Phase I Environmental Assessment
2 Dumpton Place, NW1 8JD

Sarena Ltd

November 2010

QM

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Contents

Executive Summary

WSP Environmental Ltd was instructed by CgMs Ltd on behalf of Sarena Ltd, to undertake a Phase I Environmental Assessment of 2 Dumpton Place and land to the rear of 68-88 Gloucester Avenue, London, NW1 8JD. The report highlights environmental considerations, predominantly with respect to ground conditions, and is required as part of the proposed development of the site into four residential houses and a Class B business unit. Please refer to **Appendix E** for WSP's Methodology and Limitations.

Key Findings

The site lies to the east of Dumpton Place and comprises a partly demolished vacant single storey workshop building. To the east of the site is a residential development currently under construction and nearing completion. The site is bounded by railway lines to the north and by residential gardens and properties to the south and Dumpton Place to the west.

A study of historical Ordnance Survey maps has been undertaken to identify any potentially contaminative former land uses. Historical maps indicate that the site was occupied by unknown buildings prior to being utilised as a fish curing workshop and a depot.

The site was most recently used for the repair and servicing of motor vehicles. During the 2008 site walkover the on-site representative stated that the site has been used as a garage since the 1960's.

Significant potentially contaminative activities on-site included the storage of waste engine oils and new engine oil in three above ground storage tanks, three fuel fill points, possible Underground Storage Tanks, possible interceptor, two vehicle washing areas and the storage of other liquid waste materials produced from the servicing of vehicles on-site. The liquid waste materials include coolant, anti freeze and brake fluid, produced from the servicing of vehicles on-site. Occasional areas of engine oil spillage were identified during the site visit.

There is currently non information regarding how or if these features were decommissioned as part of the recent demolition works.

In terms of environmental setting the site is considered to be of a **low** environmental sensitivity.

Liability

The site was identified to have historically been used as a fish curing workshop and a depot with associated Above and possibly Underground Bulk Fuel Storage Tanks and other potentially contaminative liquids.

Therefore, based on the information contained in this report and with due regard to the proposed re-development of the site, it is the opinion of WSPE that the site represents a **medium** environmental risk. Should information be made available regarding the decommissioning (or otherwise of the bulk fuel storage facilities then it is possible that the risk rating could be reviewed.

Recommendations

If not already completed further contamination assessment is recommended prior to the proposed redevelopment of the site to identify if any soil remedial measures are required, particularly in the areas of the former AST / UST.

The executive summery should be read in conjunction with the complete report Phase I Environmental Assessment (ref: 12041824-001) updated November 2010 and not as a standalone report.

1 Introduction

1.1 AUTHORISATION

WSP Environmental Ltd was instructed by CgMs Ltd on behalf of Sarena Ltd, to undertake a Phase I Environmental Assessment of 2 Dumpton Place and land to the rear of 68-88 Gloucester Avenue, London, NW1 8JD. The report highlights environmental considerations, predominantly with respect to ground conditions, and is required as part of the proposed redevelopment of the site. Please refer to Appendix E for WSPE's Methodology and Limitations. It is understood that the proposed redevelopment will comprise four residential houses and a Class B business unit

1.2 OBJECTIVES

The principal purpose of undertaking the Environmental Assessment is to identify potential areas of contamination and assess the ground conditions in terms of Part IIA of the Environmental Protection Act 1990 and to highlight environmental considerations, predominantly with respect to ground conditions, which may potentially arise as liabilities in the context of the purchase and redevelopment.

1.3 SCOPE OF WORKS

This Phase I Environmental Assessment has been designed to provide information relating to:

- Detailed assessment of current site status through a walkover survey and interviews with key staff (where feasible);
- Assessment of the historical land uses on and surrounding the site using historic Ordnance Survey mapping;
- Assessment of the 'sensitivity' of the site location as determined by factors such as hydrogeology, proximity of watercourses, neighbouring land use, etc.;
- Informal enquiries with relevant environmental regulators including the Local Authority and Environment Agency;
- Assessment of the significance of potential environmental risks identified in the context of the proposed site use;
- Production of a Conceptual Site Model; and
- Provision of recommendations for further works, if required.

All information obtained in relation to the above is assessed to determine the potential for the site to give rise to environmental liabilities.

1.4 BASIS OF ENVIRONMENTAL RISK ASSESSMENT

This assessment has been undertaken with due regard to Contaminated Land Guidance documents issued by the Department for Environment, Food and Rural Affairs (and its predecessors) including CLR 11 Model Procedures for the Management of Land Contamination, the British Standards Institute (the BSi), the Royal Institution of Chartered Surveyors (RICS) and the American Society for Testing and Materials (ASTM) Standard E 1527-00. The methods used follow a risk-based approach, with the potential environmental risk assessed qualitatively using the 'source-pathway-receptor pollutant linkage' concept introduced in the Environmental Protection Act 1990.

Specific comment is made regarding the site's status under the Contaminated Land Regime implemented on the 1st April 2000 as Part IIA of the Environmental Protection Act 1990, and the actual or potential designation of the site as 'Contaminated Land' as defined in Section 78A(2). Unless specifically stated as relating to this definition, references to 'contamination' and 'contaminants' relate in general terms to the presence of potentially hazardous substances in, on or under the site.

In addition, consideration has been given to a wide range of related topics including (where appropriate): environmental processes; current and foreseeable environmental legislation; the practices and duties of environmental regulators; the health and safety of occupiers and neighbours as affected by contamination; effects on the structure of buildings; and financial implications. References to risk classifications are made according to the following definitions:

Low Risk – it is unlikely that the issue will arise as a liability/cost for the owner of the site;

Medium Risk – it is possible that the issue could arise as a liability/cost for the owner of the site. Further work is usually required to clarify the risk; and

High Risk – it is likely that the issue will arise as a liability/cost for the site owner.

1.5 LIMITATIONS

The general limitations to the assessment are outlined in **Appendix E**.

2 Site Information

Desk study and site specific information has been supplemented by information provided in the Landmark Envirocheck report dated 12 May 2008 (ref; 25284728_1).

2.1 SITE DETAILS

Site Address	2 Dumpton Place and land to the rear of 68 – 88 Gloucester Avenue, London, NW1 8JD,
National Grid Reference	TQ 282 840
Size	Approximately 0.1 hectares.
Site Location	The site is located within Primrose Hill, 150 metres (m) south of the train station, in a predominantly commercial and residential area. A site location plan is included as **Appendix A.**
Current Site Use	The subject site is currently vacant and undergoing demolition.

2.2 SITE RECONNAISSANCE

A walk over survey of the site was carried out on 15th May 2008, including an inspection of the exterior and interior of the site and building. However, since the site walkover was completed in 2008 the sit has undergone some changes and the following sections are based on the 2008 observations supplemented with information supplied by the client.

Photographs obtained during the site walkover and provided by the client are provided in **Appendix B**.

Site Description

The site is located within Primrose Hill, 150 metres (m) south of the train station, in a predominantly commercial and residential area. The site lies to the east of Dumpton Place and comprises a partly demolished vacant single storey workshop building. To the east of the site is a residential development currently under construction and nearing completion. The site is bounded by railway lines to the north and by residential gardens and properties to the south and Dumpton Place to the west.

Specific on-site activities

- The site is currently vacant but was most recently used for the repair and servicing of motor vehicles. During the 2008 site walkover the on-site representative stated that the site was used as a garage from the 1960's.

Bulk Hazardous Materials Storage

- The site representative stated that there was a possibility of an Underground Storage Tank (UST) at the site. Evidence of potential tank vents was identified in the middle of the site (Please refer to photo 15 and 16 in **Appendix B**). Three Above ground Storage Tanks (AST's) were located on site. Three fuel fill points were located in the south-eastern corner of the exterior of the building. One AST contained old engine oil taken from cars serviced on site (Photo 5, **Appendix B**). The two tanks that contained new engine oil had a capacity of 1,200 and 180 Litres (Photos 5, 9, 11 and 12, **Appendix B)**. All three tanks were appropriately bunded in accordance with

Guideline PPG2. No evidence of staining within the bund was observed. There is currently non information regarding how or if these features were decommissioned as part of the recent demolition works.

Other Hazardous Materials

- The site representative stated that numerous hazardous materials were stored on site. These included several 205 litre barrels and 5 litre canisters of coolant, anti-freeze, old engine oil and brake fluid. Some of these barrels were placed on raised bunds and others were sitting directly on the ground. There is currently non information regarding how or if these features were decommissioned as part of the recent demolition works.

Polychlorinated Biphenyls (PCBs)

- No electricity sub-station was identified on site. Two electricity substations were identified north east and east of the site, on the opposite side of the rail lines.

Wastes Management

-Non Hazardous

- Waste produced on site comprises cardboard, packaging, office waste and general wastes, which are stored in a number of skips and removed regularly by reportedly licensed waste contractors.
- Used tyres were stacked high, along the eastern boundary of the site, along the narrow alleyway. The site representative stated that these were removed regularly by reportedly licensed waste contractors.

-Hazardous

- Engine oil is a large contributor to the waste produced on site. This is stored in an AST tank along the western edge of the site. The site representative stated that the tank was emptied regularly by reportedly licensed waste contractors.
- Other waste liquids produced on site are brake fluids, anti- freeze and coolant which are all taken from the cars that are serviced on site. The liquids are usually stored in several 205 litre barrels located sporadically across the site. The site representative stated that occasional diesel and petrol were also taken form vehicles serviced on site. They also stated that the each waste liquid is removed regularly by reportedly licensed waste contractors.
- Car batteries, taken from serviced cars on site are stored externally to the building, along the eastern boundary, along the narrow ally way. The site representative stated that the car batteries were regularly removed by reportedly licensed waste contractors.

Drainage Issues

-Surface Water

- A vehicle washing area has been designated in the western edge of the site. The area has an underground, drainage system with a three stage interceptor located adjacent to it. The site representative stated that it was unknown as to where the water discharges into, or how often the interceptors were emptied.
- Storm water run-off generated in the rooftop vehicle car park area, on the eastern section of the site, discharges into the surface water drainage system.

-Foul Water

- Foul water on site is limited to sewage and domestic waste water. The site representative did not report any issues associated with on site foul water, and none were observed.

Asbestos Containing Materials (ACMs)

- Given the age of the property on-site (pre 1960's) the presence of asbestos containing materials cannot be discounted.

A map highlighting areas of potential concern is included in **Appendix B.**

2.3 SURROUNDING LAND USE

The site is located within Primrose Hill, in a predominantly commercial and residential area. Residential properties are located immediately adjacent to the south and northeast of the site. Railway lines with overhead electricity cables bound the site along the northern edge.

2.4 PROPOSED DEVELOPMENT PLANS

The proposed development plans indicate that the site is outlined for redevelopment into four residential houses and a Class B business unit. Development schematics are provided in **Appendix E**.

3 Historical Land Use

The historical land use maps for the site and surrounding areas have been provided as part of the Landmark Envirocheck report dated 18 April 2008 (ref; 25053854_1).
Selections of Ordinance Survey (OS) historical map extracts are included as **Appendix C.**

3.1 SITE HISTORY

Map Information

A study of historical Ordnance Survey maps has been undertaken to identify any potentially contaminative former land uses. The following land uses have been identified;

- Pre 1875 Unknown buildings along the site boundary,
- Pre 1896 Additional unknown buildings across the site,
- Pre 1953 Redevelopment into Fish Curing works; and
- Pre1966 Depot - current layout.
- 2010 demolition of on-site buildings.

A selection of historical map extracts is included as Appendix D.

Planning

An inspection of the available planning record held at London Borough of Camden was carried out on 11th May 2008. No environmentally pertinent information was available for review.

3.2 SURROUNDING AREA

A study of historical Ordnance Survey maps has been undertaken to identify any potentially contaminative former land uses. A selection of relevant historical map extracts is included as **Appendix D**. The following represents a summary of the available map information:

Surrounding Features	Dates	Distance (m)	Direction
Depot	Pre 1970 – Post 1995	20	Northwest
Warehouse; then Works	Pre 1953 – Pre 1955 Pre 1955 - Present	20	Southeast
Engineering works; *then* Works.	Pre 1953 – Pre 1955 Pre 1955 - Present	Adjacent	Northwest
Engine cooling shed; *then* Unknown building; *then* Railway sidings.	Pre 1875 – Pre 1896 Pre 1896 – Pre	Adjacent	North

Surrounding Features	Dates	Distance (m)	Direction
	1953 Pre 1953 - Present		
Engine shed; *then* Depot; *then* Vacant land; *then* Railway sidings.	Pre 1875 – Pre 1963 Pre 1963 – Pre 1970 Pre 1970 – Pre 1982 Pre 1982 - Present	30	North
Piano forte manufacturer; *then* Unknown building.	Pre 1875 – Pre 1953 Pre 1953 – Present	230	Southwest
Chalk Farm Station; *then* Primrose Hill Station.	Pre 1875 – Pre 1953 Pre 1953 - Present	160	Northwest
Coal depot; *then* Unknown building.	Pre 1896 – Pre 1982 Pre 1982 - Present	170	North
Goods shed; *then* Unknown.	Pre 1875 – Pre 1996 Pre 1996 - Present	90	East
Furniture works; *then* Works.	Pre 1916 – Pre 1963 Pre 1963 - Present	70	Southwest
Electrical works; *then* Works.	Pre 1916 – Pre 1963 Pre 1963 - Present	160	Southwest
Glass works; *then* Works.	Pre 1953 – Pre 1955 Pre 1955 - Present	170m	Northwest
Radio works; *then* Works.	Pre 1953 – Pre 1955 Pre 1955 - Present	160	Northwest
Engineering works; *then* Works.	Pre 1953 – Pre 1963 Pre 1963 - Present	220	West
Warehouse; *then* Unknown building.	Pre 1953 – Pre 1963 Pre 1963 - Present	230	Northwest
Factory.	Pre 1953 - Present	180	Northwest

Surrounding Features	Dates	Distance (m)	Direction
Warehouse.	Pre 1953 - Present	20	Southeast
Optical works; *then* Works.	Pre 1953 – Pre 1970 Pre 1970 - Present	270	Northeast
Chemical works; then Works.	Pre 1953 – Pre 1963 Pre 1963 - Present	100	South

4 Regulatory Information & Consultations

4.1 REGULATORY DATABASE

The following environmental data has been obtained from a summary of information databases.

	0-250m	250-500m	Details
Local Authority Pollution Prevention and Controls	2	3	Include re-spraying of road vehicles, dry cleaners and petrol filling station.
Registered waste transfer sites	0	2	Located 490m east. License is surrendered/ superseded.
Local authority landfill coverage	0	1	Located 420m east from site and is for Westminster City Council.
Licensed waste management facilities	0	1	Located 470m east and concerns a household waste amenity site. License surrendered since July 2007.
Registered radioactive substances	0	2	There are two inactive licenses located 450m and 470m east, concerning laboratories.
Water Abstractions	0	4	The nearest is 300m east for surface abstraction (canal) for non-evaporative cooling. The others are for spray irrigation and industrial cooling.
Discharge Consents	1	2	The nearest one is at 240m southeast, concerning trade discharge of cooling water.
Pollution Incidents to Controlled Waters	1	1	The nearest pollution incident occurred 230m to the southwest of the site. The incident comprised the release of oil to a drainage ditch and was classified as minor incident.
Prosecutions relating to authorised processes	0	1	Located 340m south of the site, relating to failure to comply with packaging waste regulations.

4.2 CONSULTEES

Local Authority Building Control

The Building Control Officer at Camden Borough Council has been contacted for pertinent information regarding the site. WSP are currently awaiting an official response.

Local Authority Contaminated Land Officer

The Contaminated Land Officer at Camden Borough Council was contacted for environmentally pertinent information relating to the site. WSP are currently awaiting an official response.

Environment Agency

No issues have been identified which warrant further consultation with the Environment Agency.

Environment Agency Flooding Data

The site is not located within an Environment Agency indicative floodplain.

Health Protection Agency

The site is located within an area where less then 1% of homes are above the Action level for radon gas. Therefore, no radon protection measures are considered necessary.

British Geological Survey

The site is located within an area where there is a **very low** risk of landslide ground stability hazards and **moderate** risk of shrinking or swelling clay ground stability hazards.

Coal Authority Report

The site is not located within an area affected by Coal Mining.

5 Environmental Setting

5.1 GEOLOGY AND HYDROGEOLOGY

Geological Map Sheet no.256, location North London, scale 1:50 000, Solid & Drift edition, shows the following geological sequence (refer to **Appendix G** for Environment Agency (EA) aquifer classification system):

Geological Unit	Aquifer Status
London Clay	Non Aquifer

Information obtained from BGS borehole logs indicates that the site is underlain by Made Ground overlying silty Clay.

The following is a summary of depth and thickness of Made Ground, from BGS boreholes drilled within approximately 200m, from the subject site:

BGS Reference Number	Made Ground		Direction
	Thickness (m)	Depth (mbgl)	
TQ28SE/6	2.74	2.74	South
TQ28SE/1215	4.00	4.00	Southeast
TQ28SE/1221	2.00	2.00	South
TQ28SE/1222	3.00	3.00	South
TQ28SE/1829	1.70	1.70	Southeast

BGS Borehole Records are included in Appendix D.

Due to the redevelopment of the site pre 1966 there maybe Made Ground present.

The following current licensed groundwater abstractions have been identified within a 1km radius of the site:

Use	Distance (m)	Direction
Potable water supply	700m	Southwest
Potable water supply	700m	Southwest
Animal watering and general use	730m	South
Drinking/Cooking/Sanitary/Washing	840m	Northeast
Laundry use	840m	Northeast
Process water	840m	Northeast

The site is not located within an EA designated Groundwater Source Protection Zone.

5.2 HYDROLOGY

Surface water features in the vicinity of the subject site are as follows:

Surface Water Feature	Quality*	Distance (m)	Direction
River Guc (Paddington Arm)	River Quality E	240m	Southeast

*Chemical water quality as classified under the EA's General Quality Assessment (GQA) Scheme.

The following current licensed surface water abstractions have been identified within a 1km radius of the site:

Use	Distance (m)	Direction
Non-evaporative cooling	300m	East
Spray irrigation - Direct	310m	East
Spray irrigation - Direct	310m	East
Industrial cooling	310m	East

5.3 SURROUNDING FEATURES

Sensitive surrounding land uses in the immediate vicinity of the subject site are as follows:

Sensitive Land Use	Approx. Distance	Direction
Residential properties with gardens	50m	South, Northwest
School	300m	North

5.4 ENVIRONMENTAL SENSITIVITY

Overall, the site setting is considered to be of **low** sensitivity, due to the following reasons:

- The underlying Non Aquifer(s) in the form of London Clay;
- The absence of on-site surface water features; the closest 240m southeast;
- The proposed redevelopment of the site for office end use;
- The presence of groundwater and surface water abstractions within a 1km radius of the site; and
- The residential and commercial land uses within the surrounding area.

6 Conceptual Site Model

6.1 INTRODUCTION

The objectives of the hazard assessment process are to:

- determine the sources of contamination (if present);
- identify specific chemicals of potential concern (if present);
- identify possible contaminant migration pathways;
- identify possible receptors (e.g. soil, groundwater, humans and third parties) which could be affected, including their relative potential sensitivity to contaminants given their nature of exposure; and,
- construct a conceptual model for the site which clarifies the mechanisms by which the site may present a risk, highlighting those sources of risk which will require further assessment and those which can be eliminated.

The conceptual model, which is revised and developed in light of investigation findings, provides a description of three elements i.e.

- the actual and probable nature, extent and location of contaminants, i.e. the SOURCE term;
- the potential existing and reasonably foreseeable future on-site and off-site RECEPTORS to contamination; and,
- the likely migration PATHWAYS by which contaminants may reach such receptors.

Such information enables the development of plausible POLLUTANT LINKAGES between sources of contamination and receptors, and thus an estimation of the risks that may be present. These aspects are summarised in the table below.

The typical chemicals associated with these land uses have been identified within DEFRA R&D Publication CLR8 Potential Contaminants for the Assessment of Land and this information has been used to inform our conceptual site model.

6.2 PLAUSIBLE POLLUTANT LINKAGE

The pollutant linkages listed the tables below are considered to be plausible and could therefore potentially represent a significant risk of harm to human health and/or the pollution of Controlled Waters.

Potential contaminant sources*	Associated contaminants*	Potential migration pathways	Sensitive receptors
On-Site			
▪ Depot (vehicle maintenance workshop) ▪ Reccent Site Use - AST's - Fuel fill pipes - Possible UST's - Interceptor - Car washing areas - Storage of chemicals	▪ Metals: chromium, copper, lead and zinc; ▪ Semi Metals/Non Metals: arsenic; ▪ Other: asbestos & pH; ▪ Organic: oil/fuel hydrocarbons, aromatic hydrocarbons, PAHs, chlorinated aliphatic hydrocarbons.	*On-Site Human Health* ▪ Inhalation of volatile vapours/ ground gases; ▪ Dermal contact with soil and groundwater (perched on Made Ground); ▪ Ingestion of soil and dust; & ▪ Ingress into potable water supplies.	*On-Site Human Health* ▪ Current Site Occupants and Future Site Occupants (commercial office); ▪ Construction & Maintenance Staff; & ▪ Potable water supply *Off-Site Human Health* ▪ 3rd Party properties and occupants (Residential/ Commercial); ▪ Surface Water (River Guc).
Off-Site			
▪ A number of potentially contaminative current and historical land uses have been identified in the surrounding area of the site including; railway land, warehouse, depot, coal depot, etc.	▪ Metals: chromium, copper, lead and zinc; ▪ Semi Metals/Non Metals: arsenic; ▪ Other: asbestos & pH; ▪ Organic: oil/fuel hydrocarbons, aromatic hydrocarbons, PAHs, chlorinated aliphatic hydrocarbons.	*On-Site Human Health* ▪ Inhalation of volatile vapours/ ground gases; ▪ Dermal contact with soil and groundwater (perched on Made Ground); ▪ Ingestion of soil and dust; & ▪ Ingress into potable water supplies.	

6.3 ENVIRONMENTAL RISK ASSESSMENT MATRIX

Having evaluated the information gathered during this study and described in the previous sections, WSP Environmental Ltd has produced the following assessment of risk primarily focused on contaminated land issues:

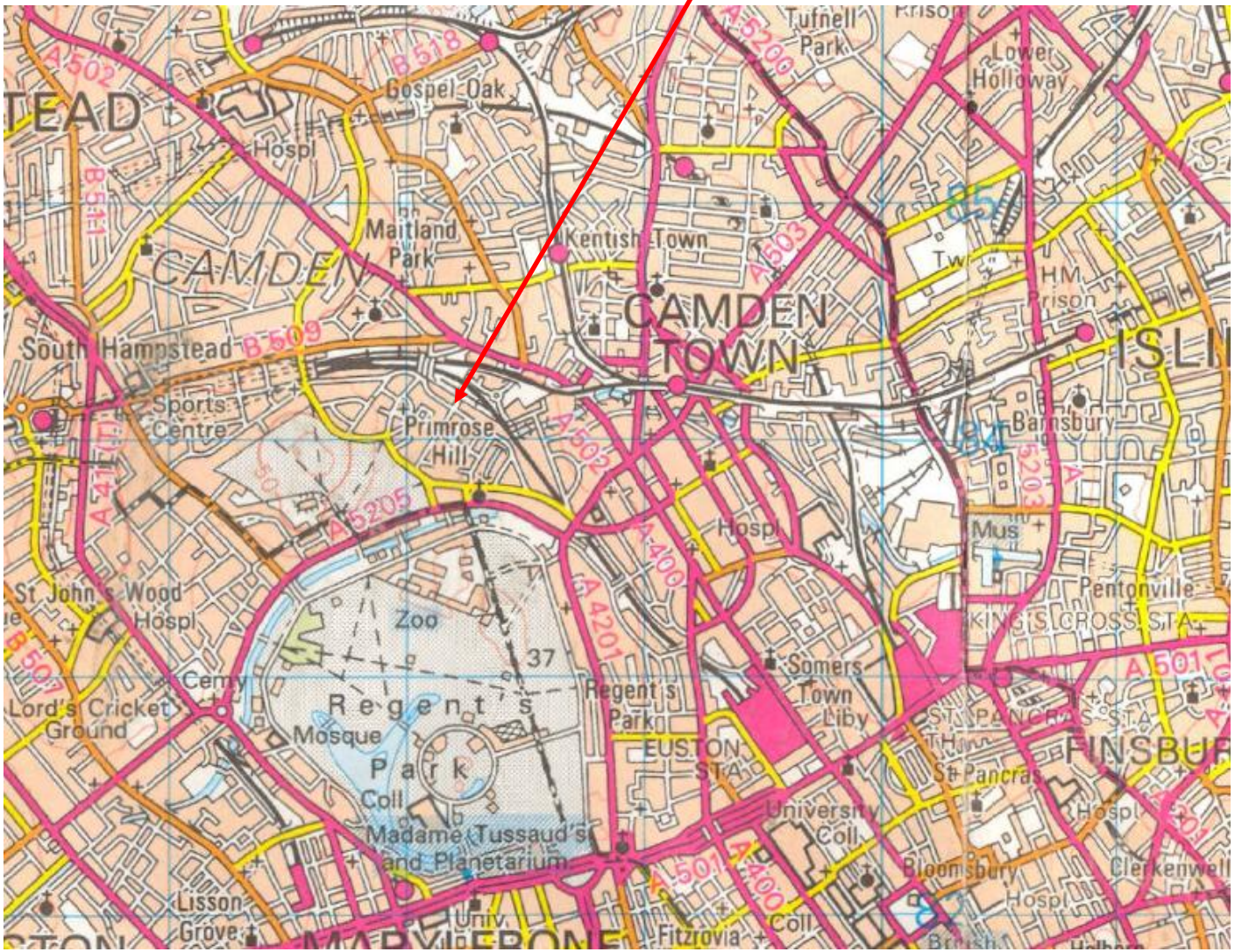
ISSUE		RISK CATEGORY	REASON
Contamination Potential:	Potential for significant on-site contamination	Medium	Potential on-site sources of contamination have been identified.
	Potential for contaminants migrating off the site	Low/medium	The vertical migration of any potential contaminants present is likely to be restricted due to the nature of the underlying geology. However lateral contamination migration is possible.
	Potential for contaminants migrating onto the site	Low	The underlying Non Aquifers are unlikely to allow any on site migration.
Other Liability Issues:	Potential for 'other' environmental issues to give rise to liabilities	Low	The site is not located within an EA floodplain, and no other liability issues have been identified.
Environmental Consequences	Risk of Pollution of Controlled Waters	Low	The underlying site is a Non Aquifer and therefore risk of pollution of controlled waters is low.
	Risk of Damage to Property	Low	No significant issues have been identified.
	Risk of Harm to Human Health	Medium	Given the hardstanding present across the site, users are considered unlikely to come into contact with contaminants in the underlying ground or perched groundwater. However, the presence and potential presence of ASTs and a UST respectively could present a risk to future site users
	Risk of Site Value and/or Saleability being affected.	Low/Medium	If there are no records to show that the ASTs and the UST have not been correctly decommissioned then there is potential for this to picked up in future due diligence and to affect the saleability of the site.
	Likelihood of a Future purchaser requesting further investigations.	Medium	If not already completed further contamination assessment is recommended prior to the proposed redevelopment of the site to identify if any soil remedial measures are required, particularly in the areas of the former AST / UST.

ISSUE		RISK CATEGORY	REASON
	Risk of Liability for Owner	Medium	The possibility of ground contamination resulting from the ASTs / UST could impact future site users and thus present a liability to the site owner.
Overall Risk	**MEDIUM**		

7 Summary, Conclusions & Recommendations

Site Address	2 Dumpton Place and land to the rear of 68-88 Gloucester Avenue, London, NW1 8JD
Current Land Use	The site lies to the east of Dumpton Place and comprises a partly demolished vacant single storey workshop building. To the east of the site is a residential development currently under construction and nearing completion. The site is bounded by railway lines to the north and by residential gardens and properties to the south and Dumpton Place to the west. The site was most recently used for the repair and servicing of motor vehicles. During the 2008 site walkover the on-site representative stated that the site has been used as a garage since the 1960's. Significant potentially contaminative activities on-site included the storage of waste engine oils and new engine oil in three above ground storage tanks, three fuel fill points, possible Underground Storage Tanks, possible interceptor, two vehicle washing areas and the storage of other liquid waste materials produced from the servicing of vehicles on-site. The liquid waste materials include coolant, anti freeze and brake fluid, produced from the servicing of vehicles on-site. Occasional areas of engine oil spillage were identified during the site visit. There is currently non information regarding how or if these features were decommissioned as part of the recent demolition works.
Historical Land Use	The site was occupied by a number of unknown buildings Pre 1896. By 1953 the site was redeveloped into a fish curing works. By 1966 the most recent site layout was present and the site was used as a depot prior to recent demolition. Surrounding land uses include a railway land, warehouses, coal depot as well as a variety of different works.
Regulatory Enquiries	No significant issues have been identified. We are currently awaiting a formal response from Camden Council.
Environmental Setting	The site setting is considered to be of **low** sensitivity, due to the underlying non aquifer, (London Clay), the absence of on site water features and the surrounding land use.
Conclusions	There is a possibility of Made Ground and perched ground water on-site and a number of potentially contaminative features. Based on the information contained within this report and with due consideration to the proposed redevelopment plans, it is the opinion of WSP Environmental Ltd that the site represents a **medium** risk with respect to environmental considerations.
Recommendations	Due to the possible presence of Made Ground, the recent and historical use of site, further contamination assessment works are recommended prior to redevelopment. Given the age of the building, it is also recommended that records of asbestos surveys completed prior to demolition are maintained and referenced in managing the redevelopment.

Appendix A Site Location, Site Boundary Plan & Areas of Potential Concern



DO NOT SCALE

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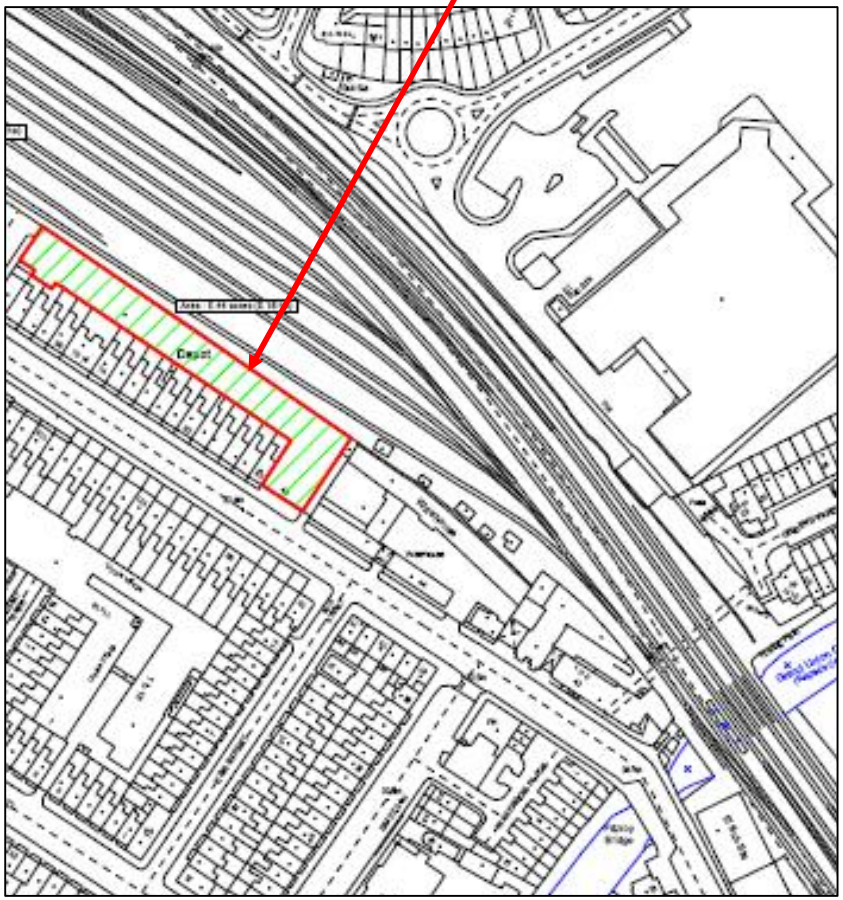
CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Site Location Plan

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix A	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

Site Layout



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CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Site Layout

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix A	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

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NOTES:

- Fuel Fill Point
- AST
- Interceptor
- Car Wash Area
- Possible UST

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CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Areas of Potential Concern

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix A	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

Appendix B Photographic Record

Photo 1. View of Site from entrance

Photo 2. View of vehicle washing area

Photo 3. View of three interceptors

Photo 4. View of vehicle washing area

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PROJECT: 46 -50 Gloucester Avenue

TITLE: Photographic Record

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix B	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

Photo 5. View of tank containing used engine oil

Photo 6. View of hazardous liquids stored on site

Photo 7. Evidence of surface staining

Photo 8. Evidence of surface staining

DO NOT SCALE

NOTES:

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Photographic Record

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix B	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

Photo 9. View of AST containing Mobil engine oil

Photo 10. View of outside storage of used vehical batteries

Photo 11. View of AST containing Synthetic engine oil

Photo 12. View of pipes used to fill AST tanks

DO NOT SCALE

NOTES:

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Photographic Record

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix B	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

Photo 13. View of roof top car park

Photo 14. View of disused, used engine oil tank on rooftop

Photo 15. Evidence of potential UST

Photo 16. Evidence of potential UST

DO NOT SCALE

NOTES:

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Photographic Record

SCALE@SIZE:	ISSUE:
NTS	Final
DESIGN/DRAWN: Appendix B	DATE: May 2008
PROJECT No: 12041164-002	DRAWING No:

Appendix C Selection of Historical Map Extracts

DO NOT SCALE

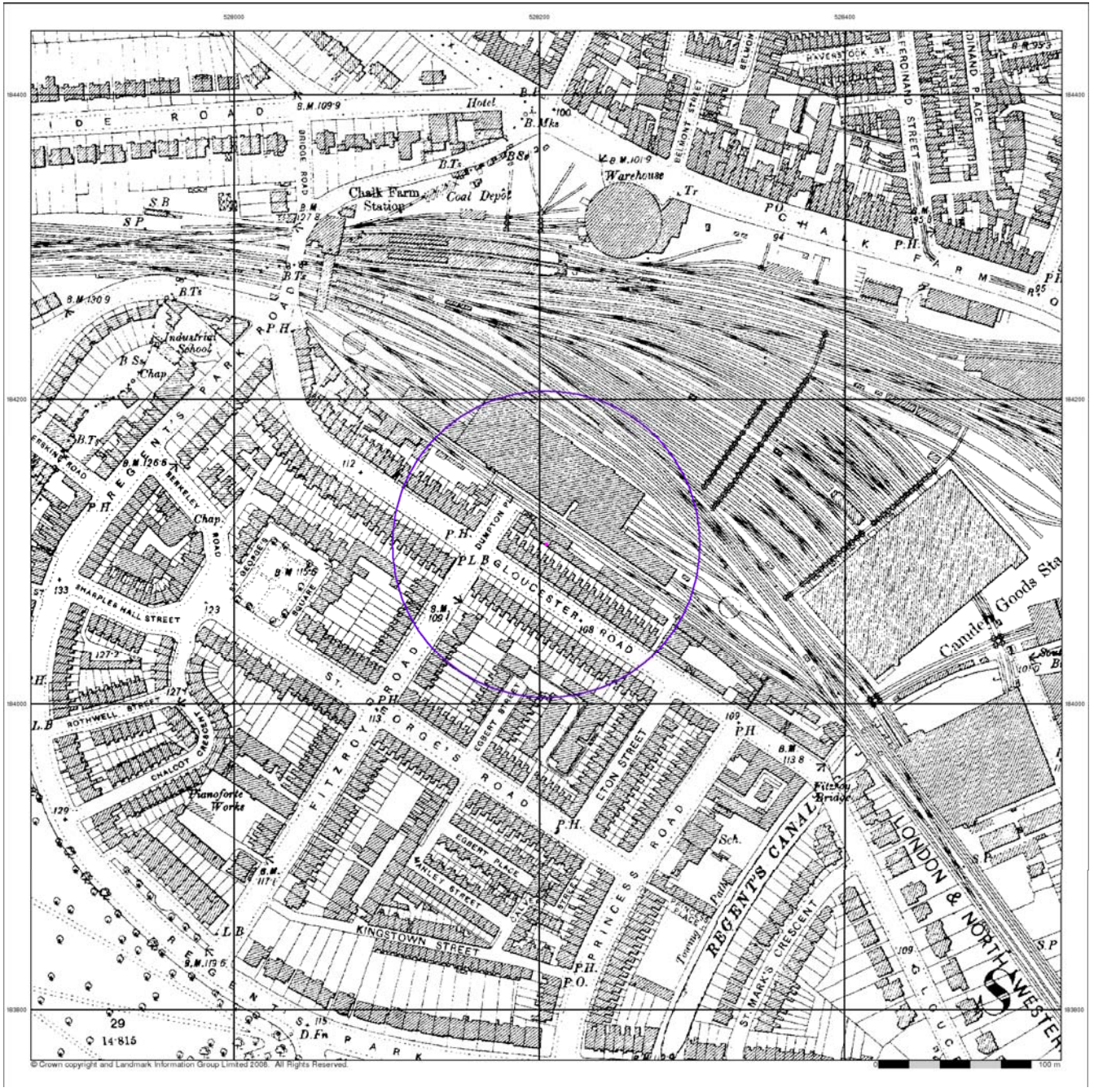
NOTES:

N

WSP

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd	
PROJECT: 46 -50 Gloucester Avenue	
TITLE: Historical Map 1875	
SCALE@SIZE: NTS	ISSUE: FINAL
DESIGN/DRAWN: SP	DATE: May 2008
PROJECT No: 12041411-001	DRAWING No:



DO NOT SCALE

NOTES:

N

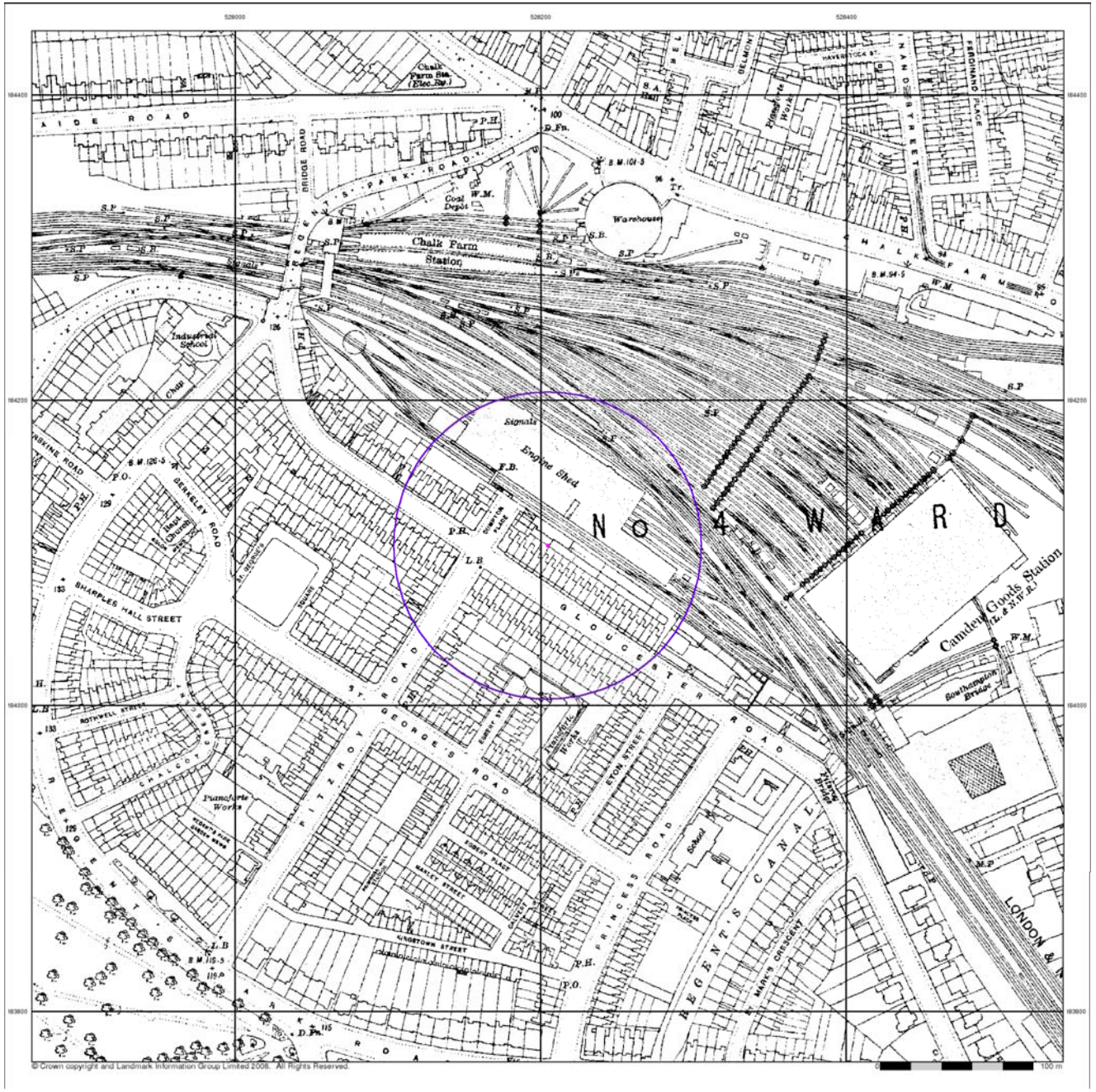
WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1896

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
12041411-001	



DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1916

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
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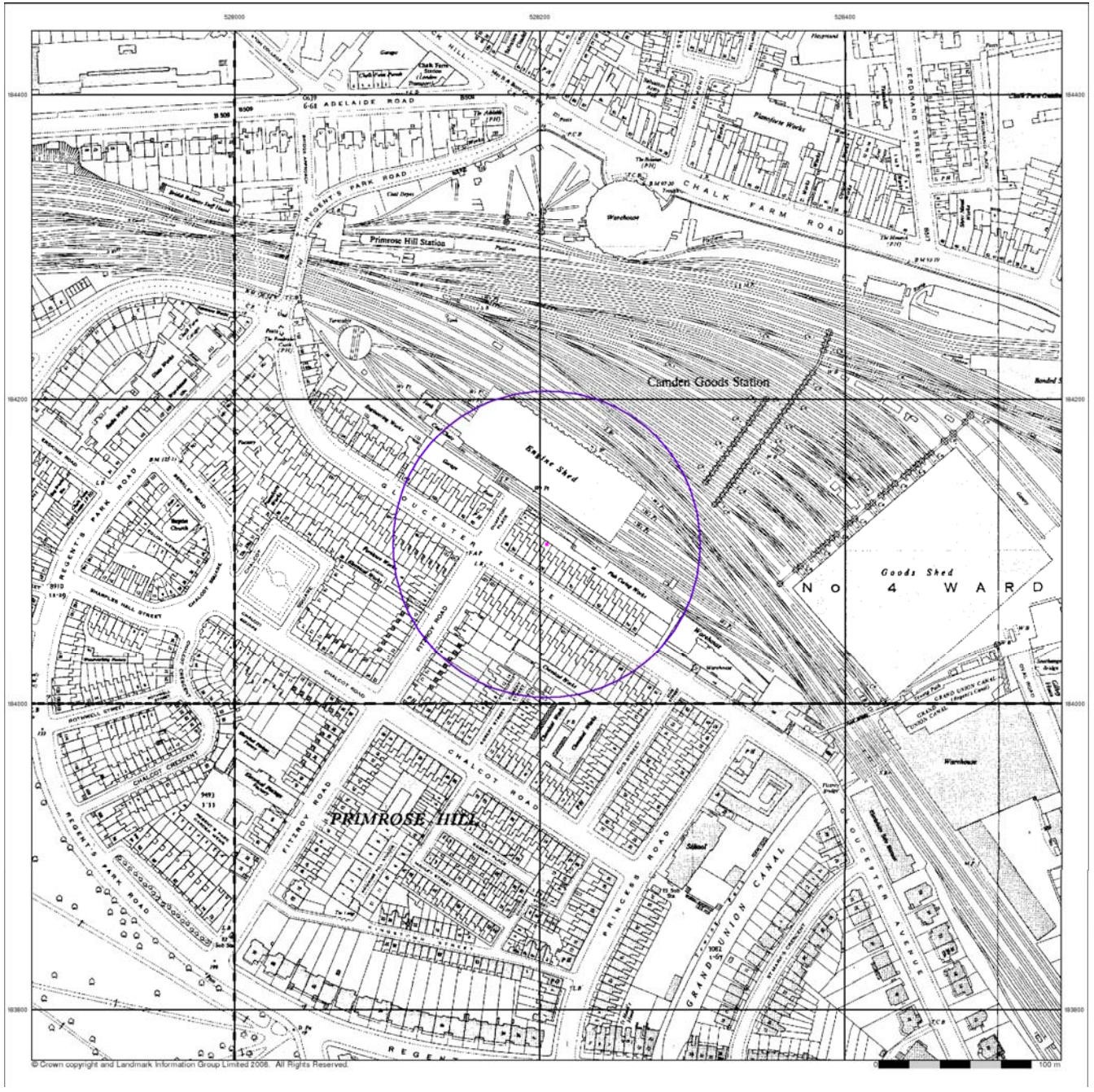

DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1954 - 1955

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
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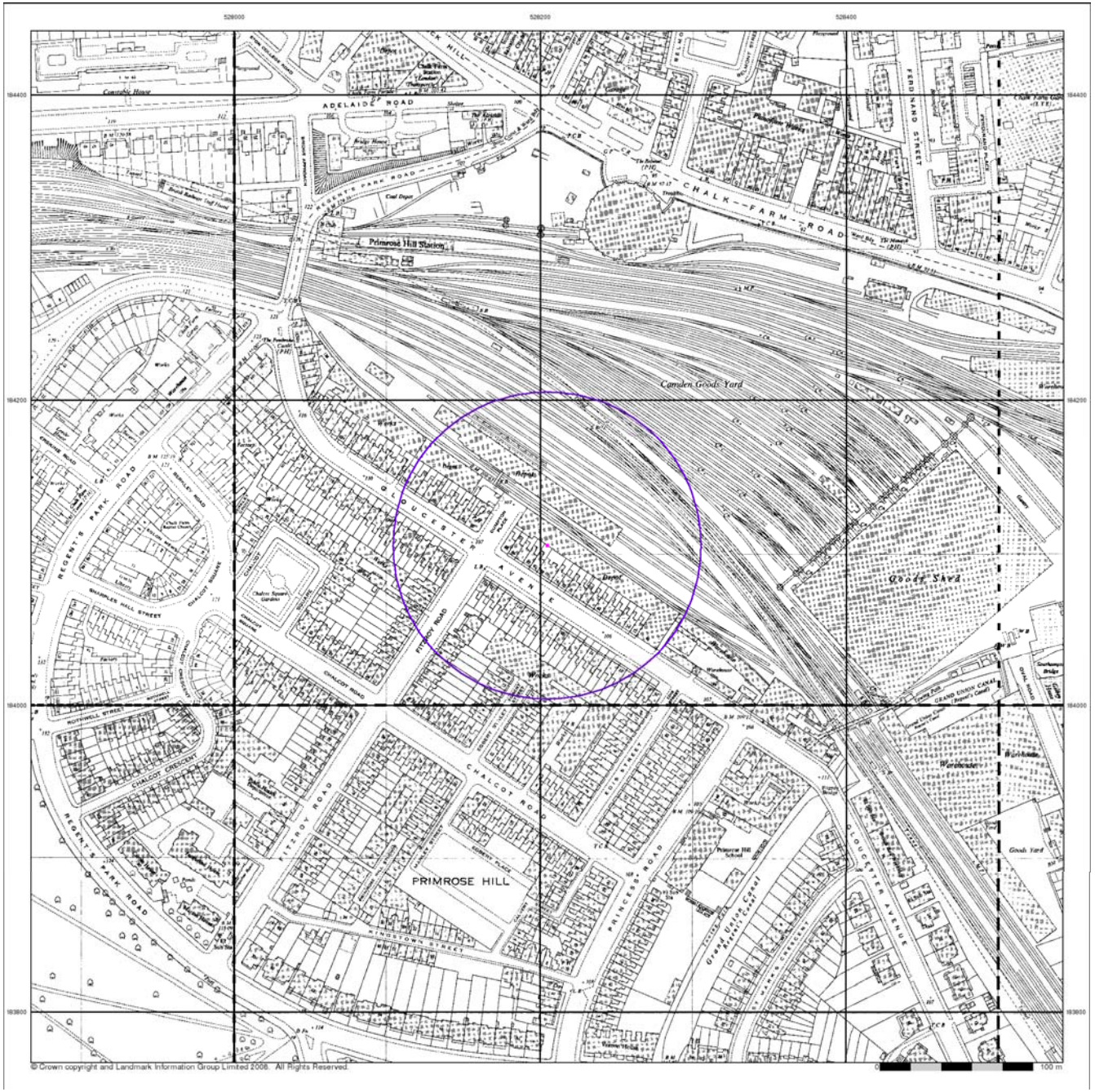

DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1963 - 1969

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
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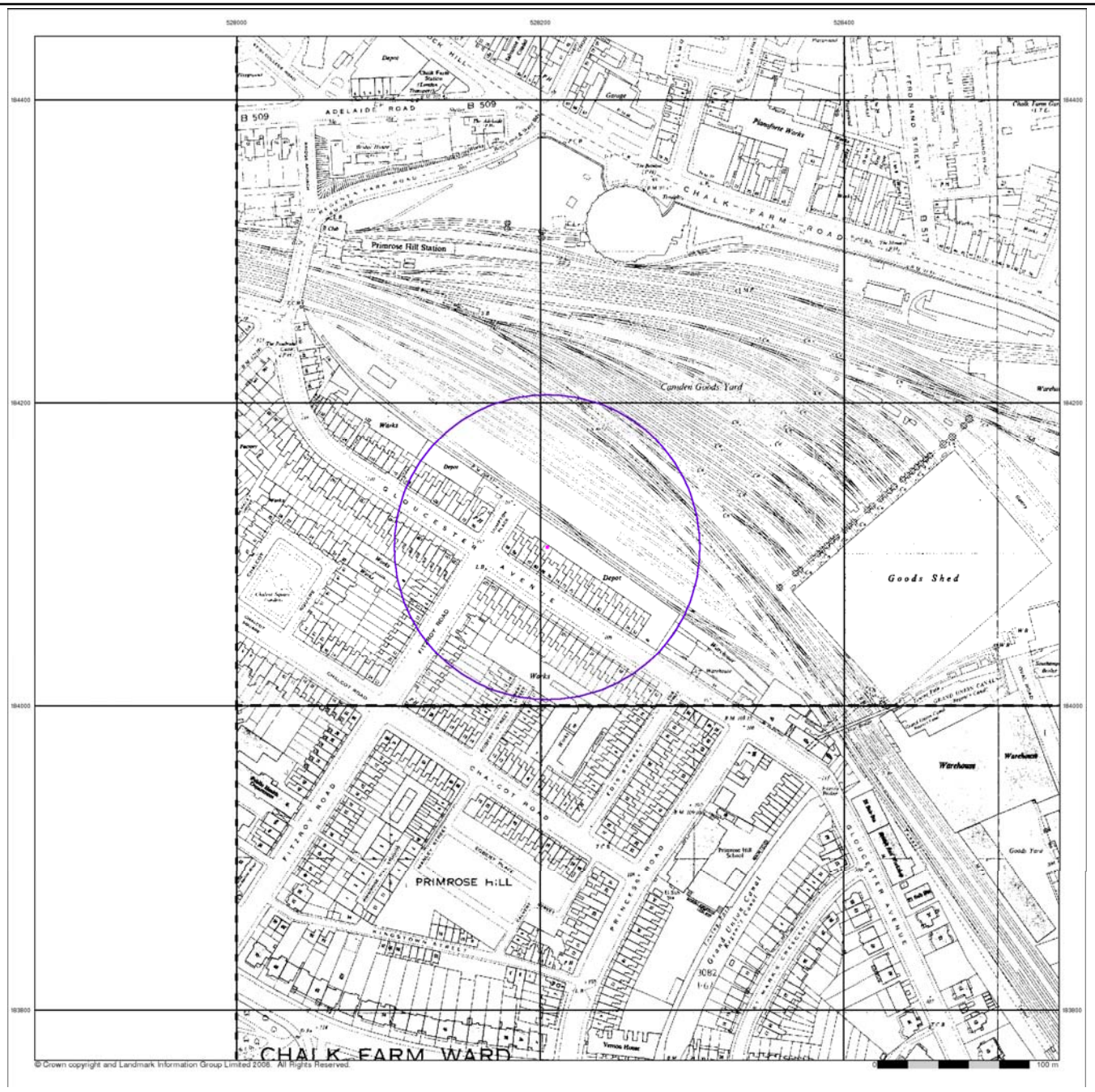

DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1970 - 1971

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
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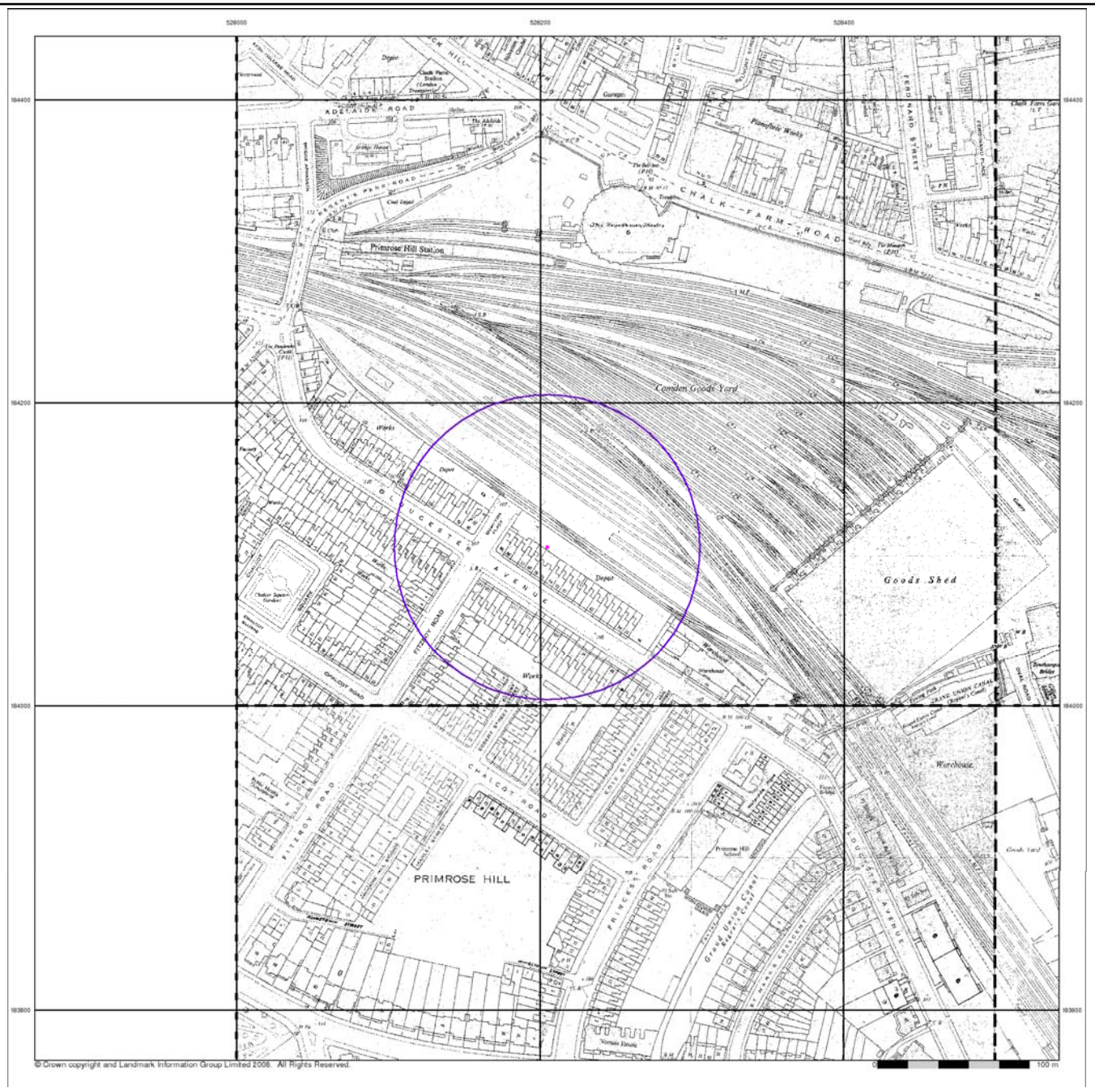

DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1973 - 1975

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
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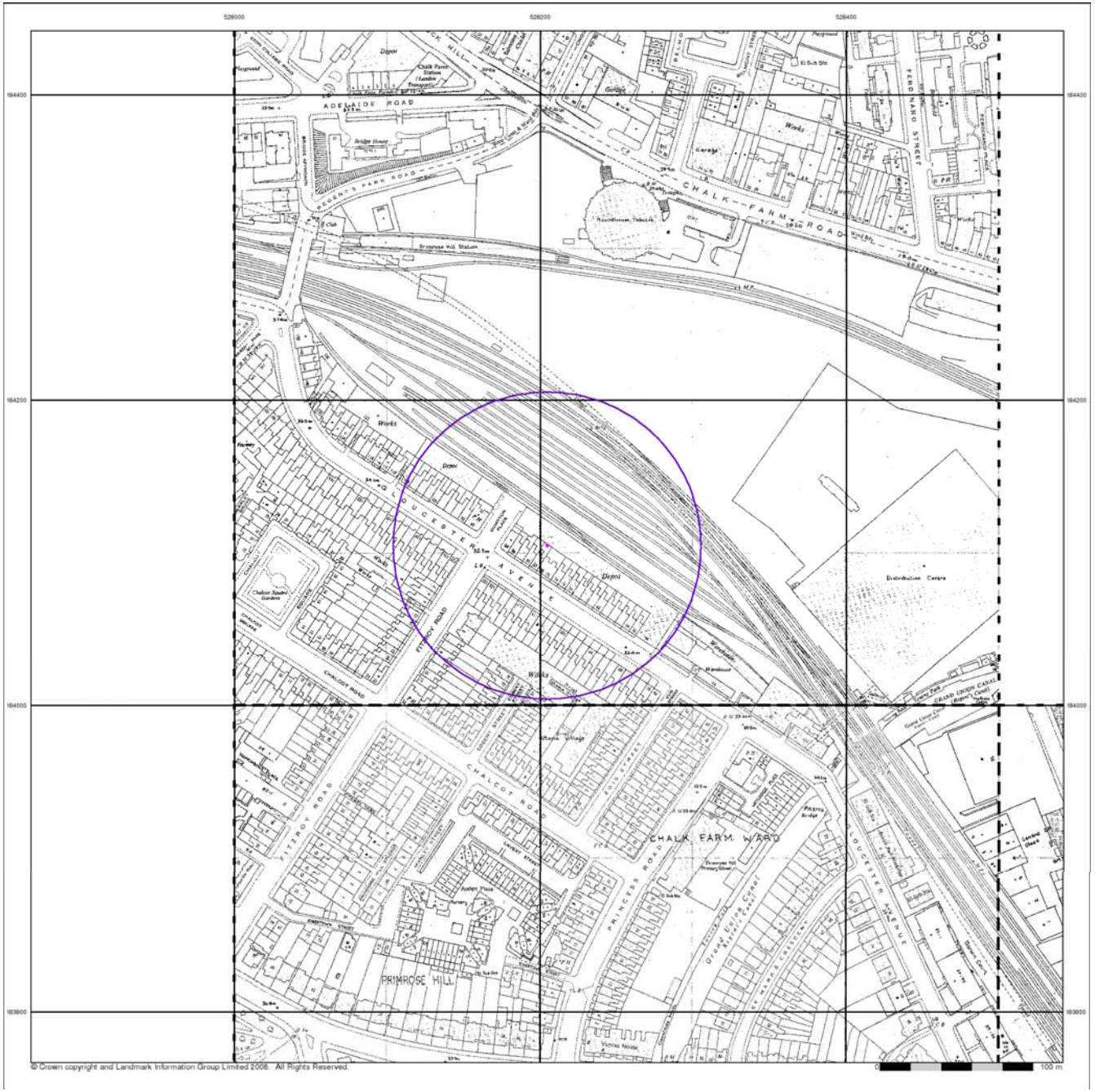

DO NOT SCALE

NOTES:

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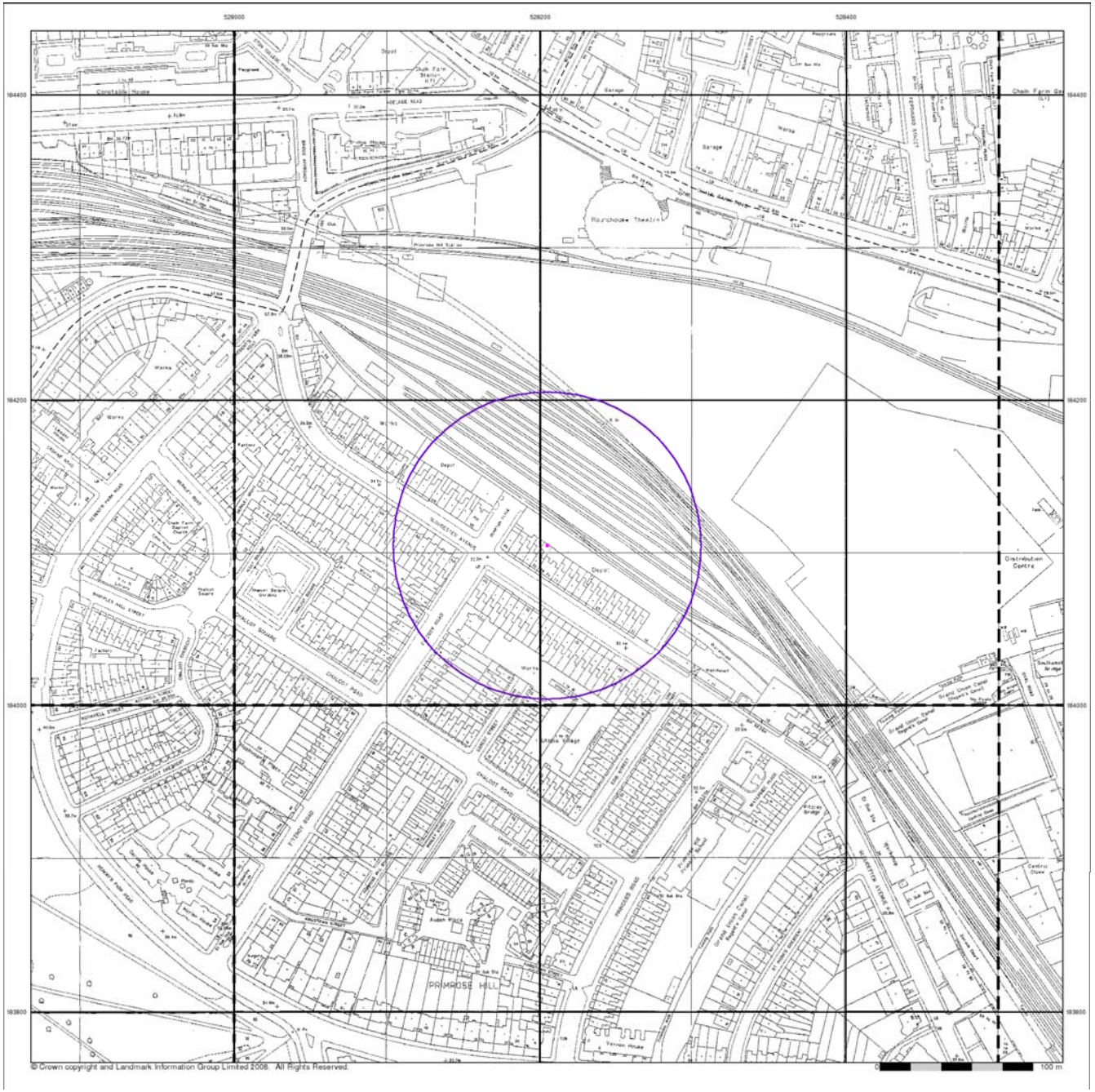
WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1982 - 1987

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
12041411-001	



DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 1991

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
12041411-001	

DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT:
Sarena Ltd

PROJECT:
46 -50 Gloucester Avenue

TITLE:
Historical Map 1991 - 1995

SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
12041411-001	

DO NOT SCALE

NOTES:

N

WSP Environmental UK Limited
Floor 6 Buchanan House, 24-30 Holborn, London, EC1N 2HS
Tel: +44 (0) 020 317 5000 Fax: +44 (0) 020 315 5005
http:// www.wspgroup.com

CLIENT: Sarena Ltd

PROJECT: 46 -50 Gloucester Avenue

TITLE: Historical Map 2008

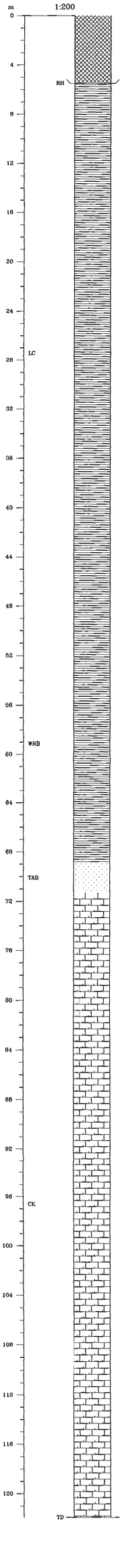
SCALE@SIZE:	ISSUE:
NTS	FINAL
DESIGN/DRAWN:	DATE:
AC	May 2008
PROJECT No:	DRAWING No:
12041411-001	

Appendix D BGS Borehole Records

N-L.K.W.R. CAMDEN ST

Grid Reference: 28190 84159

Scale: Ordnance Datum:
1:200 30.48



GEOLOGICAL SURVEY OF GREAT BRITAIN

RECORD OF SHAFT OR BORE FOR MINERALS

(*For Survey use only*)

6-inch Map Registered No. TQ28SE/6

Name of Shaft or Bore given by Geological Survey:

Name and Number given by owner: L.N.W.R. Camden St.

Nat. Grid Reference 28190. 84159

For whom made

Town or Village St Pancras County London

Exact site { Attach a tracing from a map, or a sketch-map, if possible.

1" N.S.Map No.	1" O.S.Map No.	Confidential or not
256		

Purpose for which made Water

Ground Level at shaft / bore relative to O.D. If not ground level give O.D. of beginning of shaft / bore

Made by Date of sinking

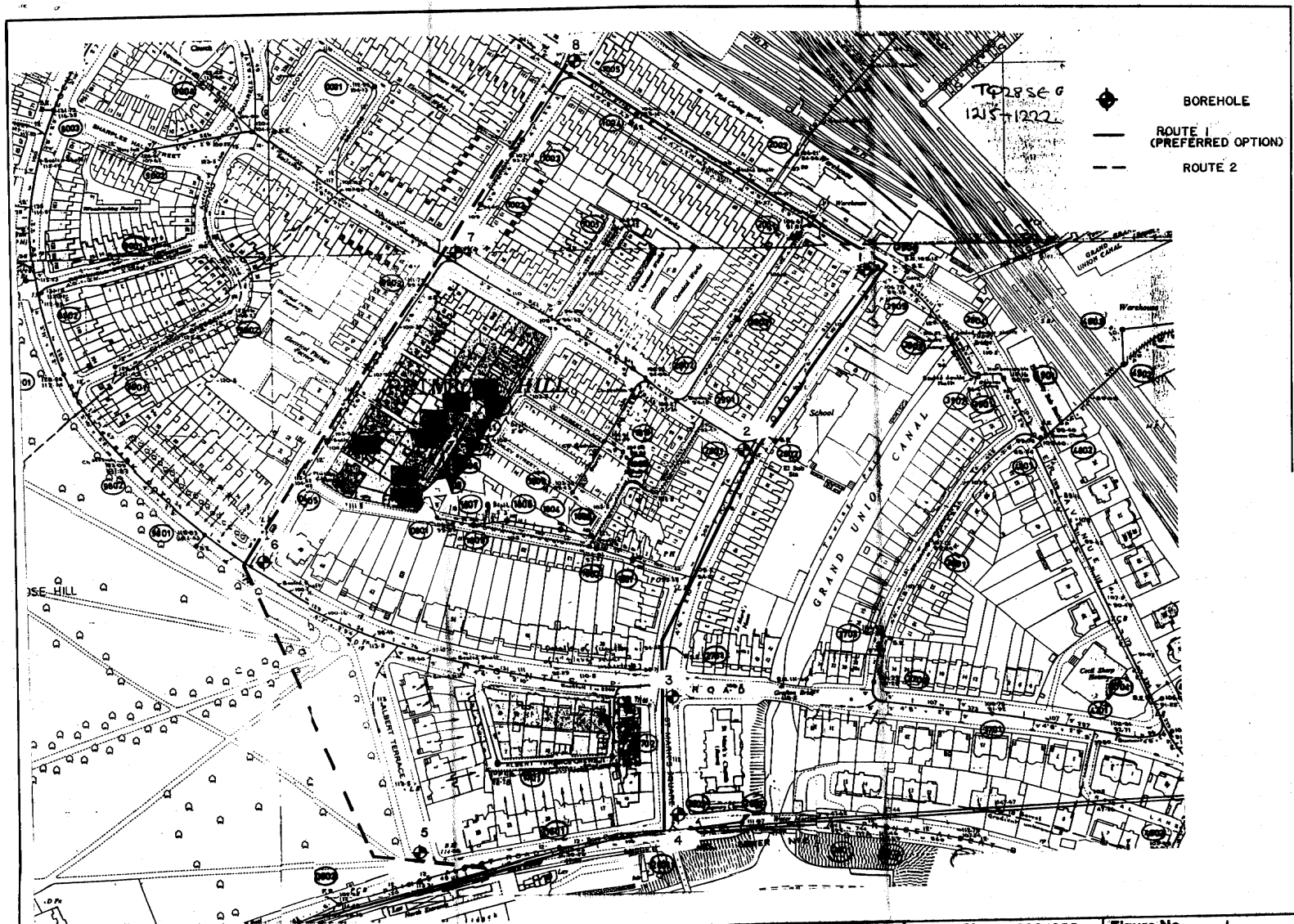
Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(*For Survey use only*) GEOLOGICAL CLASSIFICATION	DESCRIPTION OF STRATA	THICKNESS FT.	THICKNESS IN.	DEPTH FT.	DEPTH IN.
				400	121.92m
	London memoir II p.87				
	CAMDEN Station. London and North Western Railway.				
	SWINDELL and BURNELL, "*Rudimentary Treatise on Well-Digging, &c.*" Ed. 4, p. 70.				
	About 100 feet above Ordnance Datum. (30.48) (54.86)				
	Sunk 180 feet, the rest bored.				
	Water rose to a height of 150 feet below the ground. (45.72)				
	[? All made ground.] Made ground - (2.740)	9		9	4.57
	Loam and gravel (1.83)	6		15	6.49
	Black-earth - (0.91)	3		18	6.49
	Blue [London] Clay - - (43.89)	144		162	49.38
	[Reading Beds, 64 ft.] (19.51) Mottled clay - (10.97)	36		198	60.35
	Green sand - (0.30)	1		199	60.66
	Pebbles - (0.61)	2		201	61.26
	Mottled clay - (2.44)	8		209	63.70
	Plastic clay - (5.18)	17		226	68.88
	[Thanet Sand, 8 ft.] (2.44) Loam and sand (1.52)	5		231	7041
	Pebbles and sand (0.61)	2		233	71.02
	Flints - - (0.30)	1		234	71.32
	Chalk - - - (50.60)	166		400	121.92
	For an analysis, by R. PHILLIPS, of the solid matter in the water from this well see *Proc. Inst. Civ. Eng.*, vol. viii. p. 173. (1849.)				

(5412) Wt.32837/PS.154 2m 10/64 G.W.B.Ltd. Gp.863



TQ28 SE 1215

Contract: Gloucester Avenue

Client: London Borough of Camden

Borehole No. 1

Sheet No. 1 Of 1.
Depth 0 to 10 metres.

Equipment and Methods
Light Cable Percussion Boring
150mm Diameter

Orientation : Vertical

Ground Level : m.O.D.

Coordinates :

Job Number : S90/055

Location : 2832, 8398

Dates : 24/10/90
25/10/90

Daily Prog.	Water Levels	Remarks	In Situ Tests	Samples Taken	Depth (Thick)	Reduced Level	Description	Legend
				B	0.00			
					(0.60)		MADE GROUND (brick fragments)	
				J	0.60			
				U			MADE GROUND (soft brown sandy clay with occasional brick fragments)	
					(1.40)			
				B				
			S 2	J	2.00			
							MADE GROUND (very soft grey sity clay with occasional black organic matter)	
24/10				B				
24/10					(1.50)			
			S 9	J				
				B	3.50			
					(0.50)		MADE GROUND (soft grey silty clay)	
				U	4.00			
				J			Firm to stiff brown silty CLAY with grey silty partings at the top	
				J				
				U				
					(3.00)			
				J				
				J				
				U	7.00			
				J			Stiff brown slightly fissured silty CLAY	
				J				
				U				
					(3.00)			
				J				
				J				
				U				
				J	10.00			
							End of Borehole	

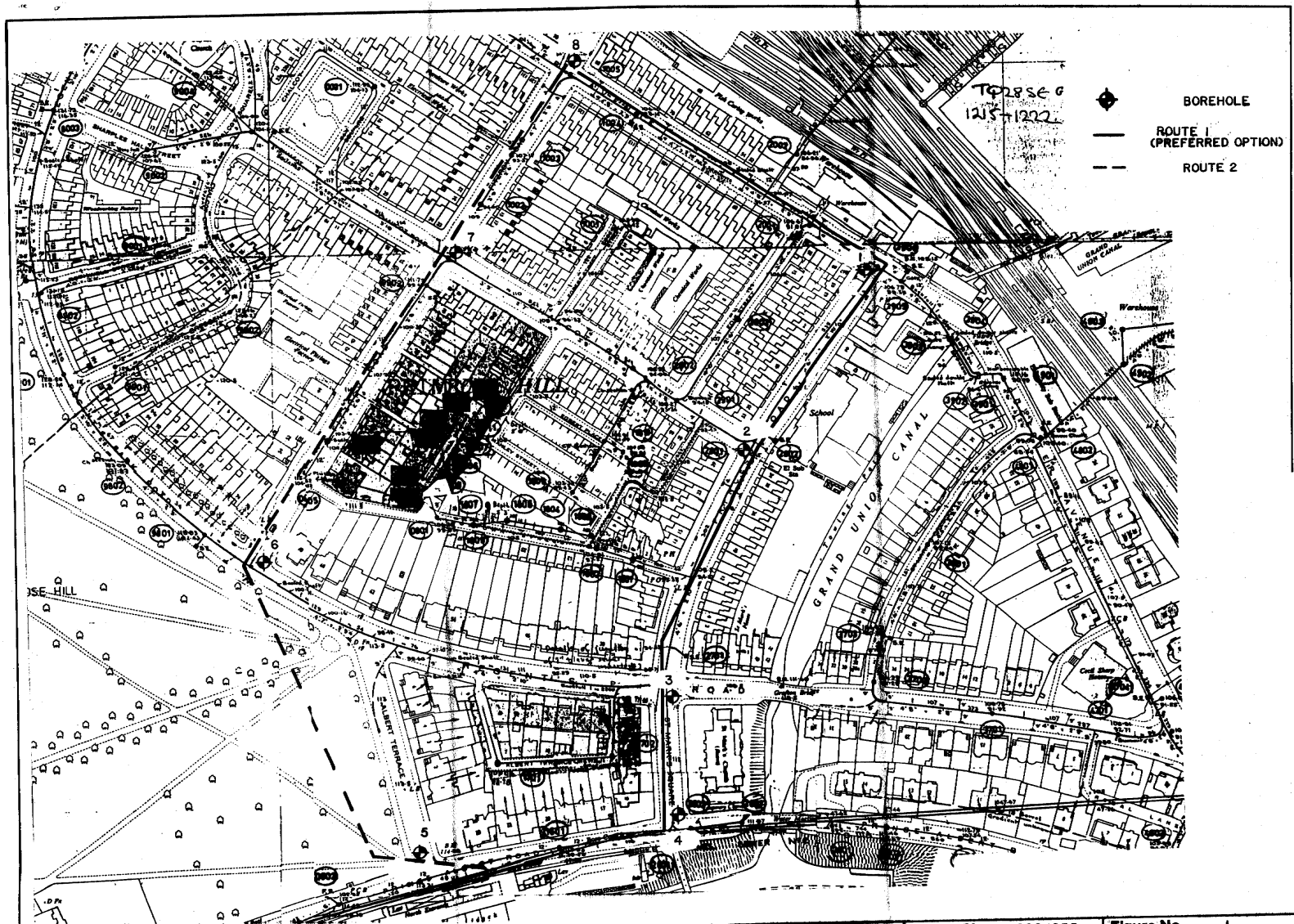
Operator
DOA

General Remarks:

Appendix
1

Scale
10m/sheet

Sheet No.
1



TQ28SE /1221

Contract: Gloucester Avenue

Client: London Borough of Camden

Borehole No. 7

Sheet No. 1 Of 2.
Depth 0 to 10 metres.

Equipment and Methods
Light Cable Percussion Boring
150mm Diameter

Orientation : Vertical

Ground Level : m.O.D.

Coordinates :

Job Number : S90/055

Location : 2810, 8399

Dates : 2/11/90

Daily Prog.	Water Levels	Remarks	In Situ Tests	Samples Taken	Depth (Thick)	Reduced Level	Description	Legend
				B	0.00		MADE GROUND (road surface over ash, brick and tarmac fragments)	
					(1.00)			
			S 6	J	1.00		MADE GROUND (soft brown sandy clay with ash and brick fragments)	
				B	(1.00)			
			S 6	J	2.00		Firm to stiff brown silty CLAY with grey silty partings at the top	
2/11				U				
				J				
				J				
				U				
				J				
				J				
					(6.50)			
				U				
				J				
				J				
				U				
				J				
				J				
				U	8.50		Stiff to very stiff brown slightly fissured silty CLAY	
				J				
					(3.00)			
				J				
					10.00		Continued	

Operator
DOA

General Remarks:

Appendix
1

Scale
10m/sheet

Sheet No.
19

TQ28SE / 1221

Contract: Gloucester Avenue

Client: London Borough of Camden

Borehole No. 7

Sheet No. 2 Of 2.
Depth 10 to 20 metres.

Equipment and Methods
Light Cable Percussion Boring
150mm Diameter

Orientation : Vertical

Ground Level : m.O.D.

Coordinates :

Job Number : S90/055

Location :

Dates : 2/11/90

Daily Prog.	Water Levels	Remarks	In Situ Tests	Samples Taken	Depth (Thick)	Reduced Level	Description	Legend
				U J	10.00		Stiff to very stiff brown slightly fissured silty CLAY	
					(3.00)			
				J				
				U J	11.50		Very stiff dark brown fissured silty CLAY	
				J				
				U J	(3.50)			
				J				
				U J				
2/11					15.00		End of Borehole	

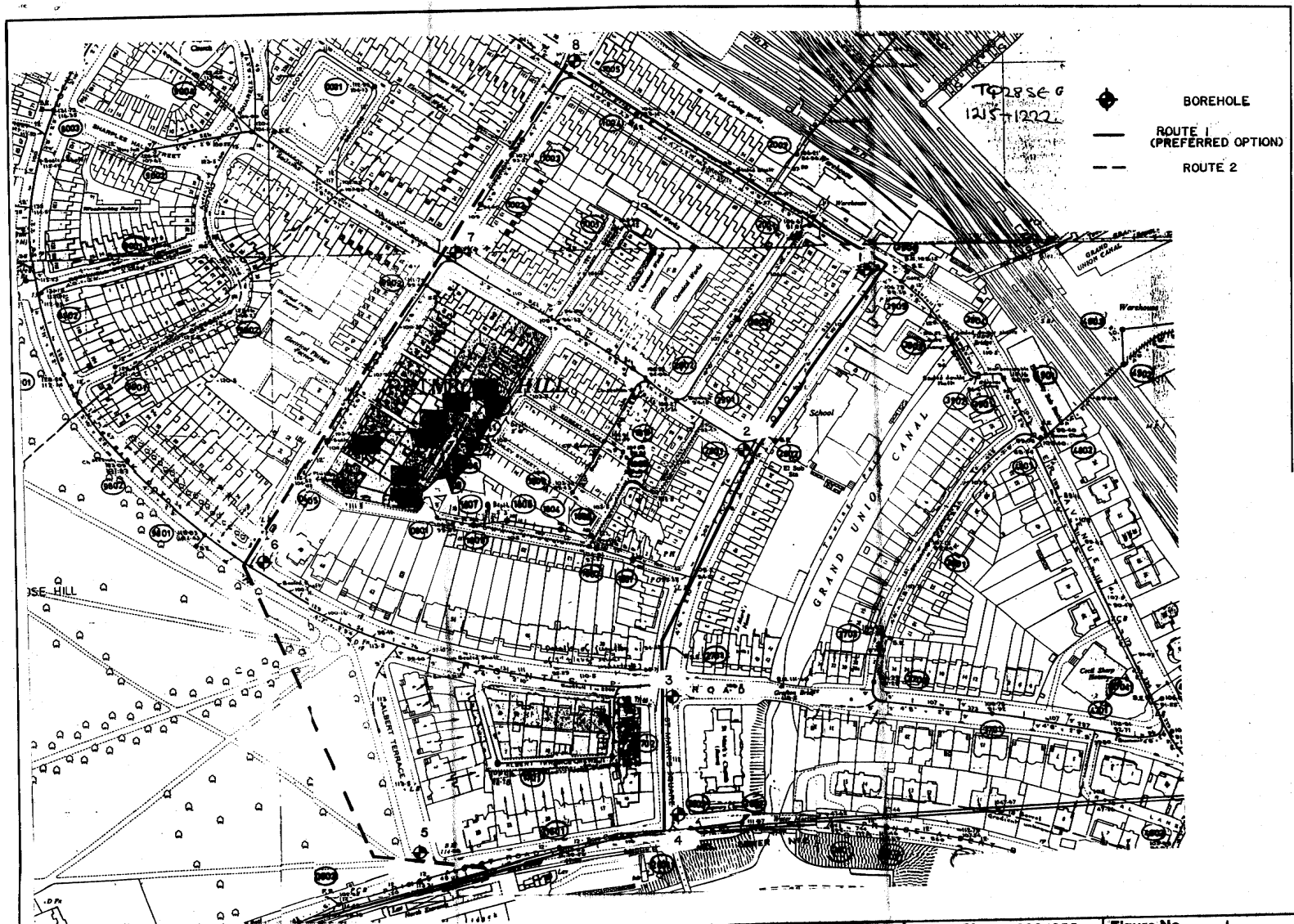
Operator
DOA

General Remarks:

Appendix
1

Scale
10m/sheet

Sheet No.
20



TQ28SE/1222

Contract: Gloucester Avenue

Client: London Borough of Camden

Borehole No. 8

Sheet No. 1 Of 2.
Depth 0 to 10 metres.

Equipment and Methods
Light Cable Percussion Boring
150mm Diameter

Orientation : Vertical

Ground Level : m.O.D.

Coordinates :

Job Number : S90/055

Location : 2816, 8410

Dates : 5/11/90
6/11/90

Daily Prog.	Water Levels	Remarks	In Situ Tests	Samples Taken	Depth (Thick)	Reduced Level	Description	Legend
				B	0.00		MADE GROUND (road surface over brown sandy clay with brick and chalk fragments)	
			S 3	J	(2.00)			
				B				
			S 5	J	2.00		MADE GROUND (soft dark grey clay with black organic matter and brick fragments)	
				B	(1.00)			
5/11				U	3.00		Firm brown silty CLAY with grey silty partings and occasional fine sandy pockets	
				J				
				J				
				U	(3.00)			
				J				
				J				
				U	6.00		Firm to stiff, brown slightly fissured, silty CLAY	
				J				
				J				
				U				
				J	(3.40)			
				J				
				U				
				J	9.40		Moderately weathered CLAYSTONE, weakly cemented	
					(5.57)		Stiff to very stiff, brown silty CLAY	
					10.00		Continued	

Operator
DA

General Remarks:

Appendix
1

Scale
10m/sheet

Sheet No.
22

TQ28 SE /1222

Contract: Gloucester Avenue

Client: London Borough of Camden

Borehole No. 8

Sheet No. 2 Of 2.
Depth 10 to 20 metres.

Equipment and Methods
Light Cable Percussion Boring
150mm Diameter

Orientation : Vertical

Ground Level : m.O.D.

Coordinates :

Job Number : S90/055

Location :

Dates : 5/11/90
6/11/90

Daily Prog.	Water Levels	Remarks	In Situ Tests	Samples Taken	Depth (Thick)	Reduced Level	Description	Legend
				J	10.00		Stiff to very stiff, brown silty CLAY	
				U				
				J				
				J				
5/11				U				
				J	(5.57)			
				J				
				U				
				J				
				J				
				U				
6/11				J	15.00		End of Borehole	

Operator
DA

General Remarks:

Appendix
1

Scale
10m/sheet

Sheet No.
23

2567395 C3

TQ 28/52

NGR TQ 2819 8414.

Machine Shop at Camden Locomotive Shed.

formerly Chalk Farm Stn.

Ref. L.M. p. 87.

In correspondence with chief Mechanical Engineer, stated that well at Chalk Farm brought to him Camden Loco-Shed.
He gave following dimensions of well -

9' dia. well - to 180'
7' " iron tubing to 236½'.
12" bore to 400'
Well deepened from 180' to 236½ in 1877 by Paten

Ref. Rudimentary Treatise on Welldigging & boring.
page 70 & 71.

Gives section

Made 18	Made	9	9
	Loam & gravel	6	15
	Black earth	3	18
London C. 144	Blue clay	144	162
W.R.B 64	Mottled clay	36	198
	Greensand	1	199
	Pebbles	2	201
	Mottled clay	8	209
	Plastic clay	17	226
T.S. 8	Loam & sand	5	231
	Pebbles & sand	2	233
	Bed of flints	1	234
Ck. 166	Chalk	166	400

Also L.M. page 87.

256/395

TQ 28/52

		ft.	ins
256/395	Made ground	18	0
	London Clay	144	0
	Woolwich + Reading Beds (Reading Type)	64	0
	Thanet Sand	8	0
	Upper Chalk	166	0

S.W. Hosier 1976

NGRC

BOREHOLE RECORDS

ADJUSTMENT FORM

QUARTER SHEET TQ 28SE

BH REGISTRATION NUMBER 1426 — 1598.

RECORDS ENTERED AND HELD BY WALLINGFORD

BH REGISTRATION NUMBER(S)

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Site	Trial Pit Number
CTRL GI DATA - Entire NDATA19 data set	TP3739

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		27.53	UR/LCE	Issue 1
	Location	**Dates**	**Engineer**	**Sheet**
	529844 E 183933 N	20/10/1995	RLE	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Loose; brown fine to coarse SAND and angular to subrounded; fine to coarse BRICK; CONCRETE and ROADSTONE GRAVEL.;(MADE GROUND) (STRATUM I);At 0.25m to 0.30m; layer of concrete cobbles.		
0.20	V2			27.23	0.30			
0.20	K1							
0.50	K3				(0.70)			
0.50	V4					Dense; black fine to coarse SAND and angular to rounded; fine to coarse ASH; BRICK; CONCRETE ROADSTONE and CLINKER GRAVEL. Rare fire bricks.;(MADE GROUND) (STRATUM II);		
0.50	B5							
0.50	D6							
1.00	K9			26.53	1.00			
1.00	V10							
1.00	B11				(0.70)	Firm; brown mottled grey CLAY with rare subangular to rounded; fine flint gravel.;(MADE GROUND) (STRATUM III);At 1.40m; concrete block.		
1.00	D12							
1.00	V8							
1.00	K7			25.83	1.70			
1.50	B13					Firm; brown mottled CLAY with some partings of light brown silt.;(LONDON CLAY - GRADE IV) (STRATUM IV)		▼1
1.50	D14		SLIGHT SEE(1) at 1.90m, rose to 1.90m in 20 mins.					
1.70	W21							
2.00	K15				(1.11)			
2.00	V16							
2.00	B17							
2.00	D18							
2.50	D20							
2.50	B19			24.72	2.81			
						Complete at 2.81m		

Plan

Remarks

1) Groundwater was encountered at 1.90m as a slight seepage; which rose to 1.70m in 30 minutes.;2) The sides of the trial pit were slightly unstable from 0.15m to 0.50m.;3) In situ tests for gas composition and water quality were carried out during trial pit excavation.;4) On completion; the trial pit was backfilled with arisings.

Scale (approx)	Logged By	Figure No.
1:50	JPH	

GROUND EXPLORATIONS LTD.

BOREHOLE NO. 2

S28284
184288

Contract Name Roundhouse. Report No. 5533/BW/MA.

Client C. J. Pell, Frischmann & Partners, Site Address

Address 4 Manchester Square, Roundhouse,

London, W1M.6EB. Chalk Farm Road,

London, N.W.1.

Standing Water Level 17ft.0in. Method of Boring Shell and auger

Water Struck 1) 12ft. Seepages 2) 18ft. Diameter 6in.

Ground Level O.D. 107.71ft. Start 29.1.72. Finish 31.1.72.

Perforated Casing -

Remarks

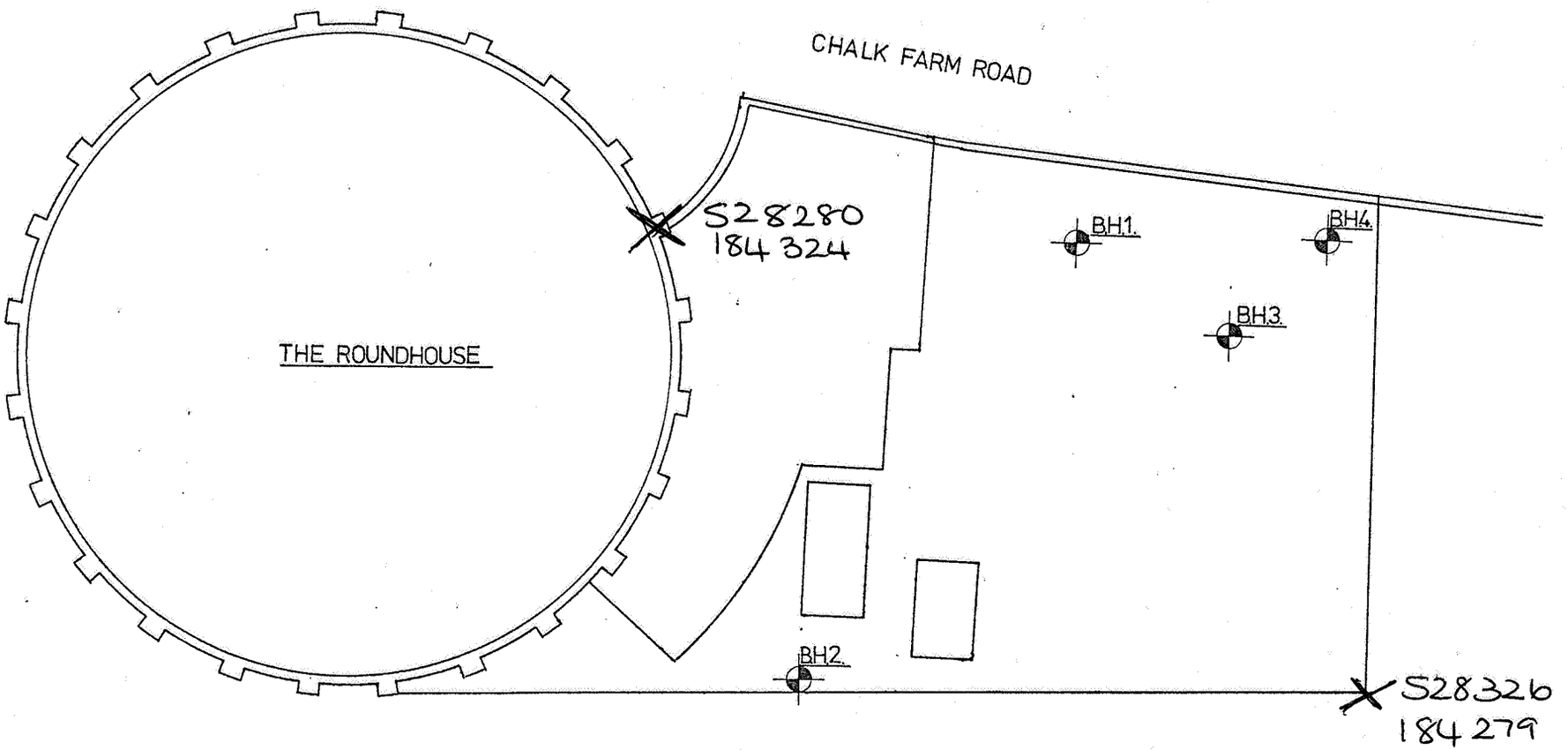
JARS		CORES		BULK	
7830 GL		7832 3'6"		7831 1'6"	
7833 5'6"		7834 8'0"		7838 18'0"	
7835 10'0"		7836 13'0"			
7837 15'0"		7839 20'0"			
7840 22'0"		7841 25'0"			
7842 26'6"		7844 29'0"			
7843 27'0"		7846 34'0"			
7845 31'0"		7848 39'0"			
7847 36'0"					
7849 41'0"					
7850 Water					

Description	Thickness	Depth
Clay and gravel.	6"	6"
Brown sandy clay with stones, ash, brick, chalk nodules, etc.	14'0"	14'6"
Grey organic clay.	3'6"	18'0"
Brown clay.	1'0"	19'0"
Brown/blue mottled fissured clay with crystals.	8'0"	27'0"
Brown fissured clay with crystals.	14'0"	41'0"
TOTALS	41'0"	41'0"

Notes 1. Descriptions are in accordance with B.S. Code of Practice C.P. 2001
Clients are requested to compare with samples submitted.

2. Core samples are nominally 102mm (4 ins.) diameter and 460mm (18 ins.) long.
Depths shown are to top of sample.

PR2519



Site Plan showing the location of Boreholes

Scale 1:500

GROUND EXPLORATIONS Ltd.	Drawn by: W.B.H. Checked by: BW	Report No. 5533
68/76 Alpha Street, Slough, Bucks.	Date February 1972	Figure No. 1

GROUND EXPLORATIONS LTD.

BOREHOLE NO. 3

S28320
184307

Contract Name Roundhouse. Report No. 5533/BW/MA.

Client C. J. Pell, Frischmann & Partners, Site Address

Address 4 Manchester Square, Roundhouse,
London, W1M.6EB. Chalk Farm Road,
London, N.W.1.

Standing Water Level 3ft.6in. Method of Boring Shell and auger

Water Struck 18ft.0in. Diameter 6in.

Ground Level O.D. 107.70ft. Start 18.1.72. Finish 20.1.72.

Perforated Casing

Remarks

Claystones from 43ft.0in. - 43ft.6in. and
60ft.0in. - 60ft.6in.

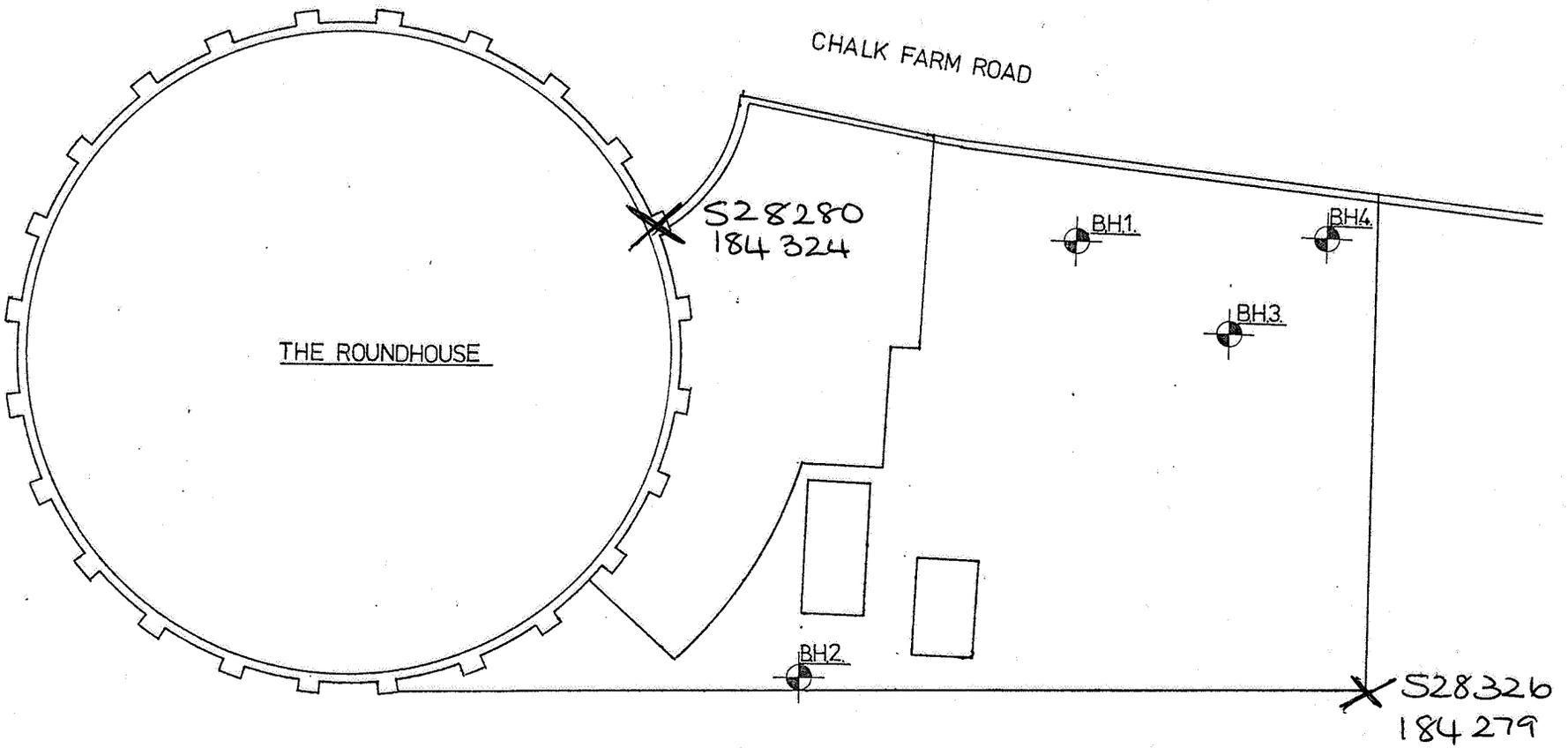
JARS				CORES				BULK	
7401	9"	7419	35'0"	7403	4'0"	7429	58'0"		
7402	3'0"	7421	40'0"	7406	9'0"	7432	63'0"		
7404	6'0"	7423	45'0"	7408	14'0"	7434	68'0"		
7405	8'0"	7424	47'6"	7411	18'0"				
7407	11'0"	7426	50'0"	7414	22'0"				
7409	16'0"	7428	55'0"	7416	27'0"				
7410	16'6"	7430	60'0"	7418	33'0"				
7412	20'0"	7431	61'0"	7420	38'0"				
7413	21'6"	7433	65'0"	7422	43'0"				
7415	24'0"	7435	70'0"	7425	48'0"				
7417	29'0"			7427	53'0"				

Description	Thickness	Depth
Tarmac.	6"	6"
Stone setts.	3"	9"
Silty clay with gravel.	2'3"	3'0"
Brown clay with stones and patches of organic matter.	4'0"	7'0"
Brown clay.	9'6"	16'6"
Black organic clay with coal, brick and pottery.	1'6"	18'0"
Blue-grey organic clay.	3'6"	21'6"
Brown/blue mottled fissured clay.	16'6"	38'0"
Brown fissured clay.	9'6"	47'6"
Dark brown fissured clay.	22'6"	70'0"
TOTALS	70'0"	70'0"

Notes 1. Descriptions are in accordance with B.S. Code of Practice C.P. 2001
Clients are requested to compare with samples submitted.

2. Core samples are nominally 102mm (4 ins.) diameter and 4 60mm (18 ins.) long.
Depths shown are to top of sample.

PR2519



Site Plan showing the location of Boreholes

Scale 1:500

GROUND EXPLORATIONS Ltd.	Drawn by: W.B.H. Checked by: BW	Report No. 5533
68/76 Alpha Street, Slough, Bucks.	Date February 1972	Figure No. 1

GROUND EXPLORATIONS LTD.

BOREHOLE NO. 4

S28329
184 313

Contract Name Roundhouse.
Report No. 5533/BW/MA.
Client C. J. Pell, Frischmann & Partners,
Site Address
Address 4 Manchester Square,
Roundhouse,
London, W1M.6EB.
Chalk Farm Road,
London, N.W.1.

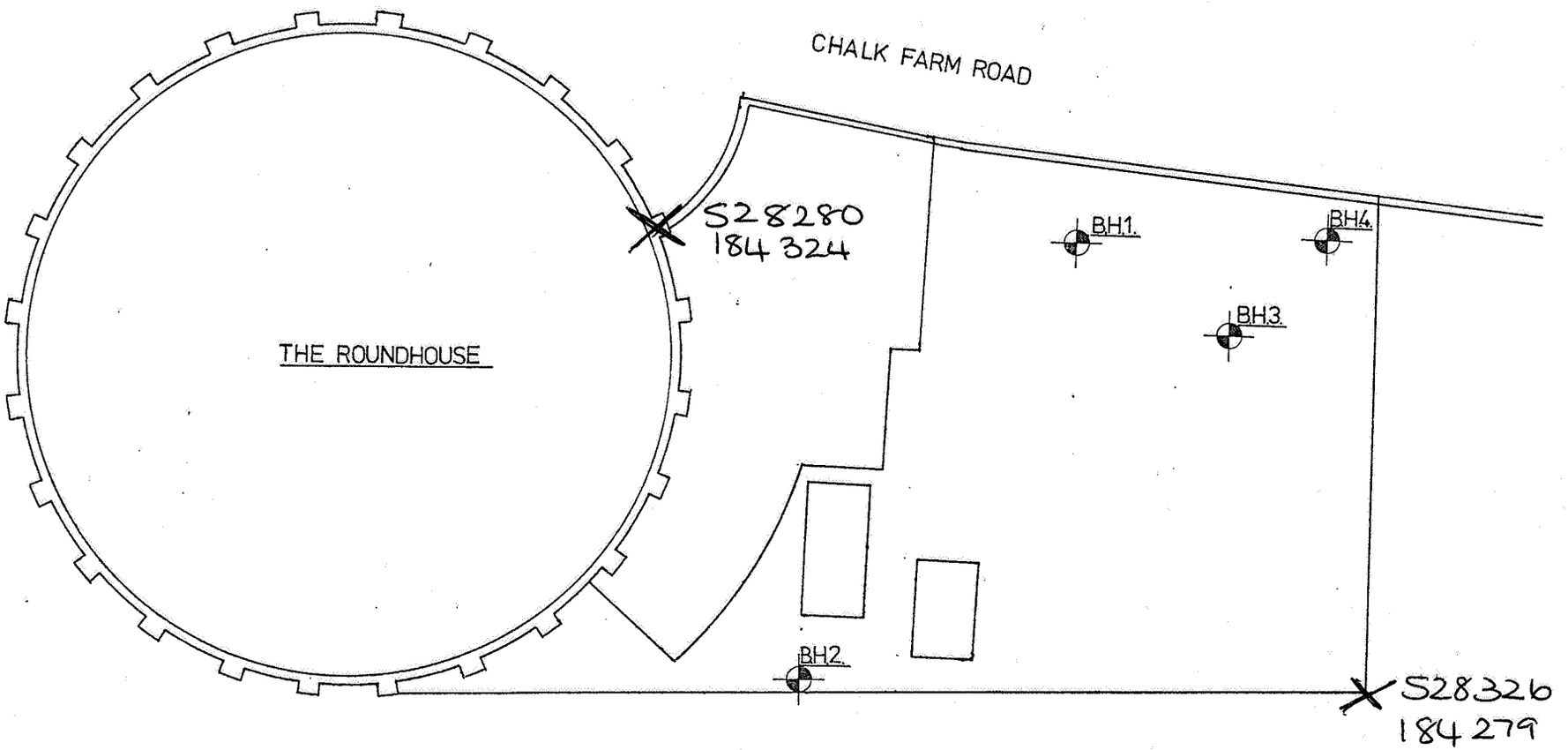
Standing Water Level 15ft.0in.
Method of Boring Shell and auger
Water Struck Seepage 15ft.0in.
Diameter 6in.
Ground Level O.D. 107.52 ft.
Start 21.1.72. Finish 22.1.72.
Perforated Casing
Remarks

JARS				CORES				BULK	
7500	4'0"	7459	50'0"	7438	5'0"	7462	58'0"	7436	2'0"
7439	7'0"	7461	55'0"	7440	10'0"				
7441	12'6"	7463	60'0"	7442	12'0"				
7443	14'0"	7464	Water	7446	19'0"				
7445	17'6"			7448	24'0"				
7447	21'0"			7450	29'0"				
7449	26'0"			7452	34'0"				
7451	31'0"			7454	39'0"				
7453	36'0"			7456	44'0"				
7455	41'0"			7458	48'0"				
7457	47'0"			7460	53'0"				

Description	Thickness	Depth
Railway ballast.	2'0"	2'0"
Clay with gravel.	2'0"	4'0"
Brown clay with stones.	3'0"	7'0"
Mottled brown clay with patches of organic matter.	4'6"	11'6"
Grey/black organic clay with stones, bricks, etc.	6'0"	17'6"
Brown/blue mottled fissured clay with crystals.	22'6"	40'0"
Dark brown fissured clay.	20'0"	60'0"
TOTALS	60'0"	60'0"

Notes 1. Descriptions are in accordance with B.S. Code of Practice C.P. 2001
Clients are requested to compare with samples submitted.
2. Core samples are nominally 102mm (4 ins.) diameter and 460mm (18 ins.) long.
Depths shown are to top of sample.

PR2519



Site Plan showing the location of Boreholes

Scale 1:500

GROUND EXPLORATIONS Ltd.	Drawn by: W.B.H. Checked by: BW	Report No. 5533
68/76 Alpha Street, Slough, Bucks.	Date February 1972	Figure No. 1

~~279 840~~ 1 of 2 256 TQ 28 SE/410

N.G.R. 2795. 8400

GROUND LEVEL: 126·7 A.O.D. 38·61m
NOMINAL B.H. DIA.: 8" Casing to 20ft.
DATE OF BORING: 1 March to 7 March '50

BOREHOLE No. 28

GROUNDWATER LEVEL	GROUNDWATER DATE	SAMPLE DEPTH	B.H.	DEPTH	R.L.	DESCRIPTION OF STRATA
				0'		Tarmacadam / Concrete
				0' - 6"	+126·8	Hardcore
				0' - 6"	+126·2	
				1' - 6"	+125·2	
				0.46m	+38.16m	Soft (becoming firm at 9ft) brown mottled clay probably fill to 9ft.
				15'-0"	+111·7	
				4.57m	+34.05m	Firm brown & blue clay
				20'-0"	+106·7	
				6.10m	+32.53m	Firm becoming stiff fissured brown clay
				41'-0"	+85·7	
				12.50m	+26.13m	Stiff dark brown & blue clay
				43'-0"	+83·7	
				13.11m	+25.52m	Stiff grey-blue fissured clay
				24.08	+14.54m	
				79'-0"	+47·7	Contd.

REMARKS:
Water seeping from clay 103ft. to 104ft.

SAMPLES
■ Undisturbed
● Disturbed

SCALE:
1/8" to 1'-0"

METROPOLITAN WATER BOARD.
MAIN IN TUNNEL BETWEEN THAMES AND LEA VALLEYS.

SOILS No. S/371

DRWG. No. S/R/527

GEORGE WIMPEY & CO. LTD., CENTRAL LABORATORY, SOUTHALL.

~~279·840~~ 2 of 2 256 TQ28SE/410

GROUND LEVEL: 126·7 A.O.D. 38·61m N.G.R. 2795, 8400
NOMINAL B.H. DIA.: 8" Casing to 20ft. **BOREHOLE No. 28** (Contd).
DATE OF BORING: 1 March to 7 March '50

GROUNDWATER LEVEL	GROUNDWATER DATE	SAMPLE DEPTH	B.H.	DEPTH 79'-0"	R.L. +47·7	DESCRIPTION OF STRATA
				24·08m	+14·54m	
		92'-6" to 93'-11"				Stiff dark grey-blue fissured silty clay
		100'-6" to 102'-0"				
				103'-0" 31·39m	+23·7 +1·23m	
				104'-0" 31·70m	+22·7 +6·92m	Soft becoming firm dark grey silty clay
112'-0'						Stiff dark grey-blue fissured silty clay
				130'-0" 39·62m	-3·3 -0·93m	Stiff brown-grey fissured silty clay
				136'-0" 41·45m	-9·3 -2·81m	Stiff dark grey-green clay
				138'-0" 42·06m	-11·3 -3·42m	Stiff dark brown-grey silty clay
				143'-0" 43·59m	-16·3 -4·94m	Bottom of borehole

REMARKS:

SAMPLES
■ Undisturbed
● Disturbed

SCALE: 1/8" to 1'-0"

METROPOLITAN WATER BOARD.
MAIN IN TUNNEL BETWEEN THAMES AND LEA VALLEYS.

SOILS No. S/371

DRWG. No. S/R/527

GEORGE WIMPEY & CO. LTD., CENTRAL LABORATORY, SOUTHALL.

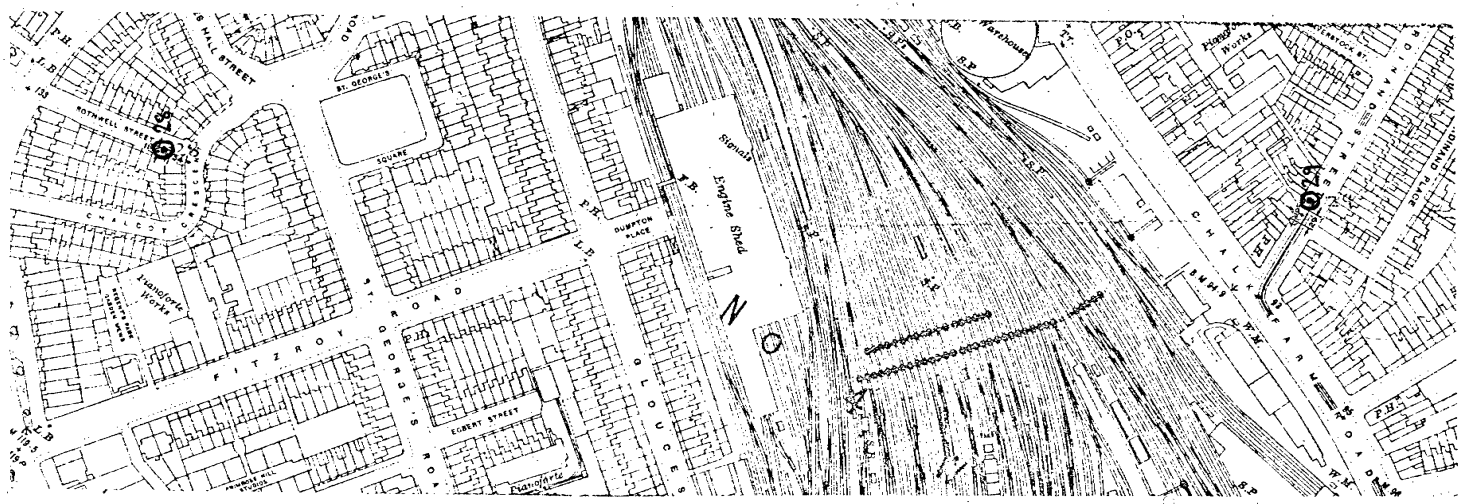
TQ 28SE 410-411

28, 27

METROPOLITAN WATER BOARD

BOROUGH OF ST. PANCRAS.

PROPOSED POSITION OF BOREHOLES



Scale 1/2500

© Actual positions of boreholes

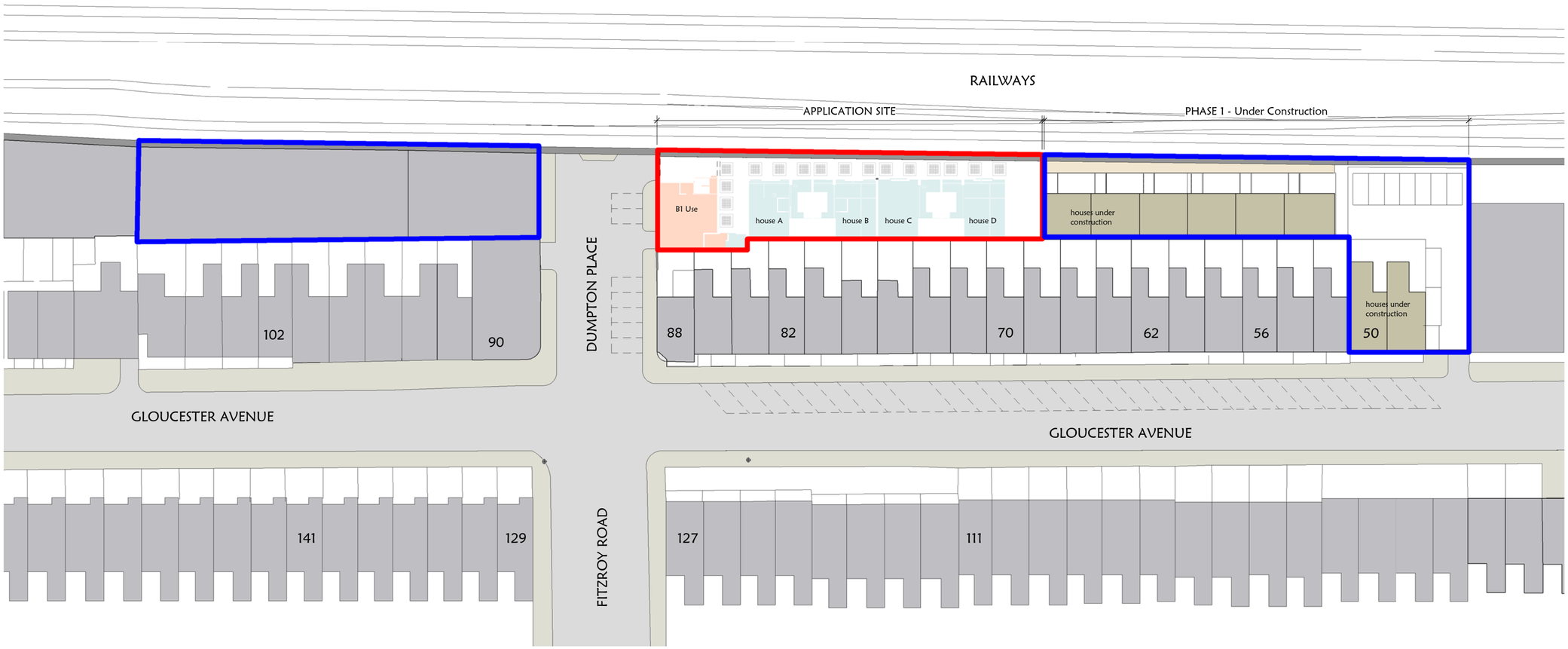
Appendix E Proposed Development Plans

GENERAL NOTES

1. Do not scale this drawing for Construction purposes.
2. All dimensions in this dwg. are metric.
3. This drawing & all other drawings & schedules,specifications, details etc. relating to this project are copyright of **PMA.**
4. This drawing shall be read in strict conjunction with all other relevant architects' structural engineer's & services engineer's drawings, calculations, details & specifications.
5. The contractor shall check all dimensions & setting out information on this or other related drawings prior to placing work in hand. Any errors or discrepancies between documents shall be reported to the architect & seek clarification.
6. All proprietory products shall be used & fixed in strict accordance with manufacturers' printed recommendations, notes, specifications etc.
7. Only drawings stamped "ISSUED FOR CONSTRUCTION"shall be used on site.

TOTAL SITE AREA:
736.8 sq.m

REFER TO DRAWINGS 02DP/3002 - 3006 FOR LARGER SCALE PLANS



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PROPOSED SITE PLAN

1 : 500

0 5m 10m 15m 20m 25m

No. Revision	Date	Description	Chk.

Originator/Author

pma
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Second Floor, Prospect House, 191-199 London Road, Isleworth, Middlesex. TW7 5XD.
T: +44 (0) 7887 646 957; T +44 (0) 78130 202 130, e: pma@pm-architects.com

Client
SERENA LTD.

Job Title
2 DUMPTON PLACE, PRIMROSE HILL NW1 8JB

Job Number: 02DP

Drawing Title
PROPOSED SITE PLAN

Scale		Drawn By
1 : 500@A2		MK
Date of Issue	Date Drawn	Checked By
22/10/2010	21/10/2010 13:18:50	NP

Drawing Originator	Project Reference	Drawing Number	REV.
PM | A	02DP	3001	

TOWN PLANNING

Drawing Status

GENERAL NOTES

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3. This drawing & all other drawings & schedules,specifications, details etc. relating to this project are copyright of **PMA.**
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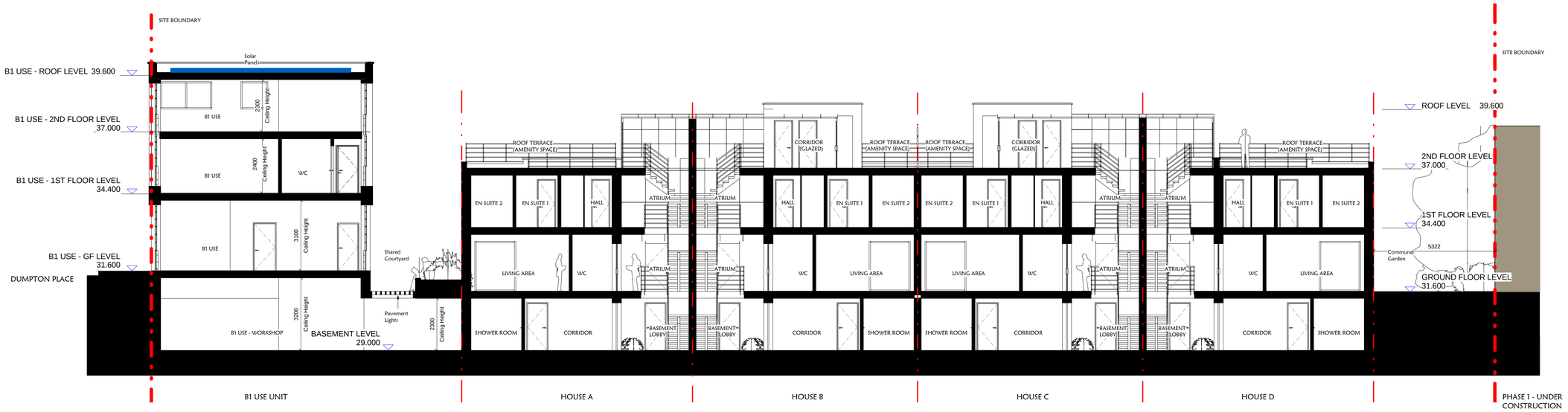
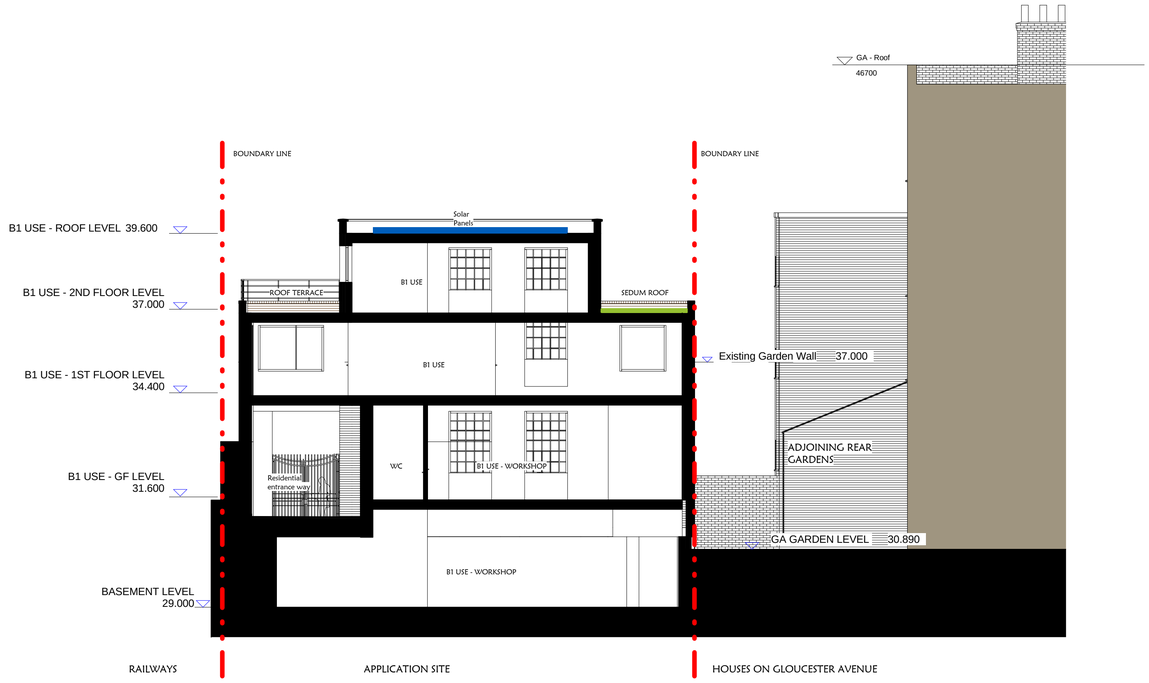
6. All proprietory products shall be used & fixed in strict accordance with manufacturers' printed recommendations, notes, specifications etc.
7. Only drawings stamped "ISSUED FOR CONSTRUCTION"shall be used on site.



SECTION A-A

1 : 100



SECTION BB

1 : 100

0 1m 2m 3m 4m 5m

No. Revision | Date | Description | Chk.

Originator/Author

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Client

SERENA LTD.

Job Title

2 DUMPTON PLACE, PRIMROSE HILL NW1 8JB

Job Number: 02DP

Drawing Title

SECTIONS A-A & B-B

Scale		Drawn By
1 : 100@A1 & 1:200@A3		MK
Date of Issue	Date Drawn	Checked By
22/10/2010	21/10/2010 13:19:48	NP

Drawing Originator	Project Reference	Drawing Number	REV.
PM	A 02DP	3021	

TOWN PLANNING

Drawing Status

Appendix F Methodology and Limitations

Methodology

This Environmental Assessment has been designed to provide information relating to:

- the current and former land uses on and surrounding the site;
- the environmental sensitivity of the site location as determined by factors including geology, hydrogeology, surface watercourses and neighbouring land uses; and,
- relevant records held by the environmental regulators.

Any relevant information provided by the client has been reviewed, with appropriate action taken to ensure this information is taken into account and/or verified where necessary. All information is then assessed to define the potential for the site to give rise to environmental liabilities for the freehold/leasehold owner (as appropriate). Recommendations are made for additional work where this is necessary to fully define the site's environmental liabilities, and cost estimates of the financial implications of the findings can be provided under separate cover, where appropriate.

Risk Classification

This assessment has been undertaken with due regard to Contaminated Land Guidance documents issued by the Department for Environment, Food and Rural Affairs (and its Predecessors), the British Standards Institute (the BSi), the Royal Institution of Chartered Surveyors (RICS) and the American Society for Testing and Materials (ASTM) Standard E 1527-05. The methods used follow a risk-based approach, with the potential environmental risk assessed qualitatively using the 'source-pathway-target pollutant linkage' concept introduced in the Environmental Protection Act 1990.

Specific comment is made regarding the site's status under the Contaminated Land Regime implemented on the 1st April 2000 as Part IIA of the Environmental Protection Act 1990, and the actual or potential designation of the site as 'Contaminated Land' as defined in Section 78A(2). Unless specifically stated as relating to this definition, references to 'contamination' and 'contaminants' relate in general terms to the Presence of potentially hazardous substances in, on or under the site.

In addition, consideration has been given to a wide range of related topics including (where appropriate): environmental processes; current and foreseeable environmental legislation; the practices and duties of environmental regulators; the health and safety of occupiers and neighbours as affected by contamination; effects on the structure of buildings; and financial implications. References to risk classifications are made according to the following definitions:

Low Risk

It is unlikely that the issue will arise as a liability/cost for the freehold/leasehold owner (as appropriate) of the site.

Medium Risk

It is possible that the issue could arise as a liability/cost for the freehold/leasehold owner (as appropriate) of the site. Further work is usually required to clarify the risk.

High Risk

It is likely that the issue will arise as a liability/cost for the site freehold/leasehold (as appropriate) owner of the site.

Environmental Risk Assessment

The presence of contaminated materials on a site is generally only of concern if an actual or potentially unacceptable risk exists. Within the context of current UK Legislation (i.e. Section 57 of the Environment Act 1995), the interpretation of a "significant risk" is termed to be one where:

- Significant harm is being caused or there is a significant possibility of such harm being caused, (where harm is defined as harm to health of living organisms or other interference with the ecological systems of which they form a part and, in the case of man, includes harm to his property); and / or, pollution of Controlled Waters is being caused.

The potential for harm to occur requires three conditions to be satisfied:

- Presence of substances (potential contaminants/pollutants) that may cause harm (Source of Pollution).
- The presence of a receptor which may be harmed, e.g. the water environment or humans, buildings, fauna and flora (The Receptor).
- The existence of a linkage between the source and the receptor (The Migration Pathway).

Therefore, the presence of measurable concentrations of contaminants within the ground and subsurface environment does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm.

The nature and importance of both pathways and receptors, which are relevant to a particular site, will vary according to the intended use of the site, its characteristics and its surroundings.

In order to assess the contamination risk at the subject site the above rational has been applied and is discussed within section 6 in the context of Contamination Sources and Potential Pollutant Linkages.

Limitations

WSP Environmental Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from WSP Environmental Limited; a charge may be levied against such approval.

WSP Environmental Limited accepts no responsibility or liability for:

a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and

b) this document to any third party with whom an agreement has not been executed.

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client) and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP Environmental Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

Where no site inspection is undertaken (for example a Desk Study Assessment or due to restricted site access), WSPE cannot comment on the potential for environmental concerns associated with the current use or structure including the Presence of asbestos.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Appendix G Report References

Environment Agency Aquifer Classifications

The Environment Agency (EA) Groundwater Vulnerability Map and Regional Appendices, which make up part of the published Policy and Practice for the Protection of Groundwater, divide the underlying strata in England and Wales into major, minor and non aquifers dependent upon their potential for potable water supply. The following table is derived from the main policy document. The division of the rock formations into major, minor and non aquifer reflects the Regional importance and vulnerability of the formation.

Major Aquifer

Highly permeable formations usually with the known or probable Presence of significant fracturing. Highly productive strata of Regional importance. Often used for large potable abstractions. E.g. Upper Chalk, Permo-Triassic Sandstones

Minor Aquifer

Fractured or potentially fractured but without high intergranular permeability. Generally only support locally important abstractions E.g. Coal Measures

Variable porosity and permeability but without significant fracturing. Generally only support locally important abstractions. E.g. River Terrace Gravels

Non Aquifer

Formations with negligible permeability. Only support very minor abstractions if any. E.g. Mercia Mudstones, igneous rocks

Regulatory Information Sources

Reference has been made to the Landmark Information Group data provision service. This includes information and data collated from several organisations, including the Environment Agency (EA), Department for Environment, Food & Rural Affairs (DEFRA), Health & Safety Executive (HSE), the Health Protection Agency (HPA), and the Coal Authority