

Preliminary Environmental Risk Assessment

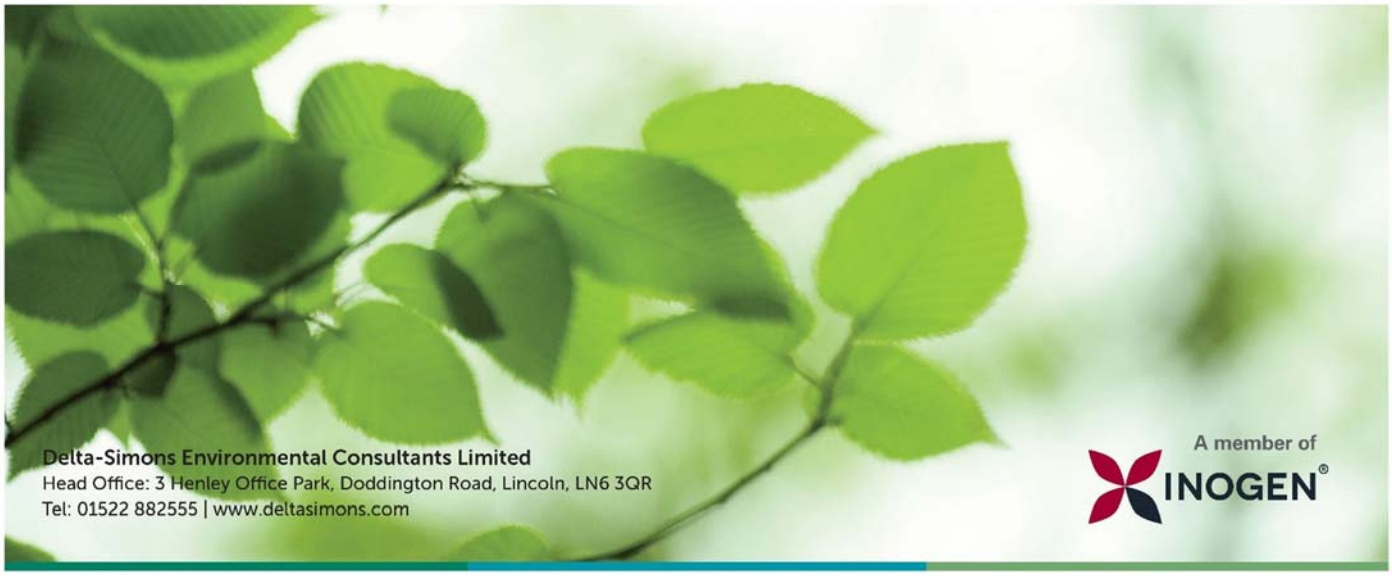
Existing Tesco Store, Wombwell Lane, Barnsley

Presented to **Tesco Stores Limited**

Issued: November 2017

Delta-Simons Project No. 17-1265.01

deltasimons



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Report Details

Client	Tesco Stores Limited
Report Title	Preliminary Environmental Risk Assessment
Site Address	Wombwell Lane, Barnsley, S70 3NS
Project No.	17-1265.01
Delta-Simons Contact	Paul Huteson (paul.huteson@deltasimons.com)

Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
2	Final	22/11/2017				
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About us

Delta-Simons is a trusted, multidisciplinary environmental consultancy, focused on delivering the best possible project outcomes for customers.

Specialising in Environment, Health & Safety and Sustainability, Delta-Simons provide support and advice within the property development, asset management, corporate and industrial markets. Operating from eight locations - Lincoln, London, Leeds, Manchester, Norwich, Nottingham, Durham and Dublin - we employ over 70 environmental professionals, bringing experience from across the private consultancy and public sector markets.

Delta-Simons is proud to be a founder member of the Inogen® Environmental Alliance, enabling us to efficiently deliver customer projects worldwide by calling upon over 4,330 resources in our global network of consultants, each committed to providing superior EH&S and sustainability consulting expertise to our customers. Inogen® Environmental Alliance offers its clients more consultants, with more services in more countries than the traditional multinational consultancy.

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1.0 Introduction

1.1 Appointment

Delta-Simons Environmental Consultants Limited ("Delta-Simons") was instructed by Pinnacle on behalf of Tesco Stores Limited (the "Client") to prepare a Preliminary Environmental Risk Assessment for a parcel of land, which is currently utilised as a car parking area by Tesco, located off Wombwell Lane, Barnsley, S70 3NS (the "Site").

1.2 Context & Purpose

The aim of this report is to identify likely environmental issues associated with soil and groundwater conditions that may affect the proposed development of the site. This report is designed in accordance with 'the Model Procedures for the Management of Land Contamination (CLR 11)' and the relevant Planning Practice Guidance (Land Affected by Contamination) https://www.gov.uk/guidance/land-affected-by-contamination.

It is understood that the proposed development for the Site is to comprise a new retail unit with associated car parking, HGV unloading area and limited soft landscaping.

1.3 Scope of Works

- Review of the environmental setting of the Site, including the current use / status of the Site and surrounding area, and review of the geology, hydrogeology and hydrology;
- Review of the historical activities of the Site and surrounding area;
- Review of regulatory information relating to the Site;
- Review of the online planning records for the Site;
- Complete a Site reconnaissance by undertaking a visual inspection of readily accessible areas of the Site;
- Develop an outline Conceptual Site Model and undertake a Preliminary Risk Assessment with respect to potential contamination focussed on the proposed land use;
- Identify potential contamination risks and / or liabilities associated with the proposed acquisition of the Site; and
- Provide commentary on potential land contamination constraints in the context of the proposed development.

In completing this Assessment, Delta-Simons has utilised the following data sources and third party information:

- Current and Historical Ordnance Survey (OS) maps;
- British Geological Survey (BGS) data;
- Environment Protection Agency (EPA) online data;
- Coal Authority (CA) online data;
- A Coal Authority Non-Residential Mining Report for the Site (Ref. 143114537_2), dated October 2017;
- A Landmark Envirocheck® Report for the Site (Ref. 143114537_1_1), dated October 2017;
- Historical Maps included as part of the Envirocheck® Report; and
- Information provided by Barnsley Metropolitan Borough Council.

1.4 Limitations

The standard limitations associated with this assessment are presented in Appendix A.

2.0 Site Context & Data Review

2.1 Site information

<table>
<tr><td>Co-ordinates</td><td colspan="2">Centred approximately at National Grid Reference 437490, 405230.</td><td>Elevation</td><td>52 to 53 m AOD</td></tr>
<tr><td></td><td colspan="2"></td><td>Area</td><td>0.43 Ha</td></tr>
<tr><td>Site Location</td><td colspan="4">The Site is located off Wombwell Lane, adjacent to the car park of a Tesco Extra store, residential properties and a car body repair shop / garage, approximately 3.1 km south-east of Barnsley town centre.
A Site Location Plan is included as Figure 1.</td></tr>
<tr><td>Current Site Use</td><td colspan="4">The Site is currently used as a car parking area for the adjacent Tesco Extra store.</td></tr>
<tr><td>Proposed Development Description</td><td colspan="4">It is understood that the proposed development is to comprise a new retail unit, with associated car parking, HGV unloading area and limited soft landscaping.
A Proposed Development Plan is included as Figure 2.</td></tr>
<tr><td rowspan="2">Site Reconnaissance</td><td colspan="4">Delta-Simons undertook a Site reconnaissance on 18th October 2017. A series of Site photographs are presented within the Key Site Features Plan, included as Figure 3. Pertinent information that was observed or reported on-Site is summarised as follows:
▲ The Site comprised a car park associated with the Tesco Extra store which bounds the Site to the south;
▲ Areas of soft landscaping were present along the north-eastern and south-western boundaries of the Site, beyond which the Site was secured by wooden fencing along the eastern boundary and a brick wall along the western boundary; and
▲ A recycle point was present in the south-western extremities of the Site.</td></tr>
<tr><td colspan="4">No potential sources of contamination were identified during the Site reconnaissance.</td></tr>
<tr><td rowspan="5">Current Surrounding Area</td><td>North</td><td colspan="3">A car body repair shop / garage, a bridal centre and residential properties, beyond which is Wombwell Way.</td></tr>
<tr><td>East</td><td colspan="3">Residential properties and Tesco Extra car parking, beyond which is a petrol filling station and Wombwell Lane.</td></tr>
<tr><td>South</td><td colspan="3">Tesco Extra and associated car parking.</td></tr>
<tr><td>West</td><td colspan="3">Commercial properties, beyond which is Bleachcroft Way and a former B&Q Warehouse.</td></tr>
<tr><td colspan="4">The petrol filling station and car body repair shop / garage are considered to represent potential off-Site sources of contamination.</td></tr>
</table>

2.2 Environmental Setting

Published Geology	From the British Geological Survey (BGS) Online Viewer, the Site is indicated as being underlain by superficial deposits of Alluvium comprising clay and silt. The underlying bedrock is indicated to be the Pennine Middle Coal Measures Formation – mudstone, siltstone and sandstone. Made Ground is considered likely to be present overlying the superficial Alluvium deposits, given the historical and current use of the Site.
Specific Ground Conditions	Two BGS trial pits, SE30NE347 and SE30NE346 from 1990 are recorded approximately 180 m to the north of the Site. The geology encountered comprised the following generalised sequence: ▲ Made Ground comprising 'fill material' or sandy gravelly fill and clayey fill from ground level to 0.20 m below ground level (m bgl); ▲ Alluvium Deposits, comprising soft to stiff slightly sandy clay to depths of between 0.50 and 0.90 m bgl; ▲ Alluvium Deposits, comprising stiff clay with mudstone fragments to depths of between 1.20 and 1.33 m bgl; and ▲ Very weathered and fragmented mudstone to a maximum depth of 2.60 m bgl.
Hydrogeology	The EA classify the superficial deposits (Alluvium) and the bedrock (Pennine Middle Coal Measures Formation) as a Secondary A Aquifer. The EA data also indicates that the Site is not in a designated groundwater Source Protection Zone. According to the Envirocheck® Report, there are no licensed abstraction records from groundwater located within 500 m of the Site. The available BGS trial pit information did not indicate the presence of any groundwater.
Hydrology	The nearest surface water feature is located approximately 10 m to the west of the Site and relates to an unnamed drain. According to the Envirocheck® Report, there are no licensed abstraction records from surface water located within 500 m of the Site.
Coal Mining	Reference to the Coal Authority on-line viewer indicates that the Site is located within a Coal Mining Reporting Area, but is not within a Development High Risk Area. The Coal Authority Non-Residential Mining Report for the Site includes the following pertinent information: ▲ The Site is in a surface area that could be affected by underground mining in nine seams of coal at 120 m to 620 m depth, and last worked in 1987; ▲ Any movement in the ground due to coal mining activity should have stopped; and ▲ The Site is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods and is not likely to be affected by any planned future underground coal mining. However, reserves of coal exist in the local area which could be worked at some time in the future. Consequently, a Coal Mining Risk Assessment (CMRA) is unlikely to be required under the planning regime. The Coal Authority Non-Residential Mining Report is included as Appendix B.
Radon Gas	The Site lies within an intermediate probability radon area where 1 to 3% of homes are estimated to be at or above the National Radiological Protection Board (NRPB)

	recommended "action level" for radon, however, no radon protective measures are necessary in the construction of new buildings at the Site.
Ecological Receptors	It is understood from information provided within the Envirocheck® Report that the Site is located within a Nitrate Vulnerable Zone. Entries listed within 250 m of the Site include an Area of Adopted Green Belt and an area of Unadopted Green Belt, located approximately 220 m and 230 m south of the Site respectively.
Heritage Interest	According to sketchmap.co.uk, the closest area of heritage interest is located approximately 620 m to the south-west of the Site, associated with a Grade II Listed Building (Non-Conformist Cemetery Chapel).
Environmental Sensitivity	The Site is considered to be of a low to moderate environmental sensitivity given the presence of the underlying Secondary A Aquifers, adjacent drain and the predominantly commercial nature of the surrounding land use.

2.3 Historical Use of the Site & Surrounding Area

Approach	The historical development of the Site and surrounding area has been assessed through a review of available historical OS maps and Google Earth historical satellite imagery. A summary of the key historical Site uses and developments in the surrounding area is presented below. Copies of pertinent historical maps are included as Appendix C.
Historical Features On-Site	From the earliest reviewed mapping of circa 1854, the Site appears to have been in agricultural use until 1931, when it was labelled as Allotment Gardens. Circa 1967, the Allotments were no longer present, and the Site appeared to be vacant. Google Earth aerial photography shows the Site to remain vacant and surfaced with vegetation until 2009, when it is shown to be in use as a compound, comprising cabins and stockpiles of soil, associated with the construction of the current Tesco Extra to the south of the Site. By 2015, the Site was shown to be consistent with its current layout. No significant potential sources of contamination have been identified from the historical map review.
Potentially Contaminative Historical Features Off-Site	Potential sources of contamination within 250 m of the Site include: ▲ Stairfoot Brick Yard, shown approximately 100 m north-east of the Site from circa 1854 until circa 1892, when it was labelled as New Oaks Colliery (with associated brick kilns and coke ovens) and labelled as Oaks Chemical Plant (with associated tanks located approximately 100 m to 200 m north of the Site) circa 1931. The Chemical Plant was labelled as Works by 1966 but no longer present by 1974; ▲ Railway lines shown approximately 90 m north-east of the Site from circa 1854 but shown to be dismantled by circa 1967; ▲ A Reservoir shown approximately 180 m north-west of the Site from circa 1854 but no longer present by 1974 (potentially infilled); ▲ Dearne and Dover Canal (later labelled as Sheffield and South Yorkshire Navigation) shown approximately 10 m west of the Site from circa 1854 but shown to be disused by 1974; ▲ A pond shown approximately 5 m south-east from circa 1892, which appeared to be a drain / overflow pond from the canal. Google Earth aerial photography shows the drain / pond to be present prior to the Site being redeveloped in 2009 (assumed to have been infilled);

	▲ Manor Flint Glass Works shown approximately 100 m north-west of the Site from circa 1906 but no longer present by 1966; ▲ Railway lines (Stairfoot and Cudworth Line) shown approximately 250 m west of the Site from circa 1906 but dismantled by 1974; ▲ A Clay Pit shown approximately 200 m north-east of the Site from circa 1955 but labelled as a Refuse Tip from circa 1967; ▲ Warehouses shown approximately 40 m west of the Site from circa 1967 and shown to undergo expansion circa 1977, with the nearest building located approximately 30 m west of the Site until present day; ▲ Glass Fibre Works (labelled as Works circa 1977) shown approximately 160 m north-west of the Site from circa 1967, but shown on Google Earth aerial photography to have been demolished by 2002; ▲ A Garage shown approximately 80 m north-west of the Site from circa 1967 to present day; ▲ An Electrical Substation shown approximately 70 m east of the Site from circa 1967 to present day; ▲ An Electrical Substation shown approximately 110 m north-west of the Site from circa 1967 to present day; ▲ A Garage shown approximately 20 m north of the Site from circa 1967 to present day; and ▲ Google Earth aerial photography shows the current Tesco petrol filling station to have been present from circa 2009, located approximately 150 m south-east of the Site.

2.4 Environmental Database Review

Approach	The Landmark Envirocheck® Report provides a database of environmental information held by various statutory bodies including the EA, Local Authority (LA), Health & Safety Executive (HSE) and HPA amongst others. A full copy of the Envirocheck® Report is provided in Appendix D and the most relevant information is summarised below.
Features On-Site	Other than previously mentioned, there are no records pertaining directly to the Site in the Landmark Envirocheck® Report.
Potentially Contaminative Features Off-Site	Pertinent entries included within the Landmark Envirocheck® Report located within 250 m from the Site include: ▲ One Discharge Consent located approximately 110 m north-east of the Site, relating to the discharge of trade effluent into Dob Dyke by Marshalls Brick Products, revoked in January 1983; ▲ Two Local Authority Pollution Prevention and Controls, located approximately 25 m north and 60 m north respectively, and relating to waste oil burners (permitted) and respraying of road vehicles (revoked) respectively; ▲ Two Pollution Incidents to Controlled Waters, located approximately 80 m north-west, and relating to the release of other chemicals into a freshwater stream/river in November 1995 and the release of gas oil into a freshwater stream/river in May 1997. Both incidents are listed as a Category 3 – Minor Incident, although fish were noted to be killed in the 1997 incident; ▲ One BGS Recorded Landfill Site located approximately 10 m west of the Site, relating to a disused canal; ▲ Four Historical Landfill Sites, the nearest two of which are located approximately 85 m north-east of the Site and relate to Stairfoot Landfill Site and Stairfoot

	Brickworks. The first and final input dates for Stairfoot Landfill Site are listed as December 1987 and December 1992 respectively, with deposited waste including inert, industrial, commercial, household, special waste and liquid sludge. No input dates are listed for Stairfoot Brickworks, however, deposited waste included industrial, commercial and household waste; ▲ Two Licensed Waste Management Facilities (locations), the nearest of which is located approximately 30 m north-west of the Site and relates to a metal recycling site (vehicle dismantlers), permit issued September 1997; ▲ One Local Authority Recorded Landfill Site located approximately 85 m north-east of the Site. No further information is supplied; ▲ Three areas of Potentially Infilled Land (non-water), located approximately 20 m north-west, 75 m north-east and 90 m east of the Site respectively; ▲ Two areas of Potentially Infilled Land (water), located approximately 110 m north-west and 200 m west of the Site respectively; ▲ Two Registered Landfill Sites, both of which are located approximately 170 m east of the Site. The first entry relates to a landfill on Wombwell Lane, which is recorded as having a small maximum input rate (equal to or greater than 10,000 and less than 25,000 tonnes per year), dated October 1979 (licence cancelled). The second entry relates to Stairfoot Brickworks, which is recorded as having a very large maximum input rate (equal to or greater than 250,000 tonnes per year) with authorised waste including animal processing waste, asbestos, industrial effluent treatment sludge, medical, surgical and veterinary wastes, mineral processing wastes, paint waste, sewage sludge and pail contents, slag, boiler / flue cleanings and waste treated timber. Prohibited waste includes liquids / slurry and waste N.O.S (not otherwise specified); ▲ Three Registered Waste Treatment and Disposal Sites, the nearest of which is located approximately 30 m north-west of the Site, relating to a scrapyard with a very small maximum input rate (less than 10,000 tonnes per year), dated September 1997 (operational). Authorised waste includes vehicles, trailers and cars. Prohibited waste includes liquid wastes and waste N.O.S; ▲ Two BGS Recorded Mineral Sites, the nearest of which is located approximately 100 m north-east of the Site and relates to New Oaks Colliery (ceased); ▲ Twelve Contemporary Trade Directory Entries (active and inactive), the nearest two of which are located approximately 30 m north of the Site and relate to used car dealers (inactive). Other entries include car body repairs, MOT testing centres, garage services, car breakers and dismantlers, car breakdown and recovery services, scrap metal merchants, commercial vehicle dealers and builders' merchants; ▲ One Fuel Station Entry located approximately 150 m south-east of the Site and relating to the Tesco petrol filling station (open); ▲ Eleven Commercial Services Points of Interest, the nearest two of which are located approximately 25 m north of the Site and relate to vehicle repair, testing and servicing. Other entries include vehicle cleaning services and scrap metal merchants; ▲ Four Manufacturing and Production Points of Interest, the nearest of which is located approximately 175 m north-west of the Site and relates to unspecified works or factories. Tanks are also listed approximately 185 m west of the Site; and ▲ Two Public Infrastructure Points of Interest, the nearest of which is located approximately 150 m south-east of the Site and relates to the Tesco petrol filling station.

Implications for Land Contamination Risk	No potential sources of contamination have been identified at the Site from the regulatory information. Potential off-Site sources of contamination have been identified that will be considered in the preliminary risk assessment.

2.5 Planning Review

On-line Planning Portal	Barnsley Metropolitan Borough Council	**Date Accessed**	24/10/17
Findings	There is one planning application for the Site listed (ref. 2014/0243), which comprises an application for the erection of home shopping extension to the existing building with additional secure parking area and relocation of existing click and collect canopy. The application was received in March 2014 and approved with conditions in May 2014. Plans included as part of the planning application show that the south-western corner of the Site was due to be redeveloped to include parking for 11 vans and car parking spaces to be protected with an Armco barrier. No additional potentially contaminative activities or other information pertinent to this assessment was identified from the historical planning records.		

3.0 Conceptual Site Model

3.1 Introduction

A Conceptual Site Model (CSM) represents the relationships between contaminant sources, pathways and receptors, to support the identification and assessment of Possible Pollutant Linkages (PPL).

3.2 Potential Contamination Sources

Identified potential contamination sources are presented in the following table:

Reference	Source	Location	Dates Present	Potential Associated Contaminants of Concern
S1	Potential Made Ground beneath the Site	Site-wide	Post 1931 to present	Asbestos, heavy metals, PAHs, petroleum hydrocarbons
S2	Unrecorded sources	Site-wide	-	Petroleum hydrocarbons, heavy metals, PAHs, asbestos
S3	Petrol filling station	150 m south-east	2009 to present	Petroleum hydrocarbons*
S4	Garage	20 m north and 80 m north-west	1967 to present	Petroleum hydrocarbons, heavy metals, volatile organic compounds (VOCs)
S5	Stairfoot Brick Yard	100 m north-east	1854 to 1892	Various contaminants
S6	New Oaks Colliery (BGS Recorded Mineral Site)	100 m north-east	1892 to 1931	polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons, phenols, hazardous ground gases
S7	Oaks Chemical Plant and tanks	100 m north-east	1931 to 1974	Petroleum hydrocarbons and various other contaminants
S8	Railway lines	90 m north-east	1854 to 1967	Petroleum hydrocarbons, PCBs, (PAHs), VOCs, asbestos, ash and fill, solvents*
S9	Potentially infilled pond	5 m south-east	1892 to 2009	Hazardous ground gases
S10	Electrical substation	70 m east	1967 to present	Polychlorinated biphenyls (PCBs)
S11	BGS Recorded Landfill Site (infilled canal)	10 m west	1854 to 1974	Hazardous ground gases, various contaminants

S12	Historical Landfill Sites	85 m north-east	1987 to 1992	Hazardous ground gases, various contaminants
S13	Metal recycling site (vehicle dismantlers)	30 m north-west	1997 to present	Petroleum hydrocarbons, VOCs, PCBs, asbestos*
S14	Potentially Infilled Land (non-water)	20 m north-west, 75 m north-east and 90 m east	Unknown	Hazardous ground gases

* Based on UK Department of the Environment Industry Profiles

3.3 Potential Receptors

Relevant potential receptors are considered to include:

- R1 - Construction workers.
- R2 - Third parties during construction (adjacent Site users and adjacent residents).
- R3 - Future Site users and maintenance workers.
- R4 - The adjacent unnamed drain.
- R5 - The underlying Secondary A Aquifers.
- R6 - The Built Environment (new buildings and infrastructure / utilities).
- R7 – Plants in landscaped areas.

3.4 Potential Pathways

The potential pathways are considered to be as follows:

- P1 - Direct contact, ingestion or inhalation of soil bound contaminants / dust during or following redevelopment.
- P2 - Inhalation of organic vapours associated with contamination.
- P3 - Migration of ground gas / vapours into on-site buildings causing asphyxiation or risk of explosion.
- P4 - Leaching of contamination into groundwater followed by migration of groundwater to the wider groundwater environment or discharge to surface waters.
- P5 - Direct contact between aggressive ground conditions and new infrastructure.
- P6 – Root uptake.

Risk ratings are based on the classifications given in Appendix E.

Source	Pathway(s)	Receptor(s)	Risk Ratings	Justification & Mitigation (if required)
S1 Potential on-Site Made Ground deposits S2 Unrecorded sources	Direct contact/ ingestion and inhalation of dust, vapours and asbestos fibres. Root uptake.	Future Site users. Groundworkers during the redevelopment or during any sub-surface maintenance works. Plants in landscaped areas.	**Low Risk**	Given the historical use of the Site as allotment gardens and its current use as a car park, it is likely that Made Ground is present on-Site. It is recommended that an environmental site investigation is undertaken at the time of any geotechnical investigation at the Site in order to assess the presence and matrix of the Made Ground. The risk posed to future Site users is considered to be low, given that the proposed development will be covered by a building and hardstanding, therefore mitigating the risk of Site users coming into direct contact with any contamination. The risk posed to construction workers and off-Site human receptors during the redevelopment of the Site is considered low as safe working procedures should be implemented, good standards of personal hygiene should be observed and appropriate levels of personal protective equipment (PPE) provided and utilised to reduce the potential risks. Dependent upon the results of laboratory soil analysis, a clean layer of certified suitable for use topsoil may be required in any landscaped areas, in order to further mitigate the risk to future Site users, and to provide a suitable growing medium for plants in landscaped areas, if proposed.
	Leaching of contamination into groundwater. Vertical and lateral migration of contamination through permeable deposits below the Site.	Controlled waters.	**Low Risk**	There is considered to be a plausible pollutant linkage between the Made Ground and the underlying aquifers and nearby drain. However, given that the Site will predominantly be covered in hardstanding, this will minimise infiltration and subsequent migration of any contamination. Furthermore, given that the Site is not located within 1 km of a potable water abstraction, the risk to controlled waters is considered to be low.
	Direct infiltration in water supply pipes.	Service conduits.	**Low Risk**	Hydrocarbons, especially aromatics and chlorinated solvents, are known to permeate plastic pipes. The Local Water Authority should be consulted to advise on the requirements for potable water pipes.

Source	Pathway(s)	Receptor(s)	Risk Ratings	Justification & Mitigation (if required)
S3 Off-Site petrol filling station S5 Garage S6 Stairfoot Brick Yard S7 New Oaks Colliery S8 Oaks Chemical Plant S9 Railway lines S10 Electrical substation S11 BGS Recorded Landfill Site S12 Historical Landfill Sites S13 Metal Recycling Site	Lateral migration and subsequent indoor inhalation of volatile vapours.	Groundwater beneath the Site and current and future Site users.	**Low Risk**	A number of current and historical sources of off-Site contamination have been identified within 250 m of the Site. However, most contamination sources are historical, and any mobile fraction may have already degraded, therefore, the risk to groundwater and future Site users is considered to be low. It is recommended that groundwater sampling and analysis should form part of the intrusive environmental investigation at the Site.

Source	Pathway(s)	Receptor(s)	Risk Ratings	Justification & Mitigation (if required)
S1 Potential on-Site Made Ground deposits S7 New Oaks Colliery S9 Potentially infilled pond S11 BGS Recorded Landfill Site S12 Historical Landfill Sites Potentially Infilled Land (non-water)	Accumulation of gas in enclosed spaces and sub-floor voids.	Buildings and future Site users.	**Low to Moderate Risk**	The risk of accumulation of hazardous ground gas at the Site is considered to be low to moderate, given the identified current / historical on-Site and off-Site sources and the probable low to moderate permeability of the superficial deposits across the Site. It is recommended that a period of ground gas monitoring is undertaken at the time of any environmental investigation at the Site, in order to fully characterise the ground gas regime at the Site.

4.0 Development Considerations

4.1 Potential Remediation Requirements & Solutions

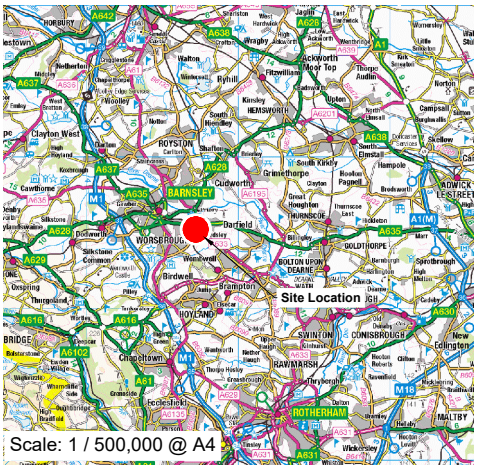
Soils	The risk of the Site requiring widespread remediation to protect end users is considered to be low. However. it is recommended that an environmental site investigation is undertaken in conjunction with geotechnical investigation to assess the current soil quality. If contamination and / or ACMs are identified, then this may have an impact on waste disposal costs.
Groundwater	Given the potential current and historical off-Site sources of contamination identified, and the probable low to moderate permeability of the superficial deposits, groundwater contamination may be present. This can be assessed during an intrusive investigation at the Site.
Ground Gas	Given the potential historical off-Site sources of ground gas generation identified, including landfill sites, it is recommended that a period of ground gas monitoring is undertaken at the time of any intrusive investigation at the Site. It would be prudent to allow for basic ground gas protection measures until monitoring data is available for interpretation.
Building Fabric & Services	Widespread contamination at the Site is considered unlikely. However, services are recommended to be placed in clean corridors. A drinking water pipeline assessment may be required following soils chemical results. Aggressive ground chemistry may attack buried concrete and therefore there may be a requirement for protection measures to be put in place at the Site.

5.0 Conclusions & Recommendations

5.1 Land Contamination

Contamination Risks Associated with Ownership (Current Use)	There is considered to be a **Low** risk of enforcement action by the regulatory authorities under Part 2A of the Environmental Protection Act, the Water Resources Act or the Environmental Damage Regulations, whilst the Site remains in its current use as a car park. The potential for legal action by surrounding landowners / Third Parties based on the potential for contamination to migrate off-Site (ongoing or historically) is considered to be **Low**.
Potential Contaminated Land Development Risks	Widespread contamination is considered unlikely and the preliminary risk assessment has identified a **Low to Moderate** risk of soil/groundwater contamination and hazardous ground gas at the Site. Asbestos may be present within the Made Ground.
Recommendations	It is recommended that an intrusive investigation is undertaken at the Site in order to assess the following: ▲ Presence, thickness and nature of any Made Ground; ▲ Presence and concentrations of substances of concern in shallow soils (including Made Ground) on-Site; ▲ Presence of substances of concern in any perched water/soil pore water or shallow groundwater beneath Site; and ▲ Likelihood of significant ground gas and/or soil vapour intrusion into future on-Site and off-Site buildings.

Figure 1 – Site Location Plan



LEGEND

Site Boundary

Scale: 1 / 10,000 @ A4

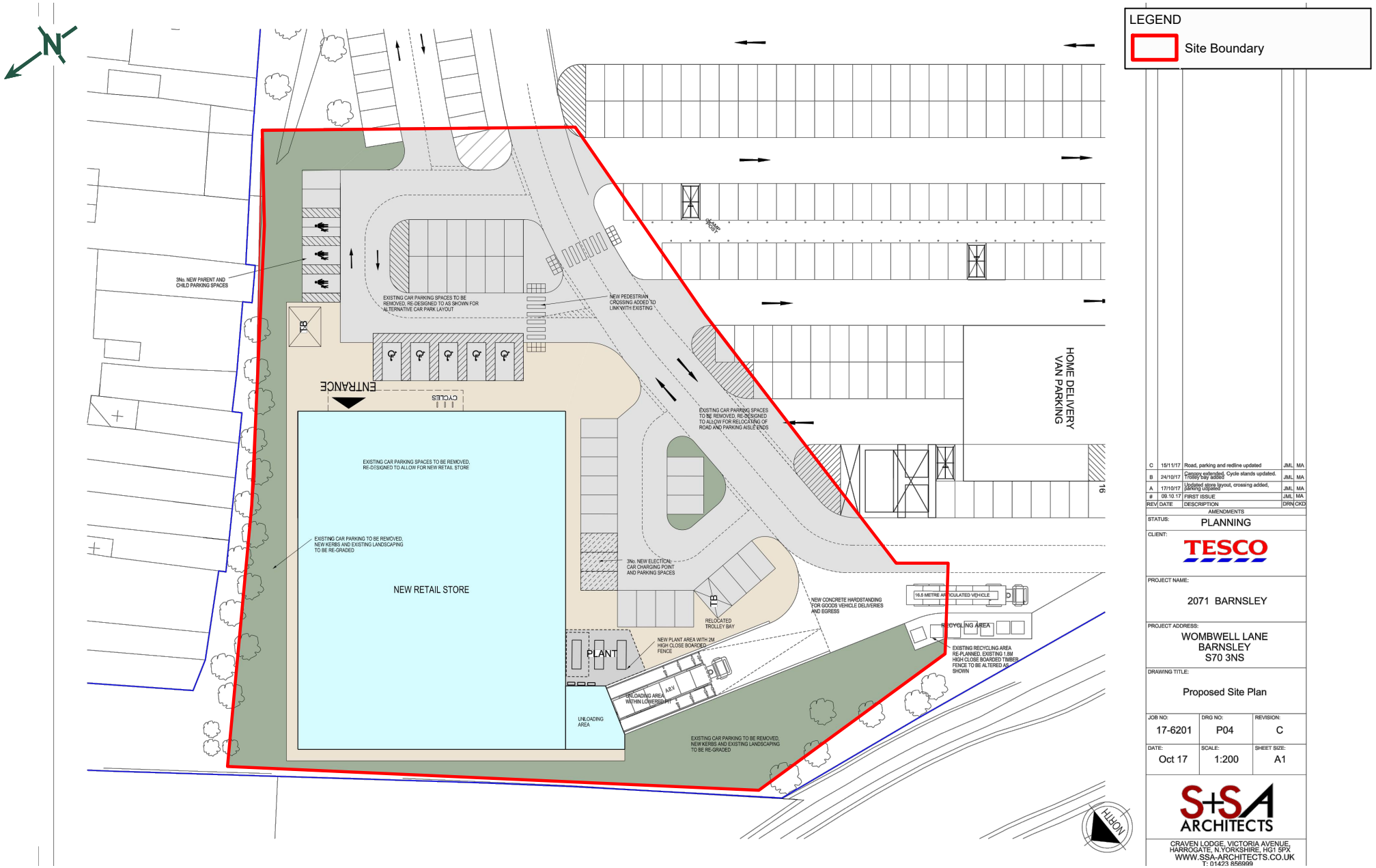
Contains OS data © , Crown Copyright and Database Right (2016/2017)

deltasimons
Environment - Health & Safety - Sustainability

TITLE:
Site Location Plan
Existing Tesco Store, Wombwell Lane
Barnsley

DRAWN BY:	SCALE:	PROJECT NO:
EN	To Scale@A4	17-1265.01
CHECKED BY:	REVISION:	FIGURE NO:
JR	1	1
DATE: 21 November 2017		

Figure 2 – Proposed Development Plan



REV	DATE	DESCRIPTION		
C	15/11/17	Road, parking and redline updated	JML	MA
B	24/10/17	Canopy extended. Cycle stands updated. Trolley bay added	JML	MA
A	17/10/17	Updated store layout, crossing added, parking updated	JML	MA
#	09.10.17	FIRST ISSUE	JML	MA

AMENDMENTS

STATUS: PLANNING

CLIENT: TESCO

PROJECT NAME: 2071 BARNSLEY

PROJECT ADDRESS: WOMBWELL LANE BARNSLEY S70 3NS

DRAWING TITLE: Proposed Site Plan

JOB NO:	DRG NO:	REVISION:
17-6201	P04	C
DATE:	SCALE:	SHEET SIZE:
Oct 17	1:200	A1

S+SA ARCHITECTS

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Site Plan Provided by Client

deltasimons
Environment - Health & Safety - Sustainability

TITLE:
Proposed Development Plan
Existing Tesco Store, Wombwell Lane
Barnsley

DRAWN BY:	SCALE:	PROJECT NO:
EN	Not to Scale	17-1265.01
CHECKED BY:	REVISION:	FIGURE NO:
JR	1	2
DATE: 21 November 2017		

Figure 3 – Key Site Features Plan

PH01: Southern view of the Site.

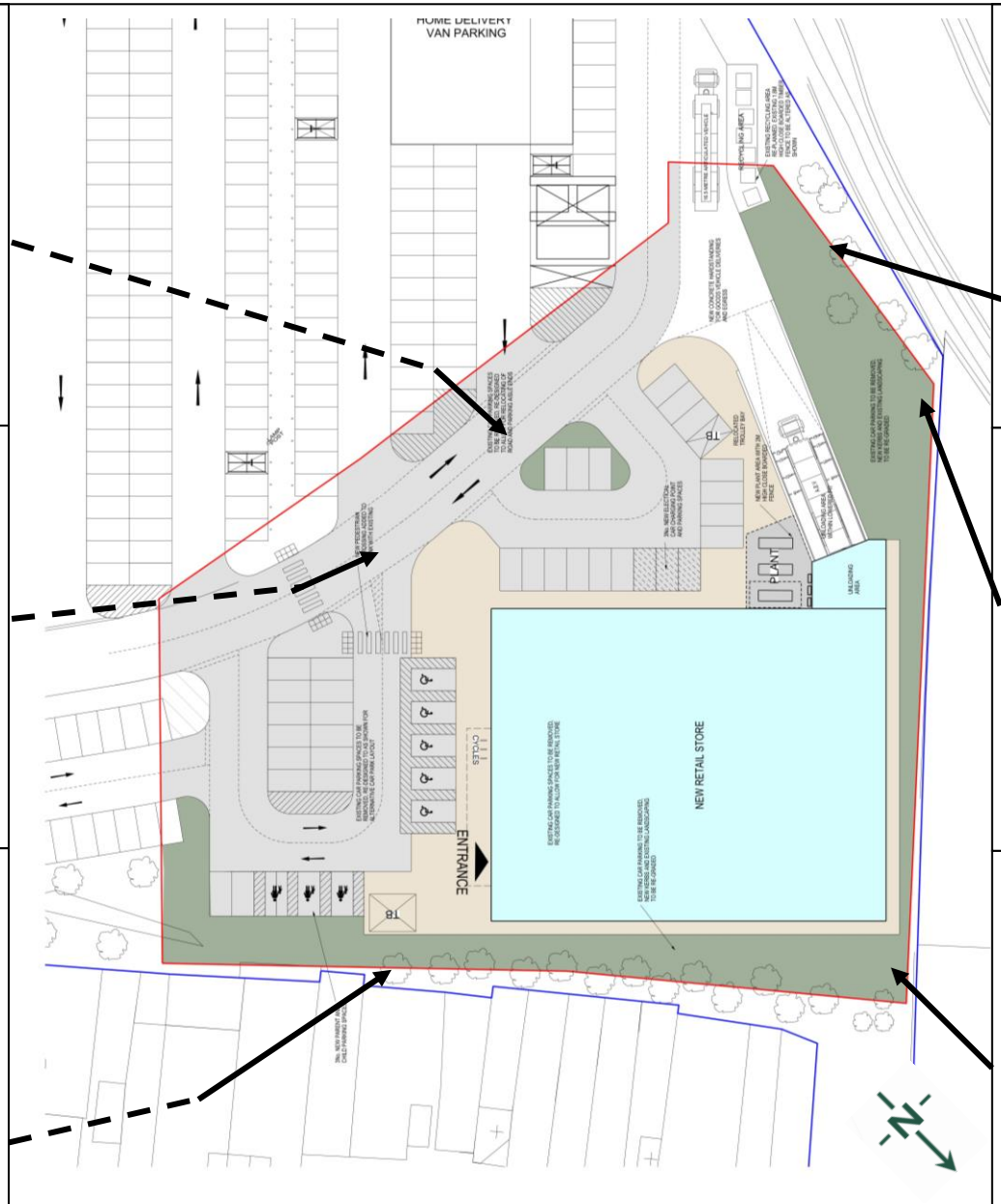


PH02: Southern Site boundary.



PH03: South-eastern Site boundary.





PH04: South-western Site boundary.



PH05: Western Site boundary.



PH06: Northern Site boundary.



COMMENTS: There is uncertainty as unrecorded land use may have occurred and caused contamination that has not been identified by the observations,

deltasimons

TITLE:
Key Site Features Plan
Existing Tesco Store, Wombwell Lane
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DWN: JR	SCA: NTS	PROJECT NO.: 17-1265.01	
CHK: PH	REV: 1	FIGURE NO.: 3	
DATE: 21 November 2017			