that reasonable space to accommodate existing residents on-street car parking would be available on Mount Pleasant once the existing uses are stripped out.

3.1.4. Mount Pleasant is a 30mph single carriageway road. As such, junction visibility splays of 2.4m by 43m, based upon guidance set out in Manual for Streets, would be required. This appears to be achievable within existing parameters at the junction. There is an existing zebra crossing on Mount Pleasant approximately 100 metres to the west of the site access which would be retained. The proposed site access junction would adequately cater both for pedestrians and cyclists travelling to and from the site by the application of suitable improvements.

3.1.5. Overall, it is considered that a suitable site access junction could be designed to serve the proposed development both in design and road safety terms. Full capacity analysis of this junction would be undertaken during the preparation of a Transport Assessment to support a future planning application. Initial assessment indicates that the junction would have sufficient capacity to accommodate generated traffic during the busy periods.

3.1.6. Secondary access to the site is proposed via Woodside End. This is a residential road leading to the existing industrial estate via Woodside Avenue. It is proposed that this access would also cater for emergency vehicles, pedestrians and cyclists. In this regard it is considered that whilst parking occurs on the street along Woodside Avenue and Woodside End in the vicinity of the site, this does not constitute an obstruction to a fire appliance gaining access to the site. As such it is considered that this access would be suitable as a secondary access. Limited access (potentially to a small phase of the development) is also available via Woodside Place.
Travel Plan

3.1.7. The residential development will be supported by a Residential Travel Plan (TP). The Residential TP will include a range of measures that are designed to reduce single occupancy car travel, where practicable, and encourage travel by sustainable modes. The Travel Plan will include details of the on-site and/or surrounding car club and resident and occupier welcome packs.

Spine Road

3.1.8. The proposed development will provide the first section of a New Spine Road running east-west through the site. On completion, this will improve connections between Mount Pleasant and new development east of the site with Alperton Underground Station, which will be of benefit to both future residents of the site and existing residents/users of neighboring land uses;

Improved Pedestrian Routes / Linkages

3.1.9. The development will deliver improved pedestrian crossings and facilities where necessary to facilitate sustainable travel to the site on foot. This will benefit both existing residents of the area and future residents of the development.

Improved Cycle Route

3.1.10. It is additionally proposed to improve the canalside link by the provision of a new footway/cycleway from the spine road, which will further improve sustainable travel options and benefit existing users of the canalside.

Cycle Parking

3.1.11. The development will provide appropriate levels of cycle parking in line with current guidance facilitating greater travel to the site by way of cycling.

Car Parking

3.1.12. A reduction of employment use on site, new appropriate parking provisions and a focus on sustainable transport among new residents at the site, is anticipated to result in a reduction in present overspill parking and associated issues (subject to results of future parking surveys). This will be to the significant benefit of existing residents living adjacent to the site.

Wider Benefits

3.1.13. The delivery of new sustainable transport linkages to Alperton Station will deliver wider benefits for existing residents living in proximity to the site.
4. SUMMARY AND CONCLUSIONS

4.1.1. Our preliminary view is that the proposed redevelopment would not give rise to highways or transportation impacts that could not be mitigated, such that the residual environmental impact of the proposals would not be material.
1.0 INTRODUCTION

1.1 This Technical Note has been prepared to assess flood risk in relation to the proposed redevelopment of land at Mount Pleasant, Alperton, to identify any site constraints, and to suggest potential mitigation methods if required. Advice regarding surface water and foul water sewers is also provided.

1.2 The proposals include the change of use from industrial, to approximately 600 residential units arranged over a number of multiple storey blocks with some small commercial properties.

2.0 FLOODING

2.1 A review of the Environment Agency (EA) online flood mapping shows that the site is in Flood Zone 1 and therefore lies outside the floodplain. Flood Zone 1 is defined as land assessed as having less than 1 in 1,000 annual probability of flooding from rivers or the sea (<0.1%).

2.2 The flood mapping incorporates the Grand Union Canal, which would carry an equally low risk flooding.

2.3 The EA maps also show that the site is not at risk from flooding from reservoirs and is not located within a Groundwater Source Protection Zone or Groundwater Vulnerability Zone.

2.4 The National Planning Policy Framework requires a site specific Flood Risk Assessment for all proposed development sites over 1.0 ha. As the site is approximately 2.4 ha, a site specific Flood Risk Assessment will need to be completed.
2.5 The site drainage shall be designed to prevent flooding within the site or increasing the risk of flooding off-site.

3.0 SURFACE WATER DRAINAGE

3.1 British Geological Survey (BGS) online mapping indicates that the site is located on the London Clay Formation which is made up of clay, silt and sand. This type of material usually has a low infiltration rate.

3.2 As the ground conditions are unlikely to allow infiltration type discharge devices surface water runoff will need to be discharged elsewhere.

3.3 The London Plan: Spatial Development Strategy for Greater London, Greater London Authority (GLA), 2015 and the Alperton Master Plan SPD (2011) specify that development should aim to achieve discharge at the Greenfield run-off rate. The Greenfield run-off rates for this site have been estimated using the IH124 method as:

- 1 in 2.33 (Qbar) – 1.8 l/s
- 1 in 1 year – 1.6 l/s
- 1 in 30 year – 4.1 l/s
- 1 in 100 – 5.8 l/s

3.4 A minimum controlled flow of 5 l/s is generally achievable by current flow control devices therefore this will be used as the target discharge rate.

3.5 Assuming 50% of the site has impermeable surfaces, the required attenuation volume is estimated to be 870 m$^3$ to cater for the 1 in 100 year plus climate change (40%) event. This can be provided by utilising permeable paving with a granular base. Additional storage can be achieved by installing oversized pipes and/or underground tanks/cellular storage located under the highways and car parking areas.

3.6 The depth and extent of storage will be subject to the availability of an outfall to the public sewer system and the level of the outfall. It is possible that the site discharges to the Grand Union Canal but this is yet to be confirmed by survey and an equivalent degree of surface water attenuation would be required.

3.7 The inclusion of permeable paving will provide at-source treatment of pollutants which would increase water quality and be seen by the EA as a positive aspect of the drainage system.

3.8 This attenuation volume may be reduced by utilising living roofs as requested in the Alperton Master Plan.
4.0 FOUL WATER DRAINAGE

4.1 Foul sewers shall be designed in accordance with Sewers for Adoption (SFA) 7th Edition (Water Uk/WRc plc, 2012).

4.2 The foul sewers from the site will be designed to discharge into existing foul drainage infrastructure in the region.

4.3 The requirement for pumping stations will be considered during the planning stage to facilitate discharge to existing sewers. This is dependent on the existing sewer invert levels and the proposed development layout, including finished floor levels.

4.4 The downstream capacity of the existing infrastructure will need to be reviewed as part of the planning phase. The use of water efficient devices and grey water recycling would reduce the foul discharge rate and therefore the impact on the downstream infrastructure.

5.0 CONCLUSION

6.1 The assessment concludes that the proposed redevelopment would not give rise to flooding or drainage impacts that cannot be mitigated such that the residual environmental impact of the proposals would not be material.
PRELIMINARY DRAFT FOR CONSIDERATION

PROPOSED RESIDENTIAL DEVELOPMENT
ABBEY INDUSTRIAL ESTATE, ALPERTON, MIDDX

ASSESSMENT OF EXTERNAL NOISE
AND ITS EFFECT ON PROPOSED DEVELOPMENT

Zed Homes Ltd/Alperton Ltd
2nd Floor
Compass House
Pymnacles Close
Stanmore
HA7 4AF

14 January 2018

PWH/jas/1400R/4563

2 Theobald Court
Theobald Street
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Herts WD6 4RN

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PROPOSED RESIDENTIAL DEVELOPMENT
ABBEE INDUSTRIAL ESTATE, ALPERTON, MIDDX

ASSESSMENT OF EXTERNAL NOISE
AND ITS EFFECT ON PROPOSED DEVELOPMENT

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CONTENTS

1.00 INTRODUCTION

2.00 THE SITE & ITS LOCATION

3.00 THE PROPOSALS

4.00 NOISE ASSESSMENT PROCEDURES & STANDARDS
   National Planning Policy Framework
   Noise Policy Statement for England
   BS8233: 2014
   World Health Organisation (WHO)

5.00 PREDICTED NOISE LEVELS ON THE SITE

6.00 ASSESSMENT & NOISE MITIGATION
   Calculation

7.00 DEMOLITION & CONSTRUCTION NOISE

8.00 SUMMARY
   Site Location Plan
   Aerial View
   Street Views
   Appendix A - Calculation
1.00 **INTRODUCTION**

1.01 *W A Hines & Partners* have been appointed by *Zed Homes Ltd/Alperton Ltd* to carry out a general assessment of the potential effects of the existing environmental noise sources on the proposal to residentially develop the land now occupied by the *Abbey Industrial Estate, Alperton*. A similar assessment for the residential development of the site back in 2013 was submitted but the previous scheme was not progressed.

1.02 This new assessment, as before, considers the external noise impact on the general residential proposals and the general outline noise mitigation measures that would need to be incorporated into the scheme designs to meet current Government and Local Authority noise standards both internally (*habitable rooms*) and externally (*gardens/amenity space*). Some of the information obtained at the time of the previous scheme submission has been used and is shown.

2.00 **THE SITE & ITS LOCATION**

2.01 The proposed site is in mixed commercial and industrial use comprising a number of small businesses such as car repair and tyre fitting workshops and small manufacturing premises. The site is located generally within a residential area where through traffic movement is restricted, being limited to local residential need. The closest road carrying through traffic is *Mount Pleasant* to the east. The *Grand Union Canal* borders the south of the site. External noise, which has the potential to effect the proposed residential development therefore, is relatively low.

2.02 The location of the proposed residential development site is shown on the *Site Location Plan* and on an *Aerial View. Street Views* of the site from the various roads adjoining the site, shown in the 2013 report, are again shown.
3.00 THE PROPOSALS

3.01 The proposal is to clear the present buildings on the site and to provide a number of apartment blocks containing approximately 700 flats with access roads, car parking and amenity space. There will be a small proportion of commercial space. A new Link Road through the new estate will be provided. The expected route of the proposed Link Road is shown on the Route Plan.

4.00 NOISE ASSESSMENT PROCEDURES & STANDARDS

4.01 Where residential developments are proposed close to sources of either industrial or transport related noise which could finally effect the conditions within the development, it is appropriate to assess the site conditions by considering the guidance provided by:

- The National Planning Policy Framework (NPPF)
- The Noise Policy Statement for England (NPSE)
- BS8233:2014 “Guidance on sound insulation and noise reduction for Buildings”
- WHO Community Noise Guideline Values.

The content of the reference documents is discussed below.
National Planning Policy Framework

4.02 The National Planning Policy Framework (NPPF) was published on 27 March 2012 and came into force with immediate effect. The NPPF however, unlike the previous planning document on noise (PPG24) provides purely quantitative guidance.

4.03 Section 8 of the NPPF “Healthy Communities” makes no specific reference to environmental noise levels, only commenting in Section 11 on enhancing the natural environment, advising that the planning system should contribute to and enhance the natural and local environment by:

- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.
- Avoid noise 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 nearby land uses since they were established and
- Identify and protect areas of tranquillity that have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”
4.04 The Noise Policy Statement for England was published by the Department for Environment, Food and Rural Affairs (DEFRA) in March 2010. The complete document includes the Policy Statement itself and an Explanatory Note. Key concepts used in the NPSE are:

- **NOEL** or “no observed effect” meaning the level (of noise) below which no effect on health or quality of life can be detected;

- **LOAEL** or “lowest observed adverse effect” meaning the level (of noise) above which adverse effects on health and quality of life can be detected; and

- **SOAEL** or “significant observed adverse effect” meaning the level (of noise) above which significant adverse effects on health and quality of life can occur.

4.05 The first aim of the NPSE is: “Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of the policy on sustainable development”

The second aim of the NPSE is: “Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of the policy on sustainable development”

The third aim of the NPSE is: “Where possible, contribute to the improvement of health and quality of life through the effective management of environmental, neighbour and neighbourhood noise within the context of the policy on sustainable development”
4.06 The second aim refers to the situation which lies somewhere between LOAEL and SOAEL. However, Paragraph 2.3 of the Explanatory Note makes it clear that the approach to the minimisation of noise from environmental and related sources should be reasonable and balanced in stating:-

Furthermore, the broad aim of noise management has been to separate noise sources from sensitive noise receivers. Of course, taken in isolation and to a literal extreme, noise minimisation would mean no noise at all. In reality, although it has not always been stated, the aim has tended to be to minimise noise as far as reasonably practical. This concept can be found in the Environmental Protection Act 1990, where, in some circumstances, there is a defence of “practicable means” in summary statutory nuisance proceedings.

BS8233:2014

4.07 BS8233:2014 “Guidance on sound insulation and noise reduction for buildings” provides guidance on internal noise targets for residential accommodation which are set out in Table 1. These are considered applicable in this case.

**Table 1 - Indoor ambient noise levels for dwellings**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Location</th>
<th>07:00 to 23:00</th>
<th>23:00 to 07:00</th>
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<tbody>
<tr>
<td>Resting</td>
<td>Living Room</td>
<td>35 dB L(\text{Aeq}) (1 hr)</td>
<td></td>
</tr>
<tr>
<td>Dining</td>
<td>Dining Room</td>
<td>40 dB L(\text{Aeq}) (16 hr)</td>
<td></td>
</tr>
<tr>
<td>Sleeping</td>
<td>Bedroom</td>
<td>35 dB L(\text{Aeq}) (16 hr)</td>
<td>30 dB L(\text{Aeq}) (8 hr)</td>
</tr>
</tbody>
</table>

Where development is considered necessary or desirable, despite noise levels above WHO guidelines, the internal target may be relaxed up to 5 dB and reasonable internal levels still be achieved.
4.08 BS8233 also sets a target range of 50/55 dB $L_{Aeq}$ $(t)$ for noise levels in private gardens, although this is frequently difficult to achieve in urban locations and those close to significant transport related noise sources.

**World Health Organisation (WHO)**

4.09 Section 4.2.3 of *WHO Community Noise Guideline Values* discusses how electrophysiological and behavioural methods have demonstrated that both continuous and intermittent noise indoors lead to sleep disturbance. The more intense the background noise, the more disturbing is its effect on sleep. Measurable effects on sleep start at background noise levels of about 30 dB $L_{Aeq}$. Physiological effects include changes in the pattern of sleep stages, especially a reduction in the proportion of REM sleep. Subjective effects have also been identified, such as difficulty in falling asleep, perceived sleep quality, and adverse after-effects such as headache and tiredness.

4.10 Where noise is continuous, the noise level should not exceed 30 dB $L_{Aeq}$ indoors, if negative effects on sleep are to be avoided. When the noise is composed of a large proportion of low-frequency sounds a still lower guideline value is recommended, because low frequency noise (e.g. from ventilation systems) can disturb rest and sleep even at low sound pressure levels. It should be noted that the adverse effect of noise partly depends on the nature of the source.

4.11 If the noise is not continuous, $L_{AMax}$ is generally used to indicate the probability of noise induced awakenings. Effects have been observed at individual exposures of 45 dB $L_{AMax}$ or less. Consequently, it is important to limit the number of noise events exceeding 45 dB $L_{AMax}$. Therefore, noise limits should be based on a combination of values of 30/35 dB $L_{Aeq}$ and 45 dB $L_{AMax}$. 
5.00 PREDICTED NOISE LEVELS ON THE SITE

5.01 Prior to the submission of general scheme layouts it would be expected that the Local Planning Authority would require noise monitoring to be carried out on the site to determine the specific background noise levels to enable detailed noise mitigation measures to be established and incorporated into the built estate. However for the purpose of this assessment the prevailing noise climates have been determined by considering the potential noise sources likely to exist on the site when the site is cleared. That is the conditions on the site expected from the near transport related noise sources.

5.02 In this regard considering the general location of the site to such potential noise sources, only the traffic on Mount Pleasant to the west and possibly the through traffic on the proposed new Link Road need be considered, for on the other site boundaries at the present time, only closed residential streets exist. However, there are two residential schemes proposed in close proximity to the site, which have been submitted for outline planning permission (Northfields & Abbey Wharf). Although these two schemes would change the current built environment it is considered that, as they are both residential schemes, they would not materially change the present environmental noise conditions. The relative position and distance of the site to Heathrow Airport eliminates the potential risk of significant aircraft flyover noise.

5.03 With regard to the noise of traffic on the proposed development it is normal practice when considering traffic noise to make reference to the guidance notes set out in the Department of Transport Memorandum “Calculation of Road Traffic Noise.” This Memorandum (CRTN) describes the procedures for both calculating and measuring road traffic noise providing information on traffic flow noise levels and distance, angle of view and barrier reductions etc.
Considering the likely traffic flow along Mount Pleasant and the new Link Road therefore, both of which can be considered as typical suburban roads in London, from DfT Statistics, an average daily traffic flow of 5400 vehicles, would be predicted. Using this daily flow average, calculations can then be made, using the available charts in CRTN (Charts 3 - 7) to predict the noise level likely to be incident upon the nearest residential facades within the proposed development.

Although specific layouts for the proposed residential scheme have not been prepared, taking that it will be similar to the previous scheme for this site, it has been taken that the closest residential facades could be some 40M from the nearside carriageway of both roads Mount Pleasant/Link Road. Using the charts in CRTN therefore the expected incident noise level on these facades would be:

- Chart 3 - 5400 Average Daily Traffic Flow = 65.5 dB LA10 (18 hr)
- Chart 7 - 40M from facade = minus 5 dB = 60.5 dB LA10 (18 hr)
- Converting LA10 (18 hr) to LAeq (16 hr) for standard reference = minus 2 dB

Nearest facade condition = 58.5 dB LAeq (16 hr)

The DfT also provide differences between average day and night traffic flows which correspond to a noise level difference of 7 dB LAeq (day/night). The night time condition therefore would be expected to be 51.5 dB (8 hr). Should the residential facades be closer than 40M, say 20M, then the expected incident noise level would be 3 dB higher.

As traffic flows in all other surrounding roads would be far less and the majority of the proposed development is likely to be closer to these roads than to Mount Pleasant and the Link Road, the general noise conditions within the major part of the estate would be expected to be lower.
6.00 ASSESSMENT & NOISE MITIGATION

Basic Calculation

6.01 To ensure that acceptable internal noise conditions would be achieved within the “worst effected” dwellings, that is those having facades closest to and facing Mount Pleasant, and the Link Road against the noise predicted from the expected traffic flow, a calculation for the most critical rooms (bedrooms with windows to the roads), has been made. This calculation is shown in Appendix A.

6.02 The calculation has been made for a bedroom only not a living room as the required noise level in a living room is higher (35/40 dB LAeq). The calculation has also taken that the highest noise levels due to traffic would be during the daytime, represented by the general condition of 58.5 dB LAeq (16 hr) as derived by CRTN. As no definite room sizes are available a bedroom size with approximate dimensions of 3M x 4M x 2.4M and a window size of 1.5M x 1M have been taken as typical.

Noise Mitigation

6.03 Using these dimensions, it will be seen from Appendix A, taking the wall construction to be brick/block cavity, the roof to be standard tiles/insulation/plasterboard, windows to be well sealed and double glazed (4:12:4) and fresh air to be provided by standard trickle ventilators, that the internal condition at 33 dB LAeq within a bedroom close to and facing either Mount Pleasant or the Link Road, would be within the acceptable range recommended in BS8233:1999. Should the final scheme show that the nearest windows would be closer, then it would be a simple matter of providing improved double glazing and acoustic fresh air ventilation.
6.04 With regard to the internal noise conditions within rooms facing away from Mount Pleasant and in most parts of the proposed estate, as external noise levels incident upon the less exposed facades would be noticeably lower due to building screening and distance attenuation, the basic building envelope requirements would more than adequately to provide the required sound reduction values. Noise from traffic in the private garden and amenity space within the proposed development would also be controlled, as such space is at a distance from the surrounding roads and generally screened.

7.00 DEMOLITION/CONSTRUCTION NOISE

7.01 Noise during the demolition and construction phases both for this site and the adjoining sites proposed for residential development is likely to be high and would have a significant effect on the noise environments in the residential areas adjoining the sites. There should be close liaison between all Contractors and the Local Authority during the demolition and construction phases of the developments therefore and the guidance notes set out in British Standard BS5228 Part 1:2009 should be strictly followed.
8.00 SUMMARY

8.01 This outline assessment, which sets out the predicted effect of the prevailing environmental noise climates on the residential development proposed for the existing Abbey Industrial Estate in Alperton, has shown that the potential sources of environmental noise would expected to be low and that standard building envelope design can be used to ensure that acceptable internal environments are achieved.

8.02 There is however the potential for noise to effect the surrounding residential estates during the demolition/construction phases of the development and there must be close liaison between the Local Authority and all Contractors with the general requirements of current standards being applied.

8.03 Based on the assessed information therefore there is not likely to be any significant effect from or on the resultant development. As such this should not be a matter for an EIA but can be considered within the normal planning application process.

References

National Planning Policy Framework; Department for Communities and Local Government 2012.
Heathrow Airport Noise Contours
British Standard BS5228 Part 1:2009
Site Location Plan
Aerial View of Site
Street Views of Site

View of Site from Woodside End

View of Site from Woodside Place
NOTES:
1. PLEASE DO NOT SCALE FROM THIS DRAWING. IF IN DOUBT REFER TO THE PROJECT MANAGER FOR CLARIFICATION.
2. EXISTING FEATURES ARE SHOWN IN GREY
3. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED
4. THE DRAWING IS BASED ON LONDON BOROUGH OF BRENT ORDNANCE SURVEY BASE MAPPER DRAWING ALPERTON_LINES.DWG PROVIDED ON 21/10/16
5. A 3M WIDE UNSEGREGATED ROUTE SECTION FOR USE BY VEHICLES, CYCLES AND PEDESTRIANS. THIS MEETS THE "SUSTRANDESIGN MANUAL, HANDBOOK FOR CYCLE-FRIENDLY DESIGN, APRIL 2014, PAGE 23" DESIGN STANDARDS FOR UNSEGREGATED SHARED USE ROUTES
6. A 8M WIDE UNSEGREGATED ROUTE FOR USE BY VEHICLES, CYCLES AND PEDESTRIANS. THIS MEETS THE "SUSTRANDESIGN MANUAL, HANDBOOK FOR CYCLE-FRIENDLY DESIGN, APRIL 2014, PAGE 23" DESIGN STANDARDS FOR UNSEGREGATED SHARED USE ROUTES
7. ALL PROPOSED DESIGN IS INDICATIVE AND NOT ACTUAL ALLOCATIONS
8. PROPOSED SIGNAGE IS GUIDANCE TO SIMPLIFY JUNCTIONS BUT IS NOT INCLUDED
9. IT IS ASSUMED THAT BUFFER ZONES BETWEEN THE NEW ROADS AND EXISTING BUILDING LINES ARE NOT CONSIDERED FOR THE PURPOSE OF THIS DESIGN

KEY:
- PROPOSED ALPERTON HOUSING ZONE BOUNDARY
- PROPOSED SITE BOUNDARY
- PROPOSED KERBLINTS
- PROPOSED CURBED LINE
- PROPOSED PAVEMENT
- PROPOSED PAVING
- PROPOSED CURBLINE
- PROPOSED SHARED USE ROUTE FOR CYCLE AND PEDESTRIAN USE ONLY, CARRIAGEWAY AND FOOTWAY
- PROPOSED PAVING
- PROPOSED SHARED USE ROUTE FOR CYCLE AND PEDESTRIAN USE ONLY, CARRIAGEWAY AND FOOTWAY

ROUTE THROUGH PLOT A7 TO BE DELIVERED BY DEVELOPER

3M WIDE SHARED USE BY VEHICLES, PEDESTRIANS AND CYCLISTS ROUTE

JUNCTION TO BE RECONSTRUCTED
Predicted Traffic Noise Level in Bedroom close to principle roads