

PHASE I PRELIMINARY CONTAMINATION RISK ASSESSMENT

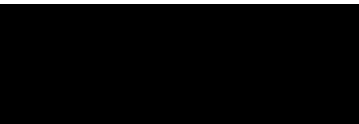
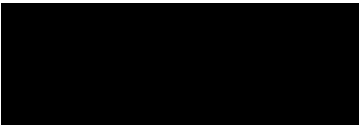
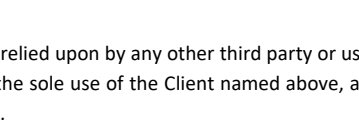
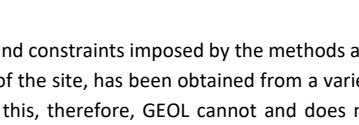


**LAND AT GARWOOD STREET, SOUTH SHIELDS,
SOUTH TYNESIDE, NE33 5AG**

PREPARED FOR SOUTH TYNE BUILDING SUPPLIES LIMITED



QUALITY CONTROL

Project No.	GEOL23-7573	Client	South Tyne Building Supplies Limited
Design Team	Jasper Kerr Consulting Engineering Limited		
Report Type	Phase I Preliminary Contamination Risk Assessment		
Project Type	Proposed Commercial Development		
Site Address	Land at Garwood Street, South Shields, South Tyneside, NE33 5AG		
NGR	435680, 565840		
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REPORT REVISION HISTORY				
Issue	Description	Date	Author	Approval
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1.0 Introduction

Geol Consultants Limited (GEOL) were instructed by Jasper Kerr Consulting Engineering Limited on behalf of South Tyne Building Supplies Limited to undertake a Phase I Preliminary Contamination Risk Assessment (PCRA) to facilitate a new commercial development on land off Garwood Street and Smith Street in South Shields, South Tyneside. The site currently comprises a storage area for building supplies and areas of overgrown vegetation. Proposals have been made to construct 8 no. commercial units with associated infrastructure and vehicle parking. The National Grid Reference for the centre of the site is 435680, 565840.

The purpose of this report is to provide information relating to the following.

-  Identify the environmental setting and likely ground conditions for the site, including details relating to the deeper geology, hydrogeology, hydrology, and mining
-  Identify the sites previous development history, usage, and activities with a view to determining any potential contaminants associated with the recorded site history and to assess the impacts from those contaminants towards the future site end-users (Human Health) and nearby sensitive receptors (Controlled Waters)
-  Establish a preliminary Conceptual Site Model (CSM) and to identify all potential source, pathway, and receptor linkages
-  Assess all potential sources of hazardous ground gas generation
-  Determine the scope of any further investigation works required for the site prior to commencing with the proposed commercial development

As part of this PCRA, a reconnaissance (walkover) survey was undertaken which involved an inspection of the site and immediate surrounding area. Site photographs taken during this survey can be seen in Appendix I and all relevant observations are noted in the Site Details section on the following page.

A review of currently available information from the following data sources has been undertaken to assist in the completion of this technical report.

-  British Geological Survey (BGS); geological maps, historical borehole records, where applicable
-  Landmark Information Group, Envirocheck Report; including Ordnance Survey (OS) maps
-  The Coal Authority; Online Interactive Map Viewer, Consultants Coal Mining Report
-  Environment Agency / GOV.UK
-  Relevant guidance documents, these are listed within the report text, where applicable

2.0 Site Details

All relevant details and descriptions relating to the proposed development area (site) have been summarised in the Table below.

Detail	Description
Site address and access	Land at Garwood Street, South Shields, South Tyneside, NE33 5AG
NGR	435680, 565840
Shape and approximate size	Irregular shaped parcel of land, occupying an approximate area of 0.79Ha
Current site use	The site comprises hardstanding from old roads and now-demolished buildings used as storage for building supplies together with areas of overgrown vegetation on the outskirts
Proposed site use	Proposals have been made to construct 8 no. commercial units with associated infrastructure and vehicle parking
Surrounding land uses	The site is situated within an industrial / commercial area of South Shields, east of the Port of Tyne. The site is immediately surrounded by industrial buildings with residential properties located to the east
Site topography	The site is relatively flat
Additional features	Underground and overhead services were noted to run into the site and along the boundaries of the site. An electric substation was also noted across the road from the site. Therefore, prior to undertaking any future investigation or construction works it would be prudent to obtain all existing utility / service plans, to avoid any unnecessary damage to any live services which may pass below the site

3.0 Site Geology

In accordance with available BGS data and published maps, reference; Sheet NZ36NE, 1:10,560 scale, dated 1981, the site lies within an area where superficial (drift) deposits are present and comprise Glaciolacustrine Deposits (clay and silt) formed up to 116,000 years during the Quaternary Period.

Based on archive BGS boreholes sunk at the site, these indicate rockhead to be present at depths of between 10m and 15m below site levels.

The underlying bedrock deposits beneath the majority of the site are shown to comprise the Pennine Middle Coal Measures Formation, deposited between 309 and 318 million years ago during the Carboniferous Period.

3.0 Site Geology (Cont'd)

The southern portion of the site is shown to comprise an outcrop of the Grindstone Post Member, a named sandstone unit within the Pennine Middle Coal Measures Formation. Mudstone is recorded at rockhead level below most of the site and these deposits include coal seams with the conjectured subcrop position of the Usworth coal seam shown within the site boundary, dipping to the southwest.

Whilst no artificial deposits are recorded over the site area in accordance with available BGS mapping, areas of made ground / fill deposits are present adjacent to the site's western boundary and given the historical development of the site, made ground deposits are likely to be present over most parts of the site. An archive BGS borehole record shows up to 5.20m of made ground comprising brick rubble and ash, sunk at the location of an historical church on site; this is likely due to a basement / crypt below the building.

Ground stability hazards on the site are listed in the Landmark Envirocheck Datasheet as no hazard, very low, low and moderate. The moderate record is associated with compressible ground stability hazards.

4.0 Coal Mining Risk Assessment (CMRA)

The site is located within a Coalfield Consultation Area. The coalfield is divided into two areas, referred to as development high risk areas (DHRA's), and development low risk areas (DLRA's). The DHRA forms 15% of the coalfield area, where coal mining risks are present at shallow depth which are likely to affect new development. The DLRA forms 85% of the coalfield where past coal mining activity has taken place at enough depth that it poses low risk to new development. The Coal Authority places the site within a DHRA, due to the subcrop position of the Usworth coal seam which is shown to subcrop within the boundary of the site.

In terms of coal mining risk assessments, the basic principle which underpins the process is that within the defined Coal Authority development high risk areas there are existing recorded risks to the ground stability from coal mining legacy hazards and that new development proposals need to assess and mitigate these risks in the interests of public safety.

Therefore, a Consultants Coal Mining Report, reference; 51003383655001 was procured from the Coal Authority, the findings of which can be seen attached in Appendix III. The relevant coal mining related information contained within this report has been summarised in the Table on the following page.

4.0 Coal Mining Risk Assessment (CMRA) (Cont'd)

Data Type	Details
Past underground mining	Recorded workings have been identified 3 no. seams with the shallowest being the High Main coal seam at a depth of 200m bgl, with an extraction thickness of 1.95m and last worked in 1825
Probable unrecorded shallow workings	Yes
Spine roadways at shallow depth	No spine roadways recorded at shallow depth
Mine entries	None recorded within 100 metres of the enquiry boundary
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded
Mine gas	None recorded within 500m from the site boundary
Opencast mines	An unlicensed opencast site was located c.220m west of the site
Coal mining licensing	None recorded within 200m from the site boundary
Coal mining subsidence	The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50m of the site boundary, since 31 st October 1994

For illustration purposes, an extract of BGS Sheet NZ36NE, 1:10,560 scale can be seen in Figure 1 below.



4.0 Coal Mining Risk Assessment (CMRA) (Cont'd)

Based on the expected site geology, there are 5 no. coal seams above the shallowest recoded workings, with the Usworth coal seam being the shallowest and subcropping beneath the site with a seam thickness of 0.55m. Based on the Generalised Vertical Section, the second shallowest seam beneath the site (Top Ryhope Five-Quarter) would be anticipated to be c.122m below the Usworth coal. An archive BGS borehole records a 0.50m thick coal seam at c.15.50m below ground level that remained intact. Data obtained directly from the Coal Authority, along with BGS mapping and historical borehole logs, indicate that if there are unrecorded workings present within the Usworth coal seam, which subcrops beneath the site at an estimated depth of between 15m and 20m below site levels, the 10t criterion would not be met for the site. The overall risk is considered to be MEDIUM, therefore, to fully assess the extent of the risk posed by the Usworth coal seam beneath the site, confirmatory deep rotary boreholes will be required.

In accordance with the decision support tool for mine gas risk assessment (MGRA) contained within the CL:AIRE Publication 'Good practice for risk assessment for coal mine gas emissions', dated 2021, the following risk assessment has been determined.

- ▼ The site is located within a Coal Authority defined Coal Mining Reporting Area and has been determined to lie in a DHRA. The Usworth coal seam subcrops beneath the site
- ▼ No mine entries are recorded within 100m of the site
- ▼ The Coal Authority report obtained for this site has recorded coal workings present in 3 no. coal seams between depths of 200m and 323m
- ▼ The site is not underlain by geological faulting which could represent a potential pathway connecting the surface to deeper workings if present
- ▼ Reference to the Coal Authority Interactive viewer indicates the site is in an area of probable shallow workings

Based on the above information the site has been assessed to lie within a low risk zone, and therefore mitigation is not required. As such the completion of insitu ground gas monitoring should be undertaken in accordance with CIRIA C665.

5.0 Historical Map Review

Copies of OS maps covering the site and adjacent land are contained within the Landmark Information Group, Envirocheck Report attached in Appendix II.

5.0 Historical Map Review (Cont'd)

The information contained within the Table below and on the following page has been based on available OS maps and the observations noted during the reconnaissance (walkover) survey completed.

OS map date	Site	Adjacent land
1858 to 1862	By 1858, a track cuts through the northeast corner of the site. The remainder of the site appears to remain undeveloped land cut in two by a field boundary. The southwestern boundary of the site partly encroaches into the adjacent railway embankment	The town of South Shields is situated c.200m north of the site with the site immediately surrounded by agricultural land to the north, east and south with the "North Eastern Railway (South Shields Branch)" adjacent to the site's western boundary, aligned north to south. The River Tyne is situated c. 200m west of the site, with docks and shipbuilding yards present along the river's edge. A coal depot is located c.100m southwest of the site and Templetown Colliery is present c.200m south. Jarrow chemical works are also present c.150m southwest of the site
1897 to 1899	The track is no longer mapped. Three small buildings have been constructed in the southern area of the site	A brick works has been constructed c.100m east of the site. Borough Foundry & Engine Works is now mapped c.25m east of the site and Manor Wallsend Colliery is now mapped c.125m southwest
1915 to 1977	The site has been developed with Bertram Street cutting across the northern site area, aligned east to west with multiple residential properties constructed in the northern area of the site. A street cuts through the northwestern part of the site, aligned north to south. The buildings in the southern area have been demolished. By 1921, 3 no. buildings have been constructed in the southern site area, labelled as St. Francis Church, Vicarage and Hall	The area directly to the north and east of the site has been developed with residential properties with associated infrastructure including Garwood Street, which runs along the site's eastern boundary, aligned north to south, and Gilbert Street along the site's southern boundary aligned east to west. The brick works, collieries and most of the industrial buildings have been demolished
1982	Most of the buildings on site have been demolished except for one which is not labelled	Many of the residential properties to the north and east of the site have been demolished and an industrial estate has been constructed c.20m north of the site with multiple buildings and an electric substation

5.0 Historical Map Review (Cont'd)

OS map date	Site	Adjacent land
1986 to 1996	The road layout has been changed with the streets cutting through the site no longer being mapped. By 1989, the last building on the site has been demolished	The railway to the west of the site has been dismantled and the embankment has been removed. The area directly east of the site has been redeveloped with new residential properties and wooded areas. The road layout has also been changed with Smith Street now along the site's northern boundary, aligned east to west
1999 to 2023	Aerial photography of the site shows the site is used for storage of materials and resembles the present-day layout of the site	The area surrounding the site is developed further with a mixture of residential and commercial properties

The OS mapping indicates the site comprised mostly undeveloped land until the early 20th century when buildings were constructed across the site. By 1982, most of the site had been demolished and is currently in use as a storage yard.

A reconnaissance (walkover) survey was undertaken by GEOL, during October 2023. Photographs taken during the reconnaissance (walkover) survey can be seen attached in Appendix I.

The reconnaissance survey identified that the foundations of the now-demolished residential buildings remain on the site and are visibly present.

6.0 Environmental Setting

6.1 Surface Mineral Extraction / Quarrying

Based on OS maps dating from 1858 to 2023, there is no evidence of historical surface mineral extraction or quarrying features recorded within a plausible, lateral migration distance (<250m) of the site. The brick works that was present c.100m east of the site between 1897 and 1915 possibly excavated the surrounding ground for clay extraction but this feature has not been mapped on OS mapping.

6.0 Environmental Setting (Cont'd)

6.2 Hydrogeology

The superficial deposits underlying the site are designated as an Unproductive Aquifer. Unproductive strata are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

The bedrock deposits underlying the site are designated as a Secondary A Aquifer with low vulnerability. Secondary A Aquifers comprise permeable layers that can support local water supplies, and may form an important source of base flow to rivers.

When considering the anticipated ground conditions below the site, the groundwater table is expected to be at depth within the bedrock geology. Water strikes may occur due to perched / trapped water within granular layers.

The Landmark Information Group, Envirocheck Report records no water abstractions or Source Protection Zones within 500m of the site. When considering the recorded site history, the site is not considered to represent a significant risk to groundwater or drinking water supplies / abstractions.

6.3 Hydrology

The nearest surface water feature is recorded 288m west of the site associated with the River Tyne. The site lies within a Flood Zone 1, an area with a low probability of flooding with <1 in 1000 chance of fluvial flooding occurring (<0.1%), and therefore this site is unlikely to be at significant risk from future flooding.

According to the GOV.UK Long Term Flood Risk Information Interactive Map, the northern area of the site is shown to lie within an area at low risk (0.1% - 1%) of surface water (pluvial) flooding occurring while the southern portion of the site is within a very low risk (<0.1%) area. Appropriate surface water management will need to be adopted to deal with the future management of positively drained surface water, when considering the future development of this site.

During the reconnaissance (walkover) survey standing water was noted at the area where vehicles perform turning manoeuvres.

6.0 Environmental Setting (Cont'd)

6.3 Hydrology (Cont'd)

While the Landmark Information Group, Envirocheck Report identifies the site to not be at risk from groundwater flooding, an area 4m northwest of the site is recorded as having potential for groundwater flooding to occur at the surface.

6.4 Landfill & Waste

The Envirocheck Report identifies 1 no. Historical Landfill Site located 223m northwest, 1 no. Licensed Waste Management Facility also located 223m northwest, and 1 no. Registered Waste Treatment or Disposal Site situated 171m south, all within a plausible migration distance (250m) from the site's boundaries.

The Envirocheck Report identifies 3 no. records of potentially infilled land (non-water) within 250m of the site, situated 26m east, 41m southwest and 207m south. A record of potentially infilled land (water) is also identified 219m west of the site.

Possible unrecorded extraction of clay may have taken place on or near to the site associated with the brick works recorded c.100m east of the site, between 1897 and 1915. An archive BGS borehole record on site indicates made ground up to 5.20m below ground level in an area of the site where St. Francis Church was historically located. The deep made ground is likely associated with an old basement / crypt beneath the church.

6.5 Radon Assessment

The BRE Digest, BR211 (2015) Radon: Guidance on protective measures for new buildings, indicates the site to lie within a clear grid square (1km) where no radon protective measures will be required for new structures. Reference to the UKRadon.org mapping indicated the site is located in a grid square where the maximum radon potential is 1% - 3%. The Landmark Information Group, Envirocheck Report records the western portion of the site to lie in an intermediate probability radon area, where 1% - 3% of homes are estimated to be at or above the Action Level in accordance with data held by the BGS, while the eastern portion of the site lies within a lower probability radon area, where <1% of homes are estimated to be at or above the Action Level. Their assessment also indicates that no radon protection measures are necessary in the construction of new dwellings or extensions.

6.0 Environmental Setting (Cont'd)

6.6 Site Ecology

The Landmark Information Group, Envirocheck Report records no areas of sensitive land-use within a 2km radius of the site.

During the reconnaissance (walkover) survey completed, there was no obvious evidence to suggest the site is affected by the presence of invasive weed species (i.e. Japanese Knotweed).

7.0 Regulatory Database

The information given in the Table below has been obtained from a commercially available database and is contained within the Landmark Information Group, Envirocheck Report attached in Appendix II. The information presented in the Table only includes records not otherwise detailed in the report.

Data type	0 – 250m	251 – 500m	Details
Contaminated Land Register Entries and Notices	0	0	None recorded
Discharge Consents	1	49	The nearest record is located 244m west of the site associated with treated sewage discharges entering the River Tyne
Local Authority Pollution Prevention and Controls	3	2	The closest record is situated 59m southwest of the site, relating to C W Taylor & Son and is described as PG2/4 Iron, steel and non-ferrous metal foundry processes
Substantiated Pollution Incident Register	1	0	The record is located 135m south of the site, occurring in April 2006. The incident involved a mixture of pollutants and was categorised as a Category 2 – Significant Incident for Land Impact
Pollution Incidents to Controlled Waters	0	2	The closest record is situated 295m southwest of the site, occurring in November 1990. The cause of the incident is recorded as unknown and was categorised as a Category 2 – Significant Incident
Active Contemporary Trade Directory Entries (CTDE)	58	42	The nearest active record is located 36m north of the site, named T G S Industrial Supplies Limited
Fuel Station Entries	0	0	None recorded
Planning Hazardous Substance Consents	0	1	The record is located 295m northeast of the site, associated with F Lakes & Son with the application being refused

8.0 Contamination and Ground Gas Risk Assessment

The risks posed towards Human Health and or environmental receptors (i.e. Controlled Waters) is based on an assessment of one or more source-pathway-receptor linkages. The source is any substance which has the potential to cause significant harm to a relevant receptor and the pathway is any route by which contamination may travel to impact on a receptor. The preliminary Conceptual Site Model (CSM) summarises the principal contaminant sources, pathways and receptors for this site and the likelihood of the existence of a pollutant linkage. The significance of the potential source-pathway-receptor linkages identified within the preliminary CSM can be assessed using the criteria below.

-  LOW risk – not likely to cause significant harm to Human Health or Controlled Waters. Remedial measures are not likely to be required
-  MEDIUM risk – it is possible that significant harm to Human Health or Controlled Waters could occur depending on site specific circumstances. Remedial measures may be required to mitigate potential risks
-  HIGH risk – it is likely that significant harm to Human Health or Controlled Waters will occur unless appropriate remedial measures are incorporated into the development

The potential pollutant linkages pertaining to the site and the assessed significance are summarised in the preliminary CSM Table on the following page.

In accordance with OS maps, the northern site area was historically developed from 1915 and the southern site area from 1921. All of the buildings have since been demolished and the reconnaissance (walkover) survey has noted that relic foundations of some buildings still remain on site.

The OS mapping historically shows a brick works close to the site where unrecorded clay extraction may have taken place and encroached onto the site. A church was historically mapped on site that may possibly have had an associated basement / crypt that could be a source of deep made ground deposits.

Given the historical site use and the industrial land-use of the surrounding area, the risk of significant contamination being present on this site is LOW.

Made ground deposits are recorded below the site based on archive boreholes on site. It will be necessary to assess the levels of contamination present within the made ground deposits present over the site to determine the suitability for their intended end-use (Commercial), and to assist with the disposal of surplus soil deposits which are likely to be generated as part of the proposed development / construction work.

8.0 Contamination and Ground Gas Risk Assessment (Cont'd)

Representative samples of soil can be screened for standard metals and semi-metals including As, Cd, Cr (III & VI), Cu, Hg, Ni, Pb, Se, Zn, CN, as well as Polycyclic Aromatic Hydrocarbons (PAH's – 16 USEPA Specification) and Asbestos screening.

Laboratory testing should also be undertaken on samples of natural and made ground soils for naturally aggressive chemicals (pH value and soluble sulphate) which could have a potential effect on buried concrete.

The risk of hazardous ground gases from on-site and off-site sources is considered LOW to MEDIUM, due to the possible presence of unrecorded workings beneath the site within the Usworth coal seam, made ground deposits, possible clay pit / extraction and the proximity of a historical landfill site.

Therefore, a detailed gas risk assessment along with the completion of insitu ground gas monitoring will be required to confirm the ground gas regime more accurately with more confidence.

Consideration may need to be given to the protection of new service pipes which are to be incorporated into the new development, and therefore a supplementary suite of contamination testing (UKWIR suite) may be required to meet the requirements of the Utility service providers to satisfy their own pipe selection risk assessment (PSRA) once the location and depth of future services have been determined.

Potential source	Pathway	Receptor	Pollutant linkage / assessed risk
Made Ground Deposits	Dermal contact and ingestion / inhalation of contaminated soil and dust	Human site users - Construction workers and end-users	LOW risk
	Air – Inhalation of vapours (indoor & outdoor)		LOW risk
	Plant uptake, consumption of homegrown vegetables	End-users	No pathways present
	Migration through services	End-users	LOW risk
	Direct contact with building materials	Building materials (concrete)	MEDIUM risk
	Surface run-off, vertical and lateral infiltration / leaching, and migration of mobile contaminants	Perched or trapped water within the superficial geology	LOW risk

8.0 Contamination and Ground Gas Risk Assessment (Cont'd)

Potential source	Pathway	Receptor	Pollutant linkage / assessed risk
Made Ground Deposits	Contaminated soils	Flora and Fauna in soft landscaping on completion of building works	LOW risk
Ground gas	Asphyxiation, fire & explosion	End-users	LOW to MEDIUM risk
Radon gas	Carcinogenic	End-users	LOW risk

9.0 Geotechnical Risk Assessment

The ground conditions below the site are expected to comprise variable thicknesses of made ground, overlying natural deposits comprising clay and silt deposits, in turn underlain by the Pennine Middle Coal Measures Formation. The anticipated ground profile for this site has been summarised in the Table below.

Strata type	Anticipated thickness	Groundwater	Comments
Made Ground	Variable between 1m to 5m	None anticipated	Due to the historical development on the site, made ground deposits are expected
Glaciolacustrine Deposits	10m to 15m	These deposits have been designated as an Unproductive Aquifer	Superficial deposits beneath the site are expected to comprise clay and silt deposits
Pennine Middle Coal Measures Formation	>100m	These deposits have been designated as a Secondary A Aquifer	Rockhead is anticipated to be present between 10m and 15m below site levels

A summary of the anticipated potential risks associated with the geotechnical issues and hazards identified for this site can be seen in the Table on the following page. The definitions for the allocated level of risk(s) are as follows.

-  LOW risk – unlikely to impact on the proposed development
-  MEDIUM risk – may have a significant impact on the proposed development
-  HIGH risk – likely to have a significant impact on the proposed development

9.0 Geotechnical Risk Assessment (Cont'd)

Issue or hazard	Level of potential risk	Comments
Made Ground	MEDIUM to HIGH risk	Thicknesses of recorded made ground deposits are across the site area. It is probable that a limited volume of soil will need to be removed off site to accommodate the floor levels proposed for the development
Natural deposits	LOW risk	The natural deposits are expected to comprise firm to stiff clay deposits
Shallow groundwater	LOW risk	Groundwater is expected at depth within the bedrock deposits
Stability of excavations	LOW to MEDIUM risk	Within future excavations, made ground and natural deposits could be unstable below depths of c.1.20m and adequate lateral support will be required
Sub-surface structures	MEDIUM risk	Any relic sub-structures (walls and foundations) encountered during the site works should be grubbed up and removed off site
Shallow coal workings	MEDIUM risk	The site lies within a DHRA and is underlain by suspected unrecorded shallow mine workings
Mine entries (shafts / adits)	LOW risk	No mine entries have been recorded within 100m of the site's boundaries
Control of surface drainage	MEDIUM risk	Conventional SuDS (i.e. soakaways) are unlikely to be viable for this site
Flooding	LOW risk	The site lies within a Zone 1 Flood Risk Area

Based on the various data sources reviewed, the foundation options given in the Table below and on the following page are likely to be available for the proposed development.

Foundation type	Anticipated depth to bearing stratum	Maximum allowable bearing pressure	Comments
Shallow conventional foundations	Between 1m and 2m	Between 75kN/m ² and 150kN/m ²	Where thin deposits of made ground are present over competent natural deposits, this foundation option would be the most feasible for the proposed development
Deep Trench Foundations	Between 2m and 3m	>100kN/m ²	Feasible where made ground deposits do not exceed beyond 3m in thickness, and competent natural deposits are present

9.0 Geotechnical Risk Assessment (Cont'd)

Foundation type	Anticipated depth to bearing stratum	Maximum allowable bearing pressure	Comments
Raft	Up to 1m	40kN/m ² and 75kN/m ²	If the made ground and initial natural deposits are poor in nature, then a raft foundation may be considered
Piles	>3m	250kN/m ²	If thick made ground deposits are present then a piled foundation solution would need to be considered, taken down to competent deposits

Prior to the commencement of the development, it is recommended that a programme of appropriate geotechnical intrusive investigation work is carried out across the site to determine the ground conditions with more certainty. This will allow for accurate foundation designs to be made and will also confirm if any shallow unrecorded workings are present below the site within the Usworth coal seam and confirm depths to rockhead.

10.0 Further Recommendations

It is recommended that appropriate site-specific investigation works forming a detailed Phase II Ground Investigation be completed for this site, prior to commencing with the proposed development. This investigation should include for the items listed below, on the following page or similar exploratory work.

- Undertake a series of shallow percussion boreholes, including appropriate insitu geotechnical testing to help aid with future foundation designs
- Undertake a series of rotary open boreholes to investigate the Usworth coal seam as well as the depth to rockhead
- Installation of combined ground gas and groundwater monitoring wells, followed by an appropriate period of monitoring to assess the risks to the development from potential ground gases
- Undertake appropriate geotechnical laboratory classification testing, dependant on the soils / deposits encountered below the site area, and pH and soluble sulphate testing
- Undertake appropriate confirmatory contamination screening on selected samples of made ground recovered from site to confirm the suitability of these deposits to remain onsite within an end-use of residential with private gardens. The samples of soil collected should also be forwarded to a UKAS and MCERTS accredited laboratory

10.0 Further Recommendations (Cont'd)



Production of a Phase II Ground Investigation Report, to include Ground Contamination Risk Assessments

Furthermore, prior to site investigation works commencing, all existing utilities / services should be identified and recorded, such that any potential damage to services crossing the site can be prevented, as well as ensuring the Health and Safety of all future site workers.

End of Report

APPENDIX I

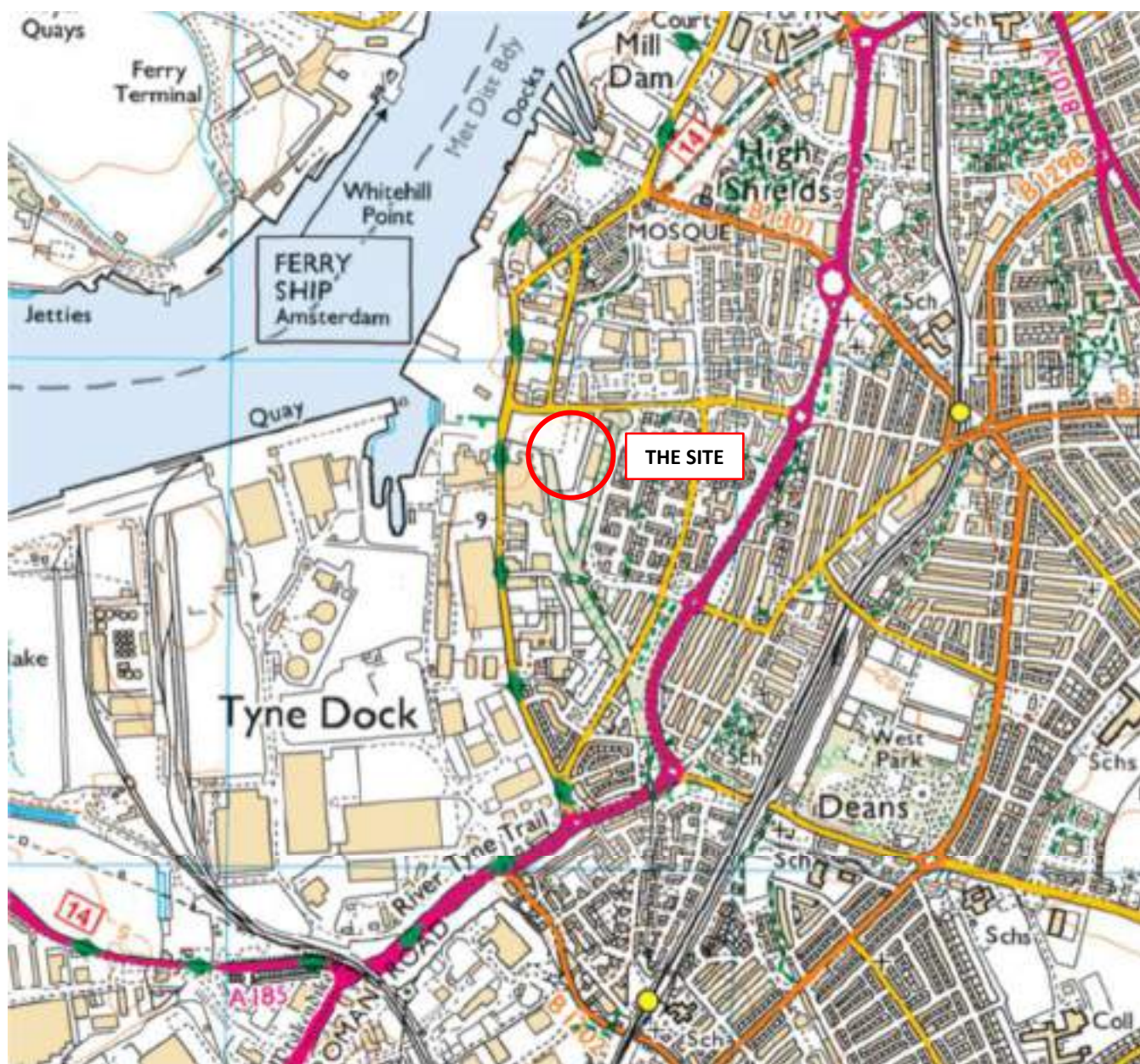
Site Location Plan, Aerial Photograph, Site Photographs & Proposed Development Layout Plan



Tectonic House, Unit 11 Queens Court North
Third Avenue, Team Valley Trading Estate
Gateshead, Tyne and Wear
NE11 0BU

Tel: 0191 477 2020

Email: enquiries@geolconsultants.co.uk



SITE LOCATION PLAN

Report Type: Phase I Preliminary Contamination Risk Assessment

Site Address: Land at Garwood Street, South Shields, South Tyneside, NE33 5AG

Project No.: GEOL23-7573



Tectonic House, Unit 11 Queens Court North
Third Avenue, Team Valley Trading Estate
Gateshead, Tyne and Wear
NE11 0BU

Tel: 0191 477 2020

Email: enquiries@geolconsultants.co.uk



 AERIAL PHOTOGRAPH

Report Type: Phase I Preliminary Contamination Risk Assessment

Site Address: Land at Garwood Street, South Shields, South Tyneside, NE33 5AG

Project No.: GEOL23-7573



Tectonic House, Unit 11 Queens Court North
Third Avenue, Team Valley Trading Estate
Gateshead, Tyne and Wear
NE11 0BU
Tel: 0191 477 2020
Email: enquiries@geolconsultants.co.uk



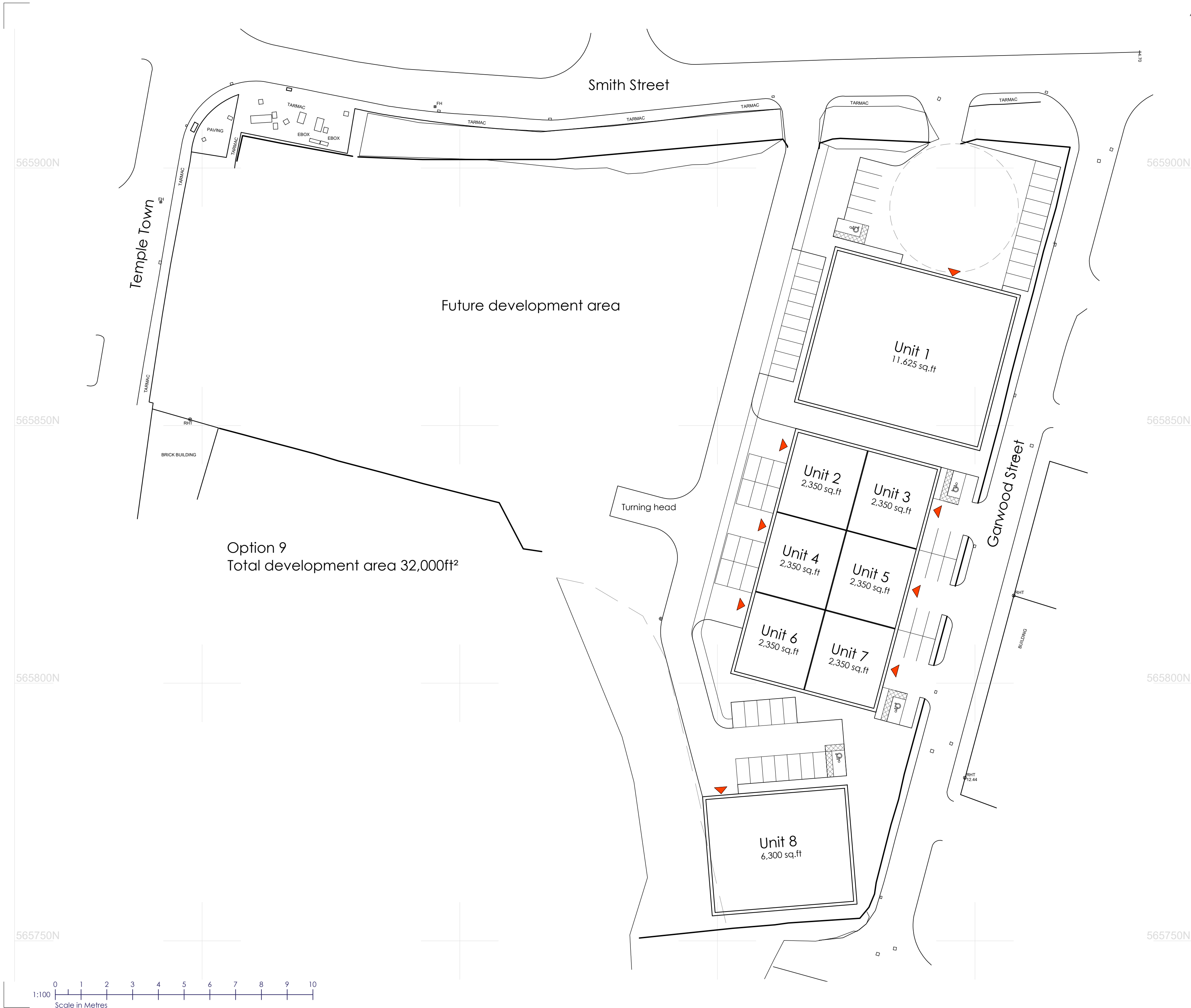
SITE PHOTOGRAPHS



Report Type: Phase I Preliminary Contamination Risk Assessment

Site Address: Land at Garwood Street, South Shields, South Tyneside, NE33 5AG

Project No.: GEOL23-7573



Rev	Description	Date
-----	-------------	------



Keel Row 4 | The Watermark | Gateshead | NE11 9SZ
E: info@iba-architects.com T: 0191 461 1411
www.iba-architects.com

Project: Proposed Industrial Development
Smith Street/Garwood Street
South Shields

Title: Proposed Site Plan
Option 9

Client: South Tyne Building Supplies

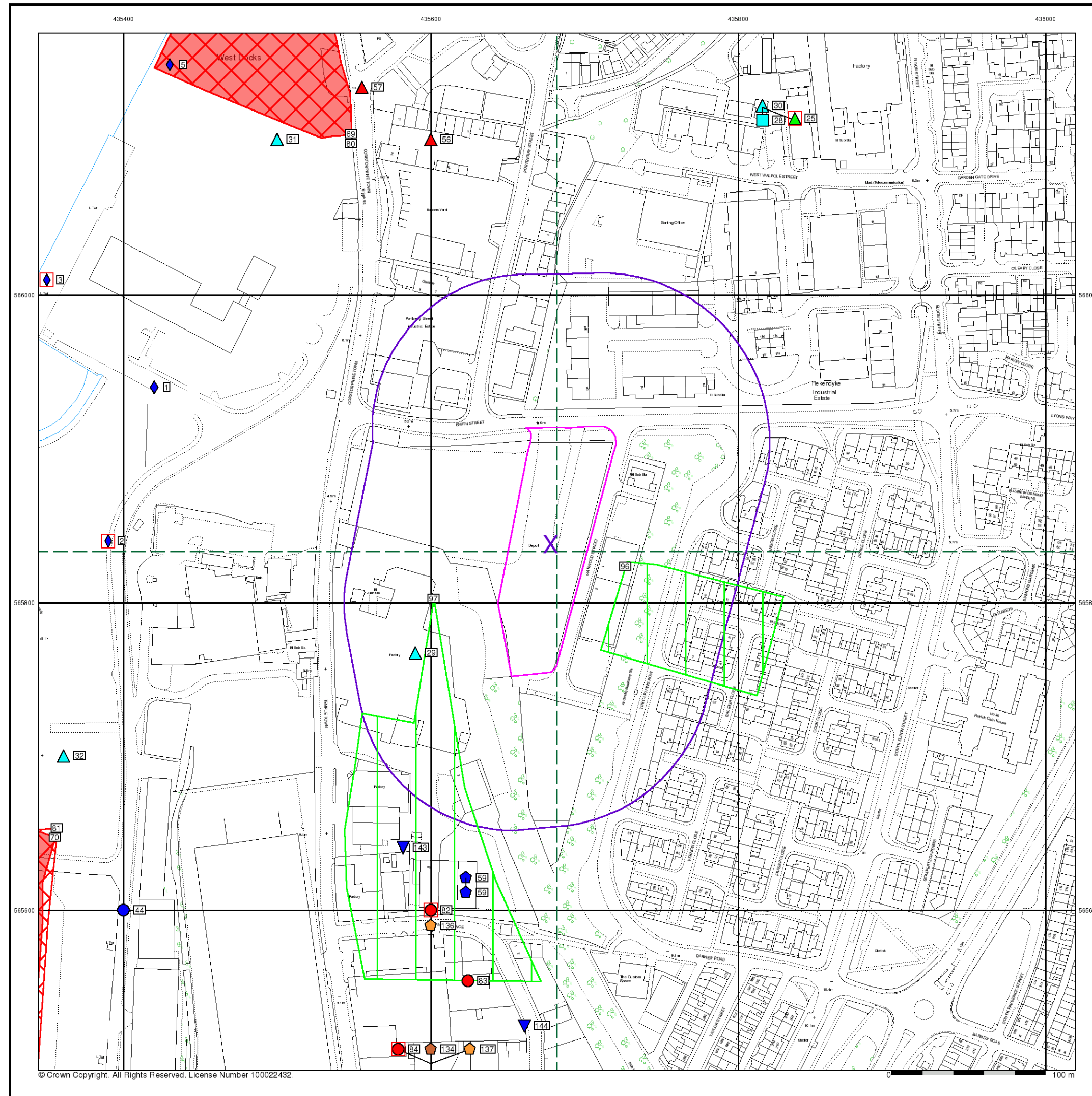
1598/Drawings/Proposed Site Plan			
Drawn:	SGK	Scale:	1:500 @A2
Checked:	SGK	Date:	31.05.23

PRELIMINARY

1598	SK09	P1
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APPENDIX II

Landmark Information Group, Envirocheck Report



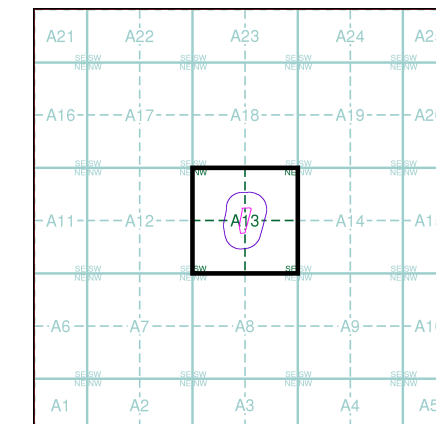
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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Types at Location
- Pylon
- Overhead Transmission Line
- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement
- BGS Recorded Mineral Site
- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A13



Order Details

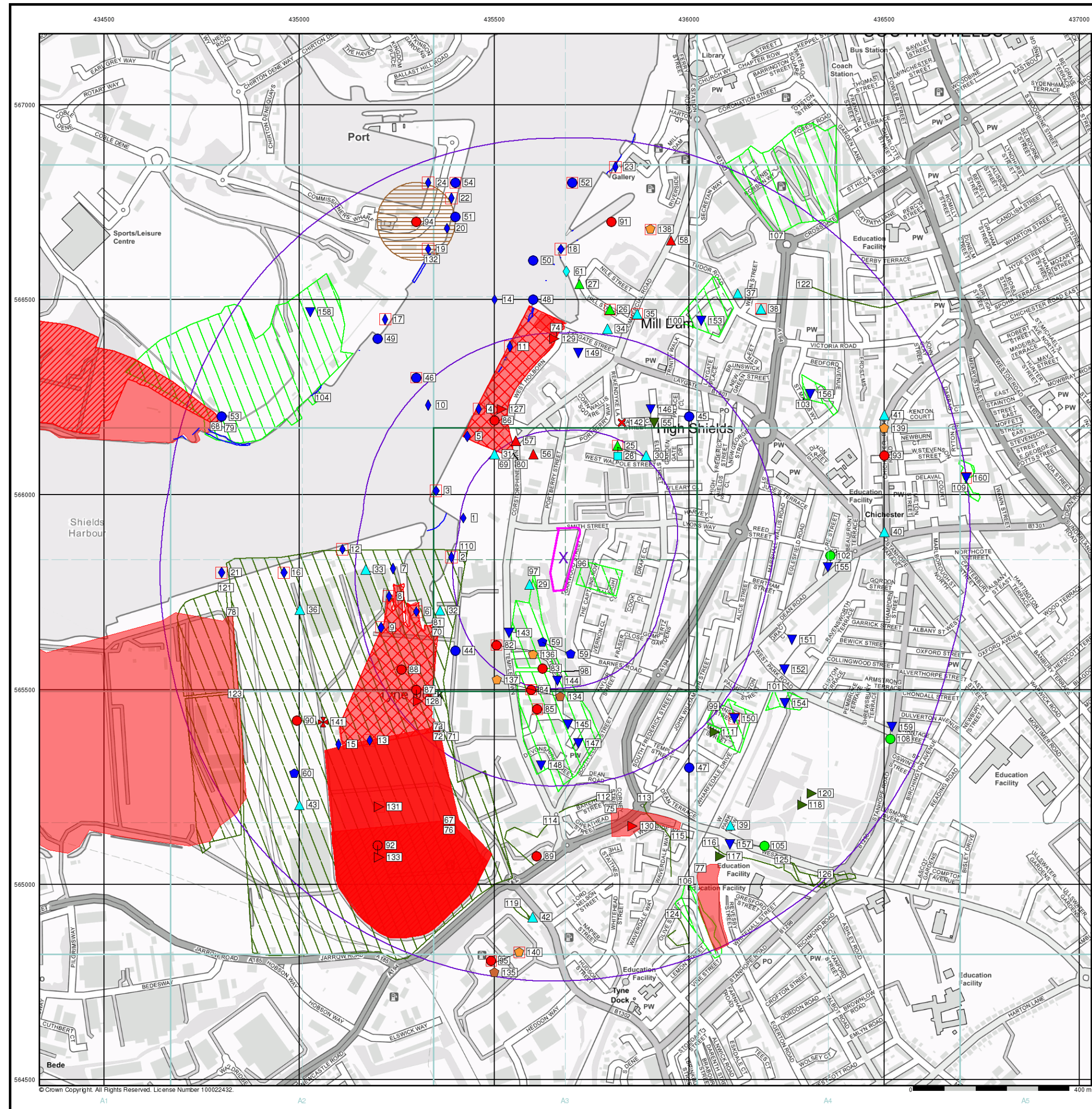
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Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
Slice: A
Site Area (Ha): 0.79
Plot Buffer (m): 100

Site Details

Land at Garwood Street, South Shields, NE33 5AG

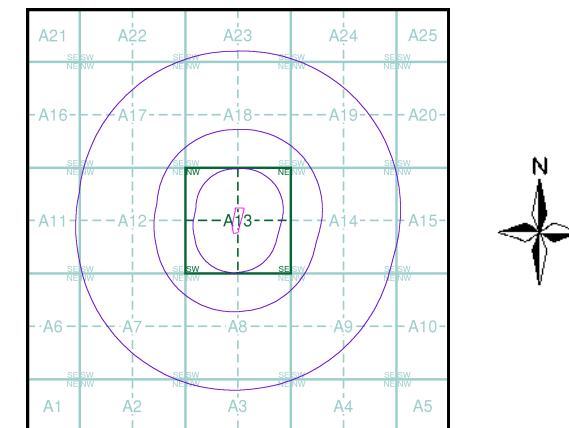


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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
 - BGS Recorded Mineral Site
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

Order Number: 320735480_1_1
Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
Slice: A
Site Area (Ha): 0.79
Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Industrial Land Use Map

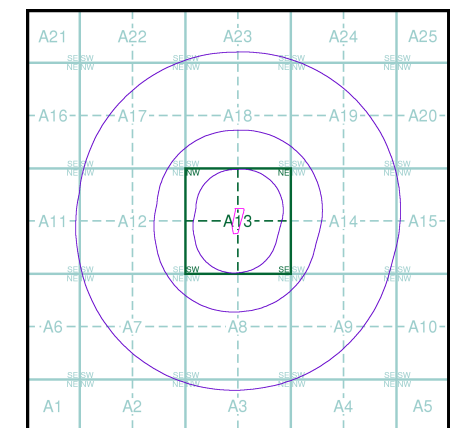
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

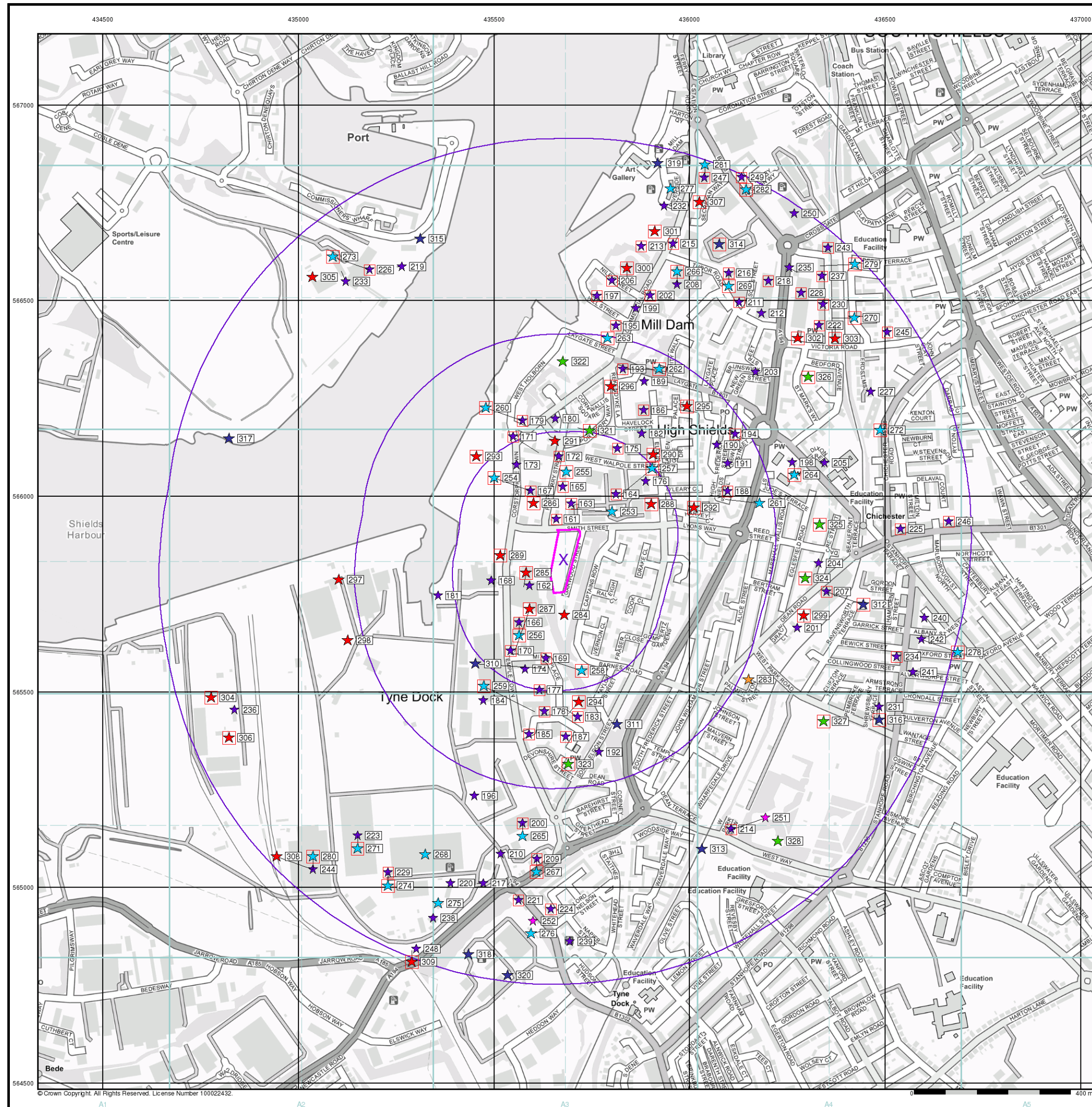
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Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
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Site Area (Ha): 0.79
Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk





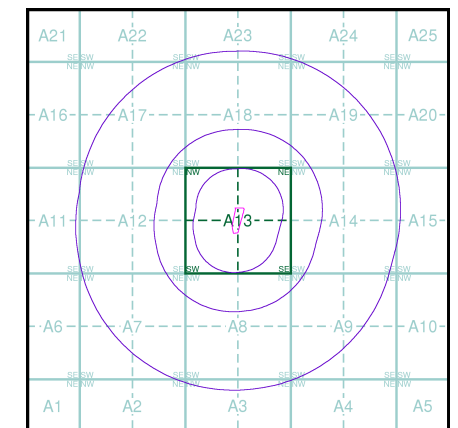
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

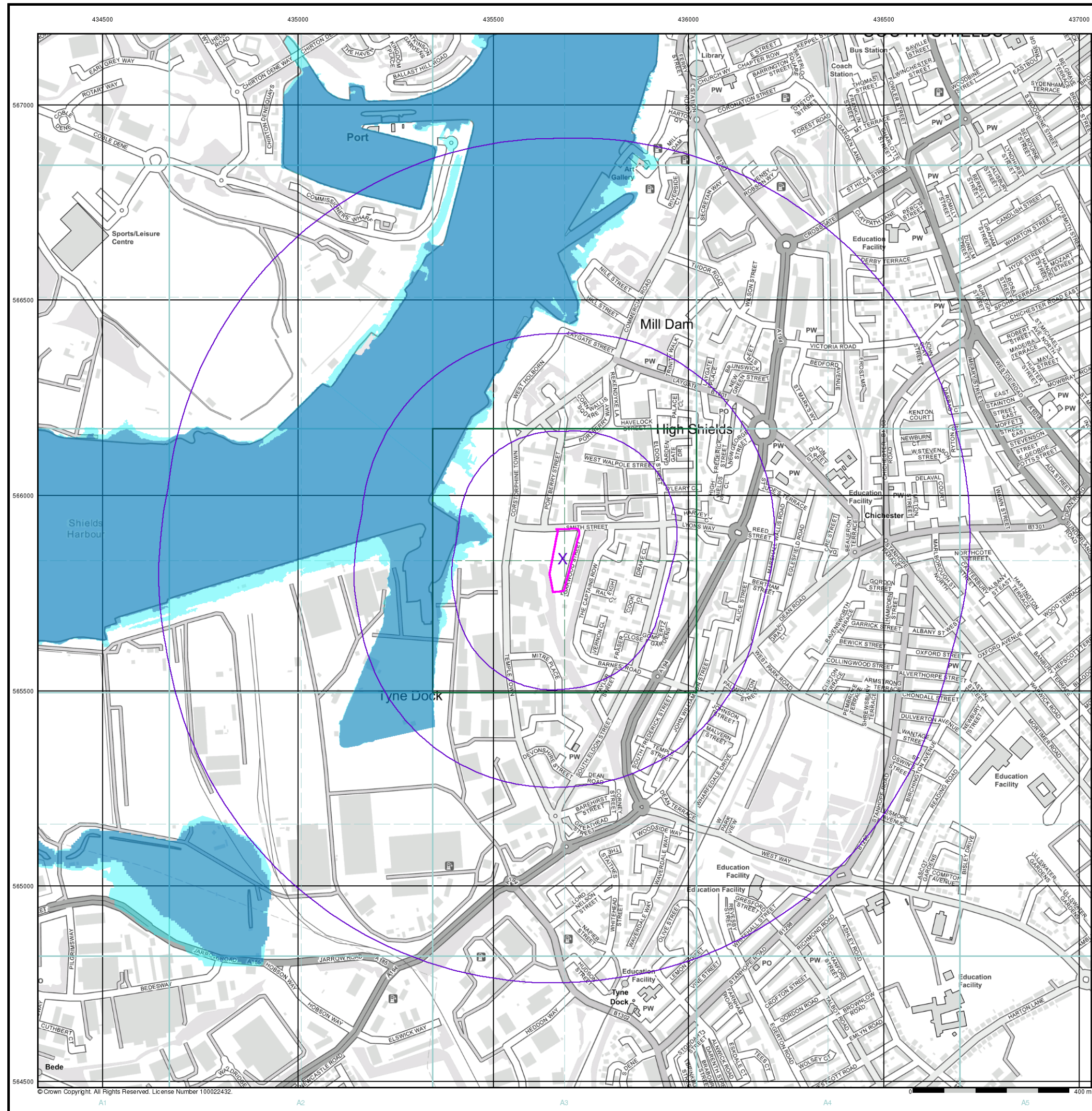
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Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
Slice: A
Site Area (Ha): 0.79
Search Buffer (m): 1000

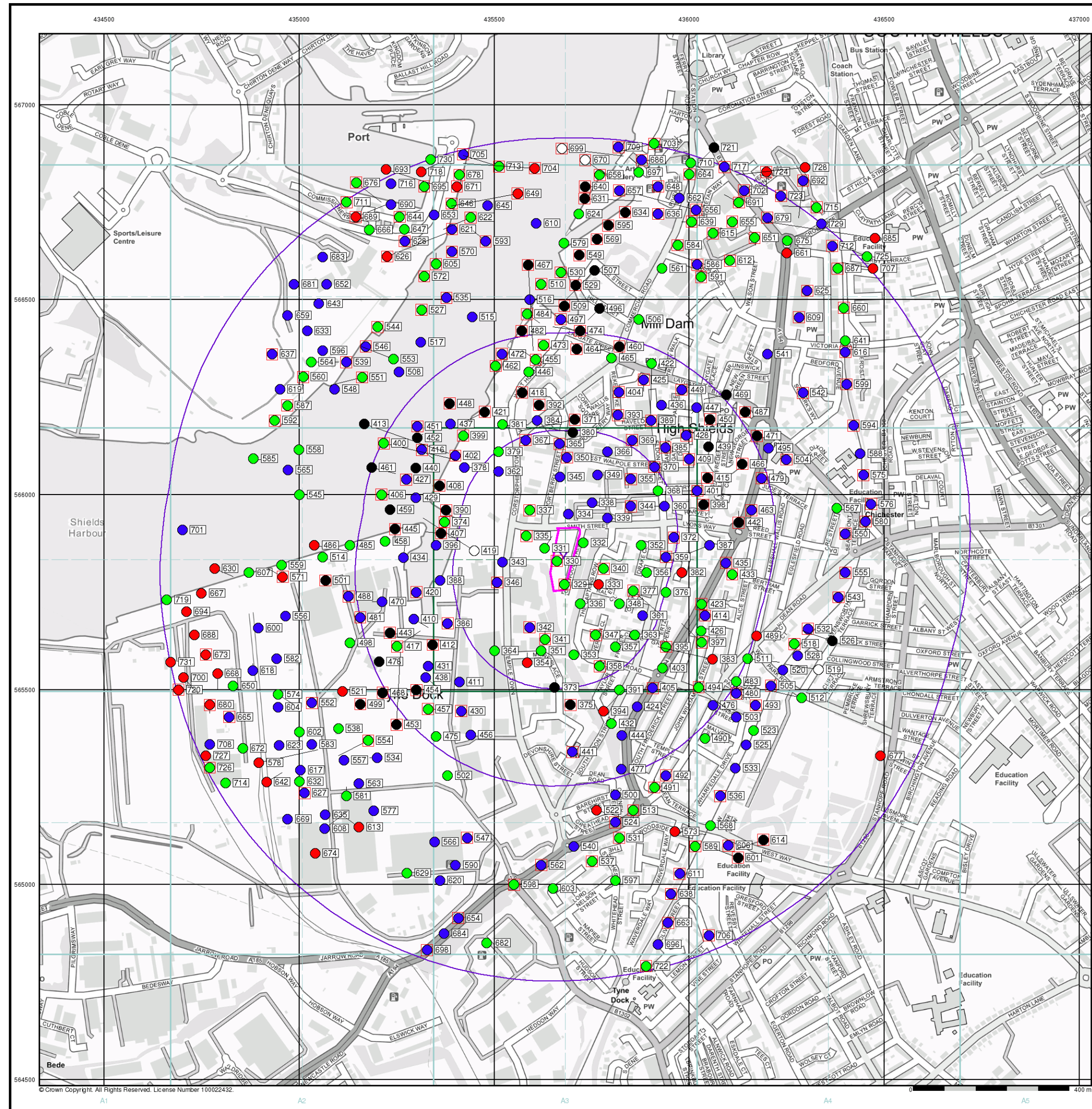
Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Fax: 0844 844 9951
Web: www.envirocheck.co.uk





General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

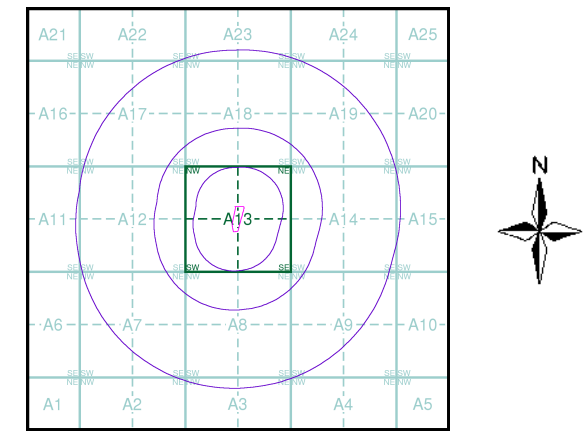
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

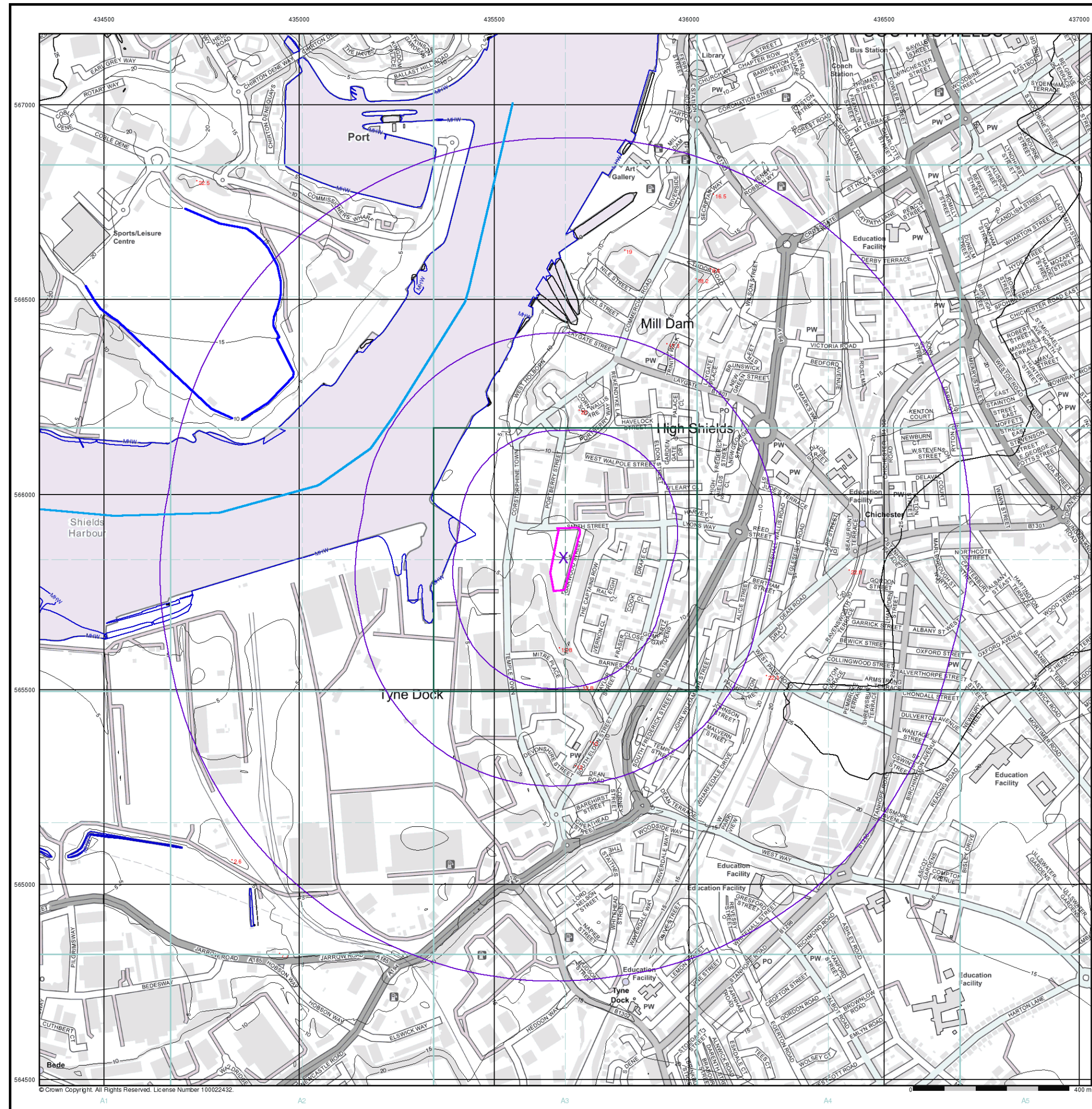
Order Number: 320735480_1_1
Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
Slice: A
Site Area (Ha): 0.79
Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Fax: 0844 844 9951
Web: www.envirocheck.co.uk



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

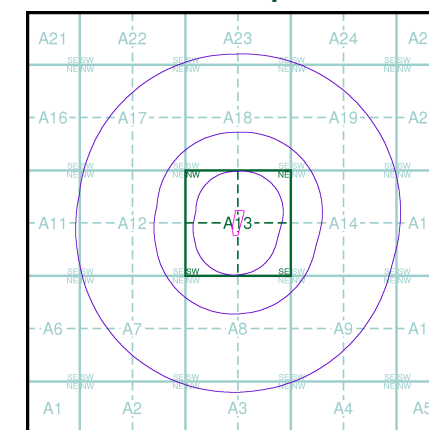
OS Water Network Data

- | | |
|--------------|-------------------------|
| Canal | Drain |
| Reservoir | Other |
| Foreshore | Lake |
| Marsh | Transfer |
| Tidal River | Lock Or Flight Of Locks |
| Inland River | Sea |

Contours (height in meters)

- | | | | | | |
|------------------|-------|-----|----|-----|-----------------|
| Standard Contour | 105 | 100 | 95 | MLW | Mean Low Water |
| Master Contour | 105 | 100 | 95 | MHW | Mean High Water |
| Spot Height | 167.3 | | | | |

OS Water Network Map - Slice A



Order Details

Order Number: 320735480_1_1
Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
Slice: A
Site Area (Ha): 0.79
Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Risk of Flooding from Surface Water

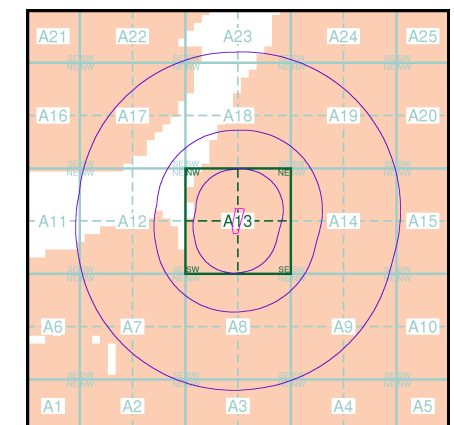
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

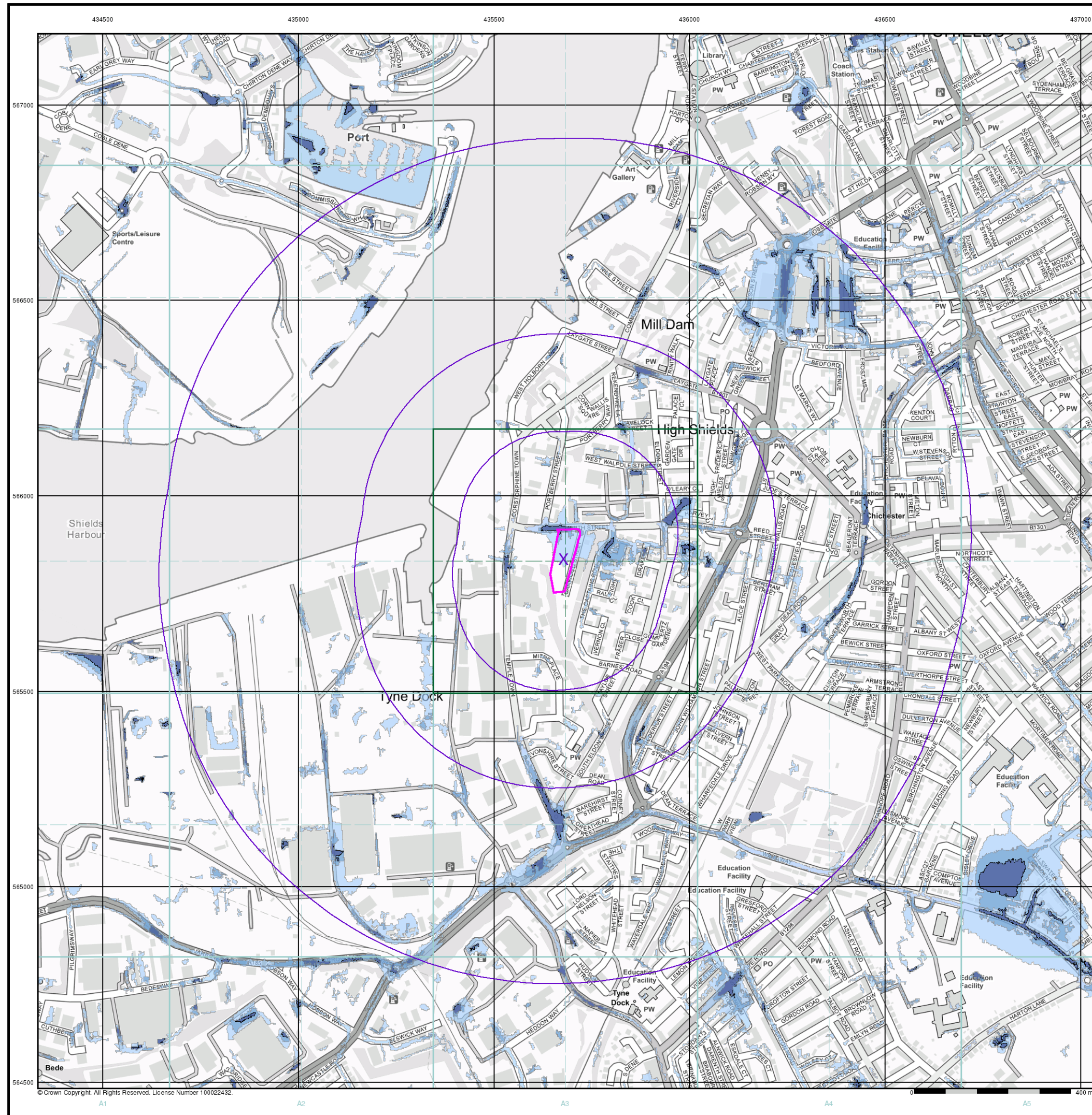
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Customer Ref: GEOL23-7573
National Grid Reference: 435680, 565840
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Site Area (Ha): 0.79
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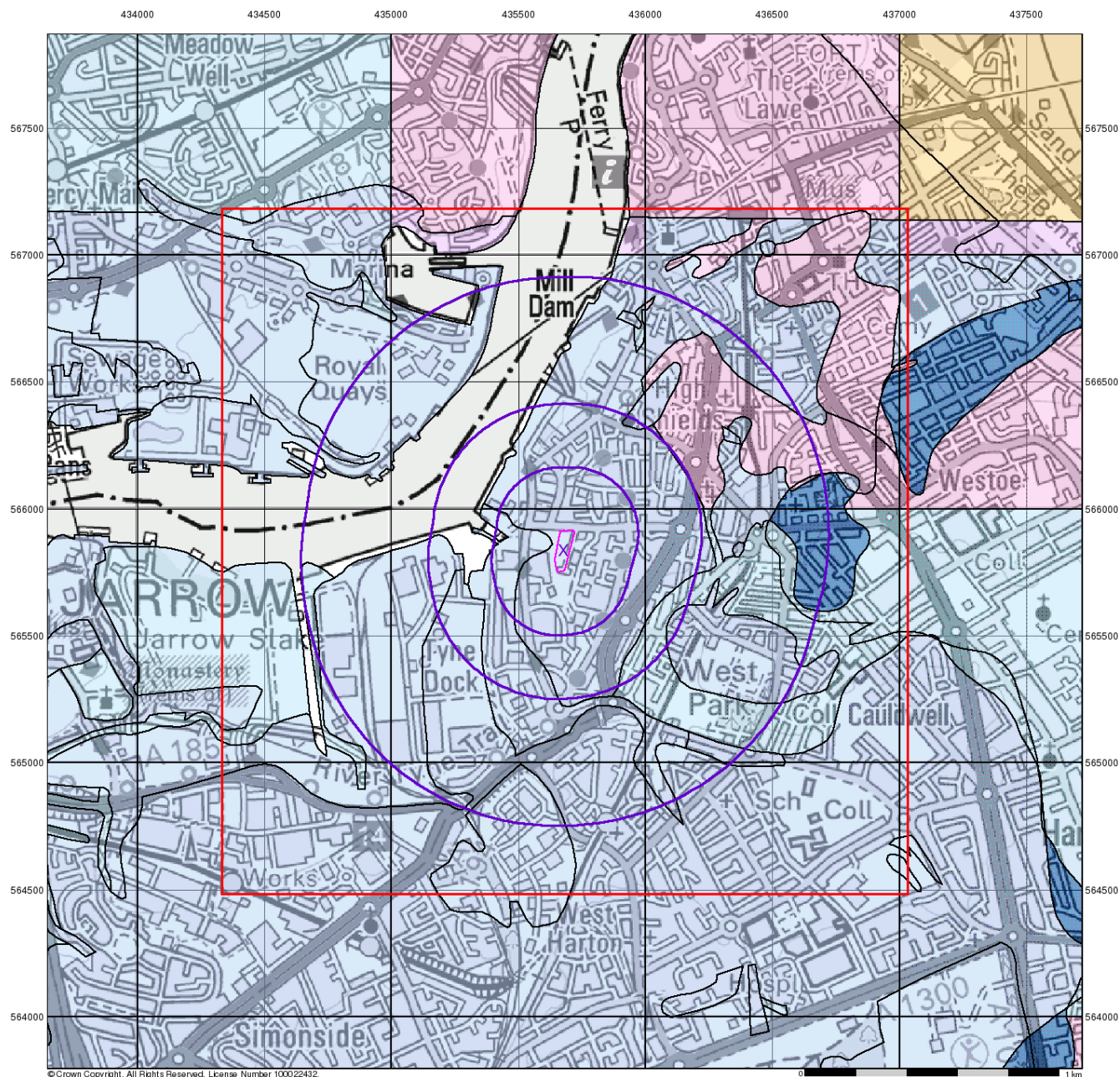
Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Web: www.envirocheck.co.uk





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Groundwater Vulnerability

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Bedrock Aquifers

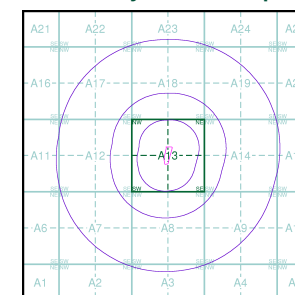
- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

Superficial Aquifers

- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

- Unproductive Aquifer
- Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

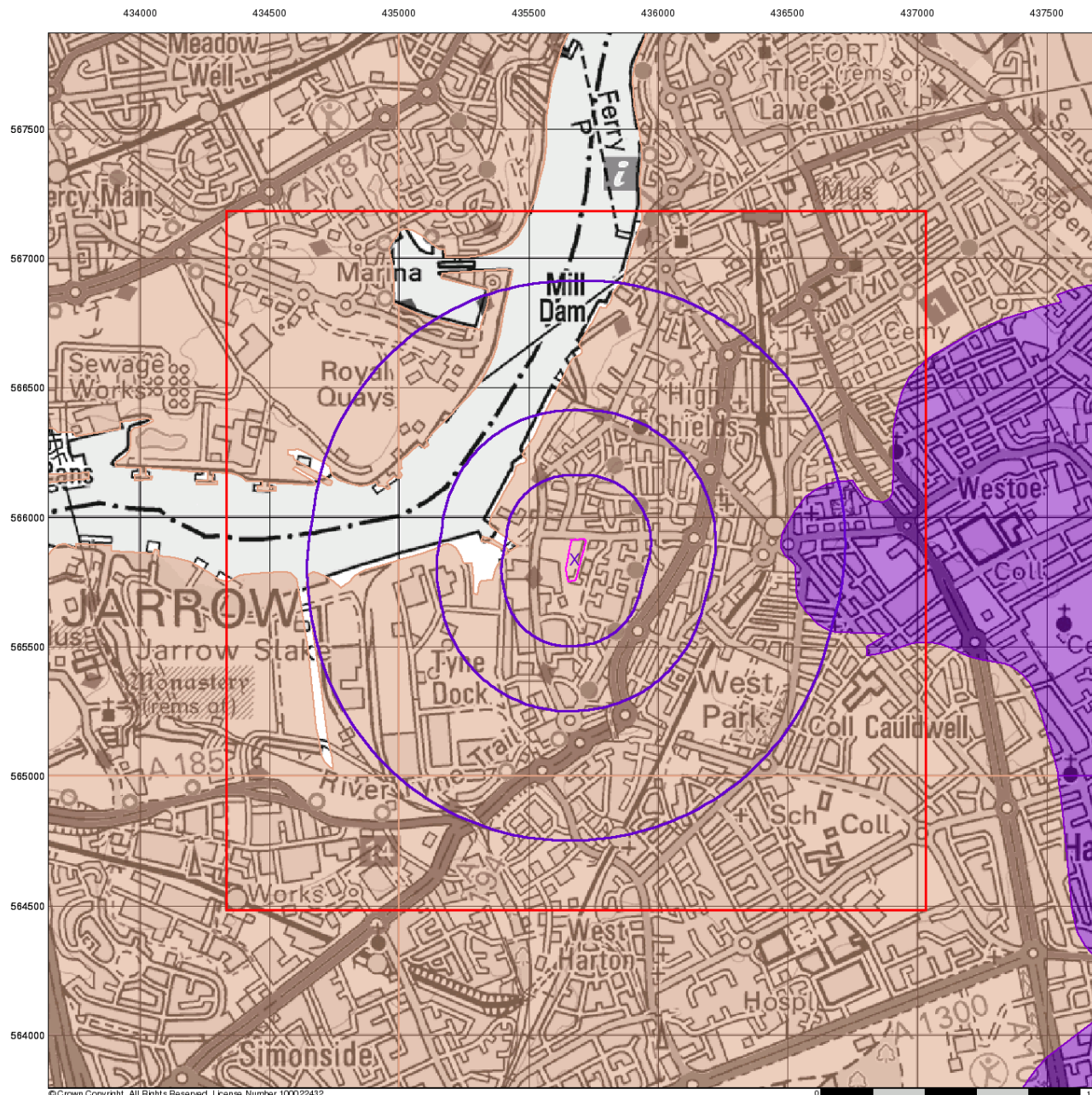
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 Customer Ref: GEOL23-7573
 National Grid Reference: 435680, 565840
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Bedrock Aquifer Designation

General

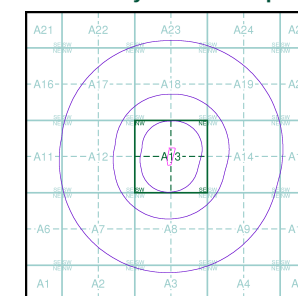
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

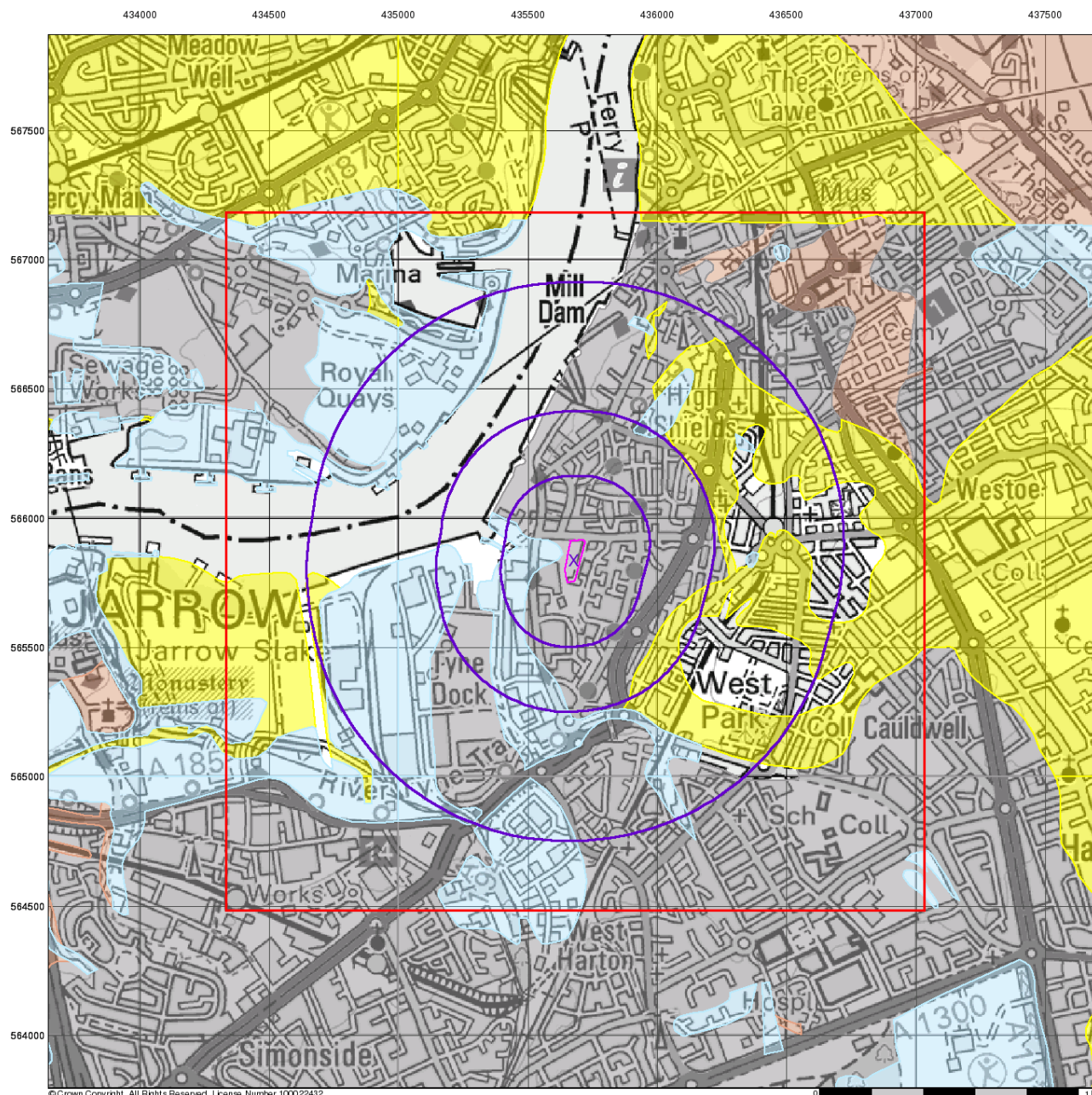
Order Number: 320735480_1_1
 Customer Ref: GEOL23-7573
 National Grid Reference: 435680, 565840
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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0 1 km



Superficial Aquifer Designation

General

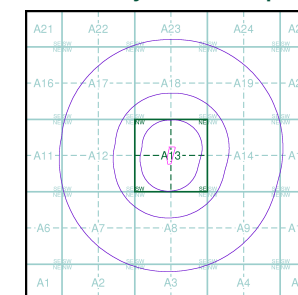
- ◊ Specified Site ○ Specified Buffer(s) X Bearing Reference Point
- Slice 8 Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

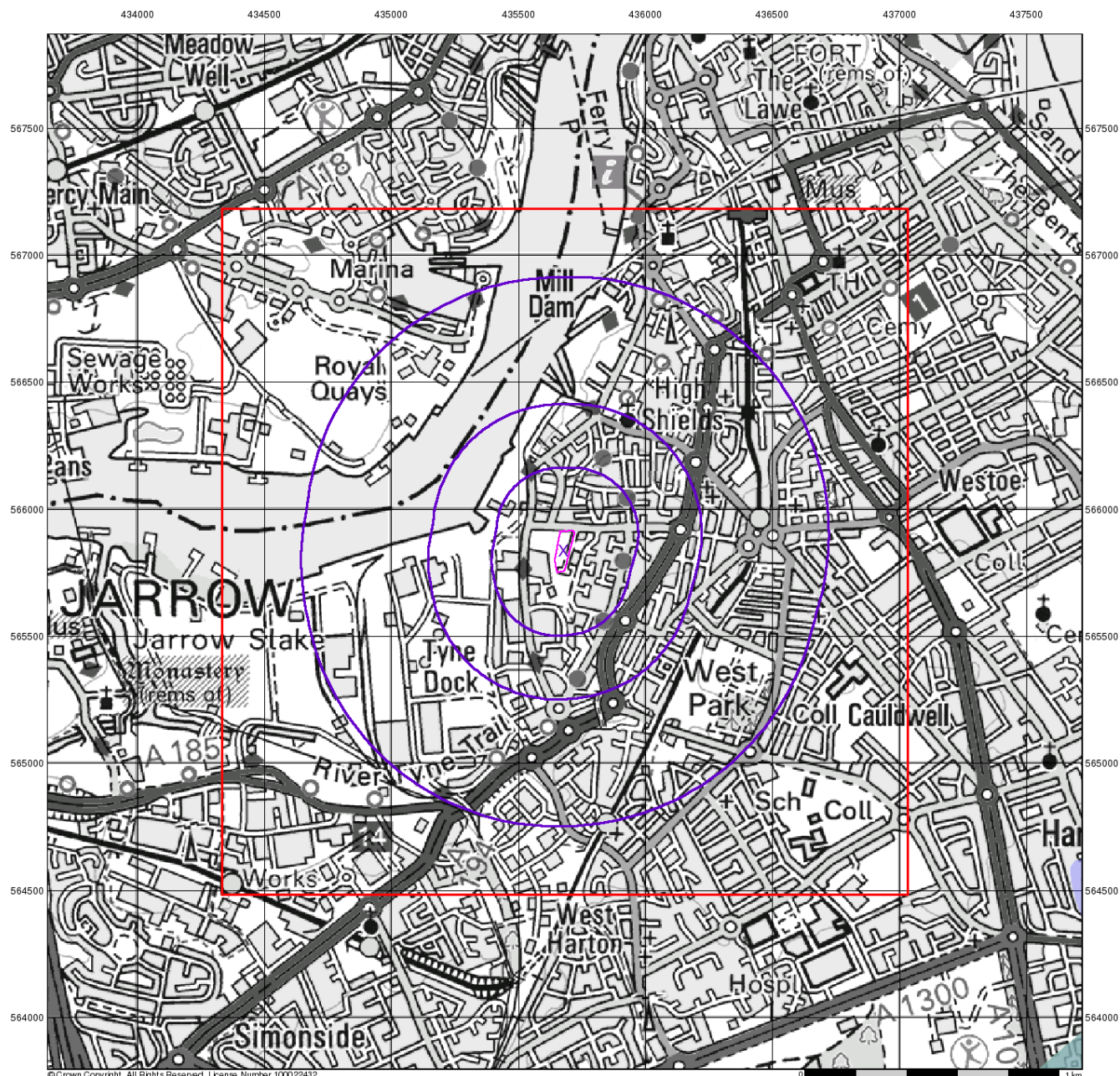
Order Number: 320735480_1_1
 Customer Ref: GEOL23-7573
 National Grid Reference: 435680, 565840
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Source Protection Zones

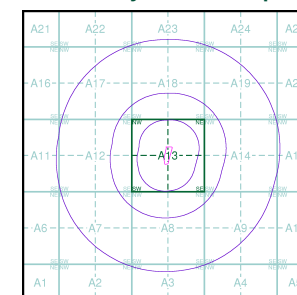
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

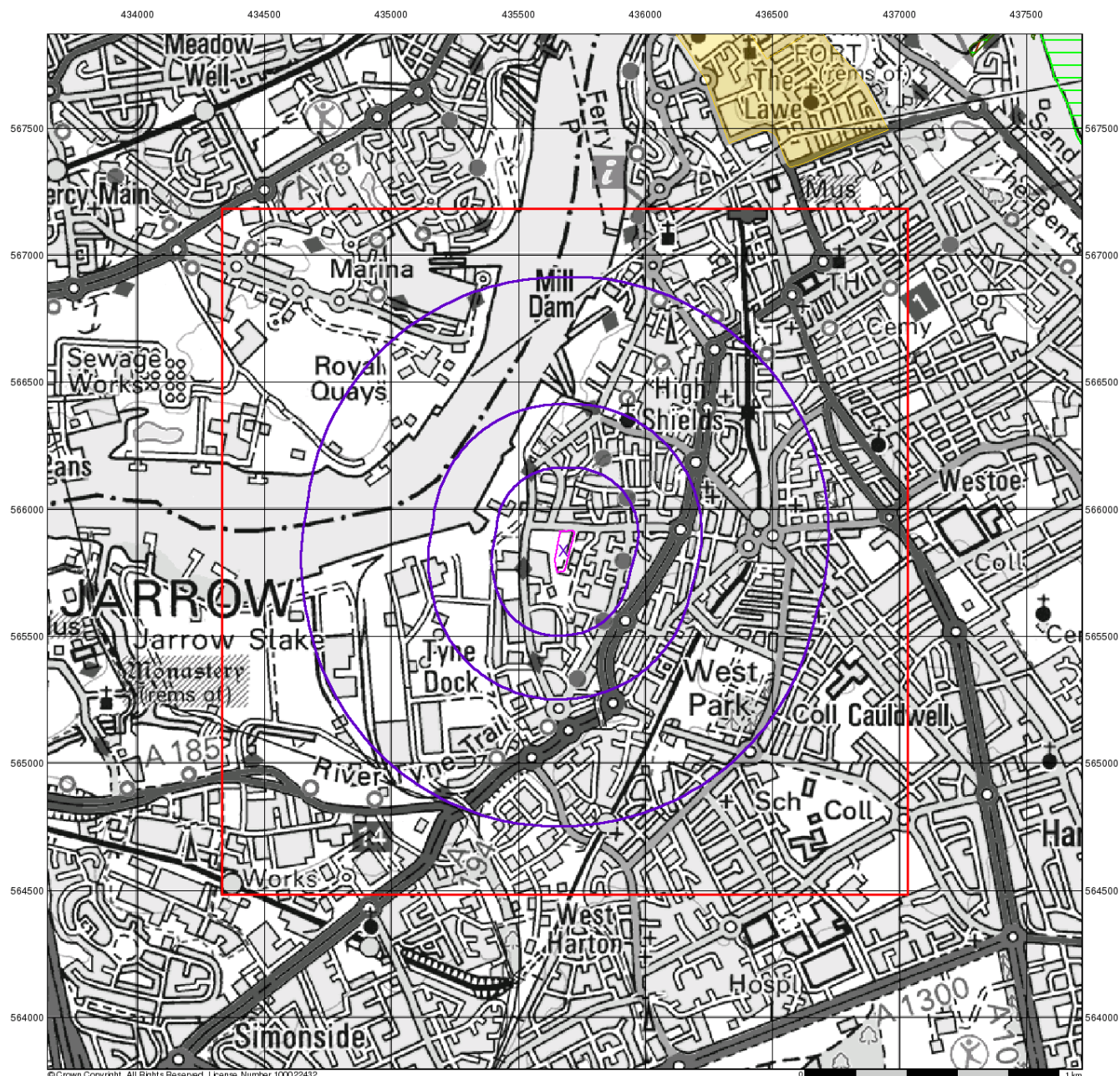
Order Number: 320735480_1_1
 Customer Ref: GEOL23-7573
 National Grid Reference: 435680, 565840
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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Sensitive Land Uses

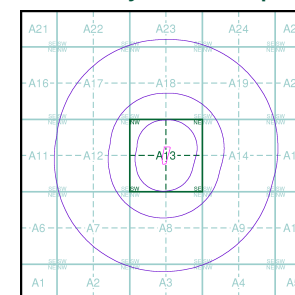
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

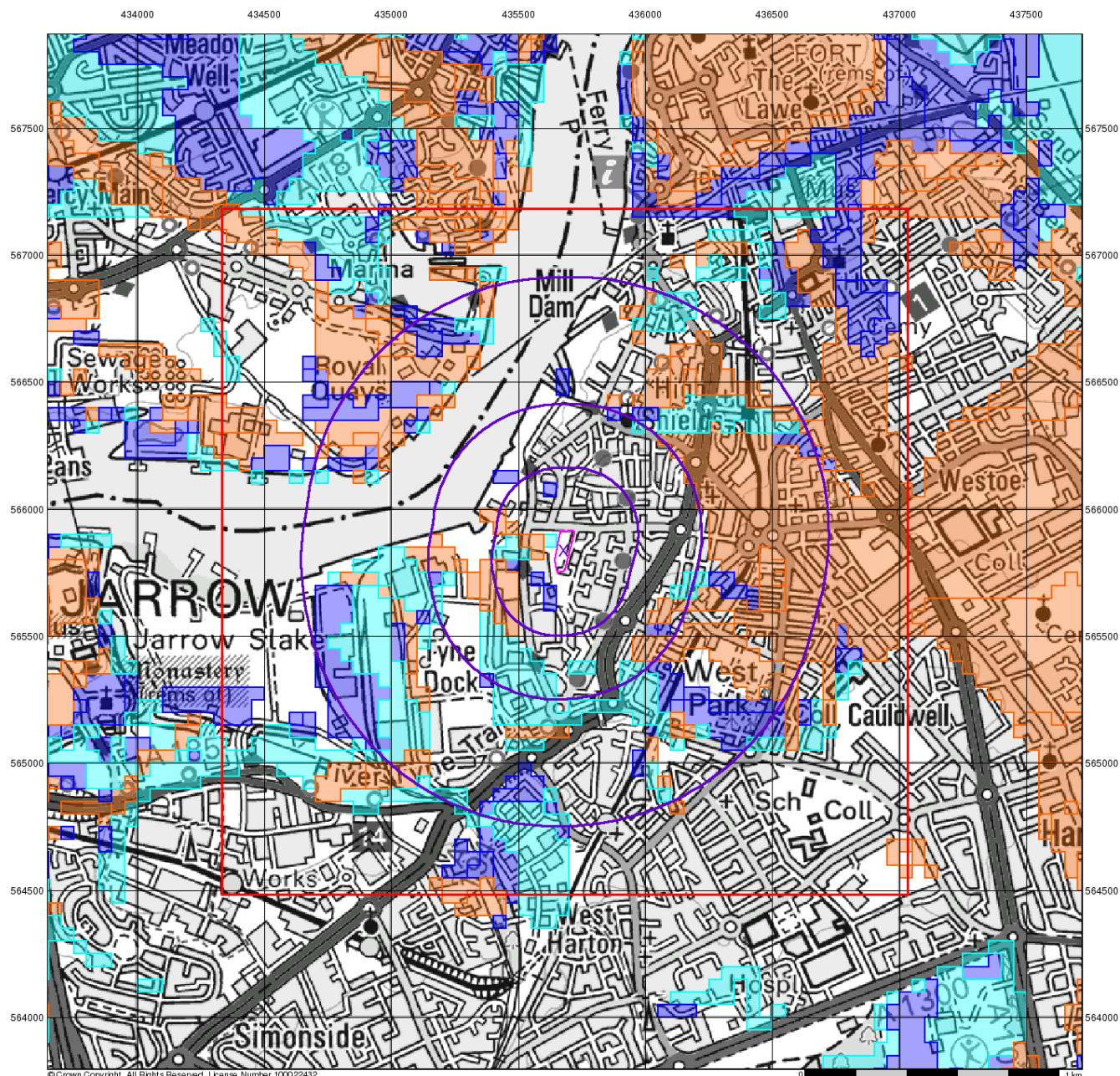
Order Number: 320735480_1_1
 Customer Ref: GEOL23-7573
 National Grid Reference: 435680, 565840
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details

Land at Garwood Street, South Shields, NE33 5AG



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 Fax: 0844 844 9951
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BGS Flood GFS Data

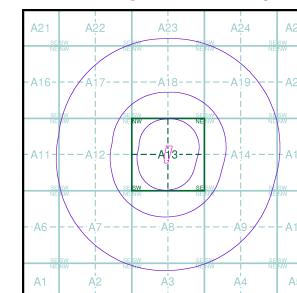
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 320735480_1_1
 Customer Ref: GEOL23-7573
 National Grid Reference: 435680, 565840
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details

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