DS 9285

GATEWAY HOUSE

PICCADILLY SOUTH

MANCHESTER

PHASE 1

DESK STUDY

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FOR
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PICCADILLY SOUTH
MANCHESTER

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PHASE 1
DESK STUDY
FOR GATEWAY HOUSE
PICCADILLY SOUTH
MANCHESTER

1. INTRODUCTION

1.1. Commission

Northern Foundations Limited were commissioned by Booth King Partnership Ltd (on behalf of Realty Estates Limited) to undertake a 'Desk Study' Report with regard to the construction of a new development at Gateway House, Piccadilly South, Manchester. At the time of the report, the proposed development was for an extension to existing building complex. The development would include the construction of a new commercial building complex with an eight-storey structure to the front of the site, with single storey units to the rear. The external area would be mainly for vehicle access, with the remaining areas paved; no landscaping was proposed for the site. The attached Proposed Site Plan (Figure 3) shows details for the proposed development for the site.

The brief for the 'Desk Study' was limited to the targeted investigation of the area of proposed development, to provide information for the new development works presently proposed for the site. This 'Desk Study' would involve the collection and assessment of available information regarding the environmental setting and history of the site, including previous site usage and that of the immediate surrounding areas; it would include historical maps, information regarding Environment Agency and Local Authority records, landfill, geological setting, groundwater, flooding, industrial land use and sensitive land use.

1.2. Site Location

The site is situated in the South Piccadilly district of Manchester, to the east of Manchester City centre. The attached Site Location Map (Figure 1) indicates the general location of the site.

The area of investigation was located directly to the north west of Manchester Piccadilly Railway Station. The site was enclosed by London Road (A6) to the west boundary, Store Street to south boundary, and Ducie Street the north boundary.

The approximate Ordnance Survey grid reference for the site is 384710, 398000.

2. SITE DESCRIPTION (WALK-OVER SURVEY)

At the time of the 'Walk-over Survey', the central section of the site was occupied by Gateway House, which was an eight to nine storey commercial building. To the front of this building lay the main vehicle and pedestrian access to Manchester Piccadilly Station (Station Approach). Car parking areas and a vehicle access road occupied most of the area to the rear of Gateway House; an Avis Car Hire business was located in the single-storey buildings occupying the north east corner of the site. The main site access was from Ducie Street, with vehicle and pedestrian access to the front and rear of the Gateway House building. Below these surface features, a basement complex occupied most of the site area; the main access to the basement area was from Store Street.

At the time of the survey, Gateway House appeared to be in use for various commercial and retail purposes, the noted uses included cafés (Café Nero at the frontage with Ducie Street), 'take away' type outlets including Subway, a news agents, a book shop, a leather shop, the Money Shop, Coop food shop and Greggs, a bakers shop; the upper floors appeared to have been in use as general office space (local anecdotal information suggested that the upper floor were not in use at this time). To the front of the building (the west section of the site), the vehicle access road was cover in tarmac and the pedestrian pavements were generally covered by concrete flags. Buses and taxis were noted using this access.

The rear of Gateway House (the east section of the site) was mainly set out to car parking areas, with an access road which served the car parks and the rear of the building. This area was almost entirely covered by tarmac, with occasional areas of concrete. Several 'wheelie bins' were noted to the rear of the Gateway House businesses. Single-storey buildings occupied the north corner of the site; these were in use as an Avis Car Hire business. The forecourt of this area had a number of inspection chamber covers and resembled a service station layout, and appeared to have one fuel pump in operation; it is likely that this building was formerly a fuel service station, and it is likely that there have been underground tanks in this area; some of these may still be in location.

At the time of this survey, the basement area was in use as a car park and was accessed from Store Street; we understand that 'The Warehouse Project' nightclub occasionally uses this car park as a temporary venue. The structure to the basement

car park was mainly brickwork, often formed into brick arches, but more recent concrete and steel supporting columns and walls were also noted. Surface water down pipes were noted in some of the walls which were in disrepair and open, causing a small amount of water to leak onto the basement floor. The floor of the basement area was mainly concrete with occasional linear drains and drainage gullies noted; manhole covers were noted suggesting that there would be a sub-floor drainage system in this area.

A general appraisal of the levels in the surface external areas, indicated a fall in levels in a generally north north westerly direction; the survey drawing indicated an overall difference in levels of approximately 4.57m to the front of Gateway House, and approximately 3.7m to the rear of Gateway House. Drainage gullies were noted in both of the access roadways. It was difficult to appraise the underlying natural ground levels as the site was covered by structures, but a fall in the levels along the adjacent London Road was noted in a generally south south easterly direction; the survey drawing indicated an overall difference in levels of approximately 4.3m along this west boundary of the site. In the basement area, the survey drawing indicated a gradual fall in the levels in a generally south south easterly direction and an overall difference in levels of approximately 1.7m in this section of the site.

The north boundary of the site was formed by Ducie Street. The plot immediately to the north of the site was occupied by a high-rise building, 111 Piccadilly, which appeared to be in use as serviced offices; an associated car park was located to the east. The Rochdale Canal passed below this building, London Road and the Malmaison Hotel, to the north of the site. A vacant plot occupied the land directly to the north east of the site, and the 'The Place' Hotel was located beyond this approximately 18m north west of the site. To the south of the vacant lot was an embankment planted with small shrubs/trees, which bordered onto to a car park, which was at a lower level and occupied the land to the east of the site; a mainly brick elevation defined the east boundary of the site in this position.

Store Street formed the south boundary of the site, and passed below the site; the upper levels appeared to be supported on an array of steel beams, and both sides of Store Street consisted of brick walls, forming a tunnel/bridge below the site. Directly to the south of the site lay the complex of buildings forming Piccadilly Station Railway Station. The Metrolink Tramway passed close to the south west corner of the site, and approximately 13m to the south west of the site. The buildings to the west of London Road were generally modern multi-story buildings which appeared to be in use as

hotels, apartments and office blocks; a modern pedestrian bridge linked this area to Station Approach. To the north of the bridge, a small paved area passed onto the site area in the form of a pavement widening from London Road; this area contained three large mature trees and three smaller trees; the east boundary of this area was formed by the wall to the basement area.

The attached Site Plan (Figure 2) indicates the area of investigation and its immediate setting. Site photographs taken at the time of the 'Walk-over Survey' are presented in Figure 4.

3. HISTORICAL RECORDS

Historical map extracts have been obtained from the Landmark Information Group Limited, to try to identify possible hazards for the re-development of the site and its proposed uses. The Ordnance Survey maps are appended to this document in Appendix 2 and should be read in conjunction with this report. The following comprises only a brief summary of this data:

3.1. Landmark Historical Records

1848 Map (1:10560)

The coverage of the 1:10560 scale 1848 map showed the urban development of Manchester over most of the map area. The site was indicated on the east side of the city centre and positioned in an area of generally developed land. Some development was indicated in the site area, and London Road Station (railway) was indicated approximately 16m south west of the site.

A canal arm appeared to pass onto the site, and the site was located approximately 263m north of the River Medlock.

1851 Town Plan (1:1056)

The 1:1056 scale 1851 Town Plan provided more detail to the mapped area and showed the area of the site in a fully developed section of land. Two canal waterways passed onto the site; in the north section of the site, an arm of the Rochdale Canal formed part of the London Road Wharfs (Lime Coal and Ice), and the Wharf area (Lime Coal and Iron) of the Manchester, Ashton-under-Lyne, Oldham and Stockport Canal Basin passed onto the central section of the site. Ducie Street passed through the northern section of the site directly to the south of the London Road Wharfs; directly to the south of Ducie Street, an Iron Warehouse was located in the centre of the site. A

Coal and Lime Wharf was labelled in the west section of the site, and The North Staffordshire Railway Company's Wharf and Store was located in the east section of the site. An access road leading to London Road Station was positioned along the west boundary. The south east section of the site was occupied by The Manchester Sheffield and Lincolnshire Railway Companies General Stores.

The coverage of the 1:1056 scale Town Plan showed development across the whole map area. A number of industrial/ commercial developments were indicated within 100m of the site: a Corn and Flour Store approximately 21m south east of the site, Shepley Street Mill (Cotton) approximately 25m to the south west, a Milled Lead and Patent Pipe Manufactory approximately 30m to the north west, Piccadilly Mill (Cotton) approximately 41m to the north west, a Timber Yard approximately 77m to the west, London Road Mill (Cotton) approximately 81m to the west, Iron Warehouse approximately 83m to the north east, and Store Street Iron Works approximately 87m east of the site.

Additional industrial/commercial development indicated in a 250m radius included: St George's Foundry (Iron & Brass) located approximately 141m to the south west of the site, Minshull Street Iron Works approximately 179m west of the site, a Candle Wick Manufactory approximately 196m north of the site, Junction Lead Mills located approximately 212m to the north east of the site, a Brick Croft approximately 221m to the east, and Hope Foundry (Iron) shown approximately 229m north of the site. In addition, a number of other industrial/commercial developments were indicated within 250m of the site, please refer to the historical maps presented in Appendix 2.

1891 Town Plan (1:500)

The 1891 Town Plan indicated that the whole area of the site had been fully redeveloped in the period after the previous survey. The wharfs and canals had been removed, as had the other buildings and warehouses. New rail sidings continued from the south east lines, and onto the site area, passing into a Goods Shed (L&NWR), which occupied the north east section of the site. Access roads to the Goods Yard and London Road Station passed adjacent to the west boundary of the site.

The coverage of the 1:500 scale map showed generally developed urban use, including residential, commercial and industrial use across the map area. Additional industrial/commercial developments were indicated within 100m of the site; these included: London Road Station had been redeveloped approximately 16m south east of the site, a Goods Station (MS&LR) was indicated approximately 19m north east of the

site, a Grain Store was shown approximately 21m south east of the site, and Dale Street Wharf was indicated approximately 98m north of the site.

Additional industrial/commercial development indicated in a 200m radius included: a Timber Yard shown approximately 159m east of the site, a Tin Works approximately 178m to the north east, and a Sewing Machine Manufactory was indicated approximately 197m north of the site.

The nearest surface water feature appeared to be the Rochdale Canal which passed approximately 27m north of the site.

1892-93 Map (1:2500)

The 1892-93 Ordnance Survey maps showed the area of the property and the immediate area around the site in similar conditions to those of the previous map.

1908 Map (1:2500)

The 1908 Ordnance Survey maps showed the area of the property and the immediate area around the site in similar conditions to those of the previous maps. Additional industrial/commercial development included the Piccadilly Printing Works which was indicated approximately 53m west of the site, and the Chief Fire Engine Station which was shown approximately 73m south of the site.

1922-33 Maps (1:2500)

The site area shown on these surveys was generally similar to that of the previous map.

1948 Map (1:1250)

The 1948 Ordnance Survey map showed the area of the property and the immediate area around the site in similar conditions to those of the previous maps.

1950-54 Maps (1:2500 and Source 1:1250)

The site area shown on these surveys was generally similar to that of the previous map. A Clothing Factory was indicated approximately 46m north of the site. Two warehouses were indicated to the south west of the site; the nearest was indicated approximately 25m to the south west.

1964-65 Maps (1:2500 and Source 1:1250)

The site area shown on these surveys was generally similar to that of the previous maps. London Road Station had been renamed Piccadilly Station, and its entrance had been slightly altered approximately 25m south of the site.

1969-71 Maps (1:2500 and Source 1:1250)

The 1969-71 Ordnance Survey maps indicated that the whole area of the site had been fully redeveloped since the previous survey. Gateway House and the Station Approach access road had been constructed by the time of these surveys, and the layout of the site area shown was generally similar to that of the present day. The entrance area to Piccadilly Station had been slightly altered approximately 25m south of the site. By the time of the 1971 survey, a Garage was indicated in the north east corner of the site, and some redevelopment appeared to have taken place to the Goods Shed on the adjacent site (approximately 17m north east), as the size of the building had been reduced; a car park was indicated in the area previously occupied by railway sidings approximately 14m south east of the site. The building labelled Rodwell Tower (and later as 111 Piccadilly) had been constructed approximately 23m north of the site.

1985-90 Maps (1:2500 and Source 1:1250)

The map dated 1985 indicated a car park on the plot directly adjacent to the east boundary of the site, and by 1990 an additional car park was shown approximately 23m north west of the site. The map sections dated 1985-90 showed the site area similar to the previous map.

1992-97 Maps (Source 1:1250)

The condition of the site shown on the 1992 to 1996 surveys was generally similar to that of the previous maps. The Metrolink Tramway had been constructed by the time of the 1992 survey and was shown passing approximately 14m south west of the site.

Recent Maps and Aerial Pictures

With reference to recent maps and aerial pictures, the general site area shown appeared to be similar to that of the present day. Redevelopment had taken place to the plot directly adjacent to the east boundary of the site; it appears that the ground levels on this site had been reduced to allow access from Store Street to a new car park area, and retaining walls had been introduced to the north west boundary of this area. The embankment presently adjacent to the north east site boundary was probably formed during these works. In addition, significant reconstruction appears to have taken place to the area on the west side of London Road and directly opposite the site, with the

construction of new multi-storey buildings, and the pedestrian link bridge constructed across London Road to the site. Piccadilly Station also seemed to have been redeveloped/refurbished in this period, and it occupied a new outline on the most recent map.

Further maps to differing scales were also examined and were in general agreement with the above. Please refer to the historical maps for further historical details.

3.2. Historical Building Plans

In order to clarify details of the buildings shown occupying the site, historical building plans were obtained. The 1889 and 1962 Historical Building Plans are presented in Appendix 3 (the 1962 plan does not cover the site footprint). In addition to the uses of the buildings, the historical building plans contain some construction details and approximate layout of walls.

The 1889 Historical Building Plan indicated the site in use as a Goods Yard and Warehouse. The warehouse building was indicated in the north east section of the site and was labelled as the Store Street Warehouse L&NWRY (presumably London and North West Railway); the railway tracks appeared to pass into the building and offices were located in the north west corner of the building. Station approach was indicated passing across the site adjacent to the west boundary, and to the east of this, an access road to the Goods Yard was indicted.

Some of the basement structure was indicated with some walls shown in a similar position to the present day basement. The plan indicated that the basement was in use as a storage area at this time, and labels for Grain, Beer and Beer Cellar were noted.

A further Goods Yard and Warehouse was indicated directly to the north east of the site with associated offices shown directly adjacent to the north east boundary wall. A Store Warehouse was indicated to the north of Store Street and directly adjacent to the east site boundary. The Rochdale Canal was shown passing approximately 27m north of the site as it passed below London Road and the Union Warehouse.

4. LANDMARK ENVIROCHECK INFORMATION

An Envirocheck Report has been obtained from the Landmark Information Group Limited, to try to identify possible hazards for the re-development of the site and its proposed uses. The documentation supplied in the Envirocheck Report should be read in conjunction with this report and is appended to this document in Appendix 4. The

following comprises only a brief summary of this data:

4.1. Database Maps

The 1:10,000 scale and 1:2500 scale Site Sensitivity Maps showed key features in the vicinity of the site. There were sixteen data entries indicated within 250m of the site boundaries, plus thirty-nine Contemporary Trade Directory entries. The following is a brief summary of the Site Sensitivity information:

- **Nearest Surface Water Feature and River Quality:**
  The nearest Surface Water Feature was indicated as the Rochdale Canal, located approximately 41m to the north west of the site. The River Medlock was shown approximately 108m to the south east of the site.

  The River Quality data listed in the Envirocheck Survey for the Rochdale Canal was indicated as River Quality B (good) in 2000. The River Quality data listed for the Ashton Canal (approximately 156m north east) was indicated as River Quality C (fairly good) in 2000, and the River Quality data listed for the River Medlock (approximately 514m south) was indicated as River Quality E (poor) in 2000. The River Quality Chemistry data listed between 1990 and 2009 for the River Medlock (970m east) was indicated as varying between GQA Grade E (poor) and GQA Grade B (good). Further and more detailed information regarding river quality was listed in the Envirocheck Survey.

- **Water Abstractions, Discharge and Pollution:** There were no Water Abstractions listed within 350m of the site. The nearest Water Abstraction was indicated as a groundwater source from boreholes at Origin Developments, Manchester operated by West Contracting for other industrial/commercial/public services: non evaporative cooling, and was estimated to be 373m south west of the site. The nearest abstraction for drinking water breweries/wine was listed at Strangeways Brewery, Manchester; it was operated by Interbrew UK Ltd and was estimated to be 1416m north west of the site.

  There were three Pollution Incidents to Controlled Waters listed within 250m of the site. The nearest incident was given Category 1 – Major Incident status for an unknown sewage from a private sewerage system into a tributary of the River Mersey in 1996, and was positioned approximately 28m south of the site. The other two incidents within 250m of the site were both given a Category 3 – Minor Incident status for paints/dyes into the Ashton Canal, and Oils into drains

and were positioned 156m to the east and 159m to the west of the site respectively. Further and more detailed information regarding Pollution Incidents was listed in the Envirocheck Survey.

Seven Discharge Consent locations were indicated within the 250m of the site. These were all listed for 'Public Sewage: storm sewage overflow' by United Utilities Water PLC; the nearest was positioned approximately 83m to the west of the site.

- **Contaminated Land Register Entries:** None were indicated by the Envirocheck Survey within 1000m of the site.

- **Pollution Prevention and Control:** One Local Authority Pollution Prevention and Control entry was indicated by the Envirocheck Survey within 250m of the site. This was listed for waste oil burners at Central Taxi Spares Ltd, Chapeltown Street, Ancoats and was estimated to be 218m east of the site. A Local Authority Pollution Prevention and Control Enforcement was listed for Air Pollution Control (failure to update furnace emission records) at Store Street, Manchester, and was estimated to be 80m north east of the site. Further and more detailed information regarding Local Authority/Integrated Pollution Prevention and Control was listed in the Envirocheck Survey.

- **Waste:** The Envirocheck database survey indicated no recorded/registered landfill sites within 750m of the site. The nearest was indicated as a Registered Landfill Site operate by Peter Birse Ltd at Palmerston Street, Ardwick; the closest point for this landfill was estimated to be 784m east of the site; the specified deposited waste included inert and industrial waste, ceramic materials, construction industry wastes, glass, metal, similar non leachate forming materials, soil lay, sand, stone, brick, concrete, slate and was dated August 1986. A Licensed Waste Management Facility was listed at Hoyle Street, Ardwick, 638m south east of the site, with a site category for Metal Recycling Sites (mixed). Please refer to the Envirocheck Survey for the other information regarding Registered and Licensed Waste entries.

- **Hazardous Substances:** the Envirocheck Survey listed no entries for Hazardous Substances within 1000m of the site.

- **Fuel Station Entries:** No Fuel Station Entries were indicated by the Envirocheck Survey within 500m of the site. The nearest was positioned at Blossom Motor Company, Gun Street, Ancoats and was estimated to be 525m north of the site; it was given an obsolete status.

- **Contemporary Trade Entries:** Thirty nine Contemporary Trade Entries were listed within 250m of the site, including two in Gateway House; Greater Manchester Electronic Booking for Hospitals, and The Leather Shop for Leather Garments & Products. The following is a brief summary of the nearest Contemporary Trade Entries:

Name	Type	Location	Distance	Direction
Greater Manchester Electronic Booking	Hospitals	Gateway House	0m	
The Leather Shop	Leather Garments & Products	Gateway House	12m	SE
A & B Engineering	Engineering Machine Services	5 Piccadilly Pl,	33m	W
G A Armstrong	Office Furniture & Equipment	81, Dale Street,	58m	N
Balfour Beatty Rail Signaling Ltd	Railways	111 Piccadilly,	63m	NW
Piccadilly Dry Cleaners	Dry Cleaners	Unit B, Rodwell Tower, 111 Piccadilly	63m	NW
Network Rail	Railways	First-Third Floor, Rail House, Store Street,	64m	E
Presbar Diecastings Ltd	Foundry Equipment & Supplies	Store Street,	80m	NE
Central Motor Services	Garage Services	26-32, Store Street	135	E

Please refer to the Envirocheck Survey for the other database entries.

There were other entries listed within a 1000m radius of the site and indicated on the database maps; please refer to the 'Envirocheck Survey' for these other database entries.

4.2. Groundwater Vulnerability and Flooding

The Envirocheck Report assigns the site a Bedrock Aquifer Designation of a 'Principle Aquifer'. 'Principle Aquifers' are layers of rock or Drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

The Envirocheck Report assigns a designation of 'Unproductive Strata' for the

Superficial Aquifer; 'Unproductive Strata' are rock layers or Drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site has a soil classification of high leaching potential (U), based on land being located on restored mineral workings and located in urban areas and based on fewer observations; a worst case vulnerability (H) is assumed until proved otherwise. Low permeability Drift deposits were predicted at the surface.

The Envirocheck survey indicated that the site is over a Groundwater Source Protection Zone III (total catchment zone). The nearest Groundwater Source Protection Zone I (inner protection zone) was positioned at its nearest point approximately 1.17km north west of the site.

The Envirocheck survey indicated that the site is not in an area of predicted flooding from rivers; the nearest point of predicted flooding was noted to be approximately 375m south east of the site.

4.3. Sensitive Land Uses

The site is not located within a noted Environmentally Sensitive Area.

4.4. BGS Recorded Mineral Sites

No BGS Recorded Mineral Sites were listed within 1000m of the site.

4.5. Coal Mining Affected Areas

The Envirocheck Survey indicated that the site is located in an area which may be affected by coal mining. The survey indicated that the site is located in an area of inconclusive coal mining instability (by Ove Arup & Partners). It is recommended that a coal mining report be obtained from the coal authority.

4.6. Man-made Mining Cavities

A shaft entry to sandstone workings was indicated 850 south east of the site.

4.7. Ground Stability Hazards

The Envirocheck Survey stated 'very low' to 'no hazard' risk for the listed ground stability hazards on the site and in the vicinity of the site.

4.8. Radon

The report stated that the site is not in a radon affected area, as less than 1% of homes are above the 'action level'. The National Geoscience Information Service provided by the British Geological Survey indicates that in these cases, no radon protection measures are necessary in the construction of new dwellings or extensions.

5. DOCUMENTED GEOLOGY

5.1. Drift and Solid Geology

The Geological Survey map for this area (Sheet 85 Manchester) showed the following:

Drift: Glacial Boulder Clay (Till, Devensian – Diamicton) north east section
No Drift shown on the south west section of the site

Solid: Bunter Sandstone (Sherwood Sandstone Group)

The nearest fault, the Ardwick Fault, was shown as a conjectured line approximately 83m to the north east of the site, and tending in an approximate north west to south east direction, with the down throw of the fault to the north east side.

6. INITIAL CONCEPTUAL SITE MODEL

Based on the information obtained from the data collection and 'Walk-over Survey', the following conceptual site model may be developed:

6.1. Potential Contaminant Sources

The results of the 'Desk Study' would suggest a potential for the site to have experienced ground contamination. There are considered to be a number of possible contaminant sources, which may include:

Historical On-site Contamination

This would represent material associated with previous uses located on or directly adjacent to the site boundaries. The site came into use prior to 1848, and has been in continued use since this date. The available documented information indicated that the site area appears to have been used for commercial/industrial use as canal wharf areas with associated warehouses, railway goods yard, with sidings and associated warehouse, commercial trades and businesses, garage services, and includes use as car parks. There may be a short length of infilled canal arm in the north section of the site. Potential contamination risks may exist from these previous uses, and may include infilled materials and sediments in the canal area, hydrocarbons (lubricants and fuel)

from railway use, stored materials such as coal, and hydrocarbons (lubricants and fuel etc.) from the garage services and car parking use.

Some of the materials from previous uses may have been removed, particularly during the creation of the basement in the redevelopment to Goods Yard and Warehouse (prior to 1889), and during the redevelopment prior to 1969, when the Goods Yard, warehouse and sidings tracks were all removed.

Remaining Demolition Materials

The site history indicates that various earlier buildings and structures have been removed from the site; accordingly, there is a potential for remaining demolition materials. This would represent material, which was associated with previous development located on or adjacent to the site, which may potentially include some deleterious materials and may represent a potential source of contamination. Some of the demolition materials would have been removed during the creation of the basement area, but may have been used as 'hard core' below the basement floor area, and as infill to the north of the basement wall.

Sources from Outside the Site Boundaries

Commercial/industrial use as canal wharf areas and warehouses, railway goods yard with sidings and warehouse, and a car park have been noted in the adjacent land to the east of the site. Piccadilly Station (formerly London Road Station) has been located directly to the south east of the site since before 1848. Considering these previous uses, we would consider that historically there may have been a risk of contaminants migrating at the boundaries, but we would consider that would only be a low risk of any ongoing contamination at the boundaries. Imported ground may have been brought onto the site for infill or levelling purposes.

Industrial Development

The historical search has highlighted several commercial/industrial developments on the site area, and also within 250m of the site boundary. Accordingly, there has been direct linkage between the site and the noted industrial location. It is also possible that locally obtained waste materials have been used during previous developments and groundworks on the site.

Landfill Gas

No Landfill Sites have been indicated in the collected data within 750m of the site. However, the historical search has indicated that there may be an infilled canal arm in

the north section of the site (possibly with residual organic sediments), and there is a potential for increased depths of made ground, particularly north of the basement area. Accordingly, it is our opinion that there may be a risk from local in-ground gas generation, particularly in the north section of the site.

6.2. Potential Contaminant Pathways

There are considered to be possible exposure pathways for potential contaminants present on the site through soil ingestion, ground-borne gas/vapour ingress into buildings, dust inhalation, and dermal contact.

It is presently proposed that the site will remain completely covered with commercial buildings and hard paving. This treatment of the ground would break the possible contamination pathways to future building users, and the existing ground would be left in situ and sealed below the buildings and hard paving. Although the above proposals would break the linkage for future site users, a residual risks may remain for future ground workers, and for potential mobile contaminants in the ground, to migrate to local sensitive waters.

In addition, the possible effect of contaminants permeating potable water pipes made of polyethylene should be considered and if necessary appropriate precautions taken. Guidance on reducing these risks is given in the Water Regulations Advisory Scheme Information and Guidance Note No.9-04-03 (WRAS 2002). The latest guidance and requirements should be obtained from the statutory water supply provider. However, as most of the site appears to be suspended on underlying structure, it is likely that some of the water services are suspended above ground level.

6.3. Potential Contaminant Receptors

The principal receptors on this site are considered to be future site users, workers and residents, development ground workers, building structures and local sensitive waters such as groundwater resources. As the proposed site development is for a commercial business development with the site remaining completely covered with commercial buildings and hard paving, consideration should be given to potential contaminant uptake by site users through ground-borne gas/vapour ingress into buildings. During future site work, consideration should be given to operatives who may be exposed to contaminants through soil ingestion, dust inhalation and dermal contact, particularly ground workers.

The Envirocheck Survey indicated that the site is located above a Principle Aquifer, but low permeability Drift deposits may be present over parts of the site. The water abstractions within 1000m of the site were for industrial/commercial purposes; this water use would not be as sensitive as potable water use. The collected data indicated that parts of the site are located above low permeability Drift deposits; perched groundwater may therefore be considered a potential contaminant receptor.

The Rochdale Canal may be considered a potential receptor. However, it is located approximately 27m north of the site, and the falls in local ground levels appear to be in a generally south south easterly direction.

A summary of the Conceptual Site Model has been presented in tabular form in Appendix 1.

7. QUALITATIVE ASSESSMENT

7.1. Potential Contaminant Linkages

The presented historical data has indicated a history of varied industrial, commercial and business uses for the site. In addition, given the history of the general area of Manchester with commercial and industrial developments, there remains a potential for the site to have experienced some contamination during its history. Accordingly, it is considered that presently there may be a potential risk for a Source-Pathway-Receptor link on the site. Some of the materials from previous uses may have been removed, particularly during the creation of the basement area in the redevelopment to Goods Yard and Warehouse (prior to 1889), and during the redevelopment prior to 1969, when the Goods Yard and rail tracks were all removed, and Gateway House was constructed.

In our opinion the main predicted residual on-site ground contamination could include possible garage fuel tanks (and other garage uses) in the north east corner of the site, the possible infilled section of canal arm previously located in the north section of the site, possible deeper made ground levels north of the basement area, and possible made ground deposits below the basement slab. A more detailed review of the former garage services will be required, and further enquiries should be made to the local regulatory authority regarding the status of any underground fuel tanks in this area, and if previously present, whether these tanks have been decommissioned or removed.

Please note that the presence of potential contaminants in the ground on this site has not yet been determined, and if potential in-ground contaminants were shown to be at

levels consistent with 'no significant risk to human health', then there would be no Significant Pollutant Linkages. Additional intrusive ground investigation would be needed to resolve this further.

In the case of any evidence of ground contamination being found on the site during future works, including any demolition works, then the situation should be reviewed, and additional recommendations may be required. We would also recommend that a survey for potential asbestos and other deleterious material be carried out on building fabric prior to any demolition works, and to include appropriate recommendations for dealing with such materials; deleterious materials may also be contained within the structures above historic brick arches.

If soils and ground materials are to be disposed of away from the site, then we would recommend that the relevant specialist waste management contractors and waste disposal authorities be consulted in order that any such materials can be classified and authorised for the purposes of disposal of spoil.

As there is a potential for a short infilled canal arm in the north of the site, and there may be a risk of increased depths of made ground deposits to the north of the basement, we consider there to be a potential risk from local in-ground gas generation, particularly in the north section of the site.

7.2. Other Items

The Landmark information has indicated a shaft entry to sandstone workings approximately 850m south east of the site. The writer is aware of a tunnel system in the sandstone close to the Ardwick Green area, and a referenced historical geological map indicated a well approximately 185m south west of the site. Sandstone bedrock has been predicted close to the surface below the site, accordingly, there may be a risk of local excavations and wells excavated into the sandstone.

There is a strong probability of utility/services within the site boundaries as commercial buildings are present on the site, and also it is likely that utility/services are present on or close to site boundaries. Due care and attention will be required for any ground works (including ground investigation) and current service drawings/plans should be obtained prior to any excavations.



P. R. JACKSON BSc (Hons) CEng FGS MBCS

On behalf of Northern Foundations Limited

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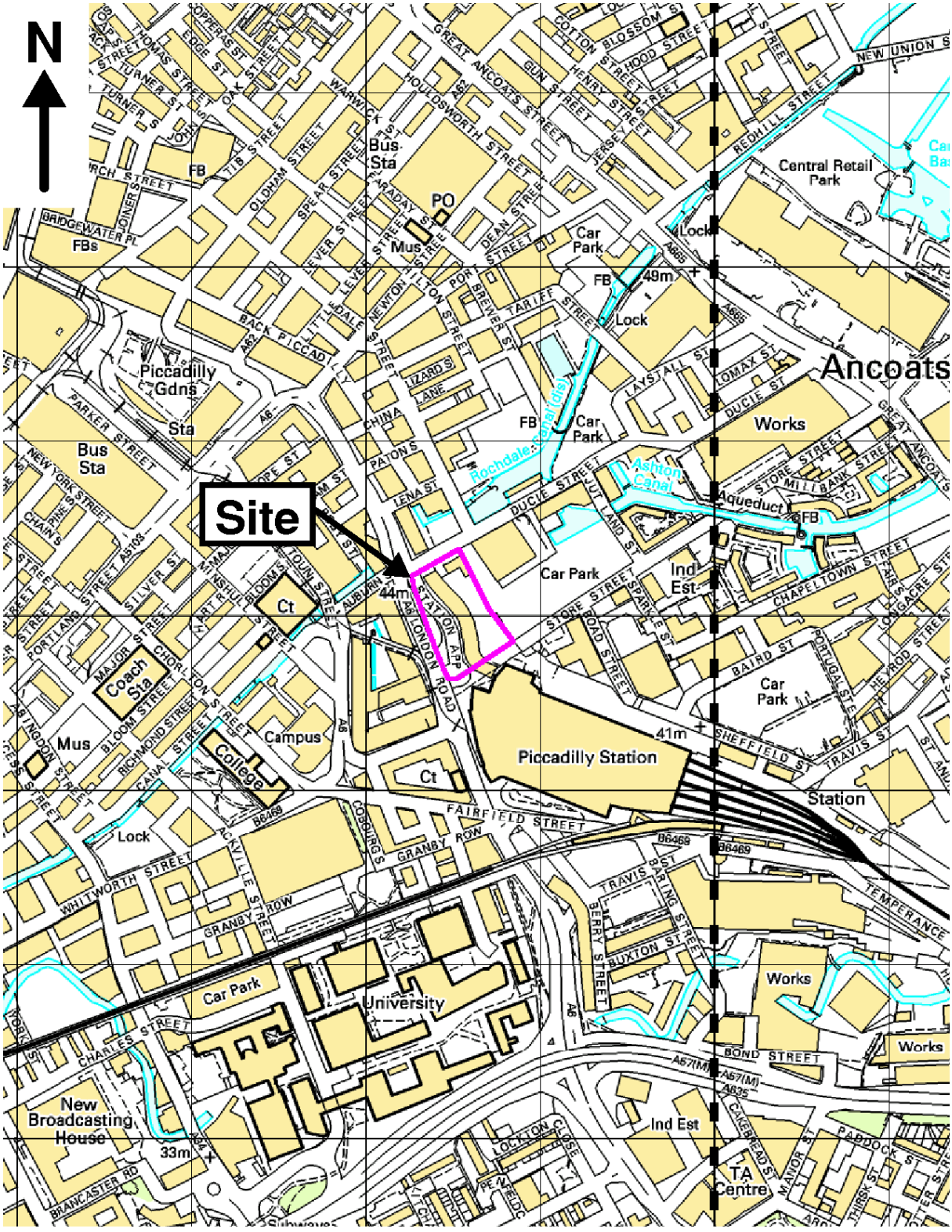
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FIGURE 1 – Site Location Map

Site	Gateway, Piccadilly South, Manchester	**Job No**	9285
Client	Booth King Partnership Ltd	**Date**	April 2011

SITE LOCATION MAP

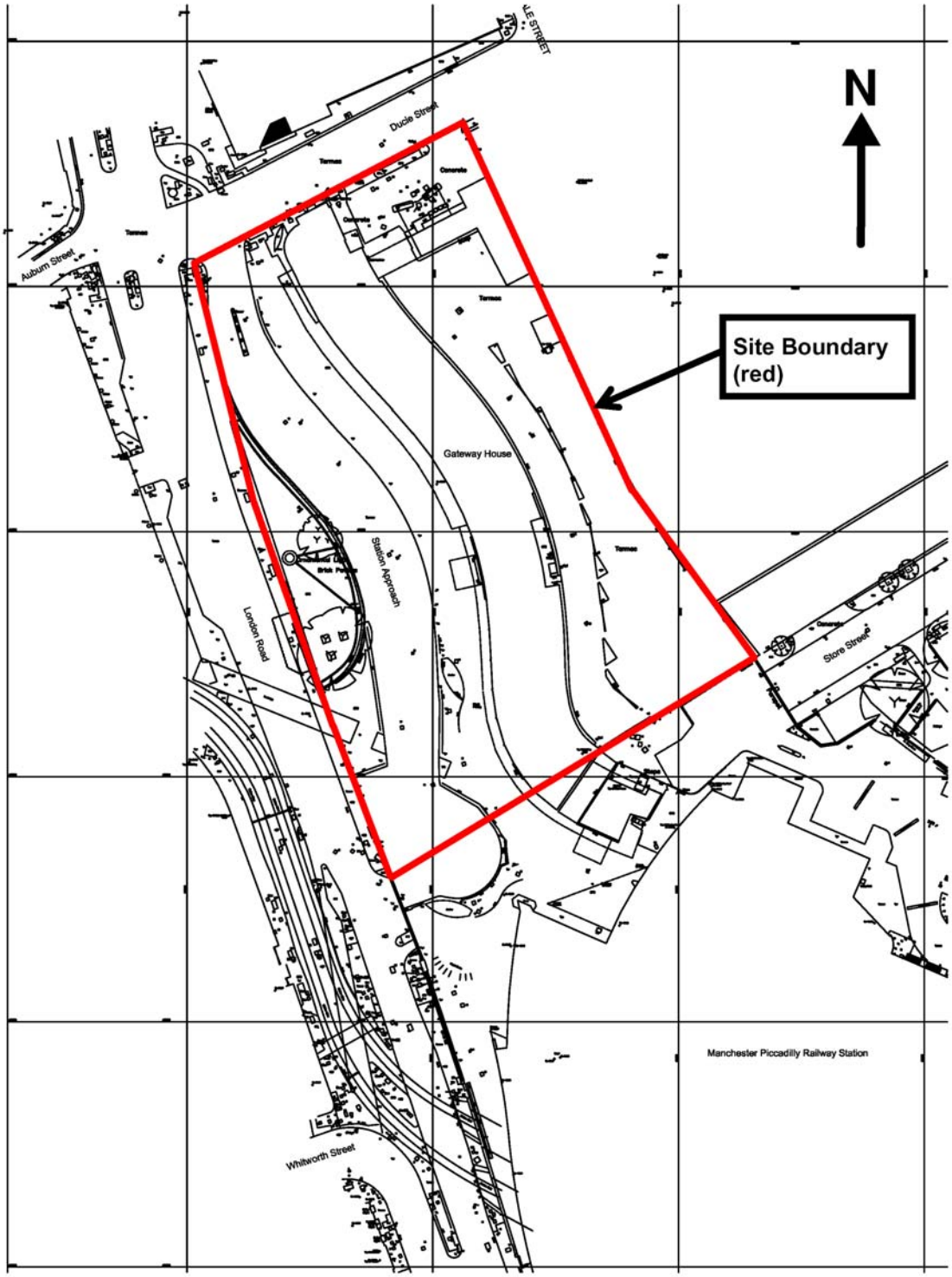


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FIGURE 2 – Site Plan

Site	Gateway, Piccadilly South, Manchester	**Job No**	9285
Client	Booth King Partnership Ltd	**Date**	April 2011

SITE PLAN



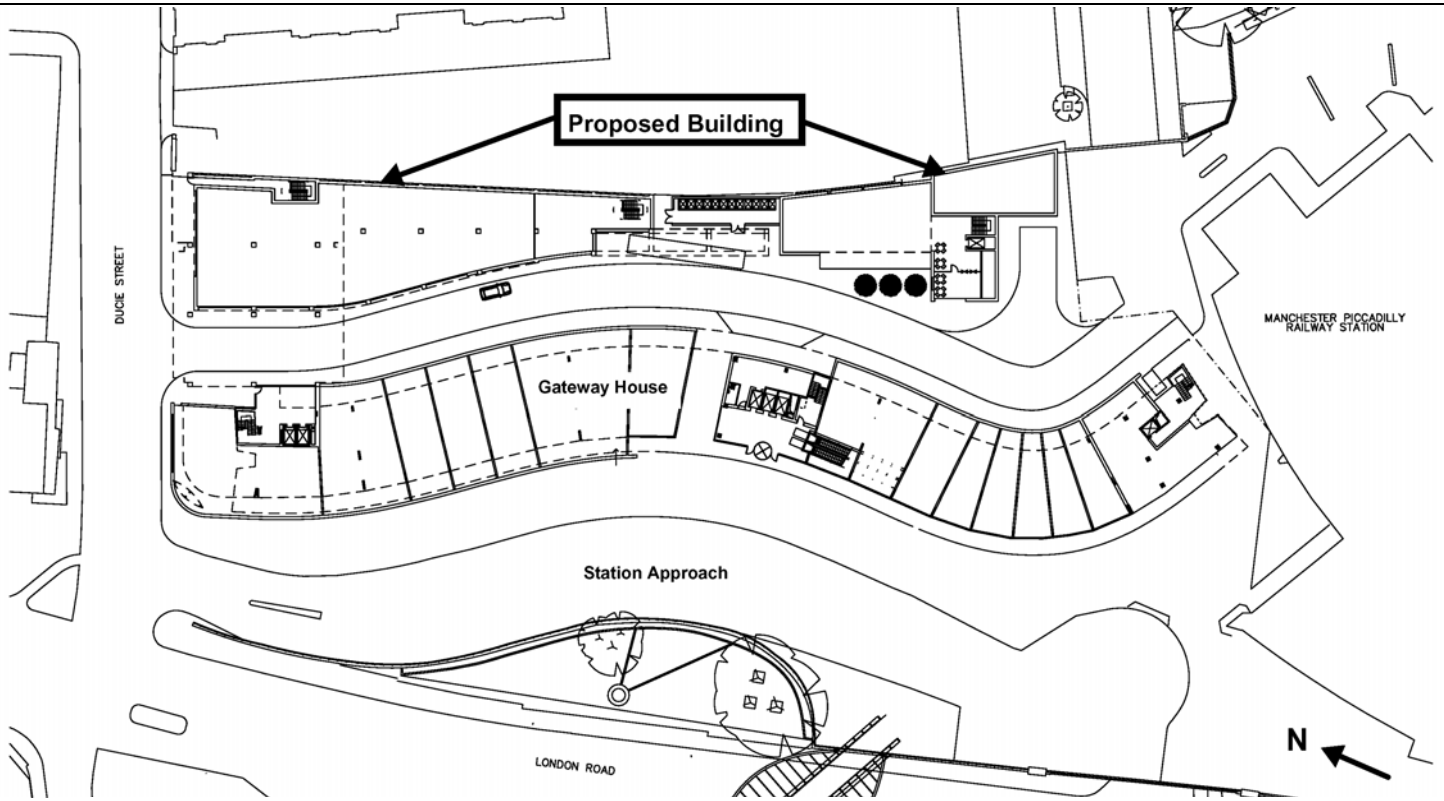
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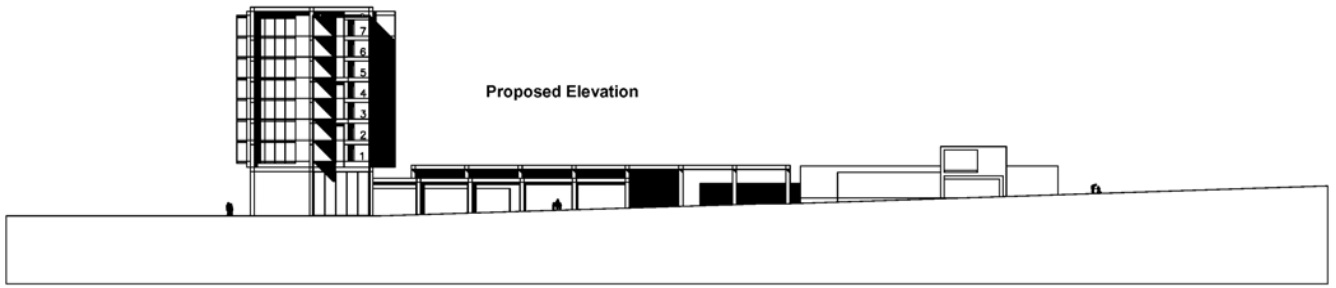
FIGURE 3 – Proposed Site Plan

Site Gateway, Piccadilly South, Manchester **Job No** 9285

Client Booth King Partnership Ltd **Date** April 2011

PROPOSED SITE PLAN & ELEVATION





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FIGURE 4 – Site Photographs

Site	Gateway, Piccadilly South, Manchester	**Job No**	9285
Client	Booth King Partnership Ltd	**Date**	April 2011

Site Photographs (Sheet 1 of 2)



1. Front of Gateway House – looking north



2. North west corner – looking south east



3. North east corner – looking south west



4. South east corner – looking north west



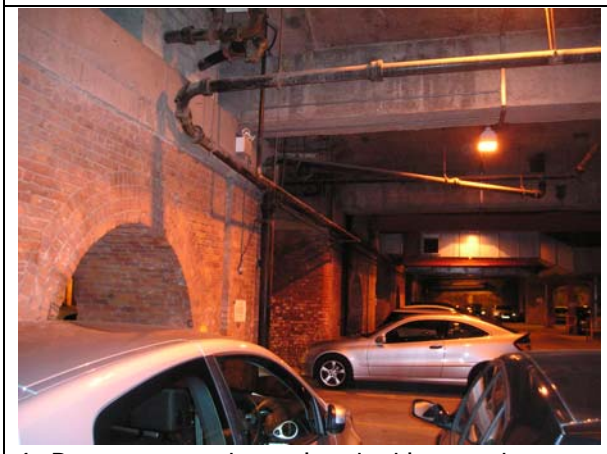
5. Avis – possible area of underground tanks



6. Rear of Gateway House – looking south

Site	Gateway, Piccadilly South, Manchester	**Job No**	9285
Client	Booth King Partnership Ltd	**Date**	April 2011

Site Photographs (Sheet 2 of 2)



1. Basement north section–looking north west



2. London Road boundary–looking south east



3. Basement south east section – looking south east (exit to Store Street)



4. Basement north west section – looking north west



5. Basement car park entrance from Store Street – looking south west



6. East elevation of site from Store Street – looking north west

APPENDIX 1 – Conceptual Site Model

CONCEPTUAL SITE MODEL – DS 9285 Gateway House, Piccadilly South, Manchester

A summary of the basic conceptual site model is presented below:

Table 1. Potential Contaminant Sources

Potential Contaminant Sources	Desk Study Findings
Industrial/Commercial Development on or adjacent to site	Canals, wharfs, warehouses, railways, goods yards on site and adjacent to site
Significant contaminative land use on or adjacent to site	Possible Infilled canal arm on site and adjacent to site. Garage services use (possible underground tanks) in north east section of the site
Other possible contaminative land use on or adjacent to site	Possible made ground deposits below basement slab, and possible increased depths of made ground north of basement wall. Car parks on site and adjacent to site
Landfill sites	No recorded/registered landfill sites within 330m of the site

Table 2. Potential Contaminant Receptors

Potential Receptors	Desk Study Findings
Surface water features on or adjacent to site	None on site. Nearest surface water is Rochdale Canal approximately 27m north of the site
Potable water abstractions	None within 1000m of the site
'Principle Aquifer' (Sherwood Sandstone Group)	Low permeability Drift deposits (Clays) are predicted at or close to the surface over part of the site. No groundwater abstractions within 1000m of site
Groundwater Source Protection Zones	Site is over a Zone III (total catchment zone). Nearest Zone I (inner protection zone) 1.17km north west of the site.
Development ground workers, future site users generally Building structures Local perched groundwater	Potential receptors

Table 3. Summary Conceptual Model of potential remaining Pollutant Linkages

Potential Contaminant Sources	Potential Contaminants	Potential Pathways	Potential Receptors	Recommendations
Imported ground for levelling purposes. Potential for increased depths of made ground	Contaminated soils	Ingestion or inhalation of contaminated soil, dust or vapours, dermal contact. Migration of any mobile contaminants into ground Potable water pipes	Development ground workers Future site users generally Building structures Aquifer Local sensitive waters	Intrusive ground investigation with chemical analytical testing of soils, leachates, and groundwater Site to be covered by buildings and hard paving
Previous use as canals, wharfs, warehouses, railways, goods yards	Contaminated soils	Ingestion or inhalation of contaminated soil, dust or vapours, dermal contact. Migration of any mobile contaminants into ground Potable water pipes	Development ground workers Future site users generally Building structures Aquifer Local sensitive waters	Intrusive ground investigation with chemical analytical testing of soils, leachates, and groundwater Site to be covered by buildings and hard paving
Future demolition of existing buildings and structures	Contaminated soils, asbestos	Ingestion or inhalation of contaminated soil, dust or vapours, dermal contact. Migration of any mobile contaminants into ground Potable water pipes	Development ground workers Future site users generally Building structures Aquifer Local sensitive waters	Watching brief for evidence of ground contamination during the demolition phase of the development, particularly in garage forecourt
Former use as garage (possible underground tanks), and use as car park	Contaminated soils - petroleum hydrocarbons, possible volatiles	Ingestion or inhalation of contaminated soil, dust or vapours, dermal contact. Migration of any mobile contaminants into ground Potable water pipes	Development ground workers Future site users generally Building structures Aquifer Local sensitive waters	Further enquiries regarding the status of possible underground tanks. Intrusive ground investigation with appropriate chemical analytical testing
Possible Infilled canal arm on site Potential for increased depths of made ground	In-ground gases	Gas/vapour ingress into buildings	Future site users generally Building structures	Intrusive ground investigation with in-ground gas monitoring

APPENDIX 2 – Historical Maps

APPENDIX 3 – Historical Building Plans

APPENDIX 4 – Landmark Envirocheck Information