



**Richard Jackson**  
Engineering Consultants

## PHASE ONE DESK STUDY REPORT

Land off Brick Lane, Mepal, Cambridgeshire, CB6 2AH

Havebury Housing Partnership

March 2019

Project no: 49533

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## **1. Introduction**

Richard Jackson Ltd received an instruction to prepare a phase one desk study report for the proposed development of land located off Brick Lane, Mepal, Cambridgeshire, CB6 2AH.

The works were instructed by PlanSurv Ltd, on behalf of the Client Havebury Housing Partnership, and were carried out in accordance with our fee proposal of 26<sup>th</sup> October 2018, reference KO/49533.

This report has been prepared using historical Ordnance Survey maps and environmental and geological data provided by Groundsure Ltd. This information was supplemented by a site walkover undertaken on 4<sup>th</sup> February 2019.

The purpose of this report is to document the history and environmental setting of the site and surrounding area and to identify potential sources and receptors of contamination.

A brief assessment has also been made of the key geotechnical concerns at this site.

## **2. Limitations**

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## **3. Proposed Development**

The proposed development is to comprise the construction of 55no. new residential dwellings with associated access road, driveways, gardens and infrastructure.

A proposed development plan is presented in Appendix A.

## **4. Site Location and Description**

The site was located to the south of Brick Lane, Mepal, Cambridgeshire, CB6 2AH. The approximate Ordnance Survey grid reference for the centre of the site was TL 441 805. A site location plan is presented as Figure 1 in Appendix A. Photographs taken at the time of site walkover are presented in Appendix B.

The site was irregular in shape with maximum approximate dimensions of 180m east to west by 160m north to south. The site sloped gently downwards, from an approximate elevation of 8m aOD on the southern boundary, to 7m aOD on the northern boundary.

At the time of the walkover, the site comprised an open, agricultural field that was uncropped.

In the northwest corner, the site boundary comprised a wire mesh fence surrounding a compound with a pond. The remainder of the northern boundary comprised a row of trees with a ditch, Brick Lane and residential properties beyond. The ditch was observed to contain running water, flowing to the west.

The eastern/south-eastern boundaries of the site were formed by a hedgerow with occasional trees, with a ditch and Sutton Road beyond. To the east of Sutton Road were residential properties and to the south was an agricultural field.

The western boundary was also formed of a hedgerow with occasional trees. A ditch and the A142 trunk road were present beyond the boundary.

## 5. Desk Study Findings

The desk study has been compiled using historic Ordnance Survey maps and aerial photographs dating back to 1886, together with environmental and geological data provided by Groundsure Ltd. This information is presented in Appendix C.

### 5.1. Site History

Table 1, provides a summary of the history of the site and surrounding area. Generally, the potentially contaminative industrial land uses mentioned have been limited to those within 500m of the site boundary.

*Table 1: Summary of site history*

Ordnance Survey Map Date(s)	Scale(s)	On Site History	Surrounding Area History
1886 – 1902	1:2,500 / 1:10,560	The site is undeveloped and forms part of a larger field.	The site is bordered by roads to the immediate north and east. The majority of the surrounding area is undeveloped land with numerous drains. Small scale development associated with the village of Mepal exists approximately 200m to the northeast. Features of noted include: <ul style="list-style-type: none"> <li>Two small ponds are noted 130m and 220m to the north of the site;</li> <li>Gault hole, a flooded ground working, exists approximately 360m to the west.</li> </ul>
1925 – 1927	1:2,500 / 1:10,560	The site remains unchanged.	The surrounding areas appears largely unchanged.

Ordnance Survey Map Date(s)	Scale(s)	On Site History	Surrounding Area History
1950 - 1958	1:10,560	The site remains unchanged.	Features of note include: <ul style="list-style-type: none"> <li>Limited residential development has commenced along Brick Lane, immediately north of the site.</li> <li>By 1957 small scale residential development is noted approximately 230m to the east.</li> <li>An airfield, including runways, is listed approximately 280m to the south;</li> <li>Gault hole is now indicated to be a marsh.</li> </ul>
1979 - 1982	1:2,500 / 1:10,000	The site appears unchanged.	Features of note in the surrounding area include: <ul style="list-style-type: none"> <li>A pump house associated with the previously noted residential development to the north, now exists 45m to the north of the site;</li> <li>A bungalow is now shown immediately to the northeast;</li> <li>Residential development including an electricity sub-station is shown approximately 170m to the northeast;</li> <li>A recreation ground now exists 20m to the east;</li> <li>Structures are now present approximately 40m to the southeast.</li> </ul>
1987 - 1994	1:2,500 / 1:10,000	The site appears unchanged.	The A142 trunk road has been constructed immediately to the west of the site, with an associated access road immediately to the south. Other features of note in the surrounding area include: <ul style="list-style-type: none"> <li>Additional residential development approximately 150m to the northeast;</li> <li>One of the previously noted small ponds to the north is no</li> </ul>

Ordnance Survey Map Date(s)	Scale(s)	On Site History	Surrounding Area History
			longer shown and may have been infilled.
2002 - 2010	1:10,000	The site appears unchanged.	Features of note in the surrounding area include: <ul style="list-style-type: none"> <li>The other previously noted pond to the north is no longer shown and may have been infilled;</li> <li>New residential development exists approximately 160m to the north and 20m to the east.</li> </ul>
2014	1:10,000	The site remains unchanged comprising an undeveloped field.	The surrounding area is largely unchanged, comprising small scale predominantly residential development associated with Mepal to the north and east, undeveloped fields to the south, the A142 trunk road immediately to the west with Gault Hole, a possibly flooded excavation further to the west.

## 5.2. Geology & Geological Hazards

The British Geological Survey (BGS) 1:50,000 scale series mapping of the area Sheet 173, Ely, solid and drift edition (1980) indicates that the southern part of the site is underlain by the Kimmeridge Clay Formation, with the Ampthill Clay Formation beneath the northern part of the site.

Table 2, provide a summary of the risk of natural hazards occurring on-site.

*Table 2: Summary of Natural Hazards*

Potential Hazard	On-Site Risk
Shrinking or Swelling of Clay	Moderate
Landslides	Very Low
Ground Dissolution	Negligible
Compressible Ground	Negligible
Collapsible Rocks	Very Low
Running Sand	Negligible

BRE document 'Radon Guidance on Protective Measures for New Buildings', 2007 indicates the site to be in an area that is not affected by radon and therefore radon protection measures will not be required.

### 5.3. Hydrology & Hydrogeology

The underlying Ampthill and Kimmeridge Clay Formations are designated as unproductive strata in terms of their aquifer capabilities.

The Environment Agency defines unproductive strata as rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site is not located within a Source Protection Zone (SPZ) and no SPZs exist within 250m of the site.

There are no groundwater or surface water abstraction licences listed within 500m of the site.

Drains are indicated to run along the site's eastern, southern and western boundaries, as identified in the walkover.

The site is not located within an area listed to be at risk from flooding and no at-risk areas are listed within 250m of the site.

### 5.4. Background Soil Chemistry

The British Geological Survey (BGS) produces data and estimated background soil chemistry for a number of common elements, which reflect the average natural soil conditions of the area. It should be appreciated that this data is not specific to the site and reflects the average conditions of the area.

Table 3, provides a summary of the soil chemistry values for the site and for **comparative purposes provides the 'Suitable 4 Use Levels' (S4ULs) published by Land Quality Management (LQM) Ltd and the Chartered Institute of Environmental Health (CIEH), for a residential land use with plant uptake as reference criteria. In the absence of an S4UL for Lead, the 'Category 4 Screening Values (C4SL), derived by DEFRA in 2014 has been adopted.**

*Table 3: Soil Chemistry*

Element	Rural Soil Chemistry Concentration (mg/kg)	Screening Value (mg/kg)
Arsenic	15 – 25	37
Cadmium	<1.8	11
Chromium	60 – 90	910
Nickel	30 – 45	180
Lead	<100	200

### **5.5. Industrial Activities**

There are 2no. potentially contaminative current land uses listed within 250m of the site, these are associated with a pumping house approximately 60m to the north and an electricity substation approximately 195m to the northeast. These features were identified on the review of historical surveys in Section 5.1.

There are 20no. potentially contaminative historical land uses listed within 500m of the site. The closest entry refers to an unspecified pit located approximately 65m to the northeast on the 1886 survey. Other entries include an airfield to the south, cuttings to the south, an unspecified hole (likely to be Gault hole) to the west, electricity substations and a cemetery.

A single petrol or fuel site is listed within 500m of the site, at a location approximately 405m to the northeast. This site is listed as obsolete. There are no entries on the historical petrol and fuel sites database within 500m of the site.

A garage situated approximately 355m to the north is the only entry within 500m of the site on the historical garage and motor vehicle repair database. There are no entries on the historical tank database within 500m of the site.

Two electricity sub-stations are listed on the historical energy features database within 500m of the site. The closest entry relates to a substation approximately 190m to the northeast.

A single licenced discharge is listed within 500m of the site. The entry refers to unspecified agricultural discharges at a location approximately 435m to the north.

There are no Dangerous Substances Inventory Sites, Hazardous Substances Consents, Radioactive Substance Authorisations, List 1 or List 2 Dangerous Activities or Enforcements or IPC Authorisations located within 500m of the site.

### **5.6. Pollution**

There is a single Environment Agency (EA) recorded pollution incident listed within 500m of the site. The entry refers to an incident which occurred in 2002 at a location approximately 490m to the northeast. The incident involved oils and fuels (diesel) and was recorded to have a minor impact on land and no impact on air or water.

### **5.7. Mining, Current & Historical Ground Workings**

There are no records of mining, natural cavities or railway tunnels within 500m of the site.

A single entry for a current ground working is listed within 500m of the site at Mepal Airfield Quarry located approximately 320m to the southwest. Activities at this quarry are recorded to have ceased.

Two records for historical surface ground workings are listed within 500m of the site. The closest entry relates to an unspecified pit located approximately 65m to the northeast, this feature was not identified on the review of historical surveys. The other entry is associated with a cutting on a section of the A142 approximately 175m to the south.

#### **5.8. Infilled Features & Landfill**

There are 25no. entries for potentially infilled features located within 500m of the site. These entries include an unspecified pit to the northeast and ponds which may have been infilled on the basis of the review of historical surveys. Other entries include the cuttings associated with the A142 and Gault Hole to the west, which are believed to remain to present day and are therefore considered unlikely to have been infilled.

There are no current or historical landfill sites, waste treatment, transfer or disposal sites listed within 500m of the site.

#### **5.9. Environmentally Sensitive Areas**

No Sites of Special Scientific Interest (SSSI), Environmentally Sensitive Areas (ESAs), Local or National Nature Reserves or Country Parks are listed within 250m of the site.

### **6. Risk Assessment**

#### **6.1. Regulatory Regime**

Contaminated Land is defined under Section 78A (2) of the Environmental Protection Act 1990, Part IIA.

**The most recent revision to this legislation, 'The Contaminated Land (England) (Amendment) Regulations 2012 and the Contaminated Land Statutory Guidance for England 2012. Part IIA defines contaminated land as follows:**

**"Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land that:**

- a) Significant harm is being caused, or there is significant possibility of such harm being caused, or
- b) Significant Pollution of controlled waters is being or is likely to be caused."

Part IIA was introduced to England on 1<sup>st</sup> April 2000 and provides a risk-based approach to the identification and remediation of land where contamination poses an unacceptable risk to the environment or human health. **Part IIA of the Act introduces the concept of "pollutant linkages".** This is that in order for land to be considered to be contaminated, there must be a contaminant or pollutant source, an exposure pathway by which that contaminant reaches a receptor and the receptor or target itself. If one or

more of the elements is missing the land cannot be determined to be contaminated.

Guidance on how the statutory guidance detailed in the Act was to be **delivered was detailed in CLR11, 'Model Procedures for the Management of Contamination' (2004)**. The principles outlined in CLR11 are applied to decisions relating to planning applications.

In addition to the above, the National Planning Policy Framework (NPPF) encourages a positive and proactive approach to secure developments which improve an area socially, economically and environmentally. Consideration should be given to the NPPF during the development of a proposed scheme.

For planning purposes, the NPPF requires that the assessment of risk arising from contamination and the remediation requirements should be considered on the basis of the current environmental setting and land uses, as well as its proposed new use. The NPPF states that planning policies and decisions should ensure a site is suitable for its new end use and that subject to remediation, as a minimum, the land should not be capable of being determined as Contaminated land under Part 2A.

## **6.2. Potential Sources of Contamination**

### **6.2.1. On-Site**

The site has comprised an undeveloped open field throughout the historical period examined (1887-2019) and it is considered unlikely that there are on-site sources of contamination.

### **6.2.2. Off-Site**

A limited number of small ponds were recorded in the surrounding area, which may have been potentially infilled. These features may be considered as a potential source of contamination, however, given their small and remote nature together with the presence of cohesive, low permeability sub-soils it is considered unlikely that associated contamination will have migrated to affect the subject site.

Gault Hole, a former ground working, existed 360m west of the site from the first historical map examined (1887). This feature remains to present day as a potentially flooded excavation and is therefore considered unlikely to constitute a potential source of contamination to the site.

### **6.2.3. Summary**

No on or off-site sources of contamination have been identified.

## **6.3. Potential Receptors of Contamination**

Humans, including residential end users of the site, construction workers and the general public may be considered as receptors of contamination through ingestion, inhalation of through dermal contact.

Structures and drainage services are considered as potential receptors of contamination through direct contact with contaminated soils.

Flora is also considered as a potential receptor of contamination through uptake of contamination through the roots.

#### **6.4. Preliminary Conceptual Model & Risk Assessment**

As no potential sources of contamination were identified, there are no complete, plausible potential pollutant linkages by which the site may be affected by contamination.

On the basis of the above, a tabulated qualitative risk assessment has not been included.

### **7. Conclusions & Recommendations**

The site has comprised an undeveloped agricultural field throughout the examined historical period. The surrounding area has also remained largely undeveloped agricultural land with some small-scale residential development associated with Mepal recorded from the 1950s.

No potential on or off-site source of contamination were identified.

Several potential receptors of contamination were identified including residential end users, construction workers, flora, structures and services.

As no potential sources of contamination were identified at the site there were considered to be no plausible potential pollutant linkages active at the site. The risk of contamination at the site is therefore considered to be negligible.

The anticipated prevailing geology of the Kimmeridge and Ampthill Clay Formations is considered likely to be suitable for the adoption of conventional spread foundations. It should be appreciated that the Kimmeridge and Ampthill Clay Formations are typically susceptible to volume change due to the influence of trees and therefore, where proposed structures are influenced by trees, foundations may need to be deepened in accordance with the currently applicable NHBC Standards.

The anticipated ground conditions are not typically considered appropriate for the adoption of infiltration drainage due to their cohesive, low permeability nature.

It is recommended that intrusive ground investigations are undertaken at the site to confirm the prevailing ground conditions. In-situ and geotechnical laboratory testing should be undertaken to confirm the above assumptions. It would be prudent to undertake limited contamination testing on soil samples recovered as part of the intrusive investigations at the site, to confirm the anticipated absence of soil contamination.

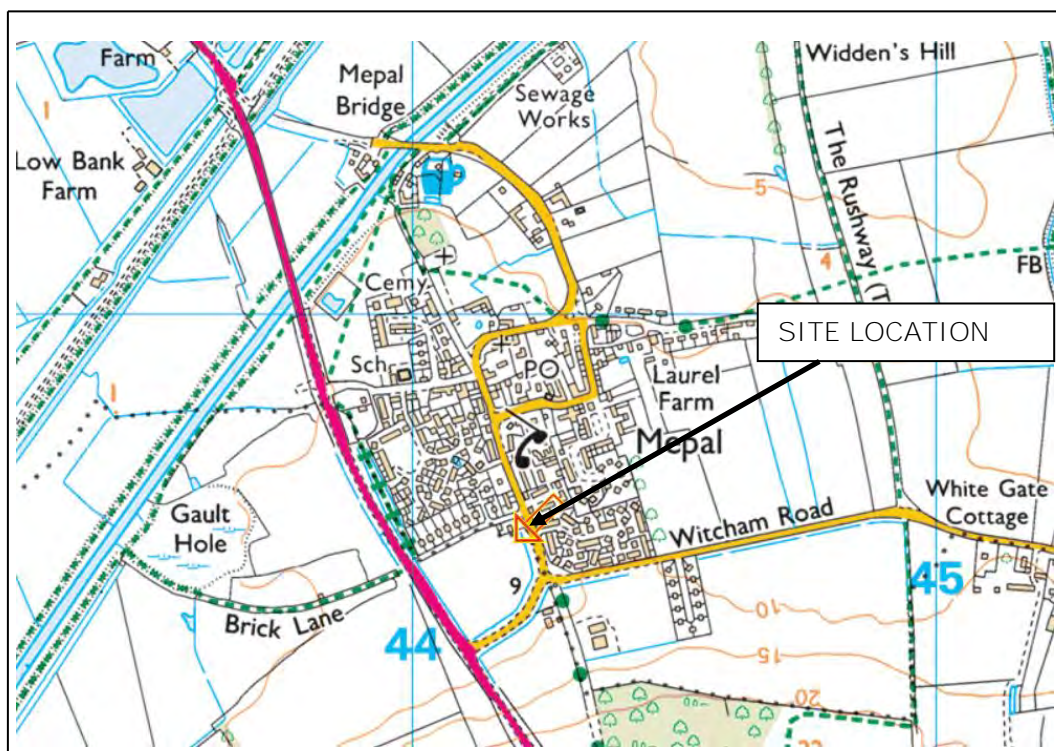
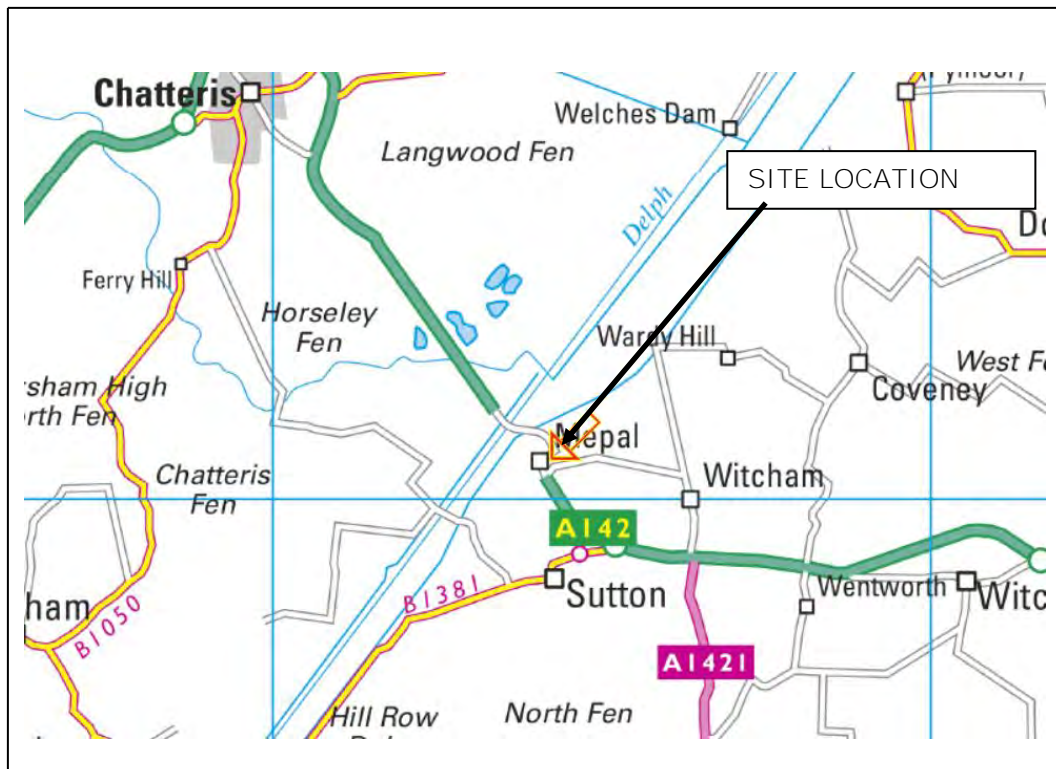
It should be appreciated that as part of the planning process it is a requirement for the Local Planning Authority (LPA) to be satisfied that there

is sufficient information about the condition of the land and its impacts and if required, viable remedial options.

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## Appendix A

### Figures & Drawings



REPRODUCED FROM ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE, © CROWN COPYRIGHT RICHARD JACKSON LTD – ACC No. 100002572

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE, ONLY FIGURED DIMENSIONS TO BE WORKED FROM.  
DISCREPANCIES MUST BE REPORTED TO THE DESIGN OFFICE BEFORE PROCEEDING.

FORM NEW ROAD ACCESS CCC  
STANDARDS FORM CULVERT TO  
EXISTING DITCH CONNECTING TO  
EXISTING PIPE TO ADJACENT  
DWELLINGS DRIVEWAY CROSSING

FORM NEW FOOTPATH TO  
FRONTAGE OF PLOT 1 AND  
FORM CROSSING TO FOOTPATH  
ON OPPOSITE SIDE OF BRICK  
LANE WITH TACTILE PAVING TO  
EITHER SIDE OF THE ROAD

FORM NEW FOOTPATH TO  
BRICK LANE FRONTAGE. HEDGE  
REMOVED TO SUIT WITH  
CULVERT TO EXISTING DITCH  
CONNECTING TO EXISTING  
HEAD WALL AT EITHER END

600mm Knee rail fence to boundary  
between POS & existing dwelling



Plot Schedule			
HOUSE TYPE CODE	HOUSE TYPE	PLOT No.	Qty
1BHT/01	1 Bed House 58m2 (Semi-Detached)	29-32, 37&38	6
2BHT/01	2 Bed House 79m2 (Semi-Detached)	3,4,12-15	6
2BHT/02	2 Bed House 79m2 (Detached)	36,39,43	3
2BHT/03	2 Bed House 79m2 (Semi-Detached)	27,28	2
2BHT/05	2 Bed House 70 m2 (Semi-Detached & Terrace)	17,18,23-26	6
3BHT/01	3 Bed House 93 m2 (Semi-Detached)	5,6,10,11,33&34	6
3BHT/03	3 Bed House 94.2m2 (Detached)	9,16,35,40,46	5
3BHT/02	3 Bed House 94.9m2 (Detached)	41	1
3BHT/05	3 Bed House 88.5m2 (Semi-Detached)	19-22	4
4BHT/01	4 Bed House 113.1m2 (Detached)	45&48	2
4BHT/02	4 Bed House 112.9m2 (Detached)	42&47	2
4BHT/03	4 Bed House 109.3m2 (Detached)	44	1
5BHT/01	5 Bed House 128.9m2 (Detached)	49	1
2BBT/01	2 Bed Bugalow 61.7m2 (Semi-Detached)	7&8, 50&51	4
2BBT/02	2 Bed Bugalow 70m2 (Detached)	2	1
3BBT/01	3 Bed Bugalow 74m2 (Detached)	1,52,53,54 & 55	5
			55

KEY

- 1.2m Estate rail fence
- 1.8m closeboard fencing with concrete posts
- 1.8m brick wall
- 1.8m gate with galvanized latch and shoot bolt (or similar)
- Indicative landscaping please refer to landscape architects scheme for details
- Visitor parking spaces
- Location of refuse bin communal collection point
- Minimum 4m2 (suggested 2.4x1.8m) SW timber shed with lockable door and window and concrete base with cycle security lock fixings
- Indicative Proposed Ground Floor Slab Levels (To be confirmed by project engineer)
- Location of refuse bins screened by rear garden closeboard fence (each bin placed on 600x600 paving slab)
- Minimum 6m long washing line with concrete base

DRAWING REVISIONS	
Rev	Details
A	21-03-19 Scheme up-dated
B	01-07-19 Scheme up-dated
C	17-07-19 Scheme up-dated
D	28-08-19 Drive hatch added to plot 2&3, sheds omitted plots 11&12, boundary adjusted between plots 10&11, additional gate omitted plot 18 and additional path from parked added to plot 50
E	29-08-19 Area of landscaping omitted adjacent to existing bungalow on brick lane
F	30-08-19 Red title line omitted from area of landscaping omitted adjacent to existing bungalow on brick lane
G	11-09-19 Up-dated to suit house type up-dates
H	07-10-19 Patio & rear paths added
J	01-11-19 Amended to suit house type up-dates
K	21-11-19 Rotary dryers added
L	25-11-19 Boundary fencing up-dated to plots 8,16,38,47&49

**MWS Architectural Ltd**  
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Project:  
**PROPOSED DEVELOPMENT  
AT LAND OF BRICK LANE & SUTTON  
ROAD MEPAL**

Drawing:  
**Proposed Site Plan**

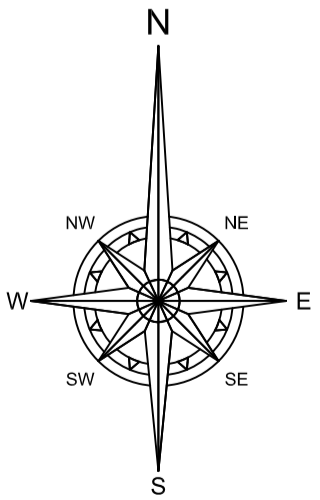
Drawing File Location:  
DRAWING-FILE-LOCATION

Drawn by: MWS      Scale: 1:500@A1      Date: 07-01-19

This drawing is © copyright protected.  
All dimensions to be checked on site.  
Any discrepancies to be reported to  
the Architect immediately.  
This drawing should not be scaled.

Drawing no:  
**355/P/01**

Revision  
**L**



## Appendix B

### Site Photographs



Photo 1 View of site facing south (Sutton Road is beyond the hedge on the left).



Photo 2 View of site facing north, showing Brick Lane and residential properties beyond.



Photo 3 View of site along eastern boundary.



Photo 4 Compound and pond immediately off-site to the northwest.



Photo 5 Ditch and trees running between site boundary and Brick Lane.