



Flood Risk Assessment and Surface Water Drainage Strategy for Planning

Prepared for:

Cleator Mills Business Park Limited

March 2023

Our reference:

92276-ManningElliott-CleatorMills v2

Location:

Cleator Mills

Cleator

Whitehaven

CA23 3DJ



Document Issue Record

Location:	Cleator Mills, Cleator, Whitehaven, CA23 3DJ				
Application:	Construction of unit G with proposed Parking				
Prepared for:	Cleator Mills Business Park Limited				
Title:	Flood Risk Assessment and Surface Water Drainage Strategy for Planning				
Project No.:	92276	Date:	24 th March 2023	Issue No.:	2.0
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Commercial in Confidence

1. Introduction

- 1.1. This Flood Risk Assessment and Surface Water Drainage Strategy has been prepared by Unda Consulting Limited on behalf of Cleator Mills Business Park Limited, in support of a planning application for the construction of unit G with proposed parking at the site of the Cleator Mills, Cleator, Whitehaven, CA23 3DJ. This report assesses the flood risk and surface water drainage strategy for the proposed development.
- 1.2. The proposed planning application is for the construction of unit G with proposed parking. Post development the footprint of buildings will cover approximately 885m².
- 1.3. In order to mitigate flood risk posed by post development runoff, adequate control measures will be required within the site. This will ensure that surface water runoff is dealt with at source and the flood risk off site is not increased.

2. Existing Site:

- 2.1. The proposed development site is approximately 6,425m² and currently has industrial uses.
- 2.2. A topographical survey was undertaken by Edmondson Surveys and has been provided by the applicant. Upon review, this indicates that levels on site range between 59.16mAOD and 60.37mAOD.



Figure 1: Aerial view of the site (Source: Google)

Existing Ground Conditions:

- 2.3. The 1:50,000 BGS map shows the bedrock geology underlying the site to consist of Buttermere Formation – Mudstone and Sandstone.
- 2.4. According to 1:50,000 BGS mapping the site is underlain by Alluvium – Clay, Silt, Sand and Gravel superficial geological deposits.
- 2.5. The soil type taken from the UK soils website shows deep riverine clay, sands and gravels with a clay to sandy loam texture.
- 2.6. An intrusive site investigation was undertaken by B.A.F Contracting Ltd. A total of two trial pits were excavated at the site. Trial pit 1 shows that the site is underlain by Type 1, made ground, general fill, subbase, sandstone, sandy gravel/clays/ roots and Course Gravels/ Sharp Sands.
- 2.7. However, trial pit 2 shows that the site is underlain by Type 1, Mixed Fill/ Made Ground, Course Shingle/ Stone, Sandy gravel/ clays/ roots and Course dense sands/ gravel. Results for both trial pits can be found within the report Appendix.

- 2.8. Infiltration tests undertaken in the two trial pits indicate that there is the potential for infiltration at the site. Refer to the site investigation located within Appendix.
- 2.9. A third pit was dug which shows that groundwater is located 2.6m below the finished ground level.
- 2.10. The published Environment Agency Groundwater Source Protection Zone map shows the site is not located within an area classified as a Groundwater Source Protection Zone.

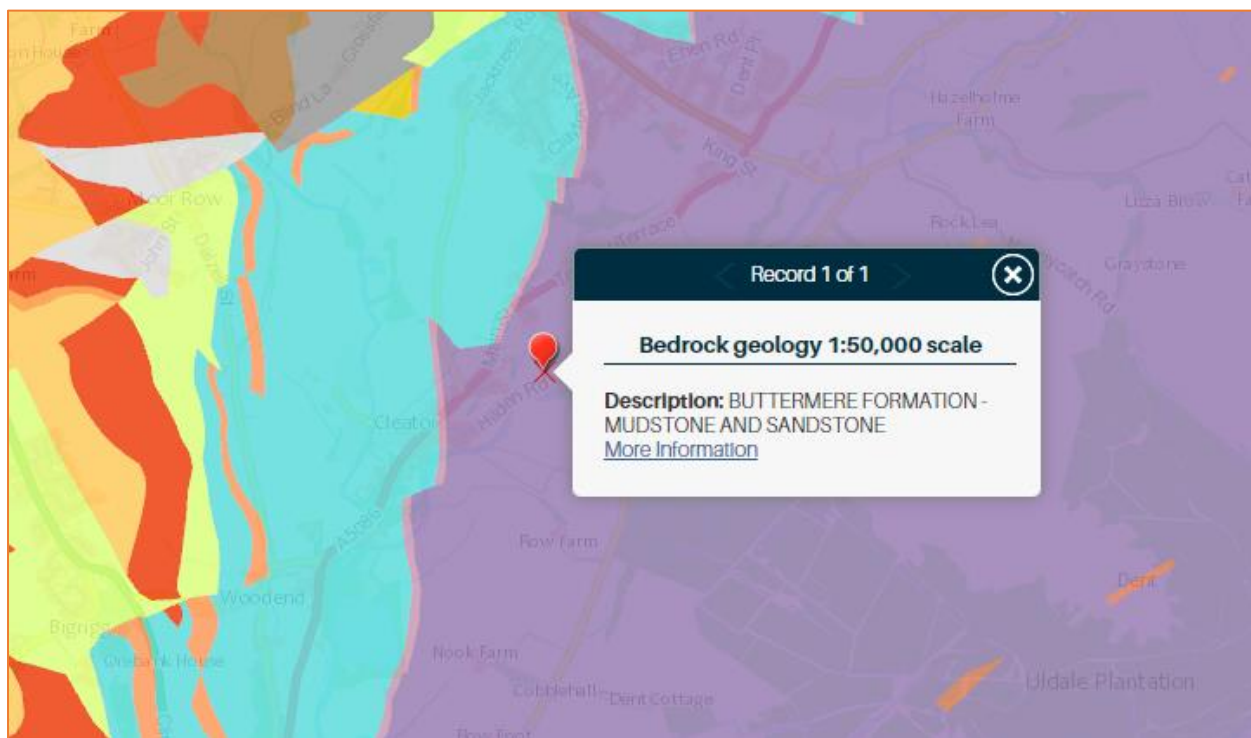


Figure 2: BGS Bedrock Geology (Source: BGS)

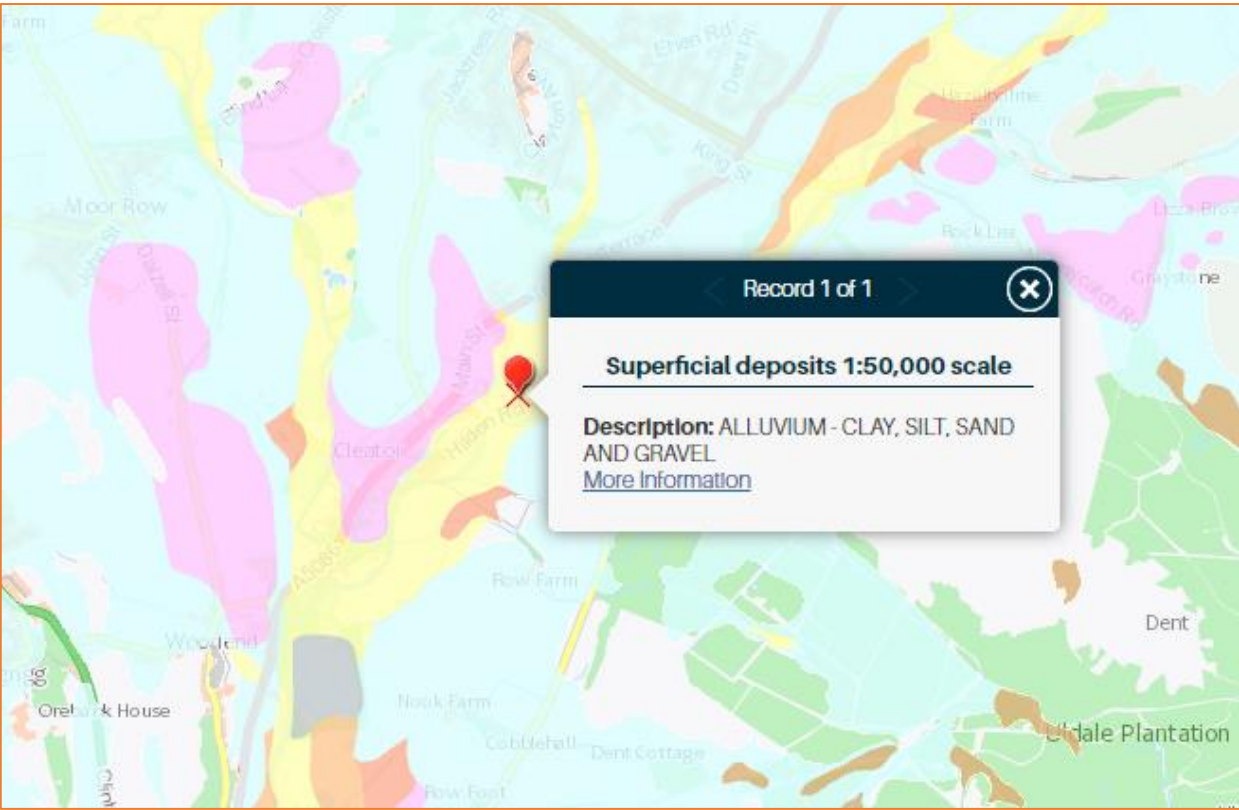


Figure 3: BGS Superficial Deposits (Source: BGS)



Figure 4: Soil Map (Source: UK Soils, BGS)

Nearby Watercourses / Drainage Features:

- 2.11. The closest watercourse to the site is the River Ehen located 38m south and 61m east of the site. The River Ehen is classified as an EA 'Main River'. The Ehen catchment rises in the western fells of the Lake District National Park flowing from the remote Ennerdale Water down to the Irish Sea, north of Sellafield nuclear power station. In total the River Ehen has a length of 7.5 miles.
- 2.12. An EA 'Main River' described as "Unnamed Drain near Catholic Church" is approximately 270m to the north east of the site.
- 2.13. There are ditches located within the red line site boundary.

Existing Drainage:

- 2.14. Surface water generated within the site extents currently discharge to both ground and the River Ehen at an unattenuated rate.

3. Development Proposals:

Proposed Development:

- 3.1. The proposed planning application is for the construction of unit G with proposed parking.
- 3.2. Post development the footprint of buildings will cover approximately 885m².

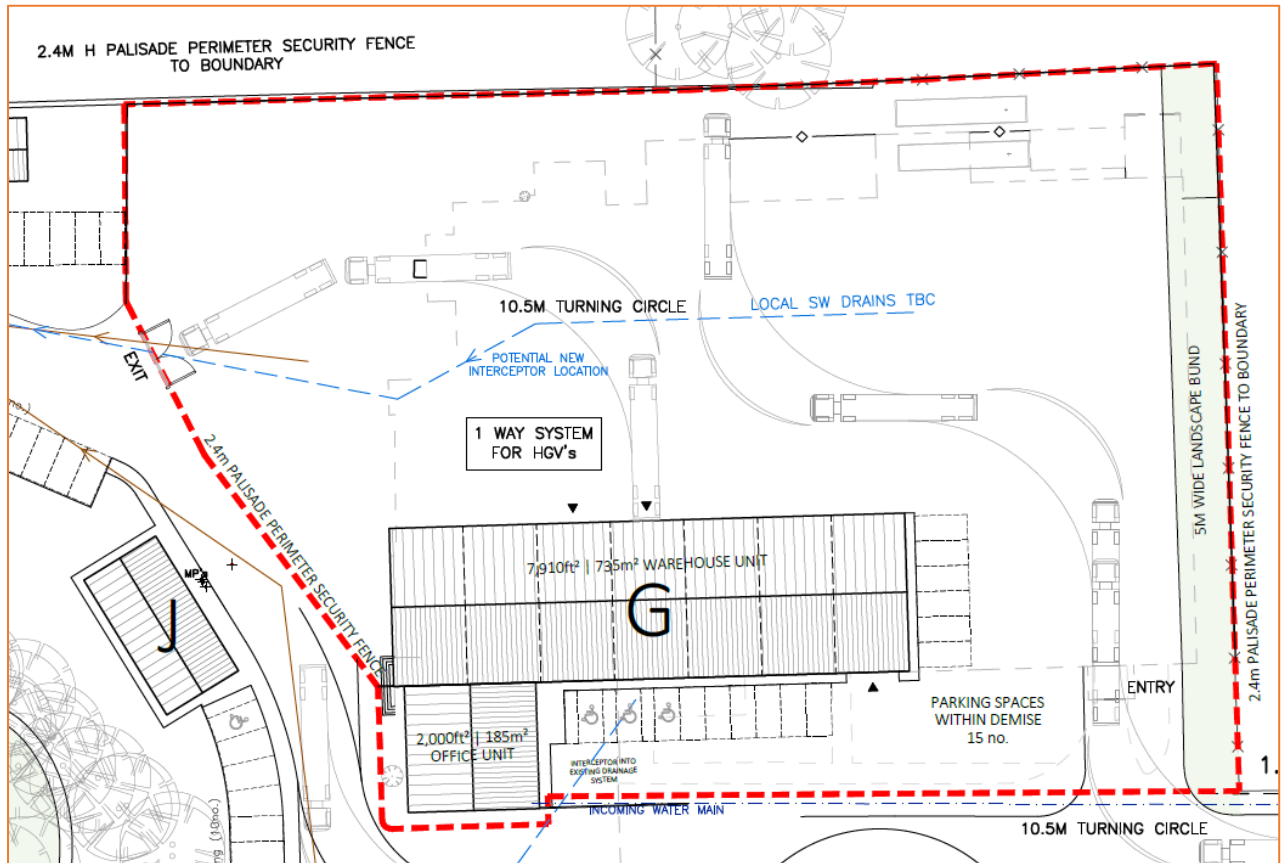


Figure 5: Proposed site layout plan (Source: Manning Elliot Partnership)

Vulnerability to flooding:

- 3.3. The NPPF classifies property usage by vulnerability to flooding. The existing site usage is classified as “less vulnerable” throughout, as it comprises of industrial uses. Post development, the site will remain “less vulnerable”, as the application is for the construction of unit G with proposed Parking.
- 3.4. Accordingly, it is considered that the vulnerability of the site as a whole will remain the same post development.

4. Flood Risk Assessment:

Flood Zones:

- 4.1. Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 1: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

- 4.2. The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

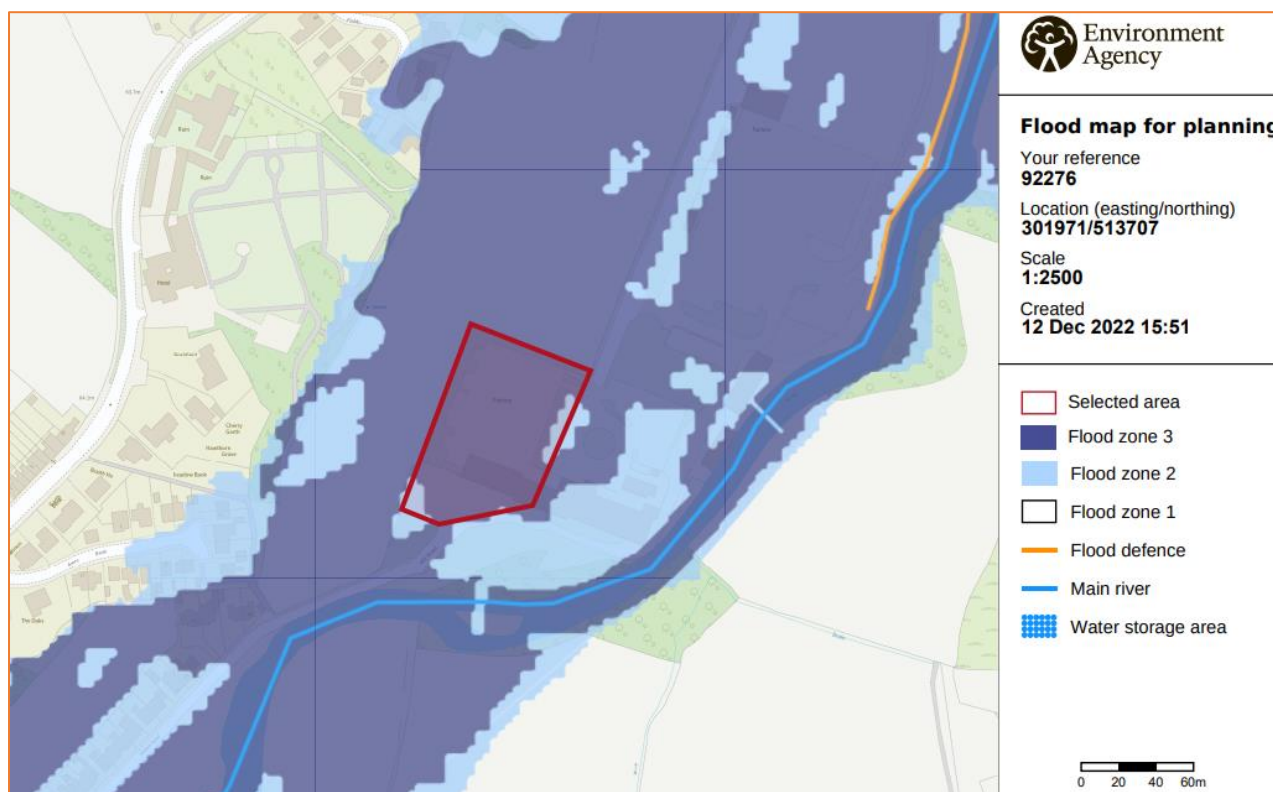


Figure 6: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

- 4.3. The site is located partially within Flood Zone 3 (High Risk) which means it is defined as land having greater than a 1:100 annual probability of fluvial flooding. The site is also partially located within Flood Zone 2 (Medium Risk) which means it is defined as having land with between a 1:100 annual probability and 1:1000 annual probability of fluvial flooding.

Fluvial:

- 4.4. Ehen is a river in Cumbria, sourced at the west end of Ennerdale Water. From its source the Ehen runs west through Ennerdale Bridge where it is joined by Croasdale Beck (flowing from Banna Fell). Ennerdale Water itself is fed by the River Liza. The Ehen continues past Cleator Moor and Cleator, where it is fed by the River Keekle, moving southwards through Egremont and eventually running parallel to the Irish Sea which it eventually joins at Sellafield at the same point as the River Calder. In total the River Ehen has a length of 7.5 miles.
- 4.5. An EA 'Main River' described as "Unnamed Drain near Catholic Church" is approximately 270m to the north east of the site.

Detailed Flood Modelling:

- 4.6. Modelled flood levels and extents have been received from the Cumbria and Lancashire Area Environment Agency as part of a Product 4 data request. The EA Product 4 data is provided within the report Appendix. Modelled flood data has been provided from the River Ehen 2015 model and Cleator Moor 2009 model.
- 4.7. According to the data provided at Node "10" the undefended 1:100 and 1:1000 year flood levels are 60.22mAOD and 60.52mAOD respectively. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depths for the 1:100 year and 1:1000 year events are 1.06m and 1.36m, respectively.
- 4.8. According to the data provided at Node "10" the site is outside of the defended 1:100 year flood event. However, the defended 1:1000 flood level is 60.51mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depth for the 1:1000 year event is 1.35m.
- 4.9. The site is located within Flood Zone 3 and is classified as "more vulnerable". The Flood Risk Assessments: climate change allowances guidance – updated May 2022, states that the Central climate change allowance should be applied. The site falls within the South West Lakes Management Catchment, where the Central climate change allowance for the 2080's is a 30% increase in river flows.
- 4.10. As such, the most suitable modelled flood data provided in the River Ehen modelling is a 30% increase in flows, and as such this will be used for this assessment.
- 4.11. The undefended flood level for the 1:100 year plus 30% allowance for climate change is 60.34mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depths for the 1:100 year plus 30% allowance for climate change is 1.18m.
- 4.12. The defended flood level for the 1:100 year plus 30% allowance for climate change is 60.20mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depths for the 1:100 year plus 30% allowance for climate change is 1.04m.
- 4.13. The EA also provided flood levels from Cleator Moor 2009 model. This model includes the "Unnamed Drain near Catholic Church" watercourse to the north east of the site. According to the data provided at Node "9" the site is outside of the undefended 1:100 year flood event. However, the undefended 1:1000 flood level is 59.70mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depth for the 1:1000 year event is 0.54m.
- 4.14. The River Ehen 2015 model has been used as a worst case scenario because when comparing the modelled 1:1000 year flood level (for Node "10") for both models, the flood level from the River Ehen model is higher than for the Cleator Moor model, and as such a precautionary conservative approach is applied.

Flood Defences:

- 4.15. According to EA data there are a number of defences within vicinity to the site. These include 4 embankments with their standard of protection ranging from 5 – 100 years. For the full defence asset list please refer to the EA defence map in the report appendix.

Residual risk (breach or overtopping of flood defences):

- 4.16. Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to concur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a

high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

- 4.17. Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping.
- 4.18. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

Historical Flood Records:

- 4.19. The Environment Agency confirm the site is outside of any historical flood extents.

Tidal:

- 4.20. Due to the site topography and distance to the nearest coast/ tidal watercourse, the risk of tidal flooding is considered to be very low.

Pluvial:

- 4.21. Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.
- 4.22. In 2013 the EA, working with Lead Local Flood Authorities (LLFAs), produced an updated Flood Map for Surface Water. It is considered to represent a significant improvement on the previous surface water flood maps available, both in terms of method and representation of the risk of flooding. The modelling techniques and data used are considerably improved, and also incorporated locally produced mapping where this is available to represent features best modelled at a local scale.
- 4.23. The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):
- 1:30 (3.3%)
 - 1:100 (1%)
 - 1:1000 (0.1%)
- 4.24. The mapping below shows the Risk of Flooding from Surface Water with the site located approximately 250m south west of the crosshair. Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.
- 4.25. The EA Risk of Flooding from Surface Water Map suggests that the majority of the site lies within an area of "Very Low" to "High" risk of flooding from surface water.
- 4.26. It should be noted that the EA Risk of Flooding from Surface Water Map picks up the "Unnamed Drain near Catholic Church" as a surface water flow path. The EA has however advised that *"We would advise as this source is from a fluvial source, Unnamed Drain Nr. Catholic Church and as it is a modelled catchment and can result in some flooding of the site independent of and flood risk from the River Ehen, then it is worthy of further investigation in the FRA."*
- 4.27. The "Unnamed Drain near Catholic Church" watercourse to the north east of the site is included in the Cleator Moor 2009 model, and is discussed in the 'Detailed Flood Modelling' section above.

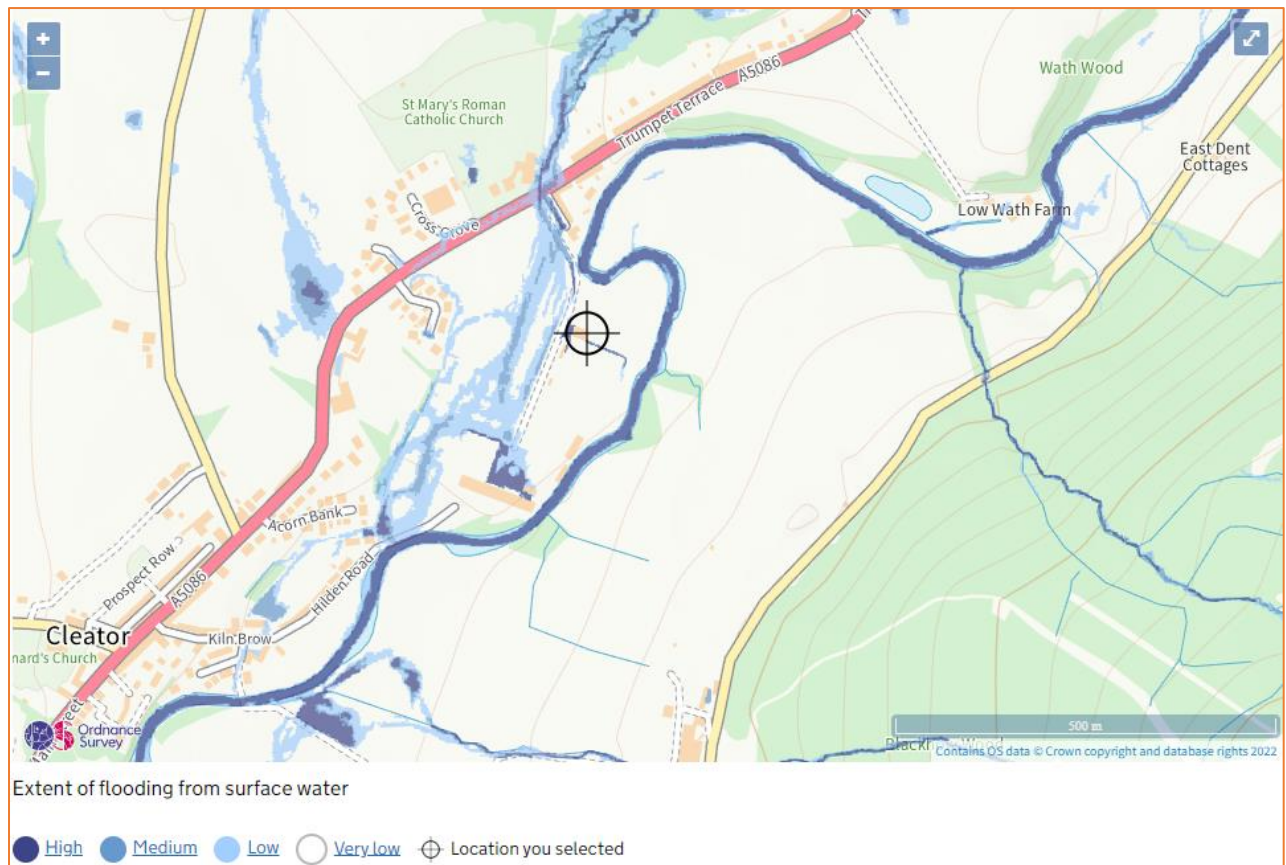


Figure 7: Extract from Environment Agency RoFSW map (Source: EA)

Groundwater:

- 4.28. Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.
- 4.29. Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.
- 4.30. No information has been provided to suggest the site has previously been flooded from groundwater sources.

Sewer:

- 4.31. Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.
- 4.32. All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

- 4.33. No information has been provided to suggest the site has previously been flooded from sewer sources.

Other Sources:

- 4.34. The EA Risk of Flooding from Reservoirs Map suggests that the site lies within the "Maximum extent of flooding" from reservoir failure. The EA also advise on their website that reservoir flooding is extremely unlikely. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. These inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial flooding to occur.
- 4.35. No further information has been provided to suggest the site is susceptible to from the failure of canals or other artificial infrastructure from the risk of flooding.

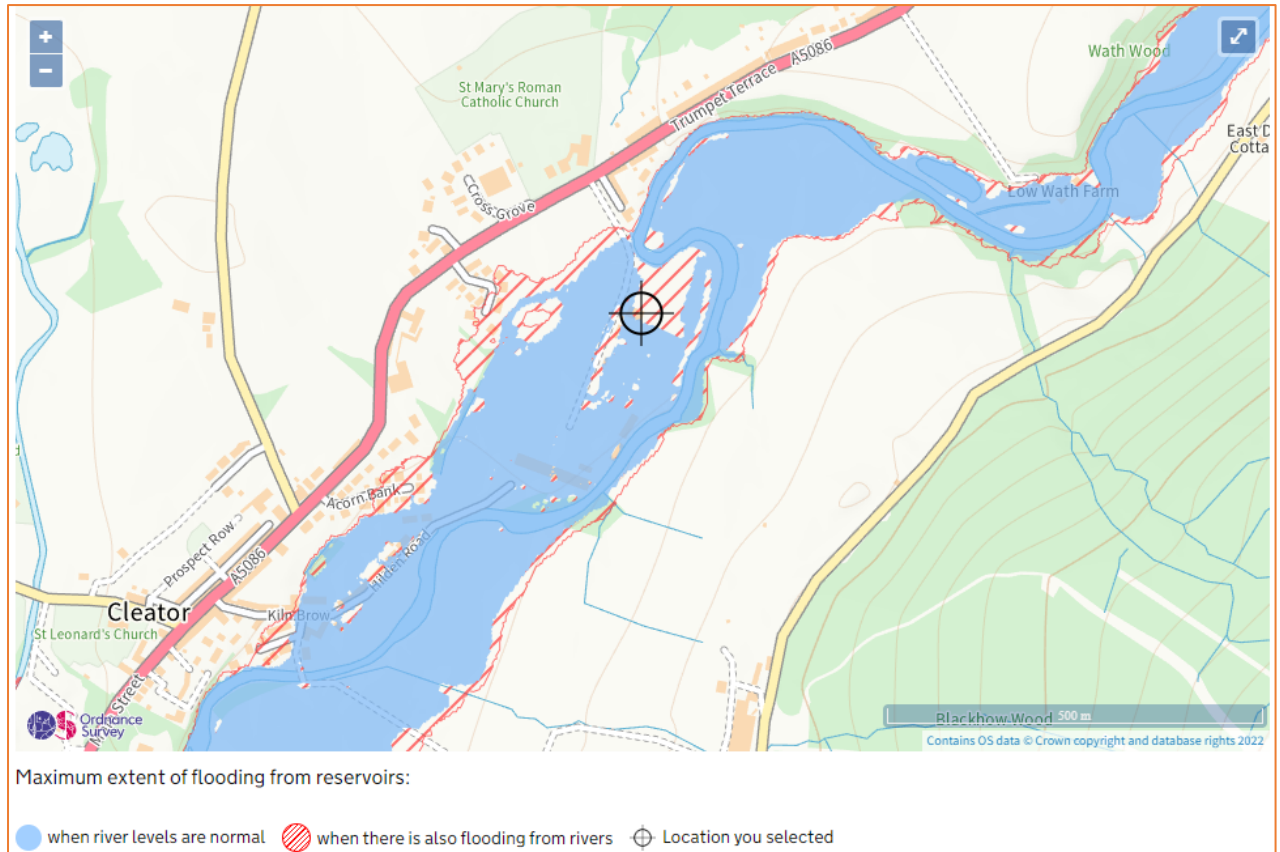


Figure 8: Extract from Environment Agency Reservoir Flood Risk Map (Source: EA)

5. Surface Water Drainage Strategy:

- 5.1. In order to mitigate flood risk posed by post development runoff, adequate control measures will need to be considered within the site. This will ensure that surface water runoff is dealt with at source and flood risk is not increased elsewhere.

Drainage Hierarchy:

- 5.2. The drainage strategy for the site has been prepared according to the drainage discharge hierarchy from *CIRIA C753 The Suds Manual*, as follows:
- Infiltration to the maximum extent that is practical;
 - Discharge to surface waters;
 - Discharge to surface water sewer.

Infiltration Potential:

- 5.3. Infiltration testing has been undertaken at the site and provided for use within this report. The lowest infiltration rate of 0.001171 m/s has been utilised within the below calculations.
- 5.4. It is therefore proposed that all post development runoff is discharged to ground.
- 5.5. A Preliminary Environmental Risk Assessment as well as a Site Investigation and an updated Environmental Risk Assessment are provided within the appendix. *Refer to the reports in the appendix.*

Proposed Discharge Rate:

- 5.6. Existing greenfield runoff rates for the total site have been calculated as 4.4l/s for the 1:1 annual runoff event, 8.5l/s for the 1:30 year event and 10.4l/s for the 1:100 year event. Refer to calculations in Appendix.
- 5.7. Surface Water runoff from all impermeable areas will discharge into a cellular storage soakaway located beneath the HGV yard.
- 5.8. It is proposed to discharge post development runoff to ground, therefore, there will be no off-site discharge post development.

Cellular Storage Soakaways

- 5.9. Runoff from all impermeable areas (6,425m²) will be collected and stored in a cellular storage soakaway located beneath the HGV yard.
- 5.10. From the cellular soakaway storage units, runoff will gradually infiltrate into the underlying strata.
- 5.11. Preliminary calculations indicate that sufficient storage required to attenuate runoff from the proposed impermeable areas arising from the critical 1:100 year + 50% climate change event can be provided within a cellular soakaway structure of dimensions 205m² x 0.4m deep x 0.95 (void ratio).
- 5.12. Preliminary calculations indicated that some 77.9m³ of storage is required to attenuate the runoff for all storms up to and including the 1:100 year + 50% climate change event.
- 5.13. *Please note that the levels of the cellular storage within the Micro drainage calculations are arbitrary for modelling purposes.*
- 5.14. All preliminary surface water drainage calculations have been undertaken using MicroDrainage software. Refer to the Appendix.

Water Quality:

- 5.15. Runoff from roof areas is relatively uncontaminated, and does not warrant a complex treatment process to improve quality prior to discharge to ground. Nevertheless, it is suggested to include debris / sediment traps on any new drainage.
- 5.16. However, all Surface Water runoff from the impermeable ground surfaces will be required to pass through a suitable interceptor prior to discharge to soakaway feature.

Design Exceedance:

- 5.17. Should the onsite drainage system fail under extreme rainfall events or blockage, flooding may occur within the site. In the event of the drainage system failure, the runoff flow can be managed through detailing the new external levels to direct water away from structures.

Adoption and Maintenance:

- 5.18. It is proposed that all SuDS facilities will be maintained privately by the end user.
- 5.19. A draft Maintenance Schedule is outlined in the Table below.

Cellular Soakaways

- 5.20. The design of soakaways should include monitoring points where the water level in the system can be observed or measured. This can either be via an inspection well or inspection cover. The useful life and effective operation of an infiltration component is related to the frequency of maintenance and the risk of sediment being introduced into the system.
- 5.21. It is not envisaged that silt build up within the cellular soakaway will require a rigorous maintenance regime so long as silt is removed from upstream catch pits and inspection chambers on a regular basis. Notwithstanding this, a suitable maintenance regime for the systems will comprise routine inspection and silt removal (as necessary). Inspection should be undertaken using CCTV equipment within the infiltration tank. Camera access can be gained via inspection chambers and inlet pipework located at each end of the tunnels.
- 5.22. Silt removal can be achieved by jetting the inspection tunnels. Jetting should be undertaken in accordance with current jetting guidelines, in particular the Code of Practice for Sewer Jetting published by The Water Research Centre. Jetting at 150bar at 300l/min should be more than adequate in removing any build-up of material within the soakaway.
- 5.23. A standard jet head with rear facing nozzles should be used. The head should be fed to the far end of the crate tunnel via the nearest inspection chamber, activated and retracted. As the nozzle is removed, debris will be swept back into the inspection chamber where it can then be removed with the use of a standard gully sucker. This method will ensure the effective removal of gross solids (carrier bags, cans, leaf litter etc.) from the system. Whilst 100% removal cannot be guaranteed, it has been shown that this jetting method will also remove an element of finer material which would otherwise be 'lost' within the system.

Pipework and Catchpits:

- 5.24. It is not envisaged that silt build up within the pipework systems will require a rigorous maintenance regime so long as silt is removed from upstream catch pits on a regular basis. Notwithstanding this, a suitable maintenance regime for the systems will comprise of routine inspection (every three months) and silt removal (as necessary).

Drainage Element	Maintenance Requirement	Frequency
Gutters & downpipes	Inspect and remove silt and debris	To be inspected every three months and silt/ debris removed as necessary.
Catchpits and inspection chambers	Inspect and remove silt	To be inspected every three months and silt/ debris removed as necessary. Flow control to be checked for blockages.
Oil Separator		Annually, under service agreement.
Cellular Soakaways	Inspect and remove silt and debris	To be inspected annually and silt removed as necessary.

Table 2: Suggested Maintenance Regime for Elements of the Drainage Infrastructure

Note: In addition to the above maintenance requirements, it is recommended that all drainage elements are inspected:

- Following the first storm event

- Monthly for the first 3 months following commissioning

6. Flood Risk Mitigation:

Physical Design Measures:

- 6.1. The site is shown to be within Flood Zone 3 (High Probability) according to the Environment Agency Flood Map for Planning (Rivers and Sea).
- 6.2. For the undefended and defended 1:100 year plus 30% allowance for climate change events, the on-site flood depth is shown to be 1.18m and 1.04m respectively.
- 6.3. Given the nature of the proposed usage however (Storage Warehouse and Office Unit) it is not practical or feasible to raise the finished floor levels above the design flood level.
- 6.4. It is understood however that the Office unit includes a first floor, and internal access is provided from ground floor to first floor level – thereby providing internal egress to an area of safe refuge above modelled flood levels.
- 6.5. To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the proposal, in consultation with the Local Authority building control department. As such, the following measures are recommended where practical and feasible:
 - Closed-cell foam used in wall cavities;
 - Waterproof ground floor internal render;
 - Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
 - Ground floor electrical main ring run from at least 1.18m above finished ground floor level;
 - Electrical incomer and meter situated at least 1.18m above finished ground floor level;
 - Boilers, control and water storage / immersion installed at least 1.18m above finished ground floor level;
 - Gas meter installed at least 1.18m above finished ground floor level;
 - Raised sensitive electrical equipment, wiring and sockets at least 1.18m above finished ground floor level;
 - Plumbing insulation of closed-cell design;
 - Non-return valves fitted to all drain and sewer outlets;
 - Manhole covers secured;
 - Anti-siphon fitted to all toilets;
 - Kitchen units of solid, water resistant material;
 - Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level;

The applicant should also consider the use of demountable flood defence barriers to defend ground level doorways and low windows.

Safe Escape and Flood Action Plan:

- 6.6. Under the NPPF Planning Practice Guidance, appropriate evacuation procedures and flood response infrastructure should be in place to manage the residual risk associated with an extreme flood event for new development.
- 6.7. The site is situated partially within Flood Zones 3 and 2 based on the EA Flood Map for Planning.
- 6.8. The proposed escape route is to leave the site, and head south west approximately 118m along Mill Street / Hilden Road. The escape route then goes north along a public footpath for approximately 66m and continues 93m west along the public footpath to Main Street. From Main Street, site users should continue north along Cleator Gate towards Cleator Moor.
- 6.9. This escape route is shown to be entirely outside of the 1:100 year plus a 30% allowance for climate change flood extent from Main Street.
- 6.10. The flood hazard along an escape route can be calculated using flood depth, flood velocity and an associated debris factor using the FD2320 analysis. No modelled flood velocities or hazards have been provided by the EA for the modelled 1:100 year plus 30% allowance for climate change flood event. As such, the only indication of hazard at this location is flood depth and its associated debris factor. Regardless of the flood velocity, for a flood depth which exceeds 0.25m a debris factor of 1 must be applied (using the FD2320 analysis), and the hazard rating will therefore be above 0.75 (Very Low Hazard) – and therefore not deemed as safe. As such, for an escape route to be considered safe, the flood depths should not exceed 0.25m.

- 6.11. On site modelled flood levels provided by the EA have been compared with topographic ground levels along the escape route (where available obtained from a site-specific topographic survey undertaken by Edmondson Surveys on behalf of the applicant, and from EA 1m LiDAR remotely sensed digital terrain data elsewhere):

Location	x,y	Modelled Flood level	Topographic Road level	Flood Depth
Mill Street (adjacent to site)	301960, 513644	59.44mAOD	59.39mAOD	0.05m
Mill Street / Hilden Road	301846, 513587	58.54mAOD	58.45mAOD	0.09m
Footpath to Main Street	301846, 513644	58.85mAOD	58.68mAOD	0.17m

Table 3: Modelled flood levels compared to topographic levels along proposed escape route. Use in conjunction with modelled flood levels and route plan below.

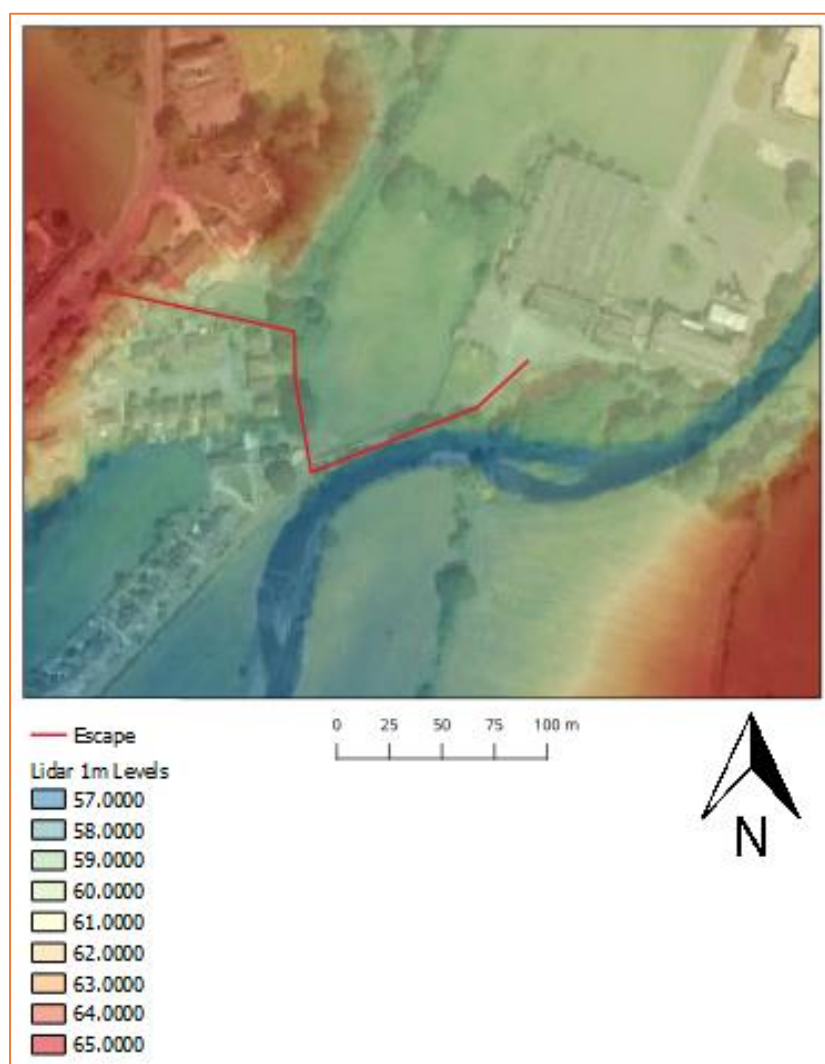


Figure 9: Proposed escape route overlain on EA 1m LiDAR DTM.

- 6.12. The comparison has shown the proposed escape route does not exceed 0.25m for the 1:100 year scenario plus 30% allowance for climate change. Accordingly, "safe escape" can be provided as per the technical requirements of the NPPF.

Flood Warning:

- 6.13. The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

- 6.14. Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.
- 6.15. The EA issue flood warnings to specific areas when flooding is expected. It is recommended that the applicant registers online with the free Environment Agency Floodline Warnings/Alert Direct service at <https://fwd.environment-agency.gov.uk/app/olr/register> to receive flood warnings by phone, text or email.
- 6.16. The site lies within the Rivers Ehen, Calder, Irt and Esk Flood Alert Area.
- 6.17. The flood warning service has three types of warnings that will help you prepare for flooding and take action:

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 4: Flood Warnings

Flood Plan:

- 6.18. It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

Before a flood:

- Find out if you are at risk of flooding.
- Find out if you can receive flood warnings.
- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
- Consider buying flood protection products such as flood boards and airbrick covers to help reduce flood water getting into the store.

During a flood:

- Tune into your local radio station on a battery or wind-up radio.
- Fill jugs and saucepans with water.
- Grab your flood kit - if you have prepared one.

- Collect blankets, torch, first aid kit, medication and food.
- Move important documents, personal items, valuables, and lightweight belongings upstairs or to high shelves.
- Raise large items of furniture, or put them in large bags if you have them.
- Move people, outdoor belongings, cars and pets to higher ground.
- Fit flood protection products, if you have them, for example flood boards, airbrick covers, sandbags.
- If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths.
- Move your family and pets to a high place with a means of escape.
- Listen to the advice of the emergency service and evacuate if told to do so.
- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

After a flood:

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics, heating and water checked by qualified engineers before switching them back on.

Fluvial floodplain storage:

- 6.19. The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.
- 6.20. In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.
- 6.21. For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.
- 6.22. Whilst the site is situated in Flood Zone 3, when using the Environment Agency Flood Map for Planning (Rivers and Sea), the development will provide betterment due to there being an overall decrease in built footprint.

7. Discussion and Conclusions:

- 7.1. This Flood Risk Assessment and Surface Water Drainage Strategy has been prepared by Unda Consulting Limited on behalf of Cleator Mills Business Park Limited, in support of a planning application for the construction of unit G with proposed parking at the site of the Cleator Mills, Cleator, Whitehaven, CA23 3DJ. This report assesses the flood risk and surface water drainage strategy for the proposed development.
- 7.2. The proposed planning application is for the construction of unit G with proposed parking. Post development the footprint of buildings will cover approximately 885m².
- 7.3. In order to mitigate flood risk posed by post development runoff, adequate control measures will be required within the site. This will ensure that surface water runoff is dealt with at source and the flood risk off site is not increased.
- 7.4. The proposed development site is approximately 6,425m² and currently has industrial uses.
- 7.5. A topographical survey was undertaken by Edmondson Surveys and has been provided by the applicant. Upon review, this indicates that levels on site range between 59.16mAOD and 60.37mAOD.
- 7.6. The proposed planning application is for the construction of unit G with proposed parking.
- 7.7. Post development the footprint of buildings will cover approximately 885m².
- 7.8. The 1:50,000 BGS map shows the bedrock geology underlying the site to consist of Buttermere Formation – Mudstone and Sandstone.
- 7.9. According to 1:50,000 BGS mapping the site is underlain by Alluvium – Clay, Silt, Sand and Gravel superficial geological deposits.
- 7.10. The soil type taken from the UK soils website shows deep riverine clay, sands and gravels with a clay to sandy loam texture.
- 7.11. The site is located partially within Flood Zone 3 (High Risk) which means it is defined as land having greater than a 1:100 annual probability of fluvial flooding. The site is also partially located within Flood Zone 2 (Medium Risk) which means it is defined as having land with between a 1:100 annual probability and 1:1000 annual probability of fluvial flooding.
- 7.12. Modelled flood levels and extents have been received from the Cumbria and Lancashire Area Environment Agency as part of a Product 4 data request. The EA Product 4 data is provided within the report Appendix. Modelled flood data has been provided from the River Ehen 2015 model and Cleator Moor 2009 model.
- 7.13. According to the data provided at Node “10” the undefended 1:100 and 1:1000 year flood levels are 60.22mAOD and 60.52mAOD respectively. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depths for the 1:100 year and 1:1000 year events are 1.06m and 1.36m, respectively.
- 7.14. According to the data provided at Node “10” the site is outside of the defended 1:100 year flood event. However, the defended 1:1000 flood level is 60.51mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depth for the 1:1000 year event is 1.35m.
- 7.15. The site is located within Flood Zone 3 and is classified as “more vulnerable”. The Flood Risk Assessments: climate change allowances guidance – updated May 2022, states that the Central climate change allowance should be applied. The site falls within the South West Lakes Management Catchment, where the Central climate change allowance for the 2080's is a 30% increase in river flows.
- 7.16. As such, the most suitable modelled flood data provided in the River Ehen modelling is a 30% increase in flows, and as such this will be used for this assessment.
- 7.17. The undefended flood level for the 1:100 year plus 30% allowance for climate change is 60.34mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depths for the 1:100 year plus 30% allowance for climate change is 1.18m.
- 7.18. The defended flood level for the 1:100 year plus 30% allowance for climate change is 60.20mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depths for the 1:100 year plus 30% allowance for climate change is 1.04m.

- 7.19. The EA also provided flood levels from Cleator Moor 2009 model. This model includes the "Unnamed Drain near Catholic Church" watercourse to the north east of the site. According to the data provided at Node "9" the site is outside of the undefended 1:100 year flood event. However, the undefended 1:1000 flood level is 59.70mAOD. When compared to onsite topographic levels of 59.16mAOD and 60.37mAOD the maximum flood depth for the 1:1000 year event is 0.54m.
- 7.20. The River Ehen 2015 model has been used as a worst case scenario because when comparing the modelled 1:1000 year flood level (for Node "10") for both models, the flood level from the River Ehen model is higher than for the Cleator Moor model, and as such a precautionary conservative approach is applied.
- 7.21. According to EA data there are a number of defences within vicinity to the site. These include 4 embankments with their standard of protection ranging from 5 – 100 years. For the full defence asset list please refer to the EA defence map in the report appendix.
- 7.22. The Environment Agency confirm the site is outside of any historical flood extents.
- 7.23. Due to the site topography and distance to the nearest coast/ tidal watercourse, the risk of tidal flooding is considered to be very low.
- 7.24. The EA Risk of Flooding from Surface Water Map suggests that the majority of the site lies within an area of "Very Low" to "High" risk of flooding from surface water.
- 7.25. It should be noted that the EA Risk of Flooding from Surface Water Map picks up the "Unnamed Drain near Catholic Church" as a surface water flow path. The EA has however advised that *"We would advise as this source is from a fluvial source, Unnamed Drain Nr. Catholic Church and as it is a modelled catchment and can result in some flooding of the site independent of and flood risk from the River Ehen, then it is worthy of further investigation in the FRA."*
- 7.26. The "Unnamed Drain near Catholic Church" watercourse to the north east of the site is included in the Cleator Moor 2009 model, and is discussed in the 'Detailed Flood Modelling' section above.
- 7.27. Given the nature of the proposed usage however (Storage Warehouse and Office Unit) it is not practical or feasible to raise the finished floor levels above the design flood level. In order to help protect against flooding during extreme events, flood resistant design measures could be implemented into the proposed buildings, as outlined in section 6.2.
- 7.28. It is understood however that the Office unit includes a first floor, and internal access is provided from ground floor to first floor level – thereby providing internal egress to an area of safe refuge above modelled flood levels.
- 7.29. Safe escape can be provided from the site as per the requirements of the NPPF.
- 7.30. Infiltration testing has been undertaken at the site and provided for use within this report. The lowest infiltration rate of 0.001171 m/s has been utilised within the below calculations.
- 7.31. It is therefore proposed that all post development runoff is discharged to ground
- 7.32. Existing greenfield runoff rates for the total site have been calculated as 4.4l/s for the 1:1 annual runoff event, 8.6l/s for the 1:30 year event and 10.5l/s for the 1:100 year event. Refer to calculations in Appendix.
- 7.33. Surface Water runoff from all impermeable areas will discharge into a cellular storage soakaway located beneath the HGV yard.
- 7.34. It is proposed to discharge post development runoff to ground, therefore, there will be no off-site discharge post development.
- 7.35. Runoff from all impermeable areas (6,425m²) will be collected and stored in a cellular storage soakaway located beneath the HGV yard.
- 7.36. From the cellular soakaway storage units, runoff will gradually infiltrate into the underlying strata.
- 7.37. Preliminary calculations indicate that sufficient storage required to attenuate runoff from the proposed impermeable areas arising from the critical 1:100 year + 50% climate change event can be provided within a cellular soakaway structure of dimensions 205m² x 0.4m deep x 0.95 (void ratio).
- 7.38. Preliminary calculations indicated that some 77.9m³ of storage is required to attenuate the runoff for all storms up to and including the 1:100 year + 50% climate change event.
- 7.39. All preliminary surface water drainage calculations have been undertaken using MicroDrainage software. Refer to the Appendix.

- 7.40. Runoff from roof areas is relatively uncontaminated, and does not warrant a complex treatment process to improve quality prior to discharge to ground. Nevertheless, it is suggested to include debris / sediment traps on any new drainage.
- 7.41. However, all Surface Water runoff from the impermeable ground surfaces will be required to pass through a suitable interceptor prior to discharge to soakaway feature.
- 7.42. Should the onsite drainage system fail under extreme rainfall events or blockage, flooding may occur within the site. In the event of the drainage system failure, the runoff flow can be managed through detailing the new external levels to direct water away from structures.
- 7.43. This Flood Risk Assessment and drainage strategy has been undertaken in accordance with the principles set out in NPPF. We can conclude that providing the development adheres to the conditions advised above, the said development proposals can be accommodated without increasing flood risk within the locality in accordance with objectives set by Central Government and the EA.

Unda Consulting Limited

March 2023

8. Appendix

A - Plans by others:

- Topographical site survey – Edmondson Surveys Ltd.
- Proposed plans – Manning Elliot Partnership.

B - Flood Data:

- EA Product 4 Information Response.

C - MicroDrainage Calculations:

- ICP SUDS Greenfield Runoff Calculations;
- Cellular Soakaway Calculations.

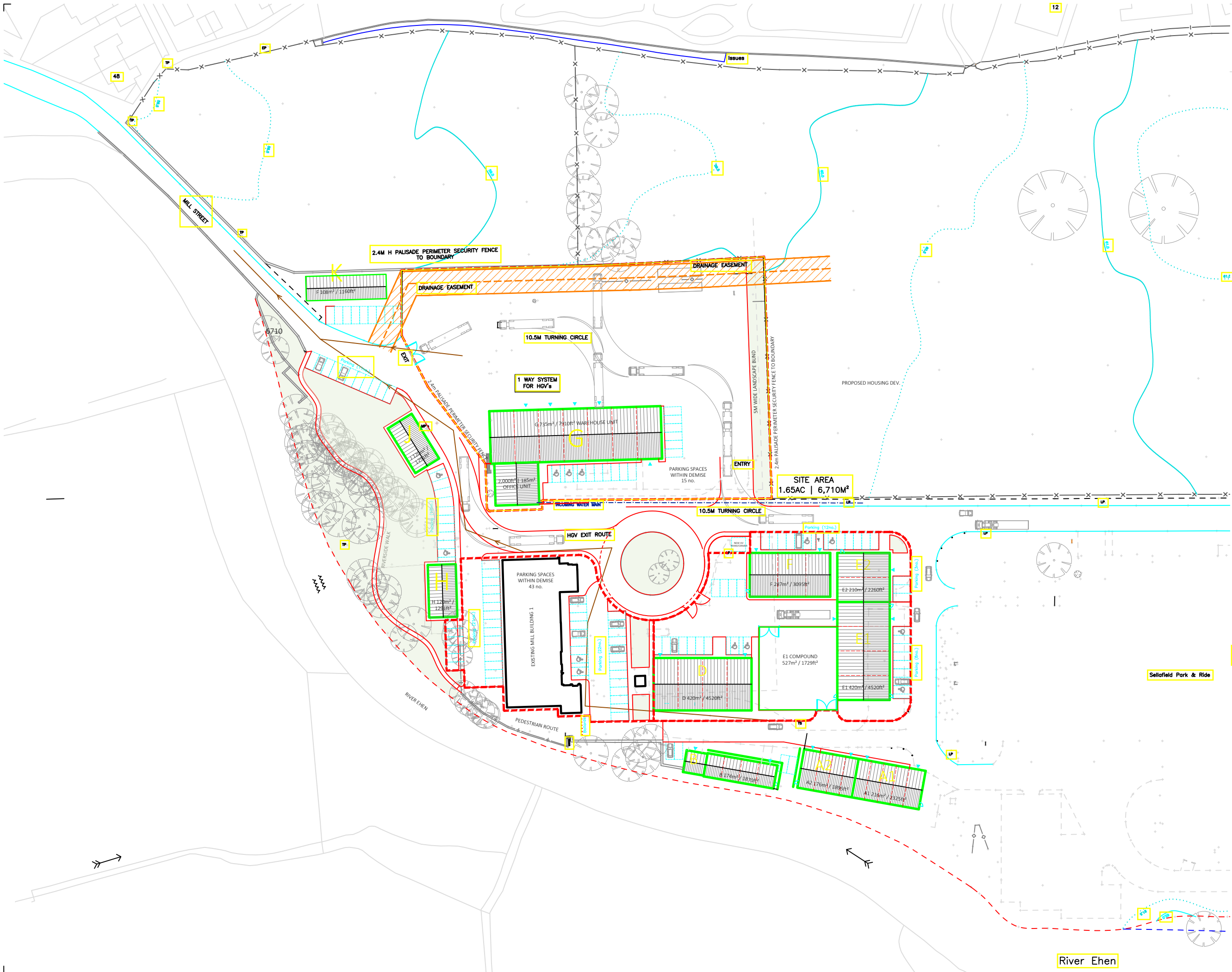
D - Plans:

- Proposed Drainage Layout.

E - Reporting by others:

- Infiltration Testing Report – B.A.F Contracting Ltd;
- Preliminary Environmental Risk Assessment – Elliott Environmental Surveys
- Site investigation and an updated Environmental Risk Assessment - Elliott Environmental Surveys



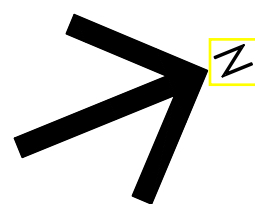


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REVISIONS:		
Revision	DESCRIPTION	
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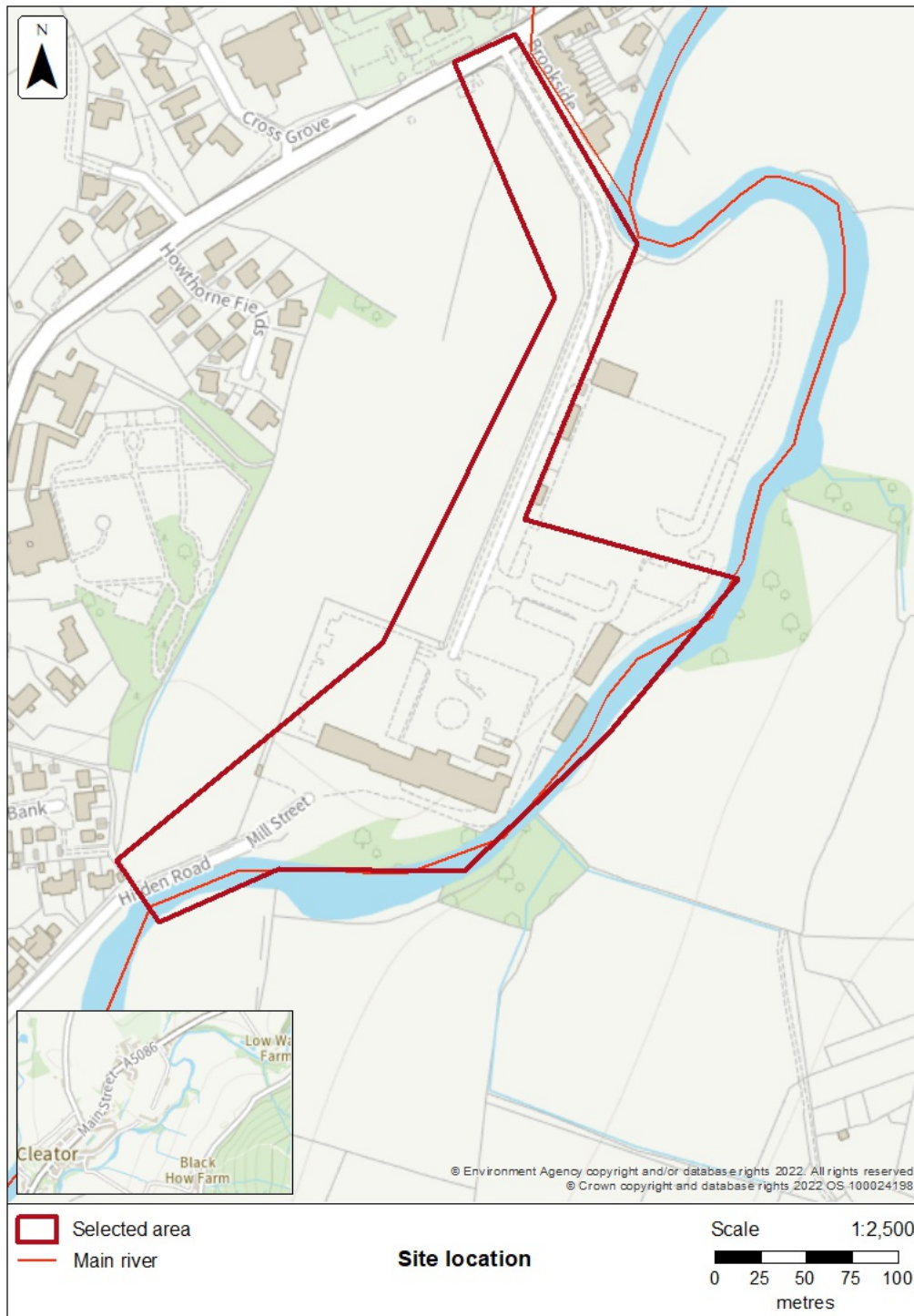
project title:
**Commercial Development
Cleator Mills, Cumbria**

GenR8 North Ltd.

drawing title:
Masterplan as Proposed

issue stage:		
FOR DISCUSSION		
date:	drawn:	scale @ A3:
OCT 22	CS	1:1000
drawing number:	revision:	
1701C-200	-	

Flood risk assessment data



s)

for.

How to use this information

You can use this information as part of a flood risk assessment for a planning application. To do this, you should include it in the appendix of your flood risk assessment.

We recommend that you work with a flood risk consultant to get your flood risk assessment.

Included in this document

In this document you'll find:

- how to find information about surface water and other sources of flooding
- information on the models used
- definitions for the terminology used throughout
- flood map for planning (rivers and the sea)
- historic flooding
- flood defences and attributes
- information to help you assess if there is a reduced flood risk from rivers and the sea because of defences
- modelled data
- climate change modelled data
- information about strategic flood risk assessments
- information about this data
- information about flood risk activity permits
- help and advice

Surface water and other sources of flooding

Use the [long term flood risk service](#) to find out about the risk of flooding from:

- surface water
- ordinary watercourses
- reservoirs

For information about sewer flooding, contact the relevant water company for the area.

About the models used

Model name: Cleator Moor 2009
Scenario(s): No defences exist fluvial
Date: 1 March 2009

Model name: Ehen 2015
Scenario(s): Defended fluvial, defences removed fluvial, defended climate change fluvial, defences removed climate change fluvial
Date: 11 July 2016

These models contain the most relevant data for your area of interest.

Terminology used

Annual exceedance probability (AEP)

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

Metres above ordnance datum (mAOD)

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

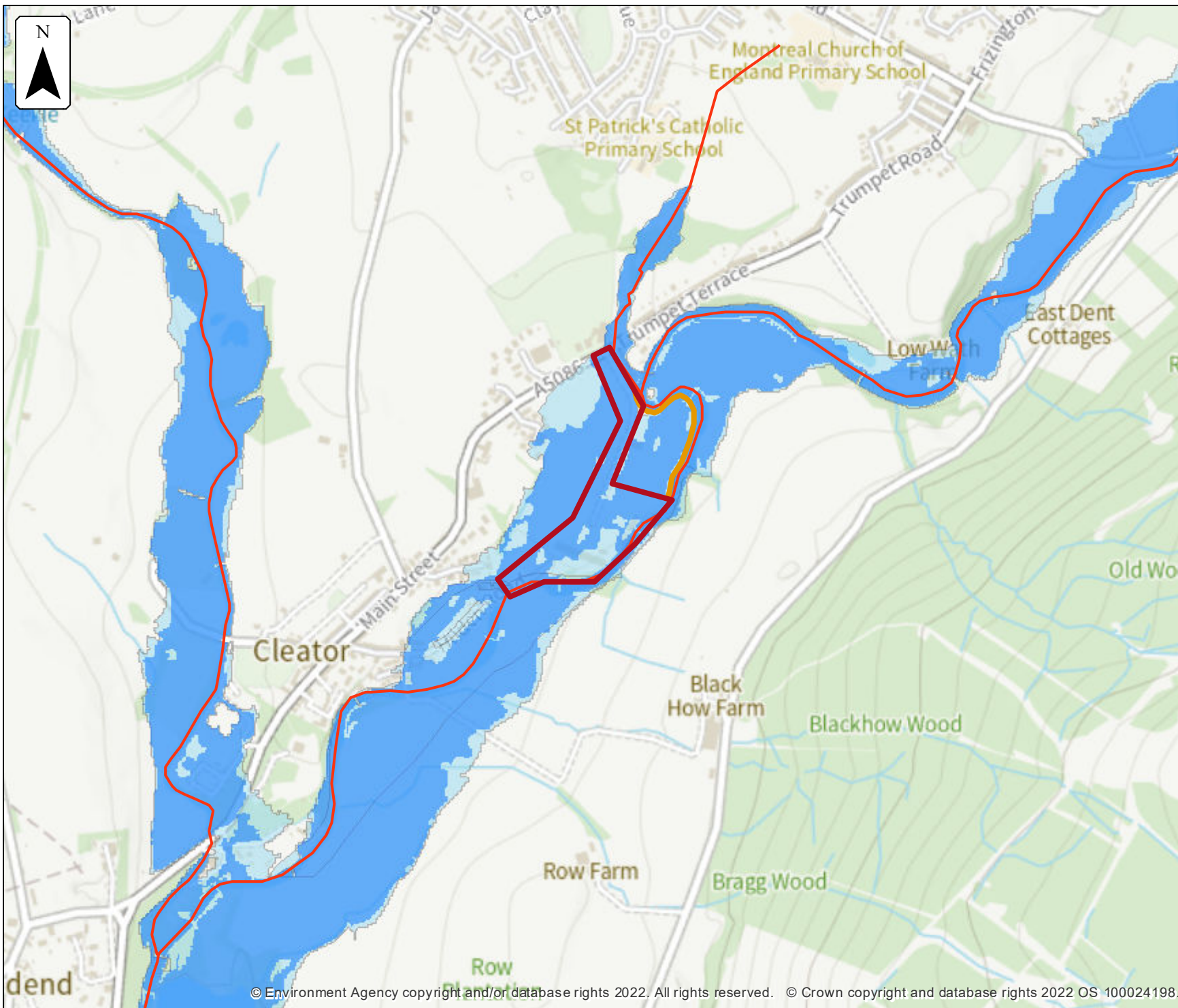
Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change

This data is updated on a quarterly basis as better data becomes available.



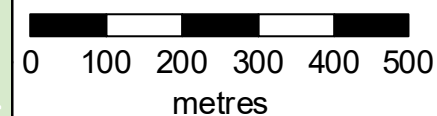
Flood map for planning

Location (easting/northing)
302033/513757

Scale
1:10,000

Created
29 Nov 2022

-  Selected area
-  Main river
-  Flood defence
-  Flood zone 3
-  Flood zone 2



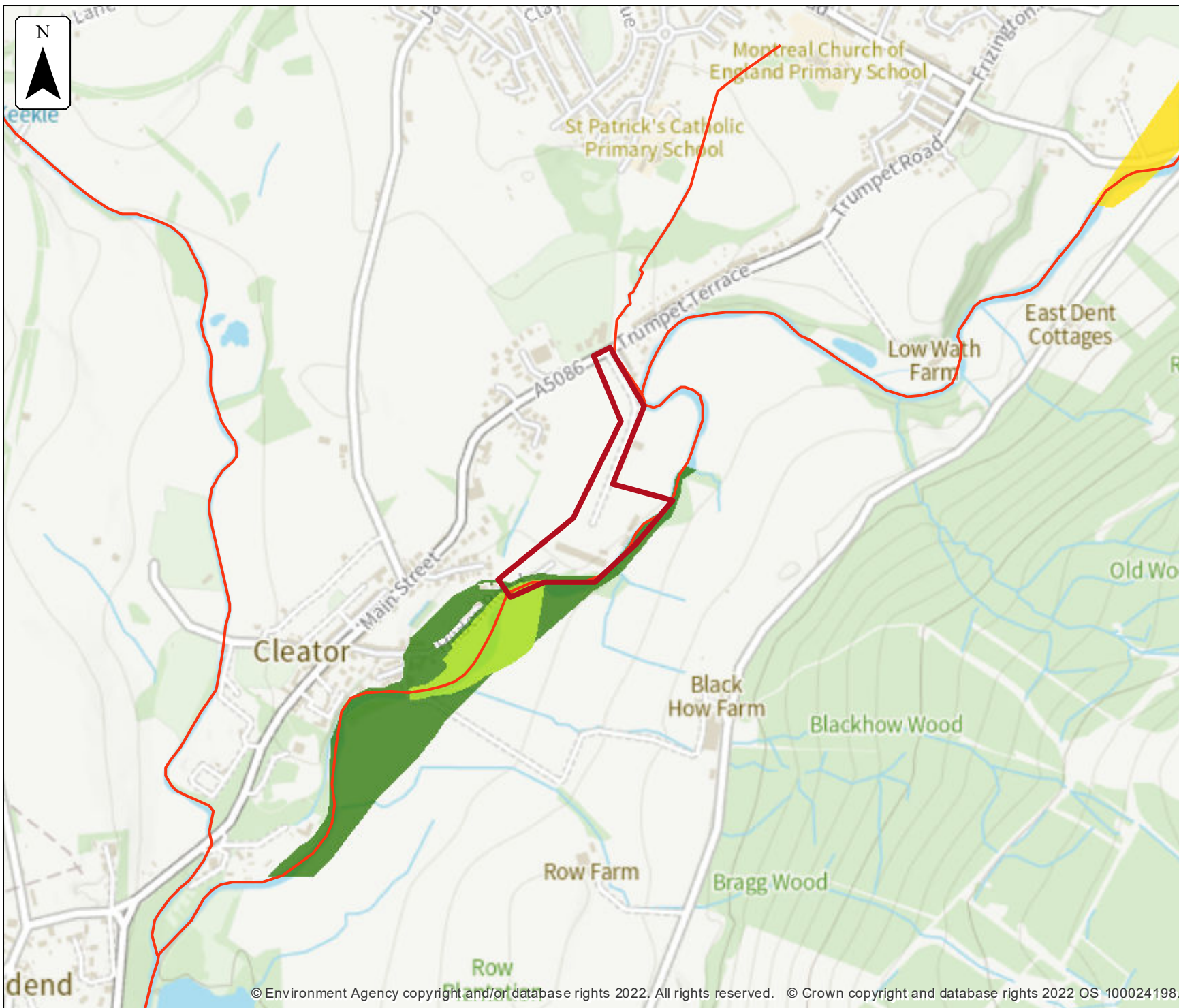
Historic flooding

This map is an indicative outline of areas that have previously flooded. Remember that:

- our records are incomplete, so the information here is based on the best available data
- it is possible not all properties within this area will have flooded
- other flooding may have occurred that we do not have records for
- flooding can come from a range of different sources - we can only supply flood risk data relating to flooding from rivers or the sea

You can also contact your Lead Local Flood Authority or Internal Drainage Board to see if they have other relevant local flood information. Please note that some areas do not have an Internal Drainage Board.

[Download recorded flood outlines in GIS format](#)



Historic flood map

Location (easting/northing)
302033/513757

Scale
1:10,000

Created
29 Nov 2022

-  Selected area
-  Main river
- Date of flood event
 -  October, 2017
 -  November, 2009
 -  October, 1977



Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
11 October 2017	12 October 2017	main river	channel capacity exceeded (no raised defences)	Yes
19 November 2009	22 November 2009	main river	channel capacity exceeded (no raised defences)	Yes
24 October 1977	24 October 1977	unknown	unknown	No

Flood defences and attributes

The flood defences map shows the location of the flood defences present.

The flood defences data table shows the type of defences, their condition and the standard of protection. It shows the height above sea level of the top of the flood defence (crest level). The height is in mAOD which is the metres above the mean sea level at Newlyn, Cornwall.

It's important to remember that flood defence data may not be updated on a regular basis. The information here is based on the best available data.

Use this information:

- to help you assess if there is a reduced flood risk for this location because of defences
- with any information in the modelled data section to find out the impact of defences on flood risk



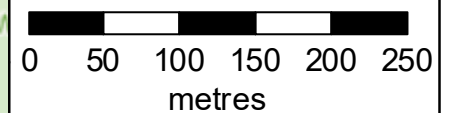
Flood defences

Location (easting/northing)
302033/513757

Scale
1:5,000

Created
29 Nov 2022

-  Selected area
-  Main river
-  Flood defence



Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	37886	Embankment	100	Fair	57.15	57.15	57.15
2	37628	Embankment	100	Fair	64.52	64.52	64.52
3	37627	Embankment	100	Fair	62.49	63.40	62.49
4	80487	Embankment	5	Poor	63.84	65.35	63.84

Any blank cells show where a particular value has not been recorded for an asset.

Modelled data

This section provides details of different scenarios we have modelled and includes the following (where available):

- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Climate change

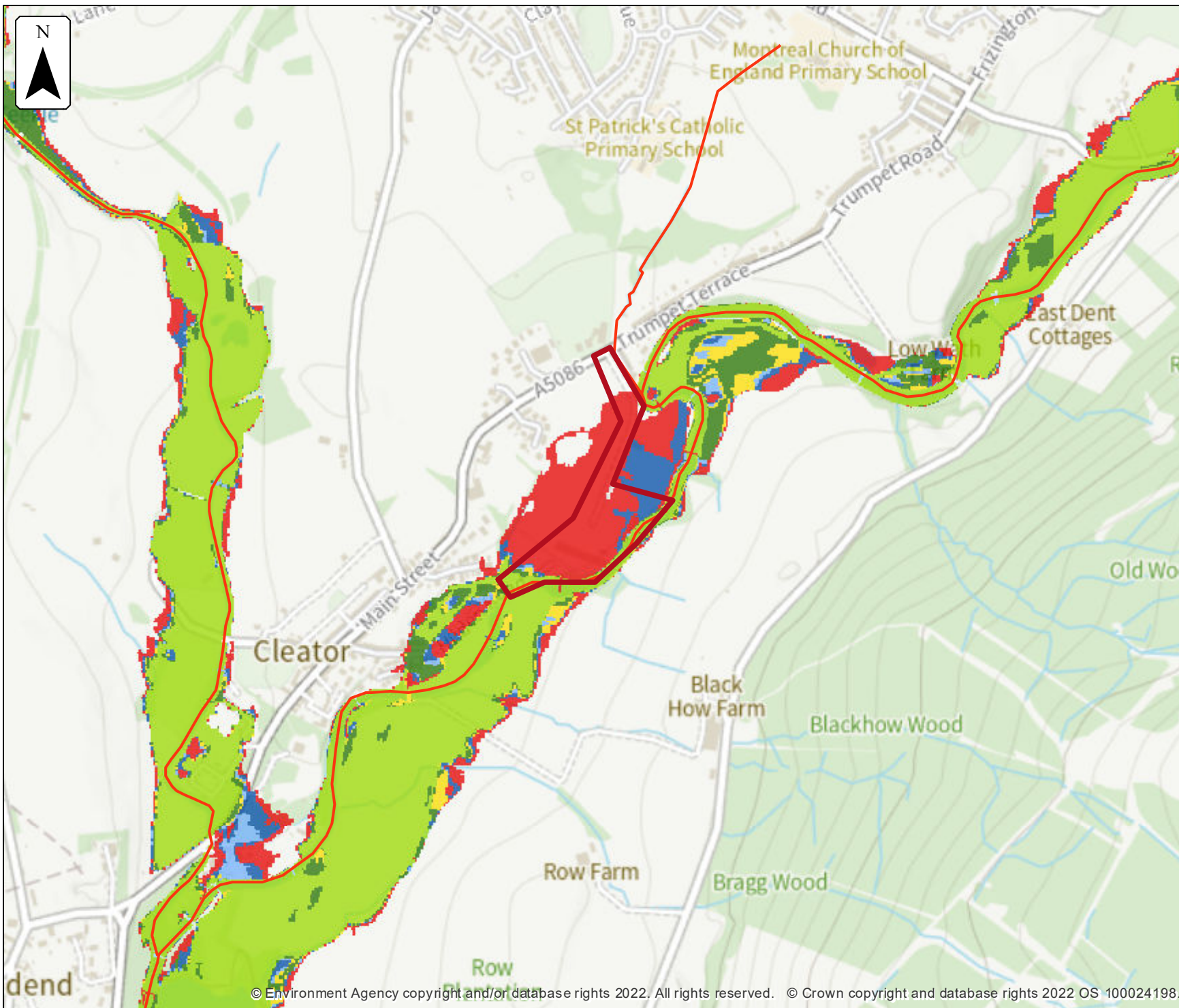
The climate change data included in the models may not include the latest [flood risk assessment climate change allowances](#). Where the new allowances are not available you will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding.

The Environment Agency will incorporate the new allowances into future modelling studies. For now, it's your responsibility to demonstrate that new developments will be safe in flood risk terms for their lifetime.

Modelled scenarios

The following scenarios are included:

- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed
- No defences exist modelled fluvial: risk of flooding from rivers where there are no flood defences
- Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change



Defended modelled fluvial extent

Location (easting/northing)
302033/513757

Scale
1:10,000

Created
29 Nov 2022

Model name
Ehen 2015

 Selected area

 Main river

Modelled flood extent

 5% AEP

 2% AEP

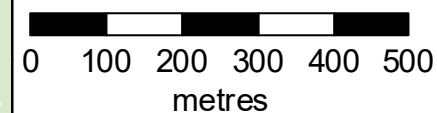
 1.33% AEP

 1% AEP

 0.5% AEP

 0.1% AEP

Flood extents may not be visible where they overlap other return periods





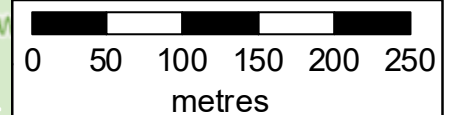
Defended modelled fluvial node locations

Location (easting/northing)
302033/513757

Scale Created
1:5,000 29 Nov 2022

Model name
Ehen 2015

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defended

Label	Modelled location ID	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1204241	301853	513572	58.27	82.65	58.37	90.31	58.42	96.04	58.45	99.52	58.53	109.80	58.75	145.36
2	1204324	301951	513609	58.91	97.30	58.99	111.30	59.04	121.70	59.06	127.64	59.07	144.44	59.23	202.06
3	1204006	302049	513627	59.51	97.43	59.64	111.97	59.73	123.07	59.77	129.25	59.88	146.48	60.20	208.94
4	1204731	302107	513695	60.06	97.39	60.24	111.66	60.38	122.25	60.45	128.10	60.56	144.66	61.04	200.69
5	1204197	302126	513995	63.83	85.08	63.90	92.13	63.94	95.29	63.97	96.51	64.02	100.49	64.15	115.41
6	1203893	302165	513964	63.23	84.31	63.42	89.70	63.55	91.20	63.62	91.36	63.78	92.75	64.13	99.83
7	1204604	302187	513777	60.45	97.36	60.63	111.89	60.74	122.97	60.81	129.14	60.95	146.02	61.39	196.74
8	1204603	302218	513848	61.01	97.06	61.21	111.01	61.35	121.17	61.43	126.74	61.61	141.56	62.12	184.17
9	1204634	302221	513857	61.71	97.06	61.88	111.01	61.99	121.17	62.05	126.74	62.19	141.56	62.54	184.17
10	1204329	302239	513961	62.18	97.31	62.32	111.80	62.42	122.09	62.47	127.21	62.64	140.22	63.14	172.62

Data in this table comes from the Ehen 2015 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



Defended modelled fluvial extent and height

Location (easting/northing)
302033/513757

Scale Created
1:2,500 29 Nov 2022

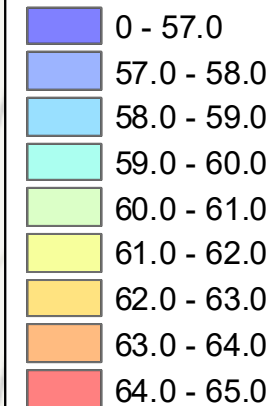
Model name
Ehen 2015

 Selected area

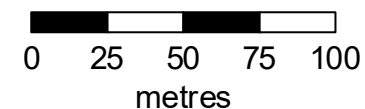
 Main river

Modelled 2D grid

Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

Defended

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301846	513587	0.33	58.23	0.43	58.34	0.48	58.39	0.49	58.41	0.55	58.47	0.76	58.67
2	301903	513587	0.26	58.57	0.32	58.63	0.36	58.67	0.38	58.69	0.43	58.74	0.59	58.91
3	302017	513587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301846	513644	NoData	NoData	NoData	NoData	0.04	58.65	0.06	58.68	0.12	58.75	0.42	59.05
5	301903	513644	NoData	NoData	NoData	NoData	NoData	NoData	0.03	58.71	0.10	58.78	0.37	59.05
6	301960	513644	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.01	59.44
7	302017	513644	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.20	60.02
8	302074	513644	2.26	59.65	2.41	59.80	2.51	59.90	2.56	59.95	2.67	60.06	3.03	60.42
9	301960	513701	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.38	60.26
10	302017	513701	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.34	60.51
11	302074	513701	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.06	60.78
12	302131	513701	NoData	NoData	NoData	NoData	0.09	60.39	0.15	60.46	0.24	60.57	0.71	61.04
13	302017	513758	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.20	60.61
14	302074	513758	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.15	60.99
15	302131	513758	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.17	60.90	0.60	61.33
16	302188	513758	0.34	60.39	0.52	60.57	0.64	60.69	0.70	60.76	0.84	60.90	1.28	61.34

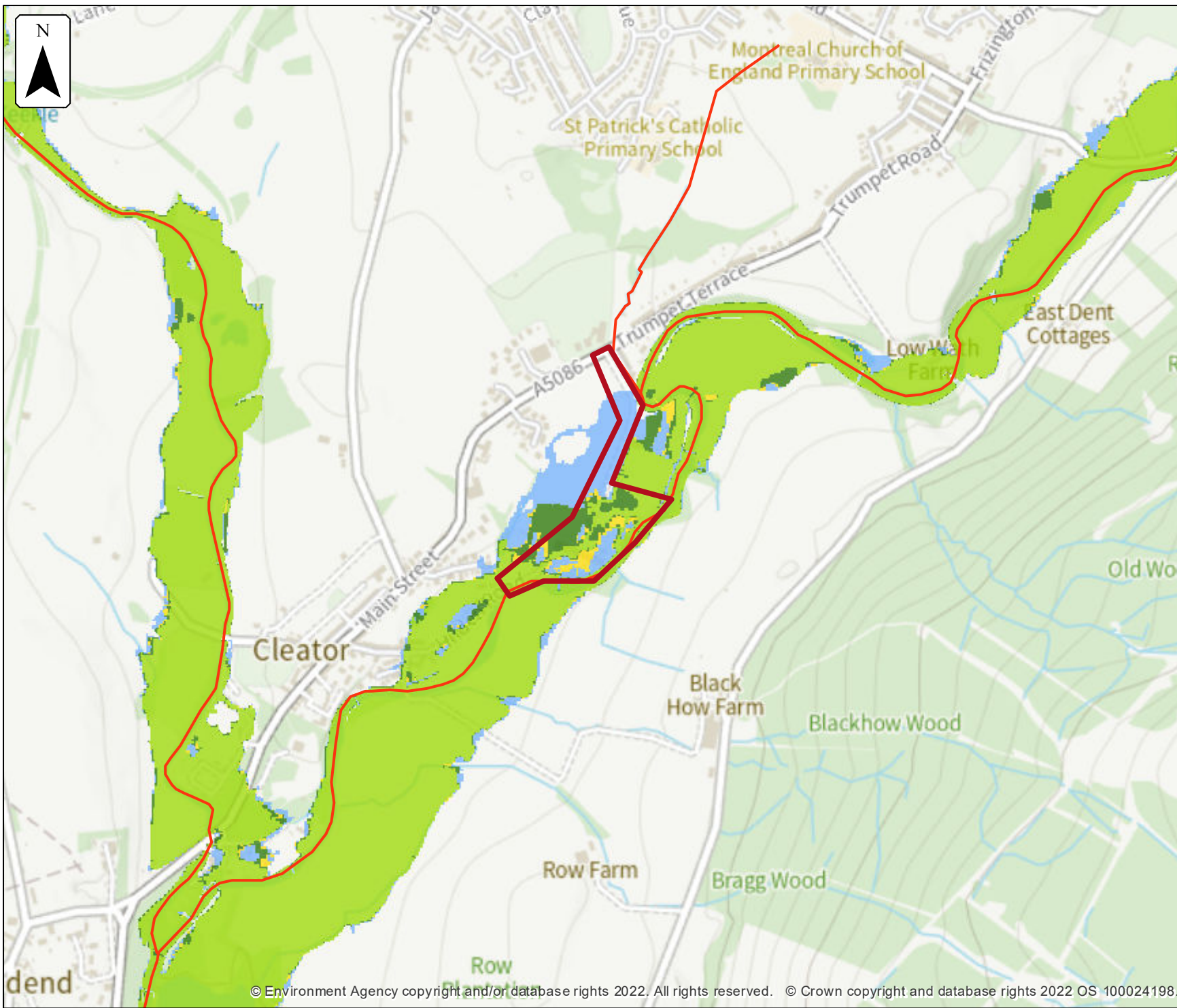
Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302017	513815	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.20	60.89
18	302074	513815	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.36	61.57
19	302074	513872	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.29	61.61
20	302074	513929	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.10	62.49
21	302131	513929	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.07	62.73
22	302074	513986	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302131	513986	NoData	NoData	0.01	63.71	0.03	63.79	0.04	63.84	0.13	63.92	0.34	64.14
24	302017	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
25	302074	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Ehen 2015 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defended climate change modelled fluvial extent

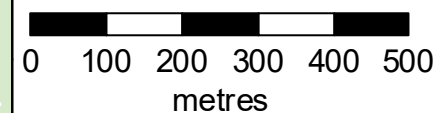
Location (easting/northing)
302033/513757

Scale Created
1:10,000 29 Nov 2022

Model name
Ehen 2015

- Selected area
- Main river
- Modelled flood extent
 - 1.0% AEP (+20%)
 - 1.0% AEP (+30%)
 - 1.0% AEP (+35%)
 - 1.0% AEP (+70%)

Flood extents may not be
visible where they overlap
other return periods





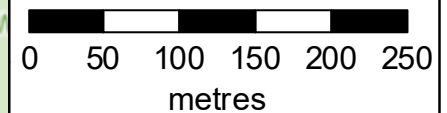
Defended climate change modelled fluvial node locations

Location (easting/northing)
302033/513757

Scale Created
1:5,000 29 Nov 2022

Model name
Ehen 2015

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defended climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)		1.0% AEP (+30%)		1.0% AEP (+35%)		1.0% AEP (+70%)	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1204241	301853	513572	58.55	113.29	58.60	120.69	58.63	124.06	58.75	146.16
2	1204324	301951	513609	59.08	150.01	59.10	162.12	59.12	167.84	59.23	203.31
3	1204006	302049	513627	59.91	152.21	59.98	164.96	60.01	171.17	60.21	210.34
4	1204731	302107	513695	60.60	149.93	60.69	161.56	60.84	166.19	61.05	201.99
5	1204197	302126	513995	64.03	101.48	64.06	103.91	64.07	105.40	64.15	115.84
6	1203893	302165	513964	63.82	93.24	63.91	94.09	63.95	94.72	64.13	100.13
7	1204604	302187	513777	61.0	151.25	61.11	162.28	61.16	167.47	61.40	197.91
8	1204603	302218	513848	61.67	145.97	61.78	155.28	61.83	159.73	62.13	185.09
9	1204634	302221	513857	62.23	145.97	62.31	155.28	62.35	159.73	62.54	185.09
10	1204329	302239	513961	62.69	143.88	62.80	151.51	62.86	155.13	63.15	173.29

Data in this table comes from the Ehen 2015 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



Defended climate change modelled fluvial extent and height

Location (easting/northing)
302033/513757

Scale Created
1:2,500 29 Nov 2022

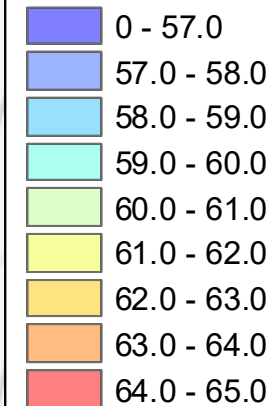
Model name
Ehen 2015

 Selected area

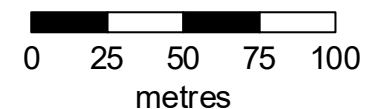
 Main river

Modelled 2D grid

Water level in mAOD



This map shows the
1.0% AEP +70% height data



Sample point data

Defended climate change

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301846	513587	0.58	58.49	0.64	58.54	0.66	58.56	0.79	58.69
2	301903	513587	0.44	58.75	0.47	58.77	0.49	58.79	0.60	58.90
3	302017	513587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301846	513644	0.14	58.77	0.22	58.83	0.25	58.86	0.45	59.06
5	301903	513644	0.12	58.80	0.16	58.84	0.18	58.87	0.37	59.05
6	301960	513644	NoData	NoData	NoData	NoData	NoData	NoData	0.01	59.48
7	302017	513644	NoData	NoData	NoData	NoData	0.06	59.88	0.19	60.02
8	302074	513644	2.70	60.09	2.71	60.18	2.77	60.24	2.97	60.44
9	301960	513701	NoData	NoData	0.13	60.00	0.17	60.04	0.41	60.28
10	302017	513701	0.05	60.19	0.10	60.20	0.13	60.23	0.42	60.52
11	302074	513701	NoData	NoData	0.01	60.71	0.02	60.71	0.09	60.78
12	302131	513701	0.28	60.61	0.39	60.70	0.53	60.84	0.74	61.05
13	302017	513758	NoData	NoData	0.01	60.44	0.03	60.46	0.19	60.62
14	302074	513758	NoData	NoData	0.02	60.89	0.02	60.90	0.12	61
15	302131	513758	0.22	60.95	0.29	61.04	0.34	61.09	0.59	61.34
16	302188	513758	0.89	60.95	0.80	61.06	0.87	61.13	1.10	61.35

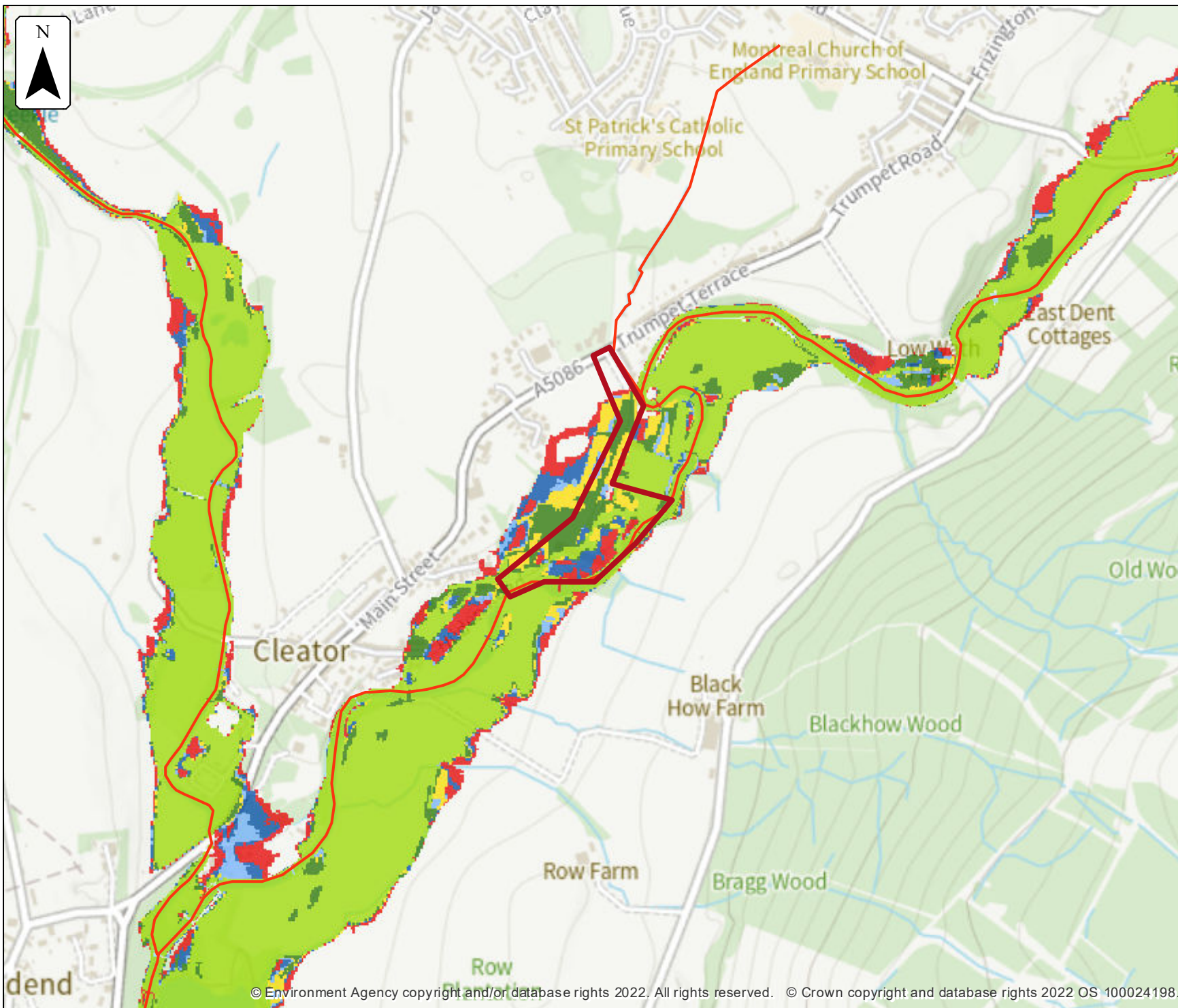
Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302017	513815	NoData	NoData	NoData	NoData	NoData	NoData	0.21	60.89
18	302074	513815	NoData	NoData	0.16	61.29	0.21	61.35	0.44	61.58
19	302074	513872	NoData	NoData	NoData	NoData	NoData	NoData	0.37	61.61
20	302074	513929	NoData	NoData	NoData	NoData	NoData	NoData	0.15	62.50
21	302131	513929	NoData	NoData	NoData	NoData	NoData	NoData	0.08	62.72
22	302074	513986	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302131	513986	0.15	63.95	0.67	64.00	0.69	64.03	0.81	64.14
24	302017	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
25	302074	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Ehen 2015 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defences removed modelled fluvial extent

Location (easting/northing)
302033/513757

Scale Created
1:10,000 29 Nov 2022

Model name
Ehen 2015

Selected area

Main river

Modelled flood extent

5% AEP

2% AEP

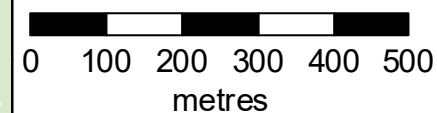
1.33% AEP

1% AEP

0.5% AEP

0.1% AEP

Flood extents may not be
visible where they overlap
other return periods





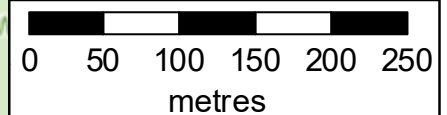
Defences removed modelled fluvial node locations

Location (easting/northing)
302033/513757

Scale Created
1:5,000 29 Nov 2022

Model name
Ehen 2015

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defences removed

Label	Modelled location ID	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1204241	301853	513572	58.27	82.59	58.36	90.04	58.42	95.58	58.45	98.62	58.52	107.69	58.74	142.23
2	1204324	301951	513609	58.91	97.19	58.99	110.76	59.04	120.69	59.06	125.92	59.08	140.34	59.22	194.81
3	1204006	302049	513627	59.51	97.31	59.63	111.40	59.73	121.99	59.77	127.55	59.85	142.42	60.16	201.0
4	1204731	302107	513695	60.06	97.23	60.24	110.98	60.37	121.06	60.43	126.27	60.55	140.36	61.0	193.56
5	1204197	302126	513995	63.65	67.76	63.71	70.90	63.74	73.53	63.76	75.13	63.79	79.92	63.92	97.29
6	1203893	302165	513964	63.24	68.69	63.37	71.02	63.44	72.75	63.47	73.63	63.54	75.78	63.75	86.33
7	1204604	302187	513777	60.45	96.51	60.63	109.95	60.75	120.01	60.81	125.21	60.95	139.14	61.32	192.85
8	1204603	302218	513848	61.0	95.76	61.22	106.94	61.37	115.06	61.44	119.09	61.61	129.31	62.19	164.86
9	1204634	302221	513857	61.69	95.76	61.83	106.94	61.93	115.06	61.97	119.09	62.08	129.31	62.46	164.86
10	1204329	302239	513961	62.16	95.33	62.29	104.34	62.39	109.63	62.44	111.99	62.57	118.0	63.03	135.65

Data in this table comes from the Ehen 2015 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



Defences removed modelled fluvial extent and height

Location (easting/northing)
302033/513757

Scale Created
1:2,500 29 Nov 2022

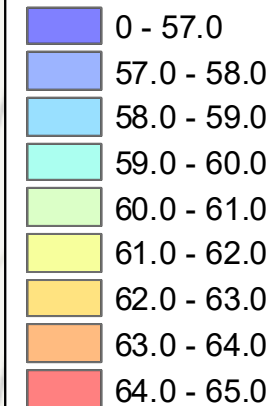
Model name
Ehen 2015

 Selected area

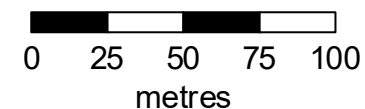
 Main river

Modelled 2D grid

Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

Defences removed

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301846	513587	0.33	58.23	0.43	58.34	0.47	58.39	0.49	58.41	0.55	58.47	0.75	58.67
2	301903	513587	0.26	58.57	0.32	58.63	0.36	58.67	0.38	58.70	0.44	58.75	0.60	58.92
3	302017	513587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301846	513644	NoData	NoData	NoData	NoData	0.04	58.65	0.06	58.68	0.13	58.76	0.41	59.04
5	301903	513644	NoData	NoData	0.03	58.70	0.07	58.75	0.12	58.79	0.19	58.87	0.38	59.06
6	301960	513644	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.01	59.42	0.02	59.44
7	302017	513644	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.08	59.89	0.21	60.02
8	302074	513644	2.26	59.65	2.40	59.79	2.50	59.89	2.55	59.94	2.65	60.04	2.99	60.38
9	301960	513701	NoData	NoData	0.10	59.97	0.16	60.03	0.19	60.06	0.26	60.13	0.41	60.28
10	302017	513701	0.05	60.19	0.06	60.21	0.07	60.22	0.07	60.22	0.10	60.26	0.35	60.52
11	302074	513701	NoData	NoData	NoData	NoData	NoData	NoData	0.01	60.70	0.01	60.70	0.04	60.76
12	302131	513701	NoData	NoData	NoData	NoData	0.08	60.38	0.13	60.44	0.23	60.56	0.67	61.00
13	302017	513758	NoData	NoData	0.03	60.44	0.08	60.49	0.11	60.52	0.15	60.57	0.25	60.66
14	302074	513758	NoData	NoData	NoData	NoData	0.03	60.86	0.03	60.87	0.04	60.88	0.11	60.96
15	302131	513758	0.21	60.94	0.25	60.98	0.28	61.01	0.29	61.03	0.33	61.07	0.51	61.24
16	302188	513758	0.34	60.40	0.52	60.58	0.64	60.70	0.70	60.76	0.83	60.89	1.22	61.28

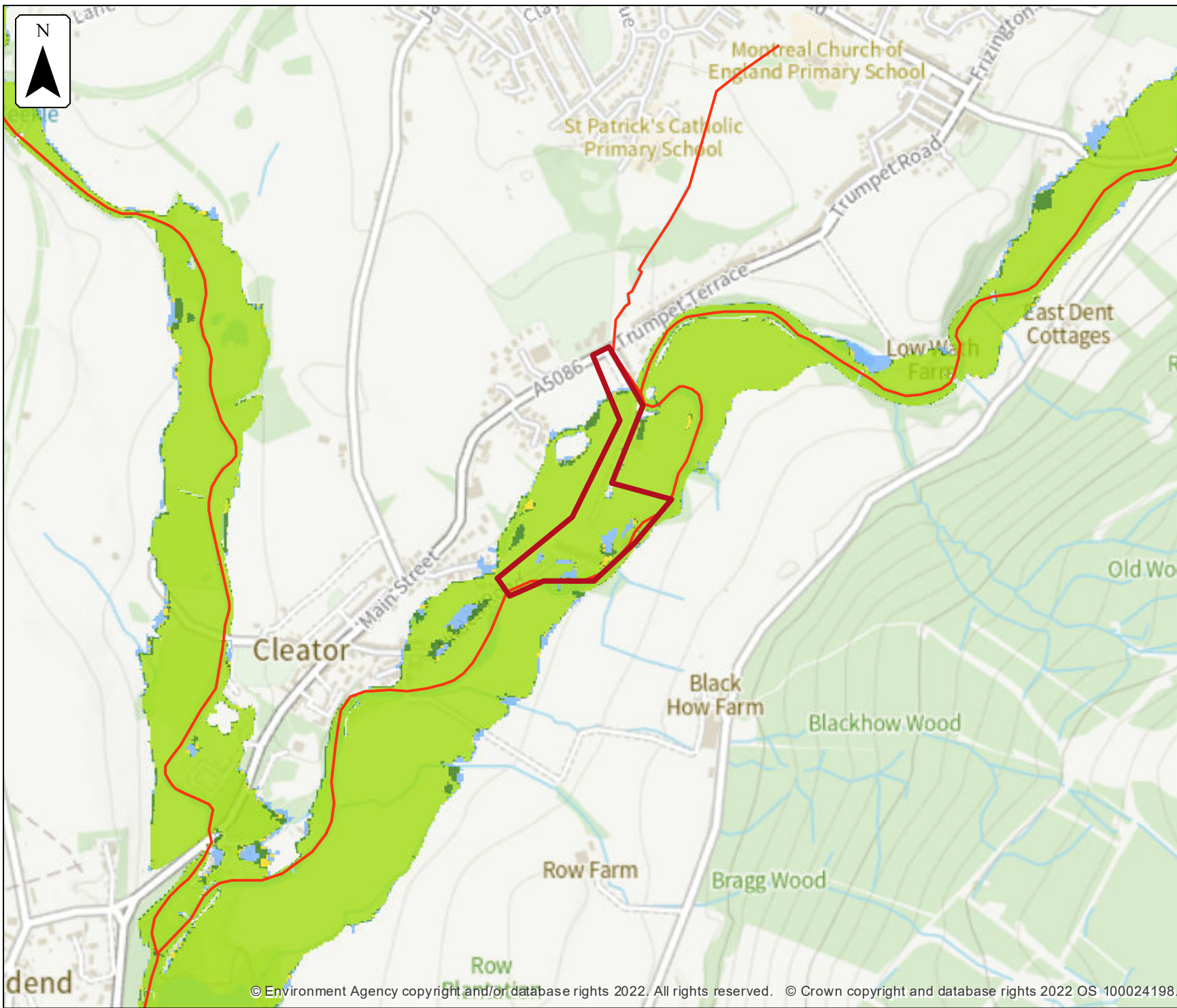
Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302017	513815	NoData	NoData	NoData	NoData	0.04	60.73	0.07	60.76	0.17	60.86	0.30	60.99
18	302074	513815	NoData	NoData	NoData	NoData	NoData	NoData	0.14	61.34	0.18	61.38	0.36	61.57
19	302074	513872	NoData	NoData	0.07	61.35	0.13	61.44	0.17	61.48	0.26	61.58	0.41	61.73
20	302074	513929	NoData	NoData	0.01	62.37	0.01	62.40	0.04	62.43	0.10	62.50	0.16	62.55
21	302131	513929	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.01	62.65	0.11	62.78
22	302074	513986	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302131	513986	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.01	63.70	0.06	63.86
24	302017	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
25	302074	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Ehen 2015 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



Defences removed climate change modelled fluvial extent

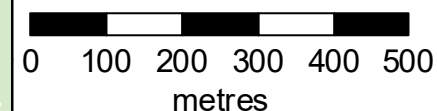
Location (easting/northing)
302033/513757

Scale Created
1:10,000 29 Nov 2022

Model name
Ehen 2015

- Selected area
- Main river
- Modelled flood extent
- 1.0% AEP (+20%)
- 1.0% AEP (+30%)
- 1.0% AEP (+35%)
- 1.0% AEP (+70%)

Flood extents may not be
visible where they overlap
other return periods





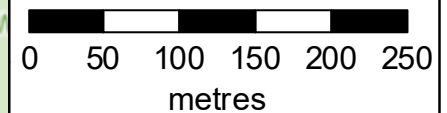
**Defences removed
climate change
modelled fluvial
node locations**

Location (easting/northing)
302033/513757

Scale Created
1:5,000 29 Nov 2022

Model name
Ehen 2015

-  Selected area
-  Modelled location
-  Main river



Modelled node locations data

Defences removed climate change

Label	Modelled location ID	Easting	Northing	1.0% AEP (+20%)		1.0% AEP (+30%)		1.0% AEP (+35%)		1.0% AEP (+70%)	
				Level	Flow	Level	Flow	Level	Flow	Level	Flow
1	1204241	301853	513572	58.54	110.41	58.61	117.99	58.63	121.31	58.75	143.44
2	1204324	301951	513609	59.09	144.55	59.11	156.65	59.12	161.61	59.23	196.85
3	1204006	302049	513627	59.88	146.85	59.96	159.58	59.98	164.80	60.17	203.36
4	1204731	302107	513695	60.56	144.74	60.66	156.33	60.69	161.19	61.01	195.68
5	1204197	302126	513995	63.80	81.06	63.84	84.09	63.85	85.81	63.93	98.02
6	1203893	302165	513964	63.56	76.12	63.62	77.18	63.63	77.91	63.76	86.71
7	1204604	302187	513777	60.98	143.26	61.09	154.87	61.13	159.58	61.33	195.01
8	1204603	302218	513848	61.66	132.38	61.79	140.77	61.84	144.40	62.21	165.95
9	1204634	302221	513857	62.11	132.38	62.19	140.77	62.22	144.40	62.48	165.95
10	1204329	302239	513961	62.61	119.51	62.71	123.68	62.76	125.08	63.05	136.17

Data in this table comes from the Ehen 2015 model.

Level values are shown in mAOD, and flow values are shown in cubic metres per second.

Any blank cells show where a particular scenario has not been modelled for this location.



Defences removed climate change modelled fluvial extent and height

Location (easting/northing)
302033/513757

Scale Created
1:2,500 29 Nov 2022

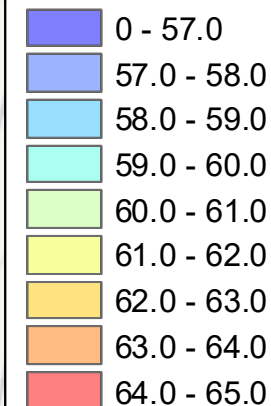
Model name
Ehen 2015

 Selected area

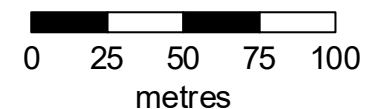
 Main river

Modelled 2D grid

Water level in mAOD



This map shows the
1.0% AEP +70% height data



Sample point data

Defences removed climate change

Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301846	513587	0.57	58.48	0.64	58.54	0.66	58.56	0.79	58.69
2	301903	513587	0.45	58.77	0.50	58.80	0.51	58.81	0.62	58.92
3	302017	513587	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
4	301846	513644	0.15	58.78	0.24	58.85	0.26	58.87	0.44	59.05
5	301903	513644	0.21	58.89	0.25	58.93	0.27	58.95	0.39	59.07
6	301960	513644	0.01	59.42	0.00	59.44	0.00	59.44	0.01	59.48
7	302017	513644	0.09	59.90	0.10	59.92	0.11	59.94	0.20	60.03
8	302074	513644	2.67	60.06	2.69	60.15	2.71	60.18	2.94	60.41
9	301960	513701	0.27	60.15	0.32	60.19	0.34	60.21	0.43	60.30
10	302017	513701	0.12	60.28	0.24	60.34	0.27	60.37	0.44	60.54
11	302074	513701	0.01	60.70	0.02	60.71	0.02	60.72	0.06	60.75
12	302131	513701	0.25	60.57	0.36	60.66	0.39	60.70	0.71	61.01
13	302017	513758	0.16	60.57	0.18	60.61	0.19	60.62	0.24	60.67
14	302074	513758	0.04	60.89	0.03	60.91	0.03	60.92	0.08	60.96
15	302131	513758	0.35	61.08	0.36	61.11	0.37	61.12	0.50	61.26
16	302188	513758	0.87	60.93	0.78	61.03	0.82	61.07	1.04	61.29

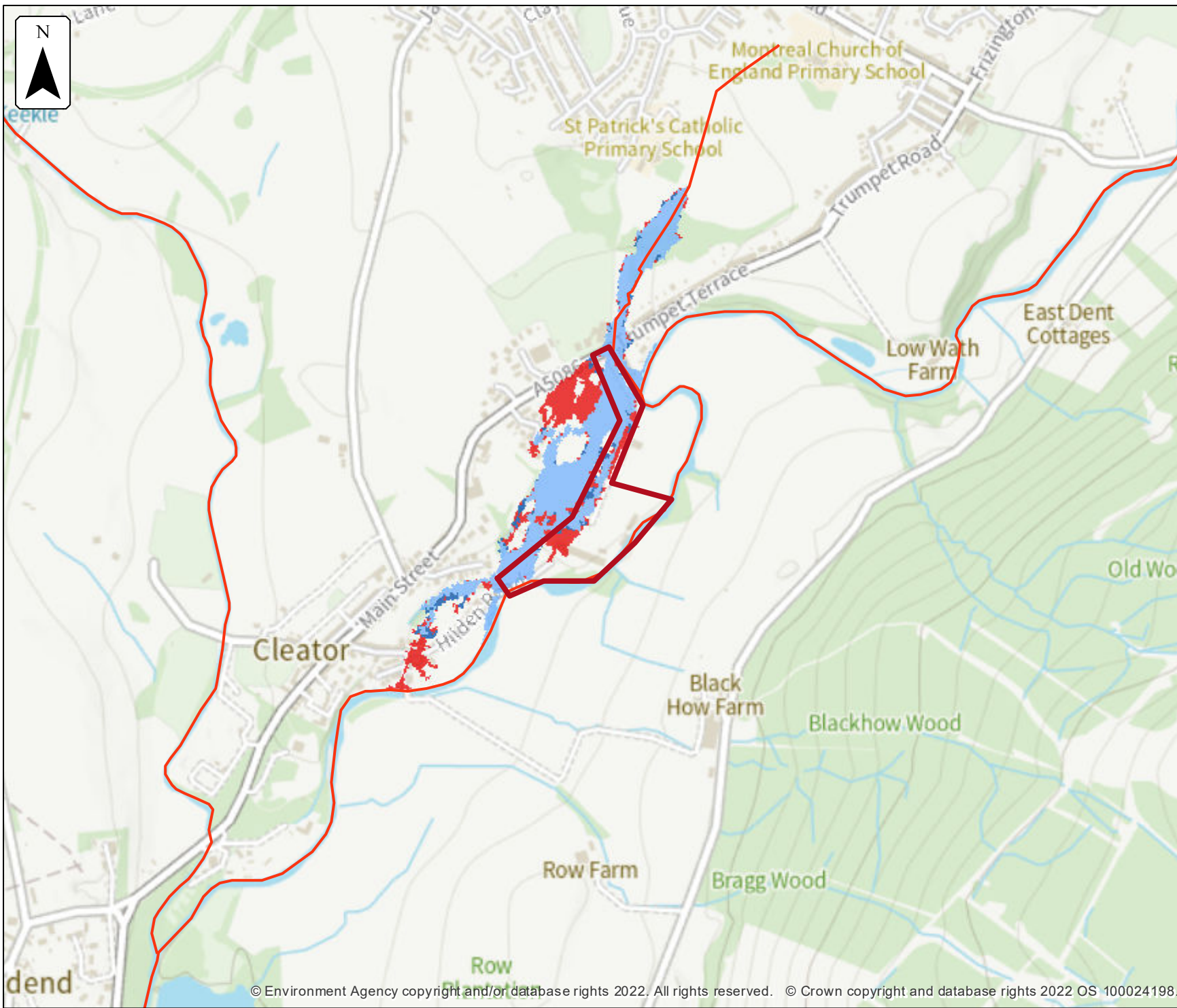
Label	Easting	Northing	1% AEP (+20%)		1% AEP (+30%)		1% AEP (+35%)		1% AEP (+70%)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302017	513815	0.18	60.88	0.23	60.91	0.25	60.93	0.30	60.99
18	302074	513815	0.20	61.41	0.33	61.46	0.34	61.48	0.46	61.59
19	302074	513872	0.28	61.59	0.41	61.65	0.42	61.66	0.50	61.74
20	302074	513929	0.11	62.51	0.18	62.53	0.19	62.54	0.21	62.56
21	302131	513929	0.01	62.66	0.05	62.69	0.06	62.70	0.14	62.78
22	302074	513986	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	302131	513986	0.01	63.71	0.42	63.76	0.43	63.77	0.53	63.87
24	302017	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
25	302074	514043	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Ehen 2015 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



**No defences exist
modelled fluvial extent**

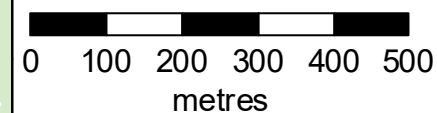
Location (easting/northing)
302033/513757

Scale Created
1:10,000 29 Nov 2022

Model name
Cleator Moor 2009

-  Selected area
-  Main river
- Modelled flood extent
 -  1% AEP
 -  0.5% AEP
 -  0.1% AEP

Flood extents may not be
visible where they overlap
other return periods





No defences exist modelled fluvial extent and height

Location (easting/northing)
302033/513757

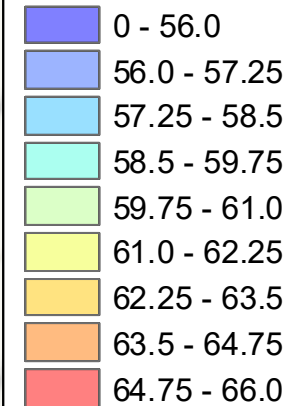
Scale Created
1:2,500 29 Nov 2022

Model name
Cleator Moor 2009

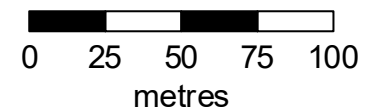
 Selected area

 Main river

Modelled 2D grid
Water level in mAOD



This map shows the
0.1% AEP height data



Sample point data

No defences exist

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	301846	513587							0.21	57.92	0.21	57.92	0.21	57.92
2	301903	513587							NoData	NoData	NoData	NoData	NoData	NoData
3	302017	513587							NoData	NoData	NoData	NoData	NoData	NoData
4	301846	513644							0.02	58.32	0.02	58.33	0.02	58.35
5	301903	513644							0.12	58.56	0.13	58.58	0.16	58.61
6	301960	513644							NoData	NoData	NoData	NoData	NoData	NoData
7	302017	513644							NoData	NoData	NoData	NoData	NoData	NoData
8	302074	513644							NoData	NoData	NoData	NoData	NoData	NoData
9	301960	513701							NoData	NoData	NoData	NoData	0.06	59.70
10	302017	513701							NoData	NoData	NoData	NoData	NoData	NoData
11	302074	513701							NoData	NoData	NoData	NoData	NoData	NoData
12	302131	513701							NoData	NoData	NoData	NoData	NoData	NoData
13	302017	513758							NoData	NoData	0.08	60.23	0.10	60.25
14	302074	513758							NoData	NoData	NoData	NoData	NoData	NoData
15	302131	513758							NoData	NoData	NoData	NoData	NoData	NoData
16	302188	513758							NoData	NoData	NoData	NoData	NoData	NoData

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	302017	513815							0.11	60.57	0.11	60.58	0.13	60.59
18	302074	513815							NoData	NoData	NoData	NoData	NoData	NoData
19	302074	513872							0.07	61.11	0.08	61.12	0.11	61.16
20	302074	513929							0.04	62.26	0.04	62.27	0.05	62.28
21	302131	513929							NoData	NoData	NoData	NoData	NoData	NoData
22	302074	513986							0.15	63.34	0.16	63.35	0.19	63.38
23	302131	513986							NoData	NoData	NoData	NoData	NoData	NoData
24	302017	514043							NoData	NoData	NoData	NoData	NoData	NoData
25	302074	514043							NoData	NoData	NoData	NoData	NoData	NoData

Data in this table comes from the Cleator Moor 2009 model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

Help and advice

Contact the Cumbria and Lancashire Environment Agency team at inforequests.cmblnc@environment-agency.gov.uk for:

- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for

Unda Consulting Ltd		Page 1																								
Southpoint Old Brighton Road Gatwick RH11 0PR	Cleator Mills 92276 Greenfield Runoff																									
Date 20/12/2022 File CELLULAR STORAGE SOAKAW...	Designed by AR Checked by EB																									
Innovyze	Source Control 2020.1.3																									
<u>ICP SUDS Mean Annual Flood</u> Input <table><tr><td>Return Period (years)</td><td>100</td><td>Soil</td><td>0.450</td></tr><tr><td>Area (ha)</td><td>0.643</td><td>Urban</td><td>0.000</td></tr><tr><td>SAAR (mm)</td><td>1145</td><td>Region Number</td><td>Region 10</td></tr></table> Results l/s <table><tr><td>QBAR Rural</td><td>5.0</td></tr><tr><td>QBAR Urban</td><td>5.0</td></tr><tr><td>Q100 years</td><td>10.4</td></tr><tr><td>Q1 year</td><td>4.4</td></tr><tr><td>Q30 years</td><td>8.5</td></tr><tr><td>Q100 years</td><td>10.4</td></tr></table>			Return Period (years)	100	Soil	0.450	Area (ha)	0.643	Urban	0.000	SAAR (mm)	1145	Region Number	Region 10	QBAR Rural	5.0	QBAR Urban	5.0	Q100 years	10.4	Q1 year	4.4	Q30 years	8.5	Q100 years	10.4
Return Period (years)	100	Soil	0.450																							
Area (ha)	0.643	Urban	0.000																							
SAAR (mm)	1145	Region Number	Region 10																							
QBAR Rural	5.0																									
QBAR Urban	5.0																									
Q100 years	10.4																									
Q1 year	4.4																									
Q30 years	8.5																									
Q100 years	10.4																									
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Southpoint Old Brighton Road Gatwick RH11 0PR		Cleator Mills 92276 Cellular Storage Soakaway			
Date 20/12/2022 File CELLULAR STORAGE SOAKAW...		Designed by AR Checked by EB			
Innovyze		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+50%)</u>					
Half Drain Time : 6 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.908	0.308	119.9	60.1	Flood Risk
30 min Summer	9.947	0.347	119.9	67.5	Flood Risk
60 min Summer	9.914	0.314	119.9	61.1	Flood Risk
120 min Summer	9.782	0.182	119.9	35.4	Flood Risk
180 min Summer	9.684	0.084	119.9	16.5	O K
240 min Summer	9.648	0.048	115.7	9.3	O K
360 min Summer	9.637	0.037	89.3	7.2	O K
480 min Summer	9.631	0.031	73.8	5.9	O K
600 min Summer	9.626	0.026	63.0	5.1	O K
720 min Summer	9.623	0.023	55.8	4.5	O K
960 min Summer	9.619	0.019	45.0	3.7	O K
1440 min Summer	9.614	0.014	34.2	2.7	O K
2160 min Summer	9.611	0.011	25.8	2.1	O K
2880 min Summer	9.609	0.009	21.0	1.7	O K
4320 min Summer	9.607	0.007	16.2	1.3	O K
5760 min Summer	9.606	0.006	13.8	1.2	O K
7200 min Summer	9.605	0.005	11.4	1.0	O K
8640 min Summer	9.604	0.004	10.2	0.9	O K
10080 min Summer	9.604	0.004	9.0	0.8	O K
15 min Winter	9.957	0.357	119.9	69.4	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	111.474	0.0	13		
30 min Summer	79.335	0.0	21		
60 min Summer	54.122	0.0	38		
120 min Summer	35.605	0.0	68		
180 min Summer	27.329	0.0	96		
240 min Summer	22.429	0.0	124		
360 min Summer	16.991	0.0	184		
480 min Summer	13.921	0.0	242		
600 min Summer	11.911	0.0	302		
720 min Summer	10.478	0.0	362		
960 min Summer	8.546	0.0	478		
1440 min Summer	6.392	0.0	712		
2160 min Summer	4.764	0.0	1088		
2880 min Summer	3.858	0.0	1416		
4320 min Summer	2.876	0.0	2160		
5760 min Summer	2.336	0.0	2872		
7200 min Summer	1.989	0.0	3664		
8640 min Summer	1.747	0.0	4280		
10080 min Summer	1.566	0.0	5088		
15 min Winter	111.474	0.0	14		
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Southpoint Old Brighton Road Gatwick RH11 0PR		Cleator Mills 92276 Cellular Storage Soakaway			
Date 20/12/2022 File CELLULAR STORAGE SOAKAW...		Designed by AR Checked by EB			
Innovyze		Source Control 2020.1.3			
<u>Summary of Results for 100 year Return Period (+50%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	9.980	0.380	119.9	74.0	Flood Risk
60 min Winter	9.891	0.291	119.9	56.7	Flood Risk
120 min Winter	9.685	0.085	119.9	16.6	O K
180 min Winter	9.643	0.043	103.7	8.4	O K
240 min Winter	9.636	0.036	85.7	6.9	O K
360 min Winter	9.627	0.027	65.4	5.3	O K
480 min Winter	9.622	0.022	53.4	4.3	O K
600 min Winter	9.619	0.019	46.2	3.7	O K
720 min Winter	9.617	0.017	40.2	3.3	O K
960 min Winter	9.614	0.014	33.0	2.7	O K
1440 min Winter	9.610	0.010	24.6	2.0	O K
2160 min Winter	9.608	0.008	18.6	1.5	O K
2880 min Winter	9.606	0.006	15.0	1.3	O K
4320 min Winter	9.605	0.005	11.4	0.9	O K
5760 min Winter	9.604	0.004	10.2	0.9	O K
7200 min Winter	9.604	0.004	9.0	0.8	O K
8640 min Winter	9.603	0.003	7.8	0.7	O K
10080 min Winter	9.603	0.003	6.6	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	79.335	0.0	23		
60 min Winter	54.122	0.0	40		
120 min Winter	35.605	0.0	68		
180 min Winter	27.329	0.0	94		
240 min Winter	22.429	0.0	122		
360 min Winter	16.991	0.0	184		
480 min Winter	13.921	0.0	244		
600 min Winter	11.911	0.0	302		
720 min Winter	10.478	0.0	360		
960 min Winter	8.546	0.0	476		
1440 min Winter	6.392	0.0	726		
2160 min Winter	4.764	0.0	1084		
2880 min Winter	3.858	0.0	1436		
4320 min Winter	2.876	0.0	2356		
5760 min Winter	2.336	0.0	2896		
7200 min Winter	1.989	0.0	3624		
8640 min Winter	1.747	0.0	3992		
10080 min Winter	1.566	0.0	4832		
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Unda Consulting Ltd		Page 3
Southpoint Old Brighton Road Gatwick RH11 0PR	Cleator Mills 92276 Cellular Storage Soakaway	
Date 20/12/2022 File CELLULAR STORAGE SOAKAW...	Designed by AR Checked by EB	
Innovyze Source Control 2020.1.3		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	17.900	Shortest Storm (mins)	15
Ratio R	0.253	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+50

Time Area Diagram

Total Area (ha) 0.643

Time (mins)		Area
From:	To:	(ha)
0	4	0.643

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Southpoint Old Brighton Road Gatwick RH11 0PR	Cleator Mills 92276 Cellular Storage Soakaway	
Date 20/12/2022	Designed by AR	
File CELLULAR STORAGE SOAKAW...	Checked by EB	
Innovyze		Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 10.000

Cellular Storage Structure

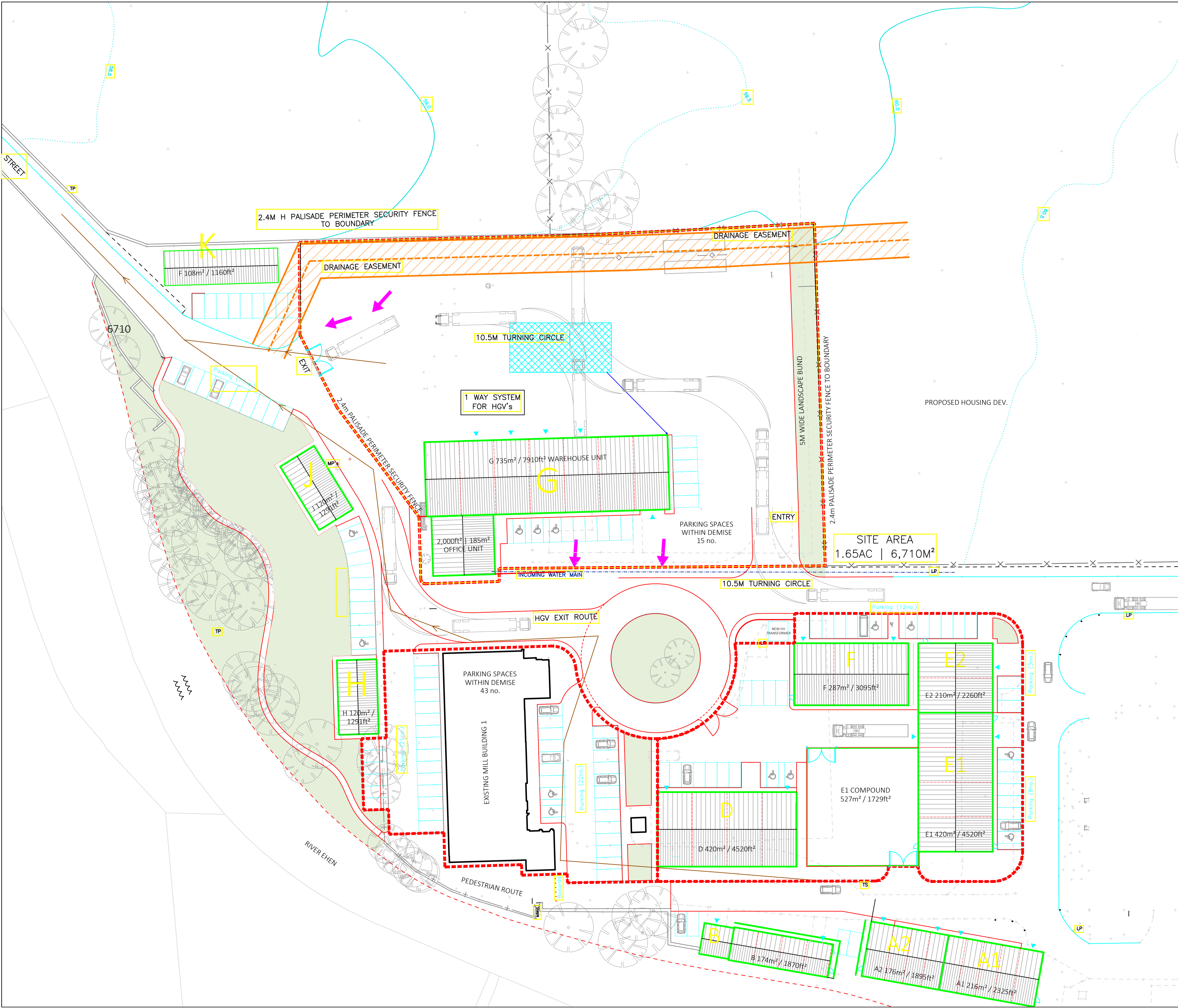
Invert Level (m) 9.600 Safety Factor 2.0

Infiltration Coefficient Base (m/hr) 4.21200 Porosity 0.95

Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	205.0	205.0	0.400	205.0	205.0

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- Notes:**
- Discharge of surface water via a cellular storage soakaway. Preliminary calculations indicate that sufficient storage required to attenuate runoff arising from the proposed increase in impermeable areas, during the critical 1 in 100 year + 50% Climate Change event, can be provided within cellular storage soakaway of dimensions 205m² x 0.4m deep x 0.95 (voids).

- Legend**
- Proposed Cellular Storage Soakaway
 - Proposed Surface Water Pipework
 - Proposed Surface Water Downpipe
 - Design Exceedance Route



Unda Consulting Ltd
Southpoint
Old Brighton Road
Gatwick
RH11 0PR

Tel: 01293 214444
Email: info@unda.co.uk
Web: www.unda.co.uk

Client:
Cleator Mills Business Park Limited

Site Address:
Cleator Mills
Cleator
Whitehaven
CA23 3DJ

Job Reference:
92276-ManningElliott-CleatorMills

Date:
20-Dec-22

Drawing Number:
92276-01

Revision:
v1

Designed by: AR	Drawn by: AR	Checked by: EB
---------------------------	------------------------	--------------------------

Scale: 1:500@A2	Disclaimer: The drawings provided are for planning purposes only.
---------------------------	---

Cleator Mills Percolation Test – FAO Mark Walker

Trail Pit 1

Removed Prior

TYPE 1
6F2

Removed Prior

TYPE 1
6F2 – 300mm Removed prior to works.
300mm made ground/general fill/subbase/sandstone.

Total Depth – 1.6m

Hole – 800mm deep 600x600mm

Sandy Gravel/Clays/Roots – 400mm

Course Gravels/Sharp Sands – 400mm

600mm

Results

Test 1 Friday 2nd December 2022 @ 14.00hrs;

- 100% Drain time = 3m40s
- 75% Drain to 25% = 2m20s

Test 2 Saturday 3rd December 2022 @ 14.00hrs;

- 100% Drain Time = 3m50s
- 75% Drain to 25% = 2m00s

Test 3 Sunday 4th December 2022 @ 14.00hrs,

- 100% Drain Time = 4m15s
- 75% Drain to 25% = 1m50s



Trail Pit 2

Removed Prior

TYPE 1
6F2/Road Planings
800mm

Removed Prior

TYPE 1
Mixed Fill/Made Ground – 300mm
Course Shingle/Stone – 350mm
Sandy Gravel/Clays/Roots – 400mm
Course Dense Sands/Gravel – 400mm

1000m

Results

Test 1 Friday 2nd December 2022 @ 15.00hrs;

- 100% Drain Time = 3m12s
- 75% Drain to 25% = 1m40s

Test 2 Saturday 3rd December 2022 @ 15.00hrs;

- 100% Drain Time = 3m20s
- 75% Drain to 25% = 1m45s

Test 3 Sunday 4th December 2022 @ 15.00hrs;

- 100% Drain Time = 3m15s
- 75% Drain to 25% = 1m50s



North Associates
The Slack
Wigton
Cumbria
CA7 0LX

PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT
for
CLEATOR MILLS
CLEATOR
CUMBRIA
CA23 3DU



ELLIOTT
Environmental Surveyors

Prepared by:
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Tel: 01434 609345
Fax: 01434 609344

Project No: EES13-061
18 June 2013

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3.0 SITE BRIEFING	3
4.0 ENVIRONMENTAL SETTING	4
5.0 HISTORICAL REVIEW	6
6.0 POTENTIAL CONTAMINATION SCHEDULE	7
7.0 ENVIRONMENTAL HAZARD SCHEDULE	9
8.0 ENVIRONMENTAL RISK ASSESSMENT AND CONCEPTUAL SITE MODEL	10
9.0 CONCLUSIONS AND RECOMMENDATIONS	11

APPENDICES

APPENDIX 1 – Site Location

APPENDIX 2 – Site Layout Plans

APPENDIX 3 – Photographs

APPENDIX 4 – Envirocheck Report

APPENDIX 5 – Coal Mining Report

APPENDIX 6 – Preliminary Conceptual Site Model

1.0 INTRODUCTION

This report has been prepared on the instructions of Mr A Ross of North Associates, Wigton, prior to an application for planning permission to carry out demolition work and redevelopment at the old Kangol Factory site at Cleator Mills, Cleator, Cumbria.

The aim of this report is to provide an understanding of the environmental status of the site, on a preliminary basis, as well as for the planned redevelopment of the site.

This report addresses the potential environmental aspects concerning the potential for contaminated land set out in the National Planning Policy Framework and the Contaminated Land Regime in Part 2A of the Environmental Protection Act 1990. The approach has been for environmental hazards to be identified, and the environmental risks arising from these hazards to be assessed in the context of the redevelopment. Consideration has also been given to Council concerns raised, as well as potential liabilities under the Environmental Damage Regulations 2009.

The report begins by providing a description of the site based on the findings of a site walkover inspection. The findings of the desk top study are then described, which include identification of natural environmental hazards and potential natural sensitive features such as water courses and groundwater.

A review of the historical uses together with contaminative land use information is used to build up a list of potential contaminants and other environmental hazards which may be present. This information has been used to build up a summary or schedule of environmental hazards relating to the site, expressed in terms of sources, pathways and receptors. A preliminary environmental risk assessment has been carried out using the source-pathway-receptor model, to categorise the site in terms of its likely environmental risk and to enable a Conceptual Site Model to be generated. This draws together the known facts from the survey and assessment and identifies the main environmental constraints of the site.

Conclusions are made about the environmental status of the site.

2.0 LIMITATIONS OF THE REPORT

The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted industry practices. The report takes into consideration potential sources, pathways, receptors and evaluates potential pollutant linkages. Elliott Environmental Surveyors Ltd (EES) professional interpretation relies solely on the information made available by the Client, other background data and the desk top investigation which is stated in the report and the implications of the findings on the proposed use of the site.

Every care has been taken to ensure that the interpretation of the site condition is based on all known data collected and as such is not a guarantee that the site is free of unidentified hazardous or potentially hazardous materials.

EES prepared this report for our Client. Any third party using this report does so entirely at his or her own risk. EES makes no warranty or representation whatsoever, express or implied, with respect to the use by a third party of any information contained in this report or its suitability for any purpose. EES assumes no responsibility for any costs, claims, damages or expenses (including any consequential damages) resulting from use of this report or any information contained in this report by a third party.

APPROVED BY	T ELLIOTT	SIGNED		DATE	18 June 2013
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3.0 SITE BRIEFING

The site is located to the east of Cleator, about 300m to the south of Cleator Moor, and immediately to the west of the Lake District National Park, as shown at Appendix 1.

The study site extends to just over 8ha, lying within the floodplain of River Ehen, with the river forming the eastern to southern boundary, and with housing to the west and north.

The southern section consists of derelict buildings, having most recently been a Kangol hat factory. The buildings were built between the early 19th Century and the 1960s, the original building having been a linen mill with an associated mill race which ran through the site from the river in the north northeast, rejoining it in the southwest. The western and northern sections are greenfield and the eastern section is another formerly derelict factory, currently owned by Gates.

A walkover inspection survey was carried out on the site on 4 June 2013, with photographs shown at Appendix 3. The eastern factory buildings were not accessible.

The main areas of potential concern are the old factory buildings and associated structures and discharges.

3.1 Site Walkover Inspection

The industrial sections of the site lie along the river, having been constructed to the south, then the east, of the site.

All the older buildings are derelict, and those that could be examined internally were found to be in poor condition, with obvious signs of vandalism and weather damage, and with widespread asbestos containing materials confirmed, including significant quantities that had been damaged (photos 6 and 7).

There are no visual signs of the old mill race that used to run through the site, although its pathway through the mill building is obvious (photo 4).

Some old machinery and equipment is still present in the buildings from the Kangol hat factory (photos 8 to 10).

Whilst any remains of the old gasometer are not visible, and thought to be below the tarmacadam to the north of the older buildings, the later oil tanks are still present, along with the boiler house and chimney (photo 5), located to the east of the mill buildings, fairly close to the river.

The Gates factory to the northeast of the main site is in a partially demolished state (photo 15). The external boiler house and a water tank (photo 14) are located near the river, and an outlet pipe was noted to the river slightly further down-gradient (photo 13).

The rest of the site is Greenfield, with some horse grazing and mature trees.

A stand of Japanese knotweed was noted in one location during the walkover survey.

3.2 Environmental Issues Arising

The potential for contaminants currently on site to migrate, leach or run-off to River Ehen, which is a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC), during disturbance caused by demolition or construction work is of considerable concern due to its proximity and status.

The presence of Japanese knotweed, and any other invasive weeds, should be investigated as a priority for elimination to be planned.

3.3 Development Proposals

At this stage details of the proposed development are uncertain. However, it is assumed that the development will include residential properties, and this assessment has been made on this basis.

4.0 ENVIRONMENTAL SETTING

In order to identify current land uses and natural or man-made hazards which may pose a risk to the site, and to understand the potential impacts of any contaminants from the site on the surrounding environment, desk study research has been carried out. This comprised a study of an Envirocheck report, which is included as Appendix 4, together with a Coal Mining Assessment, included at Appendix 5, and other available information.

4.1 Surface Water

The nearest watercourse is River Ehen, which meanders in a generally southwesterly direction, including immediately adjacent to the eastern to southern section of the site. River quality has been found to be classed a Quality A in the past.

In addition, a small water course issues in the southern end of the western boundary, then flow south towards the Ehen, shown as sinking or being culverted before reaching the river. Another small watercourse is shown flowing southwestwards before sinking or being culverted 75m from the northern end of the site. Further small watercourses are shown running into the far side of the Ehen, to the east of the site.

The chemical status of the surface water in the area is not assessed by the EA, and there are no plans to do so by 2015.

The only recorded surface water abstraction within 1km is from the river, 560m upstream of the site, for aquaculture.

4.2 Flood Risk

The EA consider the site to be at significant risk from extreme flooding, all but the far northern section having a one in 75 chance of a flood (1.3%) in any year. This assessment apparently takes into account the existing flood defences along the river bank to the northeast of the site. The far north of the site is considered to be at lower risk of flooding.

The majority of the site is also considered by the EA to be at risk from flooding from Ennerdale Water, 7km to the northeast.

4.3 Geology

The geology of the area can have a significant effect on the migration of any potential contaminants, both off and on to the site.

The site lies in an area of Buttermere Foundation mudstone and sandstone deposits, overlain with alluvium.

4.4 Hydrogeology

Hydrogeology is the study of groundwater movement, which can be important in relation to the migration of potential contaminants especially if there are drinking water sources in the vicinity of the site.

The site lies within an area where the underlying bedrock is classed as a Secondary B aquifer, but overlain with more permeable superficial deposits which are classed as Secondary A, except for the far north of the site where the deposits are unproductive. Only soils in the southeastern half of the site have been classified, and these are shown as being of intermediate permeability.

The site does not lie within a source protection zone, and there are no recorded abstractions in the area.

The EA do not consider the groundwater in this area to be at risk.

4.5 Geological and Ground Working Hazards

Information in the Envirocheck report indicates that hazards due to natural ground conditions are considered to be negligible to very low across the site, with the exception of the northern section which is low risk from ground instability caused by running sand, and moderate risk from landslides.

The site is shown to be at variable risk from radon, with the northwestern section at greatest risk, with 10 to 30% of houses above the action level, and requiring full protective measures during the development. Elsewhere on site the risks are considered to be much lower, with no protection required.

The Envirocheck report indicates that the site is within an area recognised as being at risk due to coal mining. However, the Coal Authority indicative map viewer indicates that whilst it is in a Coal Mining Reporting Area, there are no specific risks.

A Coal Mining Search Report obtained for the site, and shown at Appendix 5, confirms that there are no risks from coal mining, past, present or potential. In producing this report, David Bellis Consulting Surveyors Ltd were requested to examine the records and mapping for iron working now held by the Coal Authority.

The only information available indicated that there are possible pre-1922 ironstone workings in the vicinity of the site.

The Envirocheck report indicates iron ore to have been mined at locations at least 260m to the west and 370m to the north, at Cleator Iron Ore Mine, although no

further information is shown. There are records of cavities formed due to iron ore mining, but none are indicated within 400m of the site.

Limestone and sandstone have been quarried, but not within almost 600m of the site.

Estimates of the background levels of common metals within soils made by the BGS indicate that arsenic, cadmium, chromium, lead and nickel are not considered to be elevated in the area. However, it should be noted that these figures are estimates of background levels, and may not be reflected within soils on site.

4.6 Hydrological, Pollution, Waste Disposal and Industry Information

Whilst there have been consents to discharge cooling water from the Kangol factory and Cross Paperware on site, to the southwest and southeast, these were both revoked in the 1990s. There are current consents for United Utilities to discharge storm sewage overflow to the river, the closest being immediately to the north of site.

The owners of the Kangol factory were found guilty in 2006 of burning controlled waste on site, which included asbestos, and they were fined £22,500.

The only recorded landfill or waste site within 500m of the site is a landfill site undergoing closure at Jacktrees Road, 350m to the west, and is recorded as having a very good compliance score.

4.7 Surrounding uses

The site has no active industrial or commercial companies, with the factories having been closed in the late 2010s.

There are no other recorded trades within 500m of the site.

4.8 Environmental Designations

River Ehen is designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC), with the Lake District, extending to the far side of the river, being an Environmentally Sensitive Area.

The 24ha River Ehen SAC consists of 90% running and standing water, and the designation relates primarily to the presence of freshwater pearl mussels, with Atlantic salmon also found.

5.0 HISTORICAL REVIEW

A review of the history of the site and surrounding area has been carried out using information within the Envirocheck report and other available maps and information.

Site

A mill was built on the site in the early 19th Century, for the production of linen thread. The earliest maps, from 1867, indicate the flax mill (Cleator Mill) in the far south of the site, fed with water via a sluice into a mill race, running from just upstream of a weir in the river, in the northeast, straight across the site to the mill, discharging to the river to the southwest of the site. Housing is shown in the far southwest of the site, along with access to the site via Mill Street in the southwest.

Maps during the latter part of the 19th Century show the mill to have been extended and altered in some parts, and with a school shown near the houses. A gasometer clearly indicated on the 1899 map in the eastern section of the mill can also be seen on the earlier maps. The rest of the site is shown as agricultural with small areas of woodland.

The 1925 map no longer indicates the gasometer, although a tank is shown nearby and a crane in the far southeast, but with few other changes through the first half of the 20th Century. The mill race is shown as being disused by 1956, and is no longer shown by 1962.

Mapping from the early 1960s shows the mill as factories, with some changes to the layout, and with a further larger building to its northeast, also shown as a factory, and all still accessed from the southwest. The housing and school are shown to have been demolished by 1979.

The Gates factory in the east of the site is reported as being used by Cross Paperware for 24 years during the latter part of the 20th Century, producing paper and plastic disposable crockery.

The 1991 map shows an access road from the northern end of the site, and where the mill race had been. Few other changes have been shown since other than the removal of some of the smaller structures between the two factories. Hat production at the Kangol factory ceased in 2009, with the site used as a warehouse.

Surrounding area

The earliest maps show the area to be largely agricultural, but with iron ore, and to a lesser extent, coal mining, having taken place since the 1840s, indicated on maps to be to the north to west of the site. The Floss, to the west of the site, was built in 1800 for the original mill owner, Henry Birtley, and owned by the Ainsworths from the 1830s, having gardens extending to the western boundary of the site. Cleator is shown to the southwest.

Housing and a church is shown immediately to the north of the site by 1899.

No significant changes are shown since, although further housing is shown to the southwest, by 1956, along Mill Street (which was renamed Hilden Road by 1962) and with more housing shown in the area by 1994. Further housing is shown beyond the western boundary by 2006.

6.0 POTENTIAL CONTAMINANTS

Given the past use of the site, a wide range of residues of hydrocarbons, including fuels and oils could be present, as could contaminants such as tars from the small gas works that was on site until the early 20th Century. Additional contaminants from the presence of a gas works include cyanides, sulphur compounds, phenols, heavy metals and spent oxide.

Potential contaminants from the original mill also include dyes, as well as metals, solvents, soaps and detergents.

The later production of hats on site by Kangol also introduces the possibility of elevated levels of mercury being present.

A wide range of potential contaminants are possibly present due to the production of paper and plastic products, including metals, sulphur compounds, acids, alkalis, solvents, hydrocarbons and other organic compounds, although the factory is relatively recent and would have more controls in place than the earlier activities on site.

Whilst there is no obvious indication of landfilling on site, it is possible that waste materials have been buried on site. The nature of the infilling of the mill race is unknown. It is possible that ground gases are present as a result of breakdown of organic wastes.

Ash from the earlier boilers could have been distributed on site. It is possible that at least one electrical substation has been present on site, and that oils and polychlorinated biphenyls (PCBs) could be present as a result.

Asbestos containing materials are known to be present on site, with extensive damage to the buildings likely to have resulted in it being more widespread than previously.

Discharges from both the mill site and the later factory are known to have run to the river, to the south and east, respectively. The state of these is unknown, and there may be residues present as a result of incomplete decommissioning.

7.0 ENVIRONMENTAL HAZARD SCHEDULE

Using the information gathered as a result of the site inspection, desk study and other available information, it is now possible to produce an assessment of the environmental hazards related to the site.

ITEM	ASPECT OF MODEL	VALID ?	EXPLANATION
Contaminants from on site sources – asbestos	Source	Yes	It is known that asbestos containing materials are present on site, and that further assessment, removal and mitigation measures will be needed.
Contaminants from on site sources – other	Source	Yes	A wide range of contaminants are potentially present on site, particularly in the southern section.
Contaminants from off site sources	Source	No	There is no indication of off-site sources
Dermal contact / ingestion of soil / water	Pathway	Yes	These pathways exist and will increase considerably as a result of demolition and decommissioning works, when underlying soils (and possibly groundwater) will be exposed, together, possibly with old structures.
Inhalation of vapours / gases	Pathway	Yes	This pathway exists due to the use of fuels and solvents, mercury and possibly landfilling or alluvial deposits.
Inhalation of dust	Pathway	Yes	Construction workers, neighbours and future users could potentially be at risk via this pathway unless all asbestos containing materials are adequately removed from site.
Vegetable uptake	Pathway	Yes	The development is likely to include garden areas.
Migration / leaching	Pathway	Yes	Migration and leaching could occur if not controlled, with permeable soils and underlying strata noted.
Run-off	Pathway	Yes	Run-off could occur during site works.
Migration through drains / services	Pathway	Yes	Drainage networks and service runs can provide pathways for contaminants to migrate, with the river a potential receptor of particular concern.
Water supply	Pathway / receptor	Yes	Investigation may be needed to assess the risks and any mitigation measures required. The water supply company should be consulted.
Construction workers	Receptor	Yes	Construction workers will be at risk during site demolition work, notably during asbestos removal, and removal of above and below ground structures.
Future users	Receptor	Yes	Future users, particularly residential, could be at risk unless site clearance is carried out thoroughly.
Neighbours	Receptor	No	There are no neighbours close to the site.
Surface water	Receptor	Yes	Surface water lies immediately adjacent to the site, close to the industrial buildings.
Perched water	Receptor	No	Perched water is not likely to be present due to the fairly permeable nature of the underlying soils and strata.
Superficial Aquifer	Receptor	Yes	The site is underlain by a Secondary A aquifer in the superficial deposits, with no overlying protection likely below the current surfacing. Groundwater is likely to be in continuum with the surface water in this location.
Bedrock Aquifer	Receptor	Yes	Groundwater is more likely to be in continuum with the surface water than with the underlying aquifer.
Sensitive environmental receptors	Receptor	Yes	The site lies adjacent to an SAC, the River Ehen, which therefore is a particularly sensitive receptor.

8.0 ENVIRONMENTAL RISK ASSESSMENT AND CONCEPTUAL SITE MODEL

Using information gathered in the desk top study, it is now possible to summarise the environmental hazards related to this site. These hazards are considered in terms of sources, pathways and receptors which can be used for carrying out risk assessments. In this model, the **source** is normally a contaminant or pollutant, with the **pathway** a route for a contaminant to move within the environment towards a receptor. A **receptor** can be a natural feature such as a river, groundwater or may include humans. The validity of each aspect, based on current information available, is then given together with a justification.

8.1 Environmental Regulations & Risk Ratings

This approach is in accordance with the Environmental Protection Act Part IIA, which state that a site is, or is not, contaminated depending on:-

- the risk of significant (or significant possibility of) harm being caused to various defined receptors.
- and/or risk of significant pollution (or significant possibility of) to controlled water.

Therefore the stated risk values also relate to the likelihood of the site being described as contaminated.

Rating	Explanation
Very high risk	There is a high probability that severe harm could arise to a given receptor from an identified hazard without appropriate risk management measures. There may already be evidence of an impact occurring or a high probability that the risk may be acute in nature.
High risk	Harm is likely to arise to a given receptor from an identified hazard at the site without appropriate risk management measures.
Medium risk	It is possible that without appropriate remedial action harm could arise to a given receptor but it is relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely that such harm would be relatively mild.
Low risk	It is possible that harm could arise to a given receptor from an identified hazard, but it is likely that at worst, that this harm if realised would normally be mild.
Very low risk	The presence of an identified hazard does not give rise to the potential to cause significant harm to a designated receptor.

8.2 Pollution Linkage Appraisal and Conceptual Site Model

A Pollution Linkage Appraisal has been produced showing only the items where linkage has been shown to exist or where there is incomplete information at this stage.

Potential sources on-site could be present on the industrial areas in the south and east, with a wide range of potential contaminants, including asbestos. Whilst the asbestos is not a risk to the environment, the other potential contaminants pose risks to both human receptors and the environment.

The following table indicates the potential outstanding risks. These are also shown graphically in Appendix 5.

Source	Pathway	Target	Risk Rating	Justification and requirements for additional information
Contaminants from on site sources	Dermal contact / ingestion of soil / water. Migration and inhalation of vapours / dusts / gases	Construction workers	High	At this stage, risks to construction workers have been assessed as being high due to the uncertainties on site. A pre-demolition asbestos survey, and site clearance and investigation will be required before the current risks can be fully assessed.
	Dermal contact / ingestion of soil / water / uptake via home grown vegetables. Migration and inhalation of vapours / gases	Future users	Medium to high	Details of the future development are not known at this stage, but are assumed to include residential use with gardens. At this stage, all risks to future users have been assessed as being medium to high due to the unknown underlying ground conditions and the potential for contamination to have occurred. Site clearance and investigation will be required before the potential risks can be fully assessed.
	Water supply pipes		Medium to high	Site investigation will be required as a minimum before the risks can be assessed. The utility company may require water pipe risk assessments to be carried out for adoption of new water supply pipes.
	Run-off / migration / leaching, including via drains / services	Surface water	High	The risks to the adjoining surface water have been assessed as being high during the decommissioning and demolition works mainly due to its proximity, but also the nature of the potential contaminants on site. The risks to surface water are linked strongly with risks to sensitive receptors, with the SAC designation.
		Sensitive receptors		
	Migration / leaching	Superficial aquifer	Medium to high	The underlying superficial aquifer is potentially at risk, notably during the decommissioning works. It is likely to be in continuum with the river. Further information is required regarding the ground conditions, hydrogeology, hydrology and contamination status.
		Bedrock aquifer	Medium	The underlying bedrock aquifer is potentially at risk, notably during decommissioning works. Further information is required regarding the ground conditions, hydrogeology and contamination status.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The historical industrial use of the southern, and to a lesser extent the eastern, sections of the site may have resulted in pockets of contaminants being present under the buildings or hard standing, or within old underground structures.

Aspects that will have to be considered include:

- fuel residues, from petroleum compounds to gas works residues, primarily across the southeastern section;
- old, trapped, residues from up to 200 years of site use in some locations;
- landfilled or dumped ash, gas works waste and general waste materials;
- it is not known how the mill race was infilled;
- asbestos fibres could be present within waste;
- given the proximity and nature of the river in this location, there could be organic alluvial deposits on site that have the potential to produce ground gases on decomposition;
- residues in drains and pipes are likely to be still present, and possibly capable of discharging to the river;
- iron ore mining is not thought to be of concern in this area, but the available information could be incomplete.

The most sensitive potential environmental receptor is the river, with its SAC status, which is due to the high quality of the water and presence of freshwater pearl mussels (as well as Atlantic salmon).

Construction workers are potentially at risk from asbestos fibres, a wide range of soil and, possibly water, organic and inorganic contaminants, volatile fuel vapours, ground gases and mercury vapours.

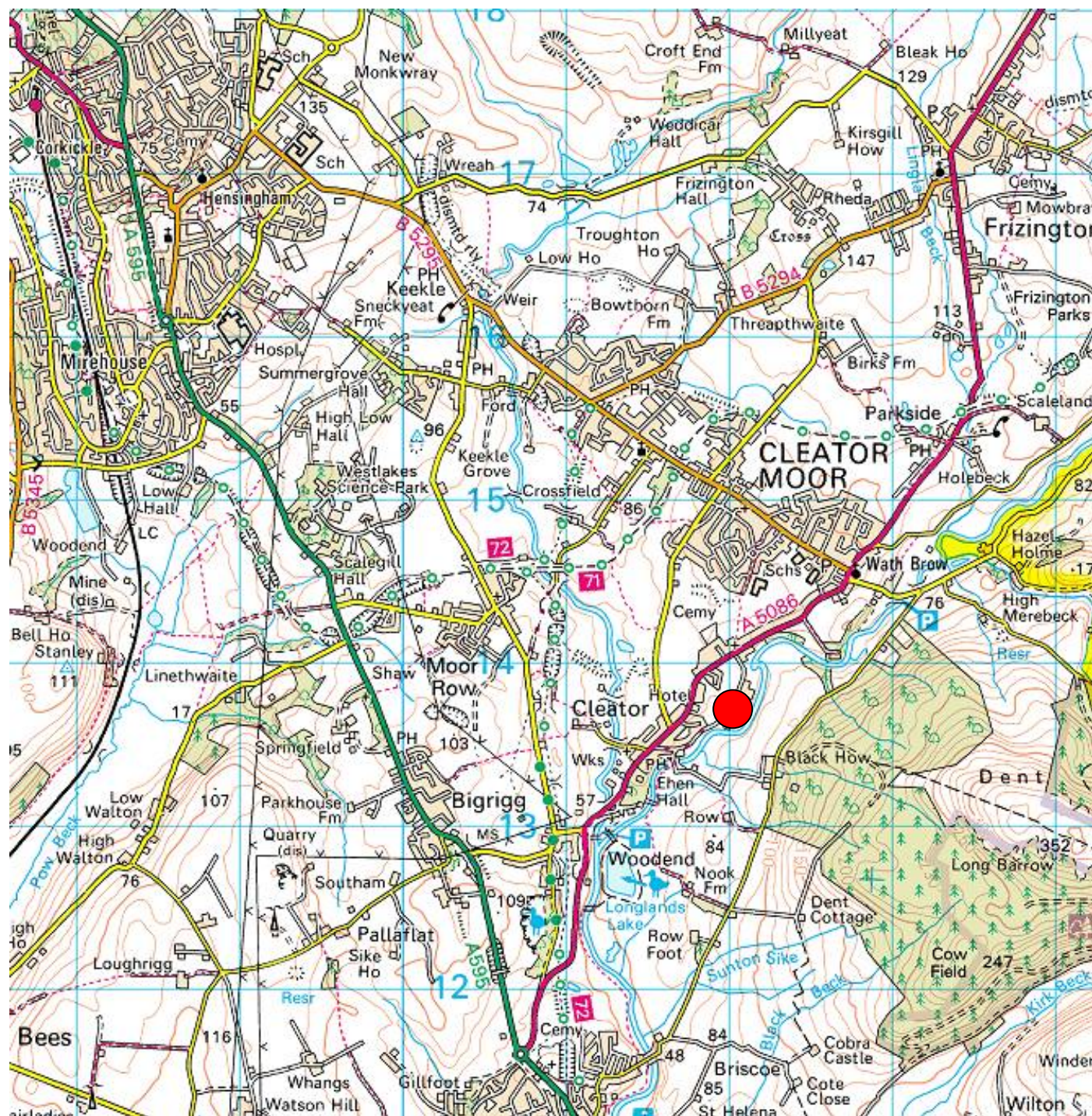
Future users could be at risk if the site conditions are not adequately investigated and remediated or mitigated, as appropriate.

Neighbours are not considered to be at significant risk.

Japanese knotweed is known to be present on site in at least one location. A survey of invasive weeds will be required, prior to a scheme of eradication being drawn up.

APPENDIX 1 – Site Location

Location Map



Project Code: EES13-061

Version Status: Final

Drawn by: J C Cooper

Reviewed by: R Hopgood

Approved by: T Elliott



Site

N



Scale@A4 1:50,000

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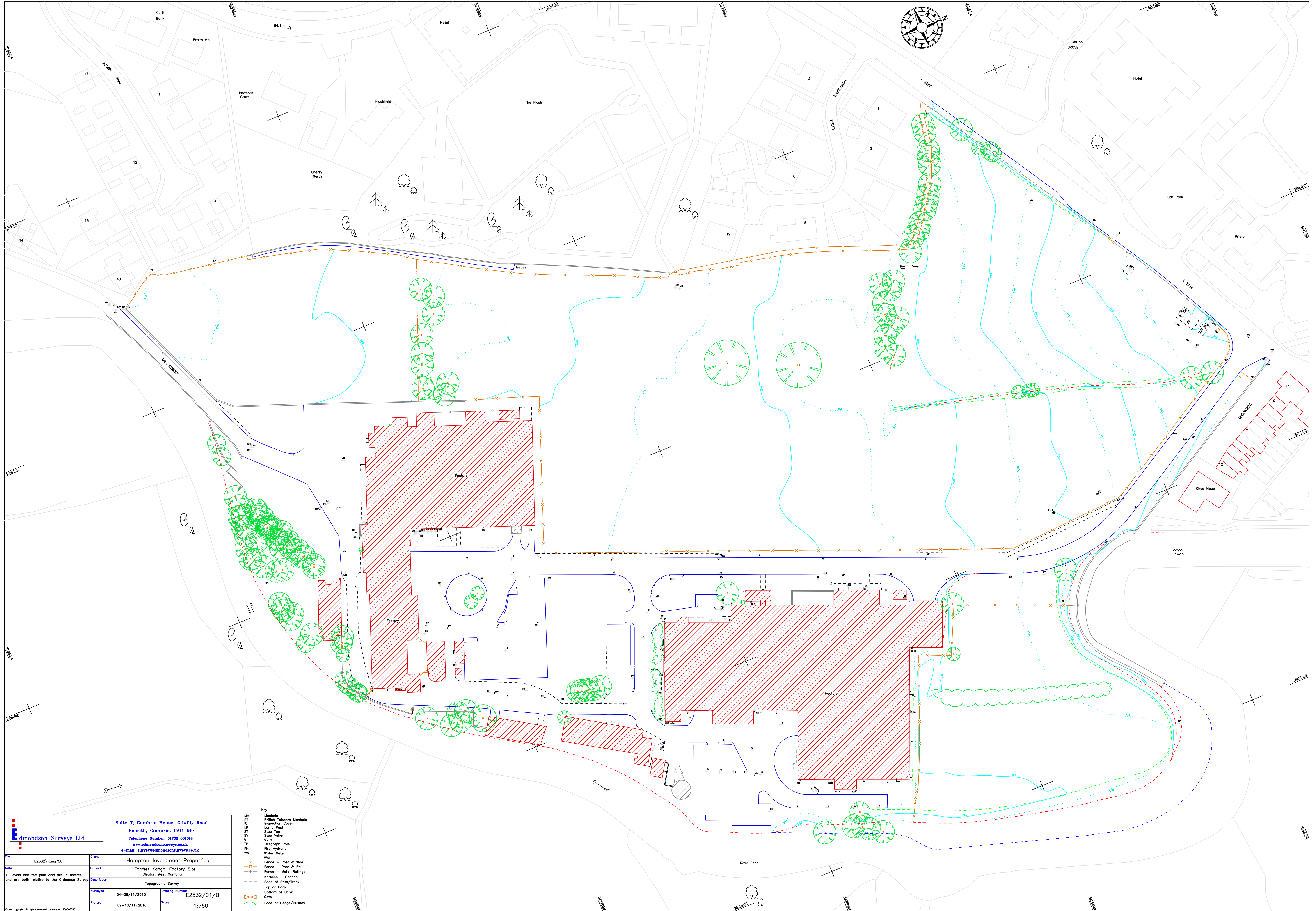
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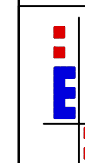


ELLIOTT
Environmental Surveyors

EES13-061 Cleator Mills, Cleator Moor
24 June 2013

APPENDIX 2 – Site Layout Plans





Edmondson Surveys Ltd
Suite 7, Cumbria House, Gilwilly Road
Penrith, Cumbria, CA11 9PF
Telephone Number: 01768 661814
www.edmondsons-surveys.co.uk
e-mail: survey@edmondsons-surveys.co.uk

File	E2532/Kang750	Client	Hampton Investment Properties
Notes	All levels and the plan grid are in metres and are both relative to the Ordnance Survey		
Project	Former Kangol Factory Site Cleator, West Cumbria	Description	Topographic Survey
Surveyed	04-08/11/2010	Drawing Number	E2532/01/B
Plotted	09-10/11/2010	Scale	1:750

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- Key
- MH Manhole
 - BT British Telecom Manhole
 - IC Inspection Cover
 - LP Lamp Post
 - ST Stop Tap
 - SV Stop Valve
 - G Gully
 - TP Telegraph Pole
 - FH Fire Hydrant
 - WM Water Meter
 - Wall
 - Fence - Post & Wire
 - Fence - Post & Rail
 - Fence - Metal Railings
 - Kerestone - Channel
 - Edge of Path/Track
 - Top of Bank
 - Bottom of Bank
 - Gate
 - Face of Hedge/Bushes

APPENDIX 3 – Photographs

PHOTOGRAPHS



Photo 1: Site from northern end



Photo 2: Greenfield section of the sit from south



**Photo 3: Southern end of old mill, in far south of the site,
from Mill Street**

PHOTOGRAPHS



Photo 4: Probably original path of the mill race to the south



Photo 5: Chimney and oil tanks to north of the end of the southeastern end of the mill building, facing east



Photo 6: Interior of 1960s addition, to northwest of older building with cement roof and debris

PHOTOGRAPHS



Photo 7: Asbestos insulation board waste in building



Photo 8: Glue cabinet in older section of mill building



Photo 9: Hat forming equipment

PHOTOGRAPHS



Photo 10: Further old hat making machinery remaining on site



Photo 11: Derelict building in far south, heavily vegetated with trees beyond, down to the river



Photo 12: River Ehen to south of the site, facing west

PHOTOGRAPHS



Photo 13: Outlet pipe to river from eastern section of the site



Photo 14: External boiler house for factory in east of the site, near to the river, with water tank beyond



Photo 15: Gates factory to east of site, from west

APPENDIX 4 – Envirocheck Report

General

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

Agency and Hydrological

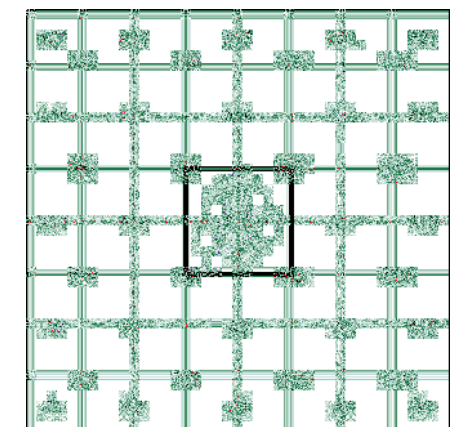
- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- ◇ Discharge Consent
- ▲ Enforcement or Prohibition Notice
- ▲ Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- ▲ 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
- ▼ 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)
- Local Authority Recorded Landfill Site
- ▲ 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

Waste

Hazardous Substances

- ✱ COMAH Site
- ✱ Explosive Site
- ✱ NIHS Site
- ✱ Planning Hazardous Substance Consent
- ✱ Planning Hazardous Substance Enforcement
- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry

Site Sensitivity Map - Segment A13

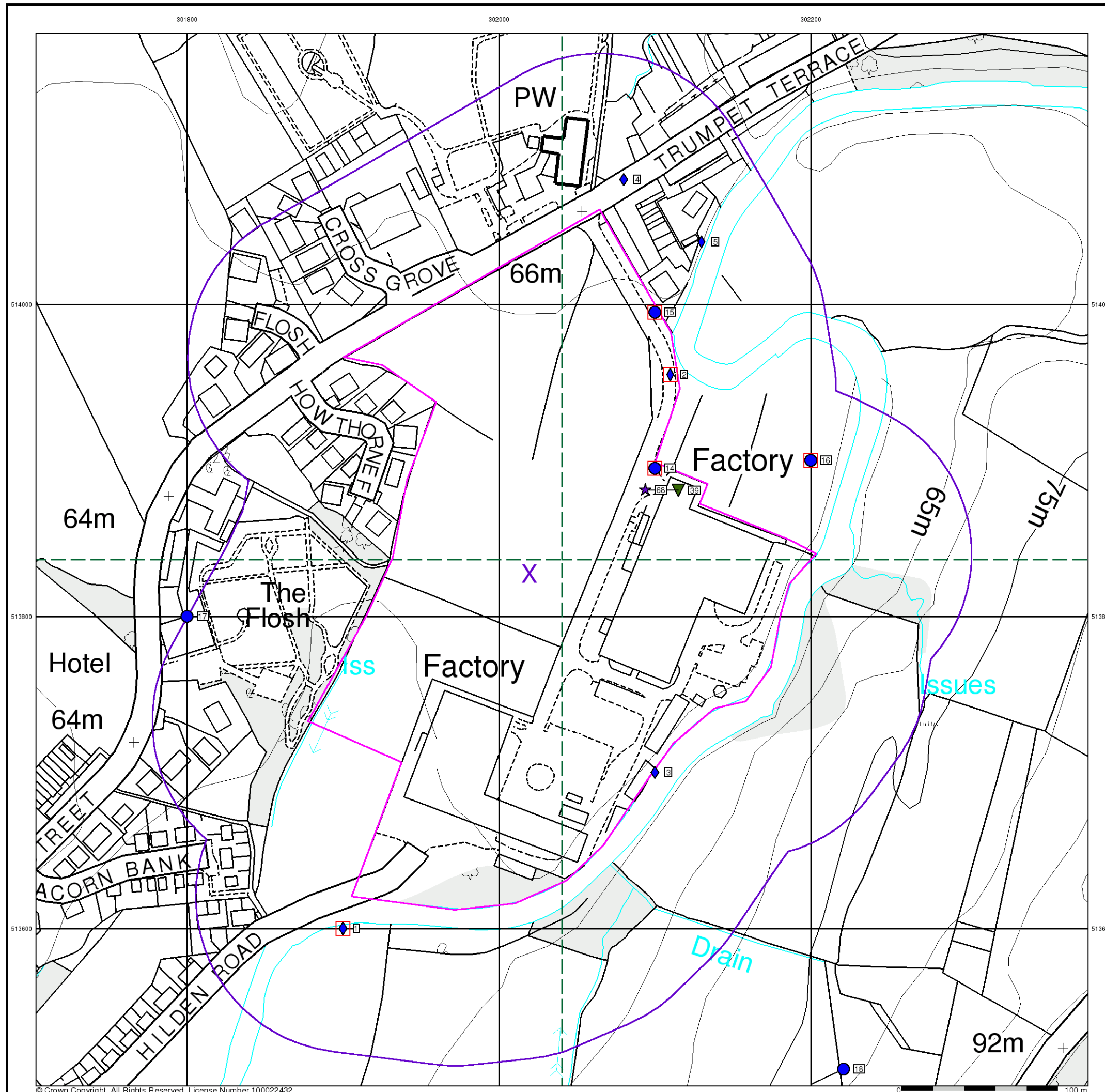


Order Details

Order Number: 46283628_1_1
 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



General

- ◆ Specified Site ○ Specified Buffer(s) X Bearing Reference Point 8 Map ID
- Several of Type at Location

Agency and Hydrological

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- ◆ Contaminated Land Register Entry or Notice
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- ▲ Enforcement or Prohibition Notice
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- + River Quality Sampling Point
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- ◆ Water Industry Act Referral

Waste

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- Local Authority Recorded Landfill Site
- 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

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

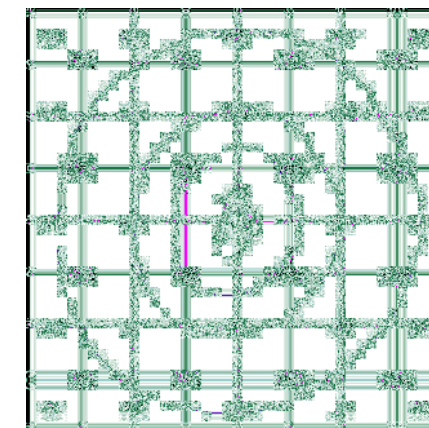
Geological

- ▲ BGS Recorded Mineral Site

Industrial Land Use

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry

Site Sensitivity Map - Slice A

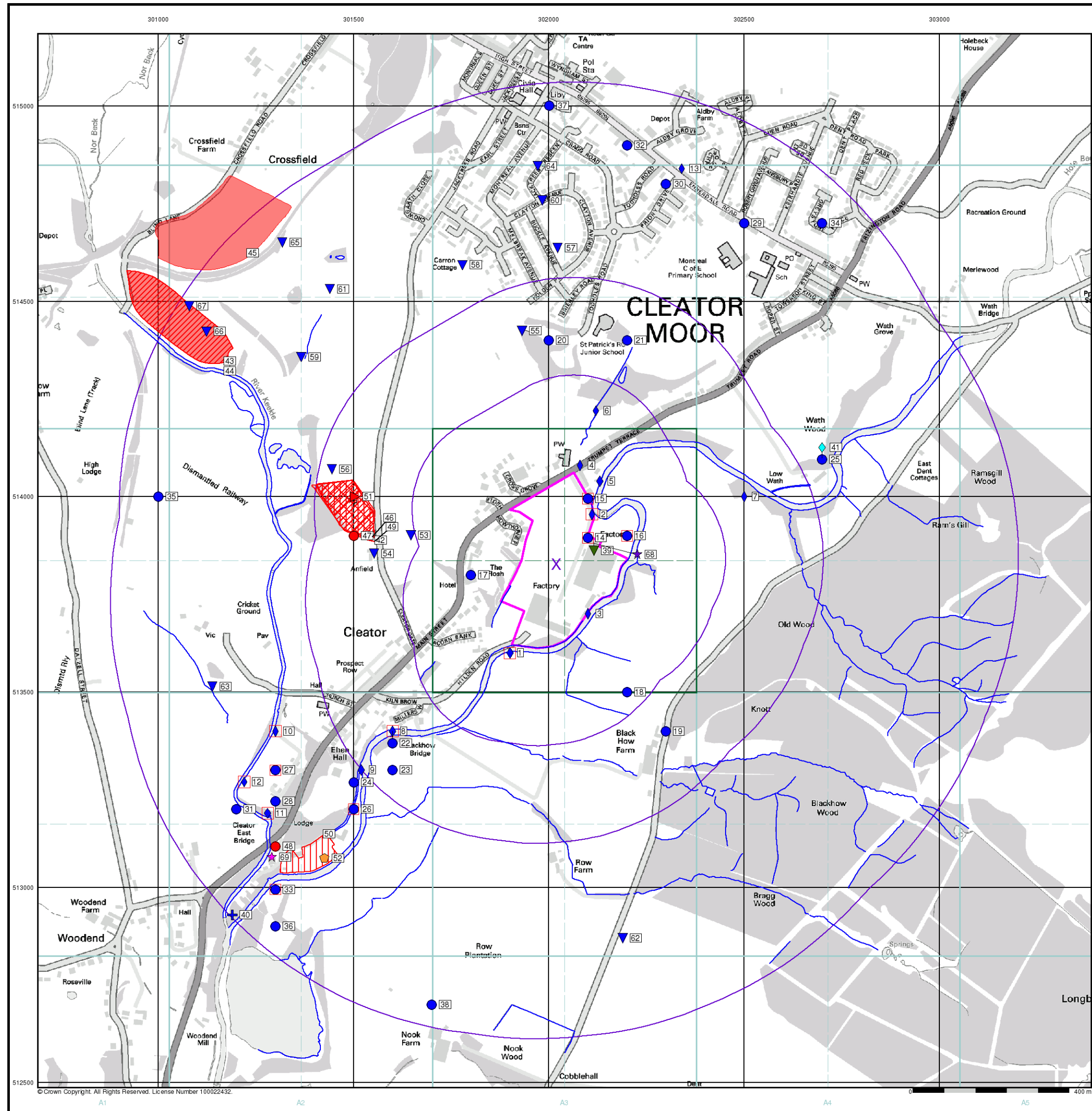


Order Details

Order Number: 46283628_1_1
 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14
 Search Buffer (m): 1000

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



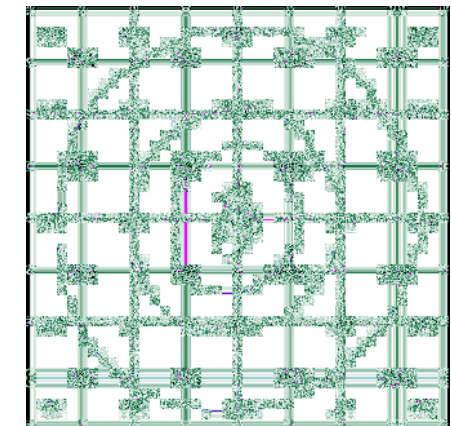
General

-  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

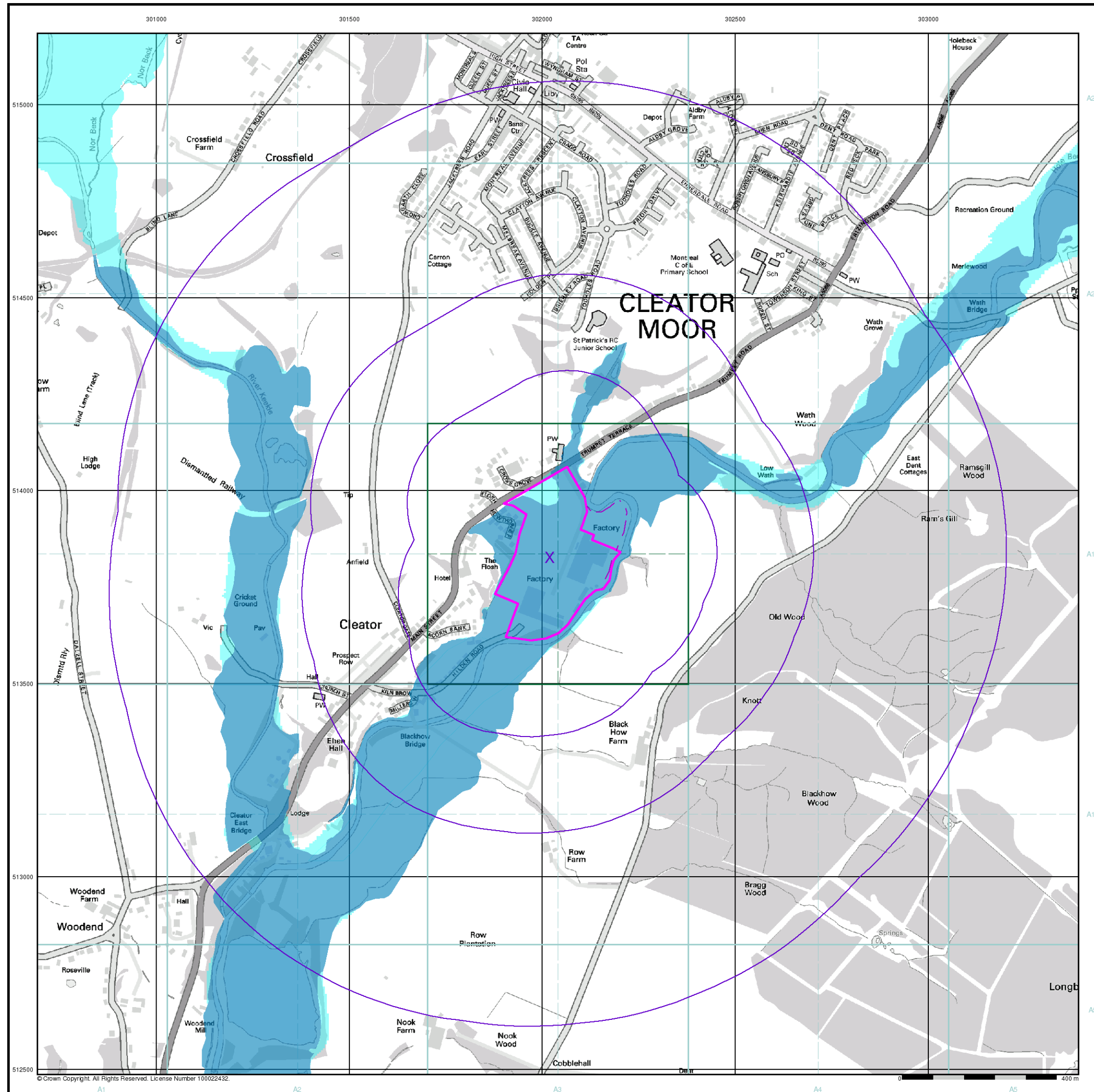


Order Details

Order Number: 46283628_1_1
 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14
 Search Buffer (m): 1000

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

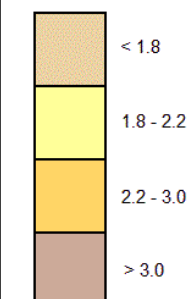


General

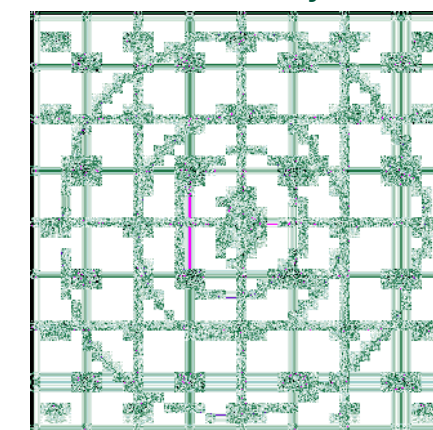
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details: 46283628_1_1
 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14
 Search Buffer (m): 1000

Site Details

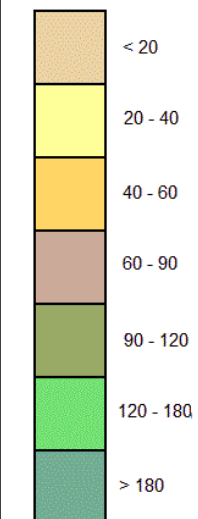
Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

General

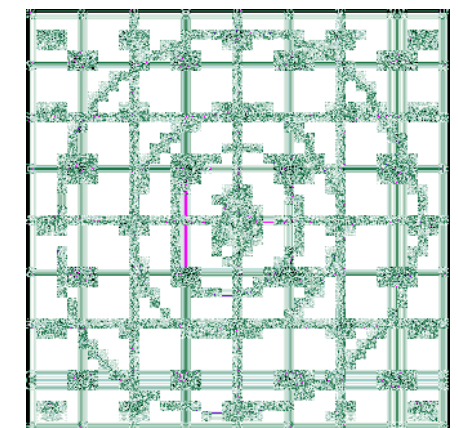
 Specified Site  Specified Buffer(s)  Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A



Order Details

Order Details: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 1000

Site Details

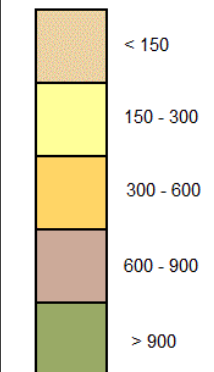
Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria,
CA23 3DU

General

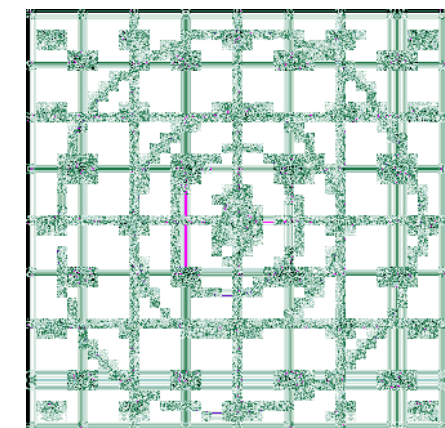
 Specified Site  Specified Buffer(s)  Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 1000

Site Details

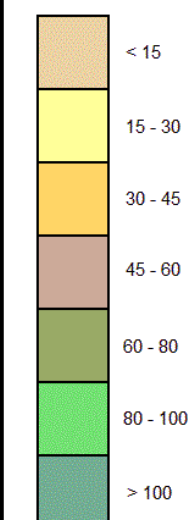
Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria,
CA23 3DU

General

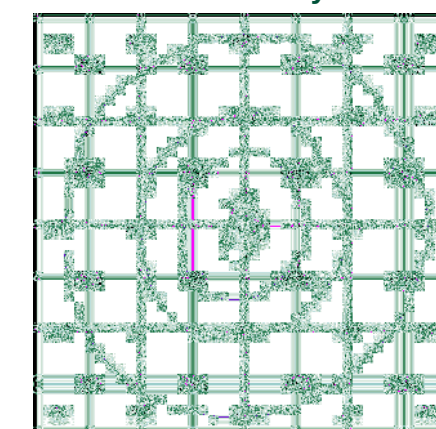
 Specified Site
  Specified Buffer(s)
  Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A



Order Details

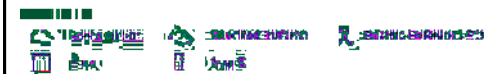
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 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14
 Search Buffer (m): 1000

Site Details

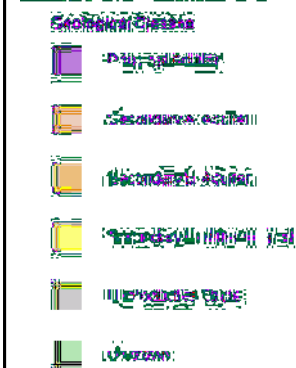
Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



Superficial Aquifer Designation



Site Sensitivity Context Map - Slice A



Order Details

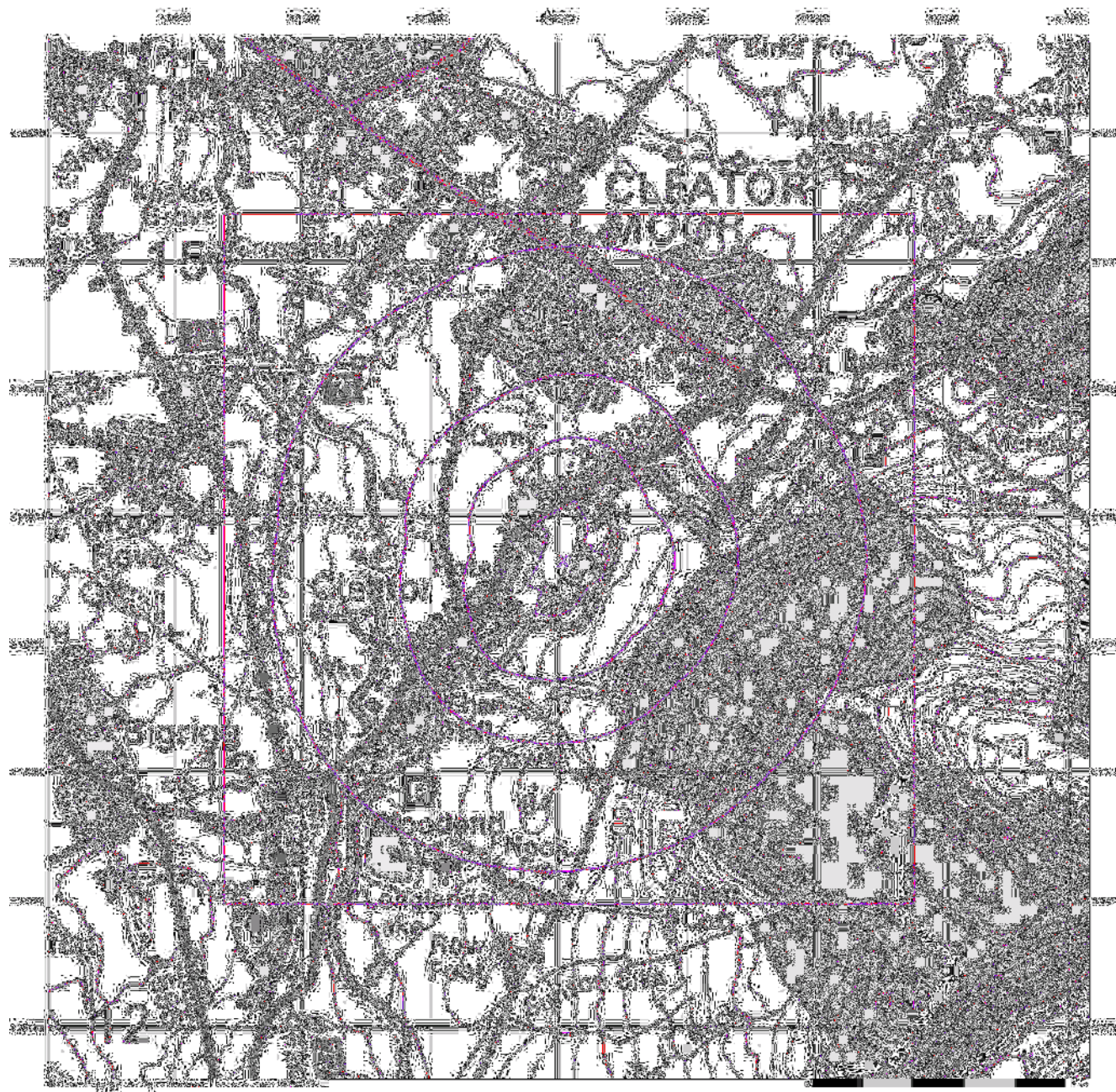
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Customer Ref:	EES13-061
National Grid Reference:	302020, 513830
Slice:	A
Site Area (Ha):	8.14
Search Buffer (m):	1000

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



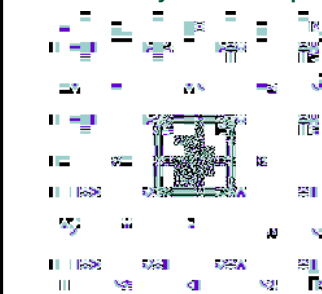
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Source Protection Zones



Site Sensitivity Context Map - Slice A



Order Details

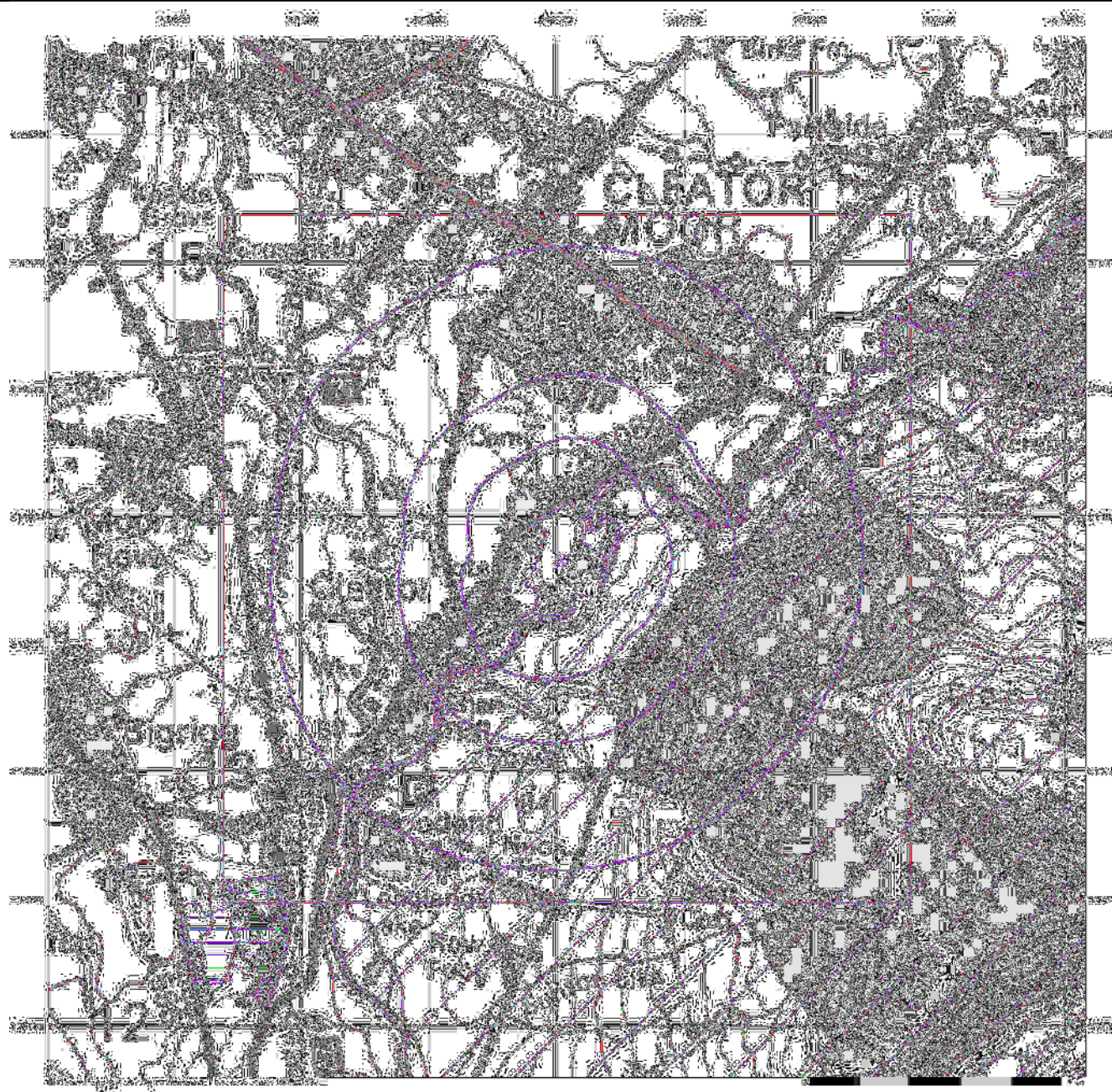
Order Number: 46283628_1_1
 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14
 Search Buffer (m): 1000

Site Details

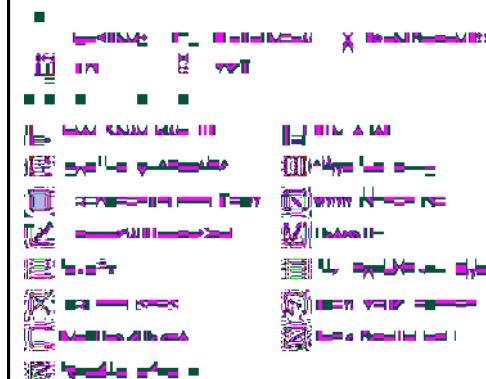
Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



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



Sensitive Land Uses



Site Sensitivity Context Map - Slice A



Order Details

Order Number: 46283628_1_1
 Customer Ref: EES13-061
 National Grid Reference: 302020, 513830
 Slice: A
 Site Area (Ha): 8.14
 Search Buffer (m): 1000

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



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

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

46283628_1_1

Customer Reference:

EES13-061

National Grid Reference:

302020, 513830

Slice:

A

Site Area (Ha):

8.14

Search Buffer (m):

1000

Site Details:

Former Kangol Factory

Cleator Mills

CLEATOR

Cumbria

CA23 3DU

Client Details:

Mr T Elliott

Elliott Environmental Surveyors

Mallan House

Bridge End Industrial Estate

Hexham

Northumberland

NE46 4DQ

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	19
Hazardous Substances	-
Geological	24
Industrial Land Use	60
Sensitive Land Use	61
Data Currency	62
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v47.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1	3	5	5	21
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 9	Yes			
Pollution Incidents to Controlled Waters	pg 9	3	5	5	19
Prosecutions Relating to Authorised Processes	pg 14	1			
Prosecutions Relating to Controlled Waters					
Registered Radioactive Substances					
River Quality	pg 15	1			2
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points	pg 16				1
Substantiated Pollution Incident Register					
Water Abstractions	pg 16				1 (*1)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 17	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 17	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 17	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 17	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 18	Yes		n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences	pg 18	Yes		n/a	n/a
Waste					
BGS Recorded Landfill Sites	pg 19			1	1
Historical Landfill Sites	pg 19				2
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)	pg 19			1	
Licensed Waste Management Facilities (Locations)	pg 19			1	1
Local Authority Recorded Landfill Sites	pg 20			1	1
Registered Landfill Sites	pg 21			3	
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites	pg 23				1

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 24	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 24	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 54			4	11
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas	pg 56	Yes	n/a	n/a	n/a
Mining Instability	pg 56	Yes	n/a	n/a	n/a
Man-Made Mining Cavities	pg 57			1	5
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 57	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 58	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 58	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 58		Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 58	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 58	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 59	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 59	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 59	Yes	n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 60	1			n/a
Fuel Station Entries	pg 60				1

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas	pg 61		1		
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest	pg 61	1			
Special Areas of Conservation	pg 61	1			
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: The Flish, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01cop0021 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A13SW (S)	0	1	301940 513620
1	Discharge Consents Operator: Kangol Wear Ltd Property Type: Miscellaneous Textiles Location: Kangol Wear Ltd, Cleator Mills, Cleator Moor, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490073 Permit Version: 1 Effective Date: 22nd September 1966 Issued Date: Not Supplied Revocation Date: 4th October 1995 Discharge Type: Trade Discharges - Cooling Water Discharge: Freshwater Stream/River Environment: Receiving Water: R.Ehen Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	22	1	301900 513600
2	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Brookside Cso, Cleaton Moor, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017580239 Permit Version: 1 Effective Date: 18th June 1992 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	0	1	302110 513960
2	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Brookside Cso, Cleaton Moor, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01COP0091 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Consent revoked or revised: New Consent issued (Section 37(1)) Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	0	1	302110 513955

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	Discharge Consents Operator: Cross Paperware Ltd Property Type: Pulp, Paper & Board Location: Cross Paperware Ltd, Cleator Mill, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490086 Permit Version: 1 Effective Date: 25th October 1978 Issued Date: Not Supplied Revocation Date: 22nd March 1991 Discharge Type: Trade Discharges - Cooling Water Discharge: Freshwater Stream/River Environment: Receiving Water: R.Ehen Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	2	1	302100 513700
4	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Brookside No 1, Cleator, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01COP0082 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Skirting Beck Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A13NE (N)	25	1	302080 514080
5	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Brookside No 2, Cleator, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01cop0020 Permit Version: 1 Effective Date: 7th October 1994 Issued Date: Not Supplied Revocation Date: 1st January 1995 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	47	1	302130 514040
6	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: Priory Rd, Cleator Moor, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01cop0022 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Kirting Beck Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A18SE (N)	169	1	302120 514220

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	Discharge Consents Operator: Stephen & Marjorie Ann Jacques Property Type: Fish Farm Location: Mill Race, Low Wath, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490290 Permit Version: 1 Effective Date: 14th September 1994 Issued Date: Not Supplied Revocation Date: 17th February 2012 Discharge Type: Discharge Of Other Matter-Fish Farm Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Surrendered under EPR 2010 Positional Accuracy: Located by supplier to within 100m	A14NW (E)	338	1	302500 514000
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Kiln Brow, Cleator, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01COP0011 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Post National Rivers Authority Legislation where issue date > 31/08/1989 Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	338	1	301650 513400
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Kiln Brow, Cleator, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01COP0019 Permit Version: 1 Effective Date: 1st January 1995 Issued Date: Not Supplied Revocation Date: 30th March 2004 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	369	1	301610 513400
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Kiln Brow, Cleator, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Ehen Reference: 017480401 Permit Version: 1 Effective Date: 4th December 2006 Issued Date: 4th December 2006 Revocation Date: Not Supplied Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	377	1	301600 513400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Sewers - Water Company Location: Kiln Brow, Cleator, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Ehen Reference: 01cop0019 Permit Version: 2 Effective Date: 31st March 2004 Issued Date: 31st March 2004 Revocation Date: 3rd December 2006 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	377	1	301600 513400
9	Discharge Consents Operator: Gordon Martin Property Type: Horticulture Est. Nursery Gardens Location: Ehenhall Gardens Swo, Cleator, Cumbria, Ca23 3bz Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017490247 Permit Version: 1 Effective Date: 14th April 1989 Issued Date: Not Supplied Revocation Date: 1st November 1994 Discharge Type: Discharge Of Other Matter-Surface Water Discharge: Freshwater Stream/River Environment: Receiving Water: River Ehen Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	502	1	301520 513300
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 7 Effective Date: 1st January 2010 Issued Date: 14th October 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	645	1	301300 513400
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 6 Effective Date: 15th May 2008 Issued Date: 15th May 2008 Revocation Date: 31st December 2009 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	645	1	301300 513400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 5 Effective Date: 23rd February 2004 Issued Date: 23rd February 2004 Revocation Date: 14th May 2008 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	645	1	301300 513400
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017470025 Permit Version: 2 Effective Date: 31st January 1985 Issued Date: Not Supplied Revocation Date: 6th July 2000 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989 Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	662	1	301285 513390
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 3 Effective Date: 7th July 2000 Issued Date: 7th July 2000 Revocation Date: 17th August 2000 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	667	1	301280 513390
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 1 Effective Date: 28th December 1979 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	667	1	301280 513390

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 4 Effective Date: 18th August 2000 Issued Date: Not Supplied Revocation Date: 22nd February 2004 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989 Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	667	1	301280 513390
10	Discharge Consents Operator: United Utilities Water Ltd Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Ehen/Calder Reference: 017470025 Permit Version: 1 Effective Date: 28th December 1979 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	667	1	301280 513390
10	Discharge Consents Operator: North West Water Limited Property Type: Not Given Location: Cleator And District Authority: Environment Agency, North West Region Catchment Area: Ehen/Calder Reference: 017470025B Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 1st April 1991 Revocation Date: Not Supplied Discharge Type: Settled storm discharge - storm tank discharges Discharge: Freshwater Stream/River Environment: Receiving Water: Storm Tank Effluent; Outlet From Storm Tank; River Keekle Status: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	669	1	301280 513385
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 7 Effective Date: 1st January 2010 Issued Date: 14th October 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	752	1	301290 513190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 6 Effective Date: 15th May 2008 Issued Date: 15th May 2008 Revocation Date: 31st December 2009 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	752	1	301290 513190
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 5 Effective Date: 23rd February 2004 Issued Date: 23rd February 2004 Revocation Date: 14th May 2008 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	752	1	301290 513190
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 3 Effective Date: 7th July 2000 Issued Date: 7th July 2000 Revocation Date: 17th August 2000 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	760	1	301280 513190
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 4 Effective Date: 18th August 2000 Issued Date: Not Supplied Revocation Date: 22nd February 2004 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989 Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	760	1	301280 513190

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017470025 Permit Version: 2 Effective Date: 31st January 1985 Issued Date: Not Supplied Revocation Date: 6th July 2000 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989 Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	760	1	301280 513190
11	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 017470025 Permit Version: 1 Effective Date: 28th December 1979 Issued Date: Not Supplied Revocation Date: 30th January 1985 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	760	1	301280 513190
12	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 7 Effective Date: 1st January 2010 Issued Date: 14th October 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	770	1	301220 513270
12	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 6 Effective Date: 15th May 2008 Issued Date: 15th May 2008 Revocation Date: 31st December 2009 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	770	1	301220 513270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewage Disposal Works - Water Company Location: Cleator & District Stw, Cleator, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Supplied Reference: 017470025 Permit Version: 5 Effective Date: 23rd February 2004 Issued Date: 23rd February 2004 Revocation Date: 14th May 2008 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Keekle Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	770	1	301220 513270
13	Discharge Consents Operator: United Utilities Water Plc Property Type: Sewerage Network - Pumping Station - Water Company Location: Ennerdale Rd, Cleator Moor, Copeland, Cumbria Authority: Environment Agency, North West Region Catchment Area: Not Given Reference: 01cop0023 Permit Version: 1 Effective Date: 15th September 1993 Issued Date: Not Supplied Revocation Date: 15th September 1993 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Kirting Beck Status: Authorisation revokedRevoked Positional Accuracy: Located by supplier to within 100m	A18NE (N)	827	1	302340 514840
	Nearest Surface Water Feature	A13SW (SW)	0	-	301903 513770
14	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Combined Sewer Overflow Location: River Ehen, Brookside Cleator Authority: Environment Agency, North West Region Pollutant: Sewage - Storm Overflow Note: Sewage; Ehen; Storm Sewage Incident Date: 17th August 1997 Incident Reference: 97210084 Catchment Area: Ehen Receiving Water: Coastal Water Cause of Incident: CSO Normal Operation Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	0	1	302100 513900
14	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Combined Sewer Overflow Location: River Ehen, Brookside Cleator Authority: Environment Agency, North West Region Pollutant: Sewage - Storm Overflow Note: Storm Sewage Incident Date: 17th August 1997 Incident Reference: 97210072 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: CSO Normal Operation Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	0	1	302100 513895
15	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Combined Sewer Overflow Location: River Ehen, River Ehen, CLEATOR Authority: Environment Agency, North West Region Pollutant: Sewage - Storm Overflow Note: Ehen; Storm Overflow Incident Date: 11th June 1997 Incident Reference: 97210046 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: CSO Normal Operation Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	0	1	302100 513995

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Combined Sewer Overflow Location: River Ehen, Brookside Cleator Moor Authority: Environment Agency, North West Region Pollutant: Sewage - Storm Overflow Note: Ehen; Crude Sewage Overflow Incident Date: 22nd July 1997 Incident Reference: 97210061 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: CSO Normal Operation Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	1	1	302100 514000
16	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Sewage Debris/Litter Note: Not Supplied Incident Date: 27th June 1995 Incident Reference: 95210069 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Sewer Maintenance Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	48	1	302200 513895
16	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Rubble/Litter Or Solids Note: Not Supplied Incident Date: 20th August 1993 Incident Reference: 93210087 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	53	1	302200 513900
17	Pollution Incidents to Controlled Waters Property Type: Restaurant/Hotels/Pubs Location: River Ehen Authority: Environment Agency, North West Region Pollutant: Surcharged Sewage Note: Sewage Incident Date: 9th September 1997 Incident Reference: 97210075 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (W)	101	1	301800 513800
18	Pollution Incidents to Controlled Waters Property Type: Connection To Surface Drains Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Black Howe Incident Date: 9th November 1994 Incident Reference: 94210132 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Wrong Connection Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	203	1	302200 513500
19	Pollution Incidents to Controlled Waters Property Type: Farm Drainage Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Agricultural: Other Note: Tributary Ehen; Manure Run-Off Incident Date: 27th August 1991 Incident Reference: 91210083 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	345	1	302300 513400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Foul Sewer Location: Todholes Road, CLEATOR MOOR Authority: Environment Agency, North West Region Pollutant: Sewage Debris/Litter Note: Sewer Blockage Discharging Incident Date: 24th November 1998 Incident Reference: NO980486 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	346	1	302000 514400
21	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Skirting Beck Incident Date: 19th December 1995 Incident Reference: 95210111 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SE (N)	366	1	302200 514400
22	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 26th February 1992 Incident Reference: 92210037 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	377	1	301600 513400
23	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Combined Sewer Overflow Location: River Ehen, Brookside , CLEATOR Authority: Environment Agency, North West Region Pollutant: Sewage - Storm Overflow Note: Storm Sewage Incident Date: 26th July 1997 Incident Reference: 97210060 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: CSO Normal Operation Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	443	1	301600 513300
24	Pollution Incidents to Controlled Waters Property Type: Pollution Found Source Not Determined Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: River Ehen; Poll Found Incident Date: 19th April 1996 Incident Reference: 96210024 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	517	1	301500 513300
25	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Water Distribution System Location: River Ehen, Wathbrow Bridge , CLEATOR MOOR Authority: Environment Agency, North West Region Pollutant: Chlorinated Water Note: Chlorinated Water Incident Date: 21st January 1997 Incident Reference: 97210008 Catchment Area: Ehen Receiving Water: Freshwater Stream/River Cause of Incident: Leaking Underground Pipe Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (E)	559	1	302700 514095

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	Pollution Incidents to Controlled Waters Property Type: Private Sewage: Sewage Works And Septic Tanks Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: River Ehen; Sewage Incident Date: 22nd April 1996 Incident Reference: 96210027 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	585	1	301500 513200
26	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: River Ehen; Sewage Incident Date: 22nd April 1996 Incident Reference: 96210028 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	588	1	301500 513195
27	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Not Given Note: River Keekle; None Pollution Found Incident Date: 26th November 1993 Incident Reference: 93210130 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	683	1	301305 513295
27	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewage Treatment Works Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: Keekle Incident Date: 20th September 1993 Incident Reference: 93210109 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	686	1	301300 513300
27	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Sewage - Treated Effluent Note: Keekle Incident Date: 8th June 1994 Incident Reference: 94210048 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Poor Operational Practice Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	688	1	301300 513295
28	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewage Treatment Works Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: Keekle Incident Date: 19th June 1992 Incident Reference: 92210098 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	738	1	301300 513200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Waste Oil Note: Not Supplied Incident Date: 15th September 1994 Incident Reference: 94210125 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Land Runoff Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	774	1	302500 514700
30	Pollution Incidents to Controlled Waters Property Type: Connection To Surface Drains Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Miscellaneous - Vehicle Washings And De Waxing Note: Ehen Tributary; Incorrect Connection Incident Date: 24th February 1994 Incident Reference: 94210022 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Deliberate Disposal To Drain Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NE (N)	776	1	302300 514800
31	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewage Treatment Works Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chemicals - Paints / Dyes Note: Keele Incident Date: 6th June 1991 Incident Reference: 91210039 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NW (SW)	822	1	301200 513200
32	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Waste Oil Note: Ehen Tributary Incident Date: 24th February 1994 Incident Reference: 94210023 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Deliberate Disposal To Drain Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A23SE (N)	850	1	302200 514900
33	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Water Treatment Works Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Chlorinated Water Note: Not Supplied Incident Date: 22nd October 1995 Incident Reference: 95210105 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Leaking Underground Pipe Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	867	1	301300 513000
33	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Organic Wastes: Animal Carcasses Note: Not Supplied Incident Date: 5th February 1995 Incident Reference: 95210013 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	871	1	301300 512995

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Crude Sewage Note: Ehen Tributary Incident Date: 30th August 1994 Incident Reference: 94210106 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Other Incident/Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	902	1	302700 514700
35	Pollution Incidents to Controlled Waters Property Type: Private Sewage (Non-PLC): Sewerage Systems Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Unknown Sewage Note: Keele Incident Date: 28th August 1992 Incident Reference: 92210216 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A11NE (W)	902	1	301000 514000
36	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Location Description Not Available Authority: Environment Agency, North West Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 1st June 1993 Incident Reference: 93210041 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	942	1	301300 512900
37	Pollution Incidents to Controlled Waters Property Type: No Premises Identified Location: St Patrick Infant School, Cleato Authority: Environment Agency, North West Region Pollutant: Not Given Note: Not Supplied Incident Date: 3rd March 1999 Incident Reference: 124 Catchment Area: Ehen Receiving Water: Estuary Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Approximate location provided by supplier	A23SW (N)	943	1	302001 515001
38	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Cumbria Authority: Environment Agency, North West Region Pollutant: Not Given Note: None Pollution Found Incident Date: 25th October 1991 Incident Reference: 91210091 Catchment Area: Ehen Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A2NE (S)	944	1	301700 512700
39	Prosecutions Relating to Authorised Processes Location: Kangol Factory, Frizington Prosecution Text: Burning controlled waste (including asbestos) Prosecution Act: Epa90 S33(1) & (6) Hearing Date: 23rd May 2006 Verdict: Guilty Fine: 22500 Costs: 7142 Positional Accuracy: Manually positioned to the address or location	A13NE (NE)	0	1	302115 513882

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	River Quality Name: Ehen (Liza) GQA Grade: River Quality A Reach: Inlet To Ennerdale Water To Keele Estimated Distance 16.2 (km): Flow Rate: Flow less than 2.5 cumecs Flow Type: River Year: 2000	A13SE (SE)	0	1	302115 513764
	River Quality Name: Keele GQA Grade: River Quality D Reach: Moor Row To Ehen Estimated Distance 1.8 (km): Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A12SW (W)	656	1	301219 513704
	River Quality Name: Keele GQA Grade: River Quality B Reach: Dub Beck To Moor Row Estimated Distance 3 (km): Flow Rate: Flow less than 0.62 cumecs Flow Type: River Year: 2000	A16SE (W)	915	1	301020 514214

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	River Quality Chemistry Sampling Points Name: Keeke Reach: Moor Row To Ehen Estimated Distance: 1.80 Objective: Not Supplied Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1994 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1995 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Not Supplied Year: 1996 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Not Supplied Year: 1997 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1998 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1999 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2000 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2001 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2002 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2003 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2004 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2005 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2006 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Not Supplied Year: 2007 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Not Supplied Year: 2008 GQA Grade: River Quality Chemistry GQA Grade E - Poor Compliance: Not Supplied Year: 2009 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied	A7SW (SW)	996	1	301189 512930
41	Water Abstractions Operator: Jacques Licence Number: 2774003011 Permit Version: 100 Location: River Ehen At Beck Side Authority: Environment Agency, North West Region Abstraction: Aquaculture: Fish Farm/Cress Pond Throughflow Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 1140 Yearly Rate (m3): 416100 Details: Land & Premises At Beck Side Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th September 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NW (E)	561	1	302700 514100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Christopher & Glenys Roberts Licence Number: 2774003010 Permit Version: 100 Location: Spring Fed Storage Tank At Kinnisidecleator Authority: Environment Agency, North West Region Abstraction: Food And Drink: Water Bottling Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): 6 Yearly Rate (m3): 2273 Details: Land At Kinniside , Cleator Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 4th November 1991 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(E)	1998	1	304200 513800
	Groundwater Vulnerability Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 6 South West Cumbria Scale: 1:100,000	A13SW (SE)	0	1	302025 513823
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 6 South West Cumbria Scale: 1:100,000	A13SW (N)	0	1	302020 513828
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 6 South West Cumbria Scale: 1:100,000	A13SE (SE)	0	1	302158 513748
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Secondary Aquifer - B	A13SW (N)	0	2	302020 513828
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SW (N)	0	2	302020 513828
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13NW (N)	0	2	302017 513944
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (N)	0	1	302020 513828
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models and Fluvial Events Boundary Accuracy: As Supplied	A13SE (SE)	0	1	302118 513722
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	13	1	302189 513770
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SE (SE)	13	1	302135 513716
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	16	1	302198 513804
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SE (SE)	16	1	302179 513746

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	17	1	302199 513807
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SE (E)	17	1	302204 513816
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	18	1	302175 513738
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SE (E)	18	1	302196 513794
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	23	1	302222 513828
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SE (E)	26	1	302227 513833
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	39	1	302003 513577
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	63	1	301844 513614
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	105	1	301805 513580
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (N)	0	1	302020 513828
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences Type: Flood Defences Reference: Not Supplied	A13SE (E)	0	1	302163 513772

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	BGS Recorded Landfill Sites Site Name: Jacktrees Rd Location: CLEATOR MOOR, Cumberland Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A12NE (W)	350	2	301555 513888
43	BGS Recorded Landfill Sites Site Name: Crossfield Tip Location: Crossfield Moor, CLEATOR MOOR, Cumberland Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate	A17SW (NW)	812	2	301183 514347
44	Historical Landfill Sites Licence Holder: Not Supplied Location: Crossfield Moor, Cleator Moor, Cumberland Name: Crossfield Tip Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD32003 First Input Date: 22nd December 1970 Last Input Date: Not Supplied Specified Waste: Deposited Waste included Commercial Waste Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 2480 Other Ref: Not Supplied	A17SW (NW)	812	1	301183 514347
45	Historical Landfill Sites Licence Holder: Cumbria County Council Location: Crossfields Road, Cleator Moor, Cumbria Name: Montreal Mine Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD07848 First Input Date: 31st December 1977 Last Input Date: Not Supplied Specified Waste: Deposited Waste included Industrial, Commercial and Household Waste Type: EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 0900/0178 BGS Ref: Not Supplied Other Ref: E108.58, R19, E160.77	A17NW (NW)	931	1	301242 514624
46	Licensed Waste Management Facilities (Landfill Boundaries) Name: Jacktrees Road Licence Number: 57253 Location: County Contracting, Jacktrees Road, Cleator Moor, Cumbria, CA25 5BB Licence Holder: Cumbria County Council Authority: Environment Agency - North West Region, North Area Site Category: Inert LF Max Input Rate: Not Supplied Licence Status: Closure Issued: 28th April 1994 Positional Accuracy: Positioned by the supplier Boundary Accuracy: As Supplied	A12NE (W)	345	1	301549 513897
47	Licensed Waste Management Facilities (Locations) Licence Number: 57253 Location: County Contracting, Jacktrees Road, Cleator Moor, Cumbria, CA25 5BB Operator Name: Cumbria County Council Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: Inert LF Licence Status: Closed Issued: 28th April 1994 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A12NE (W)	406	1	301500 513900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	Licensed Waste Management Facilities (Locations) Licence Number: 57523 Location: The Forge, Beckside, Cleator, Cumbria, CA23 3AD Operator Name: Goodfellow George Operator Location: Not Supplied Authority: Environment Agency - North West Region, North Area Site Category: Metal Recycling Sites (Mixed) Licence Status: Issued Issued: 29th March 2000 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A7SW (SW)	799	1	301300 513100
	Local Authority Landfill Coverage Name: Copeland Borough Council - Has supplied landfill data		0	3	302020 513828
	Local Authority Landfill Coverage Name: Cumbria County Council - Had landfill data but passed it to the relevant environment agency		0	8	302020 513828
49	Local Authority Recorded Landfill Sites Location: Jacktrees Road, Cleator Moor Reference: 253 Authority: Copeland Borough Council, Environmental Health Department Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A12NE (W)	350	3	301555 513886
50	Local Authority Recorded Landfill Sites Location: The Forge, Cleator Reference: 57523 Authority: Copeland Borough Council, Environmental Health Department Last Reported Status: Unknown Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Good	A7SE (SW)	673	3	301437 513137

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	Registered Landfill Sites Licence Holder: Cumbria County Contracting Licence Reference: 253/M2 Site Location: Jacktrees Road, Cleator Moor, Cleator, Cumbria Licence Easting: 301500 Licence Northing: 514000 Operator Location: Barras Lane, Dalston, Carlisle, Cumbria, Ca5 7nd Authority: Environment Agency - North West Region, North Area Site Category: Landfill - with transfer Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: Site dormant Dated: 28th April 1994 Preceded By: R34/M2 Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Bitum./Asphaltic Mat'L Ex Road/Carpark Concrete, Brick, Slate, Glass, Ceramic Inert Mat'L Consisting Of Max.Waste Permitted By Licence Soil, Sand, Clay, Stone Prohibited Waste Agricultural Wastes Animal Flesh Foodstuffs Gulley Emptyings Hard Bonded Asbestos Hard/Bonded Asbestos Prods Leachate Forming Mat'Ls Metal Objects Paper/Cardboard Waste Plasterboard/Plaster Plastic Objects Road Sweepings/Litter Spec.Waste (Epa'90:S62/1996 Regs) Textiles Vegetable Matter Waste In Demountable Containers Waste N.O.S. Wood, Timber, Sawdust	A12NE (W)	402	1	301500 514000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
51	Registered Landfill Sites Licence Holder: Cumbria County Contracting Licence Reference: R34/M2 Site Location: Jacktrees Road, Cleator Moor, Cleator, Cumbria Licence Easting: 301500 Licence Northing: 514000 Operator Location: Barras Lane, DALSTON, Cumbria, CA5 7ND Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Status: Record supersededSuperseded Dated: 1st December 1991 Preceded By: R34 Licence: Superseded By: 253/M2 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Bitumin/Asphalt Ex Road/Carpark Surfac H'Core, Concrete, Brick, Slate, Glass, Cera Hard Bonded Asbestos From Const/Demol. Inert Mat'L Consisting Of Soil, Sand, Clay, Stone Prohibited Waste: Agricultural Waste Other Than Inert Animal Flesh Clinical Waste As In Coll/Disp Regs'88 Difficult Waste As In Doe Wmp 26 Foodstuffs Gulley Cleansings Leachate Forming Mat'ls Incl. Liquid Waste Metal Objects Paper/Cardboard Waste Plasterboard/Plaster Plastic Objects Sawdust Special Waste Textiles Vegetable Matter Wood/Timber	A12NE (W)	402	1	301500 514000
51	Registered Landfill Sites Licence Holder: Cumbria County Contracting Licence Reference: R34 Site Location: Jacktrees Road, Cleator Moor, Cleator, Cumbria Licence Easting: 301500 Licence Northing: 514000 Operator Location: Barras Lane, DALSTON, Cumbria, CA5 7ND Authority: Environment Agency - North West Region, North Area Site Category: Landfill Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Status: Record supersededSuperseded Dated: 1st June 1977 Preceded By: Not Given Licence: Superseded By: R34/M2 Licence: Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Controlled Wastes Gulley Emptyings Road Making Materials Road Sweepings/Litter Waste N.O.S Prohibited Waste:	A12NE (W)	402	1	301500 514000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	Registered Waste Treatment or Disposal Sites Licence Holder: G Goodfellow Licence Reference: EAWML57523 Site Location: The Forge, CLEATOR, Cumbria, CA23 3AD Operator Location: The Forge, CLEATOR, Cumbria, CA23 3AD Authority: Environment Agency - North West Region, North Area Site Category: Scrapyard Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Site not yet started Dated: 29th March 2000 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Maximum Waste Permitted By Licence Metal Swarf & Non-Ferrous Metal Scrap & Scrap Vehicles Working Plan Specifies - Ferrous Metal Scrap &	A7SE (SW)	727	1	301425 513075

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Llanvirm and Arenig	A13SW (N)	0	2	302020 513828
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (N)	0	4	302020 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (N)	0	4	302000 513946
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (N)	0	4	302016 513944
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (N)	0	4	302020 513828
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (NW)	0	4	301916 513878
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (N)	0	4	302000 514000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A13NE (N)	0	4	302054 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A13SW (W)	0	4	302000 513828
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A13SE (E)	1	4	302195 513831
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A13SE (SE)	2	4	302162 513749
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A13SE (SE)	7	4	302171 513752
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A13SE (E)	9	4	302207 513828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NE (NE)	13	4	302118 513993
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	18	4	301904 513989
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13SE (E)	19	4	302211 513819
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NE (NE)	19	4	302121 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13SE (SE)	20	4	302148 513709
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	20	4	301859 513919

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13SE (SE)	25	4	302181 513736
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	32	4	301893 513998
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	33	4	301894 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	35	4	301889 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13SW (S)	38	4	302000 513577
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	40	4	301836 513931

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	45	4	301872 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13NW (NW)	51	4	301876 514010
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (W)	181	4	301701 513786
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (W)	185	4	301702 513804
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A13SE (SE)	217	4	302309 513590
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (S)	240	4	301920 513377

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (SW)	258	4	301664 513531
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	260	4	302000 514312
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	266	4	302071 514326
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (S)	269	4	301979 513342
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NW (NE)	270	4	302420 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	271	4	302048 514331

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	274	4	302048 514334
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (S)	277	4	302000 513337
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	282	4	302022 514339
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	292	4	302000 514346
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (W)	300	4	301571 513775
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (SW)	309	4	301588 513626

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	312	4	301987 514363
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NW (NE)	318	4	302458 514030
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (W)	326	4	301545 513772
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	334	4	302023 514392
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SE (SW)	337	4	301564 513610
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	350	4	301603 513444

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	356	4	301603 513433
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (S)	356	4	302000 513257
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	361	4	301890 514377
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	369	4	302092 514429
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	371	4	302081 514431
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SE (N)	373	4	302065 514433

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	386	4	301575 513422
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	386	4	302000 514441
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	388	4	301860 514390
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NW (E)	392	4	302560 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	395	4	301575 513405
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	402	4	302000 514457

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18SW (N)	406	4	301837 514397
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (S)	411	4	302000 513202
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8NW (S)	419	4	301963 513194
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NE (W)	464	4	301438 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	492	4	301570 513261
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18NE (N)	496	4	302061 514556

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A18SW (NW)	500	4	301716 514437
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A12NE (W)	501	4	301406 514053
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A12NE (W)	509	4	301391 513961
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A12NE (W)	509	4	301393 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A12NE (W)	514	4	301393 514045
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A7NE (SW)	517	4	301514 513283

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NE (NW)	521	4	301398 514101
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A9NW (SE)	532	4	302494 513333
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NE (NW)	539	4	301398 514160
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	544	4	301518 513240
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NW (W)	549	4	301363 514075
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NE (E)	561	4	302740 514000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A18NW (N)	575	4	302000 514632
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	593	4	301469 513220
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NW (SW)	613	4	301353 513356
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8SW (S)	613	4	302000 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8SW (S)	613	4	302020 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	619	4	301467 513185

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NE (E)	623	4	302811 513975
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NE (E)	626	4	302808 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	627	4	301436 513206
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8SE (S)	635	4	302237 513024
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NE (SW)	646	4	301435 513179
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NW (W)	651	4	301250 513964

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8SE (S)	652	4	302223 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NW (W)	658	4	301244 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8SE (S)	671	4	302275 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SW (W)	671	4	301229 513563
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NW (W)	674	4	301209 513859
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SW (W)	676	4	301203 513712

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SE (NW)	677	4	301396 514417
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (SW)	682	4	301623 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SW (W)	686	4	301195 513669
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A19SE (NE)	689	4	302795 514192
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NW (W)	695	4	301207 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12NW (W)	721	4	301195 514113

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NW (SW)	743	4	301186 513436
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (SW)	752	4	301481 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NW (SW)	754	4	301174 513443
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	763	4	301221 514313
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	765	4	301183 514230
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A9SW (SE)	768	4	302481 513000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (SW)	771	4	301448 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NE (NW)	781	4	301381 514548
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	783	4	301169 514244
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7NW (SW)	788	4	301140 513435
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	793	4	301282 513132
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14SE (E)	797	4	303000 513828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	797	4	301363 514554
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NE (E)	803	4	303000 513931
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14SE (E)	810	4	303000 513696
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14NE (E)	813	4	303000 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (SW)	816	4	301498 512914
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NE (NW)	827	4	301442 514654

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A17NE (NW)	829	4	301464 514670
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A17NE (N)	830	4	301694 514803
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A17NE (NW)	831	4	301496 514692
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A7NW (W)	834	4	301086 513456
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A9NE (SE)	843	4	302888 513319
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A9SW (SE)	847	4	302666 513056

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (SW)	849	4	301470 512892
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A12SW (W)	858	4	301049 513511
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14SE (E)	859	4	303000 513521
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A14SE (E)	859	4	303000 513521
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A9NE (SE)	871	4	302942 513557
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11SE (W)	878	4	301000 513828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A9SW (SE)	887	4	302666 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A11SE (W)	888	4	301000 513603
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A15NW (E)	890	4	303079 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A17NE (NW)	896	4	301441 514735
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A17SW (NW)	898	4	301082 514336
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A11SE (W)	899	4	301000 513539

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	901	4	301256 514595
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11NE (W)	902	4	301000 514000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	902	4	301339 514672
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A15SW (E)	904	4	303088 513659
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	905	4	301097 514382
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	906	4	301334 514673

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	910	4	301177 513076
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A19SE (NE)	910	4	303000 514279
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	915	4	301075 514361
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11NE (W)	919	4	301000 514150
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	935	4	301167 513047
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	935	4	301229 514617

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A23SW (N)	940	4	302020 515000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A23SE (N)	940	4	302047 515000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A23SE (N)	940	4	302079 515000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	941	4	301054 514377
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A23SW (N)	942	4	302000 515000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (SW)	943	4	301375 512841

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A15SW (E)	944	4	303086 513509
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A22SE (NW)	949	4	301535 514850
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A17SW (NW)	951	4	301048 514386
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A9NE (SE)	953	4	303000 513294
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A7SW (SW)	960	4	301173 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A23SW (N)	962	4	301860 515000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	963	4	301131 513049
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	966	4	301038 514400
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	969	4	301363 514772
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17NW (NW)	969	4	301355 514767
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11SE (W)	970	4	300908 513744
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A24SW (N)	972	4	302410 514969

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A17SW (NW)	973	4	301033 514407
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11SE (W)	973	4	300908 513657
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	974	4	301156 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A23SE (N)	978	4	302337 515000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	979	4	301131 513022
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	982	4	301115 513039

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11NE (W)	989	4	300894 513842
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A11NE (W)	990	4	300898 513899
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SW (SW)	994	4	301129 513000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A23SW (N)	996	4	301735 515000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A22SE (NW)	997	4	301493 514882
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic <15 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	A16SE (NW)	998	4	301000 514396

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic: 25 - 35 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A19SE (NE)	999	4	303000 514442
53	BGS Recorded Mineral Sites Site Name: Cleator Iron Ore Mine Location: , Cleator, Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140693 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A12NE (W)	261	2	301647 513905
54	BGS Recorded Mineral Sites Site Name: Cleator Iron Ore Mine Location: , Cleator, Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140691 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A12NE (W)	349	2	301552 513858
55	BGS Recorded Mineral Sites Site Name: Cleator Moor Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140675 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A18SW (N)	372	2	301964 514419
56	BGS Recorded Mineral Sites Site Name: Cleator Iron Ore Mine Location: , Cleator, Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140692 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A12NE (NW)	469	2	301444 514074
57	BGS Recorded Mineral Sites Site Name: Todholes Quarries Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140647 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Frizington Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A18NW (N)	582	2	302022 514641

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
58	BGS Recorded Mineral Sites Site Name: Jacktrees Pit Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140674 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A18NW (N)	608	2	301779 514597
59	BGS Recorded Mineral Sites Site Name: Montreal Iron Ore Mine Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140679 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	665	2	301366 514362
60	BGS Recorded Mineral Sites Site Name: Todholes Quarries Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140646 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Frizington Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A18NW (N)	707	2	301983 514763
61	BGS Recorded Mineral Sites Site Name: Montreal Iron Ore Mine Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140676 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	734	2	301439 514536
62	BGS Recorded Mineral Sites Site Name: Bragg Wood Location: , Cleator, Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140661 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Ordovician Geology: Buttermere Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8SE (S)	764	2	302189 512874
63	BGS Recorded Mineral Sites Site Name: Cleator Glebe Mine Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140690 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A12SW (W)	771	2	301138 513518

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	BGS Recorded Mineral Sites Site Name: Todholes Quarries Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140645 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Frizington Limestone Formation Commodity: Limestone Positional Accuracy: Located by supplier to within 10m	A23SW (N)	796	2	301972 514851
65	BGS Recorded Mineral Sites Site Name: Montreal Iron Ore Mine Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140681 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A17NW (NW)	903	2	301317 514655
66	BGS Recorded Mineral Sites Site Name: Montreal Iron Ore Mine Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140680 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	904	2	301123 514427
67	BGS Recorded Mineral Sites Site Name: Montreal Iron Ore Mine Location: , Cleator Moor, Cumbria Source: British Geological Survey, National Geoscience Information Service Reference: 140678 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Not Available Geology: ! Commodity: Iron ore Positional Accuracy: Located by supplier to within 10m	A17SW (NW)	976	2	301079 514492
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SW (N)	0	5	302020 513828
	Mining Instability Mining Evidence: Conclusive Iron Ore Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SW (W)	0	-	302000 513828
	Mining Instability Mining Evidence: Conclusive Iron Ore Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SW (N)	0	-	302020 513828
	Mining Instability Mining Evidence: Conclusive Metaliferous Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SW (N)	0	-	302020 513828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Man-Made Mining Cavities Easting: 301500 Northing: 513900 Distance: 406 Quadrant Reference: A12 Quadrant Reference: NE Bearing Ref: W Cavity Type: Not supplied Commodity: Hematite Solid Geology Detail: No Details Superficial Geology No Details Detail:	A12NE (W)	406	6	301500 513900
	Man-Made Mining Cavities Easting: 301700 Northing: 514600 Distance: 650 Quadrant Reference: A17 Quadrant Reference: NE Bearing Ref: N Cavity Type: Not supplied Commodity: Hematite Solid Geology Detail: No Details Superficial Geology No Details Detail:	A17NE (N)	650	6	301700 514600
	Man-Made Mining Cavities Easting: 301500 Northing: 514500 Distance: 668 Quadrant Reference: A17 Quadrant Reference: SE Bearing Ref: NW Cavity Type: Not supplied Commodity: Hematite Solid Geology Detail: No Details Superficial Geology No Details Detail:	A17SE (NW)	668	6	301500 514500
	Man-Made Mining Cavities Easting: 301100 Northing: 513500 Distance: 812 Quadrant Reference: A12 Quadrant Reference: SW Bearing Ref: W Cavity Type: Not supplied Commodity: Hematite Solid Geology Detail: No Details Superficial Geology No Details Detail:	A12SW (W)	812	6	301100 513500
	Man-Made Mining Cavities Easting: 301000 Northing: 513700 Distance: 879 Quadrant Reference: A11 Quadrant Reference: SE Bearing Ref: W Cavity Type: Not supplied Commodity: Hematite Solid Geology Detail: No Details Superficial Geology No Details Detail:	A11SE (W)	879	6	301000 513700
	Man-Made Mining Cavities Easting: 301200 Northing: 514600 Distance: 945 Quadrant Reference: A17 Quadrant Reference: NW Bearing Ref: NW Cavity Type: Not supplied Commodity: Hematite Solid Geology Detail: No Details Superficial Geology No Details Detail:	A17NW (NW)	945	6	301200 514600
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	1	2	302196 513831
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	2	2	302163 513749
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	301916 513877
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	7	2	302171 513752
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	301916 513877
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	7	2	302171 513752
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	40	2	301836 513931
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	50	2	301877 514010
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	11	2	302159 513730
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	13	2	302181 513755
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	55	2	302257 513843
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	121	2	302178 514105
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	168	2	302215 514135
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	217	2	302310 513590
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	301916 513877
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	7	2	302171 513752
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	9	2	302208 513828

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	19	2	302149 513709
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	217	2	302310 513590
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	301916 513877
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	7	2	302171 513752
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	9	2	302208 513828
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	2	301976 513975
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	2	301926 513850
	Radon Potential - Radon Protection Measures Protection Measure: Full radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	301901 513925
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	302020 513828
	Radon Potential - Radon Affected Areas Affected Area: The property is in a radon affected area, as between 1 and 3% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	0	2	301976 513975
	Radon Potential - Radon Affected Areas Affected Area: The property is in a radon affected area, as between 1 and 3% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	2	301926 513850
	Radon Potential - Radon Affected Areas Affected Area: The property is in a radon affected area, as between 10 and 30% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	2	301901 513925

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
68	Contemporary Trade Directory Entries Name: Kangol Factory Store Location: Cleator Mills, Cleator, Cumbria, CA23 3DJ Classification: Hats & Caps - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (NE)	0	-	302115 513881
69	Fuel Station Entries Name: Forge Service Station Location: Main Street, CLEATOR, Cumbria, CA23 3AD Brand: Obsolete Premises Type: Not Applicable Status: Obsolete Positional Accuracy: Manually positioned to the address or location	A7SW (SW)	821	-	301291 513077

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	Environmentally Sensitive Areas Name: Lake District Multiple Areas: N Total Area (m2): 2453926627.23 Source: Natural England	A13SE (SE)	11	7	302130 513713
71	Sites of Special Scientific Interest Name: River Ehen (Ennerdale Water To Keekle Confluence) Multiple Areas: N Total Area (m2): 233329.49 Source: Natural England Reference: 2000147 Designation Details: Special Area Of Conservation Designation Date: 15th May 1997 Date Type: Notified Designation Details: Site Of Special Scientific Interest Designation Date: 15th May 1997 Date Type: Notified Designation Details: National Park Designation Date: 15th May 1997 Date Type: Notified Designation Details: Environmentally Sensitive Area Designation Date: 15th May 1997 Date Type: Notified	A13SE (SE)	0	7	302119 513725
72	Special Areas of Conservation Name: River Ehen Multiple Areas: N Total Area (m2): 233329.49 Source: Natural England Reference: UK0030057 Status: Designated	A13SE (SE)	0	7	302119 513725

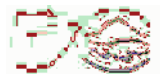
Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Copeland Borough Council - Environmental Health Department	June 2012	Annual Rolling Update
Discharge Consents Environment Agency - North West Region	April 2013	Quarterly
Enforcement and Prohibition Notices Environment Agency - North West Region	March 2013	Quarterly
Integrated Pollution Controls Environment Agency - North West Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - North West Region	April 2013	Quarterly
Local Authority Integrated Pollution Prevention And Control Copeland Borough Council - Environmental Health Department	April 2013	Annual Rolling Update
Local Authority Pollution Prevention and Controls Copeland Borough Council - Environmental Health Department	April 2013	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Copeland Borough Council - Environmental Health Department	April 2013	Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - North West Region	January 2000	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - North West Region	March 2013	Monthly
Prosecutions Relating to Controlled Waters Environment Agency - North West Region	March 2013	Monthly
Registered Radioactive Substances Environment Agency - North West Region	April 2013	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register Environment Agency - North West Region - North Area	April 2013	Quarterly
Water Abstractions Environment Agency - North West Region	April 2013	Quarterly
Water Industry Act Referrals Environment Agency - North West Region	April 2013	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	October 2012	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	October 2012	Annually
Source Protection Zones Environment Agency - Head Office	March 2013	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	April 2013	Quarterly

Agency & Hydrological	Version	Update Cycle
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	April 2013	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	April 2013	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	April 2013	Quarterly
Flood Defences Environment Agency - Head Office	April 2013	Quarterly
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency - North West Region - North Area	April 2013	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - North West Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - North West Region - North Area	April 2013	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - North West Region - North Area	January 2013	Quarterly
Local Authority Landfill Coverage Copeland Borough Council - Environmental Health Department Cumbria County Council - Economy And Environment Department	May 2000 May 2000	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Copeland Borough Council - Environmental Health Department Cumbria County Council - Economy And Environment Department	May 2000 May 2000	Not Applicable Not Applicable
Registered Landfill Sites Environment Agency - North West Region - North Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency - North West Region - North Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - North West Region - North Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	March 2013	Bi-Annually
Explosive Sites Health and Safety Executive	March 2013	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Cumbria County Council - Development Control Copeland Borough Council - Planning Lake District National Park	February 2013 January 2013 October 2012	Annual Rolling Update Annual Rolling Update Annual Rolling Update
Planning Hazardous Substance Consents Cumbria County Council - Development Control Copeland Borough Council - Planning Lake District National Park	February 2013 January 2013 October 2012	Annual Rolling Update Annual Rolling Update Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	January 2010	Variable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2013	Bi-Annually
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	January 2012	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	February 2013	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2013	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Outstanding Natural Beauty Natural England	March 2013	Bi-Annually
Environmentally Sensitive Areas Natural England	February 2013	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2013	Bi-Annually
Marine Nature Reserves Natural England	August 2012	Bi-Annually
National Nature Reserves Natural England	February 2013	Bi-Annually
National Parks Natural England	February 2013	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2013	Annually
Ramsar Sites Natural England	February 2013	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2013	Bi-Annually
Special Areas of Conservation Natural England	February 2013	Bi-Annually
Special Protection Areas Natural England	February 2013	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey NATURAL SCIENCE & HERITAGE
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology
Countryside Council for Wales	 CYNGOR CERN GWLAD CYMRU COUNTRYSIDE COUNCIL FOR WALES
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
3	Copeland Borough Council - Environmental Health Department P O Box 19, Council Offices, Catherine Street, Whitehaven, Cumbria, CA28 7NY	Telephone: 01946 852585 Fax: 01946 590123 Email: dev.env@copelandbc.gov.uk Website: www.copelandbc.gov.uk
4	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
5	The Coal Authority - Mining Report Service 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
6	Peter Brett Associates Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
7	Natural England Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
8	Cumbria County Council - Economy And Environment Department Citadel Chambers, Citadel Row, Carlisle, Cumbria, CA3 8SG	Telephone: 01228 606718 Website: www.cumbria.gov.uk
-	Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.

Envirocheck[®] Report:

BGS Boreholes Datasheet

Order Details:

Order Number:

46283628_1_1

Customer Reference:

EES13-061

National Grid Reference:

302020, 513830

Slice:

A

Site Area (Ha):

8.14

Borehole Search Buffer (m):

500

Site Details:

Former Kangol Factory

Cleator Mills

CLEATOR

Cumbria

CA23 3DU

Client Details:

Mr T Elliott

Elliott Environmental Surveyors

Mallan House

Bridge End Industrial Estate

Hexham

Northumberland

NE46 4DQ

Data Type	Page Number	On Site	0 to 250m	251 to 500m
BGS Boreholes	pg 1	1	None	7

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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

Report Version v47.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	BGS Boreholes BGS Reference: Ny01sw543 Drilled Length (m): Not Supplied Borehole Name: Proposed River Protection Works Link to Borehole: Not Available Scan:	A13SE (SE)	0	2	302080 513750
74	BGS Boreholes BGS Reference: Ny01sw528 Drilled Length (m): Not Supplied Borehole Name: Cleator Mine (File) (M) Link to Borehole: Not Available Scan:	A12NE (W)	315	2	301590 513860
75	BGS Boreholes BGS Reference: Ny01sw327/2 Drilled Length (m): .68 Borehole Name: Todholes Bh3 (Cross Section) Link to Borehole: http://scans.bgs.ac.uk/sobi_scans/boreholes/896677/ Scan:	A18SE (N)	374	2	302053 514434
75	BGS Boreholes BGS Reference: Ny01sw327/3 Drilled Length (m): 5.08 Borehole Name: Todholes Bh4 (Cross Section) Link to Borehole: http://scans.bgs.ac.uk/sobi_scans/boreholes/896678/ Scan:	A18SE (N)	375	2	302062 514435
75	BGS Boreholes BGS Reference: Ny01sw327/1 Drilled Length (m): 5.42 Borehole Name: Todholes Bh2 (Cross Section) Link to Borehole: http://scans.bgs.ac.uk/sobi_scans/boreholes/896676/ Scan:	A18SE (N)	376	2	302044 514436
76	BGS Boreholes BGS Reference: Ny01sw326 Drilled Length (m): 71 Borehole Name: Bh No. 6 Todholes (Cross Section) Link to Borehole: http://scans.bgs.ac.uk/sobi_scans/boreholes/896675/ Scan:	A18SW (N)	422	2	301948 514466
76	BGS Boreholes BGS Reference: Ny01sw325 Drilled Length (m): 74 Borehole Name: Bh No. 1 Todholes (Cross Section) Link to Borehole: http://scans.bgs.ac.uk/sobi_scans/boreholes/896674/ Scan:	A18SW (N)	436	2	301940 514478
77	BGS Boreholes BGS Reference: Ny01sw329 Drilled Length (m): 43 Borehole Name: Bh 2 (Gcm Co.) (Cross Section) Link to Borehole: http://scans.bgs.ac.uk/sobi_scans/boreholes/896683/ Scan:	A18NE (N)	492	2	302084 514552

BGS Boreholes	Version	Update Cycle
BGS Boreholes British Geological Survey - National Geoscience Information Service	April 2013	Quarterly

Contact Details	Contact Logo
2 British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
- Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk	 LANDMARK

Historical Mapping Legends

Ordnance Survey County Series and
Ordnance Survey Plan 1:2,500

Quarry

Gravel Pit

Sand Pit

Clay Pit

Shingle

Refuse Heap

Sloping Masonry

Flat Rock

Marsh

Reeds

Oysters

(Rough Pasture)

Fens

Wood

Mixed Wood

Brushwood

Orchard

Beach Pit

Ford

Stepping Stones

Ferry

Waterfall

Lock

Trig Station

Altitude at Trig Station

Bench Mark

Surface Level

Arrow denotes flow of water

Anquies (site of)

Cutting

Embankment

Railway crossing Road

Level Crossing

Road crossing Railway

Railway crossing River or Canal

Road over single stream

Road over River or Canal

County Boundary (Geographical)

County & Civil Parish Boundary

Administrative County & Civil Parish Boundary

County Borough Boundary (England)

County Borough Boundary (Scotland)

Boundary Post or Stone

Bridle Road

Electric Pylon

Foot Bridge

Foot Path

Guide-post or Board

Mile Stone

M.P. or A. boundary post or stone

Police Call Box

Pump

Signal Post

Sluice

Spring

Telephone Call Box

Trough

Well

Quarry

Gravel Pit

Sand Pit

Clay Pit

Shingle

Refuse Heap

Sloping Masonry

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Foot Path

Guide-post or Board

Mile Stone

M.P. or A. boundary post or stone

Police Call Box

Pump

Signal Post

Sluice

Spring

Telephone Call Box

Trough

Well

Ordnance Survey Plan, Additional SIMs and
Supply of Unpublished Survey Information
1:2,500 and 1:1,250

Quarry

Gravel Pit

Sand Pit

Clay Pit

Shingle

Refuse Heap

Sloping Masonry

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Marsh

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Oysters

(Rough Pasture)

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Road over single stream

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Police Call Box

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Trough

Well

Large-Scale National Grid Data 1:2,500 and
1:1,250

Quarry

Gravel Pit

Sand Pit

Clay Pit

Shingle

Refuse Heap

Sloping Masonry

Flat Rock

Marsh

Reeds

Oysters

(Rough Pasture)

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County Borough Boundary (Scotland)

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Sand Pit

Clay Pit

Shingle

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Foot Path

Guide-post or Board

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M.P. or A. boundary post or stone

Police Call Box

Pump

Signal Post

Sluice

Spring

Telephone Call Box

Trough

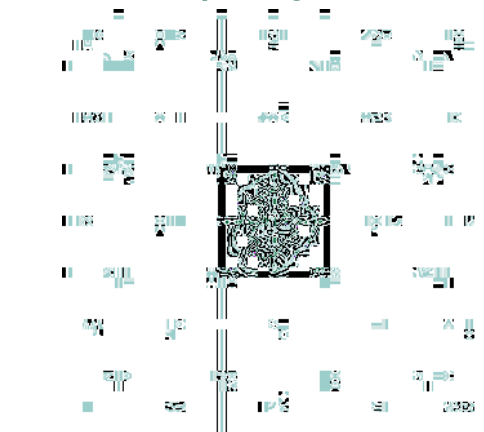
Well



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cumberland	1:2,500	1878	2
Cumberland	1:2,500	1899	3
Cumberland	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1962 - 1963	5
Additional SIMs	1:2,500	1963 - 1981	6
Ordnance Survey Plan	1:2,500	1967	7
Ordnance Survey Plan	1:2,500	1985	8
Additional SIMs	1:2,500	1985 - 1991	9
Additional SIMs	1:2,500	1991	10
Large-Scale National Grid Data	1:2,500	1994	11
Large-Scale National Grid Data	1:2,500	1995	12
Large-Scale National Grid Data	1:2,500	1995	13

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



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

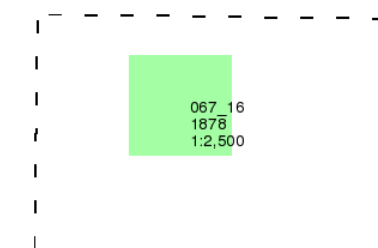
Cumberland

Published 1878

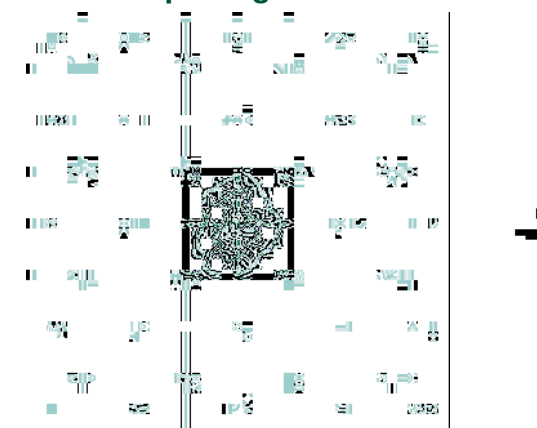
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

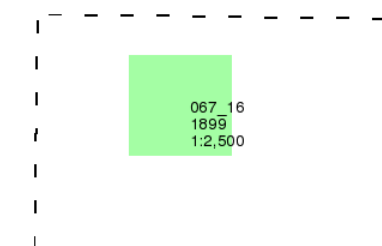
Cumberland

Published 1899

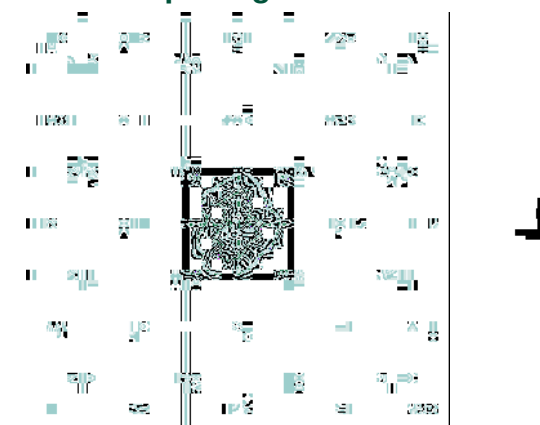
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

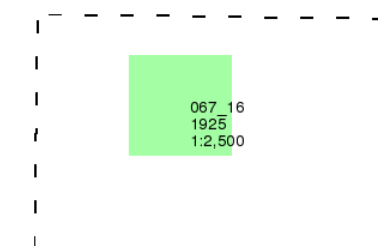
Cumberland

Published 1925

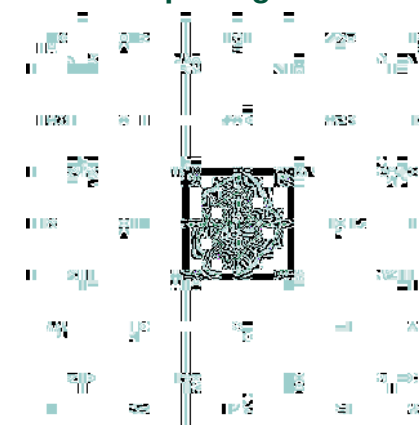
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

Ordnance Survey Plan

Published 1962 - 1963

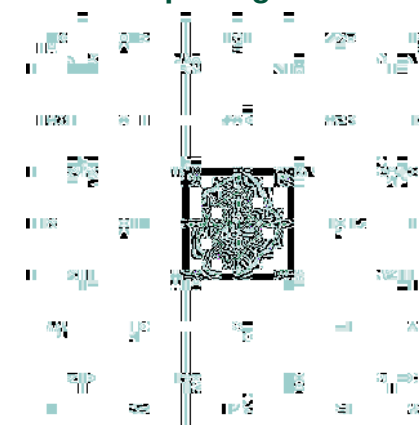
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

NY0114 1962 1:2,500	NY0214 1962 1:2,500
NY0113 1962 1:2,500	NY0213 1963 1:2,500

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

Additional SIMs

Published 1963 - 1981

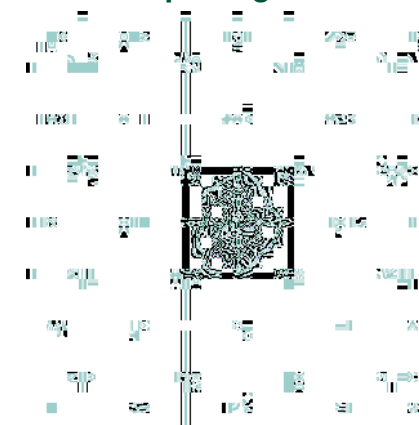
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

NY0114 1979 12,500	NY0214 1981 12,500
NY0113 1979 12,500	NY0213 1983 12,500

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

Ordnance Survey Plan

Published 1967

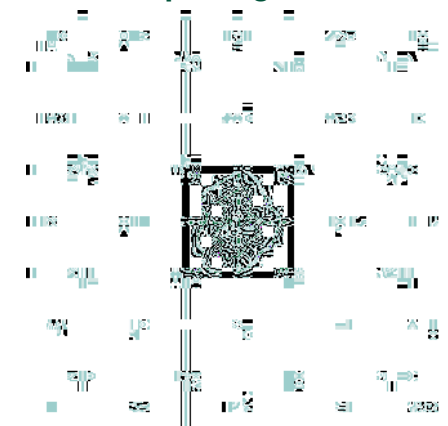
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

NY0114
1967
1:2,500

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

Ordnance Survey Plan

Published 1985

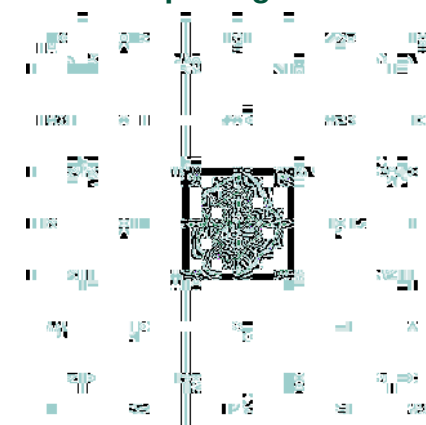
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

NY0114
1985
1:2,500

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

Additional SIMs

Published 1985 - 1991

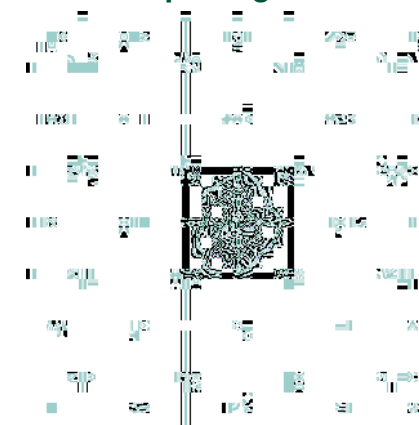
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

NY0114 1985 12,500	NY0214 1985 12,500
NY0113 1991 12,500	NY0213 1991 12,500

Historical Map - Segment A13



Order Details

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National Grid Reference: 302020, 513830
Slice: A
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Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

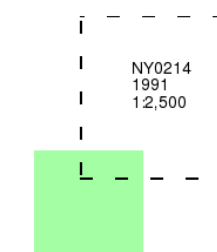
Additional SIMs

Published 1991

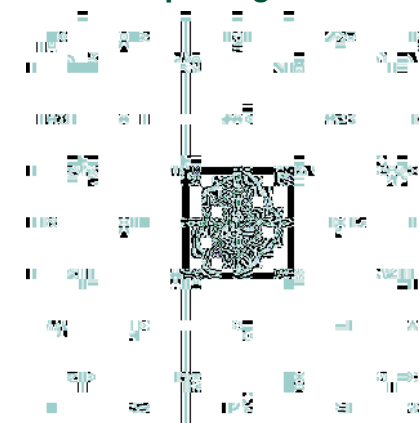
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



Large-Scale National Grid Data

Published 1994

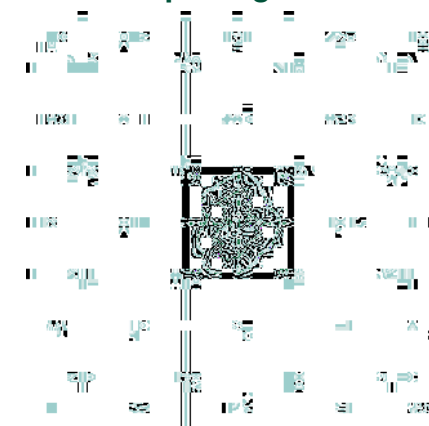
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

NY0114 1994 12,500	NY0214 1994 12,500
NY0113 1994 12,500	NY0213 1994 12,500

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
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Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Large-Scale National Grid Data

Published 1995

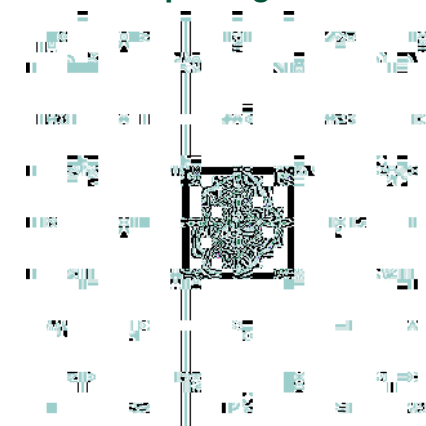
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

NY0114 1995 1:2,500	NY0214 1995 1:2,500
---------------------------	---------------------------

Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

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



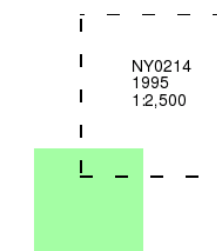
Large-Scale National Grid Data

Published 1995

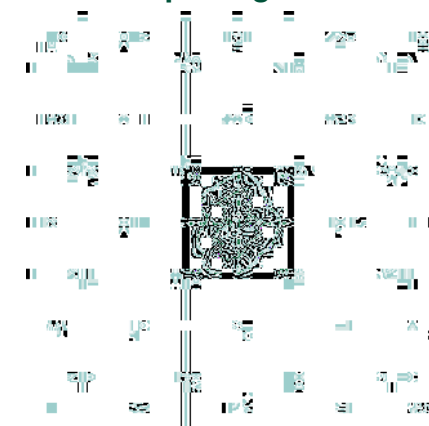
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 46283628_1_1
Customer Ref: EES13-061
National Grid Reference: 302020, 513830
Slice: A
Site Area (Ha): 8.14
Search Buffer (m): 100

Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



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

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pit		Sand Pit		Other Pits
	Cherry		Shingle		Orchard
	Oysters		Reeds		Marsh
	Mixed Wood		Deciduous		Coniferous
	Fir		Furze		Rough Pasture
	Arrow denotes flow of water		Trigonometrical Station		
	Site of Antiquities		Bench Mark		
	Pump, Guide Post, Signal Post		Well, Spring, Boundary Post		
	Surface Level				
	Sketches of Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over Road		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Borough Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pit, Clay Pit or Quarry		Gravel Pit
	Sand Pit		Disused Pit or Quarry
	Refuse or Slag Heap		Lake, Loch or Pond
	Dunes		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Electricity Transmission Line		Pole
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	Standard Gauge Multiple Track		Standard Gauge Single Track
	Siding, Tramway or Mineral Line		Narrow Gauge
	Geographical County		
	Administrative County, County Borough or County of City		
	Municipal Borough, Urban or Rural District, Burgh or District Council		
	Borough, Burgh or County Constituency		
	Civil Parish		
	Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Post Office		Signal Box
	Fountain		Spring
	Guide Post		Telephone/Call Box
	Mile Post		Telephone/Call Post
	Mile Stone		Well

1:10,000 Raster Mapping

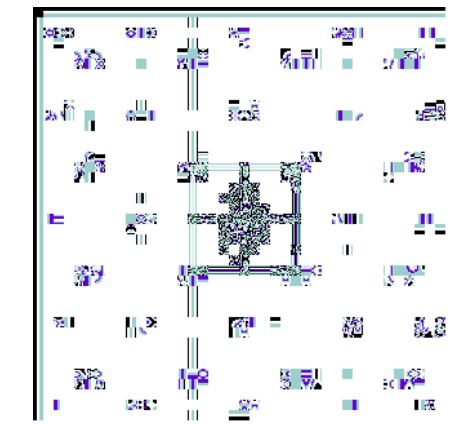
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Cliffs		Top of cliff
	General detail		Unimproved detail
	Overhead detail		Narrow gauge railway
	Multiple-track railway		Single-track railway
	County boundary (England only)		Civil parish or municipality boundary
	District, Unitary, Metropolitan, London Borough boundary		Constituency boundary
	Area of wooded vegetation		Non-coniferous trees
	Non-coniferous trees (scattered)		Coniferous trees
	Coniferous trees (scattered)		Positioned tree
	Orchard		Coppice
	Rough Grassland		Heath
	Scrub		Marsh, Salt Marsh or Reeds
	Water feature		Flow arrow
	Fresh high water (spring)		When low water (spring)
	Telephone line (when shown)		Electricity transmission line (with poles)
	Bench mark (when shown)		Trigonulation station
	Point markers (e.g. Guide Post or Mile Stone)		Pylon, bare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Cumberland	1:10,560	1867	2
Cumberland	1:10,560	1900	3
Cumberland	1:10,560	1926	4
Cumberland	1:10,560	1938	5
Ordnance Survey Plan	1:10,000	1956 - 1957	6
Ordnance Survey Plan	1:10,000	1971	7
Ordnance Survey Plan	1:10,000	1993	8
10K Raster Mapping	1:10,000	2006	9
10K Raster Mapping	1:10,000	2013	10

Historical Map - Slice A



Order Details

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Cumberland

Published 1867

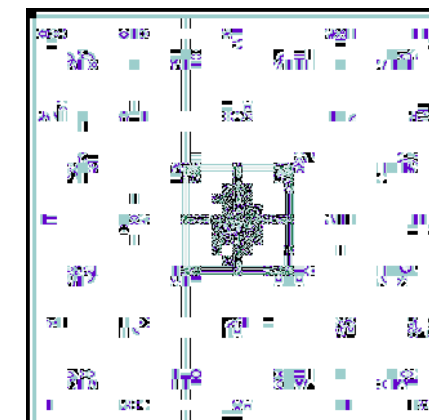
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

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07200 1867 1:10,560	

Historical Map - Slice A

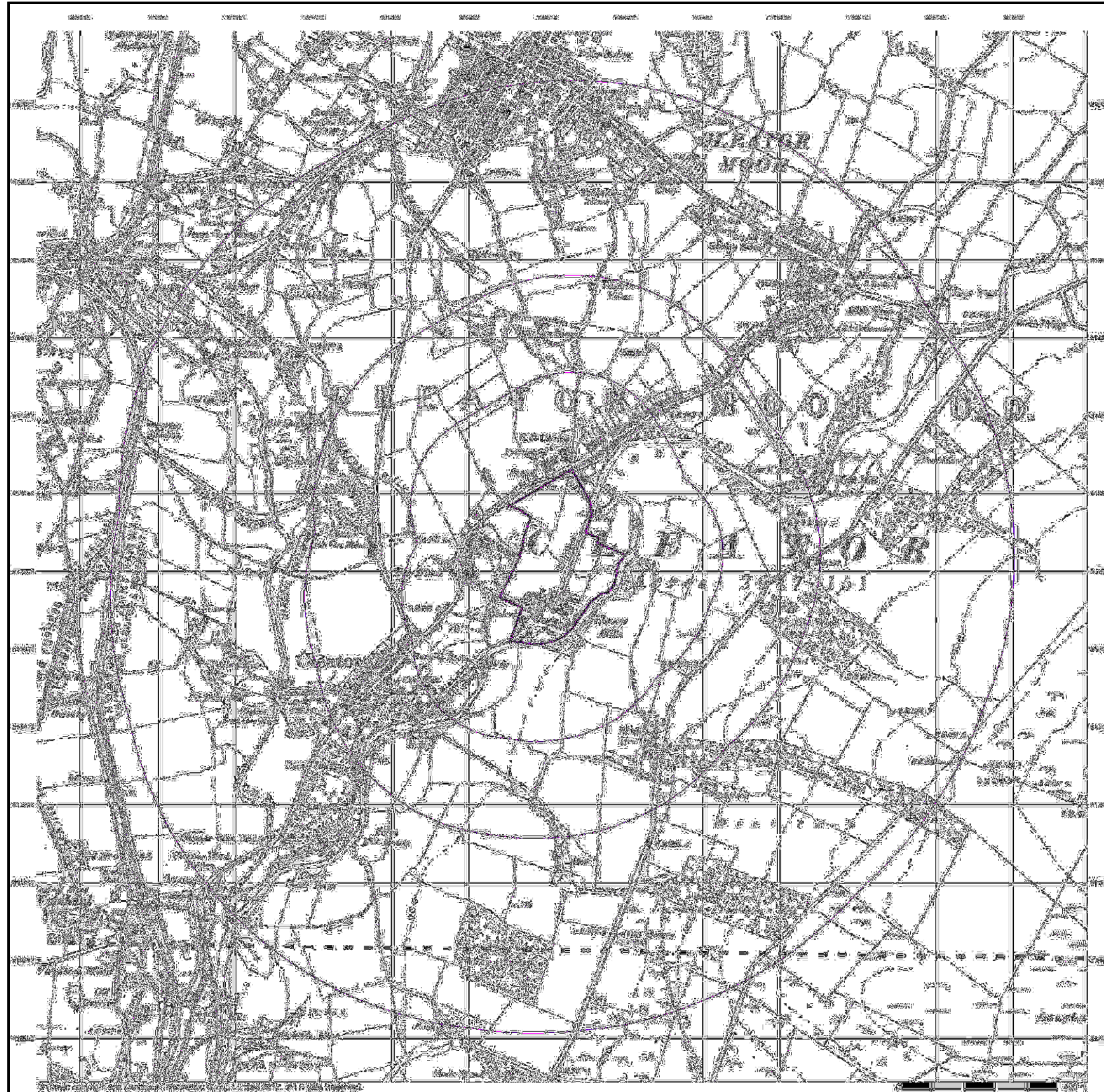


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Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



Cumberland

Published 1900

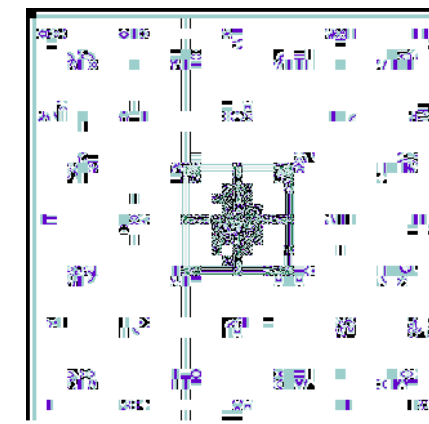
Source map scale - 1:10,560

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Cumberland

Published 1926

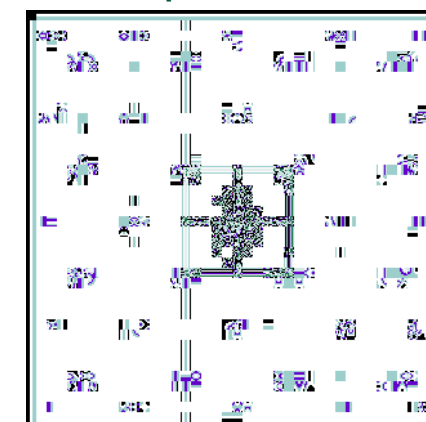
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Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

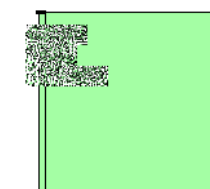
Cumberland

Published 1938

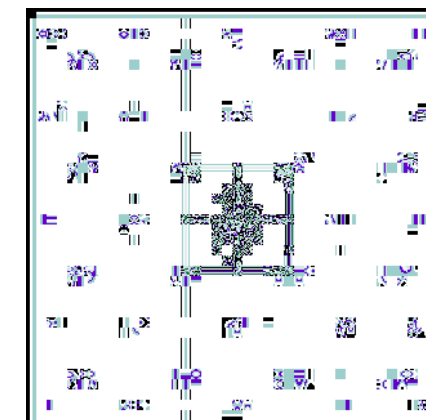
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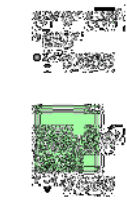
Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU



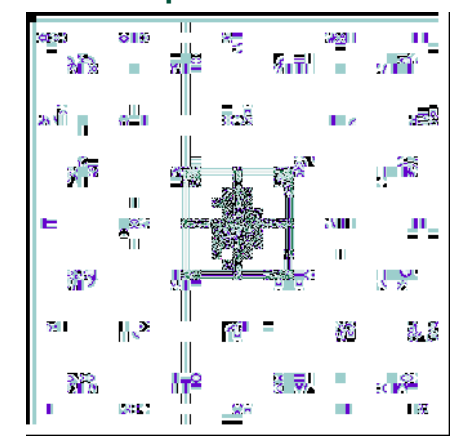
Ordnance Survey Plan
Published 1956 - 1957
Source map scale - 1:10,000

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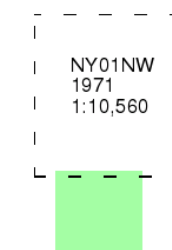
Ordnance Survey Plan

Published 1971

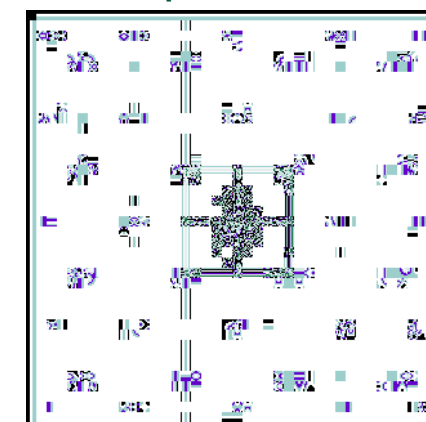
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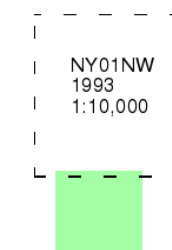
Ordnance Survey Plan

Published 1993

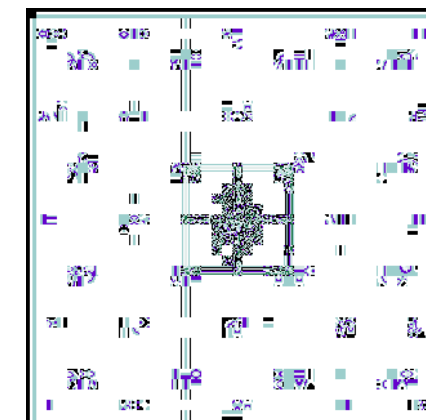
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Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria,
CA23 3DU

10k Raster Mapping

Published 2006

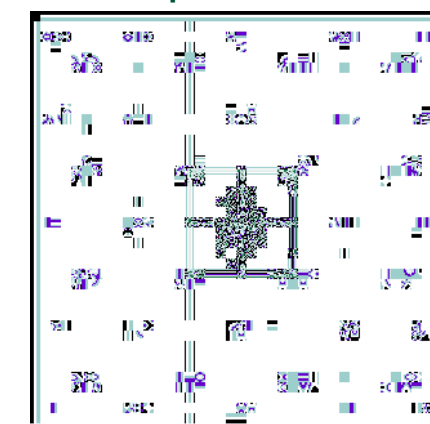
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

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Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

10k Raster Mapping

Published 2013

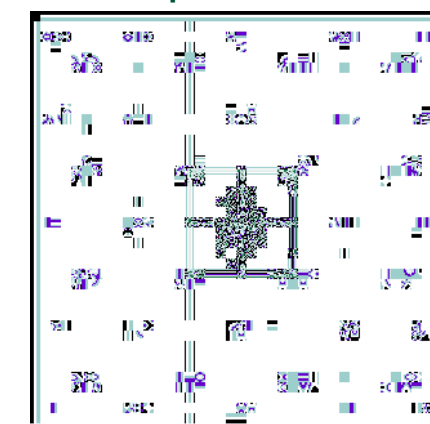
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Site Details

Former Kangol Factory, Cleator Mills, CLEATOR, Cumbria, CA23 3DU

APPENDIX 5 – Preliminary Conceptual Site Model

**North Associates
The Slack
Wigton
Cumbria
CA7 0LX**

**SITE INVESTIGATION
AND
UPDATED ENVIRONMENTAL RISK ASSESSMENT
for
CLEATOR MILLS
CLEATOR
CUMBRIA
CA23 3DU**



ELLIOTT
Environmental Surveyors

**Prepared by:
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Bridge End
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NE46 4DQ
Tel: 01434 609345
Fax: 01434 609344**

**Project No: EES13-061
17 September 2013**

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4.0 RESULTS AND TIER 1 ASSESSMENT	4
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APPENDICES

APPENDIX 1 – Site Plan

APPENDIX 2 – Photographs

APPENDIX 3 – Borehole Logs

APPENDIX 4 – Monitoring Results

APPENDIX 5 – Laboratory Results

APPENDIX 6 – Tier 1 Assessment

APPENDIX 7 – Refined Conceptual Site Model

1.0 INTRODUCTION

This report has been prepared on the instructions of Mr A Ross of North Associates, Wigton, prior to an application for planning permission to carry out demolition work and redevelopment at the old Kangol Factory site at Cleator Mills, Cleator, Cumbria.

A Preliminary Environmental Risk Assessment was carried out and reported in June 2013 (EES13-061, dated 18 June 2013). This indicated that contamination may have occurred on site, primarily due to over 200 years of industrial use, and that intrusive site investigation work would be needed to assess the current status of the underlying soils and groundwater. It is also known that the adjoining river is particularly sensitive potential receptor, having SAC status due to the presence of freshwater mussels and salmon.

The aim of this report is to provide a fuller understanding of the environmental status of the site, as well as for the planned redevelopment of the site, for mixed commercial and residential use.

In order to obtain an assessment of the status of the underlying soils, groundwater and vapours, boreholes were drilled in nine locations across the site, these being targeted at potentially contaminated areas. Samples of soils were taken for subsequent laboratory analysis, followed by monitoring of vapours and groundwater, to allow risk assessment to be carried out in relation to the proposed future uses of the site. This allowed the pollution linkage appraisal and site conceptual model to be updated, together with recommendations for the next stages.

This report should be read in conjunction with the Preliminary Environmental Risk Assessment.

2.0 LIMITATIONS OF THE REPORT

The recommendations contained in this report represent our professional opinions. These opinions were arrived at in accordance with currently accepted industry practices. The report takes into consideration potential sources, pathways, receptors and evaluates potential pollutant linkages. Elliott Environmental Surveyors Ltd (EES) professional interpretation relies solely on the information made available by the Client, other background data and the site investigation which is stated in the report and the implications of the findings on the future use of the site.

Every care has been taken to ensure that the interpretation of the site condition is based on all known data collected and as such is not a guarantee that the site is free of unidentified hazardous or potentially hazardous materials.

EES prepared this report for our Client. Any third party using this report does so entirely at his or her own risk. EES makes no warranty or representation whatsoever, express or implied, with respect to the use by a third party of any information contained in this report or its suitability for any purpose. EES assumes no responsibility for any costs, claims, damages or expenses (including any consequential damages) resulting from use of this report or any information contained in this report by a third party.

APPROVED BY	T ELLIOTT	SIGNED		DATE	17 September 2013
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3.0 SITE INVESTIGATION

3.1 *Intrusive investigation*

A total of nine boreholes (WS1 to WS9) were drilled on 20 August 2013 using window sample techniques, to depths of up to 2.4m bgl across the main mill site, with locations guided by the findings of the PERA, as well as a recently produced site services drawing. The positions of the intrusive points are shown on the Site Investigation Layout Plan at Appendix 1.

WS1 was located to the northeast of the main mill building, near the old mill race, the final depth being limited by the presence of loose but dense gravels. These gravels precluded re-drilling of all the holes, particularly where water was encountered, as this caused further instability.

WS2 was positioned near the building, although it was found to be underlain with old foundations, failing at just 0.7m bgl.

WS3 was located to the east of WS2, near where a small gasometer was shown on early maps, although this borehole also failed on sandstone foundations. WS4 was then positioned close by but further to the southeast, allowing drilling to 2.0m, but failing on the underlying gravels.

WS5 was located in the northeast of the site, with WS6 beyond, near the site boundary, both failing on gravels, at 1.8m and 2.0m bgl respectively.

WS7 was positioned to the east of the building between the chimney and old oil tanks and the river, extending into the gravels to 2.1m bgl.

The final two boreholes, WS8 and WS9, were drilled to the south of the building, to 2.25m and 2.4m bgl respectively, the gravels in WS9 being overlain with 1.7m of made ground.

The soils were logged and photographed, and samples were taken for in-situ readings for vapours, using a photoionisation detector (PID) to aid the selection of samples for subsequent laboratory testing, although no readings were found to be above the instrument detection limit. One to three samples were selected from each borehole for laboratory testing, depending on the depth of drilling and the nature of the material found, with additional samples where there was considered to be a potential for contaminated material to be present.

Water ingress occurred in only one of the boreholes, with wet soils found from 1.8m bgl in WS9, to the south of the building, where made ground had been found to 1.7m bgl. The water ingress caused the underlying sandy gravels to collapse, causing the hole to be unstable, and unsuitable for completion as a well.

50mm diameter monitoring wells were installed in five of the holes to the maximum achievable depth, with the other holes being backfilled, all being carefully sealed to exclude potential migration of any surface spillages. The wells were installed with slotted pipe, with the top 1m length plain pipe, backfilling with gravel to just below the base of the plain pipe then a bentonite seal. A gas tap was fitted, together with a traffic-rated lockable cover.

The borehole logs are shown at Appendix 3, together with sampling depths and PID readings, with photographs shown at Appendix 2.

3.2 Soil testing

A total of 18 samples were selected to be sent to a UKAS and MCERTS accredited laboratory to be tested. This consisted of:

- Metals suite (arsenic, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium and zinc) with pH on all samples, with and hexavalent chromium on twelve of them;
- Petroleum hydrocarbons (TPHs) by TPHCWG methodology (aliphatic / aromatic), with benzene, ethylbenzene, toluene and xylenes (BTEXs), or as petroleum hydrocarbons, banded as for TPHCWG, on all samples;
- Testing for semi-volatile organic compounds (SVOCs), or polycyclic aromatic hydrocarbons (PAHs), were carried out on all samples, the former selected in locations where contaminants such as solvents may be present;
- Whilst there was no obvious indication of the presence of asbestos, screening was carried out on all 10 made ground or near surface soil samples;
- Total sulphur and sulphates were carried out on eight samples of made ground, with free cyanides and thiocyanides on eleven samples. Water soluble sulphates were carried out on five samples, but these are predominantly for future concrete specification purposes;
- Volatile organic compounds (VOCs) were not included as no vapours were detected in any of the soils.

3.3 Vapour and groundwater monitoring

Monitoring was carried out on 4 September 2013. Soil gas and vapour monitoring was carried out, followed by measurement of the depth to groundwater and the base of the well.

3.4 Groundwater testing

No groundwater was encountered in the wells to enable any testing to be carried out.

However, in order to assess the potential leachability of the soils, the six worst-case samples were selected on the basis of the metal levels found in the soils. Leachability testing to BS EN 12457 2:1 was carried out, again to assess potential worst-case conditions, with testing for the same suite of metals.

4.0 RESULTS AND TIER 1 ASSESSMENT

4.1 Ground conditions

Most of the boreholes were positioned on grass, overlying silty topsoils to between 0.15m and 0.4m bgl, which was found to overlay made ground in all locations other than WS1 and WS6 in the far north to northeast. WS7 and WS9, in the east and southwest respectively, were drilled on tarmacadam which was found to be underlain directly with made ground.

The made ground to the south of the building, in WS8 and WS9, was found to 0.4m and 1.7m respectively, being more consistent in the central and eastern areas, to depths of 1.1 to 1.2m, unless old foundations were encountered.

The made ground was found to be variable, and included clinker in the southern and eastern areas, notably in WS7, in the east, as well as stone and mortar from previous structures, with some sand or reworked soils.

The underlying soils were found to be predominantly sands and gravels, with some silts, generally becoming coarser and denser with depth, and restricting the depth of drilling.

The borehole logs are shown at Appendix 3, with sample depths and PID readings included, with the location of the holes shown on the site plan at Appendix 1, and photographs at Appendix 2.

4.2 Groundwater conditions

Water ingress only occurred during drilling in WS9, in the far southwest of the site, within the sandy gravels encountered below the made ground, at 1.8m bgl. The water ingress caused the hole to collapse immediately to the top of the gravels, and the hole was backfilled.

No groundwater was detected in any of the five wells during the monitoring carried out on 4 September 2013.

4.3 Assessment of soil contaminants

Levels of contaminants have been compared to available guideline values for both commercial and residential with gardens end uses, as summarised in the Tier 1 Risk Assessment in Appendix 6, with the full laboratory certificate, DETS 13-87457-1, at Appendix 5.

Concentrations of most of the metals tested were found to be below levels of concern for both residential and commercial end use, with the chromium confirmed as not being in the more toxic hexavalent form. Arsenic was found to be elevated for residential use in two locations, both in made ground, with 40mg/kg in WS8 at 0.2m, and 33mg/kg in WS5 at 0.35m, being slightly elevated compared to the guideline value of 32.4mg/kg. Leachability testing on the six soils with the highest metal levels indicated that the metals to be of low leachability, with all levels being below Environmental Quality Standards (EQSs), as shown at Appendix 6.

pH values were found to be slightly alkaline, at between 7.3 and 8.4. Water soluble sulphates were found to be between 15 and 57mg/l, indicating that concrete Design

Sulphate Class DS-1 should be suitable on site for use within the underlying natural soils.

Loose asbestos fibres were found in three of the ten made ground or reworked soil samples screened, with amosite fibres within the made ground at 0.25m in WS4, in the central area. Chrysotile fibres were found at 0.4m in WS7 and 0.9m in WS8, in the southeast section.

With the exception of the near surface samples from the two holes to the south of the building, WS8 and WS9, levels of organic contaminants measured within suites of aliphatic and aromatic TPHs (including BTEXs and MTBE), banded TPHs, PAHs and SVOCs, were found to be generally well below those of concern with regards to human health for future residential or commercial use across the site. Levels of heavier end TPHs in WS8 and WS9 were elevated when compared to the far more stringent aromatic guideline levels, but as SVOCs (including PAHs) were generally below detection in both, and the use of this guideline is considered to be too stringent, with the actual risk likely to be lower. Sulphur compounds, free cyanide and thiocyanide were low across the site but were noted as being slightly higher in these materials.

4.4 Assessment of gas, vapours and groundwater contaminants

Gas, vapour and groundwater monitoring was carried out on 4 September 2013, during a period of fairly steady atmospheric pressure conditions.

No methane, hydrogen sulphide and carbon monoxide were detected, and down-hole pressures and flow rates were very low or below detection. Carbon dioxide was found to be below 5% in all wells, although slightly elevated in WS1 and WS8, with 4.3% and 3.5% CO₂, respectively, together with slightly depleted oxygen.

No vapours were detected, and no groundwater was found to the maximum installed depth of 2.1m bgl.

5.0 DISCUSSION

An intrusive site investigation was carried out across the site on 20 August 2013, targeted at areas considered to be most likely to be impacted from the past use of the site.

Made ground was encountered to depths of at least 1m across most of the site, variable constituents including clinker, and with old foundations found in some locations. Whilst most contaminants were found at levels below concern, asbestos fibres were found in three locations. With regards potential future residential use, some of the clinker-rich material was high in petroleum hydrocarbons and two arsenic levels were slightly elevated.

Contaminants were not found at levels of concern in the underlying sands and gravels. Whilst groundwater was encountered in one location in the gravels, none was found during monitoring to at least 2m bgl, although it had been dry and it is likely to be higher than this during wetter periods as it will be in continuum with the river.

No soil gases or vapours were detected at levels of concern. Although the monitoring was not carried out under worst-case conditions (low / falling atmospheric pressure) they are considered to reflect the prevailing conditions as the soil logs do not indicate the presence of potentially putrescible material.

The levels and types of chemicals remaining in the soils is such that most accessible contaminants are likely to have been leached or migrated away over the years. However, the situation may change if old structures or relics are disturbed that contain materials that could potentially be contaminative.

6.0 ENVIRONMENTAL RISK ASSESSMENT

Using the information from the site investigation the Environmental Risk Assessment produced during the Preliminary Environmental Risk Assessment, and hence the Conceptual Site Model, can now be updated.

Confirmation of the presence of asbestos fibres within the made ground is of concern for human health.

Whilst the testing did not indicate gross contamination, or the presence of materials that are likely to be leachable, it is not known whether old structures or relics remain from past use below the current ground level that could contain potentially hazardous material if damaged during demolition and clearance. On the basis of this, the residual risks to human health and the environment remain low through to medium.

The following table indicates the potential outstanding risks, including those that are now considered to be lower but where additional work may be required. These are also shown graphically in Appendix 7.

Source	Pathway	Target	Risk Rating	Justification and requirements for additional information
Contaminants from on site sources	Dermal contact / ingestion of soil / water. Migration and inhalation of vapours / gases	Construction workers	Medium	Risks to construction workers have been assessed as being medium, partly due to the presence of some areas of contaminated made ground, but also the limited information on old structures that may still be present.
	Migration and inhalation of dusts		High	A pre-demolition asbestos survey, and site clearance and further investigation will be required before the risks can be fully assessed.
		Future users	High	Asbestos fibres have been identified in made ground around the site. On the basis of the information, risks remain high.
	Dermal contact / ingestion of soil / water / uptake via home grown vegetables. Migration and inhalation of vapours / gases		Low to medium	Details of the future development are not known at this stage, but are assumed to include residential use with gardens. On the basis of the findings, but with the knowledge that structures could remain on site, risks to future users have been assessed as being medium. Further information will be required.
	Water supply pipes		Low to medium	The utility company will require water pipe risk assessments to be carried out for adoption of new water supply pipes. Remedial works may be required in some areas to reduce the potential risks.
	Run-off / migration / leaching, including via drains / services	Surface water	Medium to high	The risks to the adjoining surface water have been assessed as being medium to high during the decommissioning and demolition works mainly due to its proximity, with the potential contaminants on site not generally considered to be high risk. The risks to surface water are linked strongly with risks to sensitive receptors, with the SAC designation. A robust Risk Management Strategy and Plan will be needed.
		Sensitive receptors		
	Migration / leaching	Superficial aquifer	Medium to high	The underlying superficial aquifer is potentially at risk, notably during the decommissioning works. It is thought to be in continuum with the river. Whilst the contamination levels found during the SI were generally low, unknown structures could remain that could be hazardous, so the risks have been assessed as medium. A robust Risk Management Strategy and Plan will be needed.
		Bedrock aquifer	Low to medium	The underlying bedrock aquifer is considered to be potentially at some risk, notably during decommissioning works.

7.0 CONCLUSIONS AND RECOMMENDATIONS

In relation to commercial or residential end uses of the site, and on the basis of the findings of the site investigation, the risks to future users are currently considered to be lower than previously in the Preliminary Environmental Risk Assessment. However, risks to construction workers and future users from the presence of asbestos are still considered to be high. The possibility of old structures or relics being present, which may contain contaminants, means that the risks to the environment generally remain medium to high. A Risk Management Strategy and Plan will be required.

An intrusive investigation carried out across the site indicated that whilst made ground is present to at least 1m bgl across most of the site, the nature of it is such that the risks in most locations are fairly low. However, the presence of asbestos fibres within the made ground and the potential presence of old structures or relics means that the overall risk to construction workers and future users is still high, requiring further investigation and careful management and remediation.

Whilst no specific hazards to the environment were identified during the investigation in soils, these residual risks remain as medium to high due to the uncertainties surrounding any currently unidentified relic structures which may contain contaminants.

It is recommended that a Risk Management Strategy is produced at an early stage to ensure that all work associated with the decommissioning of the site prior to the redevelopment is carried out with due care and consideration for all personnel and the environment. The SAC status of the River Ehen means that any adverse risks from the site legacy, decommissioning, redevelopment and future use to this very sensitive receptor may be significant. The Risk Management Strategy and Plan will need to confirm how environmental risk have been designed-out or mitigated, and to provide the necessary risk avoidance and controls.

There are significant associated risks to human health during asbestos removal, primarily to demolition workers. The asbestos will need to be removed in compliance with Control of Asbestos Regulations 2012, and to be disposed appropriately. This will be made more complex as a result of the deterioration of the buildings.

As with any development site, if any further contamination is exposed as a result of the intrusive works on site, it will need to be examined and assessed by a suitably qualified environmental consultant.

APPENDIX 1 –Site Plan

SITE INVESTIGATION PLAN

CLEATOR MILLS

- Site Boundary
- Borehole
- Borehole/Monitoring Well

Version number: 1 Version state: Final

Design by: R Hopgood
Drawn by: J C Cooper
Reviewed by: R Hopgood
Approved by: T Elliott

Date: 20.08.2013
Date: 02.09.2013
Date: 03.09.2013
Date: 04.09.2013

Drawing ref: Cleator Mills SI Plan
File ref: EES13 -061
Grid ref:



Scale @ A3 1:1000

Reproduced from land line data supplied



Mallan House
Bridge End
Hexham
Northumberland
NE46 4DQ
Tel No: 01434609345
Fax No: 01434609344

APPENDIX 2 – Photographs

PHOTOGRAPHS



Photo 1: WS1 cores, from top right



Photo 2: WS1 following completion, facing east towards Gates building, with river beyond



Photo 3: Near surface material from WS2, near building

PHOTOGRAPHS



Photo 4: WS3 core failing on sandstone (right)



Photo 5: WS4 cores from top left



Photo 6: WS4 during drilling, on roundabout in the central area

PHOTOGRAPHS



Photo 7: Typical gravel – jammed in corer shoe



Photo 8: WS5 cores from top left



Photo 9: WS5 located in grass, completed with well, with Gates building beyond

PHOTOGRAPHS



Photo 10: WS6 cores, in far east, from top left, with the river beyond the building



Photo 11: WS7 cores, from top right, with black clinker



Photo 12: Cores from WS8, from top right

PHOTOGRAPHS



Photo 13: WS8 completed as a well, south of the main building



Photo 14: Cores from WS9, from top left



Photo 15: WS9 after backfilling

APPENDIX 3 – Logs

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS1	
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,051.2 N 513,758.6		
Contractor				Sheet 1 of 1	

TEST RESULTS			STRATA					Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.50	WS1@0.5	—	<1			(0.70) 0.70	Long grass on soft, brown, slightly sandy, clayey SILT with frequent rootlets (TOPSOIL). Very occasional coarse gravel and very occasional coal fragments.		
0.90	WS1@0.9	—	<1			(1.30) 1.30	Orange/brown, slightly silty, sandy GRAVEL. Sand is medium to coarse, gravel is fine to medium, occasionally sub angular to occasionally rounded.		
1.50	WS1@1.5	—	<1			2.00	From 1.0m with very occasional coal fragments and occasionally orange (iron staining)		
1.90	WS1@1.9	—	<1				Gravel is occasionally fine to coarse with bands of coarse sand or gravels. Moist.		



GENERAL REMARKS

Near Old Mill Race. Refused at 1.4m. Redrilled at smaller diameter to 2.0m. Dry.

All dimensions in metres
Scale 1:50

Client **North Associates**

Method/
Plant Used

Window Sampler

Logged By

RH

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS2
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,000.5 N 513,697.2	
Contractor				Sheet 1 of 1

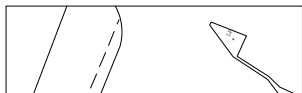
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		GENERAL REMARKS	
		Failed on sandstone. Backfilled on completion.	
All dimensions in metres Scale 1:50	Client North Associates	Method/ Plant Used Window Sampler	Logged By RH

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS3
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,019.4 N 513,699.2	
Contractor				Sheet 1 of 1

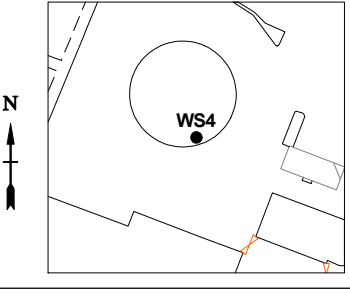
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			GENERAL REMARKS Failed on sandstone. Backfilled on completion.
All dimensions in metres Scale 1:50	Client North Associates	Method/ Plant Used Window Sampler	Logged By RH

BOREHOLE LOG

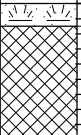
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Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,029.0 N 513,689.1		
Contractor				Sheet 1 of 1	

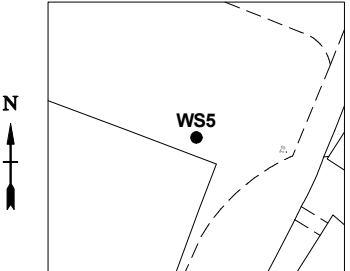
TEST RESULTS			STRATA					Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.25	WS4@0.25	—	<1			0.15	Long grass and weeds on soft, slightly gravelly, sandy, clayey SILT with rootlets and very occasional worms (TOPSOIL).		
0.70	WS4@0.7	—	<1			(1.05)	By 0.15m with occasional black staining, clinker, slate, clay drain pipe, stone and mortar. (MADE GROUND).		
1.20	WS4@1.2	—	<1			1.20	By 0.7m with occasional mortar and stone. Becoming gravelly.		
1.60	WS4@1.6	—	<1			(0.80)	Brown then yellow/brown slightly silty, slightly sandy GRAVEL. Gravel is sub angular to sub rounded, fine to coarse with occasional cobbles. Moist.		
1.95	WS4@1.95	—	<1			2.00			

				GENERAL REMARKS	
				Failed on granite. Refused with smallest diameter sampler. Dry.	
All dimensions in metres Scale 1:50		Client	North Associates	Method/ Plant Used	Window Sampler
				Logged By	RH

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS5	
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,070.3 N 513,720.1		
Contractor				Sheet 1 of 1	

TEST RESULTS			STRATA					Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.35	WS5@0.35	— <1				0.15 (0.95)	Long grass and weeds on soft, slightly sandy, slightly gravelly clayey SILT with rootlets (TOPSOIL). From 0.15-0.4m with sandstone (blackened in parts), granite and small black pockets. (MADE GROUND).		
0.80	WS5@0.8	— <1				1.10	By 0.5m yellow/brown and very slightly gravelly.		
1.30	WS5@1.3	— <1				(0.70)	Brown then yellow/brown, slightly silty, sandy GRAVEL. Sand is fine to coarse, gravel is fine to coarse, occasionally angular to occasionally rounded.		
1.70	WS5@1.7	— <1				1.80	Slightly moist.		

		GENERAL REMARKS	
		Failed on gravel. Refused with smallest diameter sampler. Dry.	

All dimensions in metres Scale 1:50	Client North Associates	Method/ Plant Used Window Sampler	Logged By RH
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BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS6	
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,106.2 N 513,741.4		
Contractor				Sheet 1 of 1	

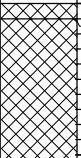
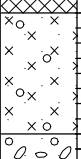
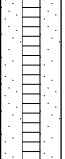
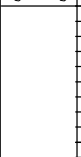
TEST RESULTS				STRATA				Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.30	WS6@0.3	—	<1			(0.40) 0.40	Long grass on soft, brown, slightly gravelly, sandy, clayey SILT with occasional rootlets (TOPSOIL).		
0.60	WS6@0.6	—	<1			0.75	At 0.2m single piece of pottery.		
0.90	WS6@0.9	—	<1			1.10	By 0.2m orange/brown.		
1.40	WS6@1.4	—	<1			(0.50) 1.60	Orange/brown, silty, fine to medium SAND.		
1.90	WS6@1.9	—	<1			(0.40) 2.00	Orange/brown, silty, sandy GRAVEL. Sand is fine to occasionally medium, gravel is fine to medium, sub angular to subrounded.		
							Orange/brown silty fine-medium SAND.		
							Grading to		
							Brown sandy GRAVEL. Sand is fine to medium, gravel is fine to occasionally coarse, sub angular to rounded with pockets of sand and gravel.		
							Slightly moist.		

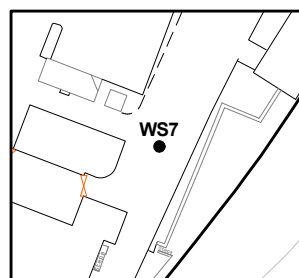
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		GENERAL REMARKS	
		Failed on gravel (granite). Dry. Backfilled on completion.	
All dimensions in metres Scale 1:50	Client North Associates	Method/ Plant Used Window Sampler	Logged By RH

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS7	
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,063.8 N 513,672.6		
Contractor				Sheet 1 of 1	

TEST RESULTS			STRATA					Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.40	WS7@0.4	— <1				0.10	Tarmacadam		
						(1.00)	MADE GROUND. Black clinker with occasional sandstone and brick pieces with slight creosote odour.		
0.90	WS7@0.9	— <1				1.10	By 0.6m with occasional pockets of brown silt and gravel then sandstone.		
1.30	WS7@1.3	— <1				(0.80)	Soft orange/brown, very sandy SILT with very occasional roots.		
1.80	WS7@1.8	— <1				1.90	Moist.		
						2.10	Sandy GRAVEL. Sand is fine to coarse, gravel is fine to occasionally coarse, sub angular to sub rounded.		



GENERAL REMARKS

Failed on gravel . Dry.

All dimensions in metres
Scale 1:50

Client **North Associates**

Method/
Plant Used

Window Sampler

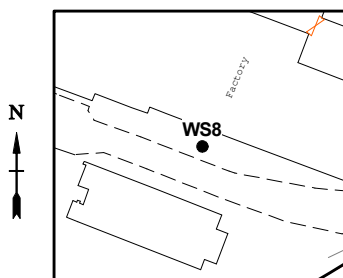
Logged By

RH

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS8	
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 302,018.8 N 513,650.4		
Contractor				Sheet 1 of 1	

TEST RESULTS			STRATA					Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.20	WS8@0.2	— <1				0.15 0.40	Long grass on brown, silty, gravelly, fine SAND, with occasional rootlets (TOPSOIL). MADE GROUND. Dark brown/black clinker on gravel and sandstone.		
0.90	WS8@0.9	— <1				(1.10)	Orange/brown slightly sandy, clayey SILT with very occasional roots.		
1.40	WS8@1.4	— <1				1.50	From 1.2-1.3m, some black pockets (assumed natural).		
1.90	WS8@1.9	— <1				(0.75) 2.25	By 1.4m, gravelly. Cobbles and gravel on yellow/brown, gravelly SAND. Gravel is fine to occasionally coarse, sub angular to sb rounded. Sand is occasionally fine to occasionally coarse.		
							By 2.0m very gravelly.		



GENERAL REMARKS

Failed on gravel .

All dimensions in metres
Scale 1:50

Client **North Associates**

Method/
Plant Used

Window Sampler

Logged By

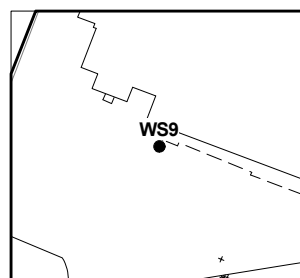
RH

BOREHOLE LOG

Project Cleator Mills				BOREHOLE No WS9	
Job No EES13-061	Date 20-08-13	Ground Level (m)	Co-Ordinates () E 301,955.7 N 513,673.9		
Contractor				Sheet 1 of 1	

TEST RESULTS			STRATA				Geology	Instrument/ Backfill
Depth	Sample Reference	PID Test m - ppm	Water Strike	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.30	WS9@0.3	— <1				0.10	Tarmacadam	
0.80	WS9@0.8	— <1				(1.60)	MADE GROUND. Dark brown/black clinker, stone and brown soil with mortar at 0.4m on sandstone pieces. With clinker and gravel at 0.9-1.0m and 1.2-1.3m. From 1.4-1.45m fine to medium sand on sandstone.	
1.20	WS9@1.2	— <1				1.70		
1.40	WS9@1.4	— <1						
1.90	WS9@1.9	— <1				(0.70)	Yellow brown/brown slightly silty, sandy GRAVEL. Sand is occasionally fine to coarse, gravel is occasionally angular to occasionally round and fine to coarse.	
						2.40	Wet.	

N
↑



GENERAL REMARKS

Refused. Reduced sampler diameter from 1.7m. Wet from 1.8m, collapsed immediately to 1.8m. Backfilled on completion.

All dimensions in metres
Scale 1:50

Client **North Associates**

Method/
Plant Used

Window Sampler

Logged By
RH

APPENDIX 4 – Monitoring Results

WELL VAPOUR, GAS AND GROUNDWATER MONITORING										
SITE DATE METHODS USED GROUND CONDITIONS WEATHER CONDITIONS RECENT PRESSURE TREND COMMENTS				Cleator Mills			CODE BY		EES13-061 RD	
				4/09/13						
				Gas monitoring (GFM 430, 10204, service due 08/14) Vapour monitoring (Phocheck+07-01358, service due 01/14)						
				Dry						
				Sunny, warm, slight breeze						
				Fairly steady						
BH Time elapsed (mins)	Atm. P (mbar)	Diff P (Pa)	Flow (l/hr)	CH4 % (LEL %)	CO ₂ %	O ₂ %	H ₂ S ppm	CO ppm	PID reading (ppm VOCs)	Depth to groundwater / base (mb cover)
WS1 0.5	1011	0	0.0	0.0	4.2	15.8	0.0	0		Dry
1				0.0	4.3	15.6	0.0	0	<1	
		0	0.0							
WS4 0.5	1011	0	0.1	0.0	0.5	20.0	0.0	0		Dry
1				0.0	0.6	20.1	0.0	0	<1	
		0	0.0							
WS5 0.5	1011	0	0.0	0.0	2.1	18.4	0.0	0		Dry
1				0.0	2.1	18.3	0.0	0	<1	
		0	0.0							
WS7 0.5	1011	0	0.1	0.0	0.1	20.6	0.0	0		Dry
1				0.0	0.2	20.5	0.0	0	<1	
		0	0.1							
WS8 0.5	1011	0	0.0	0.0	3.4	16.5	0.0	0		Dry
1				0.0	3.4	16.4	0.0	0		
1.5				0.0	3.5	16.3	0.0	0		
2				0.0	3.5	16.3	0.0	0	<1	
		0	0.0							
Background	1011	0	0.0	0.0	0.0	2.9	0.0	0	<1	

APPENDIX 5 – Laboratory Results



2139

Certificate of Analysis



Date: 11/09/2013

Certificate Number: 13-87457-1

Client: Elliott Environmental Surveyors
Mallan House
Bridge End
Hexham
Northumberland
NE46 4DQ

Our Reference: 13-87457-1

Client Reference: EES13-061

Contract Title: Cleator Mills

Description: 18 soil samples, 6 leachate samples

Date Received: 21 August 2013

Date Started: 21 August 2013

Date Completed: 11 September 2013

Test Procedures: Identified by prefix DETSn (details on request), Asbestos Analysis (DETS 082).

Notes: **This report supersedes 13-87457, additional testing carried out**
Observations and interpretations are outside the scope of UKAS accreditation

Approved By:



Rob Brown, Business Manager

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Information in Support of the Analytical Results

Analysis

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425um sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28oC +/-2oC.

Key

- * Denotes test not included in laboratory scope of accreditation
- # Denotes test that holds MCERTS accreditation, however, MCERTS accreditation is only implied if the report carries the MCERTS logo
- \$ Denotes tests completed by an approved subcontractor
- I/S Denotes insufficient sample to carry out test
- U/S Denotes that the sample is not suitable for testing

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month

Liquids - 2 weeks

Asbestos (test portion) - 6 months

Summary of Chemical Analysis

Matrix Descriptions

Our Ref: 13-87457-1

Client Ref: EES13-061

Contract Title: Cleator Mills

Sample ID	Depth	Sample No	Completed	Matrix Description
WS1	0.50	547577	11/09/2013	Red brown gravelly sandy silty CLAY
WS1	1.50	547578	11/09/2013	Brown gravelly clayey SAND
WS2	0.25	547579	11/09/2013	Red brown gravelly sandy silty CLAY with odd rootlets
WS3	0.15	547580	11/09/2013	Dark brown gravelly clayey SAND with numerous rootlets
WS4	0.25	547581	11/09/2013	Dark brown gravelly sandy silty CLAY with odd rootlets (made ground includes brick)
WS4	1.60	547582	11/09/2013	Brown gravelly clayey SAND
WS5	0.35	547583	11/09/2013	Dark brown gravelly sandy CLAY
WS5	1.30	547584	11/09/2013	Brown silty gravelly SAND
WS6	0.30	547585	11/09/2013	Brown gravelly sandy silty CLAY
WS6	1.40	547586	11/09/2013	Brown gravelly SAND
WS7	0.40	547587	11/09/2013	Dark brown gravelly SAND (made ground includes brick)
WS7	1.30	547588	11/09/2013	Brown very sandy silty CLAY
WS8	0.20	547589	11/09/2013	Dark brown clayey gravelly SAND
WS8	0.90	547590	11/09/2013	Brown gravelly sandy silty CLAY
WS8	1.90	547591	11/09/2013	Brown gravelly SAND
WS9	0.30	547592	11/09/2013	Dark brown red gravelly clayey SAND
WS9	1.20	547593	11/09/2013	Red brown dark brown slightly clayey gravelly SAND
WS9	1.90	547594	11/09/2013	Red brown clayey gravelly SAND

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547577	547578	547579	547580	547581
				Sample ID	WS1	WS1	WS2	WS3	WS4
				Depth	0.50	1.50	0.25	0.15	0.25
				Sample Ref					
				Sample Type					
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time					
Test	Units	DETSxx	LOD						
Mercury	mg/kg	DETSC 2325#	0.05	< 0.05	< 0.05	< 0.05	0.15	0.38	
Arsenic	mg/kg	DETSC2301#	0.2	15	18	15	13	22	
Cadmium	mg/kg	DETSC2301#	0.1	0.7	0.9	1.0	0.7	1.6	
Chromium	mg/kg	DETSC2301#	0.15	20	30	25	19	22	
Copper	mg/kg	DETSC2301#	0.2	15	20	22	37	140	
Nickel	mg/kg	DETSC2301#	1	17	28	21	32	50	
Lead	mg/kg	DETSC2301#	0.3	22	17	23	150	290	
Selenium	mg/kg	DETSC2301#	0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	
Vanadium	mg/kg	DETSC2301	0.8	21	37	26	32	33	
Zinc	mg/kg	DETSC2301#	1	40	45	60	61	210	
Thiocyanate	mg/kg	DETSC 2130#	0.6			< 0.6	2.0	1.8	
Cyanide free	mg/kg	DETSC 2130#	0.1			< 0.1	0.2	< 0.1	
Total Sulphate as SO4	%	DETSC 2321#	0.01			0.03		0.22	
Sulphate Aqueous Extract as SO4	mg/l	DETSC 2076#	10	57			21		
Total Sulphur as S	%	DETSC 2320	0.01			0.01		0.10	
pH		DETSC 2008#		7.3	7.5	7.6	7.4	7.5	
Aliphatic C5-C6	mg/kg	DETSC 3321*	0.01			< 0.01		< 0.01	
Aliphatic C6-C8	mg/kg	DETSC 3321*	0.01			< 0.01		< 0.01	
Aliphatic C8-C10	mg/kg	DETSC 3321*	0.01			< 0.01		< 0.01	
Aliphatic C10-C12	mg/kg	DETSC 3072#	1.5			< 1.5		< 1.5	
Aliphatic C12-C16	mg/kg	DETSC 3072#	1.2			< 1.2		3.5	
Aliphatic C16-C21	mg/kg	DETSC 3072#	1.5			< 1.5		11	
Aliphatic C21-C35	mg/kg	DETSC 3072#	3.4			< 3.4		40	
Aromatic C5-C7	mg/kg	DETSC 3321*	0.01			< 0.01		< 0.01	
Aromatic C7-C8	mg/kg	DETSC 3321*	0.01			< 0.01		< 0.01	
Aromatic C8-C10	mg/kg	DETSC 3321*	0.01			< 0.01		< 0.01	
Aromatic C10-C12	mg/kg	DETSC 3072#	0.9			< 0.9		< 0.9	
Aromatic C12-C16	mg/kg	DETSC 3072#	0.5			< 0.5		< 0.5	
Aromatic C16-C21	mg/kg	DETSC 3072#	0.6			< 0.6		24	
Aromatic C21-C35	mg/kg	DETSC 3072#	1.4			< 1.4		130	
Aliphatic C5-C35	mg/kg	DETSC 3072*	10			< 10		55	
Aromatic C5-C35	mg/kg	DETSC 3072*	10			< 10		150	
TPH Ali/Aro	mg/kg	DETSC 3072*	10			< 10		210	
EPH (C10-C12)	mg/kg	DETSC 3311	10	< 10	< 10		< 10		
EPH (C12-C16)	mg/kg	DETSC 3311	10	< 10	< 10		< 10		
EPH (C16-C21)	mg/kg	DETSC 3311	10	< 10	< 10		14		
EPH (C21-C36)	mg/kg	DETSC 3311	10	< 10	< 10		58		
EPH (C36-C40)	mg/kg	DETSC 3311	10	< 10	< 10		< 10		
EPH (C10-C40)	mg/kg	DETSC 3311#	10	< 10	< 10		82		

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547577	547578	547579	547580	547581
				Sample ID	WS1	WS1	WS2	WS3	WS4
				Depth	0.50	1.50	0.25	0.15	0.25
				Sample Ref					
				Sample Type					
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time					
Test	Units	DETSxx	LOD						
Benzene	mg/kg	DETS 062#	0.01				< 0.01		< 0.01
Ethylbenzene	mg/kg	DETS 062#	0.01				< 0.01		< 0.01
Toluene	mg/kg	DETS 062#	0.01				< 0.01		< 0.01
Xylene	mg/kg	DETS 062#	0.01				< 0.01		< 0.01
Hexavalent Chromium	mg/kg	DETSC 2204*	1	< 1.0			< 1.0	< 1.0	< 1.0
Acenaphthene	mg/kg	DETSC 3303#	0.03			< 0.03		< 0.03	
Acenaphthylene	mg/kg	DETSC 3303#	0.03			< 0.03		< 0.03	
Anthracene	mg/kg	DETSC 3303	0.03			< 0.03		< 0.03	
Benzo(a)anthracene	mg/kg	DETSC 3303#	0.03			< 0.03		0.14	
Benzo(a)pyrene	mg/kg	DETSC 3303#	0.03			< 0.03		0.12	
Benzo(b)fluoranthene	mg/kg	DETSC 3303#	0.03			< 0.03		0.20	
Benzo(k)fluoranthene	mg/kg	DETSC 3303#	0.03			< 0.03		0.05	
Benzo(g,h,i)perylene	mg/kg	DETSC 3303#	0.03			< 0.03		0.08	
Chrysene	mg/kg	DETSC 3303	0.03			< 0.03		0.19	
Dibenzo(a,h)anthracene	mg/kg	DETSC 3303#	0.03			< 0.03		< 0.03	
Fluoranthene	mg/kg	DETSC 3303#	0.03			< 0.03		0.42	
Fluorene	mg/kg	DETSC 3303	0.03			< 0.03		< 0.03	
Indeno(1,2,3-c,d)pyrene	mg/kg	DETSC 3303#	0.03			< 0.03		0.09	
Naphthalene	mg/kg	DETSC 3303#	0.03			< 0.03		< 0.03	
Phenanthrene	mg/kg	DETSC 3303#	0.03			< 0.03		0.14	
Pyrene	mg/kg	DETSC 3303#	0.03			< 0.03		0.34	
Total PAH - USEPA 16	mg/kg	DETSC 3303	0.1			< 0.10		1.8	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547582	547583	547584	547585	547586
				Sample ID	WS4	WS5	WS5	WS6	WS6
				Depth	1.60	0.35	1.30	0.30	1.40
				Sample Ref					
				Sample Type					
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time					
Test	Units	DETSxx	LOD						
Mercury	mg/kg	DETSC 2325#	0.05	< 0.05	0.74	< 0.05	0.06	< 0.05	
Arsenic	mg/kg	DETSC2301#	0.2	19	33	17	22	17	
Cadmium	mg/kg	DETSC2301#	0.1	1.4	0.9	1.0	0.9	0.7	
Chromium	mg/kg	DETSC2301#	0.15	30	20	25	19	21	
Copper	mg/kg	DETSC2301#	0.2	31	40	19	21	14	
Nickel	mg/kg	DETSC2301#	1	30	27	23	20	18	
Lead	mg/kg	DETSC2301#	0.3	43	170	19	47	15	
Selenium	mg/kg	DETSC2301#	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Vanadium	mg/kg	DETSC2301	0.8	34	27	23	24	21	
Zinc	mg/kg	DETSC2301#	1	54	70	60	51	36	
Thiocyanate	mg/kg	DETSC 2130#	0.6	< 0.6					
Cyanide free	mg/kg	DETSC 2130#	0.1	< 0.1					
Total Sulphate as SO4	%	DETSC 2321#	0.01						
Sulphate Aqueous Extract as SO4	mg/l	DETSC 2076#	10		13		16		
Total Sulphur as S	%	DETSC 2320	0.01						
pH		DETSC 2008#		8.4	8.0	8.0	7.3	7.8	
Aliphatic C5-C6	mg/kg	DETSC 3321*	0.01						
Aliphatic C6-C8	mg/kg	DETSC 3321*	0.01						
Aliphatic C8-C10	mg/kg	DETSC 3321*	0.01						
Aliphatic C10-C12	mg/kg	DETSC 3072#	1.5						
Aliphatic C12-C16	mg/kg	DETSC 3072#	1.2						
Aliphatic C16-C21	mg/kg	DETSC 3072#	1.5						
Aliphatic C21-C35	mg/kg	DETSC 3072#	3.4						
Aromatic C5-C7	mg/kg	DETSC 3321*	0.01						
Aromatic C7-C8	mg/kg	DETSC 3321*	0.01						
Aromatic C8-C10	mg/kg	DETSC 3321*	0.01						
Aromatic C10-C12	mg/kg	DETSC 3072#	0.9						
Aromatic C12-C16	mg/kg	DETSC 3072#	0.5						
Aromatic C16-C21	mg/kg	DETSC 3072#	0.6						
Aromatic C21-C35	mg/kg	DETSC 3072#	1.4						
Aliphatic C5-C35	mg/kg	DETSC 3072*	10						
Aromatic C5-C35	mg/kg	DETSC 3072*	10						
TPH Ali/Aro	mg/kg	DETSC 3072*	10						
EPH (C10-C12)	mg/kg	DETSC 3311	10	< 10	< 10	< 10	< 10	< 10	
EPH (C12-C16)	mg/kg	DETSC 3311	10	< 10	< 10	< 10	< 10	< 10	
EPH (C16-C21)	mg/kg	DETSC 3311	10	< 10	< 10	< 10	< 10	< 10	
EPH (C21-C36)	mg/kg	DETSC 3311	10	< 10	< 10	< 10	< 10	< 10	
EPH (C36-C40)	mg/kg	DETSC 3311	10	< 10	< 10	< 10	< 10	< 10	
EPH (C10-C40)	mg/kg	DETSC 3311#	10	< 10	< 10	< 10	< 10	< 10	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547582	547583	547584	547585	547586
				Sample ID	WS4	WS5	WS5	WS6	WS6
				Depth	1.60	0.35	1.30	0.30	1.40
				Sample Ref					
				Sample Type					
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time					
Test	Units	DETSxx	LOD						
Benzene	mg/kg	DETS 062#	0.01						
Ethylbenzene	mg/kg	DETS 062#	0.01						
Toluene	mg/kg	DETS 062#	0.01						
Xylene	mg/kg	DETS 062#	0.01						
Hexavalent Chromium	mg/kg	DETS 2204*	1	< 1.0		< 1.0			
Acenaphthene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Acenaphthylene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Anthracene	mg/kg	DETS 3303	0.03			< 0.03		< 0.03	
Benzo(a)anthracene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Benzo(a)pyrene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Benzo(b)fluoranthene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Benzo(k)fluoranthene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Benzo(g,h,i)perylene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Chrysene	mg/kg	DETS 3303	0.03			< 0.03		< 0.03	
Dibenzo(a,h)anthracene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Fluoranthene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Fluorene	mg/kg	DETS 3303	0.03			< 0.03		< 0.03	
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Naphthalene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Phenanthrene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Pyrene	mg/kg	DETS 3303#	0.03			< 0.03		< 0.03	
Total PAH - USEPA 16	mg/kg	DETS 3303	0.1			< 0.10		< 0.10	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547587	547588	547589	547590	547591
				Sample ID	WS7	WS7	WS8	WS8	WS8
				Depth	0.40	1.30	0.20	0.90	1.90
				Sample Ref					
				Sample Type					
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time					
Test	Units	DETSxx	LOD						
Mercury	mg/kg	DETSC 2325#	0.05	0.07	< 0.05	0.07	< 0.05	< 0.05	
Arsenic	mg/kg	DETSC2301#	0.2	25	11	40	23	17	
Cadmium	mg/kg	DETSC2301#	0.1	1.0	0.6	1.0	0.8	0.9	
Chromium	mg/kg	DETSC2301#	0.15	16	17	22	22	25	
Copper	mg/kg	DETSC2301#	0.2	130	13	77	23	16	
Nickel	mg/kg	DETSC2301#	1	66	15	91	20	25	
Lead	mg/kg	DETSC2301#	0.3	290	19	150	26	15	
Selenium	mg/kg	DETSC2301#	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Vanadium	mg/kg	DETSC2301	0.8	53	19	79	22	25	
Zinc	mg/kg	DETSC2301#	1	100	44	79	37	44	
Thiocyanate	mg/kg	DETSC 2130#	0.6	< 0.6	< 0.6	1.5	0.8		
Cyanide free	mg/kg	DETSC 2130#	0.1	< 0.1	< 0.1	< 0.1	0.1		
Total Sulphate as SO4	%	DETSC 2321#	0.01	0.07	0.01	0.18	0.05		
Sulphate Aqueous Extract as SO4	mg/l	DETSC 2076#	10				15		
Total Sulphur as S	%	DETSC 2320	0.01	0.06	< 0.01	0.10	0.03		
pH		DETSC 2008#		8.3	7.8	8.0	7.6	7.9	
Aliphatic C5-C6	mg/kg	DETSC 3321*	0.01	< 0.01	< 0.01				
Aliphatic C6-C8	mg/kg	DETSC 3321*	0.01	< 0.01	< 0.01				
Aliphatic C8-C10	mg/kg	DETSC 3321*	0.01	< 0.01	< 0.01				
Aliphatic C10-C12	mg/kg	DETSC 3072#	1.5	< 1.5	< 1.5				
Aliphatic C12-C16	mg/kg	DETSC 3072#	1.2	1.3	< 1.2				
Aliphatic C16-C21	mg/kg	DETSC 3072#	1.5	3.2	< 1.5				
Aliphatic C21-C35	mg/kg	DETSC 3072#	3.4	8.6	< 3.4				
Aromatic C5-C7	mg/kg	DETSC 3321*	0.01	< 0.01	< 0.01				
Aromatic C7-C8	mg/kg	DETSC 3321*	0.01	< 0.01	< 0.01				
Aromatic C8-C10	mg/kg	DETSC 3321*	0.01	< 0.01	< 0.01				
Aromatic C10-C12	mg/kg	DETSC 3072#	0.9	< 0.9	< 0.9				
Aromatic C12-C16	mg/kg	DETSC 3072#	0.5	6.3	< 0.5				
Aromatic C16-C21	mg/kg	DETSC 3072#	0.6	30	< 0.6				
Aromatic C21-C35	mg/kg	DETSC 3072#	1.4	65	< 1.4				
Aliphatic C5-C35	mg/kg	DETSC 3072*	10	13	< 10				
Aromatic C5-C35	mg/kg	DETSC 3072*	10	100	< 10				
TPH Ali/Aro	mg/kg	DETSC 3072*	10	110	< 10				
EPH (C10-C12)	mg/kg	DETSC 3311	10			15	< 10	< 10	
EPH (C12-C16)	mg/kg	DETSC 3311	10			140	< 10	< 10	
EPH (C16-C21)	mg/kg	DETSC 3311	10			750	< 10	< 10	
EPH (C21-C36)	mg/kg	DETSC 3311	10			3200	60	17	
EPH (C36-C40)	mg/kg	DETSC 3311	10			300	< 10	< 10	
EPH (C10-C40)	mg/kg	DETSC 3311#	10			4400	75	27	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547587	547588	547589	547590	547591
				Sample ID	WS7	WS7	WS8	WS8	WS8
				Depth	0.40	1.30	0.20	0.90	1.90
				Sample Ref					
				Sample Type					
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time					
Test	Units	DETSxx	LOD						
Benzene	mg/kg	DETS 062#	0.01	< 0.01	< 0.01				
Ethylbenzene	mg/kg	DETS 062#	0.01	< 0.01	< 0.01				
Toluene	mg/kg	DETS 062#	0.01	< 0.01	< 0.01				
Xylene	mg/kg	DETS 062#	0.01	< 0.01	< 0.01				
Hexavalent Chromium	mg/kg	DETS 2204*	1	< 1.0	< 1.0	< 1.0	< 1.0		
Acenaphthene	mg/kg	DETS 3303#	0.03						
Acenaphthylene	mg/kg	DETS 3303#	0.03						
Anthracene	mg/kg	DETS 3303	0.03						
Benzo(a)anthracene	mg/kg	DETS 3303#	0.03						
Benzo(a)pyrene	mg/kg	DETS 3303#	0.03						
Benzo(b)fluoranthene	mg/kg	DETS 3303#	0.03						
Benzo(k)fluoranthene	mg/kg	DETS 3303#	0.03						
Benzo(g,h,i)perylene	mg/kg	DETS 3303#	0.03						
Chrysene	mg/kg	DETS 3303	0.03						
Dibenzo(a,h)anthracene	mg/kg	DETS 3303#	0.03						
Fluoranthene	mg/kg	DETS 3303#	0.03						
Fluorene	mg/kg	DETS 3303	0.03						
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 3303#	0.03						
Naphthalene	mg/kg	DETS 3303#	0.03						
Phenanthrene	mg/kg	DETS 3303#	0.03						
Pyrene	mg/kg	DETS 3303#	0.03						
Total PAH - USEPA 16	mg/kg	DETS 3303	0.1						

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547592	547593	547594
				Sample ID	WS9	WS9	WS9
				Depth	0.30	1.20	1.90
				Sample Ref			
				Sample Type			
				Sampling Date	20/08/2013	20/08/2013	20/08/2013
				Sampling Time			
Test	Units	DETSxx	LOD				
Mercury	mg/kg	DETSC 2325#	0.05	0.06	< 0.05	< 0.05	
Arsenic	mg/kg	DETSC2301#	0.2	19	12	23	
Cadmium	mg/kg	DETSC2301#	0.1	1.2	1.6	1.4	
Chromium	mg/kg	DETSC2301#	0.15	21	18	20	
Copper	mg/kg	DETSC2301#	0.2	76	55	33	
Nickel	mg/kg	DETSC2301#	1	75	25	28	
Lead	mg/kg	DETSC2301#	0.3	70	22	16	
Selenium	mg/kg	DETSC2301#	0.5	< 0.5	< 0.5	< 0.5	
Vanadium	mg/kg	DETSC2301	0.8	47	30	28	
Zinc	mg/kg	DETSC2301#	1	54	23	32	
Thiocyanate	mg/kg	DETSC 2130#	0.6	< 0.6	< 0.6	< 0.6	
Cyanide free	mg/kg	DETSC 2130#	0.1	< 0.1	< 0.1	< 0.1	
Total Sulphate as SO4	%	DETSC 2321#	0.01	0.20		0.08	
Sulphate Aqueous Extract as SO4	mg/l	DETSC 2076#	10				
Total Sulphur as S	%	DETSC 2320	0.01	0.18		0.08	
pH		DETSC 2008#		8.2	8.1	8.4	
Aliphatic C5-C6	mg/kg	DETSC 3321*	0.01		< 0.01		
Aliphatic C6-C8	mg/kg	DETSC 3321*	0.01		< 0.01		
Aliphatic C8-C10	mg/kg	DETSC 3321*	0.01		< 0.01		
Aliphatic C10-C12	mg/kg	DETSC 3072#	1.5		< 1.5		
Aliphatic C12-C16	mg/kg	DETSC 3072#	1.2		1.8		
Aliphatic C16-C21	mg/kg	DETSC 3072#	1.5		12		
Aliphatic C21-C35	mg/kg	DETSC 3072#	3.4		140		
Aromatic C5-C7	mg/kg	DETSC 3321*	0.01		< 0.01		
Aromatic C7-C8	mg/kg	DETSC 3321*	0.01		< 0.01		
Aromatic C8-C10	mg/kg	DETSC 3321*	0.01		< 0.01		
Aromatic C10-C12	mg/kg	DETSC 3072#	0.9		< 0.9		
Aromatic C12-C16	mg/kg	DETSC 3072#	0.5		1.4		
Aromatic C16-C21	mg/kg	DETSC 3072#	0.6		21		
Aromatic C21-C35	mg/kg	DETSC 3072#	1.4		250		
Aliphatic C5-C35	mg/kg	DETSC 3072*	10		150		
Aromatic C5-C35	mg/kg	DETSC 3072*	10		270		
TPH Ali/Aro	mg/kg	DETSC 3072*	10		420		
EPH (C10-C12)	mg/kg	DETSC 3311	10	< 10		< 10	
EPH (C12-C16)	mg/kg	DETSC 3311	10	45		< 10	
EPH (C16-C21)	mg/kg	DETSC 3311	10	450		14	
EPH (C21-C36)	mg/kg	DETSC 3311	10	2700		220	
EPH (C36-C40)	mg/kg	DETSC 3311	10	340		67	
EPH (C10-C40)	mg/kg	DETSC 3311#	10	3500		310	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547592	547593	547594
				Sample ID	WS9	WS9	WS9
				Depth	0.30	1.20	1.90
				Sample Ref			
				Sample Type			
				Sampling Date	20/08/2013	20/08/2013	20/08/2013
				Sampling Time			
Test	Units	DETSxx	LOD				
Benzene	mg/kg	DETS 062#	0.01			< 0.01	
Ethylbenzene	mg/kg	DETS 062#	0.01			< 0.01	
Toluene	mg/kg	DETS 062#	0.01			< 0.01	
Xylene	mg/kg	DETS 062#	0.01			< 0.01	
Hexavalent Chromium	mg/kg	DETS 2204*	1	< 1.0		< 1.0	
Acenaphthene	mg/kg	DETS 3303#	0.03			< 0.03	
Acenaphthylene	mg/kg	DETS 3303#	0.03			< 0.03	
Anthracene	mg/kg	DETS 3303	0.03			< 0.03	
Benzo(a)anthracene	mg/kg	DETS 3303#	0.03			0.16	
Benzo(a)pyrene	mg/kg	DETS 3303#	0.03			0.20	
Benzo(b)fluoranthene	mg/kg	DETS 3303#	0.03			0.24	
Benzo(k)fluoranthene	mg/kg	DETS 3303#	0.03			0.08	
Benzo(g,h,i)perylene	mg/kg	DETS 3303#	0.03			0.14	
Chrysene	mg/kg	DETS 3303	0.03			0.16	
Dibenzo(a,h)anthracene	mg/kg	DETS 3303#	0.03			< 0.03	
Fluoranthene	mg/kg	DETS 3303#	0.03			0.30	
Fluorene	mg/kg	DETS 3303	0.03			< 0.03	
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 3303#	0.03			0.13	
Naphthalene	mg/kg	DETS 3303#	0.03			< 0.03	
Phenanthrene	mg/kg	DETS 3303#	0.03			0.05	
Pyrene	mg/kg	DETS 3303#	0.03			0.25	
Total PAH - USEPA 16	mg/kg	DETS 3303	0.1			1.7	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
Client Ref: EES13-061
Contract Title: Cleator Mills

				Lab No.	547577	547579	547581
				Sample ID	WS1	WS2	WS4
				Depth	0.50	0.25	0.25
				Sample Ref			
				Sample Type			
				Sampling Date	20/08/2013	20/08/2013	20/08/2013
				Sampling Time			
Test	Units	DETSxx	LOD				
Phenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Aniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Chlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Benzyl Alcohol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
3&4-Methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
3-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Nitrophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Dibenzofuran	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	0.3
2,6-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Diethylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Chlorophenylphenylether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Diphenylamine	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Bromophenylphenylether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Pentachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Di-n-butylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Butylbenzylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Di-n-octylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,4-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,3-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,2-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Azobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Carbazole	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1

Client Ref: EES13-061

Contract Title: Cleator Mills

				Lab No.	547577	547579	547581
				Sample ID	WS1	WS2	WS4
				Depth	0.50	0.25	0.25
				Sample Ref			
				Sample Type			
				Sampling Date	20/08/2013	20/08/2013	20/08/2013
				Sampling Time			
Test	Units	DETSxx	LOD				
TIC's		DETS 071*		Heptacosame	Non Detected	Benz[a] anthracene, 7-methyl-11H-Benzo[b]fluorene	

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547582	547583	547585
				Sample ID	WS4	WS5	WS6
				Depth	1.60	0.35	0.30
				Sample Ref			
				Sample Type			
				Sampling Date	20/08/2013	20/08/2013	20/08/2013
				Sampling Time			
Test	Units	DETSxx	LOD				
Phenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Aniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Chlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Benzyl Alcohol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
3&4-Methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
3-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Nitrophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Dibenzofuran	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Diethylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Chlorophenylphenylether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Diphenylamine	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
4-Bromophenylphenylether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Pentachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Di-n-butylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Butylbenzylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Di-n-octylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,4-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,3-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
1,2-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Azobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1
Carbazole	mg/kg	DETS 071*	0.1		< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
Client Ref: EES13-061
Contract Title: Cleator Mills

			Lab No.	547582	547583	547585
			Sample ID	WS4	WS5	WS6
			Depth	1.60	0.35	0.30
			Sample Ref			
			Sample Type			
			Sampling Date	20/08/2013	20/08/2013	20/08/2013
			Sampling Time			
Test	Units	DETSxx	LOD			
TIC's		DETS 071*		Non Detected	Non Detected	Non Detected

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
Client Ref: EES13-061
Contract Title: Cleator Mills

				Lab No.	547587	547588
				Sample ID	WS7	WS7
				Depth	0.40	1.30
				Sample Ref		
				Sample Type		
				Sampling Date	20/08/2013	20/08/2013
				Sampling Time		
Test	Units	DETSxx	LOD			
Phenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Aniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2-Chlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Benzyl Alcohol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2-Methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
3&4-Methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Bis-(dichloroethoxy)methane	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
3-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
4-Nitrophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Dibenzofuran	mg/kg	DETS 071*	0.1		1.8	< 0.1
2,6-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Diethylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
4-Chlorophenylphenylether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
4-Nitroaniline	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Diphenylamine	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
4-Bromophenylphenylether	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Hexachlorobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Pentachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Di-n-butylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Butylbenzylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Di-n-octylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
1,4-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Dimethylphthalate	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
1,3-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
1,2-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Azobenzene	mg/kg	DETS 071*	0.1		< 0.1	< 0.1
Carbazole	mg/kg	DETS 071*	0.1		2.4	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547587	547588
				Sample ID	WS7	WS7
				Depth	0.40	1.30
				Sample Ref		
				Sample Type		
				Sampling Date	20/08/2013	20/08/2013
				Sampling Time		
Test	Units	DETSxx	LOD			
TIC's		DETS 071*		9H-Fluoren-9-one	Non Detected	
				7H-ben[de]anthracen-7-one		
				benzo[e]pyrene		
				Phenanthrene, 2-methyl		
				Napthalene, 2-Phenyl		
				Phenanthrene, 3,6-dimethyl		
				Cyclopenta[def]phenanthaenone		
				pyrene, 1 methyl		
				11H-benzo[a]fluorene-11-one		

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547589	547590	547591
				Sample ID	WS8	WS8	WS8
				Depth	0.20	0.90	1.90
				Sample Ref			
				Sample Type			
				Sampling Date	20/08/2013	20/08/2013	20/08/2013
				Sampling Time			
Test	Units	DETSxx	LOD				
Phenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Aniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2-Chlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Benzyl Alcohol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2-Methylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
3&4-Methylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,4-Dimethylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
1,2,4-Trichlorobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2-Methylnaphthalene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Hexachlorocyclopentadiene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2-Nitroaniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
3-Nitroaniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
4-Nitrophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Dibenzofuran	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Diethylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
4-Chlorophenylphenylether	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
4-Nitroaniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Diphenylamine	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
4-Bromophenylphenylether	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Hexachlorobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Pentachlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Di-n-butylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Butylbenzylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Di-n-octylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
1,4-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Dimethylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
1,3-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
1,2-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Azobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1
Carbazole	mg/kg	DETS 071*	0.1		< 1.0	< 0.1	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1

Client Ref: EES13-061

Contract Title: Cleator Mills

			Lab No.	547589	547590	547591
			Sample ID	WS8	WS8	WS8
			Depth	0.20	0.90	1.90
			Sample Ref			
			Sample Type			
			Sampling Date	20/08/2013	20/08/2013	20/08/2013
			Sampling Time			
Test	Units	DETSxx	LOD			
TIC's		DETS 071*		Triphenyl-2-methyl- benzo[e] pyrene	Non Detected	Non Detected

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	547592	547594
				Sample ID	WS9	WS9
				Depth	0.30	1.90
				Sample Ref		
				Sample Type		
				Sampling Date	20/08/2013	20/08/2013
				Sampling Time		
Test	Units	DETSxx	LOD			
Phenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Aniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2-Chlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Benzyl Alcohol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2-Methylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Bis(2-chloroisopropyl)ether	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
3&4-Methylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,4-Dimethylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Bis-(dichloroethoxy)methane	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,4-Dichlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
1,2,4-Trichlorobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
4-Chloro-3-methylphenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2-Methylnaphthalene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Hexachlorocyclopentadiene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,4,6-Trichlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,4,5-Trichlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2-Chloronaphthalene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2-Nitroaniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,4-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
3-Nitroaniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
4-Nitrophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Dibenzofuran	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,6-Dinitrotoluene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,3,4,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Diethylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
4-Chlorophenylphenylether	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
4-Nitroaniline	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2-Methyl-4,6-Dinitrophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Diphenylamine	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
4-Bromophenylphenylether	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Hexachlorobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Pentachlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Di-n-butylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Butylbenzylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Bis(2-ethylhexyl)phthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Di-n-octylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
1,4-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Dimethylphthalate	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
1,3-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
1,2-Dinitrobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
2,3,5,6-Tetrachlorophenol	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Azobenzene	mg/kg	DETS 071*	0.1		< 1.0	< 0.1
Carbazole	mg/kg	DETS 071*	0.1		< 1.0	< 0.1

Summary of Chemical Analysis

Soil Samples

Our Ref: 13-87457-1
Client Ref: EES13-061
Contract Title: Cleator Mills

				Lab No.	547592	547594
				Sample ID	WS9	WS9
				Depth	0.30	1.90
				Sample Ref		
				Sample Type		
				Sampling Date	20/08/2013	20/08/2013
				Sampling Time		
Test	Units	DETSxx	LOD			
TIC's		DETS 071*		benzo[e] pyrene	Non Detected	

Summary of Asbestos Analysis

Soil Samples

Our Ref: 13-87457-1
Client Ref: EES13-061
Contract Title: Cleator Mills

Lab No	Sample Ref	Material Type*	Result	Comment	Analyst
547577	WS1 0.50	Soil	NAD	na	Andrew Little
547579	WS2 0.25	Soil	NAD	na	Andrew Little
547580	WS3 0.15	Soil	NAD	na	Andrew Little
547581	WS4 0.25	Soil	Amosite	Loose fibres	Andrew Little
547583	WS5 0.35	Soil	NAD	na	Andrew Little
547585	WS6 0.30	Soil	NAD	na	Andrew Little
547587	WS7 0.40	Soil	Chrysotile	Loose fibres	Andrew Little
547589	WS8 0.20	Soil	NAD	na	Andrew Little
547590	WS8 0.90	Soil	Chrysotile	Loose fibres	Andrew Little
547592	WS9 0.30	Soil	NAD	na	Andrew Little

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. NAD = No Asbestos Detected. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETS 082 using polarised light microscopy in accordance with HSG248 and documented in-house methods. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'.

Summary of Chemical Analysis

Leachate Samples

Our Ref: 13-87457-1
 Client Ref: EES13-061
 Contract Title: Cleator Mills

				Lab No.	552114	552115	552116	552117	552118	552119
				Sample ID	WS1	WS4	WS5	WS7	WS8	WS9
				Depth	1.50	0.25	0.35	0.40	0.20	0.30
				Sample Ref						
				Sample Type						
				Sampling Date	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013	20/08/2013
				Sampling Time						
Test	Units	DETSxx	LOD							
BS EN 12457 2:1		DETS 036*		Y	Y	Y	Y	Y	Y	Y
Arsenic, Dissolved	ug/l	DETSC 2306	0.16	0.17	0.28	2.2	5.1	2.1	1.0	
Cadmium, Dissolved	ug/l	DETSC 2306	0.03	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	
Chromium, Dissolved	ug/l	DETSC 2306	0.25	< 0.25	0.41	0.32	0.33	0.27	< 0.25	
Copper, Dissolved	ug/l	DETSC 2306	0.4	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	< 0.40	
Lead, Dissolved	ug/l	DETSC 2306	0.09	0.11	1.1	0.39	0.32	0.45	0.29	
Mercury, Dissolved	ug/l	DETSC 2306	0.01	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	
Nickel, Dissolved	ug/l	DETSC 2306	0.5	< 0.50	1.3	< 0.50	< 0.50	< 0.50	< 0.50	
Selenium, Dissolved	ug/l	DETSC 2306	0.25	< 0.25	0.35	0.32	< 0.25	< 0.25	< 0.25	
Vanadium, Dissolved	ug/l	DETSC 2306	0.6	< 0.60	< 0.60	0.67	4.9	1.2	0.85	
Zinc, Dissolved	ug/l	DETSC 2306	1.25	3.9	4.9	< 1.3	< 1.3	< 1.3	< 1.3	

Sample Comments

DETS cannot be held responsible for the integrity of sample(s) received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating.

Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note "Guidance on Deviating Samples".

All samples received are listed below. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations.

If no sampled date (soils) or date/time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters), this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Lab No.	Sample ID	Date Sampled	Containers Received	Deviating due to holding time being exceeded for test(s)	Deviating due to inappropriate container for test(s)	Deviating due to headspace presence in container for test(s)
547577	WS1 0.50 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			
547578	WS1 1.50 SOIL	20/08/2013	Glass Jar 250ml			
547579	WS2 0.25 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			
547580	WS3 0.15 SOIL	20/08/2013	Glass Jar 250ml, Plastic Tub 1 litre			
547581	WS4 0.25 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			
547582	WS4 1.60 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml			
547583	WS5 0.35 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			
547584	WS5 1.30 SOIL	20/08/2013	Glass Jar 250ml			
547585	WS6 0.30 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			
547586	WS6 1.40 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml			
547587	WS7 0.40 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			
547588	WS7 1.30 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml			
547589	WS8 0.20 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre			

547590	WS8 0.90 SOIL	20/08/2013	Glass Jar 250ml
547591	WS8 1.90 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml
547592	WS9 0.30 SOIL	20/08/2013	Glass Jar 250ml, Glass Jar 60ml, Plastic Tub 1 litre
547593	WS9 1.20 SOIL	20/08/2013	Glass Jar 250ml
547594	WS9 1.90 SOIL	20/08/2013	Glass Jar 250ml
552114	WS1 1.50 LEACHATE	20/08/2013	Glass Jar 1 litre (1 litre)
552115	WS4 0.25 LEACHATE	20/08/2013	Glass Jar 1 litre (1 litre)
552116	WS5 0.35 LEACHATE	20/08/2013	Glass Jar 1 litre (1 litre)
552117	WS7 0.40 LEACHATE	20/08/2013	Glass Jar 1 litre (1 litre)
552118	WS8 0.20 LEACHATE	20/08/2013	Glass Jar 1 litre (1 litre)
552119	WS9 0.30 LEACHATE	20/08/2013	Glass Jar 1 litre (1 litre)

Appendix A - Details of Analysis

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS.

No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

<u>Method</u>	<u>Name of Parameter</u>	<u>Units</u>	<u>Limit of Detection</u>	<u>Sample Preparation</u>	<u>Sub-Contracted</u>	<u>UKAS</u>	<u>MCERTS</u>
DETSC 2002	Organic Matter	%	0.01	Air Dried	No	Yes	Yes
DETSC 2003	Loss on Ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2004	Total Sulphate	%	0.01	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate	%	0.01	Air Dried	No	Yes	Yes
DETSC 2004	Water Soluble Sulphate	mg/l	10.00	Air Dried	No	Yes	Yes
DETSC 2076	Water Soluble Sulphate	mg/l	10.00	Air Dried	No	Yes	Yes
DETSC 2006	Chloride	mg/kg	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	0.10	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.50	Air Dried	No	Yes	Yes
DETSC 2119	Ammonia	mg/kg	0.02	Air Dried	No	Yes	Yes
DETSC2123	Boron (Water Soluble)	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10.00	Air Dried	No	Yes	Yes
DETSC2301	Antimony	mg/kg	1.00	Air Dried	No	No	No
DETSC2301	Arsenic	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.50	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.10	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.70	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Iron	mg/kg	1.00	Air Dried	No	Yes	No

Appendix A - Details of Analysis

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS.

No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

<u>Method</u>	<u>Name of Parameter</u>	<u>Units</u>	<u>Limit of Detection</u>	<u>Sample Preparation</u>	<u>Sub-Contracted</u>	<u>UKAS</u>	<u>MCERTS</u>
DETSC2301	Lead	mg/kg	0.30	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20.00	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.40	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	0.20	Air Dried	No	Yes	Yes
DETSC2301	Thallium	mg/kg	1.00	Air Dried	No	No	No
DETSC2301	Vanadium	mg/kg	0.80	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1.00	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (Free)	mg/kg	0.50	As Received	No	Yes	Yes
DETSC 3301	PAH by GC-FID	mg/kg	0.10	As Received	No	Yes	No
DETSC 3311	TPH (C10 - C40)	mg/kg	20.00	As Received	No	Yes	Yes
DETSC 3401	PCB	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Easily Liberatable Cyanide	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Complex Cyanide	mg/kg	0.30	Air Dried	No	Yes	No
DETSC 2130	Total Cyanide	mg/kg	0.40	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes

Appendix A - Details of Analysis

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS.

No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

<u>Method</u>	<u>Name of Parameter</u>	<u>Units</u>	<u>Limit of Detection</u>	<u>Sample Preparation</u>	<u>Sub-Contracted</u>	<u>UKAS</u>	<u>MCERTS</u>
DETSC 3431	VOC	mg/kg	0.01	As Received	No	No	No
DETSC 3303	PAH by GCMS (see list below)						
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Anthracene	mg/kg	0.03	As Received	No	Yes	No
DETSC 3303	Chrysene	mg/kg	0.03	As Received	No	Yes	No
DETSC 3303	Fluorene	mg/kg	0.03	As Received	No	Yes	No

APPENDIX 6 – Tier 1 Assessment

Determinand	Guideline setting	Guideline value	Units of Measurement	Levels above guideline (those of concern in bold)
Arsenic	EQS freshwater	50	µg/l	None above guideline (maximum 5.1)
Cadmium	EQS freshwater	<0.08,0.08,0.09#	µg/l	None above guideline (all <0.03)
Chromium III Chromium VI	EQS freshwater	4.7 3.4	µg/l	None above guideline (maximum 0.41)
Copper	EQS freshwater	1,6,10,28#	µg/l	None above guideline (all <0.40)
Lead	EQS freshwater	7.2	µg/l	None above guideline (maximum 1.1)
Mercury (and compounds)	EQS freshwater	0.05	µg/l	None above guideline (all <0.01)
Nickel	EQS freshwater	20	µg/l	None above guideline (maximum 1.3)
Selenium	No guideline – drinking water normally <10		µg/l	None above guideline (maximum 0.35)
Vanadium	EQS freshwater	20,60	µg/l	None above guideline (maximum 4.9)
Zinc	EQS freshwater	<8, 8,50,75,125#	µg/l	None above guideline (maximum 4.9, with 4 of 6 samples <1.3)

dependent on hardness – assessed against lowest value

SSVs for commercial and residential end use					
Metals:					
Determinand	Guideline value source	Commercial		Residential	
		Guideline value in mg/kg	Levels above guidelines	Guideline value in mg/kg	Levels above guidelines
Arsenic	CLEA 1.06	635	None above guideline	32.4	WS8 at 0.2m, 40mg/kg; WS5 at 0.35m, 33mg/kg
Cadmium	LQM CIEH v2	348	None above guideline	3.0	None above guideline
Chromium (iii) Chromium (vi)	LQM CIEH v2	8,840 35	None above guideline	627 4.3	None above guideline
Lead	CLEA 1.06	2,110	None above guideline	402	None above guideline
Mercury	CLEA 1.06	3,640	None above guideline	169	None above guideline
Nickel	CLEA 1.06	1,790	None above guideline	127	None above guideline
Selenium	EA SGV	13,000	None above guideline	350	None above guideline
Vanadium	LQM CIEH v2	3,160	None above guideline	75	None above guideline
Copper #	LQM CIEH v2	71,700	None above guideline	2330	None above guideline
Zinc #	LQM CIEH v2	665,000	None above guideline	3750	None above guideline
Free cyanide, thiocyanide	No guideline values	All found to be very low or below detection			
# note: risks are predominantly phytotoxic rather than human health					

SSVs for commercial and residential end use					
Polyaromatic hydrocarbons (PAHs):					
Determinand	Guideline value source	Commercial		Residential	
		Guideline value in mg/kg	Levels above guidelines	Guideline value in mg/kg	Levels above guidelines
Acenaphthene	LQM CIEH v2 1% organic matter	85,000	None above guideline	210	None above guideline
Acenaphthylene		84,000	None above guideline	170	None above guideline
Anthracene		530,000	None above guideline	2,300	None above guideline
Benzo(a)anthracene		90	None above guideline	3.1	None above guideline
Benzo(a)pyrene		14	None above guideline	0.83	None above guideline
Benzo(b)fluoranthene		100	None above guideline	5.6	None above guideline
Benzo(k)fluoranthene		140	None above guideline	8.5	None above guideline
Benzo(g,h,i)perylene		650	None above guideline	44	None above guideline
Chrysene		140	None above guideline	6.0	None above guideline
Dibenzo(a,h)anthracene		13	None above guideline	0.76	None above guideline
Fluoranthene		23,000	None above guideline	260	None above guideline
Fluorene		64,000	None above guideline	160	None above guideline
Indeno(1,2,3-c,d)pyrene		60	None above guideline	3.2	None above guideline
Naphthalene		200	None above guideline	1.5	None above guideline
Phenanthrene		22,000	None above guideline	92	None above guideline
Pyrene		54,000	None above guideline	560	None above guideline

SSVs for commercial and residential end use					
Petroleum hydrocarbons (TPHs):					
Determinand	Guideline value source	Commercial		Residential	
		Guideline value in mg/kg	Levels above guidelines	Guideline value in mg/kg	Levels above guidelines
Aliphatic C5-C6	LQM CIEH v2 1% organic matter	3400	None above guideline	30	None above guideline
Aliphatic C6-C8		8300	None above guideline	73	None above guideline
Aliphatic C8-C10		2100	None above guideline	19	None above guideline
Aliphatic C10-C12		10,000	None above guideline	93	None above guideline
Aliphatic C12-C16		61,000	None above guideline	740	None above guideline
Aliphatic C16-C21		1,600,000	None above guideline	45,000	None above guideline
Aliphatic C21-C35		1,600,000	None above guideline	45,000	None above guideline
Aromatic C5-C7 (benzene)	LQM CIEH v2 1% organic matter	28,000	None above guideline	65	None above guideline
Aromatic C7-C8 (toluene)		59,000	None above guideline	120	None above guideline
Aromatic C8-C10		3,700	None above guideline	27	None above guideline
Aromatic C10-C12		17,000	None above guideline	69	None above guideline
Aromatic C12-C16		36,000	None above guideline	140	None above guideline
Aromatic C16-C21		28,000	None above guideline	250	[WS8 at 0.2m, 750mg/kg ali + aro; WS9 at 0.3m, 450mg/kg ali + aro]#
Aromatic C21-C35		28,000	None above guideline	890	[WS8 at 0.2m, 3,200mg/kg ali + aro; WS9 at 0.3m, 2,700mg/kg ali + aro]#
# Worst case of all being aromatic – see text					

SSVs for Commercial and Residential End Use for other VOCs, SVOCs and BTEXs

<i>Determinand</i>	<i>Guideline value source</i>	<i>Commercial</i>		<i>Residential</i>	
		<i>Guideline value in mg/kg</i>	<i>Levels above guidelines</i>	<i>Guideline value in mg/kg</i>	<i>Levels above guidelines</i>
1,1,1-trichloroethane	LQM CIEH V2 with 1% organic matter	700	None above guideline	6.2	None above guideline
Phenol		1,100,000	None above detection	210	None above detection
Pentachlorophenol		1,200	None above detection	0.55	None above detection
Other chlorophenols		3,500	None above detection	0.87	None above detection
Hexachlorobenzene		48	None above detection	0.59	None above detection
Trichlorobenzenes		24-230	None above detection	0.23-1.8	None above detection
1,2,4-Trimethylbenzene	EIC/AGS/ CL:AIRE with 1% organic matter	42	None above guideline	0.35	None above guideline
Dimethyl phenol		16,000	None above detection	19	None above detection
Diethyl phthalate		150,000	None above detection	120	None above detection
Di(n)octylphthalate		89,000	None above detection	2,300	None above detection
Bis(2-ethyl hexyl)phthalate		85,000	None above detection	280	None above detection
MTBE		7900	None above detection	49	None above detection
Benzene	EA SGV	95	None above guideline	0.33	None above guideline
Ethylbenzene		2,800	None above guideline	350	None above guideline
Toluene		4,400	None above guideline	610	None above guideline
Xylene (o,p,m)		2,600 – 3,500	None above guideline	230 - 250	None above guideline

Determinand	Guideline setting	Guideline value	Units of Measurement	Levels above guideline (those of concern in bold)
Arsenic	EQS freshwater	50	µg/l	None above guideline (maximum 5.1)
Cadmium	EQS freshwater	<0.08,0.08,0.09#	µg/l	None above guideline (all <0.03)
Chromium III Chromium VI	EQS freshwater	4.7 3.4	µg/l	None above guideline (maximum 0.41)
Copper	EQS freshwater	1,6,10,28#	µg/l	None above guideline (all <0.40)
Lead	EQS freshwater	7.2	µg/l	None above guideline (maximum 1.1)
Mercury (and compounds)	EQS freshwater	0.05	µg/l	None above guideline (all <0.01)
Nickel	EQS freshwater	20	µg/l	None above guideline (maximum 1.3)
Selenium	No guideline – drinking water normally <10		µg/l	None above guideline (maximum 0.35)
Vanadium	EQS freshwater	20,60	µg/l	None above guideline (maximum 4.9)
Zinc	EQS freshwater	<8, 8,50,75,125#	µg/l	None above guideline (maximum 4.9, with 4 of 6 samples <1.3)

dependent on hardness – assessed against lowest value

APPENDIX 7 – Refined Conceptual Site Model

