

Leicestershire County Council

BARDON ROAD BRIDGE OPTION REPORT



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CONFIDENTIAL

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1 INTRODUCTION

Leicestershire County Council (LCC) propose to construct a link road in Coalville from the roundabout on the A511 junction of Bardon Road, London Road and Stephenson Way in a southward direction to a new road, constructed by a developer, to facilitate an additional access to new housing developments. This will entail crossing the Network Rail (NR) Knighton Junction Swannnington and Leicester Junction Line (KSL) at around 111miles 75chains (OS Grid Ref SK 435 133). (See Appendix A – Location Plan).

The proposed works are part of upgrading multiple junctions on the A511, from the M1 to Hough Hill.

The scheme is to be funded by the DfT and local contributions towards the Coalville Transport Infrastructure Fund. The scheme is being promoted and delivered by Leicestershire County Council.

At the rail crossing point the intended road comprises a 6.75m wide carriageway and 3m allowance on both sides for pedestrian/cycle ways, thus a total of 12.75m width.

At the intended crossing point the railway is on an approximately 8m high embankment above the surrounding ground running in a generally west -east direction. It is understood the railway serves freight only, including a nearby quarry (Bardon Hill Quarry) south east of the crossing point at a lower mileage.

2 EXISTING SITE

The ground to the north of the crossing point is grass and scrub (Photos 1 & 2), with some areas marked (on the Topographical survey) as ponding, adjacent to the rail embankment populated by willow, though no open water could be viewed, on a site visit 8 Oct 2020. At least one small open watercourse passes through this area, into which outfalls a 750mm Severn Trent surface drain through a grill (Photo 3). The ground falls towards the rail embankment.



Photo 1 – Area to North of Railway – View South



Photo 2 - North Approach to Underbridge KSL/40



Photo 3- 750mm Severn Trent Outfall Grill -North of Rail Embankment

The area to the south is more vegetated with trees and scrub (Photo 4),and continues to fall southward, and contains the continuation of the watercourse, plus an additional drain/watercourse on the line of an underline bridge (see below).



Photo 4 – South of Rail embankment View South – Recent Utility Covers centre picture

The rail crossing point is in the vicinity of an existing part infilled underlinebridge (KSL/40 Intersection Bridge 111m 1667yds) (Photo 5) and a 900mm surface water culvert (KSL/39C 111m 1612yds). (Photo 6), with the intention to pass between the two. A public footpath passes through the eastern span of KSL/40, the western span having been infilled. The culvert lies at the bottom of the embankment and surface water drains through it from north to south. At the south end there is a headwall, and immediately downstream there is another headwall on the west side, with a 300mm diameter clay pipe and a smaller plastic pipe. The Severn Trent utility information describes this a "Section 104" sewer. This "Section 104 sewer" is shown passing through the KSL/40 underline bridge, and a manhole cover was noted at is north end (Photo 7). It then turns east and runs parallel to the south toe of the rail embankment to discharge as described above. Another pipe (600mm diameter twin wall plastic) carrying surface water is noted discharging southwards in the vicinity of the underline bridge. (Photo 8). This pipe is not picked up on Severn Trent utility plans, though may classify as a watercourse.



Photo 5 – View on Underbridge KSL/40 and public footpath looking south



Photo 6 – KSL/39C 900mm culvert (with guardrail) and adjacent 300m clay outfall – view upstream



Photo 7 – Manhole cover at North End KSL/40 underbridge. Possibly Severn Trent "Section 104 Sewer"



Photo 8 - Uncharted 600m twin wall plastic pipe in vicinity of KSL/40 underbridge - South side

There are a number of service covers that appear to be newly installed, marked "Water" in line with the underline bridge on the south side (Photo 9), which are not picked up on the Severn Trent Water mains utility drawing of 28 Sept 2020. Further investigation will be needed on these to ascertain any conflict with the proposed crossing, though as they are on the line of the underline bridge, they should be out of the direct line of the new road.



Photo 9 – Newly installed service covers to south of underbridge KSL/40 and on its alignment (some marked Water)

Utility plans from BT, Virgin Media, GTC and Western Power do not show any of their services at this location. However Western Power overhead 11kV cables (Photo 10) well to the north of the rail embankment will need to be negotiated for construction access for the new road and rail crossing. However, it is likely these will need to be moved for the road itself, which does not form part of this report.

The Cadent utility plan does not show any gas plant at this location.

It should be noted that utility plans are generally updated on a three monthly basis, and new plans should be obtained prior to any further design work. Additionally, utility plans do not show domestic services.

Railway utilities are discussed in Section 6.



Photo 10 11kV Overhead Power cables at the North entry to the site area

3 GROUND INVESTIGATION

Ground Conditions

A review of published geological data, and summary of preliminary ground investigation data, is presented in the Preliminary Sources Study Report included in Appendix E.

Available ground investigation data has been assessed in conjunction with BGS 1:10,000 and 1:50,000 scale geological mapping. A summary of the preliminary site wide ground model is presented below and in Table 4-2 of the Preliminary Sources Study Report in Appendix E.

Further ground investigation activities are required to confirm the location specific ground model.

Parent Interpreted Strata		Characteristic Thickness (m)	Characteristic Depth to Base (m)	Comments	
n/a	Topsoil	0.40	0.40	Where encountered Topsoil comprised brown slightly clayey slightly gravelly fine to coarse sand with frequent rootlets.	
Oadby Member	Glacial Clays	0.40	4.65	Deposits are typically described as soft locally firm orangish brown occasionally pale grey slightly sandy clay with occasional gravel and cobbles.	
	Glacial Sands and Gravels	TBC	TBC (>6.45)	Deposits are typically described as medium dense orangish brown slightly clayey gravelly fine to coarse sand.	
Gunthorpe Member	Mudstone & Sandstone	ТВС	TBC	Location specific depth to these bedrock strata is unconfirmed.	

Groundwater

Insufficient location specific groundwater data is available to derive characteristic ground water details at the proposed structure location. A summary of ground water details from exploratory holes located within the area of interest is presented in Table 4-3 of the Preliminary Sources Study Report in Appendix E.

Exploratory Hole	Ground Water Strike (m bgl)
SK41SW197	1.50 (seepage also noted at 0.4 -0.5 m bgl)
SK41SW198	Not Encountered
SK41SW199	2.50
SK41SW200	2.50
WS01	4.85

Contamination

Geo-Environmental Assessment

The scheme area has been assessed as having a low environmental sensitivity based on the following factors:

The site is positioned over Secondary B and Secondary Undifferentiated aquifers, meaning that they are not required for strategic groundwater resources.

The location is on the edge of an SPZ total catchment area, although there are no abstraction points within 500m.

No sensitive ecological receptors have been identified.

An unnamed stream in partial culvert, tributary of the River Sence, is located within close proximity of the site. Protection measures will be required during ground investigation and construction to ensure that contamination or silt / run-off does not enter the watercourse.

No potentially significant sources of contamination have been identified within the study area. The current and disused railway lines may retain some residual contamination however the proposed works are not anticipated to include areas likely to be impacted. The immediate site area is not agricultural, being predominantly woodland, and therefore the potential for contaminants such as herbicides, pesticides and other farming-related activities is considered to be limited. Weed control spraying on Network Rail land cannot be discounted, however the likelihood of significant contaminant accumulation is considered unlikely.

Mining

Mining and mineral deposit records have been assessed with reference to the BGS Onshore Geoindex. The area of interest is identified as within a mapped area of deep coal between 50m and 1200m BGL however the site does not lie within a mapped prospecting area.

A site-specific Consultants Coal Mining Report has been obtained from the Coal Authority. Two claims for subsidence relating to coal mining have been made in the vicinity of the site extents with one underlying the route footprint. Details are presented in Table 2-2, Section 6 and Appendix E of the Preliminary Sources Study Report in Appendix E.

4 ENVIRONMENTAL SURVEY

LCC are commissioning an Ecology/environmental survey, to include (but not exhaustive), protected species, status of site (SSSI or other), determination if in a conservation area, archaeology, checks on tree orders. Land drainage authorities will also need to be consulted by LCC in due course.

5 LANDOWNERS

Landownership details have been provided to WSP by NR and LCC, and plans are included in Appendix C. The NR land on the northside of the embankment is now fenced off with Pallisade fencing, and at the time of the site visit 8 October 2020, contractors were clearing vegetation to enable fencing to be installed on the south side of the embankment.

6 NETWORK RAIL INFRASTRUCTURE

Signalling

It is preferable to construct an Underbridge at the proposed location as there is no Signal Sighting effects on both the Goods lines, which there potentially will be for an Overbridge.

By considering the site survey, the best place for the cables to disconnect and reconnect would be in the location LB111/6 on approach to the signal ML123, whilst the bridge is being constructed.

Network Rail have to decide and identify exactly where it is best to disconnect and reconnect the cables that will need to be temporarily or permanently cut or diverted, if necessary, whilst the bridge is being constructed. Such a decision may require the assistance of a competent signalling construction contractor.

Telecommunications

- Telephony Changes None proposed by either option.
- Cabling Changes Signalling report indicates where re-cabling can take place.
- Trough Route Changes Currently at 90% Full with missing lids. No additions to cabling propose so trough capacity is adequate. It is suggested that the missing and broken lids are replaced as part of the works for the Underline Bridge option.

Track

The chosen site for the Bardon Road Bridge crossing is a section of straight, plain line twin track, with constant gradient, on embankment. No additional track assets, or specific track features, have been identified during the assessment which would have significant implications on the design of the proposed bridge options. However, despite the straightforward arrangement of the existing track layout, there are a number of factors to consider due to the condition of the track assets and existing alignment.

Proposed construction method – Underline Bridge Track lift and embankment dig out:

- A number of the track components identified during the condition assessment are in poor condition. If the track is to be lifted, and reinstated, it is likely a large portion of the components will need to be replaced. Noting that much of the existing track utilises outdated componentry, some of which is either difficult to procure, or no longer permitted as part of a new design, it is highly likely that a localised track renewal will be required;
- If a track renewal is required, consultation with the NR track RAM will be required to determine the optimal extents of renewal. This may be an opportunity for the NR track RAM to propose further track maintenance works in addition to those required for the Bardon Road Bridge installation;
- The existing alignment has not been assessed as part of this study, as the condition assessment was a visual assessment only. Should the alignment be in poor condition, a new track alignment design will be required prior to reinstatement of the track. The tie in points of



which could propagate some distance away from the proposed Bardon Road Bridge site, increasing the extents of renewal and/or tamping required;

• The current ballast depths and condition of the existing track formation are currently unknown. Consideration should be given to maintaining a uniform stiffness across the embankments and proposed structure. Sufficient ballast ramps will be required to facilitate the stiffness transition between old and new.

Proposed construction method – Overline Bridge:

- There is no ballast shoulder on the existing track. Should an overbridge solution be proposed for Bardon Road Bridge it will be essential to maintain the clearance from the existing track to the proposed abutments. Consideration should be given to the proposal of a suitable ballast shoulder to mitigate the risk of any potential lateral shift of the track.
- Track monitoring may be required if any proposed foundations are to be built within the track support zone or zone of influence. As above, if settlement were to occur during construction, there is a risk that additional components could fail leading to track faults.

7 CONSTRAINTS

The new link road ties into Bardon Road Roundabout. Initially three horizontal alignments were produced, which met highway design requirements for minimum curve radii all in the vicinity of 111m 75 chains. In this area there are NR assets KSL/40(Underline Bridge) and KSL/39C(Culvert) (Refer Section 2), and also to the east of KSL/39C the ground on the north side is described on plans as "Ponding". The central of the three horizontal alignments passes between the two NR assets and keeps away from the ponding and therefore was chosen. This avoids work to either, and leaves the public footpath passing under the railway through the remaining span of KSL/40. The initial central horizontal alignment was then adjusted to reduce the skew to 21.3 degrees. This is a permissible but less then optimum horizontal alignment (termed a one step relaxation in highway standards). The 21.3 degree skew is proposed by this report.

8 BRIDGE OPTIONS

The options for crossing the railway fall into to two categories, either going underneath with an underline bridge, or crossing over the top with an overline bridge. A solution for each is presented, along with variations that have been considered. The horizontal alignment of the highway has been designed by LCC to position the new highway between an existing part infilled underline bridge (KSL/40 Intersection Bridge 111m 1667yds) and a culvert (KSL/39C 111m 1612yds), and to cross the railway at the minimum skew that can be obtained (21.3 degrees).

8.1 UNDERLINE BRIDGE (REFER DRAWING 70074890-STR-001)

At the intended crossing location, the railway is on an embankment, which presents a logical vertical alignment for the highway to pass under the railway.

The bridge can be designed to provide a minimum headroom of 5.70m (CD 127 Table 4.1), which would negate the need to design the bridge to resist collisions from over-height road vehicles. Alternatively, the structure could be designed for impact loading in which case a headroom of 5.30m plus any structure deflection is given in CD127 Table 4.1, but this approach would need specific agreement from Network Rail. (The highway is on a straight slope/convex curve, so no Sag allowance is necessary).

The current drawing of the underline bridge option allows for 350mm of ballast and waterproofing and a further 470mm for the rail and sleeper height. It may be possible to reduce this construction depth as the design matures, however at this stage it is prudent to work on the worst case.

The type of structure to be proposed for the underline bridge is governed by restrictions on access to the railway environment, the length of possessions, number of possessions and their costs. It is likely to be possible to book a 4 day possession of the railway (albeit with a two year lead time – NR are still to confirm), often at Christmas or Easter, and this has proved sufficient for a number of examples of bridges to be assembled adjacent to the railway and then moved into position during the railway possession. This form of construction involves lifting the track, and digging out the railway embankment and moving the already constructed bridge into position, backfilling behind the bridge abutments/wingwalls, and reinstating the track. Rail infrastructure (signal and telecommunications cabling (S&T)) can either be suspended over the opening on a temporary structure, or disconnected and re-connected during the possession. Track drainage (if it exists), can be taken up and renewed on backfilling of the underline bridge.

A six day blockade has been suggested to NR, though no formal response has been received at present. This would not fundamentally change the proposed method, but could reduce costs if a contractor determined 24 hour working throughout was not needed.

There are variations on this form of construction, the principal one being to create a box structure and use it as a tunnelling shield under the railway, whilst the railway remains open, generally with line speed restrictions. Settlement of the track will occur, and pre-determined limits would have to be agreed with NR. Following the box installation the track would require ballast top-up. This system has been patented by John Ropkins Ltd, and has been used where the dig out method has not been possible. In this situation the rail line usage would not appear to justify the restrictions of using this patented system.

The method involving track lift and embankment dig out itself has some variations. In this case it is proposed a full box form is used for the underline bridge, rather than a portal with spread footings. The Preliminary Sources Study Report (PSSR) (See Section 3 and Appendix E indicate the site is underlain by some alluvial deposits and clays with mudstone and sandstone at depth. A single window sample has now been taken which indicates firm to stiff clays from 1m below ground level to the bottom of the sample at 6.4m below ground level.

A portal frame on spread footings which could be moved into position using a transporter requires high ground bearing capacities near the surface as the weight of the bridge is spread over a smaller area than a box (as used at Holmethorpe, Redhill Surrey). Thus the underline bridge put forward is for a full box, which will have minimal net effect on the underlying ground pressures, given the volume of material which will be removed to create the opening under the embankment. The box would be pushed into place once the embankment has been dug out. This requires the use of a substantial reinforced concrete casting pad for the box (at least 1m deep) which will incorporate reaction pads for the jacks to push the box into place. During the slide, the box has to overcome ground friction, which can be provided by Bentonite (as used at Immingham), or cables (as used at Owen Street, Tipton – a variation on the Ropkins system).

The bridge has been sized to provide a 10.60m clear square width between parapets at rail level. This is wider than the top of the existing embankment, but has been sized on the basis of other similar projects and provides allowance for a cess walkway to both sides of the double track.

The overall box and wingwalls in the long section are determined by the profile of the embankment. The wing walls have been kept parallel with the abutments to facilitate the slide in, with a clear distance between abutments of 12.75m to accommodate the 6.75m carriageway and 3m wide paths either side as required by LCC. The box would be constructed of reinforced concrete, sections have been indicated as 900mm thick, but this would be subject to preliminary and detail design.

If there are clearance issues with the S&T, one of the parapets can be attached after the box has been pushed under the S&T.

It would be the intent at this stage to construct off-line to the north of the railway embankment, to enable the push to take place in a slightly downhill fashion.

Any large diameter highway drainage, or other significant size services, would need to be laid adjacent to the main box, as incorporating it within the box would significantly increase the embankment excavation, and require the base of the box to be constructed well below ground level on the casting pad, which will all add to cost and difficulty of sliding in the box. It the highway drainage was placed to the west of the highway, it could be used to intercept the 300mm diameter "Section 104 sewer", whose alignment and level is likely to interfere with the box as it runs along parallel to the rail embankment on it's south side.

This form of reinforced concrete construction should not present significant maintenance issues, and contains no joints which can be a source of leakage leading to maintenance issues. Significantly inspections and maintenance can be undertaken without the need for railway possessions which carry a time and cost implication. Provided it is designed to current standards this reinforced concrete structure should last its 120 year design life.

Ahead of the 4 day possession to install the bridge through the embankment a minimum construction period of 7 months is anticipated to construct the casting pad and jacking reaction blocks, and the box itself. The construction period allowed should include a generous float, as

missing the pre-booked required 4 day possession could result in up to a 2 year wait for a subsequent one. The construction period does not include the necessary time for design and approvals from LCC and NR, or procurement of a suitably experienced Contractor.

Summary Underline Bridge Solution

For

- At grade Vertical Road Alignment.
- No Net Ground Bearing Pressure Increase with Box Option.
- Proven record of successful box slides in 4 day rail possessions.
- Line is freight only, so possession costs should be lower than for equivalent mainline passenger line.
- Possible option for 6 day rail possession.
- Options does permit up to 5.7m headroom which avoids design for bridge strike, but this can be reduced to 5.30m (plus deflection) if bridge strike included, which may be more economic overall.
- Relatively small amount of material to be moved (compared to overline bridge solution).
- The dig out and box push does not have to involve a patented system.
- Maintenance and Inspection of the resulting bridge does not require rail possessions.
- Not visually intrusive and solution minimises landtake.
- Overall more economic solution in cost and sustainability.

Against

- Minimum 4 day rail possession required which must be booked 2 years in advance.
- If there are construction problems and the rail possession is missed, it is a long time to re-book.
- High costs to NR if the possession over-runs.
- Substantial temporary works required for the casting/jacking pad.
- Track Lift/Reinstatement is required.
- The S & T must be dis-connected or suspended over the embankment during the dig.
- Track drainage if present must be re-connected.
- The 300mm diameter drain pipe on the south side of the embankment will need to be re-aligned

8.2 OVERLINE BRIDGE (REFER DRAWING 70074890-STR-002)

For this solution Network Rail (email Steven Goddard 21 Oct 2020) require a rail to soffit height of 6.7m. (Note this is in excess of the requirements of NR/L3/TRK/2049 Module 07 Gauging Table 1 of 5.100m). On top of this an allowance has been made for up to 300mm of road construction (to incorporate any cross fall). The structural depth of the bridge itself will depend on the span. The span is constrained by a number of factors, the first being that the supports should be a minimum of 4.5m from the railway, to avoid the need to design them for train impact.

Secondly when the abutments/piers are being built, it will entail cranes or piling rigs that could topple over and obstruct the track. In that case, either possessions or special Adjacent Line Open (ALO) working arrangements will be needed. This introduces extra costs from the possession cost itself and the extended programme that would result from dis-jointed working.

A longer span over the railway would require a deeper structural section, which would be heavier to lift, however it is probable that the cranes and piling rigs could be kept at a sufficient distance not to require ALO working arrangements. A solution involving a clear skew span of 36m is put forward, that keeps the pier/abutments at the base of the existing embankment. Span tables from concrete prestressed beam suppliers suggest a W18 beam of depth 2200mm at 3m centres with an insitu concrete slab of 200mm would be sufficient. Four W18 beams of total length 40m would need to be lifted into position in a rail possession. It is expected this could be achieved in a standard 28 ¼ hr Rules of The Route (ROTR) weekend possession, along with the insitu formwork. A second ROTR weekend possession would be required to lift in precast parapet beam and slab sections. The insitu concrete bridge deck slab can then be completed over the live running railway. It is proposed these beams are supported on reinforced concrete panel faced abutment and wing walls. The reinforced concrete columns themselves are enclosed in oversized manhole rings within the reinforced earth embankment to ensure integral bridge action without high earth pressures on the bridge supports.

However, the detailed ground investigation may determine that the settlement a 16m high embankment will induce in the underlying ground is too great, and further bridge spans may be necessary, adding further cost to the overline bridge option. Lightweight fill is an option but not favoured due to uncertainties in its life span.

These will result in embankments 16m high on both sides of the railway (14m to underside of the beams), which will extend away from the bridge a long way to get back to the surrounding ground level, and on the south side entail a gradient of around 16%, which is an unacceptable departure from highway standards which allow up to 8% vertical gradient (and that is a relaxation from the recommended 6% maximum). LCC advise that the south side embankment cannot be extended further from the structure than 140m. Th embankment on the north side is less steep (over 5% but less than the desirable maximum of 6%) but still over 200m long to the roundabout tie in.

1.8m solid infill H4A parapets would be provided over the railway itself, in accordance with design standards. It is expected safety barriers will be required for the high embankments, though outside the remit of this report.

The overline bridge option creates slightly less interaction with the railway than for the underline bridge, however a number of possessions are still required for construction, and the current rail

boundary would still need to be adjusted to permit construction and maintenance of the bridge and its abutment, and to allow inspections.

Maintenance of the bridge deck itself would require work over the railway and hence future possessions, though the design life of 120 years should ensure this is minimised apart from items such as the parapets where a design life of up to 50 years would be expected.

The overline bridge solution will create a very significant visual intrusion to nearby residents, and the elevated nature of the carriageway will result in increased noise pollution.

The embankment construction to attain the great height to pass over a railway which is already on an embankment 8m above the surrounding land, will require large amounts of material to be brought to site requiring extensive lorry movements which is undesirable when considering sustainability and carbon efficiency. The footprint occupied by the embankments will entail a greater land take than for the at grade underline bridge road vertical alignment.

Drainage of the highway is also adversely affected as water to the north of the bridge will drain northwards, which LCC advise already has drainage issues.

Any significant services of diameter over 100mm will need pipe jacking through the embankment.

At this stage it is difficult to estimate an overall construction period, as it will depend on NR attitude to the pile installation and building the reinforced earth walls outside a realigned NR boundary. If it is assumed this work can be undertaken without the need to book possessions and have down time in between, an initial estimate would be 5 months for the substructure works (excludes the approach embankments) and a further 2 months for the deck construction. The construction period does not include the necessary time for design and approvals from LCC and NR, or procurement of a suitably experienced Contractor.

Summary Overline Bridge Solution

For

- Can be built using Rules of the Route (ROTR) standard 28.25 hr rail possessions.
- The S & T does not need to be dis-connected or suspended over the embankment during the dig.
- Track Lift/Reinstatement is not required.
- No impact on track drainage if present.
- Reduced issues with the 300mm diameter drain pipe on the south side of the embankment.

Against

- Very substantial visual intrusion and noise.
- The road vertical alignment on the south side at 16% is well out of standard and unacceptable for a new road.
- Lifting of heavy items over the railway is required.



- Large quantities of imported material required to build approach embankments, which will involve many lorry movements, which is a poor carbon/sustainability solution.
- Significant foundation solutions required, piles have been assumed at this stage prior to any detailed ground investigation being available.
- The embankments which are up to 16m high may need significant ground improvement under them.
- Maintenance and Inspection of the resulting bridge requires rail possessions.
- Highway drainage for then north approach is pushed to the north with this solution, where there are highway drainage issues on the existing network.
- The overline bridge solution involves a much larger landtake requirement (for the embankments), than the at grade underline bridge solution.
- Overall more expensive solution in cost and sustainability.

9 COSTS

Possessions

WSP have made a number of enquiries to NR for possession costs.

The options require either ROTR possessions (allow 3 Number 28.25 hrs) for the OB or a single 101 hour possession for the UB. No costs have been forthcoming from NR at the time of writing.

From past experience WSP anticipate ROTR possessions at £25k each and a 4 day blockade at £750k. These figures are very approximate estimates and require confirmation from NR before any decision is made on their basis.

Underline Bridge

Construction Costs:

Item	Cost (thousands)
Casting Base – allow 45m by 15m by 1.5m thick Reinforced Concrete (to be left insitu)	£246k
Excavation for Casting Base	£135k
Specialist Jacking arrangements and cable or bentonite system for friction reduction	£395
Dig Out the rail embankment with 45 degree slope beyond bridge box envelope and remove from site material that is not to be re-used	£330k
Backfill the 45 degree slope to the bridge abutment with 6N fill	£35k
Track Lift and Re-instate	£14k
Cost of either dis-connect and re-connect S&T, or temporary bridge to span 35m opening	£11k
Re-route 0.3m Severn Trent drain at south embankment	£20k
Cost of the box Construction itself	£354k
Enabling Works- Site Clearance	£11k
Sub-Total	£1,551k
Preliminaries	£310k
Overheads and Profit	£186k
Cost of 101 hour Rail Possession (Assumed – Await NR Figure)	£750k
Sub-Total	£2,799k
Optimism Bias (40%)	£1,120k
TOTAL	£3,919k



Excludes Design and Design Approvals

Excludes any other Approvals

Excludes any costs associated with invasive species or archaeology should they be uncovered
Haul road to bridge site excluded as should form part of highway construction
Pipe jack for highway drainage (and any other services) through embankment excluded
Excludes cost of highway and cycleway materials themselves at the structure.

Overline Bridge

Construction Costs:

Item	Cost (thousands)
Earthworks Excavation	£60k
Piling (Piles sizes assumed at this stage ahead of Detailed Ground Investigation)	£160k
Bridge (inc Crane Hire)	£452
Embankments on North and South sides (Up to 16m high). Assume slope of 1 in 2.5 to surrounding ground (refer LCC Long section)	£3,250k
Concrete Panel Facing to Reinforced Earth Abutments	£96k
Enabling Works- Site Clearance	£24k
Sub-Total	£4,042k
Preliminaries	£808k
Overheads and Profit	£485k
Cost of three ROTR Rail Possessions 28hrs (Assumed – Await NR Figure)	£75k
Sub-Total	£5,410k
Optimism Bias (40%)	£2,164k
TOTAL	£7,574k

Excludes Design and Design Approvals

Excludes any other Approvals

Excludes any costs associated with invasive species or archaeology should they be uncovered

Haul road to bridge site excluded as should form part of highway construction

Pipe jack for highway drainage (and any other services) through embankment excluded



Excludes cost of highway and cycleway materials themselves at the structure.

10 **RECOMMENDATION**

The Underline Bride is recommended at an estimated cost of £3.92 million, which is just over half that of the Overline bridge. There are also significant environmental benefits with the underline bridge option. At the time of writing the possession costs have not been provided by Network Rail, and estimates used. It is considered unlikely the possession costs will change so much as to make the Overline bridge the preferred option, but it could push up the Underline Bridge option estimate.

It should also be noted significant risks remain, which can be mitigated by the undertaking of a detailed Ground Investigation, a full Ecological survey (which LCC have in hand), and detailed design.

Appendix A

LOCATION PLAN

CONFIDENTIAL

)



Appendix B

TOPOGRAPHICAL PLAN AND UTILITIES

CONFIDENTIAL

)

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.



openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED (Office hours: Monday - Friday 08.00 to 17.00) www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

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KEY	TO BT SYM	BOLS	Change Of + State		Hatchings		
	Planned	Live	Split Coupling	×	Built	\sim	
РСР		囟	Duct Tee	•	Planned		
Pole	0	0	Building		Inferred	\sim	
Вох			Kiosk	ĸ	Duct	\sim	
Manhole			Other proposed plant is shown using dashed lines.				
Cabinet	Û	Û	Existing BT Plant may not be recorded. Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.				
	Pending Add	In Place	Pending Remove	Not In Use]		
Power Cable	* *	**	## s	/ //			
Power Duct	**	-N-N	###	N/A	1		

BT Ref : JNS03134Z Map Reference : (centre) SK4358513433 Easting/Northing : (centre) 443585,313433 Issued : 28/09/2020 15:13:55

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk



Om		50m	100m	1507				
(c) Crown copy Data updated:	right and 14/09/20	l database rights 2020	0 Ordnance Survey 1000	031673		Scale: 1:1837 Map Centre: 443585,313433	Date: 28/09/20	Clean Water Plan A3 Powered by digdat
Hydrant	•	Valve		Aqueduct	 bryony.wilson@leics.gov.uk			SEVERN
Meter		Water Main -		Duct				TRENT
AirValve	I	Abandoned Pipe	⟨→, →, →, →, × →,	Service Pipe				

Do not scale off this map. The plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems. Reproduction by permission of Ordnance Survey on behalf of HMSO. ©Crown Copyright and database right 2004. All rights reserved. Ordnance Survey licence number 100031673. Document users other than SEVERN TRENT WATER business users are advised that this document is provided for reference purpose only and is subject to copyright, therefore, no further copies should be made from it.



GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on: **0800 783 4444 (24 hours)**

a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991(a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as "STW Apparatus" in these general conditions and precautions.

b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.

c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.

d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.

e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).

f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.

2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).

3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.

4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.

5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.

6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.

7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.

8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.

9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.

10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.

11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.

12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this

a proportionate charge will be made.

13. You are advised that STW will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,

14. No explosives are to be used in the vicinity of any STW Apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW Apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW Apparatus.

15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.

16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.

17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May 2014

18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other
STW Apparatus.

19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.



Do not scale off this Map. This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any development or works (including but not limited to excavations) in the vicinity of SEVERN TRENT WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems. On 1 October 2011 most private sewers and private lateral drains in c these sewers and public sewer as at 1 July 2011, Transferred to the ownership of Severn Trent Water and became public sewers and public lateral drains. A further transfer takes place on the map. Reproduction by permission of Ordnance Survey on behalf of HMSO. © Crown Copyright and database right 2004. All rights reserved. Ordnance Survey licence number: 100031673. Document users other than SEVERN TRENT WATER business users are advised that this document is provided for reference purpose only and is subject to copyright, therefore, no further copies should be made from it.

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
6501	С	154.22	151.76	2.46
6602	С	154.45	152.75	1.7
6603	С	155.42	152.36	3.06
6702	С	155.65	153.75	1.9
7500	С	-	0	0
7501	С	-	0	0
7503	С	154.07	152.02	2.05
7504	С	153.46	149.8	3.66
7508	С	153.51	149.74	3.77
7509	С	153.85	148.4	5.45
7511	С	-	0	0
8401	С	153.92	150.69	3.23
	F			
	F			
6200	F	154.38	149.62	4.76
6300	F	153.72	149.52	4.2
7200	F	157.76	150.24	0
7201	F	156.79	154.89	1.9
7202	F	156.18	153.98	2.2
7203	F	157.51	150.68	0
7300	F	155.54	152.99	2.55
7301	F	155	151.96	3.04
7302	F	153.99	149.13	4.86
7303	F	153.07	148.85	4.22
7304	F	152.34	0	0
7400	F	153.73	151.71	2.02
7403	F	152.73	150.52	2.21
8102	F	155.87	151.01	4.86
8503	F	154.21	150.19	4.02
8504	F	153.91	149.99	3.92
4601	S	156.4	152.01	4.39
4704	S	158.26	153.09	5.17
4706	S	-	0	0
5301	S	-	0	0
5302	S	-	0	0
5303	S	-	0	0
5401	S	-	0	0
5501	S	153 94	150 21	3 73
5502	S	154 26	150.08	4 18
5503	S	154.06	150.8	3 26
5504	S	-	0	0
5603	S	-	0	0
5704	S	156 21	155.1	1 11
6201	S	154 43	150 75	3.68
6301	S	153 57	150.48	3.09
6302	S	153	150 74	2 26
6303	S	151 28	150.28	1
6304	9	151.20	149 56	1 53
6305	S	150.82	149.38	1.44
6306	S	-	150.69	0
6401	S	153 74	149.8	3.94
6502	S	153 73	150.81	2.92
6503	S	-	0	0
6601	S	153 94	151 99	1 95
6604	S	154 27	151 34	2.93
6606	S	154 22	153.61	0.71
6607	S	154.85	153.69	1 16
6608	S	154 23	151.88	2 35
6609	S	154.52	151.00	1 34
6610	S	155 53	154 78	0.75
7100	с с	157 /2	151 /5	5.08
7204	0 Q	157.43	151.40	0.30
7204	с С	157.0	151.55	1 /3
7205	с С	157.1	153.07	1.43
7200	0 Q	156 17	154.50	1.57
7305	0 0	152.07	154.0	3.25
7306	ວ ເ	155.57	153.90	J.20 1.65
7307	0 0	155.04	153.09	2.24
7308	ວ ເ	153.04	152.7	2.34
7300	0 Q	155 02	153.14	1.00
7210	ა ი	100.93	104.00	1.50
1310	J	100.43	104.00	1.00

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert					
7311	S	153.47	150.74	2.73					
7404	S	152.65	150.85	1.8					
7405	S	153.64	151.99	1.65					
7406	S	154.99	153.41	1.58					
7502	S	153.54	152.78	0.77					
7515	S	153.9	151.08	2.82					
8509	S	154.23	151.3	2.93					
8603	S	-	0	0					



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18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other

STW Apparatus.

19. In certain circumstances, both STW and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW Apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.



Important Information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf", which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2020 Ordnance Survey 100019209.











Bryony Wilson Leicestershire County Council County Hall Leicester Road Glenfield Leicester Leicestershire LE3 8RA Plant Protection Cadent Block 1; Floor 1 Brick Kiln Street Hinckley LE10 0NA E-mail: <u>plantprotection@cadentgas.com</u> Telephone: +44 (0)800 688588

National Gas Emergency Number: 0800 111 999*

National Grid Electricity Emergency Number: 0800 40 40 90* * Available 24 hours, 7 days/week. Calls may be recorded and monitored.

www.cadentgas.com

Date: 28/09/2020 Our Ref: EM_GW2B_3SWX_728297 Your Ref: MRN Punch Through RE: Proposed Works, MRN Punch Through from Bardon Road

Thank you for your enquiry which was received on 28/09/2020. Please note this response and any attached map(s) are valid for 28 days.

An assessment has been carried out with respect to Cadent Gas Limited, National Grid Electricity Transmission plc's and National Grid Gas Transmission plc's apparatus. Please note it does not cover the items listed in the section "Your Responsibilities and Obligations", including gas service pipes and related apparatus. For details of Network areas please see the Cadent website (<u>http://cadentgas.com/Digging-safely/Dial-before-you-dig</u>) or the enclosed documentation.

As your works are at a "proposed" stage, any maps and guidance provided are for information purposes only. This is not approval to commence work. You must submit a "Scheduled Works" enquiry at the earliest opportunity and failure to do this may lead to disruption to your plans and works. Plant Protection will endeavour to provide an <u>initial</u> assessment within 14 days of receipt of a Scheduled Works enquiry and dependent on the outcome of this, further consultation may be required.

In any event, for safety and legal reasons, works must not be carried out until a Scheduled Works enquiry has been completed and final response received.

Your Responsibilities and Obligations

The "Assessment" Section below outlines the detailed requirements that must be followed when planning or undertaking your scheduled activities at this location.

It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near Cadent and/or National Grid's apparatus, e.g. as contained within the Construction (Design and Management) Regulations.

This assessment solely relates to Cadent Gas Limited, National Grid Electricity Transmission plc (NGET) and National Grid Gas Transmission plc (NGGT) and apparatus. This assessment does **NOT** include:

- Cadent and/or National Grid's legal interest (easements or wayleaves) in the land which restricts activity in proximity to Cadent and/or National Grid's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and if in doubt contact Plant Protection.
- I Gas service pipes and related apparatus
- Recently installed apparatus
- Apparatus owned by other organisations, e.g. other gas distribution operators, local electricity companies, other utilities, etc.

It is **YOUR** responsibility to take into account whether the items listed above may be present and if they could be affected by your proposed activities. Further "Essential Guidance" in respect of these items can be found on either the <u>National Grid</u> or <u>Cadent</u> website.

This communication does not constitute any formal agreement or consent for any proposed development work; either generally or with regard to Cadent and/or National Grid's easements or wayleaves nor any planning or building regulations applications.

Cadent Gas Limited, NGGT and NGET or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

If you require further assistance please contact the Plant Protection team via e-mail (<u>click here</u>) or via the contact details at the top of this response.

Yours faithfully

Plant Protection Team

ASSESSMENT

Affected Apparatus

The apparatus that has been identified as being in the vicinity of your proposed works is:

Low or Medium pressure (below 2 bar) gas pipes and associated equipment. (As a result it is highly likely that there are gas services and associated apparatus in the vicinity)

Requirements

BEFORE carrying out any work you must:

- Carefully read these requirements including the attached guidance documents and maps showing the location of apparatus.
- Contact the landowner and ensure any proposed works in private land do not infringe Cadent and/or National Grid's legal rights (i.e. easements or wayleaves). If the works are in the road or footpath the relevant local authority should be contacted.
- Ensure that all persons, including direct labour and contractors, working for you on or near Cadent and/or National Grid's apparatus follow the requirements of the HSE Guidance Notes HSG47 -'Avoiding Danger from Underground Services' and GS6 – 'Avoidance of danger from overhead electric power lines'. This guidance can be downloaded free of charge at <u>http://www.hse.gov.uk</u>
- In line with the above guidance, verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any activities are undertaken.

GUIDANCE

Excavating Safely - Avoiding injury when working near gas pipes: http://www.nationalgrid.com/NR/rdonlyres/2D2EEA97-B213-459C-9A26-18361C6E0B0D/25249/Digsafe_leaflet3e2finalamends061207.pdf

Standard Guidance

Essential Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=8589934982

General Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=35103

Excavating Safely in the vicinity of gas pipes guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/A3D37677-6641-476C-9DDA-E89949052829/44257/ExcavatingSafelyCreditCard.pdf

Excavating Safely in the vicinity of electricity cables guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/35DDEC6D-D754-4BA5-AF3C-D607D05A25C2/44858/ExcavatingSafelyCreditCardelectricitycables.pdf

Copies of all the Guidance Documents can also be downloaded from the National Grid and Cadent websites.

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DATE: 28/09/2020	IP MAINS	with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is	Cardonat			
DATA DATE: 26/09/2020	LHP MAINS	given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by	Lagent			
REF: MRN Punch Through		Cadent Gas Limited or their agents, servants or contractors for any error or omission. Safe digging	Your Gas Network			
MAP REF: SK4313	0m 50m	pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure	Requested by: Leicestershire County Council			
CENTRE: 443537, 313319	on A3 Colour Portrait	that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date	This plan is reproduced from or based on the OS man by Cadent Gas Limited, with the sanction			
Some examples of Plant Items: Valve Depth of Cover Syph	Ion Dlameter Material Out of Change Change Service	of issue.	of the controller of HM Stationery Office. Crown Copyright Reserved. Ordnance Survey Licence number 100024886			

ENQUIRY SUMMARY

Received Date 28/09/2020

Your Reference MRN Punch Through

Location Centre Point: 443536, 313318 X Extent: 351 Y Extent: 631 Location Description: MRN Punch Through from Bardon Road

Map Options Paper Size: A3 Orientation: PORTRAIT Requested Scale: 2500 Actual Scale: 1:2500 (GAS) Real World Extents: 723m x 918m (GAS)

Recipients bryony.wilson@leics.gov.uk

Enquirer Details Organisation Name: Leicestershire County Council Contact Name: Bryony Wilson Email Address: bryony.wilson@leics.gov.uk Telephone: 01163052222 (01163052222) Address: County Hall, Leicester Road, Glenfield, Leicester, Leicestershire, LE3 8RA

Description of Works Installation of through road

Enquiry Type Proposed Works

<u>Activity Type</u> Highways

Work Types Work Type: Change to Ground Level Work Type: Deep Excavation (greater than or equal to 0.3m) Work Type: Shallow Excavation (less than 0.3m) Work Type: Surface Works Work Type: Drop Kerb Work Type: Street Furniture/Lighting





Appendix C

LANDOWNERS

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Appendix D

DRAWINGS

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Proposed Levels	145.017	145 622		146.959	148.410	149.862	151.313	152.765	154.217	155.668	157.120	158.571	160.023	161.475	162.926	164.328	165.040	165.130	165.197	165.199	164.908	164.428	163.944	163.461	162.978	162.495	162.012	161.529	161.046	160.562	160.079	159.596	159.113	158.630	158.147	157.663	157.180	156.697	156.214	155.731	155.248
Additional Levels 1	145.017	145 482 <u></u>		145.789 —	146.055 —	146.337 —	146.667	147.014 —	147.361 —	147.693 —	147.985 —	148.237	148.475 —	148.713 —	148.951 —	149.152 —	149.289	149.388 —	149.488	149.587 —	149.727 —	149.961	150.276 —	150.601 —	150.925 —	151.250 —	151.575	151.899 —	152.221 —	152.487 —	152.679 —	152.815	152.948 —	153.081 —	153.214 —	153.347 —	153.481	153.614 —	153.747 —	153.880 —	154.013 —
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Appendix E

GEOTECHNICAL

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Leicestershire County Council

A511 BARDON ROAD

Preliminary Sources Study Report



70074890-GEO-PSSR-0001 DECEMBER 2020

CONFIDENTIAL

Leicestershire County Council

A511 BARDON ROAD

Preliminary Sources Study Report

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70074890 OUR REF. NO. 70074890-GEO-PSSR-0001

DATE: DECEMBER 2020

WSP

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QUALITY CONTROL

Issue/revision	First issue	Revision 1
Remarks		
Date	December 2020	
Prepared by	A Lancaster / C Woods	
Signature		
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Signature		
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Signature		
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Report number	70074890-GEO-PSSR-0001	

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- Appendix B DRAWINGS
- Appendix C AS-BUILT AND ARCHIVE DOCUMENTS
- Appendix D LAND OWNERSHIP PLANS
- Appendix E COAL AUTHORITY CONSULTANTS COAL MINING REPORT
- Appendix F EXISTING GROUND INVESTIGATION RECORDS

1 INTRODUCTION

The A511 Bardon Road scheme comprises a new approximately 1.0 km section of highway connecting the A511 Bardon Road with a yet constructed road to the south. The scheme is located to the southeast of the town of Coalville in Leicestershire, as presented in Figure 1-1. WSP has been commissioned by Leicestershire County Council (LCC) to undertake preliminary design activities and produce an options report. The proposed route is required to cross the Midland Railway line (Leicester & Burton Branch), with geotechnical input required to assess the proposed railway crossing options. The area of interest for this desk study is limited to a 50m offset from E: 443563, N:313370 and is presented in Figure 1-1.

The aim of this Preliminary Sources Study Report (PSSR) is to provide geotechnical considerations related to the proposed railway crossing, for which a number of options are currently under consideration, which include and overline bridge crossing and an underline bridge crossing. This report highlights the relevant geotechnical risks in relation to the likely ground conditions encountered and historic land use and the geotechnical risks associated with each bridge option. These are presented in the Geotechnical Risk Register in Section 6 of this report.

This scheme is anticipated to fall under geotechnical category 2 in accordance with CD622 'Managing geotechnical risk' and as defined in Eurocode 7 (BS EN 1997-1:2004+A1:2013) on the basis that it will include conventional geotechnical structures with no exceptional geotechnical risks anticipated, however this is subject to review following the selection of the preferred bridge option.



Figure 1-1 - Scheme Location and Geotechnical Area of Interest

2 SOURCES OF INFORMATION AND DESK STUDY

2.1 HISTORICAL MAPS

A study of available historical mapping has been undertaken with reference to data provided within a site-specific GroundSure report (see Appendix A). The following key developments are noted to have taken place on- and off-site over the mapping period:

Mapping Date	On-site development	Off-site development (within 50m of site boundary)
1884	The site is crossed NW – SE by the Midland Railway (Leicester & Burton Branch) on a raised embankment structure.	The area is surrounded by fields, occasional trees and a small pond.
1903	The L&NWR Charnwood Forest Branch line has been constructed, crossing beneath the original line in a $N - S$ alignment.	No significant changes.
1929 / 1931 / 1938 / 1955	No significant changes.	An area of marshy ground has developed to the E of the site area.
1961	No significant changes.	The marshy area has extended and is shown as a pond appearing to discharge to the S through a drain and sinks.
1973	Charnwood Forest Branch shown as dismantled.	Pond is no longer shown, replaced by marshy area. Drain and sinks still shown.
1975 — 1994	No significant changes.	No significant changes in immediate site area.

Table 2-1 -	Summarv	of site	historical	develo	pment
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In the wider scheme area, mapping indicates minimal changes to land use since 1884 with the exception of general expansion of residential areas in the area adjacent to Bardon Road.

2.2 TOPOGRAPHICAL MAPPING

Topographical mapping has been assessed with reference to the following information sources:

- Ordnance survey one-inch 1885-1903 "hills edition" mapping;
- Ordnance survey online mapping (2020); and,
- Scheme specific topographic survey undertaken in 2020.

Historical topographical mapping broadly correlates with recent Ordnance Survey mapping. Ordnance survey one inch 1885-1903 "hills edition" mapping has been consulted. This mapping indicates the earthworks associated with the Charnwood Forest Branch railway and the midlands railway. Between Bardon Road and the rail crossing the earthworks of the Charnwood Forest Branch railway is shown to comprise cuttings whilst to the south of the railway crossing low-height
embankments are depicted. The Leicester and Burton branch of the Midlands Railway is shown to be constructed on embankments at the crossing location. More recent topographical mapping is not available as historic earthworks are located in areas now dominated by woodlands and as such further up to date details are not available.

Recent 1:25,000 scale topographical mapping, made available by the Ordnance Survey Get Outside online mapping service, has been assessed. Topographic data is not given at a sufficient resolution to accurately assess the area of interest. The site is shown to be gently sloping southward with levels generally dropping from approximately 150m AOD on the southern side of the rail crossing to approximately 140m AOD 300m to the south.

The proposed highway crosses the Leicester & Burton Branch of the Midland Railway at approximately E: 443580, N: 313349. In this area the Leicester & Burton Branch is founded on embankments (up to 6m in height) as the route crosses a topographical bowl. An underpass was constructed in 2006 within the former underbridge crossing of the Charnwood Forest Branch railway and now forms part of the local footpath network.

A topographical survey was undertaken in 2020 for the area between Bardon Road and approximately 200m south of the proposed Leicester & Burton Branch crossing. The associated topographic survey plan is presented in Appendix B. This survey has been assessed and confirms the above findings. Detailed information including earthwork sections in the area of the proposed crossing however are not available at the time of this assessment.

2.3 GEOLOGICAL MAPPING

Figure 2-1 below presents an extract of the available geological mapping.



Figure 2-1 - 1:50,000 Geological Mapping

2.3.1 SUPERFICIAL GEOLOGY

With reference to BGS 1:50,000 scale mapping Sheet 155, BGS 1:10,000 scale mapping Sheet SK41SW, BGS Memoir 155, Geology of the Coalville District and the BGS Geology of Britain Viewer, the site is shown to be underlain by glacial deposits of the Oadby Member. These deposits are described as grey and brown clays characterised by Cretaceous and Jurassic rock fragments and lenticular beds of sand, gravel, clay and silt.

A corridor of alluvial deposits is shown proximally to the site extents however mapping does not indicate this material's presence at the proposed asset location.

2.3.2 SOLID GEOLOGY

Bedrock beneath the site comprises mudstones associated with the Gunthorpe Member. Deposits are typically described as red-brown mudstones with sandstone facies and common gypsum veins and nodules.

The Gunthorpe Member is underlain at an unconfirmed depth by the Blackbrook Reservoir Formation. The formation is described as green to greenish grey volcaniclastic mudstone, siltstone and sandstone.

2.3.3 STRUCTURAL GEOLOGY

With reference to the BGS Online GeoIndex (Onshore) 1:625,000 scale Fault mapping no mapped faults are present within the site extents. The most proximal faulting to the site lies approximately 3.0km to the North.

BGS 1:50,000 scale mapping Sheet 155 indicates that there are no faults within the site extents. The Thringstone Fault is however shown approximately 700m to the east of the proposed rail crossing. Bedding surfaces associated with the Oadby and Gunthorpe members are shown to broadly parallel the surface topography. The underlying strata including the Blackbrook Reservoir Formation are shown to be tilted with associated localised dip angles of 80° to 90°.

2.4 AERIAL PHOTOGRAPHS

Aerial photography records have been assessed with reference to Google Earth© mapping, available records spanning the periods of 1999 to 2018. Within this period no major changes within the area of interest are shown. Records from 2018 however indicate residential development of the fields to the south of the proposed rail crossing adjacent to Grange Road.

2.5 RECORDS OF MINES AND MINERAL DEPOSITS

Mining and mineral deposit records have been assessed with reference to the BGS Onshore Geoindex. The area of interest is identified as within a mapped area of deep coal between 50m and 1200m BGL however, the site does not lie within a mapped prospecting area. The nearest associated mapped prospecting site lies approximately 1.5km to the west of the area of interest.

A site-specific Consultants Coal Mining Report (Ref. 51002315755001) has been obtained from the Coal Authority. Two claims for subsidence relating to coal mining have been made in the vicinity of the site extents with one underlying the route footprint. Details are presented in Table 2-2 and Appendix E.

Table 2-2 – Summary of Coal Mining Subsidence Claims in the Vicinity of the Site

Approx. Coordinates (Centre)		Approx. Radius	Details	
Easting	Northing	(m)		
443500	312750	225m	A damage notice or claim for alleged subsidence damage was made in July 1995 at Grange Farm, Hugglescote, Leicestershire. This claim covers an area which falls within the scheme extent.	
443575	313710	15m	Subsidence claim for a residential property on Bardon Road	

2.6 REMOTE SENSING DATA

No relevant available information is available.

2.7 AS-BUILT DRAWINGS

No as-built drawings were made available for this assessment however documents archived by Network Rail have been analysed as part of this assessment:

- V80031/04 Survey drawing for historic rail crossing underbridge including trial pit information (pre 2006, prior to construction of pedestrian underpass),
- V80031/04 Proposed General Arrangement drawing for existing rail crossing underbridge installed in 2006,
- Document Ref. A9 Photographs pre-, post- and during 2006 bridge installation.

These documents are presented in Appendix C.

2.8 EXISTING MONITORING AND ASSET MANAGEMENT DATA

The Network Rail asset management system should be interrogated once access to the information for relating to the area of interest is granted.

2.9 SERVICES DRAWINGS

Table 2-3 details statutory undertakers that have provided service plans for the area of interest and any plant mapped within the area of interest. These plans are presented in Appendix C.

Table 2-3 – Summary of available Statutory Undertakers Plant Records

Plant owner	Details
BT	No plant identified within the area of interest. Nearest plant lies approximately 100m north to service residential buildings to the north & northwest of the proposed crossing.

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Plant owner	Details
Virgin Media	No plant identified within the area of interest.
Western Power Distribution	33kV power lines are shown to run parallel to the existing rail track in the vicinity of the toe of the existing embankment with a branch splitting off in a southerly direction in the vicinity of the existing railway underpass.
	Utilities drawing 20048260 for site reference 443585 313433 describes the following additional risk: 'Embedded Network In This Area, IDNO: The Electricity Network Company Limited, TEL: 01359 302255, PN 1355161, The IDNO responsible for this embedded network has installed MV underground cables outside the IDNO site boundary and they are NOT shown on this WPD asset record.'
Severn Trent Water	A single sewer owned by Severn Trent Water passes beneath the existing railway embankment within a culvert, approximately 8m north-west of the existing pedestrian underpass.
Cadent	No plant within the geotechnical area of interest, nearest plant is located beneath Bardon road to the north of the proposed rail crossing.
Other	A single drainage pipe assumed to be owned by Network Rail passes beneath the existing railway embankment within a culvert, approximately 37m south-east of the existing pedestrian underpass

2.10 LAND USE AND SOIL SURVEY INFORMATION

With reference to the MAGIC map resource provided by DEFRA land use and soil designations which apply to the area of interest are presented in Table 2-4.

Designation	Details
Soilscape (Soil permeability)	Soilscape data indicates that soils within the area of interest are classified as slowly permeable seasonally wet slightly acidic loamy and clayey soils. The natural drainage type is classified as impeded.
Nitrate Vulnerable Zone	The area of interest lies within Nitrate Vulnerable Zone (ID: 308) associated with the River Trent with a source to confluence with the Derwent River.
National Character Area	The area of interest lies within national character area Ref. 73, associated with Charnwood.
National Historic Landscape Characterisation	The national historic landscape characterisation for the area of interest is defined as enclosed agricultural land.
SSSI Impact Risk Zones	The area of interest lies within a SSSI Impact Risk Zone. Guidance on this for infrastructure includes ensuring consultation with Natural England in relation to air pollution, combustion, waste, composting, discharges and the water supply.

Table 2-4 – Summary of Land Use and Soli Designations	Table 2-4 – Summary	/ of Land Use	and Soil Designations
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Land ownership within the area of interest has been confirmed, plans detailing the extents of land owned by Network Rail are presented in Appendix D.

2.11 ARCHAEOLOGICAL AND HISTORICAL INVESTIGATIONS

No archaeological investigation data is available of assessment at the time of writing this report.

2.12 EXISTING GROUND INVESTIGATIONS

Relevant historical ground investigation information has been assessed and is summarised in Figure 2-2 and Table 2-5 and Table 2-6 below.

 Table 2-5 – Summary of Site-Specific Existing Ground Investigation Information

Ref.	Year	Туре	Depth (m)
SK41SW197	1990	TP	1.50
SK41SW198	1990	TP	2.00
SK41SW199	1990	ТР	3.00
SK41SW200	1990	ТР	3.70

Table 2-6 – Summary of Additional Site Wide Existing Ground Investigation Information

Ref.	Year	Туре	Depth (m)
SK41SW77	1964	BH	>100
SK41SW149	1976	ВН	43.28
SK41SW164	1986	BH	4.00
SK41SW193	1990	BH	16.15
SK41SW194	1990	BH	16.05
SK41SW195	1990	ВН	16.30
SK41SW241	1990	TP	3.00
SK41SW242	1990	TP	3.00
SK41SW243	1990	TP	3.00



Figure 2-2 – Existing Ground Investigation Information Summary Plan

2.13 CONSULTATION WITH STATUTORY BODIES AND AGENCIES

At the time of this assessment consultation with statutory bodies and agencies is yet to be undertaken.

2.14 UNEXPLODED ORDNANCE (UXO)

Zetica risk mapping has been consulted, the area of interest lies within the low UXO risk zone.

A preliminary assessment of unexploded ordnance has also been provided by Zetica to quantify this risk. This assessment indicates that the area of interest was subject to WWII bombing. Official records state that 15 high explosive bombs are known to have been dropped in the wider local area with a bombing density of 32.3 bombs per 405 hectares (ha), as such the area of intrest classifies as low risk. On the recommendation of Zetica it is deemed that a detailed desk study is not considered essential to manage the associated risk.

2.15 HYDROLOGY

Flood susceptibility has been assessed with reference to Groundsure Report Ref. GSIP-2020-10522-1934. No flood risks have been identified within the area of interest however flood risks have been noted within 100m of Grange Road. Full details are presented in Section 7 of Groundsure Report Ref. GSIP-2020-10522-1934 presented in Appendix A.

2.16 HYDROGEOLOGY

With reference to the MAGIC map resource provided by DEFRA hydrological designations which apply to the area of interest are presented in Table 2-7.

Designation	Details
Bedrock Aquifer Designation	The Gunthorpe Member is designated by the Environment Agency as a Secondary B aquifer.
Superficial Deposits Aquifer Designation	The Oadby Member is designated by the Environment Agency as an Undifferentiated Secondary aquifer. Alluvial deposits, should they encroach into the site area, are designated as a Secondary A aquifer.
Groundwater Vulnerability	Groundwater vulnerability for the area of interest is listed as Low for both the superficial and bedrock aquifers.
Groundwater Source Protection Zone (SPZ)	Site area lies within Source Protection Zone 3.
Ground Water Abstraction Point	No records listed.

Table 2-7 – Summary of Land Use and Soil Designations

3 SITE WALKOVER

A geotechnical site walkover was undertaken on 30th September 2020. Weather conditions encountered during the site visit were cloudy with occasional light rain showers. Access was limited to public areas including footpaths and the surrounding highways network. All areas surrounding the proposed railway crossing were able to be accessed and photographic records were taken.

The site was accessed from the north at Bardon Road. Conditions observed during the walkover generally correlated well with expected conditions from desk study data. No evidence of soft ground conditions in the area of interest or of the footpath was observed from public access areas. A culvert passing beneath the existing railway embankment to the eastern most extent of the area of interest was observed, it was confirmed that water flows through this in a southward direction.

An expansive development was observed to the south of the proposed rail crossing accessed from Grange Road. The development comprises a series of residential construction sites under operation by Barratt homes. Given these restrictions access to the rail crossing from Grange Road was not possible during the walkover.

Though access was possible on foot via public access routes it was not clear during the walkover as to which routes would be best suited for access of plant associated with ground investigation activities. A single possible access route for GI locations to the north of the railway was identified and was utilised as part of the ground investigation. During the walkover it was noted that the rail line appeared to be infrequently used.

4 GROUND CONDITIONS

4.1 ADDITIONAL GROUND INVESTIGATION DATA

Further to the existing ground investigation information presented in Section 2.12, additional investigation has been undertaken to support the exiting data and inform the ground model. Details are presented in Table 4-1. It should be noted that due to access restrictions the preliminary investigation was undertaken approximately 8m north of the proposed railway crossing.

Exploratory Hole	Coordinates		Level (Top)	Depth to Base
	Easting:	Northing:	(m bgi)	(m bgi)
WS01	443593.544	313401.394	149.714	6.45
DP02	443597.722	313396.360	149.292	10.00

Table 4-1 – Summary of Additional Preliminary Ground Investigation Records

4.2 GROUND MODEL

Interpretation of the available data for the wider site area is given below.

Further site-specific ground investigation is required to be undertaken within the Network Rail boundary, as part of the design development stage, to confirm the existing railway embankment properties, the underlying natural stratigraphy and location specific unit thicknesses and location specific ground water levels.

4.2.1 PRELIMINARY SITE WIDE GROUND MODEL

Available ground investigation data has been assessed in conjunction with BGS 1:10,000 and 1:50,000 geological mapping. A summary of the preliminary ground model for the area of interest is presented in Table 4-2.

Table 4-2 – Preliminary	Ground	Model
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Parent Unit	Interpreted Strata	Characteristic Thickness (m)	Characteristic Depth to Base (m)	Comments
n/a	Topsoil	0.40	0.40	Where encountered, Topsoil comprised brown slightly clayey slightly gravelly fine to coarse sand with frequent rootlets.
Alluvium	Soft Cohesive Deposits	n/a	n/a	It is not thought that Alluvial deposits will impact on the proposed rail crossing. Location specific GI is required to confirm if these deposits are present in the area of proposed works.

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				Deposits are typically described as unconsolidated clay, silt, sand and gravel where present.
Oadby Member	Glacial Clays	0.40	4.65	Deposits are typically described as soft locally firm orangish brown occasionally pale grey slightly sandy clay with occasional gravel and cobbles.
	Glacial Sands and Gravels	TBC	TBC (>6.45)	Deposits are typically described as medium dense orangish brown slightly clayey gravelly fine to coarse sand.
Gunthorpe Member	Mudstone & Sandstone	TBC	TBC	Location specific depth to these bedrock strata is unconfirmed. BGS records describe deposits as typically comprising as red-brown mudstones with sandstone facies and common gypsum veins and nodules.

4.2.2 GROUND WATER

Insufficient location specific ground water data is available to derive characteristic ground water details at the proposed structure location. A summary of ground water details from exploratory holes located within the area of interest is presented in Table 4-3.

Table 4-3 –	Ground	Water	Strike	Records
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Exploratory Hole	Ground Water Strike (m bgl)
SK41SW197	1.50 (seepage also noted at 0.4 -0.5 m bgl)
SK41SW198	Not Encountered
SK41SW199	2.50
SK41SW200	2.50
WS01	4.85

4.3 GEO-ENVIRONMENTAL ASSESSMENT

The scheme area has been assessed as having a **low** environmental sensitivity based on the following factors:

- The site is positioned over Secondary B and Secondary Undifferentiated aquifers, meaning that they are not required for strategic groundwater resources.
- The location is on the edge of an SPZ total catchment area, although there are no abstraction points within 500m.
- No sensitive ecological receptors have been identified.
- An unnamed stream in partial culvert, tributary of the River Sence, is located within close proximity of the site. Protection measures will be required during ground investigation and construction to ensure that contamination or silt / run-off does not enter the watercourse.

No potentially significant sources of contamination have been identified within the study area. The current and disused railway lines may retain some residual contamination however the proposed works are not anticipated to include areas likely to be impacted. The immediate site area is not agricultural, being predominantly woodland, and therefore the potential for contaminants such as herbicides, pesticides and other farming-related activities is considered to be limited. Weed control spraying on Network Rail land cannot be discounted, however the likelihood of significant contaminant accumulation is considered unlikely.

Fly-tipping may have occurred in the area in the past; however no evidence of such activity was identified during the walkover inspection. If fly-tipping has occurred, there is the possibility for contaminants such as asbestos or hydrocarbons to be present.

There are residential properties within approximately 120m of the site area however the potential risk to these sensitive receptors from mobilisation of contamination is considered to be low, assuming that investigation and construction works are carried out under appropriate best practice environmental controls and procedures such as a Construction Environmental Management Plan (CEMP) and Health and Safety requirements.

5 PRELIMINARY ENGINEERING ASSESSMENT

The options considered at this stage for crossing the railway are either an underline bridge or an overline bridge. An engineering assessment has been undertaken to consider sitewide risks as well as the specific geotechnical risks associated with the underline bridge and overline bridge options. The following drawings have been used to inform this assessment:

- Underline Bridge General Arrangement 70074890-STR-001-P2
- Overline Bridge General Arrangement 70074890-STR-002-P2

5.1 GENERAL SITE-SPECIFIC CONSIDERATIONS

5.1.1 GROUND CONDITIONS

At the time of this assessment, the information available from desk-based sources and the preliminary GI are considered sufficient to inform the preliminary ground model detailed in Section 4.2.1, however are insufficient to derive characteristic geotechnical parameters and groundwater levels. The preliminary ground model is considered suitable to inform the proposed options appraisal. Further ground investigation and analysis will be required as part of the development of the preferred option.

Risks associated with possible collapse of shallow and/ or deep mine workings in the local area have been assessed as presented in Section 2.5. Several subsidence claims associated with coal mining have been made in the vicinity of the site as detailed are presented in Appendix E. Appropriate assessments will be required at detailed design stage to appropriately manage risk and inform design considerations.

Should location-specific ground investigation find that aggressive ground conditions are present at proposed foundation locations, the appropriate concrete sulphate class will need to be specified.

There is a risk of contamination within the proposed scheme footprint. Following a geoenvironmental assessment, the scheme area has been assessed as having a low environmental sensitivity. A further assessment is to be undertaken following location-specific ground investigation sampling and testing.

An unexploded ordnance (UXO) assessment has been undertaken as detailed in Section 2.14. A PDSA report has been received from Zetica and risk has been assessed as low. A detailed UXO risk assessment is considered necessary at detailed design stage.

5.1.2 EXISTING ASSETS AND PLANT

A detailed assessment for clash detection with statutory undertakers' plant should be undertaken as part of detailed design. Consideration should be given to possible uncharted plant and the embedded network run by The Electricity Network Company Limited. Plant may require diversion depending, as such further geotechnical design may be required.

Detailed design should include consideration of two existing culverts located adjacent to the proposed alignment. This includes the existing footway culvert to the west of the proposed alignment and a drainage culvert to the east.

The existing Network Rail embankment shall be modelled as part of detailed design activities to ensure permanent stability. At the time of this assessment the geometry and composition of the embankment has not been investigated, therefore detailed ground investigation will be required to facilitate geotechnical design.

5.1.3 ACCESS

Given the site-specific constraints, both options are envisaged to present significant difficulties relating to access. It is however envisaged that the larger the scheme footprint the greater the impact of the associated constraints.

5.2 UNDERLINE BRIDGE OPTION

Two underline options have been considered to assess feasibility of construction methodologies, either where the existing railway can be kept operational or where temporary closure of the existing railway line will be required. At the time of writing this report discussions are ongoing with LCC to confirm acceptable disruption criteria to the operational line.

The box jacking construction method is a well-established means of installing culverts or tunnels under road or rail embankments whilst the railway line remains operational, with adoption of ad-hoc speed restrictions. The technique involves the advancement of pre-cast or site-cast sections or box units using high capacity hydraulic jacks to drive them forward horizontally, using advance support, open shield and jacking technology with excavation taking place from inside the box.

If the existing rail line can be temporarily closed and track infrastructure removed, an alternative construction method could be considered. In this case it is likely that the most feasible method would comprise a traditional box structure cast *in situ* or placed within an open cut.

5.2.1 Earthworks

Both underline bridge options would involve minimal imported or site-won fill materials in comparison to an overbridge alternative, which would require substantial approach embankments.

5.2.2 Foundations

The depth to suitable founding strata is currently unknown as there is no proximate ground investigation data available at the site. It is therefore recommended that a site-specific ground investigation be undertaken to determine the natural ground conditions beneath the railway embankment and of the embankment material itself. This will include an assessment of material properties to enable a more detailed assessment of founding strata to be undertaken.

Due to the removal of existing fill from within the existing rail embankment to form a box structure, it is envisaged that this option will result in a net reduction of applied ground pressures. As such it is envisaged that a box structure would be founded directly upon natural ground, with wingwalls similarly founded directly upon natural ground. Founding conditions and potential ground improvement (e.g. over-excavation and placement of an improvement layer comprising granular fill) will be established by location-specific ground investigation.

5.2.3 Construction

Should the existing rail line need to remain operational, it is likely that some form of box jacking will be required to install the structure. In this case, liaison with specialist contractors will be required at

detailed design stage to identify an appropriate method for installation and to manage the risk of track settlement. Liaison with Network Rail shall be required to confirm acceptable tolerances.

5.3 OVERLINE BRIDGE OPTION

The proposed overline bridge would pass over the existing railway line (founded on approach embankments up to approximately 16m in height and 100m in length).

A summary of the envisaged geotechnical risks and risk control measures is presented in Section 6.

5.3.1 Earthworks

This option would require construction of new approach embankments up to 16m in height to allow sufficient gauge clearance to deck soffit level above the railway. The construction of such embankments would require substantial land-take either side of the crossing to allow for suitable side slopes to be constructed. Significant additional earth pressure on the underlying ground is likely to be generated by the construction of such large approach embankments, which may result in excessive settlements at finished road level, and particular attention to the interface with the overbridge is needed to minimise differential settlement. Ground treatment may be required beneath these embankments to accelerate consolidation settlement so as not to delay drainage and pavement installation.

The highway gradients on the approach and departure from the bridge would likely necessitate a departure from highways standards due to excessive gradients (indicative gradients are shown on drawing no. 70074890-STR-002).

5.3.2 Foundations

Reinforced soil abutments and wingwalls are likely to be required to support the bridge deck. Additional location-specific ground investigation will be needed to inform the associated geotechnical design and a specialist reinforced soil designer/supplier may need to be involved.

Bankseat abutments are unlikely to be suitable due to the height of the approach embankments resulting in excessive settlement. Lightweight fill or polystyrene blocks may be a suitable alternative to conventional fill to form the approach embankments.

Significant additional earth pressure on the underlying ground is likely to be generated by the construction of the substantial approach embankments, which may result in intolerable settlements of the proposed bridge structure through development of downdrag or negative skin friction on piles supporting the bridge deck. An overbridge is likely to take the form of an integral bridge, with columns supporting the bridge deck sleeved through the abutment fill via manhole rings or similar (refer to drawing no. 70074890-STR-002): this would isolate the columns from the surrounding fill, thereby reducing actions induced from earth pressures and eliminating strain ratcheting effects.

Piles supporting the bridge deck will likely be subject to downdrag or negative skin friction due to the weight of approach embankments, which will increase their length. The depth to a suitable founding stratum is currently unknown as there is no local ground investigation data available at the site. It is therefore recommended that a site-specific ground investigation be undertaken to determine the natural ground conditions in the vicinity of the railway embankment and of the embankment material

itself. This will include an assessment of the engineering properties of the ground to enable a more detailed assessment of foundations to be undertaken.

Foundation suitability must be assessed for constructability and temporary works activities once site access and highway route alignments have been confirmed.

5.3.3 Construction

The overbridge option would likely cause less disruption to the existing railway, however a number of possessions would be required to facilitate operations.

The proposed earthworks associated with the structure would likely require a modification of the current NR boundary as a result of the introduction of reinforced earth abutments and wingwalls either side of the bridge, as well as significant land take to accommodate the proposed approach embankments.

5.4 CONCLUSION

In line with the geotechnical considerations above, it is recommended that the underline bridge option is taken forward as preferred. A summary of the key geotechnical advantages to this option is given below:

- A smaller scope of location-specific ground investigation, offering programme and cost advantages.
- Earthwork interventions will be much smaller in scope (no approach embankments and associated ground treatment measures), resulting in a significantly reduced requirement for imported fill.
- Reduced land-take due to smaller footprint.
- A box structure could be constructed from precast units, reducing *in situ* construction activities, offering programme and cost benefits.
- Box units will result in net reduction in effective stresses in the ground and therefore little or no ground treatment is likely to be required prior to placement.
- A shorter design and construction programme, increasing the speed of implementation and impact on the railway by limiting line closures.
- No departures from standards required compared with the overline option, ensuring a smoother technical assurance process with Local Authority Technical Approval Authority (TAA).
- Reduced access constraints due to limited scheme footprint beyond the limits of the existing railway embankment.

6 COMPARISON OF PROJECT OPTIONS AND RISKS

6.1 **RISK EVALUATION**

The geotechnical risks associated with the scheme have been evaluated using the risk evaluation matrix shown presented in Table 6-1.

Table 0-1 - RISK Evaluation Wath	Table	6-1 –	Risk	Evaluation	Matrix
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Probabilit	y (P)			Impact	(I)				Risk (R)						
										Imp	oact				
					(Time or Cost)						5	4	3	2	1
Very Likely	>10%	5		Very High	5	e or	> 20%			5	25	20	15	10	5
Likely	1%	4		High	4	ied tim	5 - 20%		bility	4	20		12	8	4
Probable	0.1%	3	x	Mediu m	3	ogramm	2 - 5%	=	Proba	3	15	12	9	6	3
Unlikely	0.01%	2		Low	2	e in pr cost	0.5 - 2%			2	10	8	6	4	2
Negligible	0.001%	1		Very Low	1	Increas project	< 0.5%			1	5	4	3	2	1

6.2 RISK RATINGS

Table 6-2 – Summary of risk ratings consequences

Risk Rating	Consequence
1 to 4	Trivial, but no action required.
5 to 8	Tolerable, but must consider more costs effective solutions or improvements at no additional cost.
9 to 12	Substantial and work must not start until risk has been reduced.
13+	Intolerable and work must not start on the project until risk has been reduced. If risk cannot be reduced, project should not proceed.

Risk Rating (R) = Probability (P) x Impact (I)

The risk register is detailed overleaf. The register lists the anticipated hazards associated with the works and the potential consequences of those hazards. The risk before control of the hazard has been assessed quantitatively as has the anticipated risk following the proposed response to each hazard.

For the purposes of this scheme the risk register includes those risks pertaining to the structure, pavement and drainage as well as the true geotechnical risks.

6.3 NOTES

A 'Hazard' is a condition or physical situation with a potential for an undesirable event. A 'Risk' is an uncertain event or set of circumstances that should it occur would have an effect on achieving the projects objectives.

Mitigation Measures include:

Avoid the risk - by eliminating the uncertainty or using an alternative approach.

Transfer the risk - by transferring the liability of the risk to another party such as in the case of contract warranties or fixed price contracts.

Mitigate the risk - by reducing the risk to an acceptable level by making it less likely that the risk event will occur.

Accept and manage the risk - by assuming the risk as reasonable given the cost or effect on time or quality and even life

6.4 GEOTECHNICAL RISK REGISTER

Table 6-3 – Geotechnical Risk Register

Ref	Risk	Consequence	Risk before cor	Risk before control		Mitigation	Risk after control		
			Ρ	I	R		Ρ	I	R
				Genera	al Risks				
1.	Presence of uncharted statutory undertakers' plant / services.	Residual risk of service strikes.	3	5	15	Location specific ground investigation (GI) locations to be scoped only when all statutory undertakers' records have been received. "Permit to Dig" system to be used by GI Contractor before breaking ground.	1	5	5
2.	Risks associated with plant owned by the embedded network run by The Electricity Network Company Limited has installed MV underground cables which are not shown on	Risk of service strike.	3	5	15	Further plans to be requested to confirm plant locations prior to site works and to inform design activities.	1	5	5

A511 BARDON ROAD Project No.: 70074890 | Our Ref No.: 70074890-GEO-PSSR-0001 Leicestershire County Council

Ref	Risk	Consequence	Risk before co	ntrol		Mitigation	Risk after cont	rol	
			Р	1	R		Р	1	R
	the received utilities plans.								
3.	Clashes of existing services with the proposed structure.	Services may require diversion depending on the preferred route alignment. Further geotechnical design may then be required.	3	3	9	Design to take account of known services. Clashes and any proposed diversions to be confirmed once the preferred alignment is confirmed and all statutory undertakers' responses are received.	2	3	6
4.	Unconfirmed extents, thickness and depth of soft alluvial deposits.	Risk of unsuitable design of geotechnical assets due to poor ground (stability failure or excessive settlement).	3	4	12	Location-specific GI information is required to inform the design. Design to account for soft ground.	2	4	8
5.	Unconfirmed extents and thickness of superficial glacial deposits.	Risk of unsuitable design of geotechnical assets due to excessive or long-term consolidation settlement.	3	3	9	Location-specific GI information is required to inform the design. Design to account for soft ground.	2	3	6

Ref	Risk	Consequence	Risk before cor	ntrol		Mitigation	Risk after cont	rol	
			Р	I	R		Ρ	1	R
6.	Shrinkage and swelling in clay- rich (argillaceous) strata.	Risk of reduced asset lifespan and possible earthwork/ structure failure due to heave/settlemen t.	2	5	10	Location-specific GI information is required to inform the design. Design to account for presence of this material.	1	4	4
7.	Localised variation of weathering profiles of underlying Mudstone.	Inappropriate founding levels; risk of reduced asset lifespan and possible earthwork/ structure failure due to heave/settlemen t.	2	4	8	Location-specific GI information is required to inform the design. Design to account for presence of variable Mudstone rockhead level.	1	4	4
8.	Unconfirmed groundwater conditions	Risk of unsuitable design due to high groundwater levels, e.g. buoyancy/uplift of structure, ingress into excavations requiring control measures.	3	5	15	Location-specific GI, including additional groundwater monitoring, is required to inform the design.	1	4	4
9.	Presence of legacy mine workings with a potential to	Migration of voids at depth to the surface resulting in	4	5	20	BGS records have been consulted in conjunction with	2	5	10

Ref	Risk	Consequence	Risk before cor	ntrol		Mitigation	Risk after cont	rol	
			Р	1	R		Р	1	R
	impact on the proposed scheme (a number of subsidence claims associated with coal mining have been made in the vicinity of the site).	asset failure/excessive deformation.				the Consultants Coal Mining Report. Obtain detailed Coal Authority report on legacy mineworkings at the site (depth and thickness of seams). Design to consider probability of migration of voids to the surface and to account for this. A desk-based assessment had been undertaken as detailed in Section 2.5 and Appendix E.			
10.	Steep slopes associated with the existing railway	Potential instability of existing earthworks associated with Network Rail infrastructure.	3	5	15	Network Rail asset management records have been accessed to assess stability of the existing slopes. No historic/ current defects are recorded.	1	5	5

Ref Risk	Consequence	Risk before cor	ntrol		Mitigation	Risk after contr	ol	
		Р	I	R		Р	1	R
11. Unconfirmed as built details for existing railway underbridge constructed in 2006.	Unforeseen differentiation from proposal drawings detailed in Appendix C.	2	4	8	Appropriate surveys to be specified and undertaken as part of detailed design to confirm the following details: • Location of proposed earthworks and retaining structures relative to existing plant & infrastruct ure (including the existing footpath culvert and drainage culvert) • Limitations on foundation extents due to existing plant and infrastruct	1	4	4

Ref	Risk	Consequence	Risk before co	ntrol		Mitigation	Risk after cont	rol	
			Р	1	R		Р	1	R
						 Extents and impact of removal of the existing Network Rail embankm ent during construction n Limitations on vibrations due to presence of existing plant and infrastruct ure during surveying and construction n activities 			
12.	Unconfirmed geometry and composition of existing Network Rail embankment.	Failure of existing Network Rail Embankment.	2	5	10	Location-specific GI of the existing Network Rail embankment, which will be analysed as part of detailed design activities in terms of long- term stability.	1	5	5

Ref	Risk	Consequence	Risk before co	ntrol		Mitigation	Risk after cont	rol	
			Ρ	1	R		Р	I	R
13.	Flooding associated with nearby culvert.	Scour/ erosion- induced localised slope failures.	2	4	8	Appropriate geotechnical design activities shall be undertaken to ensure appropriate modelling.	1	4	4
14.	Risk of Unexploded Ordnance (UXO)	Possible explosion causing significant damage to property, plant or assets, and injury or fatality during site works (including ground investigation activities).	2	5	10	A PDSA report has been received from Zetica and risk has been assessed as low. A detailed UXO Risk Assessment is necessary at detailed design stage.	1	5	5
15.	Potential presence of contaminated land.	Alternative fill material types may be required and additional testing may be required to allow material disposal.	3	3	9	Following a geo- environmental assessment, the scheme area has been assessed as having a low environmental sensitivity. A further assessment is to be undertaken as part of design activities to	2	3	6

Ref	Risk	Consequence	Risk before control		Mitigation	Risk after control			
			Ρ	1	R		Р	I	R
						confirm this designation in relation to proposed design activities. Full assessment details are presented in Section 4.3.			
						investigation activities are required to reduce the location specific risk.			
16.	Site constraints may limit the scope of the ground investigation activities.	Further pre- construction confirmatory ground investigation may be required to adequately manage geotechnical risk.	5	3	15	Limited GI has been undertaken to inform site-wide ground conditions in accordance with the site constraints. Location-specific GI is required to inform design.	3	3	9
17.	Unforeseen Archaeological constraints.	Delays to GI programme and cost.	1	4	4	A full archaeological assessment should be undertaken prior	1	3	3

Ref	Risk	Consequence	e Risk before control		Mitigation	Risk after control			
			Р	1	R		Р	I.	R
						to construction works.			
18.	Potential aggressive ground conditions	Damage to buried concrete and reduced asset lifespan.	2	4	8	Appropriate Sulphate and pH testing is required to be undertaken as part of location- specific GI activities.	1	4	4
			Pr	oposed Underl	ine Bridge Opti	on			
19.	Unconfirmed location specific ground conditions at underline bridge.	Unable to provide Eurocode 7 compliant design.	5	3	15	Location-specific GI to be undertaken once asset details are confirmed.	5	1	5
20.	Steep slopes associated with the existing railway	Potential for destabilisation of existing earthworks during construction activities, e.g. box-jacking.	2	5	10	Location-specific GI and geotechnical designs shall be produced in accordance with Eurocode 7. Appropriate temporary works and support measures are to be specified by the Principal Contractor.	1	5	5

Ref	Risk	Consequence	Risk before control Mitigation Risk after control						
			Р	I	R		Ρ	1	R
21.	Differential settlement between proposed underline bridge and existing bordering embankments.	Failure of assets at the location of differential settlement.	2	4	8	Acceptable settlement criteria to be confirmed prior to undertaking a Eurocode 7 compliant assessment.	1	4	4
22.	Refusal of drilling during piling should deep foundations be required.	Possible redesign required. Impacts to cost and programme.	2	3	6	GI undertaken to confirm site wide ground conditions (SPT refusal at 6.45m bgI). Location specific GI to be undertaken prior to design of foundations.	1	3	3
23.	Negative skin friction on piles within cohesive materials in the upper stratum (<5.0m).	Deeper foundations may be needed to enable construction of the proposed assets.	4	1	1	Location-specific GI and geotechnical designs shall be produced in accordance with Eurocode 7.	3	1	3
				Proposed Ov	verline Bridge			·	
24.	Unconfirmed ground conditions at overline bridge and for	Unable to provide Eurocode 7 compliant design.	4	4	16	Location-specific GI to be undertaken once asset details are confirmed.	2	2	4

Ref	Risk	Consequence	Risk before control		Mitigation	Risk after control			
			Ρ	1	R		Р	I	R
	associated approach earthworks.								
25.	Differential settlement between proposed structure and proposed highways approach embankments.	Failure of assets at the location of differential settlement.	2	4	8	Acceptable settlement criteria to be confirmed prior to undertaking a Eurocode 7 compliant design.	1	4	4
26.	Possible redesign of earthworks required if a departure from standards for steep highways approach to overline bridge is refused.	Increased programme due to extended liaison with Local Authority TAA to obtain technical approval, with associated additional design activities.	1	3	3	Ensure agreement of proposed gradients with Local Authority TAA prior to detailed development of the option.	1	3	3
27.	Refusal of drilling during piling should deep foundations be required.	Possible redesign required. Impacts to cost and programme.	3	3	9	GI undertaken to confirm site wide ground conditions (SPT refusal at 6.45m bgI). Location-specific GI to be undertaken prior to design of foundations.	2	3	6

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Ref	Risk	Consequence	Risk before control		Mitigation	Risk after contr	ol	I	
			Ρ	I	R		Ρ	I	R
28.	Negative skin friction on piles within cohesive materials in the upper stratum (<5.0m).	Deeper foundations may be needed to enable construction of the proposed assets.	4	2	8	Location-specific GI and geotechnical designs shall be produced in accordance with Eurocode 7.	1	2	2

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Appendix A

GROUNDSURE REPORT

Confidential

NSD





East of Coalville

Order Details

Your ref: East of Coalville

Our Ref: GSIP-2020-10522-1934

Client: WSP UK LIMITED

Site Details

Location:	443461 313149
Area:	2.29 ha
Authority:	North West Leicestershire District Council



OS MasterMap site plan p.12 groundsure.com/insightuserguide

Contact us with any questions at: info@groundsure.com 08444 159 000



Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>13</u>	<u>1.1</u>	Historical industrial land uses	3	9	15	29	-
<u>16</u>	<u>1.2</u>	Historical tanks	0	0	3	0	-
<u>16</u>	<u>1.3</u>	Historical energy features	0	0	0	17	-
17	1.4	Historical petrol stations	0	0	0	0	-
<u>17</u>	<u>1.5</u>	Historical garages	0	0	0	4	-
18	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<u>19</u>	<u>2.1</u>	Historical industrial land uses	5	13	23	36	-
<u>22</u>	<u>2.2</u>	Historical tanks	0	0	4	0	-
<u>23</u>	<u>2.3</u>	Historical energy features	0	0	0	29	-
24	2.4	Historical petrol stations	0	0	0	0	-
<u>24</u>	<u>2.5</u>	Historical garages	0	0	0	7	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
26	3.1	Active or recent landfill	0	0	0	0	-
26	3.2	Historical landfill (BGS records)	0	0	0	0	-
27	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
<u>27</u>	<u>3.4</u>	Historical landfill (EA/NRW records)	0	0	0	1	-
27	3.5	Historical waste sites	0	0	0	0	-
27	3.6	Licensed waste sites	0	0	0	0	-
<u>28</u>	<u>3.7</u>	Waste exemptions	0	0	3	6	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>29</u>	<u>4.1</u>	Recent industrial land uses	0	0	5	-	-
30	4.2	Current or recent petrol stations	0	0	0	0	-
30	4.3	Electricity cables	0	0	0	0	-
30	4.4	Gas pipelines	0	0	0	0	-
30	4.5	Sites determined as Contaminated Land	0	0	0	0	-





45 46 46 Page	5.8 5.9 5.10 Section	Source Protection Zones Source Protection Zones (confined aquifer)	1 O On site	0 0 0-50m	0 0 50-250m	2 0 250-500m	2 - - 500-2000m
45 46 46	<u>5.8</u> <u>5.9</u> 5.10	Source Protection Zones (confined aquifer)	1 0	0	0	2	- -
<u>45</u> <u>46</u>	<u>5.8</u> <u>5.9</u>	Source Protection Zones	1	0	0	2	-
<u>45</u>	<u>5.8</u>	Totable abstractions	0	0	0	0	Z
		Potable abstractions	0	0	0	0	2
<u>45</u>	<u>5.7</u>	Surface water abstractions	0	0	0	0	2
<u>43</u>	<u>5.6</u>	Groundwater abstractions	0	0	0	1	4
42	5.5	Groundwater vulnerability- local information	None (with	in 0m)			
42	5.4	Groundwater vulnerability- soluble rock risk	None (with	in Om)			
<u>40</u>	<u>5.3</u>	Groundwater vulnerability	Identified (within 50m)			
<u>38</u>	<u>5.2</u>	Bedrock aquifer	Identified (within 500m)		
<u>36</u>	<u>5.1</u>	Superficial aquifer	Identified (within 500m)		
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
35	4.21	Pollution inventory radioactive waste	0	0	0	0	-
34	4.20	Pollution inventory waste transfers	0	0	0	0	-
34	4.19	Pollution inventory substances	0	0	0	0	_
<u>33</u>	<u>4.18</u>	Pollution Incidents (EA/NRW)	1	0	4	0	-
33	4.17	List 2 Dangerous Substances	0	0	0	0	-
33	4.16	List 1 Dangerous Substances	0	0	0	0	-
33	4.15	Pollutant release to public sewer	0	0	0	0	_
33	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
<u>32</u>	<u>4.13</u>	Licensed Discharges to controlled waters	0	1	0	1	-
32	4.12	Radioactive Substance Authorisations	0	0	0	0	-
32	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	_
31	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	_
31	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
31	4.8	Hazardous substance storage/usage	0	0	0	0	_
31	4.7	Regulated explosive sites	0	0	0	0	-
	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-





<u>49</u>	<u>6.2</u>	Surface water features	1	7	9	-	-
<u>49</u>	<u>6.3</u>	WFD Surface water body catchments	1	-	-	-	-
<u>50</u>	<u>6.4</u>	WFD Surface water bodies	1	0	0	_	-
<u>50</u>	<u>6.5</u>	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
<u>51</u>	<u>7.1</u>	Risk of Flooding from Rivers and Sea (RoFRaS)	High (withi	n 50m)			
52	7.2	Historical Flood Events	0	0	0	_	-
52	7.3	Flood Defences	0	0	0	-	-
52	7.4	Areas Benefiting from Flood Defences	0	0	0	_	-
52	7.5	Flood Storage Areas	0	0	0	_	-
<u>53</u>	<u>7.6</u>	Flood Zone 2	Identified (within 50m)				
<u>54</u>	<u>7.7</u>	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
<u>55</u>	<u>8.1</u>	Surface water flooding	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
<u>57</u>	<u>9.1</u>	Groundwater flooding	Low (withir	1 50m)			
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
<u>58</u>	<u>10.1</u>	Sites of Special Scientific Interest (SSSI)	0	0	0	0	2
59	10.2						
	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
59	10.2	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC)	0	0	0 0	0	0
59 59	10.2 10.3 10.4	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA)	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
59 59 59	10.2 10.3 10.4 10.5	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR)	0 0 0	0 0 0 0	0 0 0 0	0 0 0	0 0 0 0
59 59 59 <u>60</u>	10.2 10.3 10.4 10.5 10.6	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR) Local Nature Reserves (LNR)	0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 0 0 0 2
59 59 59 <u>60</u> <u>60</u>	10.2 10.3 10.4 10.5 10.6 10.7	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR) Local Nature Reserves (LNR) Designated Ancient Woodland	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 2 2
59 59 59 <u>60</u> 60	10.2 10.3 10.4 10.5 10.6 10.7 10.8	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR) Local Nature Reserves (LNR) Designated Ancient Woodland Biosphere Reserves	0 0 0 0 0 0		0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 2 2 0
59 59 <u>60</u> 60 61	10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR) Local Nature Reserves (LNR) Designated Ancient Woodland Biosphere Reserves Forest Parks					0 0 0 2 2 0 0
59 59 <u>60</u> 60 61 61	10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 10.10	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR) Local Nature Reserves (LNR) Designated Ancient Woodland Biosphere Reserves Forest Parks Marine Conservation Zones					0 0 0 2 2 0 0 0
59 59 <u>60</u> 60 61 61 61	10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9 10.10 10.11	Conserved wetland sites (Ramsar sites) Special Areas of Conservation (SAC) Special Protection Areas (SPA) National Nature Reserves (NNR) Local Nature Reserves (LNR) Designated Ancient Woodland Biosphere Reserves Forest Parks Marine Conservation Zones Green Belt					0 0 0 2 2 0 0 0 0 0





East of Coalville

61	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
62	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
62	10.15	Nitrate Sensitive Areas	0	0	0	0	0
<u>62</u>	<u>10.16</u>	Nitrate Vulnerable Zones	1	0	0	1	2
<u>63</u>	<u>10.17</u>	SSSI Impact Risk Zones	3	-	-	-	-
<u>64</u>	<u>10.18</u>	SSSI Units	0	0	0	0	2
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
66	11.1	World Heritage Sites	0	0	0	-	-
66	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
66	11.3	National Parks	0	0	0	-	-
66	11.4	Listed Buildings	0	0	0	-	-
67	11.5	Conservation Areas	0	0	0	_	-
67	11.6	Scheduled Ancient Monuments	0	0	0	_	-
67	11.7	Registered Parks and Gardens	0	0	0	_	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
			Grade 3b (within 250m)				
<u>68</u>	<u>12.1</u>	Agricultural Land Classification	Grade 3b (v	vithin 250m))		
<u>68</u> 69	<u>12.1</u> 12.2	Agricultural Land Classification Open Access Land	Grade 3b (v	vithin 250m) 0	0	-	
<u>68</u> 69 69	12.1 12.2 12.3	Agricultural Land Classification Open Access Land Tree Felling Licences	Grade 3b (v 0 0	vithin 250m) 0 0	0	-	-
<u>68</u> 69 69 69	12.1 12.2 12.3 12.4	Agricultural Land Classification Open Access Land Tree Felling Licences Environmental Stewardship Schemes	Grade 3b (v 0 0	vithin 250m) 0 0	0 0 0	-	-
69 69 69 69 70	12.1 12.2 12.3 12.4 12.5	Agricultural Land Classification Open Access Land Tree Felling Licences Environmental Stewardship Schemes Countryside Stewardship Schemes	Grade 3b (v 0 0 0	vithin 250m) 0 0 0 0	0 0 0 0	- - -	-
68 69 69 69 69 70 Page	12.1 12.2 12.3 12.4 12.5 Section	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designations	Grade 3b (v 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0	0 0 0 0 50-250m	- - - 250-500m	- - - 500-2000m
 68 69 69 69 70 Page 71 	12.1 12.2 12.3 12.4 12.5 Section 13.1	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat Inventory	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0-50m 9	0 0 0 0 50-250m	- - - 250-500m	- - - 500-2000m
 68 69 69 69 70 Page 71 72 	12.1 12.2 12.3 12.4 12.5 Section 13.1 13.2	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat InventoryHabitat Networks	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0-50m 9 1	0 0 0 0 50-250m 4 7	- - - 250-500m - -	- - - 500-2000m -
 68 69 69 69 70 70 Page 71 72 73 	12.1 12.2 12.3 12.4 12.5 Section 13.1 13.2 13.3	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat InventoryHabitat NetworksOpen Mosaic Habitat	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0 0 0 9 1 1 0	0 0 0 0 50-250m 4 7 0	- - - 250-500m - -	- - - 500-2000m
 68 69 69 69 70 70 Page 71 72 73 73 73 	12.1 12.2 12.3 12.4 12.5 Section 13.1 13.2 13.3 13.4	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat InventoryHabitat NetworksOpen Mosaic HabitatLimestone Pavement Orders	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	0 0 0 0 50-250m 4 7 0 0	- - - 250-500m - -	- - - 500-2000m - - -
 68 69 69 69 70 70 Page 71 72 73 73 Page 	12.1 12.2 12.3 12.4 12.5 Section 13.1 13.2 13.3 13.4 Section	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat InventoryHabitat NetworksOpen Mosaic HabitatLimestone Pavement OrdersGeology 1:10,000 scale	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0 50m 1 0 0 0	0 0 0 0 50-250m 4 7 0 0 0 50-250m	- - - 250-500m - - - - - - -	- - - 500-2000m - - - - - - - - - - - - - - - - - -
 68 69 69 69 70 70 Page 71 72 73 73 Page 74 	12.1 12.2 12.3 12.4 12.5 Section 13.1 13.2 13.3 13.4 Section 13.4 14.1	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat InventoryHabitat NetworksOpen Mosaic HabitatLimestone Pavement Orders10k Availability	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0 50m 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 50-250m 4 7 0 0 0 50-250m)	- - - 250-500m - - - - 250-500m	- - - 500-2000m - - - - 500-2000m
 68 69 69 70 70 Page 71 72 73 73 Page 74 75 	12.1 12.2 12.3 12.4 12.5 Section 13.1 13.2 13.3 13.4 Section 14.1 14.2	Agricultural Land ClassificationOpen Access LandTree Felling LicencesEnvironmental Stewardship SchemesCountryside Stewardship SchemesHabitat designationsPriority Habitat InventoryHabitat NetworksOpen Mosaic HabitatLimestone Pavement Orders10k AvailabilityArtificial and made ground (10k)	Grade 3b (v 0 0 0 0 0 0 0 0 0 0 0 0 0	vithin 250m) 0 0 0 0 0 0 0 1 0 0 0 0 0 0 within 500m 0	0 0 0 0 50-250m 4 7 0 0 0 50-250m) 50-250m	- - - 250-500m - - - 250-500m	- - - 500-2000m - - - - - - - - - - - - - - - - - -




78	14.4	Landslip (10k)	0	0	0	0	-
<u>79</u>	<u>14.5</u>	Bedrock geology (10k)	1	0	0	1	-
<u>80</u>	<u>14.6</u>	Bedrock faults and other linear features (10k)	1	0	1	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
<u>81</u>	<u>15.1</u>	50k Availability	Identified (within 500m)		
<u>82</u>	<u>15.2</u>	Artificial and made ground (50k)	1	0	0	1	-
<u>83</u>	<u>15.3</u>	Artificial ground permeability (50k)	1	0	-	-	-
<u>84</u>	<u>15.4</u>	Superficial geology (50k)	2	1	1	1	-
<u>85</u>	<u>15.5</u>	Superficial permeability (50k)	Identified (within 50m)			
85	15.6	Landslip (50k)	0	0	0	0	-
85	15.7	Landslip permeability (50k)	None (with	in 50m)			
<u>86</u>	<u>15.8</u>	Bedrock geology (50k)	1	0	0	1	-
<u>87</u>	<u>15.9</u>	Bedrock permeability (50k)	Identified (within 50m)			
<u>87</u>	<u>15.10</u>	Bedrock faults and other linear features (50k)	0	0	1	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
<u>88</u>	<u>16.1</u>	BGS Boreholes	1	9	28	-	-
Page	Section	Natural ground subsidence					
<u>91</u>	<u>17.1</u>	Shrink swell clays	Low (within	n 50m)			
<u>92</u>	<u>17.2</u>	Running sands	Low (within	n 50m)			
<u>94</u>	<u>17.3</u>	Compressible deposits	Moderate	(within 50m)			
<u>96</u>	<u>17.4</u>	Collapsible deposits	Very low (v	vithin 50m)			
<u>97</u>	<u>17.5</u>	<u>Landslides</u>	Low (within	n 50m)			
<u>99</u>	<u>17.6</u>	Ground dissolution of soluble rocks	Negligible	(within 50m)			
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
100	18.1	Natural cavities	0	0	0	0	-
101	18.2	BritPits	0	0	0	0	-
<u>101</u>	<u>18.3</u>	Surface ground workings	0	8	20	-	-
<u>102</u>	<u>18.4</u>	Underground workings	0	0	0	0	14
103	18.5	Historical Mineral Planning Areas	0	0	0	0	-



103	18.6	Non-coal mining	0	0	0	0	0
103	18.7	Mining cavities	0	0	0	0	0
<u>104</u>	<u>18.8</u>	JPB mining areas	Identified (within 0m)			
<u>104</u>	<u>18.9</u>	Coal mining	Identified (within 0m)			
104	18.10	Brine areas	None (with	in Om)			
104	18.11	Gypsum areas	None (with	in Om)			
105	18.12	Tin mining	None (with	in Om)			
105	18.13	Clay mining	None (with	in Om)			
Page	Section	Radon					
<u>106</u>	<u>19.1</u>	<u>Radon</u>	Less than 1	% (within On	n)		
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<u>107</u>	<u>20.1</u>	BGS Estimated Background Soil Chemistry	8	2	-	-	-
107	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
108	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
109	21.1	Underground railways (London)	0	0	0	-	-
109	21.2	Underground railways (Non-London)	0	0	0	-	-
110	21.3	Railway tunnels	0	0	0	-	-
<u>110</u>	<u>21.4</u>	Historical railway and tunnel features	10	2	3	-	-
111	21.5	Royal Mail tunnels	0	0	0	-	-
<u>111</u>	<u>21.6</u>	<u>Historical railways</u>	1	4	0	-	-
<u>111</u>	<u>21.7</u>	Railways	2	1	0	-	-
112	21.8	Crossrail 1	0	0	0	0	-
112	21.9	Crossrail 2	0	0	0	0	-
112	21.10	HS2	0	0	0	0	-





Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

Recent aerial photograph



Capture Date: 20/04/2019 Site Area: 2.29ha







Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

Recent site history - 2016 aerial photograph



Capture Date: 07/06/2016 Site Area: 2.29ha







Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

Recent site history - 2010 aerial photograph



Capture Date: 25/10/2010 Site Area: 2.29ha







Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

Recent site history - 1999 aerial photograph



Capture Date: 06/11/1999 Site Area: 2.29ha







OS MasterMap site plan



Site Area: 2.29ha







1 Past land use



1.1 Historical industrial land uses

Records within 500m

56

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 13

ID	Location	Land use	Dates present	Group ID
Α	On site	Railway Sidings	1901	1635155







ID	Location	Land use	Dates present	Group ID
А	On site	Railway Sidings	1927 - 1950	1646002
В	On site	Railway Sidings	1882	1687588
1	10m NW	Nursery	1991	1600023
2	10m SE	Railway Sidings	1967	1685140
С	15m SE	Railway Building	1901 - 1938	1722859
С	19m SE	Railway Building	1950	1715295
3	20m SE	Cuttings	1882	1561370
D	22m NW	Cuttings	1950	1747145
D	23m NW	Cuttings	1901 - 1938	1706424
Е	31m SE	Cuttings	1882	1726015
D	38m NW	Cuttings	1967	1705596
F	69m SW	Cuttings	1882	1718410
В	71m NW	Railway Sidings	1967	1644875
F	80m SW	Cuttings	1901 - 1938	1701259
Е	81m SE	Cuttings	1901 - 1938	1658006
F	82m SW	Cuttings	1950	1616822
Е	88m SE	Cuttings	1950	1728856
В	104m NW	Engine Shed	1927 - 1938	1625359
В	104m NW	Railway Building	1882 - 1901	1648036
D	112m NW	Nursery	1974	1600022
G	198m NW	Cuttings	1974	1708102
G	199m NW	Cuttings	1991	1738950
4	209m NW	Pumping Station	1991	1589082
5	227m NW	Railway Building	1901	1584196
Н	234m NW	Cuttings	1901 - 1938	1691216
Н	242m NW	Cuttings	1991	1724961
Н	258m NW	Cuttings	1974	1639333
I	269m NW	Cuttings	1882	1732025







ID	Location	Land use	Dates present	Group ID
К	300m W	Unspecified Yard	1967	1595372
К	300m W	Grave Yard	1974	1738928
6	303m W	Grave Yard	1991	1675125
Ι	328m NW	Cuttings	1974	1675234
I	328m NW	Cuttings	1991	1691660
L	333m NW	Cuttings	1967	1746808
Μ	336m NW	Railway Building	1882	1584197
Μ	340m NW	Railway Building	1927 - 1938	1724790
7	354m NW	Railway Building	1950	1584199
Ν	370m NW	Garage	1967	1613435
0	375m NW	Railway Sidings	1950	1665861
8	377m S	Pumping House	1882 - 1938	1643595
Ρ	380m S	Unspecified Commercial/Industrial	1967	1563126
Q	381m W	Gravel Yard	1991	1603249
0	386m NW	Railway Sidings	1927 - 1938	1716342
Q	409m W	Grave Yard	1974	1582840
Ι	411m NW	Cuttings	1938	1688455
I	411m NW	Cuttings	1927	1707912
I	411m NW	Cuttings	1901	1733045
Ρ	414m S	Refuse Heap	1967	1647712
Ρ	416m S	Unspecified Heap	1974	1747123
10	445m NW	Cuttings	1950	1663264
L	448m NW	Cuttings	1901 - 1938	1694904
11	463m SW	Refuse Heap	1950	1697141
12	475m W	Mill Pond	1950	1639387
13	485m SW	Railway Sidings	1991	1560696
14	495m SW	Railway Sidings	1882	1613866

This data is sourced from Ordnance Survey / Groundsure.







1.2 Historical tanks

Records within 500m

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 13

ID	Location	Land use	Dates present	Group ID
В	86m NW	Unspecified Tank	1884	258053
В	96m NW	Unspecified Tank	1903 - 1929	266736
В	100m NW	Unspecified Tank	1929	258054

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 13

ID	Location	Land use	Dates present	Group ID
J	299m SE	Electricity Substation	1998	150027
J	304m SE	Electricity Substation	1996	150028
Ν	351m NW	Electricity Substation	1972	157197
Ν	352m NW	Electricity Substation	1994 - 1998	164511
Ν	353m NW	Electricity Substation	1989 - 1992	166464
9	405m NW	Electricity Substation	1993 - 1994	163711
R	406m NW	Electricity Substation	1972	164327
R	407m NW	Gas Governor	1992	157791





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ID	Location	Land use	Dates present	Group ID
R	407m NW	Electricity Substation	1989	166244
R	407m NW	Gas Governor	1994 - 1998	160107
S	423m N	Electricity Substation	1969	154924
S	423m N	Electricity Substation	1989 - 1993	154292
S	423m N	Electricity Substation	1963	163882
S	424m N	Electricity Substation	1991	159621
S	424m N	Electricity Substation	1994 - 1996	159372
Т	427m E	Electricity Substation	1998	150026
Т	457m E	Electricity Substation	1996 - 1998	153012

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on page 13

ID	Location	Land use	Dates present	Group ID
Ν	359m NW	Garage	1989 - 1992	53744
Ν	361m NW	Garage	1994 - 1998	53802





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ID	Location	Land use	Dates present	Group ID
Ν	365m NW	Garage	1959	49146
Ν	365m NW	Garage	1972	49422

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.







2 Past land use - un-grouped



2.1 Historical industrial land uses

Records within 500m

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on page 19

ID	Location	Land Use	Date	Group ID
Α	On site	Railway Sidings	1938	1646002
А	On site	Railway Sidings	1927	1646002
А	On site	Railway Sidings	1901	1635155





ID	Location	Land Use	Date	Group ID
А	On site	Railway Sidings	1950	1646002
В	On site	Railway Sidings	1882	1687588
1	10m NW	Nursery	1991	1600023
2	10m SE	Railway Sidings	1967	1685140
С	15m SE	Railway Building	1938	1722859
С	15m SE	Railway Building	1927	1722859
С	15m SE	Railway Building	1901	1722859
С	19m SE	Railway Building	1950	1715295
3	20m SE	Cuttings	1882	1561370
D	22m NW	Cuttings	1950	1747145
D	23m NW	Cuttings	1938	1706424
D	23m NW	Cuttings	1927	1706424
D	23m NW	Cuttings	1901	1706424
Е	31m SE	Cuttings	1882	1726015
D	38m NW	Cuttings	1967	1705596
F	69m SW	Cuttings	1882	1718410
В	71m NW	Railway Sidings	1967	1644875
F	80m SW	Cuttings	1938	1701259
F	80m SW	Cuttings	1927	1701259
F	80m SW	Cuttings	1901	1701259
Е	81m SE	Cuttings	1938	1658006
Е	81m SE	Cuttings	1927	1658006
Е	81m SE	Cuttings	1901	1658006
F	82m SW	Cuttings	1950	1616822
Е	88m SE	Cuttings	1950	1728856
В	104m NW	Engine Shed	1938	1625359
В	104m NW	Engine Shed	1927	1625359
В	104m NW	Railway Building	1901	1648036







ID	Location	Land Use	Date	Group ID
В	104m NW	Railway Building	1882	1648036
D	112m NW	Nursery	1974	1600022
G	198m NW	Cuttings	1974	1708102
G	199m NW	Cuttings	1991	1738950
4	209m NW	Pumping Station	1991	1589082
5	227m NW	Railway Building	1901	1584196
Н	234m NW	Cuttings	1938	1691216
Н	234m NW	Cuttings	1927	1691216
Н	234m NW	Cuttings	1901	1691216
Н	242m NW	Cuttings	1991	1724961
Н	258m NW	Cuttings	1974	1639333
I	269m NW	Cuttings	1882	1732025
К	300m W	Grave Yard	1974	1738928
К	300m W	Unspecified Yard	1967	1595372
6	303m W	Grave Yard	1991	1675125
I	328m NW	Cuttings	1974	1675234
I	328m NW	Cuttings	1991	1691660
L	333m NW	Cuttings	1967	1746808
Μ	336m NW	Railway Building	1882	1584197
Μ	340m NW	Railway Building	1938	1724790
Μ	340m NW	Railway Building	1927	1724790
7	354m NW	Railway Building	1950	1584199
Ν	370m NW	Garage	1967	1613435
0	375m NW	Railway Sidings	1950	1665861
Ρ	377m S	Pumping House	1938	1643595
Ρ	377m S	Pumping House	1927	1643595
Ρ	377m S	Pumping House	1901	1643595
Ρ	377m S	Pumping House	1882	1643595







ID	Location	Land Use	Date	Group ID
Q	380m S	Unspecified Commercial/Industrial	1967	1563126
R	381m W	Gravel Yard	1991	1603249
0	386m NW	Railway Sidings	1938	1716342
0	386m NW	Railway Sidings	1927	1716342
R	409m W	Grave Yard	1974	1582840
I	411m NW	Cuttings	1938	1688455
I	411m NW	Cuttings	1927	1707912
I	411m NW	Cuttings	1901	1733045
Q	414m S	Refuse Heap	1967	1647712
Q	416m S	Unspecified Heap	1974	1747123
8	445m NW	Cuttings	1950	1663264
L	448m NW	Cuttings	1938	1694904
L	448m NW	Cuttings	1927	1694904
L	448m NW	Cuttings	1901	1694904
9	463m SW	Refuse Heap	1950	1697141
10	475m W	Mill Pond	1950	1639387
11	485m SW	Railway Sidings	1991	1560696
12	495m SW	Railway Sidings	1882	1613866

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	4
Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 so records shown are available intelligently grouped in section 1. Grouped and the original un-grouped f can be cross-referenced across sections 1 and 2 using the 'Group ID'.	cale. Any eatures

Features are displayed on the Past land use - un-grouped map on page 19

ID	Location	Land Use	Date	Group ID
В	86m NW	Unspecified Tank	1884	258053
В	96m NW	Unspecified Tank	1903	266736







Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

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ID	Location	Land Use	Date	Group ID
В	96m NW	Unspecified Tank	1929	266736
В	100m NW	Unspecified Tank	1929	258054

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on page 19

ID	Location	Land Use	Date	Group ID
J	299m SE	Electricity Substation	1998	150027
J	304m SE	Electricity Substation	1996	150028
Ν	351m NW	Electricity Substation	1972	157197
Ν	352m NW	Electricity Substation	1994	164511
Ν	352m NW	Electricity Substation	1996	164511
Ν	352m NW	Electricity Substation	1998	164511
Ν	353m NW	Electricity Substation	1989	166464
Ν	353m NW	Electricity Substation	1992	166464
S	405m NW	Electricity Substation	1993	163711
S	406m NW	Electricity Substation	1994	163711
Т	406m NW	Electricity Substation	1972	164327
Т	407m NW	Electricity Substation	1989	166244
Т	407m NW	Gas Governor	1992	157791
Т	407m NW	Gas Governor	1994	160107
Т	407m NW	Gas Governor	1996	160107
Т	407m NW	Gas Governor	1998	160107
U	423m N	Electricity Substation	1969	154924
U	423m N	Electricity Substation	1989	154292







ID	Location	Land Use	Date	Group ID
U	423m N	Electricity Substation	1989	154292
U	423m N	Electricity Substation	1993	154292
U	423m N	Electricity Substation	1963	163882
U	424m N	Electricity Substation	1991	159621
U	424m N	Electricity Substation	1994	159372
U	424m N	Electricity Substation	1996	159372
V	427m E	Electricity Substation	1998	150026
V	457m E	Electricity Substation	1998	153012
V	457m E	Electricity Substation	1996	153012
V	457m E	Electricity Substation	1997	153012
V	457m E	Electricity Substation	1996	153012

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on page 19

ID	Location	Land Use	Date	Group ID
Ν	359m NW	Garage	1989	53744
Ν	359m NW	Garage	1992	53744





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Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

ID	Location	Land Use	Date	Group ID
Ν	361m NW	Garage	1998	53802
Ν	361m NW	Garage	1994	53802
Ν	361m NW	Garage	1996	53802
Ν	365m NW	Garage	1959	49146
Ν	365m NW	Garage	1972	49422

This data is sourced from Ordnance Survey / Groundsure.







3 Waste and landfill



3.1 Active or recent landfill

Records within 500m

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.





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3.3 Historical landfill (LA/mapping records)

Records within 500m

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on page 26

ID	Location	Details		
3	469m W	Site Address: Station Road Recreation Ground, Station Road, Hugglescote, Leicestershire Licence Holder Address: -	Waste Licence: - Site Reference: GDO 307 Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded 31/12/1930 Last Recorded: -

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites









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3.7 Waste exemptions

Records within 500m

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on page 26

ID	Location	Site	Reference	Category	Sub-Category	Description
A	188m NW	151A, GRANGE ROAD, HUGGLESCOTE, COALVILLE, LE67 2BS	WEX184916	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	188m NW	151A, GRANGE ROAD, HUGGLESCOTE, COALVILLE, LE67 2BS	WEX023258	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	193m NW	151a Grange Road COALVILLE Leicestershire LE67 2BS	EPR/ZH0477H Q/A001	Treating waste exemption	Non- Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal
1	344m SE	Keepmoat Homes, Bardon Road, Coalville, Leicestershire, LE67 4BF	WEX161751	Using waste exemption	Not on a Farm	Use of waste in construction
В	368m SE	GRANGE FARM, GRANGE ROAD, HUGGLESCOTE, COALVILLE, LE67 2BT	WEX214940	Using waste exemption	Not on a farm	Use of waste in construction
В	368m SE	GRANGE FARM, GRANGE ROAD, HUGGLESCOTE, COALVILLE, LE67 2BT	WEX241534	Using waste exemption	Not on a farm	Use of waste in construction
В	371m SE	LOWER GRANGE FARM, GRANGE ROAD, HUGGLESCOTE, COALVILLE, LE67 2BT	WEX138969	Using waste exemption	Not on a farm	Use of waste in construction
В	378m SE	-	WEX203190	Using waste exemption	On a Farm	Use of waste in construction
2	409m NW	Hastings Manor, Grange Road, Hugglescote, LE67 2BS	WEX193008	Using waste exemption	Not on a farm	Use of waste in construction

This data is sourced from the Environment Agency and Natural Resources Wales.







4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on page 29

ID	Location	Company	Address	Activity	Category
1	106m SE	Pumping Station	Leicestershire, LE67	Water Pumping Stations	Industrial Features
В	109m SE	Sewage Pumping Station	Leicestershire, LE67	Waste Storage, Processing and Disposal	Infrastructure and Facilities







ID	Location	Company	Address	Activity	Category
В	110m SE	Pumping Station	Leicestershire, LE67	Water Pumping Stations	Industrial Features
3	239m NW	Inter Windscreen s	44, Broom Leys Avenue, Coalville, Leicestershire, LE67 4BN	Vehicle Repair, Testing and Servicing	Repair and Servicing
4	240m SE	Electricity Sub Station	Leicestershire, LE67	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0
Open, closed, under development and obsolete petrol stations.	
This data is sourced from Experian.	

4.3 Electricity cables

Records within 500m	0
High voltage underground electricity transmission cables.	
This data is sourced from National Grid.	

4.4 Gas pipelines

Records within 500m	0
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High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.







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4.6 Control of Major Accident Hazards (COMAH)

Records within 500m

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.







4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on page 29

ID	Location	Address	Details	
A	22m SE	LONDON ROAD/OXFORD STREET, SWS	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: T/20/12234/O Permit Version: 1 Receiving Water: COALVILLE BROOK	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 01/05/1986 Effective Date: 01/05/1986 Revocation Date: -
5	435m SE	LOWER GRANGE FARM, GRANGE ROAD, HUGGLESCOTE	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: WQ/72/164 Permit Version: 1 Receiving Water: UNDERGROUND STRATA	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 12/09/1975 Effective Date: 12/09/1975 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.





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4.14 Pollutant release to surface waters (Red List)

Records within 500m

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on page 29





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ID	Location	Details	
A	On site	Incident Date: 10/10/2002 Incident Identification: 113838 Pollutant: Sewage Materials Pollutant Description: Other Sewage Material	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
В	110m SE	Incident Date: 31/07/2002 Incident Identification: 96129 Pollutant: Sewage Materials:Oils and Fuel Pollutant Description: Grey Water:Mixed/Waste Oils	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
В	110m SE	Incident Date: 31/07/2002 Incident Identification: 96129 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
В	110m SE	Incident Date: 31/07/2002 Incident Identification: 96129 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
2	154m NW	Incident Date: 24/03/2002 Incident Identification: 66282 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

de within E00m	
as within 500m	

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.





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4.21 Pollution inventory radioactive waste

Records within 500m

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.







5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on page 36

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non- aquifer in different locations due to the variable characteristics of the rock type







ID	Location	Designation	Description
3	464m SE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.







Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on page 38

ID	Location	Designation	Description
1	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers
2	299m NW	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type







This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.







Groundwater vulnerability





5.3 Groundwater vulnerability

Records within 50m

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium Intermediate between high and low vulnerability.
- Low Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on page 40







ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
5	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
6	14m E	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: 300- 550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.






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5.4 Groundwater vulnerability- soluble rock risk

Records on site

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.







Abstractions and Source Protection Zones



5.6 Groundwater abstractions

Records within 2000m

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on page 43







ID	Location	Details	
2	351m SE	Status: Historical Licence No: 03/28/20/0032 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: GRANGE FARM, HUGGLESCOTE - B'HOLE Data Type: Point Name: FOREMAN Easting: 443500 Northing: 312400	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/11/1965 Expiry Date: - Issue No: 100 Version Start Date: 16/11/1965 Version End Date: -
В	613m E	Status: Active Licence No: 03/28/57/0060 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: BROOMLEYS Data Type: Point Name: Severn Trent Water Ltd Easting: 444300 Northing: 313500	Annual Volume (m ³): 413,686 Max Daily Volume (m ³): 1,682 Original Application No: - Original Start Date: 03/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 03/12/2018 Version End Date: -
-	1216m SE	Status: Historical Licence No: 03/28/20/0059/G Details: Mineral Washing Direct Source: Groundwater Midlands Region Point: BARDON HILL QUARRY -WELL Data Type: Point Name: AGGREGATE INDUSTRIES UK LIMITED Easting: 444700 Northing: 312900	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 1363.8 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1997 Version End Date: -
-	1216m SE	Status: Historical Licence No: 03/28/20/0059/G Details: Dust Suppression Direct Source: Groundwater Midlands Region Point: BARDON HILL QUARRY -WELL Data Type: Point Name: AGGREGATE INDUSTRIES UK LIMITED Easting: 444700 Northing: 312900	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 1363.8 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1997 Version End Date: -
-	1798m N	Status: Active Licence No: 03/28/57/0061 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: HOLLY HAYES Data Type: Point Name: Severn Trent Water Ltd Easting: 444100 Northing: 315400	Annual Volume (m ³): 559,158 Max Daily Volume (m ³): 2,136.62 Original Application No: - Original Start Date: 03/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 03/12/2018 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.







5.7 Surface water abstractions

Records within 2000m

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on page 43

ID	Location	Details	
-	1404m E	Status: Historical Licence No: 03/28/20/0059/S Details: Mineral Washing Direct Source: Surface Water Midlands Region Point: BARDON HILL QUARRY - RESERVOIR NO.1 Data Type: Point Name: AGGREGATE INDUSTRIES UK LIMITED Easting: 445000 Northing: 313100	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 1363.8 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/09/1998 Version End Date: -
-	1404m E	Status: Historical Licence No: 03/28/20/0059/S Details: Dust Suppression Direct Source: Surface Water Midlands Region Point: BARDON HILL QUARRY - RESERVOIR NO.1 Data Type: Point Name: AGGREGATE INDUSTRIES UK LIMITED Easting: 445000 Northing: 313100	Annual Volume (m ³): 45460 Max Daily Volume (m ³): 1363.8 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/09/1998 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on page 43







ID	Location	Details	
В	613m E	Status: Active Licence No: 03/28/57/0060 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: BROOMLEYS Data Type: Point Name: Severn Trent Water Ltd Easting: 444300 Northing: 313500	Annual Volume (m ³): 413,686 Max Daily Volume (m ³): 1,682 Original Application No: - Original Start Date: 03/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 03/12/2018 Version End Date: -
-	1798m N	Status: Active Licence No: 03/28/57/0061 Details: Potable Water Supply - Direct Direct Source: Groundwater Midlands Region Point: HOLLY HAYES Data Type: Point Name: Severn Trent Water Ltd Easting: 444100 Northing: 315400	Annual Volume (m ³): 559,158 Max Daily Volume (m ³): 2,136.62 Original Application No: - Original Start Date: 03/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 03/12/2018 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on page 43

ID	Location	Туре	Description
1	On site	3	Total catchment
А	402m E	2	Outer catchment
А	496m E	1	Inner catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.





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6 Hydrology



6.1 Water Network (OS MasterMap)

Records within 250m

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on page 47

ID	Location	Type of water feature	Ground level	Permanence	Name
1	On site	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-







ID	Location	Type of water feature	Ground level	Permanence	Name
В	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
С	14m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	22m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	23m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	24m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	24m SE	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	34m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	43m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	86m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Η	119m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	163m SE	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	163m SE	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	164m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-







ID	Location	Type of water feature	Ground level	Permanence	Name
E	187m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
I	197m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Η	199m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Е	224m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	231m SE	Lake, loch or reservoir.	On ground surface	Watercourse may not contain water all year round	-
I	241m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	17
Covering rivers streams and lakes (some overlan with OS MasterMan Water Network data in previ	ous section)

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on page 47

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on page 47





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ID	Location	Туре	Water body catchment	Water body ID	Operational catchment	Management catchment
Α	On site	River WB catchment	Sence from Source to Ibstock Brook	GB104028046750	Sence, Anker and Bourne Rivers and Lakes	Tame Anker and Mease

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on page 47

ID	Location	Туре	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	On site	River	Sence from Source to Ibstock Brook	<u>GB104028046750</u>	Poor	Good	Poor	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on page 47

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
А	On site	Tame Anker Mease - Secondary Combined	<u>GB40402G990800</u>	Good	Good	Good	2015

This data is sourced from the Environment Agency and Natural Resources Wales.







7 River and coastal flooding



7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on page 51

Distance	RoFRaS flood risk
On site	High
0 - 50m	High







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This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.







River and coastal flooding - Flood Zones



7.6 Flood Zone 2

Records within 50m

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on page 51

Location	Туре
On site	Zone 2 - (Fluvial /Tidal Models)

This data is sourced from the Environment Agency and Natural Resources Wales.







7.7 Flood Zone 3

Records within 50m

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on page 51

Location	Туре
On site	Zone 3 - (Fluvial Models)

This data is sourced from the Environment Agency and Natural Resources Wales.







8 Surface water flooding



8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on page 55

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.







The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.







9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site	Low
Highest risk within 50m	Low

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 57

This data is sourced from Ambiental Risk Analytics.







10 Environmental designations



10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on page 58

ID	Location	Name	Data source
1	1525m SE	Bardon Hill Quarry	Natural England







ID	Location	Name	Data source
2	1594m NE	Coalville Meadows	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.





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10.6 Local Nature Reserves (LNR)

Records within 2000m

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on page 58

ID	Location	Name	Data source
4	1838m NW	Snibston Grange	Natural England
5	1931m NW	Nature Alive	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on page 58

ID	Location	Name	Woodland Type	
-	1755m N	Holly Hayes Wood	Ancient & Semi-Natural Woodland	
-	1981m SE	Unknown	Ancient & Semi-Natural Woodland	

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m		0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.







10.9 Forest Parks

Records within 2000m

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within	2000m

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.





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10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These area areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Туре	NVZ ID	Status
On site	River Trent (source to confluence with Derwent)	Surface Water	S308	Changed
390m SE	River Trent (source to confluence with Derwent)	Surface Water	S308	Changed
594m NW	SOAR R NVZ	Surface Water	S309	Existing
763m E	SOAR R NVZ	Surface Water	S309	Existing

This data is sourced from Natural England and Natural Resources Wales.



Contact us with any questions at: info@groundsure.com 08444 159 000



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SSSI Impact Zones and Units



10.17 SSSI Impact Risk Zones

Records on site

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on page 63







ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Livestock & poultry units with floorspace > 500m ² , slurry lagoons > 750m ² & manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)
2	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m ² , slurry lagoons > 200m ² & manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management Discharges - Any discharge of water or liquid waste of more than 20m ³ /day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)
3	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Livestock & poultry units with floorspace > 500m ² , slurry lagoons > 750m ² & manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location)

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on page 63







ID:	25
Location:	1525m SE
SSSI name:	Bardon Hill Quarry
Unit name:	Whole Site
Broad habitat:	Earth Heritage
Condition:	Favourable
Reportable features:	

Feature name	Feature condition	Date of assessment
EA - Caledonian Igneous	Not Recorded	01/01/1900
FM - Mineralogy	Not Recorded	01/01/1900

ID:	27
Location:	1594m NE
SSSI name:	Coalville Meadows
Unit name:	1
Broad habitat:	Neutral Grassland - Lowland
Condition:	Unfavourable - Recovering
Reportable features:	

Feature name	Feature condition	Date of assessment
Lowland neutral grassland (MG5)	Unfavourable - Recovering	16/06/2014

This data is sourced from Natural England and Natural Resources Wales.







11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic wellbeing of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



Contact us with any questions at: info@groundsure.com 08444 159 000



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This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.







12 Agricultural designations



12.1 Agricultural Land Classification

Records within 250m

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on page 68

ID	Location	Classification	Description
1	On site	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.





ID	Location	Classification	Description
3	On site	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
4	On site	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.
5	On site	Urban	-
6	13m SE	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment.

This data is sourced from Natural England.





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12.5 Countryside Stewardship Schemes

Records within 250m

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.







13 Habitat designations





13.1 Priority Habitat Inventory

Records within 250m

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on page 71

ID	Location	Main Habitat	Other habitats
1	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)







ID	Location	Main Habitat	Other habitats
7	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
8	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
В	9m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
9	10m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
10	11m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
В	19m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
С	24m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
11	26m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
С	27m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
12	38m SE	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
А	49m N	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%); DWOOD (INV > 50%)
13	62m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
D	72m NW	Lowland fens	Main habitat: LFENS (INV > 50%); RBEDS (INV > 50%)
20	180m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
21	186m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on page 71

ID	Location	Туре	Habitat
2	On site	Network Enhancement Zone 1	Not specified
6	On site	Network Enhancement Zone 1	Not specified
Α	On site	Network Enhancement Zone 2	Not specified
A	On site 28m N	Network Enhancement Zone 2 Primary Habitat	Not specified Lowland fens







ID	Location	Туре	Habitat
14	68m SE	Network Enhancement Zone 2	Not specified
15	80m SE	Network Enhancement Zone 2	Not specified
16	92m SE	Primary Habitat	Lowland fens
17	105m SE	Primary Habitat	Lowland fens
18	136m NW	Network Enhancement Zone 1	Not specified
19	158m NW	Network Enhancement Zone 2	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m 0)
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Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.







14 Geology 1:10,000 scale - Availability



14.1 10k Availability

Records within 500m

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on page 74

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SK41SW

This data is sourced from the British Geological Survey.







Geology 1:10,000 scale - Artificial and made ground



14.2 Artificial and made ground (10k)

Records within 500m

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on page 75

ID	Location	LEX Code	Description	Rock description
1	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	On site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	67m NW	WGR-VOID	Worked Ground (Undivided)	Void







Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

This data is sourced from the British Geological Survey.







Geology 1:10,000 scale - Superficial



14.3 Superficial geology (10k)

Records within 500m

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on page 77

ID	Location	LEX Code	Description	Rock description
1	On site	ODT-DMTN	Oadby Member - Diamicton	Diamicton
2	On site	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
3	23m NW	GFDMP-XSV	Glaciofluvial Deposits, Mid Pleistocene - Sand And Gravel	Sand And Gravel
4	78m NW	GFDMP-XSV	Glaciofluvial Deposits, Mid Pleistocene - Sand And Gravel	Sand And Gravel






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ID	Location	LEX Code	Description	Rock description
5	464m SE	GFDMP-XSV	Glaciofluvial Deposits, Mid Pleistocene - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.







Geology 1:10,000 scale - Bedrock



14.5 Bedrock geology (10k)

Records within 500m

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on page 79

ID	Location	LEX Code	Description	Rock age
1	On site	GUN-MDST	Gunthorpe Member - Mudstone	Ladinian Age - Anisian Age
4	299m NW	RDCF-MDST	Radcliffe Member - Mudstone	Anisian Age

This data is sourced from the British Geological Survey.







14.6 Bedrock faults and other linear features (10k)

Records within 500m

2

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on page 79

ID	Location	Category	Description
2	On site	ROCK	Lithostrat line, inferred (CALCULATED BASE OF WHITWICK DOLERITE)
3	114m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side







15 Geology 1:50,000 scale - Availability



15.1 50k Availability

Records within 500m

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on page 81

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW155_coalville_v4

This data is sourced from the British Geological Survey.







Geology 1:50,000 scale - Artificial and made ground



15.2 Artificial and made ground (50k)

Records within 500m

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on page 82

ID	Location	LEX Code	Description	Rock description
1	On site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	478m W	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.







15.3 Artificial ground permeability (50k)

Records within 50m	1
A qualitative classification of estimated rates of vertical mevement of water from the ground surface	through

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Very High	Low







Geology 1:50,000 scale - Superficial



15.4 Superficial geology (50k)

Records within 500m

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on page 84

ID	Location	LEX Code	Description	Rock description
1	On site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
2	On site	ODT-DMTN	OADBY MEMBER	DIAMICTON
3	23m NW	GFDMP-XSV	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
4	79m NW	GFDMP-XSV	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL







ID	Location	LEX Code	Description	Rock description
5	464m SE	GFDMP-XSV	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	3
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A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Moderate	Low
On site	Intergranular	High	Very Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m 0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.







Site Outline
Search buffers in metres (m)

Bedrock geology (50k)

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Bedrock faults and other

linear features (50k)

Please see table for more details.

Geology 1:50,000 scale - Bedrock



15.8 Bedrock geology (50k)

Records within 500m

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on page 86

ID	Location	LEX Code	Description	Rock age
1	On site	GUN-MDST	GUNTHORPE MEMBER - MUDSTONE	ANISIAN
3	299m NW	RDCF-MDST	RADCLIFFE MEMBER - MUDSTONE	ANISIAN

This data is sourced from the British Geological Survey.







15.9 Bedrock permeability (50k)

Records within 50m		1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Low	Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m		1

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on page 86

ID	Location	Category	Description
2	114m NW	FAULT	Fault, inferred







16 Boreholes



16.1 BGS Boreholes

Records within 250m

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on page 88

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	443242 312699	HUGGLESCOTE GRANGE	87.86	N	<u>216972</u>
А	0m SE	443700 313630	BARDON SEWER STRATEGY TP 20	3.0	Ν	<u>217119</u>
2	1m NW	443540 313340	BARDON SEWER STRATEGY TP107	3.0	Ν	<u>217096</u>







ID	Location	Grid reference	Name	Length	Confidential	Web link
3	7m SE	443580 313360	BARDON SEWER STRATEGY TP106	3.0	Ν	217095
4	10m SE	443230 312610	COALVILLE RISLING MAIN	4.0	Ν	<u>217060</u>
А	12m NE	443710 313650	BROOM LEYS ROAD, COALVILLE TP 21	3.0	Ν	<u>218084</u>
5	28m SE	443580 313310	BARDON SEWER STRATEGY TP105	2.0	Ν	<u>217094</u>
6	42m SE	443680 313490	BARDON SEWER STRATEGY TP37	3.0	Ν	<u>217137</u>
7	43m SE	443610 313340	BARDON SEWER STRATEGY TP104	1.0	Ν	<u>217093</u>
8	50m SE	443660 313430	BARDON SEWER STRATEGY TP38	3.0	Ν	<u>217138</u>
9	53m SE	443640 313380	BARDON SEWER STRATEGY TP39	3.0	Ν	<u>217139</u>
10	89m N	443730 313730	BROOM LEYS ROAD, COALVILLE TP 20	3.0	Ν	<u>218083</u>
В	90m SE	443780 313590	BARDON SEWER STRATEGY BH22A	9.0	Ν	<u>217122</u>
11	92m N	443700 313740	BARDON SEWER STRATEGY TP 19	3.0	Ν	<u>217118</u>
В	97m SE	443760 313530	BARDON SEWER STRATEGY BH23	5.2	Ν	<u>217123</u>
В	98m SE	443770 313550	BARDON SEWER STRATEGY TP 21	1.0	Ν	<u>217120</u>
В	98m SE	443780 313570	BARDON SEWER STRATEGY BH22	2.0	Ν	<u>217121</u>
С	124m SE	443780 313510	BARDON SEWER STRATEGY TP40	1.0	Ν	<u>217140</u>
С	124m SE	443780 313510	BARDON SEWER STRATEGY 101	16.15	Ν	<u>217089</u>
12	125m NE	443780 313740	BROOM LEYS ROAD COALVILLE PHASE 3 TP 34	-	Y	N/A
13	128m E	443820 313690	BROOM LEYS ROAD, COALVILLE TP 22	2.0	Ν	<u>218085</u>
С	138m SE	443800 313520	BARDON SEWER STRATEGY 102	16.05	Ν	<u>217090</u>
14	145m N	443720 313790	BROOM LEYS ROAD, COALVILLE TP 19	2.0	Ν	<u>218082</u>
15	148m NE	443820 313730	BROOM LEYS ROAD COALVILLE PHASE 3 TP 32	-	Y	N/A
С	151m SE	443810 313510	BARDON SEWER STRATEGY 111	16.3	Ν	<u>217091</u>
С	164m SE	443820 313500	BARDON SEWER STRATEGY TP103	3.0	Ν	<u>217092</u>
16	172m N	443690 313820	BARDON SEWER STRATEGY TP 18	3.0	Ν	<u>217117</u>
17	181m NE	443830 313770	BROOM LEYS ROAD COALVILLE PHASE 3 TP 33	-	Υ	N/A
D	182m NE	443810 313790	BROOM LEYS ROAD COALVILLE PHASE 3 TP 31	-	Υ	N/A
D	182m NE	443810 313790	BROOM LEYS ROAD, COALVILLE TP 23	3.0	Ν	<u>218086</u>
18	192m NE	443860 313750	BROOM LEYS ROAD COALVILLE PHASE 3 TP 28	-	Υ	N/A







ID	Location	Grid reference	Name	Length	Confidential	Web link
D	196m NE	443820 313800	BROOM LEYS ROAD COALVILLE PHASE 3 TP 30	-	Υ	N/A
19	203m E	443905 313622	SPRING FARM	257.45	Ν	<u>216973</u>
20	204m SE	443840 313450	BARDON SEWER STRATEGY BH24	3.0	Ν	217124
D	204m NE	443820 313810	BROOM LEYS ROAD, COALVILLE TP 18	2.0	Ν	<u>218081</u>
21	205m N	443730 313850	BROOM LEYS ROAD, COALVILLE TP 24	3.0	Ν	<u>218087</u>
22	216m NE	443850 313800	BROOM LEYS ROAD COALVILLE PHASE 3 TP 29	-	Υ	N/A
23	226m NE	443910 313730	BROOM LEYS ROAD, COALVILLE TP 16	3.0	Ν	<u>218079</u>







17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on page 91

Location	Hazard rating	Details
On site	Very low	Ground conditions predominantly low plasticity.
On site	Low	Ground conditions predominantly medium plasticity.

This data is sourced from the British Geological Survey.







Natural ground subsidence - Running sands



17.2 Running sands

Records within 50m

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on page 92

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.







Location	Hazard rating	Details
On site	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.







Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on page 94

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
On site	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most







Location	Hazard rating	Details
On site	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.







Natural ground subsidence - Collapsible deposits



17.4 Collapsible deposits

Records within 50m

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on page 96

Location	Hazard rating	Details
On site	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.







Natural ground subsidence - Landslides



17.5 Landslides

Records within 50m

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on page 97

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.







Location	Hazard rating	Details
27m SE	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.
39m SW	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.







Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on page 99

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.







18 Mining, ground workings and natural cavities



18.1 Natural cavities

Records within 500m

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Peter Brett Associates (PBA).







18.2 BritPits

Records within 500m

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	28
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Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on page 100

ID	Location	Land Use	Year of mapping	Mapping scale
1	20m SE	Cuttings	1882	1:10560
A	22m NW	Cuttings	1950	1:10560
А	23m NW	Cuttings	1938	1:10560
А	23m NW	Cuttings	1927	1:10560
А	23m NW	Cuttings	1901	1:10560
2	27m SE	Pond	1967	1:10560
В	31m SE	Cuttings	1882	1:10560
A	38m NW	Cuttings	1967	1:10560
С	68m SE	Pond	1967	1:10560
С	68m SE	Pond	1974	1:10000
D	69m SW	Cuttings	1882	1:10560
D	80m SW	Cuttings	1938	1:10560
D	80m SW	Cuttings	1927	1:10560
D	80m SW	Cuttings	1901	1:10560
В	81m SE	Cuttings	1938	1:10560
В	81m SE	Cuttings	1927	1:10560
В	81m SE	Cuttings	1901	1:10560





ID	Location	Land Use	Year of mapping	Mapping scale
D	82m SW	Cuttings	1950	1:10560
В	88m SE	Cuttings	1950	1:10560
3	139m SE	Pond	1991	1:10000
Е	198m NW	Cuttings	1974	1:10000
Е	199m NW	Cuttings	1991	1:10000
F	202m E	Pond	1974	1:10000
F	229m E	Pond	1991	1:10000
G	234m NW	Cuttings	1938	1:10560
G	234m NW	Cuttings	1927	1:10560
G	234m NW	Cuttings	1901	1:10560
G	242m NW	Cuttings	1991	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on page 100

Location	Land Use	Year of mapping	Mapping scale
507m E	Unspecified Shaft	1882	1:10560
526m S	Colliery	1901	1:10560
526m S	Colliery	1881	1:10560
549m S	Unspecified Mine	1967	1:10560
549m S	Colliery	1931	1:10560
633m NW	Colliery	1938	1:10560
633m NW	Colliery	1927	1:10560
633m NW	Colliery	1901	1:10560
797m S	Unspecified Shaft	1881	1:10560
	Location 507m E 526m S 526m S 549m S 549m S 633m NW 633m NW 633m NW	LocationLand Use507m EUnspecified Shaft526m SColliery526m SColliery549m SUnspecified Mine549m SColliery633m NWColliery633m NWColliery633m NWColliery797m SUnspecified Shaft	LocationLand UseYear of mapping507m EUnspecified Shaft1882526m SColliery1901526m SColliery1881549m SUnspecified Mine1967549m SColliery1931633m NWColliery1938633m NWColliery1927633m NWColliery1901797m SUnspecified Shaft1881



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ID	Location	Land Use	Year of mapping	Mapping scale
-	803m S	Unspecified Shaft	1881	1:10560
U	834m NW	Colliery	1950	1:10560
U	836m NW	Unspecified Mine	1967	1:10560
U	837m NW	Colliery	1882	1:10560
-	880m NW	Colliery	1974	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Peter Brett Associates (PBA).





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18.8 JPB mining areas

Records on site

Areas which could be affected by former coal mining. This data includes some mine plans unavailable to the Coal Authority.

Location	Details
On site	In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.





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18.12 Tin mining

Records on site

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

18.13 Clay mining

Records on site

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

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19 Radon



19.1 Radon

Records on site

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on page 106

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.







10

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
9m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
23m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.







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20.3 BGS Measured Urban Soil Chemistry

Records within 50m

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².







21 Railway infrastructure and projects



21.1 Underground railways (London)

Records within 250m

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.





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This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m 0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	15

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on page 109

Location	Land Use	Year of mapping	Mapping scale
On site	Railway Sidings	1959	2500
On site	Railway	1884	-
On site	Railway Sidings	1884	2500
On site	Railway Sidings	1903	2500
On site	Railway Sidings	1929	2500
On site	Railway Sidings	1938	10560
On site	Railway Sidings	1927	10560
On site	Railway Sidings	1901	10560
On site On site	Railway Sidings Railway Sidings	1901 1882	10560 10560
On site On site On site	Railway Sidings Railway Sidings Railway Sidings	1901 1882 1950	10560 10560 10560
On site On site On site	Railway SidingsRailway SidingsRailway SidingsRailway Sidings	1901 1882 1950 1967	10560 10560 10560 10560
On site On site On site 10m SE	Railway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway Sidings	1901 1882 1950 1967 1959	10560 10560 10560 2500
On site On site On site 10m SE 16m SE 71m NW	Railway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway Sidings	1901 1882 1950 1967 1967	10560 10560 10560 2500 10560
On site On site On site 10m SE 16m SE 71m NW	Railway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway SidingsRailway Sidings	1901 1882 1950 1967 1959 1967 1963	10560 10560 10560 2500 2500 2500

This data is sourced from Ordnance Survey/Groundsure.







21.5 Royal Mail tunnels

Records within 250m

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	5

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on page 109

Location	Description
On site	Abandoned
3m SE	Abandoned
5m SE	Abandoned
6m S	Abandoned
14m NW	Abandoned

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m

3

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways. Features are displayed on the Railway infrastructure and projects map on **page 109**

Location	Name	Туре
On site	-	rail
On site	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.







21.8 Crossrail 1

Records within 500m

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.





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Ref: GSIP-2020-10522-1934 **Your ref**: East of Coalville **Grid ref**: 443461 313149

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1:2500 Scale Grid Index





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Map date:	1960	W F
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933_LS_1_2 443138, 313127
Map Name:	County Series N
Map date:	1884
Scale:	1:2,500
Printed at:	1:2,500 ^S





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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933_LS_1_ 443138, 313753	_3
Map Name:	National Grid	N
Map date:	1969-1973	
Scale:	1:2,500	Ϋ́Υ
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Surveyed 1993

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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933_LS_2_ 443764, 312502	_1
Map Name:	National Grid	N
Map date:	1980	W F
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Map Name:	National Grid	Ν
Map date:	1991-1992	W E
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Map Name:	National Grid	N
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933_LS_2_ 443764, 312502	_1
Map Name:	National Grid	Ν
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933_LS_2_2 443764, 313127			
Map Name:	National Grid	N		
Map date:	1994			
Scale:	1:2,500	Υ ·		
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	County Series	Ν
Map date:	1881-1883	
Scale:	1:10,560	
Printed at:	1:10,560	S





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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	County Series	Ν
Map date:	1901	
Scale:	1:10,560	
Printed at:	1:10,560	S





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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	County Series	Ν
Map date:	1927-1931	W -
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	County Series	Ν
Map date:	1938	W _
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Site Details:

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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	Provisional	N
Map date:	1955	
Scale:	1:10,560	
Printed at:	1:10,560	S





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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	Provisional	Ν
Map date:	1967	
Scale:	1:10,560	
Printed at:	1:10,560	S





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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	National Grid	Ν
Map date:	1975	
Scale:	1:10,000	
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	National Grid	Ν
Map date:	1991	
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Client Ref: Report Ref: Grid Ref:	East of Coalville GSIP-2020-10522-1933 443452, 313128	
Map Name:	National Grid	Ν
Map date:	2001	
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Map Name:	National Grid	Ν
Map date:	2010	
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Map Name:	National Grid	Ν
Map date:	2020	
Scale:	1:10,000	
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Appendix B

DRAWINGS

Confidential

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- 1. MRN A511.000 Punch Through_H2_1_1 GA DRAFT 29 Sept 2020
- 2. Scheme Red Line Boundary Plan
- 3. Topographic Survey Plan





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Appendix C

AS-BUILT AND ARCHIVE DOCUMENTS

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- 1. V80031/04 Survey drawing for historic rail crossing underbridge including trial pit information (pre 2006),
- 2. V80031/04 Proposed General Arrangement drawing for existing rail crossing underbridge installed in 2006,
- 3. Document Ref. A9 Photographs pre, post and during 2006 bridge installation.
- 4. As built utilities plans
- 5. BT Ref. JNS03134Z
 - a. Severn Trent (Mains) Map Centre 443585, 313433
 - b. Severn Trent (Sewers) Map Centre 443585,313433
 - c. Virgin Media Map Centre 443585,313433
 - d. Western Power Distribution
 - e. National Grid (Cadent) EM_GW2B_3SWX_728297







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Section A9 Photographs of Work



KSL40 Bridge Entrance, North Elevation Prior to Work Starting

Health & Safety File KSL40 Intersection Bridge, Coalville, Leicestershire, Steel Archway Installation & Backfilling, H&S 1



Access lane off A511 prior to work starting

Health & Safety File KSL40 Intersection Bridge, Coalville, Leicestershire, Steel Archway Installation & Backfilling, H&S 1


North elevation of bridge after de-vegetation works





Excavating wing wall bases



Installation of class A1 fill under wing wall bases



Wing wall base shutter & steel reinforcement installation



Wing wall base after shutter strip



Concrete pump filling up shoulder wall



Steel fix for wing walls



Wing wall after shutter strip with back painted with bituminous waterproofing paint



Sections of archway lifted onto shoulder wall



Drainage duct wrapped in terram installed at back of arch



Concrete pump pouring foam concrete



Installation of grout tubes to bridge soffit



Back filling span 1 with class 1A fill





New footway installation under archway span



Installation of fencing & kissing gate



Culvert concrete spillway (outlet)



Completion Photo South Elevation

Maps by email Plant Information Reply



IMPORTANT WARNING Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route

openrea

CLICK BEFORE YOU DIG FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED (Office hours: Monday - Friday 08.00 to 17.00) www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

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KEY	ТО ВТ ЅҮМІ	BOLS	Change Of State	Hatchings	hings		
	Planned	Live	Split Coupling	\times	Built	~	
РСР			Duct Tee		Planned		
Pole	0	0	Building		Inferred	~	
Box			Kiosk	K	Duct	\sim	
Manhole			Other proposed plant is shown using dashed lines.				
	-	^	BI Symbols	s not listed al	bove may be di	sregarded.	
Cabinet	u		Information only valid fo	ng BI Plant n 1 valid at time or 90 days aff	nay not be reco e of preparation ter the date of p	rded. n. Maps are publication.	
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BI Ref : JNS031342 Map Reference : (centre) SK4358513433 Easting/Northing : (centre) 443585,313433 Issued : 28/09/2020 15:13:55

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk



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(c) Crown cop Data updated	oyright and 1: 14/09/20	d database rights 20.)	20 Ordnance Survey 1000	31673			Scale: 1:1837 Map Centre: 443585,313433	Date: 28/09/20	Clean Water Plan A3 Powered by digdat
Hydrant	•	Valve	í.	Aqueduct		bryony.wilson@leics.gov.uk			SEVERN
Meter		Water Main		Duct					TRENT
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GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your contractor on site. If any damage is caused to Severn Trent Water Limited (STW) apparatus (defined below), the person, contractor or subcontractor responsible must inform STW immediately on: **0800 783 4444 (24 hours)**

a) These general conditions and precautions apply to the public sewerage, water distribution and cables in ducts including (but not limited to) sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991(a legal agreement between a developer and STW, where a developer agrees to build sewers to an agreed standard, which STW will then adopt); mains installed in accordance with an agreement for the self-construction of water mains entered into with STW and the assets described at condition b) of these general conditions and precautions. Such apparatus is referred to as "STW Apparatus" in these general conditions and precautions.

b) Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.

c) On request, STW will issue a copy of the plan showing the approximate locations of STW Apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan and the information supplied with it is furnished as a general guide only and STW does not guarantee its accuracy.

d) STW does not update these plans on a regular basis. Therefore the position and depth of STW Apparatus may change and this plan is issued subject to any such change. Before any works are carried out, you should confirm whether any changes to the plan have been made since it was issued.

e) The plan must not be relied upon in the event of excavations or other works in the vicinity of STW Apparatus. It is your responsibility to ascertain the precise location of any STW Apparatus prior to undertaking any development or other works (including but not limited to excavations).

f) No person or company shall be relieved from liability for loss and/or damage caused to STW Apparatus by reason of the actual position and/or depths of STW Apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any STW Apparatus the following should be observed:

1. All STW Apparatus should be located by hand digging prior to the use of mechanical excavators.

2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to STW Apparatus. You or your contractor must ensure the safety of STW Apparatus and will be responsible for the cost of repairing any loss and/or damage caused (including without limitation replacement parts).

3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.

4. During construction work, where heavy plant will cross the line of STW Apparatus, specific crossing points must be agreed with STW and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW Apparatus at other locations must be prevented.

5. Where it is proposed to carry out piling or boring within 20 metres of any STW Apparatus, STW should be consulted to enable any affected STW Apparatus to be surveyed prior to the works commencing.

6. Where excavation of trenches adjacent to any STW Apparatus affects its support, the STW Apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.

7. Where a trench is excavated crossing or parallel to the line of any STW Apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause damage to the STW Apparatus. In special cases, it may be necessary to provide permanent support to STW Apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW Apparatus.

8. No other apparatus should be laid along the line of STW Apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW Apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW Apparatus.

9. A minimum radial clearance of 300 millimetres should be allowed between any plant or equipment being installed and existing STW Apparatus. We reserve the right to increase this distance where strategic assets are affected.

10. Where any STW Apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW Apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged to you.

11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with STW Apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such STW Apparatus in order to determine any necessary alterations in advance of the works.

12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW Apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.

13. You are advised that STW will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,

14. No explosives are to be used in the vicinity of any STW Apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

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15. Please ensure that, in relation to STW Apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.

16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW Apparatus.

17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW Apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear. Asset Protection Statements Updated May 2014

18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW Apparatus.

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Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
6501	С	154.22	151.76	2.46
6602	С	154.45	152.75	1.7
6603	С	155.42	152.36	3.06
6702	С	155.65	153.75	1.9
7500	С	-	0	0
7501	С	-	0	0
7503	С	154.07	152.02	2.05
7504	С	153.46	149.8	3.66
7508	С	153.51	149.74	3.77
7509	С	153.85	148.4	5.45
7511	С	-	0	0
8401	С	153.92	150.69	3.23
	F			
	F			
6200	F	154.38	149.62	4.76
6300	F	153.72	149.52	4.2
7200	F	157.76	150.24	0
7201	F	156.79	154.89	1.9
7202	F	156.18	153.98	2.2
7203	F	157.51	150.68	0
7300	F	155.54	152.99	2.55
7301	F	155	151.96	3.04
7302	F	153.99	149.13	4.86
7303	F	153.07	148.85	4.22
7304	F	152.34	0	0
7400	F	153.73	151.71	2.02
7403	F	152.73	150.52	2.21
8102	F	155.87	151.01	4.86
8503	F	154.21	150.19	4.02
8504	F	153.91	149.99	3.92
4601	S	156.4	152.01	4.39
4704	S	158.26	153.09	5.17
4706	S	-	0	0
5301	S	-	0	0
5302	S	-	0	0
5303	S	-	0	0
5401	S	-	0	0
5501	S	153 94	150 21	3 73
5502	S	154 26	150.08	4 18
5503	S	154.06	150.8	3.26
5504	S	-	0	0
5603	S	-	0	0
5704	S	156 21	155.1	1 11
6201	S	154 43	150 75	3.68
6301	S	153 57	150.48	3.09
6302	S	153	150 74	2 26
6303	S	151 28	150.28	1
6304	9	151.20	149 56	1 53
6305	S	150.82	149.38	1.44
6306	S	-	150.69	0
6401	S	153 74	149.8	3.94
6502	S	153 73	150.81	2.92
6503	S	-	0	0
6601	S	153 94	- 151 99	1 95
6604	S	154 27	151 34	2.93
6606	S	154 32	153.61	0.71
6607	S	154.85	153.69	1 16
6608	S	154.22	151.88	2 35
6609	S	154 52	153.18	1.34
6610	S	155 52	153.10	0.75
7100	о С	155.55	154.76	0.75 5.09
7204	с С	157.43	151.40	0.30
7204	0 Q	157.0	151.55	1 /3
7205	с С	157.1	155.07	1.43
7200	0 Q	156 17	154.50	1.57
7305	0 0	152.07	154.0	3.25
7306	S C	155.57	153.90	J.20 1.65
7307	с С	155.04	155.09	2.24
7308	ວ ເ	153.04	152.7	2.04
7300	0 Q	155 02	153.14	1.00
7210	ა ი	100.93	104.00	1.00
1310	J	100.43	104.00	1.00

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
7311	S	153.47	150.74	2.73
7404	S	152.65	150.85	1.8
7405	S	153.64	151.99	1.65
7406	S	154.99	153.41	1.58
7502	S	153.54	152.78	0.77
7515	S	153.9	151.08	2.82
8509	S	154.23	151.3	2.93
8603	S	-	0	0



Important Information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf", which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2020 Ordnance Survey 100019209.





Bryony Wilson Leicestershire County Council County Hall Leicester Road Glenfield Leicester Leicestershire LE3 8RA Plant Protection Cadent Block 1; Floor 1 Brick Kiln Street Hinckley LE10 0NA E-mail: <u>plantprotection@cadentgas.com</u> Telephone: +44 (0)800 688588

National Gas Emergency Number: 0800 111 999*

National Grid Electricity Emergency Number: 0800 40 40 90* * Available 24 hours, 7 days/week. Calls may be recorded and monitored.

www.cadentgas.com

Date: 28/09/2020 Our Ref: EM_GW2B_3SWX_728297 Your Ref: MRN Punch Through RE: Proposed Works, MRN Punch Through from Bardon Road

Thank you for your enquiry which was received on 28/09/2020. Please note this response and any attached map(s) are valid for 28 days.

An assessment has been carried out with respect to Cadent Gas Limited, National Grid Electricity Transmission plc's and National Grid Gas Transmission plc's apparatus. Please note it does not cover the items listed in the section "Your Responsibilities and Obligations", including gas service pipes and related apparatus. For details of Network areas please see the Cadent website (<u>http://cadentgas.com/Digging-safely/Dial-before-you-dig</u>) or the enclosed documentation.

As your works are at a "proposed" stage, any maps and guidance provided are for information purposes only. This is not approval to commence work. You must submit a "Scheduled Works" enquiry at the earliest opportunity and failure to do this may lead to disruption to your plans and works. Plant Protection will endeavour to provide an <u>initial</u> assessment within 14 days of receipt of a Scheduled Works enquiry and dependent on the outcome of this, further consultation may be required.

In any event, for safety and legal reasons, works must not be carried out until a Scheduled Works enquiry has been completed and final response received.

Your Responsibilities and Obligations

The "Assessment" Section below outlines the detailed requirements that must be followed when planning or undertaking your scheduled activities at this location.

It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near Cadent and/or National Grid's apparatus, e.g. as contained within the Construction (Design and Management) Regulations.

This assessment solely relates to Cadent Gas Limited, National Grid Electricity Transmission plc (NGET) and National Grid Gas Transmission plc (NGGT) and apparatus. This assessment does **NOT** include:

- Cadent and/or National Grid's legal interest (easements or wayleaves) in the land which restricts activity in proximity to Cadent and/or National Grid's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and if in doubt contact Plant Protection.
- I Gas service pipes and related apparatus
- Recently installed apparatus
- Apparatus owned by other organisations, e.g. other gas distribution operators, local electricity companies, other utilities, etc.

It is **YOUR** responsibility to take into account whether the items listed above may be present and if they could be affected by your proposed activities. Further "Essential Guidance" in respect of these items can be found on either the <u>National Grid</u> or <u>Cadent</u> website.

This communication does not constitute any formal agreement or consent for any proposed development work; either generally or with regard to Cadent and/or National Grid's easements or wayleaves nor any planning or building regulations applications.

Cadent Gas Limited, NGGT and NGET or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

If you require further assistance please contact the Plant Protection team via e-mail (<u>click here</u>) or via the contact details at the top of this response.

Yours faithfully

Plant Protection Team

ASSESSMENT

Affected Apparatus

The apparatus that has been identified as being in the vicinity of your proposed works is:

Low or Medium pressure (below 2 bar) gas pipes and associated equipment. (As a result it is highly likely that there are gas services and associated apparatus in the vicinity)

Requirements

BEFORE carrying out any work you must:

- Carefully read these requirements including the attached guidance documents and maps showing the location of apparatus.
- Contact the landowner and ensure any proposed works in private land do not infringe Cadent and/or National Grid's legal rights (i.e. easements or wayleaves). If the works are in the road or footpath the relevant local authority should be contacted.
- Ensure that all persons, including direct labour and contractors, working for you on or near Cadent and/or National Grid's apparatus follow the requirements of the HSE Guidance Notes HSG47 -'Avoiding Danger from Underground Services' and GS6 – 'Avoidance of danger from overhead electric power lines'. This guidance can be downloaded free of charge at <u>http://www.hse.gov.uk</u>
- In line with the above guidance, verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any activities are undertaken.

GUIDANCE

Excavating Safely - Avoiding injury when working near gas pipes: http://www.nationalgrid.com/NR/rdonlyres/2D2EEA97-B213-459C-9A26-18361C6E0B0D/25249/Digsafe_leaflet3e2finalamends061207.pdf

Standard Guidance

Essential Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=8589934982

General Guidance document: http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=35103

Excavating Safely in the vicinity of gas pipes guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/A3D37677-6641-476C-9DDA-E89949052829/44257/ExcavatingSafelyCreditCard.pdf

Excavating Safely in the vicinity of electricity cables guidance (Credit card): http://www.nationalgrid.com/NR/rdonlyres/35DDEC6D-D754-4BA5-AF3C-D607D05A25C2/44858/ExcavatingSafelyCreditCardelectricitycables.pdf

Copies of all the Guidance Documents can also be downloaded from the National Grid and Cadent websites.

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ID: EM_GW2B_3SWX_728297	View extent: 723m, 918m	Map not to be used for construction	Map 1 of 1 (GAS)
USER: BryonyWilson	LP MAINS	This plan shows those pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT).	MAPS Plot Server Version 1.11.0
DATE: 28/09/2020	IP MAINS	with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error or omission. Safe digging	Cardont
DATA DATE: 26/09/2020			Lagenr
REF: MRN Punch Through			Your Gas Network
MAP REF: SK4313	0m 50m	pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure	Requested by: Leicestershire County Council
CENTRE: 443537, 313319	on A3 Colour Portrait	that this information is provided to all persons (either direct labour or contractors) working for you on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date	This plan is reproduced from or based on the OS map by Cadent Gas Limited, with the sanction
Some examples of Plant Items: Valve Depth of Cover Syph	Ion Diameter Material Out of Change Change Service	of issue.	of the controller of HM Stationery Office. Crown Copyright Reserved. Ordnance Survey Licence number 100024886

ENQUIRY SUMMARY

Received Date 28/09/2020

Your Reference MRN Punch Through

Location Centre Point: 443536, 313318 X Extent: 351 Y Extent: 631 Location Description: MRN Punch Through from Bardon Road

Map Options Paper Size: A3 Orientation: PORTRAIT Requested Scale: 2500 Actual Scale: 1:2500 (GAS) Real World Extents: 723m x 918m (GAS)

Recipients bryony.wilson@leics.gov.uk

Enquirer Details Organisation Name: Leicestershire County Council Contact Name: Bryony Wilson Email Address: bryony.wilson@leics.gov.uk Telephone: 01163052222 (01163052222) Address: County Hall, Leicester Road, Glenfield, Leicester, Leicestershire, LE3 8RA

Description of Works Installation of through road

Enquiry Type Proposed Works

<u>Activity Type</u> Highways

Work Types Work Type: Change to Ground Level Work Type: Deep Excavation (greater than or equal to 0.3m) Work Type: Shallow Excavation (less than 0.3m) Work Type: Surface Works Work Type: Drop Kerb Work Type: Street Furniture/Lighting

Appendix D

LAND OWNERSHIP PLANS

Confidential

NSD




Appendix E

COAL AUTHORITY CONSULTANTS COAL MINING REPORT

Confidential



Consultants Coal Mining Report

A511 Bardon Road N/a N/a N/a 52.716242,-1.356548 (50 Meter Radius) Coalville Leicestershire LE674BE

Date of enquiry: Date enquiry received: Issue date: 19 October 2020 19 October 2020 19 October 2020

Our reference: Your reference:



Consultants Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

WSP

Enquiry address

A511 Bardon Road N/a N/a N/a 52.716242,-1.356548 (50 Meter Radius) Coalville Leicestershire LE674BE

How to contact us

0345 762 6848 (UK) +44 (0)1623 637 000 (International)

200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
WHITWICK	MINGE	Coal	644B	77	Beneath Property	2.7	East	119	1971
SOUTH LEICESTER	MINGE	Coal	6449	85	Beneath Property	2.9	East	157	1978
SOUTH LEICESTER	FIVE FEET	Coal	6441	91	South-West	3.6	East	124	1983
WHITWICK	FIVE FEET	Coal	644H	93	Beneath Property	3.6	East	147	1957
SOUTH LEICESTER	SPLENT	Coal	644Q	96	Beneath Property	1.6	North	100	1982
SOUTH LEICESTER	MINGE	Coal	6448	96	South	2.9	East	183	1976
WHITWICK	MINGE	Coal	4WUV	98	Beneath Property	2.6	East	120	1969
WHITWICK	MINGE	Coal	4WUU	101	North-West	2.5	East	122	1969
WHITWICK	MINGE	Coal	644C	105	South-East	1.6	South-East	204	1978
WHITWICK	MINGE	Coal	4WUT	108	Beneath Property	2.2	North-East	122	1917
WHITWICK	MINGE	Coal	4WUX	115	Beneath Property	2.6	East	122	1968
WHITWICK	MINGE	Coal	4WUR	118	North	2.2	North-East	122	1916
WHITWICK	FIVE FEET	Coal	4WV4	122	Beneath Property	1.4	North-East	130	1954
WHITWICK	SPLENT	Coal	4WV7	125	Beneath Property	1.8	East	91	1975
WHITWICK	FIVE FEET	Coal	4WV2	125	Beneath Property	2.1	South-East	127	1958
WHITWICK	FIVE FEET	Coal	4WV3	127	Beneath Property	2.0	North-East	130	1952
WHITWICK	SPLENT	Coal	4WV6	127	Beneath Property	2.9	East	94	1941
WHITWICK	FIVE FEET	Coal	4WUZ	131	East	2.3	East	142	1966
WHITWICK	UPPER MAIN	Coal	644T	187	Beneath Property	4.0	East	160	1895
SOUTH LEICESTER	UPPER MAIN	Coal	644S	196	Beneath Property	4.0	East	180	1909
SOUTH LEICESTER	UPPER MAIN	Coal	4WVC	205	Beneath Property	2.8	North-East	180	1909
WHITWICK	UPPER MAIN	Coal	4WVB	220	Beneath Property	2.8	North-East	142	1890

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
WHITWICK	MIDDLE LOUNT	Coal	6452	222	Beneath Property	2.7	East	127	1939
unnamed	NETHER LOUNT	Coal	645N	225	Beneath Property	2.6	East	157	1946
WHITWICK	YARD	Coal	6456	233	Beneath Property	3.5	East	91	1937
SOUTH LEICESTER	MIDDLE LOUNT	Coal	6453	233	Beneath Property	2.7	East	127	1927
SOUTH LEICESTER	YARD	Coal	6457	244	Beneath Property	3.5	East	91	1938
WHITWICK	LOWER MAIN	Coal	6459	249	Beneath Property	3.9	East	198	1920
SOUTH LEICESTER	MIDDLE LOUNT	Coal	4WVI	253	Beneath Property	2.6	East	130	1955
WHITWICK	MIDDLE LOUNT	Coal	4WVG	253	Beneath Property	2.6	East	134	1938
WHITWICK	NETHER LOUNT	Coal	4WW1	253	North-West	2.3	East	157	1949
SOUTH LEICESTER	NETHER LOUNT	Coal	4WW5	258	Beneath Property	2.3	East	157	1958
SOUTH LEICESTER	NETHER LOUNT	Coal	4WW4	260	Beneath Property	2.3	East	157	1941
SOUTH LEICESTER	LOWER MAIN	Coal	6458	261	Beneath Property	3.9	East	198	1898
WHITWICK	NETHER LOUNT	Coal	4WN0	263	West	2.8	North-East	198	1977
SOUTH LEICESTER	MIDDLE LOUNT	Coal	4WVJ	263	South-East	2.6	East	127	1939
WHITWICK	YARD	Coal	4WW9	264	Beneath Property	3.1	East	94	1924
WHITWICK	MIDDLE LOUNT	Coal	4WVH	264	North-East	2.6	East	127	1933
SOUTH LEICESTER	YARD	Coal	4WWA	265	Beneath Property	2.0	East	94	1942
WHITWICK	NETHER LOUNT	Coal	4WW7	281	East	2.2	South-West	157	1943
WHITWICK	NETHER LOUNT	Coal	4WW2	281	North-East	0.8	West	157	1942
SOUTH LEICESTER	LOWER MAIN	Coal	4WWS	282	Beneath Property	2.9	North-East	213	1904
WHITWICK	LOWER MAIN	Coal	4WWR	284	Beneath Property	2.9	North-East	213	1910
SOUTH LEICESTER	MIDDLE LOUNT	Coal	4WVK	339	Beneath Property	2.6	East	127	1949

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

EM1254	EM1118	5924
EM1119	EM17	EM1177
EM1176	14401	14366

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

A damage notice or claim for alleged subsidence damage was made in July 1995 for FIELD OS 4485 4272 4471 4261 3668 5885 6463 GRANGE FARM, HUGGLESCOTE, LEICSTERSHIRE. We understand that the claim was settled to the satisfaction of the claimant.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

There are a further 1 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required, please visit www.groundstability.com.

See Section 4 for further information.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is in an area where a notice to withdraw support was given in 1975.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Coal mining subsidence

The site is within an area of previous interest. It is close to where the Coal Authority or licensed mine operator has investigated and where necessary remediated issues relating to coal mining subsidence.

The site requires further investigation and may influence your risk assessment. We recommend that you order the appropriate **Coal Authority Subsidence Claims Report**, which will include more information about the hazard.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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VAT receipt

Issued by	The Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG
Tax point date	19 October 2020
Issued to	WSP FLOOR 2, THE MAILBOX 128-130 WHARFSIDE STREET BIRMINGHAM B1 1RQ
Property search for	A511 BARDON ROAD N/A N/A N/A 52.716242,-1.356548 (50 METER RADIUS) COALVILLE LEICESTERSHIRE LE674BE
Reference number	51002315755001
Date of issue	19 October 2020
Cost	£112.13
VAT @ 20%	£22.43
Total received	£134.56
VAT registration	598 5850 68



Summary of findings

The map highlights any specific surface or subsurface features within or near to the boundary of the site.





Appendix F

EXISTING GROUND INVESTIGATION RECORDS

Confidential

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Plant

Shored to



Stiff fissured grey brown silty slightly sandy CLAY with much sub-

Strate damp below 2.50m.

Pit sides stable

Project

flint) and occasional coal fragments.

Water

Stability

CAT 428

Trial Pit Record

Exploration Associates

angular to sub-rounded fine to coarse gravel (predominantly chalk and

W.W.L.D.C., Bardon Sever Strategy

Supplementary Ground Investigation

Cu-Approximate value of undrained shear strength from

H0223

106

hand vane

Contract

Trial Pit





	0	ale : rvel : bordin	24/05 151.1 ales :	/90 9 m.a.a.d.d.			D	1.00x x 3.	40m	B	 >
GL			2	A	Sec. 1	В	c	s S ilo		D	
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2.0		2000		-1 m		5					
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3.0	Internet					,					
4.0	tulun.	En	d of Tr	ial Pít at 3	.70m.	14)		pined		· · · · · · · · · · · · · · · · · · ·	
Sample	e5	Str	əla						Test	0	Remar
Depth	Type	NO.	Descript	ion					m.	kN/m ²	
2.00	D	4 5	afity fine MADE to su red s Soft decay	NADE GROUND: Firm and firm to stiff orange brown, red brown and grey milty slightly mendy clay with some to much sub-angular to sub-rounded fine to coarse gravel and coal fragments. NADE GROUND: Dark grey clayey milty fine to coarse mand and sub-angular to sub-rounded fine to medium occasionally coarse gravel with occasional red shale/slate and bricks. Soft and moft to firm dark grey organic milty slightly mandy CLAT with decayed organic traces, some cobblem and boulders. (Glacial Till)							
	.50 D o Firm and firm to stiff orange brown, yellow bro stightly sandy CLAY with some to much sub-angul coarse gravel, occasional cobbles and boulders. .00 D 7 Stiff fissured grey and grey brown silty slight to much sub-angular to rounded fine to coarse g					much sub-angular and boulders.	to sub-rou Glacial Ti	nded fine to			
2.60	D	7	Stiff to m	fissured gr ch sub-angul	ey and grey brow ar to rounded fi	n silty slightly ne to coarse grav	sandy CLAY vel (predom	with some inantly			
2.60	D	7	Stiff to mu chalk	fissured gr ch sub-angul }-	ey and grey brow ar to rounded fi	n silty slightly ne to coarse gran	sandy CLAY vel (predom	with some inantly			
2.50 3.00 Plant	D	7 CAT	Stiff to mu chalk	fissured gr ch sub-angul). Water	ey and grey brow ar to rounded fi Slight seepage	n silty slightly ne to coarse gran	sandy CLAY rel (predom	with some inantly	Cu-Ay	proxima	te value o
2.60 3.00 Plant Shoree	D	7 CAT	Stiff to mu chalk	fissured gr ch sub-angul). Water Stability	ey and grey brow ar to rounded fit Slight seepage Pit sides unsta	n silty slightly ne to coarse gran at 2.50m (face D) ble G.L2.60m	sandy CLAY rel (prodom	with some inantly	Cu-Aç drainn hand	opeoxima ed shear vane	te value o strength fe











http://scans.bgs.ac.uk/sobi_scans/boreholes/216972/images/10285148.html



http://scans.bgs.ac.uk/sobi_scans/boreholes/216972/images/10285148.html



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	00 00 m (#10 m)	S. ANALYSING PLACE IN MARK

	eological Su	sK41SW77		100.						
USS NAT	TURAL ENVIRONMENT	British National Gr	rid (27700) :							
ort an issu	e with this bore	443242,312699								
<u>011 all 1880</u>		hole								
	<<	< Prev Page 2 of 63 V Next	> >>							
		Page 105	30							
	CEOLO	(Por Su	(For Survey we only)							
	52020		6-inch Map	6-inch Map Registered No.						
	RECORD C	of Shaft or Bore for Minerals	1 2.42							
(ill=00	Name of Shaft or Bore	given by Geological Survey:	/ [1]111111(1)211	ing and						
	HUGGLES	SCOTE GERNOLE (1464) DOKEN	ZE SK I	$\mu sw/7$	7					
	Name and Number giv	as appre	Nat. Grid I	Reference	1945.7					
	For whom made	N.C.B. 23NE	€. E 44324	2 312	699					
	Town or Village Hug	alaxate + Domington County Leisester	1'N.S.Map No.	1'O.S.Map	Confidential					
	Exact site	al Huantanda Church a map, or a ske	rom tch-	(2071)	0.000.0000					
	Purmose for which mad	Prove base of K.R.S. and (ral Hessure a	155	1						
	Ground Level at sheft	relative to O.D. 459-18 1 If not ground level	give O.D. of beginn	ing of shaft	461.18					
	Made by	Foraky Ltd.	Date of	inking July	- August 1					
	In farmention from	Departure al Levelo								
100000-000	information from	A W_N	Dato re-	\$17.80 ₁₀₀₀₀						
1009/58	Examined by	Allat	Dato re	\$1790						
	Examined by	A Not - See	AL SHOQUELE	group (116	.4) <u>Dh</u>					
10003384	Examined by	A Hot	AL SHugglaxate SN 410	Group (176 WI	.4) <u>Bh</u>					
101199136	Ground Level	A Not - Are	AL SHlogytazote SK 410 bin her	4000 (196 400 (196 41 / 6 2316	.4) Bh					
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	Ground Level	A Net - Are	AL SHogytazote SK 4.10 bin her Inn 103 Find Jachan	(1900) (1	.(4) <u>Dh</u>					
	Examined by	A Hot	AL SHogytaxete SK 410 bin her Im 103 Find Jachan	yrnony (196 4) / 4) / 5	. <u>4) Dh</u>					
	Ground Level	A Herts - Are	AL SHogytaxote SK 4.10 bin her Inn 187 Found Juchan	цногу (116 41 / 41 / 6 Дже 5	.(4) <u>Dh</u>					
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	GROUDGICAL	DESCRIPTION OF STRATA Biought Jonused muchstone laminac at with Muchstone char train frinky laminat with sandwhine wasps hands Sandstone pale grey fine Grained mucacecus Striped dandy emidstone nath itregulan worm markings Mark pale orown sandy with abundant mathems fallow	Тнюк Fe (С.) (С. Д. (С. Д. (С. Ц. (С. Ц.)	18. (18.) (2.) (2.) (3.) (3.)	Deen Fr 100 (10-4) (3-4) (01 (3-4) (01 (01) (01)	
	CLASSEFICATION	Biorght Jonwood muchstore laminae at with Norm trails at 100/11. Muchstone that town thinky laminate with sandwhine waps - bands Sandstone pale grey fine grained misarcours. Striped sandy mudstone nate whey wand worm markings Mark pale orown sandy with abundant motione plates Sandstone pales occonish used	Fr (C.) (C. (C.) (C.)	20) 0 2 3 3	Pr 100 (101 101 101 101 101 101 10	15 0 9 1 8 1 8 1 8 1 1 9
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		Sandstone pale gray fine grained meansour. Striped sandy mudstone net unequilar worm markings Mare pale orown sandy with abundant motione platen Sandstone pales oreenish used	(ह) युद्ध 	3 3	101	
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		Striped sandy midstore with Aregular worm markings Mark pale ornor sandy with abundant methodone plakes Sandshine pales succession and		3	1.50	A DESCRIPTION OF
		Mail pale orown sandy with abundant metokone plake Sandshine pales successful and	(0 E	2		C30
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		Sandshine pales successful and	I to me	Colto	(10)-	2 19 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		Sandstone ballo chesnish anel	en (C L 6 102 2 en (S) 147 en (S) 147 en (S) 147 en (S) 147			
			Survey and		(PA	364
		men to fine gracked mod				
		well correct, then middlene				
		wand at 100/5 + 103/8		trank		-
		mudstone hands for 2 at		hours		-
1		104 le. Con belan in fint		1	- Property and	1001
		with multistent particity, 2	19	10		
		The muchant wand at	3	8	Int	1
		Mart day has all high		0	1 37	2.1.
		man chec nown surg genety			and the second	LIL
0.00	est (Phone)	and the same to a star	Register			1
		to kated for "" al partie				
		town holow in block that		1 1		1
		and with many with supreme				2.6
		about under here and			31877700 8 787	
		chec born born with ill	110070			1
		defined land for 3" at 11/8			1	
		the letres in these browned				
		alt mart pale apon vous	a la			
		hard comented by 3" at Halio				
		2" appen sellations band at 12017				
		This partitione hard at 12/15			erenere allavet	
-		pally bour more candy	1650	09,2	alloatta ceca	
		below, passing to	72	5	124	3
		Sandstone pale given med to	henue		(39)	2E
		Coasse grained with occ. mark	5-2-	10	m Same	1
		flakes, hard gypour omented	17-	-3-	123	1
		mudstone choc bown ill defined			137-	(51
		Caminaloon with selling a sandy			~~~	
		bands he worked for 2" at				
		123/3 ton below in char	(4-	213		
		, them mudstand	I	8	124	9
		Sandstone pall buff fine grained	12000			63
		-mad well pounded freq	Salaria.			1
-		trundstone flakes , waps with	yanne.	1		
		layers of Chamian and	10 18			
		Cal Measure petter from 125]-	-	7	125	1

Hu	r Bore given by Geological Survey: Iglescate Grange (19622)	SK	915	w/71	
GROLOGICA		THIC	KN888	DEP	тн
CLASSIPICATI	DESCRIPTION OF STRATA	Ér.	LIN.	Fr	i,
	brought laterated	1	1	125	6
	made pale der boun silt, had			Car	03
	and well will allowing Koment	1			1
	man motiled to 4° at 126/1	(n	125		1
	undown blacky mast below	13	6	138	1
	landstone rate menust men here	-	. Street	Car.	12
	are and with scattered und	-	1.137	an a	
	pulling with pathen of clouds	1	10000	1000000000	100
1	matax high fam with	-		11000000000	1
	the trade to 3° at 120/10	1			-
	alle vands prise of organis	-	1		
1122	Non bellen in pine spained		1	1	1
10000	gapeum consisted pale gray	+	Passing		-
	sancionene prequent and	10000	193.5		-
1	petolo from 140/7, passing	4-9-	10.		
	141/4	- A	6	144	-
	langlametate, ill sotted perotes up	- in a second	-	CH3-	08
	5 2" dia set in ill sorred	-	-	1	-
	sancy got matax pellers	No.12	1 12	1000	-
	of abarrian predeniant		62	141	
	Man pale given sitter on top 5			4. j.	04
	chee brown ill sorted blackey		-		
	mudatione below, sandy bund	Q.,	-		
	13 3° at 145/0, darke thee	- inger	-	100000	
1 2 20	frown silk, mudstere with	13	417		111
	infreq pebbles from 14-7/0	10	112	12	
	Sillatora pale giern sandy, ecc. ina	ā	i interiori	(44	<u>5</u> 8.
	god pebles, int green	-	-		0.75
	muddhone wrops from 153/10	00	4563		
	passing 154/5	1	7	154	
1	Marl, green abrown mothled, sand	/	-	149	101
	ill sorted scattened pelbles,	-	-		
	goven from 155/1 with acc		-		-
4	gypsum aggregates, scatt. Fin	A. Cr.	in.	Selendary	-
	pettles from 158/3 rassing	4	. 7	159	
	Sandstone, striped, ill defined ripple	2.		(台)(山	5%
a state of the	and load structures	10:00	1Z	159	
	Muddhere pale queen not frequent		1	(46)	51)
	Jana filled sun clacks				
	ecatterid and grain for 4"	day and	1	1.000	
	at 160/0, 2° charge sandstone	107	1	a.a.a.	23
0.000	band below	L	0	160	1
Gase N.K.S	in Mare, med pronon public ill softed	16-2	5	160	1
10. 10.25	to 160/15 T inegular junction	1		7:48	35
	inth wase sittly mark				Lawrence .
2.7	entending down into CM.	-			
Middle	Sillorone pupple grey & trown		a marti		
I IV	mottlad pseudo beccuated	1	1		
"Dpact-		1.5			
Appet-	in places ace tootles	and a set of the second	and an orally of	Contraction of the second	
Coal	to places ace tootlate. reddish brown sandy with				

		Iglescole George (1964)	Sk	415	w/11	1
	GEOLOGICAL CLASSPICATION	DESCRIPTION OF STRATA	THICK	NES	1769	ï
BUILT	A CAMERICAN AND	Land Land Land Land Land Land Land Land	DURA RUS	1.446	1000	ł
	1	Drought privard	2000.000	1000	185	ł
		seatureth, med to dk gray mudstart.	CHENNESS I		(7.F.	ł
		grey boonor from 188/11, black				+
		for 2" ut 189/7, can in grey	Louiseene	-		ł
		tomon mudstone scateath	10	243		ł
		belaw	3	1	191	1
		mudstone black highly carbonaccos	ø:	1.02		ł
		abundant waly plant frage			(5)	4
	N BRANKES	wally streaks in basad 1"	(17-53)	3	191	1
	DN-NAMED	COAL propen core inferror	10.03)	42	141	
. 1		dip loss		1	(28	
Suppose	angell na	Sealeast grey from mudature				1
		dark grey hands for 9"	61		(55)	
		at Mull.		12/21	194	
	ON- NAMED	COAL low grade interior punte bands	(0 =0)	4	195	1
	12000 2220000	× ? calcite vern	100000	27471	(5)	
		Seateasthe arey from mudstone	10.	Dian		J
		all Lana 137/2 parma	3		C 198	
		Citera and to sale soul with			165	1
		from all dollard sound in solo			the second second	
		for outlet sand det and				1
	0	ton 102 las and he	1			1
		alterate a da 7" at naila	177.00133	1.1	date term	1
-		allostone for f an edity		1110		1
		ten nades in tem substan	16-	144		1
		and sandy anops wants	5	R	C 700	t
		kcc sections dassing	· · ·	118411	1.0	1
		immassione mea gray steep well			1.2.15	1
		caminae, ecc. 1001 Els, tota	22.5	1.8	1. Section of the	1
		ist. sand inthe plant dem	1 44	0	2.0	ł
- 1		av base			405	1
	22	stripia subtone with rayers of easo	-		the second second	1
		plant autro, 1/2 f g sanastor	ř.	1000		1
		Dand at 205/5, 1/2 rellig	4 23	In		1
		C. II C. II	CERS.	119	205	
		sandsone pale grey fire grained	RECEIPT	0	0.42	+
		ant at care waspo	6.2.3	1	206	+
		sidistene fine grained with ab.	0-203		(42	1
		tenteser setty maps are	1 3	1	305774	
		thin ipt. band at 207/1	E 13	6	207	1
		mudshne med grey inclustingthe		in sy	12.0	4
		to low laminated, 12 11st	-			+
		band at 207/11, sandy maps	60	1200		ł
		in basac 1	1	0	208	+
		Andotone slack out shally finely		1	التحليك ا	ł
		micaceens, abundant seed			-	ł
		lases, integrilar blacky fractur	¢7	177-0		ļ
		froh debns at 209/2, med	Cast and	1.1.2.2.	hinen av	ļ
	and the second	grey silling mudstene with stant.	Sa tina	Sur-	in the second	1
	200800 St 12	fidge at for 2" at 210/1.	1001022			ļ
	E	A Star Barbard	In the second second	410110	A Strengthered	1
GEOLOGICAL		Тиск	Dar			
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CLAREFICATION	DESCRIPTION OF STRATA	Fτ	ÎN	Fr		
	browight Lancesiant			Z08		
	to lance ated shappy with	100202020	-0.00	163		
	mudate a par pinto tracel		13.4	the second		
	7 mumil des stores & tiple					
	made fideo as stopy,		1.000			
	Notion Trace at AUTIN CTU	14				
	un aloji, ceaper as alijo					
	milder at 21111, that at 21111	1				
	freg musser along below					
	with part other i with sec.1	in more				
	pipite trado spale oround	127,220				
	inpropration layers silly					
11 S	mspo for 1° at 212/3, leaflet		2	- A		
	below, can't below, in	19-17-Willia	in white	2000233333		
	mudstone with ace brown	1		-		
	silli faccol layers & shell					
	debris acc mussel debris					
	* pepitiald plant forgments.					
	Jobsky preserved mussel	in the second	lange 1			
	at 3/3/0, say sitte first	Immo				
	frequent spore cases from 214/0,		1.7.01	destatutes.		
	non silter sut staly from 214/8					
	layer of abundant mussel		1.001			
	debno at 215/1.	7	8	215		
State of the state	Shale reary dark every die low acc	02 2	12.0	UR 3		
	pante trait at has delas	1000				
	form 217/4 large test shine	- Andrewski				
	at asto forcal empresimation					
	hand In 1/2" at 215/3 with					
	Lik water what both stoke					
	trans mussel below dish		1			
	males about the of 2815		00000			
	scatt' mund y first defor					
	holes he includes had	10.8	NT.	144		
	at the lit	2	11	218		
	Sector and Greek mudalese homest		1	111		
and the second	the entry of the state of the second state of	6-25	10	210		
Contraction of the second	Sandater of a day of the second of the best of	the state	X	314		
	Size a price grey & gow wasper readed	6.150	-	217		
	material with frequencial caminal	100.4	1-100	(25/20 g		
	an sop of certs below an	-1				
1	uniform med grey sullisters					
	urts scall plant delns +	*******				
	ecan not nodales incleasingly	C.C.	1			
	anay from 220/5 passing	63	0	-		
	0 320/9		0	£ 220		
6	storped sandy selfators, with ell		- 1	16.2		
	depined tenticytar maps of	120 Barrie	-			
	aminal, ecci ager 9	areovia	1	in altraine		
	communited plant deline,	-	- March			
	The 1 ne sound have at 321/2	100.000	1 3			

	Hue	gleocote (frange (1964)	584	7150	177		
0	GeoLogical.	DESCRIPTION OF STRATA	THIC	CNEES	Day	arrat 1	
	Classification		Fr	18.	Fr	1	
		brought proverd		1	EZZO	-	
		Con below in stoped sandy		1	64	12	
		silletree passing	1	9	C. 222	4	
		Sandstone pale grey with each dask	10	(3)	(6-1	62	
		cart miss in top 2" 3"				1	
		lat impreg at 222/11, pale	Same	1.	hannach		
		grey f. gd. uniform cank below					
		freet barb maps vlayers from				1	
		225/0 to 225/5, cond below in				-	
		med, to f go sandshine with					
		ill defined silli, unopo & bando	Soome			-	
1000	1	tipple daft cross stratification				-	
		at 225/10, con? below in			1	1	
		pale grey unspy bidded sandster	¢			-	
		with layer of plant debris &				1	
		ferriginous grains, uniform				+	
		pale grey med grow candidons.		Russe		-	
		from 227/5	7	8	230		
		Sillatone 1" At impreg" at top	15	30.3.	(70	167	
		med grey finely laminabed	1	1 and	C realized	-	
		with leaper selly bands below,				+	
		ceases sandy bands for 1"				-	
		at 231/2, uniform mid." to				-	
9	Second Contraction of the Contra	pale grey sills tone letters, very	NUI Gerei	a filling (-	
		finely laminated randy		-		-	
		ellstone from 232/0 with	3000000	i con	1	4-	
		layer of fittu ginous grains		-		-	
		y carl debit. This improg."				+	
		band at 233/7	3	5	233	4	
		Andstone pale grey eith, 1" 1pt	(01	(4)	<u>(11</u>	10	
		band at 234/6, see sells	lection:			fin-	
	. fii	bands from 235/5, 1" pst band				÷	
		at 236/3, dip low, con below		-		112	
		in basien blocky sill, mudshene					
		1 ast band at 257/6 and for	-			-	
	and the second	4" at 238/2. ecc." very this	Ser. 4				
		silly randstons know for 3" at					
		340/5 inequilar det impres					
		for 2" at 241/4 and at 2+2/c.			lamand,	1-	
		thin hand at 242/8, dip loni.	an maine	1.54	1-2000-3	1	
		ton below in mid grey barren	execution of the second			+-	
		mudatore, large dot, nodule				+	
		at 244/11, sughtly dather	10			1	
		Actors, ooc mussels pletris	17	101	1.25	60	
		from 246/6.	14	0		1-1	
		shale black sitts cathenacious (0.0%	12		1	
	EXCELSIOR	COAL Core 5, fragments, core 18/2,	Sec.	100	C. 2	王王	
-	In details of	fragments; mudshing with certif	14	الزكوا		-	
	scan from CoolSw	hands 4, lor \$ 27", fragment;		3	253	173	
	Se page	ALL black carb mudstone with	1	to l	P.V.C	-	
	0	augus appeared in bread 2" and	0.28	111	254	1	

And a state of the		10.000	. 1		2
- GEOLOGICAL CLASSIFICATION	DESCRIPTION OF STRATA	THICK	NESS	Litter	u Na str
		FX	19.	1T	134,
	brought forward			Z34	1
	leal core 12/2, fragments,	www.cre	-	<u>- 1000000</u>	1111
	Artles base 255-9"		2	255	9
- C - C - C - C - C - C - C - C - C - C	Seatearth grey brown mudstane with	6.1	×/	213	05-1
	loaly streaks in top 2"		10	- HI (17 10)	
	tred grup mudstane below	1000	62	25.7.	37
	Sandstone pale grey f go with	(21.4	21		$H \ge \lambda$
	frequent with earth mops				
	layes of plant detro with				
	seed chairs are tootlets v			p	10000
	ild. nodness. Stigmana at	-			ieno
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	259/3, coris below in f. gd		area da		-
	sandstone with frequent	Umiter			
	sill, lamine; ecc? rootlets				-
	throughout, proping to	3	22	260	6
	Sillstone med your ill acted with	105	821	1220	421
	ab" plant deliver in top 3"				
	cons below in ill defined				-
	striped sandy self-tone inthe	terr to take the			
	at" plant debris, thin ibt	110-12			
	nodule at 261/7, nospy			12	
	bedded pale gruy & as				i
	sandstone for 7th at 263/10.	100-1043			L
NG- HILL	nisty widded sandy self the	511051			
	below to	3	6	264	0
	Andstone med grees silter sandy	10	$\left \right\rangle$	1.80	(43)
	lences for 1" dr 264/5 3" ibt.				
	noduli at 200/9 con's below				_
	in bassen selli midstone	-			
	him ibt- band at 268/10 dip				
	law non silt, below			0.0000000000000000000000000000000000000	1.000
	sandy wrops for 2" at 269/8				
	This ibt hand at 269/11				
	12" int wand at 27118 Am	SHEARING		operat -	
	At band at 272/10 and				
in an internet	at 273/ dut shall med.			South States	
and the second sec	que, 1 mediting betan 1/2"				
	the band at 275/2 and	5516500			
	low 15" at 275/10 ecc. small				111035
	at impreventions below cheave	1 42	(2)	les	See. Y
	in board 2*	15	8	279	8
	Shak black	6.00	2	2145	30)
MINGE	Copt was 5" howen and 2" " But	2.15	82	280	10 61
and a second second	Ak mydolone 1/2° interforminated	C. A.C.	- Chip	Contract of Street	
Kets I all As	tral - my datage with kenter of	3.4000			1
THE A DEDISCHON	linely, handed sall and				0
Berne William & State	Tond mounter bace during	(0.19)	42	250	""
pound as tode	Mullitan 2 3		the second se	and the second sec	
pound va tobe	mostone 3	all and a second	1.000	10000 T 225,0000	
pound as the	toal fragments, car booken	um Neozinice		F775,055	in the second
popul ca tole	Rose 5, fragmente, and booken Bose 5, fragmente, and	14	11		- Xe] /~

-			11'110	1	Firm	Duerst	
- Callestor	GEOLOGICAL CLASSIFICATION	DESCRIPTION OF STRATA	Fr	in.	FT		
H		prevalit Laural			287	h	
		anongini formaria	1.	100	LEE	21	
- 1		in bashes and	1	12	590	E.	
- 21		had done 11/2" a down the dome 5"	1		162	3	
		a cone core 11/2, c core of proce of			denormal denormality	1	
- 11		low the constant of the state	1.6.	51	10	1.	
- 1		have bee C. Con the analogo	h	32	-)615		
- 1		Scapart dark were dat a closed	- ¥	18.65		t.	
		stability wate grey egit sheater	(S.Y.S.)	2	705	P.	
- 1		On take a nate and the	641	3	200	1	
		Sanasine pare grey f.g.	n		27	n	
-		suctions mean to pate your ecc	ROOME			f	
		in agained sanay waps -		-		t	
		laminal freq. notries +				1	
		micro contestions, unformly	Contraction of	-		1º	
- 1		laminated for 4 at 29019,	120020	1000		1	
		- intensively conterna for 9			-	1	
		below con in ill defined		1		-	
		striped sandy sell stone with		-			
		ecalleria pt noances sand				-	
		bands infrequent from 2946			1.	-	
		uniform all stone for 4"				-	
		at 29414 3" 100 gular	1000				
		pot nodule below, con chillow			AMERICAN C	177	
		in eithtrac with its defined			+++++++++++++++++++++++++++++++++++++++		
		mopo ubando, uniform		(÷1e	
- 1		Silletone from 263/8,	1	-	5	-	
		integular contestions for 3			10530 Januar		
		at 2961, unopy headed	TA VO			-	
		sandstane for 1/2" at 3/0/6,	fame.	1	2000-0-107		
- 1		on 1° fine go landstone.	um	-		133	
		con below in stapped selling		di cum		-	
		sandstone, crosianal surfac	f	-		×	
		al 297/2 contoffed as bedded		-	2 - 1200-04	-	
		substone for 2 at 297/8, cang	1.22.270	-		-	
		welon in all alguned barn realed				-	
	- <u>S. Seq</u> *	selfstand with abundant	100.00	- and	a a mad	-	
		sanay more and bands	in the	t contraint		1	
- 1		uniform selectione for 4 ena				-	
- 1		at 299/9 fine grained pale				1	
		grey candolone for 3 mo below.	124			-	
		continuing in iron impropriated	1.00	163	STATISTICS.	1	
- 1		sulstine passing	11	8	300	4	
		Mudstone medure grey slightly celling			(J1-	24	
		barren, sandy water for 2 ms.			-	-	
		at 302/3, small pt retaile		-	anne a	in i	
		at 303/1, sentining below	10.000	-	Married Street	-	
		in barren only slightly selling		-	o	-	
-		militare anth undistrict relieur	1.000	-			
		hanination; 2/2 in get band				-	
		all and the dit laws It with		1		1	

British Geological NATURAL ENVIRON	Survey MENT RESEARCH COM borehole	BC SK41 Br 44313	Version 2.0.6 GS ID: 217045 : E SW149 itish National Gri 34,313163	3GS Refere d (27700) :	ence:		
LE	ICESTER	SHIR	E SK 4I SW	/149		149)
Sinfaguan	KING	EDV	WARDS B	H. 4	SK4+1 3134	sw/19 - 13/1	4 63
N.G. REF. N.	443134 m 313163 m	netres netres	STARTING LEV	1976 EL 150	35	n. A.(a o
PRINCIPAL HORIZONS	LITHOLOGY	SEA A SU Sieuri -	M SECTIONS ND STRATA BDIVISIONS	DIP DEV OIL GAS WATER	GECPHYS. LOG	CORING	CASING LEFT
DKIFT	4 U 4 D 0 A D 0 O 0	Challe a Belemail	unol quantz re.				
keuper Mari		yellow b					
TRIASSIC		ed how	- - -				
		no sanq lars of	les duc lè				
50 m							
Base of Thes	~	red Lann					

http://scans.bgs.ac.uk/sobi_scans/boreholes/217045/images/10285418.html



Barchole sealed with 5 2 tons shallow orlevell cement. Bailing test abortive. No casing left in hole .

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Section of <u>h</u>	CING EDWARDS BH (White with)	SK415 43184	64114 F 1 F 1	64 3163 1 mil 10		ł.
urpose To j	some base Trias. Encelsion, and Splant &	Sh	41	sw	1	49
Ves Main sea		Eval - Gra	1. one	er a qu	+	
Exart Sile	F 443134	skatch n	ip II	possibl	e or	
	N 313163					
fevel at watch bo dr Date of sinking or	te connenced celative to 0.0. <u>150.35</u> R ground cener boring May 1976					191
staker ut doter	et Los and so the second se	L	104	1474 44		
08063014AL			THICK	NESS	00	r Tu
STASS (FICALION			-			-
	open hole from surface to 50.00 m.		-		Construction of the second	
	simple an sin intervice.	2.23 25	0.17		0	00
	Chalk and quarte pregments,					
	beremnite in hist "Sample		12	00	12	00
	Sandetone, yellow home with que	a	-31			
	and getons pebbles, escapional		15		27	-
	than pro granda			08	21	00
a.,	Mindelsine, and boson, few felblies		6	00	33	00
×	No samples, below the point du			-	50	00
			-	1	-	-
			1			1
		-				122-01
			7	1	1	-
					11111	
2						
2			-	-		V.
0						
2						
2	Londo Jugin So.00 m				50	00
2	Conto begin 50.00m				50	00
2	Conto begin 50.00 m Sundohne, dull red borner, wouldy,				50	00
2	Conto begin 50.00 m Samolohne, dull red borne, muddy, micacrono, accordinal pule grices		1	45	50	00
2	Conto begin 50.00 m Sandohme, dull red borner, muddy, micacrone, accoptinal pale given spots, Sandohme, gray green, measuring to conce		1	45	50 51 51	00 45
2	Conto begin 50.00 m Sundohne, dull red borne, wouldy, microcomo, accordinal pole grico sports, goy green medicin to conce Sundothers, dull red from occasional		1	45 40	50 51 51	00 45 35
	Conto begin 50.00 m Sandohne, dull red bours, muddy, micaccono, accasional public green spots, Sandohne, gry green, meduin to conce grained solution carlities, Subtrail dull red form escavinal muddy layers, sub vertical and chilig		1	45	50 51 51	00 45 35
2	Conto begin 50.00 m Sundohme, dull red bours, muddy, micacrono, accordinal pail green spots, Sundohme, dull red bours, including Sundohme, going green medicin to conce Subtract dull red from according muddy layers, sub vertical and chilg subtract red bours and area, one		1	45 40 33	50 51 51 55	00 45 35
7	Conto begin 50.00 m Sandohme, duill red borne, muddy, micaccono, accopinal pade green spots, Sandohme, gray green mechinisto conce grandohme, gray green mechinisto conce statione, duil red from carbines, subtrong duil red from eccasional muddy layers, sub verkent and chilig sinds Sandohme, red bornen and egrea grey mothled, obligate just, smoll	pre -	1	45 40 33	50 51 51 55	00 45 35 18
2	Conto begin 50.00 m Sandohme, dull red house, muddy, micacross, accessional public grees spots, Sandother, grey grees, meduin to conce spots, grey grees, meduin to conce stations, grey grees, meduin to conce stations, grey grees, meduin to conce muddy layers, sub vertical and chilip inited and red house and grees grey muddence red bourn and grees grey method, obligate justs, small	94	1	45 40 33 90	50 51 51 55 55	00 45 95 18 08
Barr de Time	Londo begin 50.00 m Sandohne, duill red horner, wouldy, micaccone, accasional pute green spots, Sandother, gry green medicin to conce spots, duil red former, accasional much layers, sub vertical and chilip inite red former and great grey much obligate junte, small s subtract chill red former, accasional much boligate junte, small s subtract duil red former, accasional much boligate junte, small s		1	45 40 33 90	50 51 55 55 56 56	45 35 18 63 87
Base of Toias	Condo begin 50.00 m Sandohne, dull red horner, muddy micaccomo, accordinal pade grico sports, gov, green meduin to conce subtract dull red from exclosional muddy layers, sub vertical and ellig inited logars, sub vertical and ellig Sandohne red form and green grey mother, obligate junt, small Subtract dull red from a green grey mother, policitation and ellig Sindher red form and green grey mother, policitation and ellig Subtract dull red from a decisional mother, policitation and publics. Subtract dull read from a decisional meeting mothers, and publics, Subtract dull red from and publics.		1	45 40 33 90 79	50 51 55 55 56 56	00 45 35 18 08 57
Base of Trias 57.50m	Conto tegin 50.00 m Sundotme, dull red bours, muddy, micacrono, accordinat pade grico sports, Sundotrine, gray, green medicin to conce sports, Sundotrine, gray, green medicin to conce suddy layers, sub vertical and edilig muddy layers, sub vertical and edilig initia red forum and egrea grey muthled, obligate junte, small Suddance red forum and egrea grey muthled, obligate junte, small Suddance red forum and egrea grey muthled, obligate junte, small Suddance and forum and egrea for subtract pathles, and petioles, Suddance, and greenish grey, conste granted for the product of the subtract of the greenish grey, conste grant of the subtract of the subtract of the subtract of the subtract of the su	gne	1	45 40 33 90 79 63	50 51 51 55 55 56 56 57	00 45 35 18 03 87 50
визе оf Trias <u>57.50m</u>	Conto begin 50.00 m Sandohme, duill red horner, muddy, micaccone, accordinate pade green spors, Sundohme, gray green mechinistic conce spors, Sundohme, gray green mechinistic conce spors, Sundohme, gray green mechinistic sundo high red horner, eccasional muddy layers, sub verkent and chilip inites sundohme, red horner, and green grey monthled, obligate junt, small Sundohme, red horner, and green grey monthled, obligate junt, small Substance and pathies substance for greenist greene franced contral toward, considered greened contral provided conglement from 57.25 He bear	gne ste	1	45 40 33 90 79 63	50 51 51 55 55 56 56 57	00 45 35 18 03 87 50
base of Trias 57.50m	Conto begin 50.00 m Sandohme, duill red borner, muddy, micacrone, accessinal pale grices spots, Sandohme, duill red borner, exclusing printed solution carlines, subtrained duil red borner escavoral muddy layers, sub verkent and chily sints Subtraine red borner and great grey mostled, obligate juste, small Subtraine red borner and great grey mostled, obligate juste, small Subtraine red borner and great grey mostled, obligate juste, small Subtraine red borner, accessional muddy layers, sub verkent subtraine red borner, accessional muddy and petities subtrained from the small petities subtrained from the small petities and the greatist grey territe granted, could greenist grey territe granted to be and count of the state	gne -	3	45 40 33 90 79 63	50 51 51 55 56 56 57	00 45 35 18 63 57 50

200 × 24 11423 882		0+1408	MAP		B.H
				1	<u>. </u>
sering of	g Edwards B.H.				
Contraction of the second		*Dolet	e au appro	oprinte	
-ELLDEREAL 	NATCHE OF STRATE	THICK.	htss 	0.00	In cases
	Brought forward	1		57	80
			/L		
9	Dolente completely exidered, pupile	1			-
	"Lala tag" dowith berning		1		-
-	strong and below 58.60 mainte	-	1. X.	1.00	i sant
	great- grey below 57.60 callete				
19	vens terhan Sub vertical minardia	*		10	
·	- that picints 60 Se to 62 00. 63 00 to have	1	20	67	00
e e e e e e e e e e e e e e e e e e e	La dad?	150	65	19	165
	GAL interior lated		25	61	90
3	Seatcath mustime formich grey lutic	1935	3	- HALAN	- secure
	rests, heat alloed .	1.	73	70	63
	seatenth munitions sully butted, jule	-	15		G
dimension (1008-20	Send have bee and not long the	10.000	- 11	10	30
	notules, my, man	Ť	31	71	11
	Sultations, dataist gory, it paler condutione	0.000	15% 15	i an a	12023
	laminae, auto, shomana, inequilar	-	19	-	1,
	Muddle all did and all the	1.5010/3	41	1	60
	occasional lementing bound		35	1	95
	Sultstone medicin and this soundatione		1	1	
	laminar, partistans, occasional				
	- wondone lidgely	1	07	73	02
	Zandolone, brunish grey, unequitar				
	from 73 20 to base		63	75	65
	Muddie detrict oney file how string			1	Sec. 3
	in top 20cm, this permissions	-	in a second		1
	Himdo' Yassine		48	74	13
	The second and the second the to				-
	@ 75.00, 10 protines musel	1	02	75	15
	Hudstene black admacane, Silly in part.				1
	plant fragments and negosfores tommon	i	1	75-202000	100.001
	connelaid "15 55 to 15 510 fish	-	1 V		-
	be the Loud los als Prime				
	as in brand Scan	1	73	76	88
	Mudatione, use greanich grey, abundant				
	print security by sparks, completely		11	-	74
	Schebra internet in the set		46	11	-24.
	laning and instructions			120712	1
	Sumed, lanes.		41	77	75
	Sundature, off white, our this sittitance	1992 M	Same -	12 Civie	1.5
	laminar, sub vertical joint throughout,	-	- ancor		-
	below to the for the below Hou			11.11.21.11.1	
	and Anie of 79: So to 79:50	253.2			-
	late any below	2	60	50	35
	Substance, All gray, samphone bearings				
	- common, 15the vertices joints	-	2.0		50
00.00	Nuclear all built a literation		20	\$1	33
	Sub vertical in the comment laminate	- 1	45	84	00
	Mudstance medium any will destray famina	2			
	_ sub vertical joints common becomes				-
	det pry in brack 20 with		96	90	0.
	(D) Advert interior	- L	12	31	56
	The second second		19	84	75
	statearth mudetone dartish which			and the second se	and the second se
	Multione dartich my abundant clant		6.00		- CORT

P.71	F	Straiger	144	-	S.H
		9.3124	17110		
ction of Ki	ig Edwards B.H.	E 2744	11192		
-		•De ler	e 44 appi	0,476.01.0	-
STOLDINGAS LASSIFICATION	NATONE OF STRATA	24114	11.1	111	N. Carro
	brought forward.	-		\$7	47
		4	1	Track	12.63
	Cost while in the former		5	87	52
Excession *	Mudstrat calenticlos \$ 230	+	1		-
	LUAL 37mm		2 <u> </u>		1.25
			1.00	cm-	Barrow
	Seaterall an detrie deteil over could - 17		18_	28	10
	stants			-	1
	Stateally myderer linky laminus, I		25	88	95
	Seatouch Sultitione, median grey, This				
	intraction and det		74	89	69
	Sandotme, off white occurrent sillsten	e	1.4	1.51	1
	Jaminie, sub vehicit juinte, plant		Propent	Non-Terrer	K
	Citer 1	-	31	90	00
	Candebus law to the stat		36	90	35
	Huddone, dutish your fer note sub veti	al			
	joints, wet what below 92.00,				
	(af) while highly home in brand 300	12	85	95	20
	Seatearth muchton + silty destrict any	1.0.0	28	15	43
	nocto, shinmanin	1	02	94	50
	Andstone, durchtich grein plant storme comme	9	17 M. 1	0/11/11	
	Vermer carlonactions with wahled		1.1	- 100	10
	Coff allow when it		9	95	62
	Sectoreth mudstone duch any		10	95	51
	WAL appears inferred		15	45	96
	Seatcasth mudatione brownish		4	96	00
	Confl H I I I I I I I I I I I I I I I I I I		4	96	04
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	plants in top 20 cm	12 8	24	96	So
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	Substrate medicing are the sa there	-	10	71	60
	Aminge Rock 25 cm imptene	1	1.25.8	111	1
	bund @ 98.00 m oblight joints		70	98	30
IN GOHF	Mudatone and coal frequents - Hel	-	12	0.4	
	Seater the my of bus silling mut show and		.45	-75	.75
	this sundation landinge below 99.1	e.			1
	yountime applies 99.20 to 99.30	1	35	100	10
	Sulstone medium grey this sandstone	-	1		1223
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100 M	Sundatione gale onen. Les the subtrance	1	96.94	- Alter	
	laminae.		13	102	03
	Chidatore silly are soudstone lande		47	105	50
	lare last	1	35	105	205
	Mediting media were hoten care	1	65	107	00
e feet Goaf	(OP/ and mudston? - old workings	1 de	00	108	00
	Sastauth mudstone silly don't gay in	-		-	
	Citche Loca, north, to diana	1-1	30	109	30
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	sille wise moto	-	37	114	72
Ĩ	COAL appress interior		5	114	77
1	Sateath undefine, boursist gray, rock)	1	19	114	96
8	School sandstorie medium gran real,		- 24	115	20
	nodules.		50	116	00
- 3	Sillstone, meding gry this suddance	(1. m)	1110 51	222	1
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	Mulline, tray broken below 120.95 and		-	1000	-
	for 121.00 my with manage	-	77	121	101
	Mudden, dank op, coulzeplanty	-	2	121	09
	Strange and sela beller 171:48	<u>, </u>	56	171	1.5
	Sillstone gring paper smilly wrop and	1 77-	1.50		
	- lammae; con; thui semating ben	6			-
	Sh passa wit.	1	22	122	87
	Sandtal your eredun grand a Sunde	d.		1	
	tillstine lammin from 123:40 t		M	104	23
	Sillotnue, green, finely language ted in the		HO	144	0.0
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	Sandly En 125.95 to 126.40;	1		10.1	1
	Mudsting com side sideshar lammine	-	60	177	10
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	Mudet month function formen	estim)	27	127	37
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	Seatarith, davk quy self and plaster		8	128	64
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	- hum 129 00 to 129 60 - Sandy	1000	1	1	-
	laminae from 129.65	1	96	130	00
	alandstone, gray clarker multin lamence		-		
	mudopue telaxer 130.62 and 130	.88			-
	M. 1.1 Shipp bare at 131:26		26	131	26
	Mulster dry sells parting with		39_	131	65
	ghandenel opid muscels below	1			
	for Sam, because dudler from				
	Harmahart crimating hours	1	10	13.2	115
(#)	Mulstone, black, cherly, their benon music	i.			
	at top and over met list bagen				1
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	with abres dent brown murgel		1 1 1 1 1		1
	from 135 40; Casenely in basa			1000	1.500
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	dumenter, auna stinger		67	136	47
	Sittludetine gay silly Seltstine leaning	1	0.00		-
	Mudstone any as passing into	3	29	139	75
	The second	uus	(10.00 (R))	1.00	UN4
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Samples and I	nsity I	ests	1		1	amore.		(15)	E CLINE ESTIMAN	
Depth	Туря		Water	Logend	D.D. Level m	Dopth 211	Descrip	ation of Strate		
0.32-0,70 0.60 1.00-1.50 1.15-1.45	81 01 82 C	WIS	and a strength of the second	語言語の	134.50	0.25	firm.black and brown.sto Medium derise, orangey re and GHAVEL	d, brown, cl)	NUL	
1.80-2.30 1.95-2.25	83. C	N15				ac	3	(FEDVIC-LE)	ILIN, SAND AND	Treele
2.50-3.00 7.65-2.95	84 C	N15		100000						
3.50-4.00 3.65-3.95	85 C	N1 3		a	330 <u>.80</u>	4,00				and the second
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KEY D - Dimurbec S B - Bulk Semp U - Undisturbe W - Water Sem S - Standard P C - Cone Pere M - Mackinos Y S - D - S	emple le d Samol pla Text energation T Protect	e an Test mit	F N Z	- Blows in pen Water Dopth on con () Depti after	for 0.3m stration test met to water pletion to moletion completion	RE1 1) (Unt 2)	ARKS Carter pit was dug to chu). he Dorwhole was diy.	eck for the a	beence of servi	ces



Sampling		Prop	pertie	S	Stra	ta						
Depth	Туре	CukPa		SPTN	Descri	ption		Depth	Level	Leg	bnd	
0.00-0.70	1			26	HADI	E GROUND: Brown sandy topsoil with ts and rootlets and occasional fine ium siltsione provel and drain frag	Narty Lo	(0.70)	152.95			
0.50-0.95	c			14	3350	BUILDERSIG. • SKIPLE CONSTRUCTS		E and		VIIA		
0.70-1.20 - 1.20-1.65	U(30)				St i sit ange sudt of c	If brown and red brown mottled grey ty sandy ELAY with much fine to mec- ular to rounded gravel of quartz an stone, occasional cobbles and fragm cost. cost.	d d ents	0.70	154.60			
1.80	D				1.00							
2.10 2.20-2.65 2.20-2.70	0 59 8			23	Sti with com much (GL	<pre>ff to very stiff brown silty sandy h some to much (in places) fine to rse gravel of fint, quartz, chaik, scime, ironstone and coal. acial fill)</pre>	cur	2.10	150.85			
3.20-3.65	U(56)	150	13				100		i.			
3.60	D				_		1					
Museus Mare	lear-						- 3	(3.80)			1.	
1:3:1:%	50 8			33								
5.30-5.75	U(43)		13									
5.90	D				1155		757797	5.90	147.05			
6.20 6.60-6.85 6.40-6.90	9.50 8			36	Ver red te Qua (Gi	y stiff dark brown occasionally mot brown slity sandy CLAY with much f modium angular to rounded gravel of rtz, mudstone, chaik, coal and sand acial Till)	tled ine istone.	(1.20)				
7.10	0 U(51)	221	12		Ver sub gra	y stiff red brown silty CLAY with s -angular to sub-rounded fine to coa vel. acial T(1)		7,10	145.85			
8.00 8.20	0			1	At	8.0Gm: Zmm thick grey layer.		(1.60)				
1:78-8: 40	\$ 50			65	Ver ang san (Gt	y dense grey brown silty very sandy ular to rounded GRAVEL of predemina distone, siltstone and quarts, acist fill)	sub-	8.70	144.25			
9.90-10.35 9.90-10.40	50			102	Con	stinued over from 10.00m.					N	
Location		Co-ord	nales:			Ground Level: 152.95# A00	Chai	nage:				
Drilling				- 113	Gro	undwater		antiper des	No. IN CO.		_	
Type Shall and	From	To	Size	Fluid	Struck	Behaviour	Sealed	Date	Hole	Cased	Wa	
Auger		10.00	0.690		10.00	Strata Wet.		02.06.90 02.06.90	10.00	9.00	0	
Remarks		Chisell Groundw	ed 11,8 ater st	0-12.0 anding	Om (1 h at 10.	70m after withdrawing the cosing.						
Borebole	lorehole Record				Project N.W.L.D.C., Bardon Sever Strategy			Contract N0223				

Sampling Properties		Strata								
Depth	Type	Cu kPa	**	SPT N	Descrip	lion	Depth	Lovel	Lege	nd
Depth - 11:20-11:45 11:20-11:45 12:30-12:25 - 13:10 13:40-13:85 - 14:00-14:45 14:00-14:50	C B C B C B C C B C C C C B C C C C C C			95 84 81	Very angu sand (Gla Very angu gaac gaac gaac gaac gaac gaac gaac (Gla Reon gaac (Gla Secon (Ner	unn inwed from 10.00m. dense prey brown silty very sandy sub- iar to rounded GRAVEL of predominantly stone siltstone and quartz. Fial fill) stiff brown mottled red brown silty y CLAY with much fine to medium sub- ar to rounded gravel of siltstone iz and sandstone, and occasional ings of sand. stal fill) brown muttled green grey highly to itely weakered SiltsToWE brow weak. Ing in places to a clayey silt/silty cia Mudstone)	(4.40) (4.40) (0.50) 13.60	139.85 139.35		
- 13:18:13:55 15.70-16.15 -	1 5			78 84			(2.55)	136.80		
and a comp					End	of Horehole.	يليب أيت استار			
Location Drilling		Co-ord	inatos:		Grou	Ground Level: 152.95s A00 Ch undwater	ainage;			
Туре	From	To	Size	Fluid	Struck	Behaviour Sealed	Date	Hole	Cased	W
Democha										
Remarks					10.1		1.2000000			
Borehole Record					Proje	CE LV.L.D.C., Bardon Sever Strategy Aupplementary Ground Investigation	Borehole 101 (2 of 2)			

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Page	2	of 2
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Sampling Properties		Strata									
Depth	Туре	Cu hPa	wz	SPT N	Descri	ption		Depth	Lovel	Leg	end
- 0.20 0.60-1.05	0 5			15	MADI Niti gra Dri	E GROUND: Dark brown very sandy to h occasional angular to rounded fin rol of flint, slag, chalk, porcelai ck and ash.	pss ² l n	_ G.L.	155.86		Charles IN
- 1.10	0				Sti	It to very stiff red brown and brown asignally mottled yellow and grey s dr CLAT with some to much fire to c	illy	1.10	152.76		K
1.60-2.05	U(44)			4	ang nud occ poc (G)	ular to rounded gravel of siltstone stone, coal, chail and quertr, asional cobbles, fragments of coal kets of sand, acial Till)	and				K
2.20	8		ļ .		2.6	De: Drange and erey mottling.		(2.30)	į.		1
2.60-3.05	U(56)									[1]F	V
3.20	9		x II				- 2			E-	1
3.40	0				Sti	If to very stiff dark grey brown mo	tiled	3.40	150.46	\equiv	1
					to	medium angular to rounded gravel of tstone, mudstone, coal, chalk and q	uartz	(0.90)	in the second	-	V
4.20	D		1 0		Occ	asionally fissured with some sandy illing.	1	4.30	149.56		1
4.30	0	110	12		(6)	acial Till)	-				
4.00 3.03	ucser	110	•		bro	wn silty sandy CLAY with much fine rse angular to rounded gravel of	to		ŝ.		Y
5,20					PYT	tstone, sandstone, mudstone, iron ites, chaik, coal and ironstone, asignal cobbles and pockets of sand	e ()		i -		K
5.40	D				(GI	acial TILL).	1 3		t.	1-1	K
3.60-6.05	0(60)										K
6.20	8						1				1
6.68-7.05	U(51)	196	12	2	1						1
				S.	£						1
7.29	2		3	s -	-			(6.00)	-		Y
7.60-8.05	U(50)				1.		- 11		,		1
10.000	1						- 1)			\subseteq	ť.
8.28	C D				1						
8.60-9.05	U(56)	303	13	i.	ŧ.		- 8				
- 	18				8						
9.40	8			8	9.6	On: Mottled brown and red brown.					
9.60-10.05	58			38	1						
.					Con	tinued over from 10.00m.		16 1770		10.11	1
Location		Co-ordi	nates:			Ground Level: 153.86m A00	Chai	nage;			_
Drilling	-	1		-	Gro	undwater		the log		1.	-
Type Shall and	Fiom	To 16 of	Size	Fluid	Struck	Behaviour	Seawd	Date	Hole	Cased	Wa
Auger	S.L.	10.05	9.200		1	lariður sushuðgr		10:05:00	16.05	3.00	
Remarks		L Chisell 12.50m)	ed 1.10	ka-1.40	1 n (1 hr). Standpipe plezometer installed	to 12.	00m (Sand f	ilter fri	am 10.50	in tr
Borehole	Reco	rd			Proj	ect N.V.L.D.C., Bardon Sever Strategy		Contract	HO	223	
~		o. Miria	and an i	24.0		Supplementary Ground Investigation	Supplementary Ground Investigation				

sampling Properties		62	Unstan Leave Leave Leave							
Depth	Туре	CukPa	**	SPT N	Description	Depth	Lovel	Lege		
10.30 10.60+11.05	0 U(50)				Continued from 10.00m. Very stiff red brown sitty sandy CLAY with much fine to coarse subtangular to rounded gravel of sittstone, candstone, mudstone, from pyrites, chalk, coal and tronstone. (Glacial Till)	10.30	143.56			
- 11:20 11:60-12.05	0 58			32	Very stiff grey brown silty sandy CLAY with much fine to medium sub-angular to rounder gravel of siltstone, mudstone, coal, chair ironstone and sand lenses. (Glacial Till)	11.20	142.66			
- 12.50 12.60-13.05	86200	184	12		Very stiff fissured red brown silty very sendy CLAY with some to much fine to medium angular to rounded gravel of siltstone, chalk, mudstone, coal sandstone and sand lenses. (Glacial Till)	(2.60)				
13,20	0				Natur Goot and and know at the cash and the	13.80	140.06			
- 14.10-14.55 -	5			63	to medium sub-angular to rounded SAVEL of predominantly siltstone, sandstone and guartz. (Glacial Till)					
						(2.25)				
- 15.60-16.05 -	S			93		16.05	137.81			
					End of Borehole.					
-										
						Luch				
-	-									
Location		Co-ordi	inates:	100	Ground Level: 153,86e ADD Cha	inage:		1000		
Drilling					Groundwater	VIII 2	N			
Туре	From	To	Size	Fluid	Struck Behaviour Sealed	Cate	Hole	Cased		
Remarks		1								
Borehole Becord					Project	Contract	Contract H0223			
BOIGHOIG RECOID										

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Sampling		Prop	pertie	s	Strata						
Depth	Туре	Cu kPa	wt	SPT N	Descrip	ption		Depth	Level	Logi	end
0.20	D				Brok	m sandy TOPSOIL with occasional fin se angular to rounded sandatone fli coal gravel and many roots and root	t to	(0.60)	153,06		1.1.1
0.60 9.70-1.15 9.70-1.20	0 50			**	firm to stiff red brown or slity sandy CLAY with some coarse arguiar to rounded	a to still red brown orange and grey y sandy CLAY with some to much fine se angular to rounded quartz, coal : t gravel.	22	0.60	152.46		States of
1.30-1.75	U(38)		15		(GL)	efit fill)		(1.30)			in the
1.90	D							1,90	151.16	-	100
2.10 2.30-2.75 2.50-2.60	0 50 8			19	Still sand to / mudi (01)	If brown occasionally mottled grey s by CLAY with much fine to coarse any counded gravel of flint, quarts, cha stone, coal and siltstone. scial Till)	ilty dar ik,	(1.20)			ununu
1.18.1.5	2			10	-	if duck hence silley such CLAY with I		3.10	149.96		11111
					gra coa (GL	s to coarse sub-angular to rounded rel of flint, quartz, chalk mudstone L and miltstone. scial fill)					1111111
1:38-4.75	82			22							100000
\$:10-5.75	0 50			24	į.						111111111
6.20 6.50-6.95	0 10			33							1111111111111111
7.20 7.50-7.95	0 50			37	7.5	On: Becoming very stiff.		adi Gincapat	in.		111111111111
- 8.30-8.70 8.60-9.05 8.60-9.60	8 50 8		y	T				(10.50)			
9.60-10.05	U(75)		13		Continued over from 10.00m.						
Location	1.015-0	Co-ord	nates:	-	1	Ground Level: 153.06m ACD	Chair	nage:			-
Drilling		<u>.</u>			Gro	undwater			line.		
Туре	From	To	Site	Fluid	Struck	Behaviour S	aled	Date	Hole	Cased	W
Shell and Auger	G.L.	16.30	0.20		3.50	Rose to 10.10 metres in 30 minutes.	15.00	04.06.90 05.04.90 05.05.90	6.00 16.30	4.50 15.70	
Remarks		Chisell	ed 14.	10= 14.	30m (1	hr].			1		
Borehole	Reco	rd			Proj	ect N.V.L.D.C., Bardon Sever Strategy		Contract	но	223	
				540 D	4	Successful from the strength of the strength o					

SK415W 195

Company	5.2591.074		- CT II	Leonar		Death	1.1.2.2	1 .
Depth	Туре	Cu kPa	**	SPTN	Description	Depth	Level	Log
10.20 10.43 10.60-11.05	8 50			34	Continued from 10.60m. Stiff dark brown silty sandy CLAY with much fine to coarse sub-snoular to rounded gravel of flint, quariz, chalk mudstone, coai and siltstone. (Glacial fill) 10.20m: Becoming grey and grey brown.		-	[1]
	0 50			34				
- 12.40 12.60-13.05	0 50			34		l		
13:20-14:18	SD B			42	Dense to very dense brown and grey SAMD and sub-angular to rounded GRAVEL of quertz, sandstone and toalk. (Glacial Till)	13.60	139.46	
14.50-14.95 14.90	c o			82		(1.30)	138.16	
- 15:28-13:95 - 15.70-16.15	50 8		15	65	Very stiff brown silty sandy CLAY with much fine to medium sub-angular to rounded gravel of chalk, sandstone, siltstone, mudstone, quartz and coal. (Glacimi Tfil)	15.10	137.96	
- 15.90 - 16.30	D				Red brown mottled green grey highly to completely weathered SILISTONE, very weak. (Mercia Mudatone)	16.30	136.76	
					End of Borehole.	Giller		
			di.					
	i.							
Location		Co-ordi	nates:		Ground Lavel: 153.06m A00 Cha	nso#:	10	
Drilling					Groundwater		-//	
Туре	From	То	Size	Fluid	Struck Behaviour Seuled	Date	Hole	Cased
Remarks		Standpij	pe pie	zoneter	installed to 14.60m (Sand filter from 13.60m to	o 16.30m).		
Borehole Record					Project N.W.L.D.C., Bardon Sever Strategy	Contract	HOZ	23
					fundamentary fround lowerfloation			_

The Mailbox Level 2 100 Wharfside Street, Birmingham B1 1RT

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Appendix F

PERMANENT WAY

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BARDON ROAD BRIDGE – TECHNICAL NOTE – TRACK CONDITION ASSESSMENT

Purpose

The purpose of this technical note is to document the findings of the track visual condition assessment conducted during the Bardon Road on-track site visit on 20th November 2020. The conclusions of this technical note aim to identify any specific constraints or design implications associated with the track as a result of the proposed Bardon Road Bridge design.

Existing Track

LOCATION OF THE SITE

The site for the proposed Bardon Road crossing is at approximately 111m 75ch on the Knighton Junction Swannington and Leicester Junction Line (KSL). The line is a twin track goods line which currently serves freight-only traffic, with a line speed of 45mph in both directions. For the purpose of this report 'the site' refers to the section of track between chainages 111m 1557yds (100m south of the proposed Bardon Road crossing) and 112m 17yds (100m north of the proposed Bardon Road crossing).



Figure 1: Annotated NESA Extract



TRACK ALIGNMENT

The horizontal alignment of the track is straight through the entirety of the site and sits on a constant gradient of approximately 1:130 (Note the assumed track geometry has been extracted from 5mile diagram 7073092-KSL03 and has not been surveyed as part of the condition assessment).

TRACK SYSTEM

The tracks are non-electrified and sit on a section of high embankment. There is no specific track drainage installed and the track bed is assumed to be free draining.

The rail is a mix of bullhead rail and 113lb (CEN56) flat bottom rail. The rail is a mix of jointed and welded. The sleepers are wooden throughout.

Concrete cable troughs are present in the cesses.



Figure 2: Aerial view of the site in the direction of increasing chainage (Source: Routeview)

OTHER SITE FEATURES

Structures KSL/40 Intersection UB and KSL/39C Brook Brick Culvert are located at 111m 1667yds and 111m 1612yds respectively. Both structures are buried structures. The current route availability rating is RA8 (22.86 to 24.12 tonnes). The track category is currently unknown, however it is assumed traffic volumes are fairly low, as the route is freight only and predominantly serves the nearby Bardon Hill Quarry.

vsp

The rail corridor is heavily vegetated with large trees running down both cesses.

Condition Assessment

RAIL

Bullhead (BH) rail is present throughout the site on the Up Goods line and from the south end of the site, to approximately 111m 1600yds on the Down Goods line. From a visual inspection the bullhead rail is generally in a good condition. 113lb (CEN56) flat bottom (FB) rail has been utilised for the remaining part of the Down Goods line. From a visual inspection the flat-bottom rail is in fair condition with evidence of some side wear.



Figure 3: FB Rail with side wear (Left). Bullhead Rail (Right)

The majority of the rail is jointed with standard fishplates and appears to be dated from the 1950's/1960's. The rails at the joints generally appear to be in good condition, with little to no evidence of rail dipping. The joints themselves also appear to be in good condition, however significant variations in rail expansion gaps were identified. Some rail expansion gaps appeared completely closed (Noting that the temperature during the site visit was approximately 8°C). There are numerous welds present through the section of flat bottom rail which also appear to be in good condition. An insulated rail joint (IRJ) is located approximately 20 yards north of signal ML123 on the Down Goods line and also appears to be in good condition.

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Figure 4: Welded joint in FB rail



Figure 5: Fishplate joint in BH rail



Figure 6: Fishplate join in BH rail with closed rail expansion gap



Figure 7: Down Goods IRJ

FASTENING SYSTEM

The bullhead rail is fixed via a standard bullhead chair and rail key configuration and appears to be dated from the 1950's/1960's. Many of the rail keys are missing, broken or have been replaced with wooden blocks. Some chairs were also found to be broken. The flat bottom rail is fixed via elastic rail spikes and also appears to be dated from the 1950's/1960's. The number of rail spikes in baseplates varies from 0 to 3 either side of the rail. A large proportion of the spikes are loose and do not make contact with the foot of the rail.



Figure 8: Broken and missing rail keys (Left). Rail keys replaced by wooden blocks (Right)



Figure 9: Broken chair (Left). Elastic rail spike not in contact with foot of rail (Right)

SLEEPERS

The condition of the sleepers varies significantly throughout the site. A small proportion of the sleepers on the Up Goods line, particularly at the low chainage end of the site, appear to have been replaced recently. In contrast some sleepers are completely rotten, split or cracked. Sleeper lengths and sleeper spacing along the tracks is often irregular, many of the sleepers are also not positioned perpendicular to the rail.



Figure 10: New wooden sleepers



Figure 11: Sleepers with irregular lengths and spacing



Figure 12: Cracked sleeper

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Figure 13: Rotten Sleeper

BALLAST

Based on an assessment of the ballast that is visible from non-intrusive inspection, the condition of the ballast ranges from poor to good across the site. The condition of the ballast to the northernmost end of the site (High chainage) is particularly poor with significant sections of contaminated ballast. Towards the southernmost end of the site (Low chainage) the ballast appears to be well packed, and well graded. There are no obvious signs of wetbeds or pumping. There are no ballast shoulders, and it is unknown whether a geotextile is present beneath the ballast.



Figure 14: Contaminated ballast



Figure 15: Well packed, well graded ballast

Conclusion

The chosen site for the Bardon Road Bridge crossing is a section of straight, plain line twin track, with constant gradient, on embankment. No additional track assets, or specific track features, have been identified during the assessment which would have significant implications on the design of the proposed bridge options. However, despite the straightforward arrangement of the existing track layout, there are a number of factors to consider due to the condition of the track assets and existing alignment.

Proposed construction method - Track lift and embankment dig out:

- A number of the track components identified during the condition assessment are in poor condition. If the track is to be lifted, and reinstated, it is likely a large portion of the components will need to be replaced. Noting that much of the existing track utilises outdated componentry, some of which is either difficult to procure, or no longer permitted as part of a new design, it is highly likely that a localised track renewal will be required;
- If a track renewal is required, consultation with the NR track RAM will be required to determine the optimal extents of renewal. This may be an opportunity for the NR track RAM to propose further track maintenance works in addition to those required for the Bardon Road Bridge installation;
- The existing alignment has not been assessed as part of this study, as the condition assessment was a visual assessment only. Should the alignment be in poor condition, a new track alignment design will be required prior to reinstatement of the track. The tie in points of which could propagate some distance away from the proposed Bardon Road Bridge site, increasing the extents of renewal and/or tamping required;
- The current ballast depths and condition of the existing track formation are currently unknown. Consideration should be given to maintaining a uniform stiffness across the embankments and proposed structure. Sufficient ballast ramps will be required to facilitate the stiffness transition between old and new.

Proposed construction method - Track monitoring and jacked box:



- As mentioned above, a number of the track components identified during the condition assessment are in poor condition. If settlement were to occur during construction, there is a risk that additional components could fail leading to track faults.
- A ballast drop and tamp will be required post construction which may present an opportunity for the NR track RAM to propose additional track maintenance works, replacement of broken componentry etc.

Proposed construction method - Overbridge:

- There is no ballast shoulder on the existing track. Should an overbridge solution be proposed for Bardon Road Bridge it will be essential to maintain the clearance from the existing track to the proposed abutments. Consideration should be given to the proposal of a suitable ballast shoulder to mitigate the risk of any potential lateral shift of the track.
- Track monitoring may be required if any proposed foundations are to be built within the track support zone or zone of influence. As above, if settlement were to occur during construction, there is a risk that additional components could fail leading to track faults.

Appendix G

SIGNALLING AND TELECOMMUNICATIONS

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70074890- Bardon Road Bridge								
Signalling Commentary								
ELR:	KSL							
Route:	Knighton Jn to Leicester Jn							
Lines Affected:	Up and Down Goods Lines							
Control Area:	Bardon Hill SB							

The existing underbridge is situated on the Up and Down Goods lines at approx. 111miles 1661 Yards and lies within the Bardon Hill signalling control area. The proposed bridge over a proposed new road 'A511 Bardon Road' will be provided on the Up and Down Goods lines near to the existing underbridge.



Fig 1: - Bardon Hill Location Plan

The existing underbridge location mentioned in the above figure is assumed from route view to produce the report as it is not provided in the Bardon Hill location plan - NW860087A/B.



Fig 2: - Mantle Lane Location Plan



There are only two signalling assets in close proximity to the existing underbridge.

- 1) Signal ML123
- 2) Location Case LB111/6

as seen here from Route view.

Signals: -

On the Down Goods line, Signal ML123 with SPT (Signal Post Telephone) is positioned 71m beyond the bridge, 2.266m away from the track towards Leicester. Signal BH10 with SPT is positioned 301m in rear of the bridge.

On the Up Goods line, Signal BH2 is positioned 479m approx. beyond the existing bridge towards Knighton.

Location Case: -

On the Down Goods Line, there is only one old and rustic location case named as LB111/6 positioned 2m away from the track and 20 m in approach to the signal ML123.

Cables: -

The Location Area Plan shows that cable route is present on the Down Goods line side of the bridge. Cable routes are found almost 90% full around the signal and Location. Cable routes disappear after 7m down the banking in rear of the location and it is visible beyond the signal ML123. Lots of lids are found missing.



We are proposing to consider two options for the new bridge that is going to be constructed near to the existing under bridge.

Option 1: - Overbridge

As the signal ML123 is 71m beyond the existing bridge, there will be signal sighting disturbances for the signal ML123 on the Down goods line, if we propose to construct an overbridge 107m away from the signal ML123.

However, there will not be any signal sighting affects to the signal BH2 available on the Up Goods line, if we propose to construct an overbridge. This is because the signal BH2 is approx. 372m away from the proposed bridge where we are considering the minimum sighting required for a signal to be 160m (the nominal signal sighting distance of 8 seconds @ 45mph).

Option 2: - Underbridge

There will not be any signal sighting affects to the signals ML123 and BH2 available on the Down and Up Goods lines respectively, if we propose to construct an underbridge.

Conclusion: -

It is preferable to construct an Underbridge at the proposed location as there is no Signal Sighting effects on both the Goods lines.

By considering the site survey, the best place for the cables to disconnect and reconnect would be in the location LB111/6 on approach to the signal ML123, whilst the bridge is being constructed.

Network Rail have to decide and identify exactly where it is best to disconnect and reconnect the cables that will need to be temporarily or permanently cut or diverted, if necessary, whilst the bridge is being constructed. Such a decision may require the assistance of a competent signalling construction contractor.

References: -

5K02C/A3/01 - Bardon Hill Signalling Plan

NW860087A/B - Bardon Hill Location Plan

5 – Mantle Lane Location Plan

Mantle Lane Signalling Plan

London North Eastern Route Sectional Appendix Module LN4 LOR LN3525 Seq 003 Dated 28/10/2017.

Route view-https://routeview.visivi.com/nr-routeview/?mode=deepzoom&id=479796#m%7C-1.34972%2C52.71300%2C17
Appendix H

ECOLOGY

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Appendix I

NETWORK RAIL ADJACENT STRUCTURES INFORMATION

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Area	: East Midlands							BRS:	0				OS Re	f: SK4	3621333
Struc	ture Name: Bard	on Hill Culver	t No 4	4.				Туре	: E	BC		1	Exam	D: 11	102461
Rout	e: KNIGHTON SO	UTH JN - LEI	CEST	ER JN	(BURTO	N)							Compl	ete Ex	am: No
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ITEM	DES	CRIPTION	<u> </u>	LC	CATIC	N	Est. Cos £ +/· 20%	t	Within	Quantity	Severity	Probability	Risk Score		Works Category
1	Remove small iter barrel of the culve in the downside w build-up of 1m squ debris,including tre approximately 7m downsideoutlet po the watercourse. UD REF - LNECP	ns of debris in rt, general rubt atercourse and lared of ee branches, from the tentially blockin 5Y5/UD/0210	the bish I a ng	Barrel Downs	and side		1.00	6n	nths	1 u	nit 2	4	M8	Oth	ier
2	2 Advise Track Engineer of ballast loss around and below area sleepers followed with any necessary remedial works required		Downs	side cess	;	1.00	Im	med	2 n	n2 3	3	S9	Oth	er	
3	Clear vegetation (culvert from each any problems with depression in cess UDR no; LNECP5	20m2) and viev end to determin pipe due to s Y6/UD/0113 ap	w ne if oplies	Both h	eadwalls	5	1.00	Im	med	1 u	nit 3	3	M9	Veç	getation
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3	Open joints to concrete pipes	Barrel from unde Downside line to Upside headwal	er 1 D	0/12/14	Y	D	Y	8		Y	Baseline	N		Y	New defect
3	Open joints to concrete pipes	Barrel from unde Downside line to Upside headwal	er 1 D	1/08/15	N	V	NV	8		Y	NV	N		Y	Unable to see at visual exam, Not included in scope.
3	Open joints to concrete pipes	Barrel from unde Downside line to Upside headwal	er O D	5/10/16	Y	V	N	4		N	Cannot Determin e	N		Y	Review at next DE.
3	Open joints to concrete pipes	Barrel from unde Downside line to Upside headwal	er 1 D	3/10/17	N	V	NV	4		N	NV	N/A		Y	Not viewed
3	Open joints to concrete pipes	Barrel from unde Downside line to Upside headwal	er 0 D I	6/07/18	N	V	N	4		N	Cannot Determin e	N		Y	Unlikely to have been actioned
3	Open joints to concrete pipes	Barrel from unde Downside line to Upside headwal	er O D I	5/07/19	N	V	N	4		N	NV	N		Y	Last V E shows no problems at joints Risk score<5
5	Small items of debris in the barrel of the culvert, general rubbish in the downside watercourse and a build-up of 1m squared of debris, including tree branches, approximately 7m from the downside outl	Barrel and Downside watercourse	0	6/07/18	Y	P.A.N	Y	8		Y	Baseline	N		Ν	UD REF - LNECP5Y5/UD/0210





CULVERT VISUAL

EL	R: KSL	Contract	Mileage	: 11	1 <i>m</i>	161	2 yds	5 73.2	27 ch	Struc	c. Ref	39C
Histo	ory of Live Signifie	cant Defects										
No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - ioration	Repaired	Flagged for Closure	Engineer Comments
5	Small items of debris in the barrel of the culvert, general rubbish in the downside watercourse and a build-up of 1m squared of debris, including tree branches, approximately 7m from the downside outl	Barrel and Downside watercourse	05/07/19	N	V	Y	8	Y	NV	N	N	Not seen at VE
6	Ballast loss.	Downside cess.	05/07/19	Y	P.A.N	Y	9	N	Baseline	N	N	Repair as necessary.
6	Ballast loss.	Downside cess.	05/07/19	Y	V	Y	9	N	N/A	N/A	N	PAN reported during this examination - defect score not changed.
7	PNE due to vegetation	Both headwalls	05/07/19	N	V	Y	6	Y	Baseline	N	N	PNE
Eng	ineers Notes											
Sig For Er	Signed Name Stephen Cook Date 16-Dec-2019											





CULVERT VISUAL

ELR: KSL	Contract Mileage: 111 m 1612 yds 73.27 ch Struc	.Ref :	39C
Struc Type BC	NR ID 8805612 Rpt ID193100 OS Ref SK43621333	Exam ID	11102461
Dimensions	Diameter 0.90m Length 32.00m Cover 8.00m	Exam Date	05/07/19
Material	Brick and concrete headwalls with concrete pipe barrel.	Last Detailed	10/12/14
		Last Visual	06/07/18
Line	KNIGHTON SOUTH JN - LEICESTER JN (BURTON)		
Name:	Bardon Hill Culvert No 4.		

The examiner should record any deterioration in condition or development of defects or other factors, which might place at risk the rail traffic, customers, staff or the public at large. Special reference should be made to those structures or parts of structures whose condition may require action before the next examination.

EXAMINER COMMENTS

Urgent Defect(s) present on this Structure.

I confirm that the previous detailed and visual reports have been reviewed and the dates of said report are given in this report.

The last Detailed Examination was complete.

Has all the structure been viewed? No (if no, see report for details)

unsafe access to both headwalls due to very steep embankments with loose ballast and bank soil and vegetation making access hazardous no signs of failure at track level

Has the structure been viewed under load? No

EXAMINERS NAME Matt Slater DATE 28-Oct-2019

SIGNED

etso.

Network Rail			NETW	ORK RAI	L				
			CULVE	RT VISU	JAL			aney	
ELR: KSL	Contract	Mileage:	111 <i>m</i>	1612 <i>yd</i> s	73.27	ch	Struc. Ref	39C	
Name Of Par	t	Status	Elements	not Include	d and re	ason:			
Main Girders	N/A		1						
Cross Girders	N/A								
Rail Bearers	N/A								
Deck	N/A								
Rivets & Bolts	N/A								
Arch Ring	Not	Examined							
Spandrels	Not	Examined							
Abutments	N/A								
Piers	N/A								
Wing & Retaining Walls	N/A								
Pointing	Not	Examined							
Parapets & Pilasters	N/A								
Columns & Cylinders	N/A								
Trestles & Crossheads	N/A		_						
Bearings	N/A		-						
Ballast Plates/Boards	N/A		_						
Longitudinal Timbers	N/A		-						
Waterproofing	Not	Included	-						
Drainage	N/A		-						
Gutters & Downpipes	N/A								
Handrails	Not	Examined							
Painting	N/A								
Track & Road Condition	Exa	mined							
Revetment Walls	N/A								
Visibility of Signs	Exa	mined	_						
Number Plate	Exa	mined							
			_						
			-						
			-						
Vegetation	Yes		_						
Debris	No		-						
Rubbish	No		-						
Record of Observatio	ons Under I	_oad							
Load Type	Deck	General	Area Obse	erved	Result	Of Obse	ervation	Date & Time	
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Network Rail								
			PT V	ICII	A I			amey
FIR: KSI	Contract Mileage:		1612	vds	73 27	ch	Struc. Ref	390
				,				
	LINIS							
None								
NEW DEFECT(S) - S None	TRUCTURAL ELEME	ENT(S)						
NEW DEFECT(S) - N	1ISCELLANEOUS ELF	EMENT(S)						
Element: B1 Element: Other (balla Condition: Defect Location: Whole (Cer Location Comment: b See new misc. eleme	st loss) (LNECP5Y6/L htre Downside) pallast loss over structu ent photo: 5	JD/0113) ure betwee	en sleep	ers 2r	n3 app	rox are	eas	
PREVIOUSLY RECO DEFECT NUMBER 3 Defect Location: Barr Defect Description: C Dimensions Not Prov Jrgent: No Status: Unable to vie See Existing (Open) 3	RDED SIGNIFICANT Coriginally identified a el from under Downsid pen joints to concrete ided W Significant Defect Pho	(OPEN) E at a Visual de line to U pipes to: 6	EFECT Examin Jpside h	(S) ation (eadw	on 06/C all	07/18		
PREVIOUS RECOMI None	MENDATION(S)							
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Date Tabs	No							
Yumb Points	No							
	No							
Avongards								
Nvongards	ors Present: No							
Avongards Environmental Facto Item number	ors Present: No Description				Lc	ocation	n	





39C

CULVERT VISUAL

ELR: KSL

Contract Mileage:

111 m 1612 yds 73.27 ch

Struc. Ref



Photo 1: Downside Elevation (05/07/19)



Photo 2: Upside Elevation (05/07/19)





39C

CULVERT VISUAL

ELR: KSL

Contract Mileage:

111 m 1612 yds 73.27 ch

Struc

Struc. Ref



Photo 3: track shot towards low mileage (05/07/19)



Photo 4: track shot towards high mileage (05/07/19)





39C

CULVERT VISUAL

ELR: KSL

Contract Mileage:

111 m 1612 yds 73.27 ch

Struc. Ref



Photo 5: New Miscellaneous Element (05/07/19)



Photo 6: (05/07/19)

ELR: KSL Contract Mileage: 111 m 1612 yds Examination Type: Culvert Detailed NR ID:	ds 73.27 8805612	chs	twork Rail NETWORK RAIL Culvert Detailed Examination Report B: KSI Contract Mileage: 111 m 1612 vds 73 27 cbs Struc. Be											
Examination Type: Culvert Detailed NR ID:	8805612													
	2 E	Exam Date	e: 1	0-Dec-2014										
Area: East Midlands BRS:														
Structure Name: Bardon Hill Culvert No 4. Typ	pe: BC	2	Exa	m ID	6015484									
Route: KNIGHTON SOUTH JN - LEICESTER JN Complete Examination: Yes (BURTON)														
Section A: To Be Completed By The Examining Or	rganisa	tion												
HIDDEN PARTS NOT EXAMINED (EXCLUDING FOUNDATIONS)														
DESCRIPTION LOCATION Est. LOCATION £ +/- 20%	Probability	Risk Score	Works Category											
1 Install safety handrails Both headwalls 1250.00 1y	yr 6 m	5	2	E10 F	Fencing Repair/Renewal									
2 Make good open joints between concrete pipes with epoxy resin injected into voids Downside line to Upside headwall	yrs 8 uni	it 2	4	E8 Culvert Repairs										
History of Live Significant Defects														
No Description Location Exam Access Exam Rec Risk Date Gained Type Raised Score	Access D Req'd io	Deter - oration	Repaired	Flagged for Closure	d Engineer Comments e									
1 Lack of protection Above both 01/12/11 Y V Y 5 fencing or safety handrailing	N E	Baseline	N	N	previously reported									
1 Lack of protection fencing or safety handrailing Above both headwalls 18/12/12 Y V Y 5	Ν	Ν	N	Ν										
1 Lack of protection fencing or safety handrailing Above both 09/10/13 Y V Y 5	Ν	Ν	N	Ν	•									
1 Lack of protection fencing or safety handrailing Above both 10/12/14 Y D Y 10	N	Ν	N	N	No change Risk increased									
2 Part not examined (potentially unseen defect) Barrel (under track) 01/12/11 N V NV 4	Y E	Baseline	N/A	Y	concrete pipe, 9m cover									
2 Part not examined (potentially unseen defect) Barrel (under track) 18/12/12 N V N 4	Y	Ν	N	Y	Low risk due to 9m cover. Dia=0.90,cover=9m,len gth=25m, last DE 2009									
2 Part not examined (potentially unseen defect) Barrel (under track) 09/10/13 N V N 4	Y	Ν	N	Y	Low risk due to 9m cover. Dia=0.90,cover=9m,len gth=25m, last DE 2009									
2 Part not examined (potentially unseen defect) Barrel (under track) 10/12/14 Y D N 4	N/A	N/A	N/A	Y	Viewed at exam Defect closed									
3 Open joints to concrete pipes Barrel from under Downside line to Upside headwall V D Y 8	Y E	Baseline	N	N	New defect									
Engineers Notes														
Signed For Employer Name Stephen Cook	Signed Name Stephen Cook Date 14-Oct-2015													

Network Rail				
	Culvert D	etailed Examina	tion Report	amey
ELR: KSL	Contract Mileage:	111 m 1612 yds	73.27 chs Struc. R	ef 39C
Version 3.4 29-11-12				



Network Rai	1		NET	WC	RKF	AIL				111111
Network Rul										
										amey
	Cul	vert D	etail	ed	Exar	nina	ation	Repo	ort	
ELR: KSL	Contract N	lileage:	111	m	1612	yds	73.27	chs	Struc. Re	f 39C
Name of Part		N/E = Not Exam Applicable	nined				N/A = Not		•	
Main Girders	-	i		_						
Cross Girders	-	Exami	ner's (Gene	eral Co	mme	nts			
Rail Bearers	-	Brick b	arrel o	ulve	rt lined	with o	concrete	e pipes	, with a bric	k headwall to
- Floor	-	the ups	side ar	nd co	ncrete	head	wall to t	he dow	nside.	
Rivets & Bolts	-	The str	ucture	e was	s exam	ined c	over two	differe	ent dates, by	/ two
Arch Ring / Barrel	Fair	Dotor V	1t exai Mright	nine The	rs, the	neau	valis we	ere exa	mined on 10	U.12.14 Dy
Spandrels / Headwalls	Fair	space	proced	dure	bv Jak	e Kim	ber on '	13.10.1	5. barrel ex	amined
Abutments	-	under	orch li	ight,	hand to	ools w	ere use	ed in the	e examinati	ons.
Piers	-									
Wing & retaining Walls	-									
Pointing	Fair	I he str	ucture	e cari	ies the	up a	nd dowr	n goods	s lines betw	een
Parapets & Pilasters		Leices	terand	a Bur	ton on	Trent				
Columns & Cylinders		Overal	I the s	tructi	ure is i	n aene	erally fa	ir cond	ition.	
Redetones & Cills						goin	orany ra			
Bearings										
Ballast Plates/Boards	-									
Longitudinal Timbers	-	Has al	l the s	truct	ire hee	n vie	wed?			Yes
Waterproofing	N/E	1105 01		liuot			wea:			100
Drainage	-									
Gutters & Downpipes	-									
Handrails	-									
Painting	-	1								
Track & Road Condition	Fair	4								
Revetment Walls	-	-								
Vegetation	NO									
Visibility of Signs	-	Has th	e stru	cture	been	viewe	d under	live loa	ad?	No
Rubbish	NO		0 00 00	Juio	00011	10110		1100 100		
Number	Fair	No tra	ins pa	ssed	over a	t the t	time of t	the exa	m	
Watercourses	Good	1								
-	-									
-	-									
Insert 'X' for		1								
Change of Construction		1								
Closed Line								P	What	
C.W.R.							SIGNEL		\sim	
Rail Joints	х							_		
25T Axle/Abnormal Rd Loads					EXAMI	NER	5 NAME		Peter Wr	ight
Weight Restriction Plates										
							DATE	E	13-Oct-2	015
Inaccessible Parts										
Inaccessible Parts Tell Tales/Avonguards										

Network Rail		NETWO	ORK RAIL							
						amey				
	Culvert D	etailed	Examina	ation Rep	ort					
ELR: KSL	Contract Mileage:	111 <i>m</i>	1612 yds	73.27 chs	Struc. Ref	39C				
1, Install safety handr	ailsAbove both hea	us year's re idwallNo	work has be	structure en actioned						
History of Live Significant Defects 1, Lack of protection fencing or safety handrailingAbove both headwalls No change 2, Part not examined (potentially unseen defect)Barrel (under tracks)Barrel was entered and examined at this exam.										
I confirm that the prev report are given in this	I confirm that the previous detail and visual examination reports have been reviewed and the dates of the said report are given in this report.									
Last detail was incom	plete, Barrel only view	wed throug	h from each o	end						
Dimensions										
Length, 32.5m Diameter, 900mm Headwalls, (see sketc Rail Edge, to upside h Rail edge, to downsid Cover, estimated at 8	ch 3) headwall 13.5m e headwall 14m m									
ARCH RING / BARRE Barrel; Piped through with co see sketch 2 Arch Rings; Only the crown of the	EL ncrete sectional pipes upside face rings can	s, 8no pipes be seen, s	s do not butt pall and ope	up with each o n joints, overa	other, overall i all in fair condi	n fair condition tion see sketch 3				
SPANDRELS / HEAD Upside Headwall; Brick and sandbag co condition see sketch 3 Downside Headwall, Concrete construction	WALLS nstruction, horizontal 3 n, horizontal fracture, s	and vertica	l joint fractur I in fair condi	es, spall and o tion see sketc	open joints ov h 3	erall in fair				
POINTING; Open joints to upside	headwall and face rin	gs, overall	in fair conditi	on see sketch	n 3,					
WATERPROOFING; Inaccessible therefore	e was not examined.									
HANDRAILS There are no safety h	andrails fitted to eithe	r headwall								
TRACK / ROAD CON Both lines are jointed splits upto 25-30mm b	DITION rail on timber sleepers ooth o/s NFD P19	s; there are	2no sleeper	s on the upsic	le above the s	structure with				
VEGETATION Vegetation has been	cleared by a contracto	or prior to th	ie exam							
NUMBER There is a culvert mar headwall	ker post in the upside	cess P20,	no ELR or st	tructure numb	er was found	on either				
WATERCOURSES Both watercourses we the upside	ere clear and free runr	ning, upsid	e P21, down	side P22, wat	er flows from	the downside to				

Network Rail	rt	amey				
ELR: KSL	Contract Mile	age: 111	m 1612 yds	73.27 chs	Struc. Ref	39C
DESCRIPTION & MAT used .for each end of the Brick and concrete hea DIMENSIONS	FERIAL (W. Culvert) adwalls with cor	here the details	are significantly	different a separa	ite form and diagra	am may be
	Α	В	С	D	E	F
End Of Culvert	+/- 1m	+/- 100mm	+/- 100mm	+/- 100mm	+/- 100mm	+/- 10mm
UP Side	13.500m	8.000m	900mm	900mm	1500mm	75mm
DOWN Side	14.000m	8.000m	900mm	900mm	1350mm	75mm
				B F F	D	+
Can detailed exam be	• undertaken ir	1 due year?	Yes			
Watercourse functional	10					
Approach ditch function	1? 		Ves	+		
Denth of water			140 mm			
Depth of silt			0 mm			
Length of Culvert	32 m	+				
Lack of airflow?				<u> </u>		
Biological/toxic hazard			i res			
	/fumes?		No	+		
Confined spaces	/fumes?		No Yes	+		
Services in culvert?	/fumes?		No Yes No			

Netv	vork Rail		NETWO	RK RAIL		amey				
ELR:	KSL	Culvert D Contract Mileage:	111 m	Examina 1612 yds	T3.27 chs	Struc. Ref	39C			
	<u>General</u> Dia. – Diame G.L – Grouw M.H – Manh	ter d Level ole	<u>K</u> Col – C No. – N O/S – C	EY Solumn Jumber Dld Standing						
	N.F.D – No I WL – Water <u>Masonry a</u> H – Hollow H/L – Hairli L.T.H – Loc	Further Deterioration Level and Concrete ine base to Hammer	S.S.D -	- Shows Slight D w / Worsened Frac lect fracture width) Standing Fracture wet fracture width	ture (line thickness (Red Line) – NFD (line thickr (Blug Ling)	s to ness to				
	O.J – Open DT – Date 7 Sp. – Spall Fractures V.F – Vertic V.S.F – Ver B.J.F – Bed D.F – Diago D.S.F – Dia HF – Horizo X≪mm – d <i>indicates din</i>	Joints Fab Cal Fracture tical Stepped Fracture Joint Fracture onal Fracture gonal Stepped Fracture ontal Fracture isplaced by $>$ mm. (+/- vection of displacement)	 Spalling / Missing Brickwork (Light Grey) Open Joints (Yellow) Bulging / Out of Plumb / Displacement (Brown) Indications of wetness (Light Blue) H Hollow / Drummv (Black outline of area with "H") Date Tab / Avonguard (must also show installation date & reading) (Black) 							
	<u>Metal</u> MG – Main XG – Cross BF – Botton TF – Top Fl CI – Cast Ira WI – Wroug Corr – Corra Lam – Lami LOS – Loss KE – Knife	Girder Girder n Flange ange on ght Iron osion nation of Section Edge	Cor Frac	rosion / Laminatio stures / Tears / Crac is of Section / Buck	n (Light Orange) cked Welds (Red Li cling (Red)	ine)				

Version 1.1 April 2008

tv	vork R	Culve	NET rt Detail	wori ed Ex	k RAIL	ation	Repo	ort	amey
R:	KSL	Contract Milea	ge: 111	<i>m</i> 1	612 yds	73.27	chs	Struc. Ref	39C
			<u>K</u> :	SL Culver	<u>t 39C</u>				
		_	Record of obs	ervatio ns	under mo	ving load	_		
		Note: The general of mean that all defects	bservation und have been iden	er moving tified as a	load of part result of tha	of a struct at observati	ure does ion.	not necessarily	
		Load type	Genera	ll area obs	erved	_Result	of observ	r <u>atio</u> n	
		NO TRAINS PA	ssed over the	cuivert at	the time of	tne exam	in ation		
		Rev 0, 17 May 2011	For exa Low mil Span 1 Span 2 Topside Upside Etc.	mple: eage bear downside arch soffit , general waybeam	ings rail bearers fixings	For exa Pumpin Excessi Fractur No defe Loose ho Etc.	umple: g at bear ive deflec es openir cts obsev olding-do	ings tion g 1mm ed wn bolts	













Photo 4 View into barrel from downside headwall 10.12.2014



Photo 6 View over culvert towards high mileage 10.12.2014







Photo 10 Separation to concrete sections at 15m 13.10.15



Photo 11 Separation to concrete sections at 17.5m 13.10.15



Photo 12 Separation to concrete sections at 20m 13.10.15











etwork Rai			NETWORK RAIL											amev			
BRIDGE VISUAL																	
LR: KSL	Contra	fileage: 111 m 1667 yds 75.77 ch Struc.									ic. Re	ef 40					
Examination Type: Bridge Visual NR ID: 8805613 Exam Date:														ite:	5-Jul-2019		
Area: East Midlands BRS: 0 OS Ref: 5														SK4	3K43551337		
Structure Name: Coalville Footpath Type: BU Exam I												am ID:	5 11102493				
Route: KNIGHTON SOUTH JN - LEICESTER JN (BURTON)																	
HIDDEN PARTS NOT EXAMINED Part Part																	
(EXCLUDING FOUNDATIONS)																	
			LOCATION			Est. Cos £ +/· 20%	Priority	Within	Quantity Severity		Drohahilitu		Risk Score		Works Category		
Replace decayed retention board	timber ballast		High I Down	Mileage side		500.00	1y	٢	2 r	m 2	3		S6	Oth	Other		
History of Live Significant Defects																	
Description	Location	E D	xam ate	Access Gained	Exam Type	Rec Raised	Risk Score	Ac Re	cess q'd	Deter - ioration	Repa	ired	Flagged Engineer Com for Closure		Engineer Comments		
Decayed timberHigh Mileageballast retentionDownside end ofboard 2m longbridge trackside		f 0	05/07/19 Y V		Y	6		N Baseline		N	N		1	Replace			
Engineers Notes																	
Signed For Employer Phil Pearson Date 8-Oct-2019																	
	etwork Rai	LR: KSL Contraining to the constraint of the constraint	LR: KSL Contract II nination Type: Bridge Visual	LR: KSL Contract Mileage nination Type: Bridge Visual : :: East Midlands : cture Name: Coalville Footpath : te: KNIGHTON SOUTH JN - LEICESTER JN tion A: To Be Completed By The E DDEN PARTS NOT EXAMINED DESCRIPTION LC DESCRIPTION LC Replace decayed timber ballast retention board High I Decayed timber ballast retention board Downside end of bridge trackside pates Downside and of bridge trackside D5/07/19 pates Notes	etwork Rail LR: KSL Contract Mileage: 1 nination Type: Bridge Visual : :: East Midlands : cture Name: Coalville Footpath : te: KNIGHTON SOUTH JN - LEICESTER JN (BURTO tion A: To Be Completed By The Examini DEN PARTS NOT EXAMINED DEN PARTS NOT EXAMINED DEN PARTS NOT EXAMINED DESCRIPTION LOCATIC Replace decayed timber ballast Pride Significant Defects Description Location Decayed timber balast retention Downside end of bord 2m Obrige trackside mineers Notes	NET BRIE LR: KSL Contract Mileage: 111 n Initiation Type: Bridge Visual East Midlands Contract Mileage: 111 n Initiation Type: Bridge Visual East Midlands Contract Mileage: 111 n Initiation Type: Bridge Visual East Midlands Colspan="2">Contract Mileage: 111 n Initiation Type: Bridge Visual East Midlands Colspan="2">Colspan="2">Initiation Type: Bridge Visual Initiation Type: Bridge Visual Initiation Type: Bridge Visual DECOUNDATIONS) Part DESCRIPTION LOCATION Replace decayed timber ballast Part Decayed timber ballast Decayed timber Downside of 5/07/19 Downside not of barder for part Downside not of barder for part Downside not of barder for part Downside not of barder for part	Image: State of the system	Image: State Stat	Image: State of the state	Image: State of the state	NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1667 yds 75.77 ch nination Type: Bridge Visual INR ID: 8805613 BRS: 0 Interview cture Name: Coalville Footpath Type: BU Interview Interview DDEN PARTS NOT EXAMINED: Part Interview Interview Interview DESCRIPTION LOCATION Est. Cost / 20% Interview Intege Interview Intege sty of Live Significant Defects Description Location Estam Recease Score Req'd foreation Intege Jatest retention Downside Intege trackside Intege trackside Integer Integer Integer Inteers Notes </td <td>NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1667 yds 75.77 ch 3 nination Type: Bridge Visual INR ID: 8805613 Innation Innation Type: Bridge Visual INR ID: 8805613 :: East Midlands BRS: 0 </td> <td>NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1667 yds 75.77 ch Srr nination Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation A: Coalville Footpath Type: BU Ex Den Parts Coalville Footpath In: Ex ID: Ex ID: Ex Description LOCATION Ext: ID: Ex ID: Ex ID: Ex ID: Ex Perface decayed timber ballast High Mileage 500.00 1yr 2 m 2 m 3 yor ULVE Significant Defects ID: Exercitation Exam Exercitation Researd Score Regit for antion No Dearge part of the Significant Defects ID: Exercitation Exercitation ID: Exercitation<td>NETWORK RAIL BIRIDGE VISUAL LX: K.KSL Contract Mileage: 11 n 1 for 1667 yds 75.77 ch Struc. Re Initiation Type: Bridge Visual BRS: 0 05 Rd: I: Cash Milanda BRS: 0 05 Rd: I: Cash Mile Footpath Type: BU Exam DE I: Cash Mile Footpath Description Control (BURTON) Control</td><td>NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1657 yds 75.77 ch Struc. Ref nination Type: Bridge Visual NR ID: 8805613 Exam Date: :: East Midlands BRS: 0 OS Ref: SK4 :: Completed By The Examining Organisation OS Ref: SK4 DDEN PARTS NOT EXAMINED Part Reason :: Completed By The Examining Organisation DEN PARTS NOT EXAMINED Part DESCRIPTION LOCATION Strip 20% Yig Yig Yig Yig Yig Replace decayed imber bailast High Mileage 500.00 1yr 2 3 S6 Ort Description Location Exam Access Exam Ref Ref Ref Ref Ref Ref Ref Ref N N N N Description Location Exam Access Exam Ref Ref Rake Ref or all Soft Ref Ref Ref Ref Ref Ref or all Soft Ref Ref Ref Ref Ref Ref</td></td>	NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1667 yds 75.77 ch 3 nination Type: Bridge Visual INR ID: 8805613 Innation Innation Type: Bridge Visual INR ID: 8805613 :: East Midlands BRS: 0	NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1667 yds 75.77 ch Srr nination Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation Type: Bridge Visual IR: ID: 8805613 Ex Srr citation A: Coalville Footpath Type: BU Ex Den Parts Coalville Footpath In: Ex ID: Ex ID: Ex Description LOCATION Ext: ID: Ex ID: Ex ID: Ex ID: Ex Perface decayed timber ballast High Mileage 500.00 1yr 2 m 2 m 3 yor ULVE Significant Defects ID: Exercitation Exam Exercitation Researd Score Regit for antion No Dearge part of the Significant Defects ID: Exercitation Exercitation ID: Exercitation <td>NETWORK RAIL BIRIDGE VISUAL LX: K.KSL Contract Mileage: 11 n 1 for 1667 yds 75.77 ch Struc. Re Initiation Type: Bridge Visual BRS: 0 05 Rd: I: Cash Milanda BRS: 0 05 Rd: I: Cash Mile Footpath Type: BU Exam DE I: Cash Mile Footpath Description Control (BURTON) Control</td> <td>NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1657 yds 75.77 ch Struc. Ref nination Type: Bridge Visual NR ID: 8805613 Exam Date: :: East Midlands BRS: 0 OS Ref: SK4 :: Completed By The Examining Organisation OS Ref: SK4 DDEN PARTS NOT EXAMINED Part Reason :: Completed By The Examining Organisation DEN PARTS NOT EXAMINED Part DESCRIPTION LOCATION Strip 20% Yig Yig Yig Yig Yig Replace decayed imber bailast High Mileage 500.00 1yr 2 3 S6 Ort Description Location Exam Access Exam Ref Ref Ref Ref Ref Ref Ref Ref N N N N Description Location Exam Access Exam Ref Ref Rake Ref or all Soft Ref Ref Ref Ref Ref Ref or all Soft Ref Ref Ref Ref Ref Ref</td>	NETWORK RAIL BIRIDGE VISUAL LX: K.KSL Contract Mileage: 11 n 1 for 1667 yds 75.77 ch Struc. Re Initiation Type: Bridge Visual BRS: 0 05 Rd: I: Cash Milanda BRS: 0 05 Rd: I: Cash Mile Footpath Type: BU Exam DE I: Cash Mile Footpath Description Control (BURTON) Control	NETWORK RAIL BRIDGE VISUAL LR: KSL Contract Mileage: 111 m 1657 yds 75.77 ch Struc. Ref nination Type: Bridge Visual NR ID: 8805613 Exam Date: :: East Midlands BRS: 0 OS Ref: SK4 :: Completed By The Examining Organisation OS Ref: SK4 DDEN PARTS NOT EXAMINED Part Reason :: Completed By The Examining Organisation DEN PARTS NOT EXAMINED Part DESCRIPTION LOCATION Strip 20% Yig Yig Yig Yig Yig Replace decayed imber bailast High Mileage 500.00 1yr 2 3 S6 Ort Description Location Exam Access Exam Ref Ref Ref Ref Ref Ref Ref Ref N N N N Description Location Exam Access Exam Ref Ref Rake Ref or all Soft Ref Ref Ref Ref Ref Ref or all Soft Ref Ref Ref Ref Ref Ref		







The examiner should record any deterioration in condition or development of defects or other factors, which might place at risk the rail traffic, customers, staff or the public at large. Special reference should be made to those structures or parts of structures whose condition may require action before the next examination.

EXAMINER COMMENTS

Defect(s) present on this Structure.

I confirm that the previous detailed and visual reports have been reviewed and the dates of said report are given in this report.

The last Detailed Examination was complete.

Has all the structure been viewed? Yes (if no, see report for details)

Has the structure been viewed under load? No

EXAMINERS NAME Matt Slater

DATE 10-Sep-2019

SIGNED



ame
Network Rail			NE	TW						
			BRI	DG	E VI	SUA	L			uney
ELR: KSL	Contrac	t Mileage:	111	m	1667	yds	75.77	ch	Struc. Rei	f 40
Name Of Part	Stat	us	Elem	ents	not Ind	luded	and re	ason:		
Main Girders	N/A									
Cross Girders	N/A									
Rail Bearers	N/A									
Deck	N/A									
Rivets & Bolts	Examined									
Arch Ring	Examined									
Spandrels	Examined									
Abutments	Examined									
Piers	N/A									
Wing & Retaining Walls	Examined									
Pointing	Examined									
Parapets & Pilasters	Examined									
Columns & Cylinders	N/A									
Redetence & Cills	N/A									
Bearings	N/A									
Ballast Plates/Boards	Examined									
Longitudinal Timbers	N/A									
Waterproofing	Not Included									
Drainage	N/A									
Gutters & Downpipes	N/A									
Handrails	Examined									
Painting	Examined									
Track & Road Condition	Examined									
Revetment Walls	N/A									
Visibility of Signs	Examined									
Number Plate	Examined									
Vegetation	Vac									
Debris	No									
Bubbish	No									
	NO									
Pacard of Obsarvat	ione Undor	Load								
		LUau	_		_				_	
Load Type	Deck	General	Area O	bser	ved	F	Result	Of Obs	ervation	Date & Time
Load Type	Deck	General	Area O	bser	ved	F	Result (Of Obs	ervation	Date & Time

Network Rail		NETW	ORK RAIL	-									
		BRIDG		L.		amey							
ELR: KSL	Contract Mileage:	111 <i>m</i>	1667 yds	75.77 ch	Struc. Re	ef 40							
ADDITIONAL COMME	ENTS												
None													
NEW DEFECT(S) - STRUCTURAL ELEMENT(S) None													
NEW DEFECT(S) - MISCELLANEOUS ELEMENT(S)													
Element: B1 Element: Other (ballast boards) Condition: Defect Location: Whole (High Mileage Downside) Location Comment: rotten ballast retention board 2m length See new misc. element photo: 5													
PREVIOUSLY RECON													
PREVIOUS RECOMM None	IENDATION(S)												
Monitoring Devices P	Present (if Yes - see	Additional	Comments	for advice)									
Date Tabs	No												
Plumb Points	No												
Avongards	No												
Environmental Facto	rs Present: No												
ltem number	Description			Location									
0													







Photo 5: New Miscellaneous Element (05/07/19)



Bridge Detailed Examination Report



	I R: KSI Contract Mileage: 111m 1667vds 75 77cbs Struc Pef: 40															
ELR	KSL	Contract M	lileage: 111r	n 1667y	/ds 75	.77chs						Struc. F	Ref: 40			
Exar	nination Type: Br	idge Detailed					NR ID:	8805	5613	3	E	Exam Dat	e: 4-Dec-2017			
Area	: East Midlands						BRS: ()			C	DS Ref:	SK43551337			
Strue	cture Name: Coal	ville Footpath					Туре:	BU	J		Exam ID: 9002257					
Rout	e: KNIGHTON SC	OUTH JN - LEIC	ESTER JN	(BURTO	N)						C	Complete	Exam: Yes			
Sec	tion A: To Be	Completed	By The Ex	kamini	ng Oi	rganis	ation									
HI (I	DDEN PARTS NOT EXCLUDING FOUN	EXAMINED DATIONS)		Reason												
ITEM	DES	CRIPTION	LC	LOCATION £ +/- 20%			% [™] [™] . Priority Within		Quantity	Severity	Probability	Risk Score	Works Category			
1	1 NO ACTION															
Histo	History of Live Significant Defects															
No	Description	Location	Deter - ioration	Repaire	ed Flagge for Closu	ed Engineer Comments re										
2	Widespread graffiti.	Abutments.	09/10/13	Y	V	N	4	N		Baseline	N	N	•			
2	Widespread graffiti.	Abutments.	03/07/14	03/07/14 Y V		Y	5	N		N	N	N	Location amended to abutments as none to arch/barrel. Risk increased to 5			
2	Widespread graffiti.	Abutments.	11/08/15	Y	V	Y	5	N	1	N	N	N	Clean/paint			
2	Widespread graffiti.	Abutments.	26/09/16	26/09/16 Y V		Y	5	N	I	N	N	N	Not removed yet			
2	Widespread graffiti.	Abutments.	14/08/17	Y	V	N	4	N		N	N	N	Not offensive and not to trackside areas. Risk amended.			
2	Widespread graffiti.	Abutments.	04/12/17	Y	D	Ν	4	N	I	N	N	N	No change.			
Eng	ineers Notes															
Non	е															
Sig	ned Reference	Suberefere	le	Name	F	Richard	d Gree	nsla	de	Dat	te 4-	Jan-201	8			



Bridge Detailed Examination Report



ELR: KSL	Contract Mileage: 111m 1667yds 75.77cl	hs		Struc. Ref: 40)							
Struc Type BU	NR ID 8805613 Rpt ID 11021	IR ID 8805613 Rpt ID 11021 OS Ref SK43551337										
Dimensions	Height 4.00m Length 18.87m Span 3.37m	s: 1	Exam Date	04/12/17								
Primary Material	RBE - Cast in-situ reinforced Concrete	RBE - Cast in-situ reinforced Concrete										
Secondary Material	Not applicable			Last Visual	14/8/2017							
Structure Carries	Rail	Over	Land									
Line	KNIGHTON SOUTH JN - LEICESTER JN (E	KNIGHTON SOUTH JN - LEICESTER JN (BURTON)										
Name:	Coalville Footpath	palville Footpath										

Photo 1 : Elevation Photograph



Map Extract



Network Rail	E	NETWORK RAIL Bridge Detailed Examinatio	n Report	amey
ELR: KSL	Contract Milea	ge: 111m 1667yds 75.77chs	St	ruc. Ref: 40
EXAMINER COMMEN	NTS			
Defect(s) present on t	his Structure.			
I confirm that the prev Previous Examination	ious detailed and : Visual Examina	d visual reports have been reviewed a ation on 14/08/17	nd the dates of said rep	ort are given in this report.
Tools used: No T3 Possession: No Line Blockage: No Road Closure: No Machine Used: No				
Notes:				
The last Detailed Exar	mination was co	nplete.		
Has all the structure b	een examined?	Yes (if no, see report for details)		
Has the structure beer	n viewed under l	oad? No		
nothing passed over a	it the time of exa	m		
EXAI	MINERS NAME	Jake Kimber	SIGNED Hart	0
	DATE	3-Jan-2018	CIGILE	~



Bridge Detailed Examination Report



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Element Status Tab	le									
Element Name		Status	Condition							
Arch Ring		N/A	N/A							
Ballast Plates and Boa	ards	N/A	N/A							
Bearing		N/A	N/A							
Cross Girders		N/A	N/A	N/A						
Floor / Deck		Examined	Fair							
Longitudinal Timbers		N/A	N/A							
Main Girders		N/A	N/A							
Parapets and Pilasters	6	N/A	N/A							
Rail Bearers		N/A	N/A							
Spandrels		N/A	N/A							
Water Proofing		N/A	N/A							
Abutments		Examined	Fair							
Bedstones and Cills		N/A	N/A	N/A						
Columns and Cylinder	ſS	N/A	N/A							
Piers		N/A	N/A							
Trestles and Crosshea	ads	N/A	N/A							
Wing and Retaining W	alls	Examined	Fair							
Debris		N/A	N/A	N/A						
Drainage		N/A	N/A	N/A						
Gutters and Downpipe	es	N/A	N/A	N/A						
Handrails		Examined	Fair	Fair						
Painting		N/A	N/A	N/A						
Pointing		N/A	N/A	N/A						
Revetment Walls		N/A	N/A							
Rivets and Bolts		N/A	N/A							
Track/Road		Examined	Fair							
Vegetation		N/A	N/A							
Record of Observat	ions Under Loa	ad	· ·							
Load Type	Deck Ge	eneral Area Observed	Result Of Observ	ation	Date & Time					
INEW DEFECT(3) - 3	INDUI URAL E									

None



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NEW DEFECT(S) - MISCELLANEOUS ELEMENT(S) None

PREVIOUSLY RECORDED SIGNIFICANT (OPEN) DEFECT(S)

DEFECT NUMBER 2: Originally identified at a Visual Examination on 14/08/17 Defect Location: Abutments. Defect Description: Widespread graffiti. Dimensions Not Provided Urgent: No Status: No deterioration See Existing (Open) Significant Defect Photo: 5

PREVIOUS RECOMMENDATION(S) None

Dimensions; Square 3.379m Skew 3.935m Height 4.0m Length 18.870m Rail edge to upside1.335m Rail edge to downside 1.900m

DECK

Metal Armco sheeting type construction bolted together, with 300mm concrete infill on top, note; concrete only visible from both ends. overall in good condition NFD P6 **RIVETS & BOLTS** Fair condition FACE RINGS The face rings are a concrete infill on top of the metal Armco sheeting, general view P1 and P2 fair condition ABUTMENTS Low mileage, shuttered and poured concrete construction, vertical fracture O/S 13.86m from upside full height x HL NFD P7, vertical fracture O/S 11.47m from upside full height x HL NFD P7. New non offensive Graffiti covering entirety of abutment fair condition P5 High mileage, shuttered and poured concrete construction, New non offensive Graffiti covering entirety of abutment fair condition P5 WING & RETAINING WALLS Wingwalls all good condition Upside low mileage, shuttered and poured concrete construction, Upside high mileage, shuttered and poured concrete construction, Downside low mileage, shuttered and poured concrete construction, Downside high mileage, shuttered and poured concrete construction, All wingwall now feature new non offensive graffiti P8 for typical view **PARAPETS & PILASTERS** Parapets Upside parapet, concrete construction, these form part of the handrail / ballast retention, (these are all the visible remain from the old bridge). There are 2no beams to the upside these are out of alignment to 45mm and open to 25-30mm OS NFD P9. 3no tubular handrail uprights have been removed leaving holes in the top of the beams, NFD overall in good condition Downside parapet, these form part of the handrail / ballast retention; (these are all the visible remain from the old bridge). There are 2no beams to the downside these are out of alignment to 35mm and open to 25-30mm OS NFD, 5no tubular handrail uprights have been removed and the holes have been filled with grout in top of the beams, overall in fair condition **BALLAST PLATES / BOARDS** Single timber sleepers to all four corners at track level are acting as ballast boards, these all show splits and

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Track/Road

Fair

Examined



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NETWORK RAIL

Bridge Detailed Examination Report



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Monitoring Devices	s Present (if Yes - see Element o	detail for advice)
Date Tabs	No	
Plumb Points	No	
Avongards	No	
Environmental Fac	tors Present: No	
Item number	Description	Location



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<u>General</u>

Dia. – Diameter G.L – Ground Level M.H - Manhole N.F.D - No Further Deterioration WL - Water Level

Masonry and Concrete

H – Hollow H/L - Hairline L.T.H - Loose to Hammer O.J - Open Joints DT – Date Tab Sp. - Spall

Fractures

V.F - Vertical Fracture V.S.F - Vertical Stepped Fracture B.J.F - Bed Joint Fracture D.F - Diagonal Fracture D.S.F - Diagonal Stepped Fracture HF - Horizontal Fracture X <> mm - displaced by <> mm. (+/indicates direction of displacement)

Metal

MG - Main Girder XG – Cross Girder BF - Bottom Flange TF - Top Flange CI - Cast Iron WI - Wrought Iron Corr - Corrosion Lam - Lamination LOS - Loss of Section KE – Knife Edge

- **KEY**
- Col Column No. - Number O/S - Old Standing S.S.D - Shows Slight Deterioration
- New / Worsened Fracture (line thickness to reflect fracture width) (Red Line) Old Standing Fracture - NFD (line thickness to reflect fracture width) (Blue Line) Spalling / Missing Brickwork (Light Grey) Open Joints (Yellow) Bulging / Out of Plumb / Displacement (Brown) Indications of wetness (Light Blue)

Hollow / Drummv (Black outline of area with "H")

Date Tab / Avonguard (must also show installation date & reading) (Black)



Η

Corrosion / Lamination (Light Orange)

Fractures / Tears / Cracked Welds (Red Line)



Loss of Section / Buckling (Red)

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P3 view over track from low mileage 4.12.17



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P4 view over track from high mileage 4.12.17



P5 Significant defect 1 4.12.17



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P6 General view of deck 4.12.17



P7 Fractures to Abutment 4.12.17



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P8 typical view of wingwall with new graffiti 4.12.17



P9 Typical view of misaligned parapet 4.12.17



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P10 Typical view of timber sleeper ballast board 4.12.17

NETWORK RAIL BCMI EXAMINATION REPORT FORM

Territory	ELR	Structure No	Start Mileage	Group	Туре	RAR ID	Structure Name	Exam Date	Task Year	Exam Type Examiners Name		Weather
TLNE	KSL	40	111.1667	BB	BBU		Coalville footpath	04/12/2017	16_17	D	J.Kimber	fair

					Metal / N	lasonry /	Coated	Metal /		Comments
Major E	lement	M	inor Eler	nent	Concrete	/ Timber	Cracked	Masonry		Neter This fact that are of the second cherrel does not extend out and on the colored on the second
Code	No	Code	No	Material	S/Ex 1	S/Ex 2	S/Ex 1	S/Ex 2	V	Note: This free text area of the report should be used extensively and can be enlarged as necessary.
ES	1	ABT	1	C	B5	A1	A1	A1	✓ 	
ES	1	VV VVL	1	C	B2	A1	A1	A1	×	
ES	1	WWVL	2	C	A1	A1	A1	A1	~	
DI		DAD								
	1	BAR	1	M	AT	AT	AT	AI	×	
DK	1	FRV	1	0	A1	A1	A1	A1	×	
DK	1	FRV	2	U U	AT	AT	AT	AI	•	
ES	2	APT	1	6	۸1	۸1	۸1	۸1		
ES	2		1	C C	A1	A1	A1	A1	•	
E3 E9	2		2	C C	A1	A1	A1	A1	•	
	2	VVVL	2	Ŭ					Ť	

Amey

NETWORK RAIL BCMI EXAMINATION REPORT FORM

	Majo	or Element		
Code	No	Material	Span No	۷
ES	1	С	1	\checkmark
DK	1	М	1	✓
ES	2	С	1	✓





NETWORK RAIL BCMI EXAMINATION REPORT FORM

Territory	ELR	Structure No	Start Mileage	Group	Туре	RAR ID	Structure Name	Exam Date	Task Year	Exam Type	Examiners Name	Weather
TLNE	KSL	40	111.1667	BB	BBU		Coalville footpath	04/12/2017	16_17	D	J.Kimber	fair

					Metal / N	Masonry /	Coated	Metal /		Comments	S	cores	
Major E	lement	M	inor Eler	nent	Concrete	e / Timber	Cracked	Masonry	'		Min El	Maj El	BCMI
Code	No	Code	No	Material	S/Ex 1	S/Ex 2	S/Ex 1	S/Ex 2	V	Note: This free text area of the report should be used extensively and can be enlarged as necessary.	BCMI	BCMI	
DK	1	BAR	1	М	A1	A1	A1	A1	~		100	100	95
DK	1	FRV	1	С	A1	A1	A1	A1	~		100		
DK	1	FRV	2	С	A1	A1	A1	A1	\checkmark		100		
ES	1	ABT	1	С	B5	A1	A1	A1	\checkmark		75	85	
ES	1	WWL	1	С	B2	A1	A1	A1	\checkmark		90		
ES	1	WWL	2	С	A1	A1	A1	A1	\checkmark		100		
ES	2	ABT	1	С	A1	A1	A1	A1	\checkmark		100	100	
ES	2	WWL	1	С	A1	A1	A1	A1	~		100		
ES	2	WWL	2	С	A1	A1	A1	A1	~		100		
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