
McNulty's Site

Contaminated Land Assessment

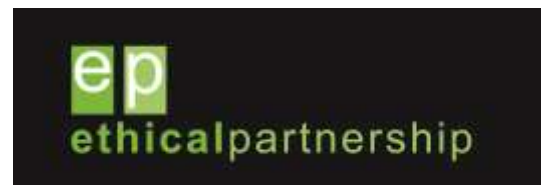


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Preface

Ethical partnership has been appointed to provide Protected Species and Contaminated Land consultancy services with respect to the McNulty site. This report addresses the Contaminated Land Assessment.

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Executive Summary

Land Use	<ul style="list-style-type: none"> The North and South Yards are currently used for industrial purposes. The area of land to the east of the docks is used for car parking and storage.
Site history	<ul style="list-style-type: none"> The North and South Yard have been extensively used for industrial development, including graving docks, iron and brass works, glass works, railway lines, engine and boiler works, colliery staiths, ballast yard, cranes, slipways. The Car Park and Stockyard area has formerly been used for railway lines and residential housing. Based on the historical industrial use, both the site and surrounding area have been subjected to activities that have the potential to contaminate the land.
Geology	<ul style="list-style-type: none"> The site is underlain by highly variable thicknesses of made ground overlying glacial deposits and bedrock. Alluvium should be anticipated near to the river. Very deep made ground is present within the backfilled graving docks. Shallow coal seams are anticipated at the southern end of the site.
Environmental setting	<ul style="list-style-type: none"> 2 landfill licences recorded on site. 1 historical landfill licence located at the Tyne Dock to the south. 1 waste management licence 160m south relating to metal recycling. The nearest watercourse is the River Tyne, adjacent to the northern/western boundary. Parts of the South and North Yard are recorded to be at risk from flooding or extreme flooding from rivers or sea. The Car Park area is not indicated to be at risk from flooding. The underlying strata are classed as a Minor Aquifer (Secondary A). There are no licensed water abstractions within 1km. There are 30 discharge consents within 250m, 17 located on site. No radon protection measures are required for future developments. There are 12 Integrated Pollution Controls within 250m, none located on site. There are 7 Pollution and Prevention Controls within 250m, none located on site. There are 11 Contemporary Trade Directory entries within 250m, 1 recorded on site.
Contamination	<ul style="list-style-type: none"> Based on the site history and continued use as industrial/commercial, it is considered that the site presents a medium environmental risk with respect to contamination. Based on currently available information the risk can be managed through conventional construction techniques, practices and procedures.
Mining	<ul style="list-style-type: none"> Coal seams are likely to exist close to the surface. These are likely to be a material influence on the development of the car park and may need to be taken into account elsewhere on the site. No mine entries are recorded on or adjacent to the site. Based on the available information, further investigations are considered necessary.
Ground Gas	<ul style="list-style-type: none"> Ground gas risk is considered to be a medium risk in view of the presence of deep made ground and shallow coal seams. This risk can be managed through conventional construction techniques, practices and procedures.
Foundations	<ul style="list-style-type: none"> Piled foundations are likely in the dock areas. Conventional pad/strip may be possible in the car park and stockyard area.
Ground Investigation	<ul style="list-style-type: none"> A ground investigation is required to confirm the site conditions. This should include as a minimum: cable percussion boreholes, trial pits, rotary drilling for mine workings, geotechnical and chemical laboratory analysis.

1 Introduction

- 1.1 Ethical Partnership has been commissioned to carry out a desk based assessment of the potential risks associated with the redevelopment of land at the McNulty Yard and adjacent car park in South Shields. This report outlines the results of the preliminary risk assessment carried out for the purposes of understanding the potential for the land to be contaminated and for the ground conditions to present other risks.
- 1.2 This report uses as its structure the three main components of the basic risk management process from the DEFRA/EA Model Procedures:
- **Risk assessment** – establishing whether unacceptable risks exist and, if so, what further action needs to be taken in relation to the site;
 - **Options appraisal** – evaluating feasible remediation options and determining the most appropriate remediation strategy for the site;
 - **Implementation** – carrying out the remediation strategy and demonstrating that it is, and will continue to be, effective.
- 1.3 A Phase I Geo-Environmental assessment has been carried out for land at McNulty's yard and adjacent car park. This report highlights ground related environmental and geotechnical considerations in relation to the redevelopment of the site which will include a new quay wall.
- 1.4 This report is a preliminary risk assessment. Its purpose is to develop an initial conceptual model of the site and establish whether or not there are potentially unacceptable risks. The preparation of the report has involved the collection and review of largely desk-based information in order to prepare an initial conceptual model to identify possible pollutant linkages. The report includes an evaluation of the possible linkages, using criteria appropriate to the risk assessment context; namely
1. To establish the historical development of the site and surrounding area.
 2. To establish the environmental setting of the site.
 3. To assess the potential impact of subsurface mining on the proposed development.
 4. To determine if historical or current activities could give rise to significant ground contamination.
 5. To assess the potential for hazardous ground gas.
 6. To determine the potential risks posed by contamination arising from historical or current activities on or in the vicinity of the site.

7. To identify the need for Generic quantitative risk assessment and/or Detailed quantitative risk assessment

- 1.5 To this end the study has included a site visit, an inspection of historical maps, a review of environmental data held on publicly available registers and other sources as indicated within the report.
- 1.6 This report presents the factual information available during this assessment together with the interpretation of the data obtained and recommendations relevant to the scope of works outlined above.
- 1.7 Information provided by the client indicates that the likely future uses of the site will be for commercial, industrial uses and in particular those that may be associated with marine logistics.

2 The Site

Location and Description

2.1 The approximate centre of the site is located at National Grid Reference 435520, 566080. The general layout and site boundaries are shown on Drawing 3229-C-200 included in Appendix A and a site location plan is included as Figure 1. The site consists of three distinct areas:

North Yard

2.2 Bounded by the River Tyne to the west and Corstophine Town / West Holborn roads to the east. Approximate area 3.6 ha. To the east of the site lies a mixture of public open space, residential and commercial properties.

2.3 Only a small number of buildings are present on site, generally comprising offices and storage. The majority of the site area consists of hard standing. The site lies at a lower elevation than the land to the east, with the boundary consisting of a retaining wall.

South Yard

2.4 Bounded by the River Tyne to the west and Corstophine Town road to the east. Approximate area 3.8 ha. Adjacent properties are all commercial/industrial.

2.5 Several buildings are present, including a large fabricating facility, pipe shop, workshops, offices, canteen and a gate house. The remainder of the site surfacing is all hard standing.

Car Park and Stockyard

2.6 Located on the south side of Smith Street, between Corstophine Town and Garwood Street. Approximate area 1.6 ha. Surrounding properties are commercial / industrial / residential.

Site Location Plan



3 Site History

3.1 In order to establish the site's history an inspection of historical maps, dating between 1858 and 2012 and obtained as part of an Envirocheck report has been made (Ref. 41689911_1_1 dated 2 October 2012). A summary of the information is provided below and a copy of the maps is included as Appendix B.

Map Dates	On-Site Features	Relevant Off-Site Features
1858 - 1862	<p><u>North Yard</u>: Site is heavily developed including a sawmill, West Holborn Iron Works, Tyne Foundry – Iron and Brass, Glass Works, railway lines with colliery staiths, ballast yard, cranes and slipway.</p> <p><u>South Yard</u>: 3 small docks (West Docks), slipway, ballast hills, saw pits, 'South Shields Colour Works'.</p> <p><u>Car Park</u>: Railway lines and residential housing.</p>	<p>Mixed residential and commercial properties to the east. The Jarrow Chemical Works to the south. Middle Docks and varied industrial buildings to the north.</p> <p>Several railway lines and 'ballast hills' recorded in the surrounding area.</p>
1897 – 1899	<p><u>North Yard</u>: 'High Docks' graving docks constructed at southern end of yard. 'High Docks Engine & Boiler Works' and a sawmill constructed in the central part of the yard.</p> <p><u>South Yard</u>: Ballast Hills cleared. Redhead's Shipbuilding and Engineering Works constructed which includes several new buildings and docks.</p> <p><u>Car Park</u>: no significant changes.</p>	<p>Expansion of residential housing to east. Jarrow Chemical Works demolished. Tyne Dock constructed to south.</p>
1915 – 1938	<p><u>North Yard</u>: 'West Docks' graving dock constructed over the site of the former engine and boiler works and sawmill.</p> <p><u>South Yard</u>: No significant changes.</p> <p><u>Car Park</u>: Expansion of residential housing to the east.</p>	<p>Expansion of Middle Docks to the north.</p>
1954 – 1986	<p><u>North Yard</u>: South Shields Power Station constructed in the northern part of the yard but partially demolished by 1968. By 1970, a scrap yard is shown to the south of the power station.</p> <p><u>South Yard</u>: 3 slipways constructed. The central slipway is replaced by travelling cranes by the 1970s.</p> <p><u>Car Park</u>: By 1982, the residential housing has been demolished and the railway line dismantled.</p>	<p>Some redevelopment takes place to the eastern side of the North Yard. By the late 1980s, much of the residential housing stock to the east of the site is undergoing replacement.</p>

Map Dates	On-Site Features	Relevant Off-Site Features
1989 – 1995	<p><u>North Yard</u>: The buildings to the north of West Dock graving dock have been demolished.</p> <p><u>South Yard</u>: No significant changes.</p> <p><u>Car Park</u>: All buildings removed by the late 1980's.</p>	No significant changes.
2006 – present	<p><u>North Yard</u>: All graving docks in filled.</p> <p><u>South Yard</u>: All slipways in filled.</p> <p><u>Car Park</u>: A 'Depot' recorded on site.</p>	No significant changes.

3.2 Based on the extensive historical industrial use, all areas of the site are considered to have been subject to potentially contaminative activities.

4 Previous Ground Investigations

4.1 Several previous ground investigation reports have been produced for the site:

Solmek Ltd, 'Site Investigation Report of land at AUK Project, McNulty Offshore, South Shields', Ref. M0754 Phase 1, dated January 2011.

Solmek Ltd, 'Site Investigation Report of land at Allseas Project, McNulty Offshore, South Shields', Ref. M0754 Phase 2, dated February 2011.

Solmek Ltd, 'Site Investigation Report of land at Devenick Project, McNulty Offshore, South Shields', Ref. M0754 Phase 3, dated March 2011.

Solmek Ltd, 'Geoenvironmental Appraisal of land at McNulty Offshore, South Shields', Ref. M0696, dated May 2009.

Allied Exploration & Geotechnics Ltd, 'Ground Investigation, McNulty Yard, South Shields', Ref. 3676, and dated August 2008.

Dunelm Drilling Co., 'Site Investigation, Proposed Foundation for New Module, McNulty Yard, Commercial Road, South Shields', Report Ref. 8141, dated November 1995.

4.2 A detailed review of the previous reports is beyond the scope of this investigation, but a summary of the site geology is provided in Section 5.

5 Environmental Setting

- 5.1 This section is based principally upon a search of information available on public registers through an Envirocheck search (Reference 41689911_1_1) included as Appendix C, together with other sources as indicated.

Geology and Mining

- 5.2 A summary of the site geology, based on available published information, is provided below.

Sources of Information	British Geological Survey (BGS) Sheet 21 Sunderland, 1:50 000 scale, Solid and Drift Edition.
Made Ground	<p>BGS plans record the North and South Yards to be partially underlain by made ground. It is anticipated that made ground will increase in thickness towards to the river and be locally very deep in the areas of the backfilled graving docks.</p> <p>Previous ground investigation data from the South and North Yards indicated generally made ground varying between approximately 1.5m and 14m in thickness.</p>
Superficial Deposits (drift)	<p>The BGS plans record the natural superficial soils to comprise glacial Tyne & Wear complex (mainly laminated clay). Near to the river edge, it is likely that some alluvium will be encountered.</p> <p>Previous ground investigation data from the South and North Yards indicated glacial deposits to depths between 4m and >11m overlying bedrock.</p>
Solid Geology	Carboniferous Middle Coal Measures. Previous boreholes within the River Tyne adjacent to the South Yard recorded bedrock at a depth of around 10m below O.D. Boreholes within the South and North Yard record bedrock between around 4m and 10m depth.

Mining	<p>The Coal Authority record workings beneath the site in 3 seams of coal at 100m to 340m depth, and last worked in 1947. Any ground movement from these workings should have stopped by now. The Usworth coal seam crops through the South Yard, dipping towards the north. The Bottom Hebburn Fell coal seam crops to the south of the site and may underlie the Car Park area and South Yard at shallow depth. These coal seams may have been worked historically. The Coal Authority mapping data indicates that the southern part of the South Yard and the Car Park area may be underlain by shallow coal workings.</p> <p>No mine entries are recorded on or within 20m of the site boundary. A Coal Authority mining report is included in Appendix D.</p>
Quarrying	None recorded on or adjacent to the site. Some quarries operated historically in the wider area.

Hydrology and Hydrogeology

- 5.3 A summary of available information pertaining to hydrology, hydrogeology, and flood risk potential, water abstractions, discharge consents and pollution incidents to controlled waters is provided below.

Watercourses	River Tyne flows adjacent to the western boundary.
Flood Risk	Parts of the South and North Yard are recorded to be at risk from flooding or extreme flooding from rivers or sea. The Car Park area is not indicated to be at risk from flooding.
Groundwater Classification	<p>Solid Geology: Secondary A aquifer.</p> <p>Superficial Geology: designated as 'Unproductive' or 'Unknown'.</p>
Source Protection Zones	NR
Springs	NR
Wells	NR

Licensed Surface Water Abstractions	NR
Licensed Groundwater Abstractions	NR
Discharge Consents	30 within 250m of which 17 are recorded on site. These generally relate to sewage or storm overflow discharges into the River Tyne.
Pollution Incidents	4 within 250m, none on site. All relate to Category 3 – minor incidents in the 1990s.

NR – None Recorded

Landfill Sites and Waste Management

5.4 A summary of information regarding landfill sites (historical or current) and waste management facilities is provided below.

Recorded Landfills	<p>2 recorded on site:</p> <p>Aber McNulty Ltd: West Dock, inert waste.</p> <p>South Tyneside Borough Council:</p> <p>Old Electricity Works, no known waste restrictions.</p> <p>1 historic landfill recorded within 250m:</p> <p>Port of Tyne: Tyne Dock, inert waste.</p>
BGS / EA Recorded Landfills	NR within 250m.
Other Waste Management Facilities	1 metal recycling/scrapyard site located approximately 160m south.

NR – None Recorded

Pollution Controls and Industrial Land Use

5.5 A summary of Pollution Control records and potentially polluting activities (fuel stations) is provided below.

Integrated Pollution Controls (IPC)	12 within 250m, none recorded on site.
Integrated Pollution Prevention and Control (IPPC)	NR within 250m.
Pollution Prevention and Controls (PPC)	7 within 250m, none recorded on site.
Petrol Filling Stations	NR within 250m.

NR – None Recorded

Radon

5.6 The Envirocheck report states that no radon protection measures are required.

Other

5.7 Other sensitive land uses or potentially contaminative activities are listed below. The entries relate to activities within approximately 250m of the site;

- 11 Contemporary Trade Directory entries, 1 of which is recorded on site.

6 Conceptual Site Model

- 6.1 Based on the available desk study information, a combined conceptual site model (CSM) for the entire site (North and South yards together with the Car Park) has been developed for the proposed future land use (commercial / industrial).
- 6.2 The CSM summarises the understanding of the existing site and its historical development, the site geology, the potential contaminant sources, transport pathways and receptors in order to assess potential pollutant linkages.
- 6.3 In assessing the potential contaminants present at the site, reference has also been made to the relevant sections of CLR 8, the Department of the Environment Industry Profile reports and any other relevant supporting documentation.
- 6.4 The CSM model is based on the available information. It includes a summary of the potential contamination sources, pathways and receptors as set out below.

Sources of Contamination

- 6.5 The potential sources of contamination arise from the following;
1. Contamination associated with current and historic activities on site:
 - a. Unknown 'made ground' conditions arising from the importation of waste materials to 'infill dock' areas - for which no records exist. (North and South Yard)
 - b. Potentially unknown ground contamination arising from current and recent activities that have taken place on the site (e.g. metal manufacturing and fabrication).
 - c. Potentially unknown ground contamination arising from historical land uses on the site which had high propensity for pollution and for metal, organic and inorganic contamination including a sawmill, engineering works, graving docks, power station, railway lines.

Note: Tributyl Tin (TBT) was frequently used as an anti-fouling agent during ship repairs. It is environmentally toxic and elevated concentrations are known to occur in the River Tyne. (North and South Yard)
 - d. Mixed made ground from previous land reclamation activity

2. Contamination associated with current and historic activities on adjacent land:
 - a. The adjacent land to the east and south of North and South Yards and surrounding the car park has a long history of industrial uses including shipyards, chemical works, chemical processing, plywood manufacture and construction and operation of railway lines. This may include a wide variety of heavy metal and hydrocarbon contamination of a similar nature to those found on the site. There is historical evidence of underground tunnels from the north and south yards.
3. Ground gas:
 - a. The landfill and ground contamination has the potential to have buried materials with the propensity to produce ground gas both on and adjacent to the site. (e.g. Methane and carbon dioxide from made ground and/or alluvium. Hydrocarbon vapours from volatile compounds). There is the possibility that ground gas may be located within former tunnels.

Potential Pollution Pathways

6.6 The potential Pollution pathways are as follows;

1. Humans
 - a. The potential pollution pathways which present a threat to humans could arise from direct contact, soil ingestion and dust inhalation.
2. Leaching (Liquids and solids)
 - a. The vertical and or lateral leaching and migration of contaminants contained within the ground or ground water.
3. Migration (Gas)
 - a. The vertical and or lateral migration of gases contained within the ground or ground water.

Receptors

6.7 The potential receptors for the contamination are as follows;

1. Construction workers.
2. Site end users.
3. Adjacent and neighbouring site occupiers (residential/transport users)
4. Adjacent watercourse (River Tyne).

5. Underlying Aquifer (Secondary A).
6. Adjacent properties/land.

Generic qualitative risk assessment (Human)

6.8 A generic qualitative human risk assessment has been carried out. This identifies the likelihood of any pollutant linkage taking place and its potential significance. The table below identifies the extent to which a pathway linkage may be complete and whether this presents risks that are acceptable or can be mitigated;

Contamination Source	Pathway	Hazard	Potential Receptors	Linkage Complete
Contaminants associated with made ground on site	Direct contact, ingestion, dust inhalation	Human health risk	Site construction workers	Yes , can be mitigated by the use of appropriate PPE and limited exposure.
	Direct contact, ingestion, dust inhalation	Human health risk	Site end users	Yes , although any development is likely to consist of hard standing or buildings which will break any pathway to potential contamination.
	Dust inhalation	Human health risk	Adjacent properties /Neighbouring land users	Yes , can be mitigated by appropriate method statements and limited exposure.
	Lateral and vertical migration	Surface water pollution	River Tyne	Yes .
	Lateral and vertical migration	Groundwater pollution	Secondary (A aquifer)	Yes . However, the shallow groundwater within the Coal Measures bedrock is unlikely to be of high quality due to the mining history of the area.
	Lateral and vertical migration	Human health risk	Adjacent property	Yes , but much of the adjacent land has been used for industrial purposes with a similar history of likely contamination. Residential properties lie to the south and east of the site. Where these are at higher elevation they are unlikely to be impacted from contamination on site. Where they are below or at similar elevation site investigations will be required to verify no migration.

Contamination Source	Pathway	Hazard	Potential Receptors	Linkage Complete
Contaminants associated with offsite sources	Lateral and vertical migration	Human health risk	Site construction workers	Yes, can be removed by the use of appropriate PPE and limited exposure.
	Direct contact, ingestion, dust inhalation	Human health risk	Site end users	Yes, although the proposed development will generally consist of hard standing or buildings which will break any pathway to contamination.
Ground Gas	Vertical migration into buildings or confined spaces	Human health risk. Fire risk	Human health and property	Yes.

Pollutant Linkage Assessment

- 6.9 At this stage, it is considered that the site has the potential to be underlain by contaminated soils from the existing and previous industrial site use and the adjacent industrial land.
- 6.10 A qualitative risk assessment has been made of the likelihood of any pollutant linkage operating and its potential significance, as summarised in the table below:

7 Environmental Risk Assessment

7.1 The potential environmental risks arising from the redevelopment of the site have been assessed based on the 'source-pathway-target' pollutant linkages identified in the Conceptual Site Model.

7.2 The assessment of environmental risks involves understanding the risks associated with each stage of the pollutant linkage being present. The classification of risks is made according to the following definitions:

- **Low risk** – it is unlikely that an event will arise with respect to causing significant harm to human health or controlled waters.
- **Medium risk** – it is possible that an event could arise with respect to causing significant harm to human health or controlled waters.
- **High risk** – it is likely that an event will arise with respect to causing significant harm to human health or controlled waters.

7.3 A generic qualitative environmental risk assessment has been carried out. This identifies the likelihood of any pollutant linkage taking place and its potential significance. The table below identifies the extent to which a pathway linkage may be complete and whether this presents risks that are acceptable or can be mitigated;

ENVIRONMENTAL RISK ASSESSMENT		
	Risk rating	Reason
Contamination potential for:		
On-site contamination	Medium	<ol style="list-style-type: none"> 1. Site has a long industrial history and therefore some contamination should be anticipated. 2. Method statements can control the excavation and reuse of footings and arisings from the excavation of foundations. 3. Careful control of cut and fill within the site can control release and containment of potential contaminants. 4. Providing the above measures are taken and the site end use remains industrial or commercial then it is unlikely that end users will come into contact with any underlying soil contamination as the land will be covered by buildings or hard standing.

ENVIRONMENTAL RISK ASSESSMENT		
Contaminants migrating off site	Medium	<ol style="list-style-type: none"> 1. River Tyne lies adjacent to the site. 2. The river frontage has been built up with made ground of unknown origin/contamination and the quay wall will not be watertight. 3. Given that the Tyne is tidal at this location, contamination may be drawn out of the site and into the river by tidal flux. As the site formerly contained graving docks, TBT contamination is possible. 4. The South Yard is elevated above the adjacent Middle Docks. As such there is the potential for contaminants to migrate through ground water and surface runoff into and onto Middle Dock. 5. The potential for tunnels into and out of the site presents an unknown risk of contaminants migrating off the site.
Contaminants migrating onto site	Medium	<ol style="list-style-type: none"> 1. The high density of industrial development along this stretch of the Tyne and the tidal influence presents a risk of contaminants migrating into North and South Docks. 2. The potential for migration into the car park site is from adjacent sites which have had a similar history and have a similar contamination potential. 3. The potential for tunnels into and out of the site presents an unknown risk of contaminants migrating onto the site.
Other environmental issues giving rise to concern	Low	None identified.
OVERALL RISK	Medium	

Ground Gas Risk Assessment

7.3 A generic qualitative gas risk assessment has been carried out using the information gained through the Envirocheck report. The table below identifies the extent to which a pathway linkage may be complete and whether this presents risks that are acceptable or can be mitigated;

Potential Gas Source	Hazard	Risk Rating	Justification
Made ground (CH ₄ , CO ₂)	Humans: health risk Buildings: explosion	Medium	<ol style="list-style-type: none"> 1. The site includes extensive areas of made ground which is particularly deep within the "in filled" docks with few if any reliable records of the quality of the fill that has been used. 2. The site has a long industrial history and therefore contamination with the potential to produce gas should be anticipated. 3. Based on the evidence the following have the potential to be present on site; <ul style="list-style-type: none"> ○ volatile vapour from hydrocarbon contamination, ○ carbon dioxide and methane
Coal and historical mining	Humans: health risk Buildings: explosion	Medium	<ol style="list-style-type: none"> 1. The Usworth coal seam crops within the site boundary and although there is no historic evidence of mining it cannot be discounted. 2. There is the potential for backfilled mine workings and they could present a source of ground gas.
Radon	Humans: health risk	N/A	No radon precautions required.
Overall Risk	Medium		

8 Geotechnical Considerations

- 8.1 The following geotechnical considerations are based on the available data on the ground conditions and are provided as provisional and indicative only
- 8.2 A programme of site investigations and testing is required to verify the ground conditions and the absence or otherwise of contaminants. The following should not be taken as design criteria without further geotechnical data obtained from a suitably designed ground investigation.

Mining

- 8.3 The Usworth and Bottom Hebburn Fell coal seams crop on or adjacent to the site and are likely to underlie the area at shallow depth. These coal seams may have been worked historically. No mine entries are recorded on or adjacent to the site.
- 8.4 Based on the available information, the South Yard and Car Park areas are in particular considered at risk from potential shallow coal workings and as such, intrusive site and ground investigations are considered necessary to prove the ground conditions.

Foundations

North and South Yard

- 8.5 In view of the in filled former graving docks and long industrial history, the ground conditions consist of highly variable depths of made ground overlying river alluvium, glacial till and bedrock.
- 8.6 Made ground is very deep locally, with previous investigations recording thicknesses in the range 1.5m to 14m. Based on the available information it should be generally assumed that the graving docks were in filled without breaking out the concrete structure and therefore that significant obstructions should be anticipated within the made ground.
- 8.7 The made ground and alluvium is unlikely to be suitable for the support of conventional shallow foundations in view of the inherent variability in its structure and composition.
- 8.8 New foundations will require extending into the underlying glacial deposits or terminating at bedrock. It is anticipated that piled foundations will be required for the majority of the site although pads/strips could be considered where glacial till lies at shallow depth.

Car Park and Stockyard Area

- 8.9 This area was formerly used for railway purposes including extensive railway lines. It has also been used for housing.
- 8.10 The site is underlain with shallow coal measures that may have been mined.

- 8.11 The depth of made ground within the site is unknown.
- 8.12 As such it is possible that conventional pad or strip foundations could extend through the made ground to found on natural glacial till. However where the thickness of made ground is too deep for conventional foundations or there are undocumented mine working pile or slab foundations may be required.

Foundations: managing the risks associated with contamination

- 8.13 Subject to the findings of future site investigations, mitigation /remediation may be required to address the contamination findings. Based on currently available information and predicted SI outcomes the risks can be managed through conventional construction techniques, practices and procedures.

Gas Protection Measures

- 8.14 The preliminary ground gas risk assessment identifies that there is a medium risk to the development from ground gas due to the presence of extensive made ground, potential hydrocarbon contamination and shallow coal seams.
- 8.15 This level of risk can be appropriately managed by a programme of gas monitoring and reporting. Subject to the findings mitigation /remediation may be required and based on currently available information the risk can be managed through conventional construction techniques, practices and procedures.
- 8.16 Ground gas monitoring /reporting together with any need for remedial works can be the subject of a condition attached to a planning consent should the local planning authority consider it necessary.

9 Further Investigations

9.1 An intrusive investigation will be required once development options are known, to address the ground related issues discussed above. A summary of the likely scope of works, which should not be taken as an exhaustive list, is provided below.

- Cable percussive drilling to assess the depth and nature of the made ground, allow the recovery of samples for laboratory testing and establish the geological profile within the likely foundation depth.
- Trial pits to assess the variation in made ground thickness.
- Rotary drilling to assess the mining risk, particularly in the South Yard and Car Park areas.
- Installation of gas and groundwater monitoring standpipes.
- Gas monitoring.
- Laboratory geotechnical and chemical testing.

9.2 The above investigations are to provide geotechnical and environmental data. Further survey works will be required to structurally assess the existing quay edge.

10 Local Planning and Environmental Policy Context

Introduction

- 10.1 The development of the site will require one or more planning applications to be submitted and approved. Given the findings of this desk based study and the potential for contamination the scale, nature and environmental impacts of development the site could be considered to be 'significant'¹. Should the local planning authority be of this view they may require that the applications are accompanied by an Environmental Statement. It is recommended that early discussions be held with the local planning authority and the Environment Agency to fully understand the scope of any Environmental Statement that would be required.
- 10.2 The local planning authority will consider any planning application in the light of the relevant and applicable planning policies as set out in national strategies and local approved plans. Chapter 10 presents a brief resume of some of the plans and policies that are likely to be a material consideration in determining any application. The national planning policy context to the development of the site has not been addressed in this report but can be provided by contacting ethical partnership. The relevant local plans are:
- South Tyneside Local Development Framework (LDF) Core Strategy
 - South Tyneside Local Development Framework Development Management Policies

South Tyneside Local Development Framework Core Strategy

- 10.2 The LDF sets out the strategy, policies and proposals by which all planning applications for development will be assessed. When approved it will be a blueprint for the economic, social and environmental transformation of the Borough, taking forward the vision of South Tyneside's Regeneration Strategy, and providing the framework for proactively implementing those aims and objectives of the Council's Community Strategy that affect the use of land and buildings. National planning policy and Regional Spatial Strategy also influence the LDF.
- 10.3 The Core Strategy lies at the heart of the Local Development Framework and will set out the overall direction for the plan and drive forward this blueprint for the future. The following sections summarise the key policies and themes likely against which any planning application for the McNulty's Site will be tested;

¹ If development is considered to have the potential to have 'significant' environmental impacts then The Environmental impact regulations will be applied by the local planning authority to any planning proposal.

Sustainable Development

10.4 Policy ST1 Spatial Strategy for South Tyneside

The spatial strategy for South Tyneside is to:

- A. regenerates the River Tyne and coastal corridors including the Tyne Gateway at South Shields;
- B. support development that reflects the scale and functions of the main towns of South Shields, Jarrow and Hebburn;
- C. Promote opportunities along the A19 Economic Growth Corridor;
- D. Ensure the sustainability of settlements by reducing the emissions which cause climate change and adapting to its effects; and
- E. Maximise the re-use of previously developed land, in the built up areas.

The principles of securing mixed-use development, promoting accessibility, and ensuring that development maximises the community benefits of regeneration, whilst avoiding or minimising environmental impacts and congestion and safeguarding natural and cultural assets. The use of Planning Obligations is essential in delivering this overall strategy.

Improving Accessibility

10.5 Policy A1 Improving Accessibility

The Council will support public transport, walking and cycling initiatives that maximise the accessibility of new development being focused at:

- A. Regeneration areas along the riverside corridor, including South Shields, Jarrow and Hebburn town centres; and

Priority will also be given to improving accessibility, particularly by encouraging and promoting public transport improvements, both within the Borough and between the Borough and:

- B. The A19 Economic Growth Corridor (including employment areas at Boldon Colliery, Doxford Park, North Tyneside and South East Northumberland); and
- C. Other destinations in the Tyne and Wear City Region, such as Newcastle and Sunderland city centres, Newcastle Central Station and Newcastle International Airport.

Transport Assessments will be required for any major development proposal.

Environment

- 10.6 The built and natural environment and their natural resources represent environmental capital. The council states that these are important in their own right but also for their contribution to economic regeneration and the quality of life for residents. The council states that well thought out schemes can enrich the environment and demonstrate how to use the natural resources more wisely.
- 10.7 Capitalising on South Tyneside's environmental assets is about taking measures to:
- Protect and enhance the strategic Green Belt, coastal and wildlife corridors;
 - Ensure that development throughout the Borough reflects the character and distinctiveness of its surroundings;
 - Boost the town centres of South Shields and Jarrow by linking them to adjacent World Heritage Sites;
 - Revive major riverside sites by reducing noise, pollution and risk; and
 - Add value to existing and create new environmental assets, especially in the Great North Forest.

South Tyneside Local Development Framework – Development Management Policies

- 10.8 This Development Management Policies development plan document (DPD) complements other documents prepared as part of the emerging Local Development Framework (LDF). These include the Core Strategy (adopted in June 2007), three Area Action Plans based around the town centres of South Shields, Jarrow and Hebburn, the Site-Specific Allocations document and Supplementary Planning Documents. The programme for preparing these documents is set out in the Local Development Scheme (LDS).
- 10.9 Policy DM1 Management of Development
- In determining all applications under the planning Acts the council will ensure that, where relevant:
- A. The development, including new buildings, extensions and alterations to existing buildings, is designed to convey sensitive consideration of its surroundings, and where possible enhance its local setting and reinforce local identity, having particular regard to scale and proportions, alignment, form, use of materials and architectural detailing;
 - B. The development is acceptable in relation to any impact on residential amenity;
 - C. The development protects existing soft landscaping, including trees and hedges, where possible or provides replacement planting where necessary;
 - D. New development provides well-designed external spaces including streets, squares and parks, where possible linked to the wider green infrastructure network, with hard and

soft landscaping to provide a high quality setting for buildings, improve visual amenity, enhance community activity and support the provision of priority natural habitats and species;

E. The design of buildings and external spaces incorporates focal points and landmarks to aid recognition and legibility of the townscape and streetscape, including public art, where possible;

F. The design of advertisements complements the architecture to which it relates and the local context, and is considered as an integral part of the development;

G. The impact of the development is acceptable in relation to highway capacity and safety or includes proposals to mitigate any adverse impacts;

H. New development provides site layouts that facilitate convenient and safe routes between facilities, and prioritises movement by pedestrians and cyclists;

I. The needs of all users for access around sites and into buildings for public use are considered as an integral part of the development;

J. The development is designed to achieve lower carbon emissions, and to be energy efficient and maximise the use of renewable and low carbon energy sources, having greater resilience to the likely effects of climate change, including higher summer temperatures and increased prevalence of flood events. Where relevant, development should incorporate green spaces to mitigate the heating of urban areas and should create and support opportunities for sustainable forms of transport, drainage and waste management;

K. The development is designed to minimise and mitigate localised flood risk, both on site or elsewhere, where this has been identified by the Strategic Flood Risk Assessment, Site-Specific Flood Risk Assessment or Surface Water Management Plan. For any development proposed in a Critical Drainage Area, as identified by the Strategic Flood Risk Assessment, a full flood risk assessment and drainage impact assessment may be required. Development on any sites allocated in Flood Risk Zones will only be permitted in accordance with the findings of a Sequential Flood Risk Assessment;

10.10 Policy DM2 Safeguarding Employment Uses

The council will promote and facilitate economic growth and prosperity, in accordance with regional and local aspirations for growth by:

A. Safeguarding existing Predominantly Industrial Areas and other employment land allocations in the borough for employment use (Use Classes B1, B2 and B8) as opposed to redevelopment for alternative uses, where this is sustainable and viable, to ensure a sufficient supply of employment land over the next 10-15 years; and

B. Encouraging Use Class B1(a,b) office uses to locate in town and district centres, where sites are suitable and available, and sequentially on accessible edge-of-centre sites and

within established business parks and industrial estates, provided that they do not adversely affect the general character, function, vitality and viability of nearby town or district centres or the supply of land for industrial uses (Use Classes B2 and B8) over the next 10-15 years.

10.11 Policy DM6 Heritage Assets and Archaeology

The council will support development proposals that protect, preserve and where possible enhance the historic, cultural and architectural character and heritage, visual appearance and contextual importance of our heritage assets and their settings, including:

- A. Scheduled Ancient Monuments/World Heritage Sites (Listed)
- B. Conservation Areas, including their historic settlement cores, distinctive open spaces and boundary walls: (Listed)
- C. Listed buildings and structures, non-listed buildings and structures included on the council's list of locally significant heritage assets, significant landscape features of local heritage and archaeological value and archaeological deposits and remains. Scheduled Ancient Monuments and Conservation Areas are shown on the Proposals Map.

Archaeological deposits and remains, below ground and on the surface should be recorded, and where possible, preserved in situ. Proposals for built development on:

- i) Previously undeveloped sites; or
- ii) Previously developed sites where archaeological interest has been established by a previous find recorded in the Historic Environment Record;

Planning applications will not be determined until the potential impact of the proposed development on archaeological deposits and remains has been adequately assessed and evaluated, and any adverse impacts will be avoided, minimised or mitigated, or in the absence of adequate information, will be refused.

Planning permission will be refused if the impact of development on heritage assets and archaeological remains is unacceptable. Where appropriate, the council will use Article 4 directions, planning conditions and planning obligations to secure mitigation measures to ensure that development is acceptable in planning terms.

10.12 Policy DM7 Biodiversity and Geodiversity Sites

The council will protect and enhance the important environmental assets of the borough..... the council will promote and support high quality schemes that enhance nature conservation and management, preserve and restore historic and natural environmental character, and maximise benefits for geological conservation and the enhancement of biodiversity in line with the Durham The Biodiversity Action Plan targets

All proposals for development:

- Must ensure that any individual or cumulative detrimental impacts on sites are avoided; and
- Will only be permitted where they would not adversely affect the integrity, natural character or biodiversity and geodiversity value of (listed) sites and the Boroughs green infrastructure :

Development within or outside these designations will only be approved where the benefits of development clearly outweigh any adverse impact on the site, and any broader impacts on the national network of Sites of Special Scientific Interest. Exceptions will only be made where no reasonable alternatives are available. In such cases, we will use planning conditions and/or planning obligations to mitigate or compensate for the harmful effects of the development, and through good design seek opportunities to incorporate biodiversity and geodiversity features into the development.

Annex1: Envirocheck report

(Separate cover)

Annex2: Site Plan

(follows)



River Tyne

North Yard

South Yard



LOCATION PLAN
SCALE 1:2000

REV.	DATE	DESCRIPTION	BR.	CH.
<input checked="" type="checkbox"/>		Information	<input type="checkbox"/> Comment	<input type="checkbox"/> Construction
<input type="checkbox"/>		Preliminary	<input type="checkbox"/> Tender	<input type="checkbox"/> As-Built
SCALE		1:2000	A3	
DRAWN BY		DATE	CHECKED BY	
DB		Sept '12	MAT	
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CLIENT		PORT OF TYNE		
PROJECT		McNULTY YARD REPORT		
TITLE		SITE LAYOUT		
DRAWING No.		3228-C-200	REV.	0