

# SP MANWEB

## Reinforcement to the North Shropshire Electricity Distribution Network



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Environmental Statement Appendix 5.1  
Mineral Resource Assessment

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November 2018



**The Planning Act 2008**

**The Infrastructure Planning (Applications: Prescribed Forms and Procedure)  
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**Regulation 5(2)(a)**

**Reinforcement to the North Shropshire Electricity Distribution Network**

**Environmental Statement Appendix 5.1: Mineral Resource Assessment**

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**SP ENERGY NETWORKS**

**132KV WOOD POLE OVERHEAD LINE**

**MINERAL RESOURCE ASSESSMENT – COCKSHUTT TO WEM**

**FEBRUARY 2017**

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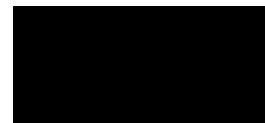
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**SP ENERGY NETWORKS  
132KV WOOD POLE OVERHEAD LINE  
MINERAL RESOURCE ASSESSMENT – COCKSHUTT TO WEM**

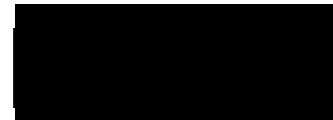
**FEBRUARY 2017**

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Paul Clarke Technical Director

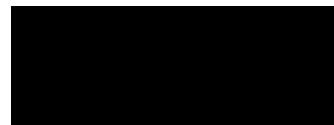


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## EXECUTIVE SUMMARY

This report has been prepared to support a Development Consent Order application by Scottish Power Energy Networks Limited for a proposed development of a 132kV overhead power line including for land between Cockshutt and Wem, Shropshire. The route of the overhead power line traverses a Mineral Safeguarding Area (MSA) for sand and gravel resources identified by Shropshire Council, which is the local Mineral Planning Authority.

Published geological assessment reports for the area show that the route of the overhead line traverses a broad resource area thought to contain deposits of glacial sand and gravel. Based upon known constraints, the Council have agreed to discount the significance of deposits of sand and gravel at the western end of the overhead line route and have instead directed focus upon the deposits observed at the eastern end of the route in proximity of Cockshutt.

Detailed review of the published document 'Sand and Gravel Resources – Mineral Assessment Report 86 (January 1981) – Wem, Shropshire' with reference to the eastern end of the route reveals a mineral resource inferred beneath the broader route of the overhead line that is predominantly either encumbered by the presence of overburden or geographically remote from a ready and appropriate means of access.

By way of exception to this broader position, a limited area of unencumbered mineral bearing land is noted to fall beneath the route of the overhead line, immediately south of Cockshutt and adjacent to the A528 Ellesmere Road. The impacted mineral area is measured to be relatively restricted in footprint and in the context of the extent of the total surrounding resource (stated in Mineral Assessment Report) represents a nominal proportion of the overall sand and gravel resource acknowledged to be present within Mineral Assessment Report 86.

The overall evidence demonstrates that the economic integrity of the inferred sand and gravel deposits along the route of the proposed overhead line are not unduly compromised by the line's presence and that development would not cause sterilisation of a mineral resource of significant economic value so as to conflict with Shropshire County Council planning policy.

## 1 INTRODUCTION

- 1.1 This report has been considered in accordance with instructions from SP Energy Networks ('SPEN') to prepare a localised mineral assessment report in respect of land featured within the proposed 132kV Wood Pole Overhead Line route ('the OHL route') between Oswestry and Wem.
- 1.2 Development rights for the establishment and development of the OHL route are being pursued with Shropshire Council/the Planning Inspectorate by virtue of an application by SPEN for a Development Consent Order ('DCO').
- 1.3 Under direction from Shropshire Council as part of the DCO determination, a section of the proposed OHL route between the village of Cockshutt, Shropshire and the town of Wem, Shropshire is to be subject to further assessment in the context of the potential impact upon/sterilisation of mapped resources of sand and gravel which are observed to coincide with the OHL route.
- 1.4 The reference to mapped geology and the perceived presence of sand and gravel is understood to originate from the Council having directly referenced "Sand and Gravel Resources – Mineral Assessment Report 86 (January 1981) – Wem, Shropshire" published by the British Geological Survey. The Council also acknowledge the wider status of the surrounding area to be classified as a sand and gravel 'Mineral Safeguarding Area' within the prevailing development plan policy for the region, the SAMDev Plan 2006 – 2026.
- 1.5 In circumstances, whereby surface development may potentially impact upon Mineral Safeguarding Areas, the Council consider a mineral resource assessment is required to determine the likely impact upon any in-situ economic mineral resource and further consider whether the proposed development would accord with local planning policies relating to mineral safeguarding.
- 1.6 To support the preparation of the required resource assessment, we have relied upon the following information:
  - Sand and Gravel Resources – Mineral Assessment Report 86 (January 1981) – Wem, Shropshire;
  - SPEN's latest version of the proposed OHL route dated 19th January 2017;
  - Correspondence from Shropshire Council dated 9<sup>th</sup> November 2016;

- SPEN Meeting Record Note dated 5<sup>th</sup> January 2017;
- Shropshire Council's SAMDev Plan 2006 – 2026.

1.7 Supplemental to this list, we have also referred to commentary and direction provided by Shropshire Council during a meeting on the 30<sup>th</sup> January 2017 and relevant GIS datasets and information held on our own records.

## **2 GEOLOGY & ECONOMIC RESOURCES**

2.1 Geologically, a distinction is made between 'Superficial Deposits' and 'Solid Geology'. Superficial Deposits such as sand and gravel are found at, or close to, the surface. The solid bedrock beneath the superficial deposits is called the 'Solid Geology'. In this instance, the Council have directed SPEN to consider the impact of the OHL route in the context of the possible impact upon superficial deposits of sand and gravel which are the resource specifically subject to safeguarding policy in this area.

2.2 Review of 'Sand and Gravel Resources – Mineral Assessment Report 86 (January 1981) – Wem, Shropshire' reveals that significant sections of the proposed OHL route traverse land reported to feature underlying superficial deposits of glacial sand and gravel. Such mineral deposits are observed to be prevalent in proximity to the OHL route between Cockshutt and Wem and are effectively characteristic of the superficial geology across North Shropshire.

2.3 To better demonstrate this arrangement, enclosed Drawing No. ST16006-001 features an overlay of the proposed OHL route provided by SPEN and the mapped geological data included within Mineral Assessment Report 86. The proposed OHL route makes voluntary allowance for a 50m 'buffer zone' either side of the line route to assist with impact deliberations.

2.4 The proposed OHL route between Cockshutt and Wem is observed to cross two distinct resource blocks as defined within Mineral Assessment Report 86, namely Block C and Block D. However, following direct discussion with the Council, we have been directed to consider only the geology at the western end of the OHL route in proximity to Cockshutt as the Council consider this to be the more significant component of the route in geological terms. Cockshutt and the surrounding area falls exclusively within resource Block C.

2.5 Resource Block C is broadly defined within Mineral Assessment Report 86 as follows:

*“Block C extends over an area of 15.4km<sup>2</sup> of which 15.3km<sup>2</sup> is mineral-bearing. There are no mineral workings in the area.....The mean thickness of mineral is 7.9m; the range is from 2.6m to over 16.0m. The estimated volume of mineral is 120.9 million m<sup>3</sup> ±22 per cent. The overburden which consists of sandy soil and sandy clay, ranges in thickness from 0.1m to 5.5m and has a mean of 1.1m.....The fines content varies from 2 per cent to 18 per cent. The sand content usually exceeds 50 per cent and reaches a maximum of 89 per cent. The gravel commonly varies between 14 and 40 per cent although in several [locations] it is less than 3 per cent.....The mean grading for the block is fines 9 per cent, sand 67 percent and gravel 24 per cent.”*

- 2.6 To further assist SPEN in focusing upon mineral resources likely to be of note along the OHL route, the Council have also provided (within correspondence dated 9<sup>th</sup> November 2016) locations of indicative ‘Potential Resource Blocks’ which should serve to direct SPEN when considering locations for significant mineral potential. The locations of these resource blocks has also been transposed and overlaid as yellow circles onto Drawing No. ST16006-001 for ease of reference.
- 2.7 The arrangement of the Potential Resource Blocks is understood to be indicative only and is broadly defined by the geological arrangement featured within Mineral Assessment Report 86. Notably, a number of the Potential Resource Blocks either sit away from the latest iteration of the proposed OHL route prepared by SPEN and/or sit at the eastern end of the route in closer proximity to Wem rather than the preferred location of Cockshutt to the west.
- 2.8 Drawing No. ST16006-002 serves to identify at better scale the localised position in proximity to Cockshutt only, detailing both the proposed route of the OHL and the locations of the relevant Potential Resource Blocks intersected by the OHL route. The three Potential Resource Blocks have been individually numbered on Drawing No. ST16006-002 for ease of reference in this report.
- 2.9 A review of the three Potential Resource Blocks and the land immediately surrounding reveals the following:
- **Potential Resource Block 1** – underlain predominantly by mapped deposits of glacial sand and gravel. Borehole 42NW30 located along the northern edge of the proposed OHL route is noted to record 1.5m of overburden material overlying 5.0m of sand and gravel.

The A528 Ellesmere Road intersects the resource block area running broadly north/south. In terms of mineral development potential, it is considered reasonable to assume that the public highway would benefit from a suitable standoff from any proposed mineral development to maintain its integrity. A typical 50m stand-off from the route of the A528 effectively serves to almost wholly eliminate the mapped mineral to the west of the highway and leaves the remainder of the mineral deposit in this area rendered uneconomic.

Beyond an equivalent 50m stand-off to the highway to the east of the A528, the deposits of mineral beneath the proposed OHL route appear to be largely unimpeded by physical restraints. The c.450m length of the OHL route to the edge of Potential Resource Block 2 appears to exclusively traverse sand and gravel deposits with inferred overburden ratios that appear to be economic in extraction terms. The extent of this section of the route is demonstrated on Drawing No. ST16006-003.

To the south of the OHL route, towards Wackley Lodge, the underlying mineral deposit is noted to be contiguous to that within the resource block, but the exposed outcrop effectively tapers in width as a consequence of the arrangement with the overlying peat deposit. When considered alongside the 50m stand-off afforded to the A528 and a similar buffer to protect the amenity of the residential property at nearby Wackley Lodge, it would appear that potential in this southern area is somewhat restricted and not unduly prejudiced by the proposed OHL route.

- **Potential Resource Block 2** – from review of nearby borehole 42NW35 deposits of glacial sand and gravel in this area are observed to be largely encumbered by overlying deposits of brownish black peat (1.5m thickness) and peaty, sulphurous, greenish grey to yellow-brown clay (4.0m thickness). Underlying sand and gravel is observed to extend to beyond 9.5m in thickness, but is noted to then become increasingly sandy at depth.

The far-reaching extent of the peat/clay overburden within this area would seem to render most of the sand and gravel uneconomic, either by virtue of unfavourable overburden ratios (i.e. less than 1:2 in terms of overburden:mineral) or through severing the exposed mineral deposit to the



east from the remainder of the mineral to the west within Potential Resource Block 1.

- **Potential Resource Block 3** – The proposed OHL route in proximity of this block almost exclusively traverses sand and gravel overlain by significant deposits of peat and clay. Review of the records for borehole 42NE23 (located immediately south of the route corridor) reveals peat and alluvium (3.2m combined thickness) overlying pebbly sand deposits (4.6m thickness). The ratio of overburden to mineral in this location can be considered uneconomic given both the 1:1.43 rate and the remoteness of the land in question from frontage to a viable public highway.

2.10 When further reviewing the corridor of the proposed OHL route upon Drawing No. ST16006-002, it can be observed that between Potential Resource Blocks 2 and 3 the route transects other sand and gravel deposits intermittently overlain by further volumes of overburden. Amongst this mixed geological arrangement, there is observed to be an area of land north of Burlton Grange and to the immediate south of a property referred to as 'The Coppy', where the proposed OHL route does cross a block of mineral that is stated to be largely free of overburden.

2.11 However, upon further review, the economic viability of this area is likely negated given vehicular access to this land is seemingly restricted to the B4397. The permitted use of a B-road by HGV traffic then required to be routed via the small village of Burlton would seem unlikely.

### **3 POTENTIAL LOSS OF MINERAL RESOURCE**

3.1 When considering the review of economic geological resources in Section 2 of this report, it is apparent that the proposed OHL route impedes only upon a modest area of mineral bearing land immediately east of the A528, located south of Cockshutt and to the north of the property Wackley Lodge. For clarity, this land is annotated on Drawing No. ST16006-003.

3.2 Given the connecting length of the proposed OHL route in this instance is approximately 280m and the voluntary corridor width is defined by SPEN as 100m, this can be calculated to generate a maximum impacted area of 28,000m<sup>2</sup> or 0.028km<sup>2</sup>, which equates to c.0.18% of the total mineral bearing component reported to feature within Resource Block C.

- 3.3 When further considering that the proposed OHL route is specified to feature a configuration of wooden pole mounted cables capable of voluntary relocation, the true potential 'loss' is further debatable.

#### **4 PLANNING POLICY**

- 4.1 The proposed OHL route crosses the administrative area of Shropshire Council which is the Mineral Planning Authority (MPA) for the region. The current planning policy for mineral development in Shropshire is contained in the policies of the SAMDev Plan 2006 – 2026). The SAMDev was adopted in December 2015.

- 4.2 In consultation with the Council, SPEN have been directed to consider Mineral Safeguarding Policy within the SAMDev, specifically covered by SAMDev policy MD16. Specifically, policy MD16 requires that:

1. *Applications for non-mineral development which fall within Mineral Safeguarding Areas (MSA) and which could have the effect of sterilising mineral resources will not be granted unless:*
  - i. *The applicant can demonstrate that the mineral resource concerned is not of economic value; or*
  - ii. *The mineral can be extracted to prevent the unnecessary sterilisation of the resource prior to the development taking place without causing unacceptable adverse impacts on the environment and local community; or*
  - iii. *The development is exempt as set out in the supporting text below.*
  
2. *Consistent with the requirements of Policy MD8, applications for non-mineral development within the identified buffer zone surrounding identified mineral transport and processing facilities will not be granted unless the applicant can demonstrate that:*
  - i. *The development proposed would not prevent or unduly restrict the continued operation of the protected infrastructure; or,*
  - ii. *That the identified facilities are no longer required or that viable alternative facilities are available.*

*MSA boundaries and protected mineral transport and processing facilities are identified on the Policies map and insets. The buffer zones which will apply to protected resources and facilities are identified in the explanatory text below.*
  
3. *Applications for permission for non-mineral development in a MSA must include an assessment of the effect of the proposed development on the mineral resource beneath or adjacent to the site of the*

*development or the protected mineral handling facility (termed a Mineral Assessment). This assessment will provide information to accompany the planning application to demonstrate to the satisfaction of the MPA that mineral interests have been adequately considered and that known mineral resources will be prevented, where possible, from being sterilised or unduly restricted by other forms of development occurring on or close to the resource;*

*4. Identification of these areas does not imply that any application for the working of minerals within them will be granted planning permission.*

- 4.3 With reference to para 3 of policy MD16, the Council have requested that SPEN prepare a resource assessment to consider the economic potential of safeguarded minerals potentially impacted by the proposed OHL route. However, it is perhaps more notable that para 1(iii) of MD16 exempts certain development from consideration in the context of mineral safeguarding if it accords with pre-determined criteria.
- 4.4 The SAMDev further defines exempt developments within paragraph 3.150 to include *“Non-mineral development which is exempt from the requirements of Policy MD16 comprises.....applications for development of national, regional or local significance.....”*.
- 4.5 Given the nature of the development and the live application to pursue development rights by a DCO, it would appear questionable as to whether SPEN are readily obliged to address mineral safeguarding issues in support of the determination of their DCO Application.
- 4.6 It is also understood that Shropshire Council intend to initiate a review of the SAMDev document during 2017, effectively enabling a possible re-fresh of prevailing policy in respect of mineral development in the County. It is assumed that the SAMDev’s plan period will be revised to accord with the current Local Plan partial review i.e. for a period spanning 2016-2036.
- 4.7 Whilst yet to be confirmed, it is understood that given the significant levels of current activity promoting further mineral development across the County, Shropshire Council recognise there is unlikely to be any requirement to specifically identify and allocate

further locations for sand and gravel working during the forthcoming SAMDev plan period.

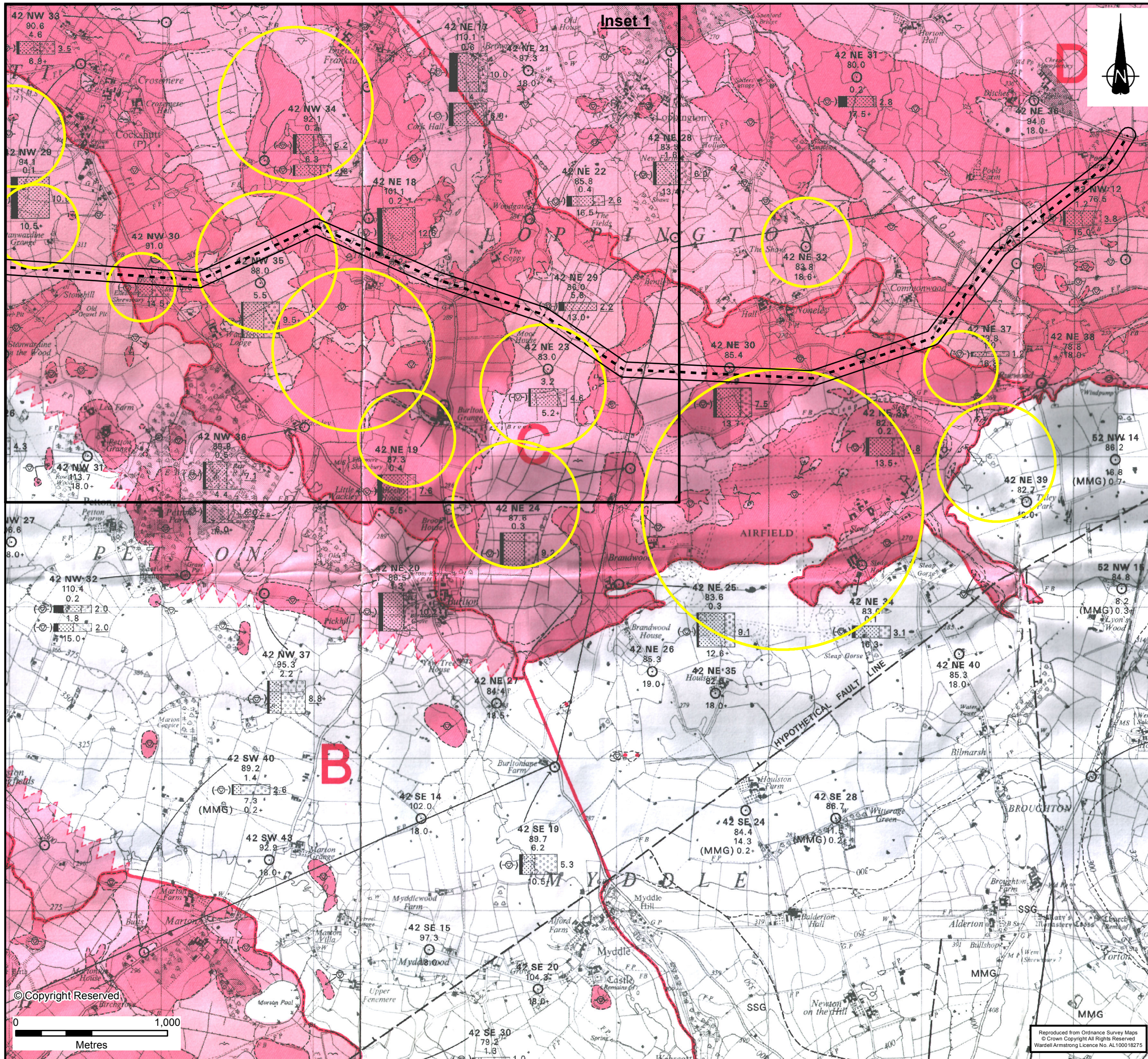
- 4.8 Such a strategy is notable as there is an inference from Shropshire Council that Potential Resource Block 1 may have been identified as a sand and gravel prospect of note by virtue of a historic proposal in the mid-1990's supporting an allocation as a preferred location for mineral extraction. Should site allocations not be required for the revised SAMDev plan period, this seemingly extinguishes the likelihood of any designated mineral extraction of any scale at this new location prior to 2036.

## **5 CONCLUSION**

- 5.1 This report demonstrates that when addressing the specific concerns of Shropshire Council and considering the position with safeguarded sand and gravels identified within Mineral Assessment Report 86, the western extents of the proposed OHL route do not impact upon a significant economic mineral resource that is likely to be permanently encumbered and/or subsequently sterilised by the establishment of apparatus associated with the OHL.
- 5.2 We therefore consider that the proposed development of the OHL route would not cause sterilisation of a realisable, economic mineral resource and it does not conflict with local mineral safeguarding policy.
- 5.3 Furthermore, we also query the application of mineral safeguarding policy within the SAMDev given the regional significance of the development in question.

## Drawings





**Inset 1**

100m route Corridor  
 OHL Route dated 19/01/17  
 Potential Resource Block  
 Exposed Mineral  
 Mineral Beneath Overburden

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
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CLIENT  
**SP ENERGY NETWORKS**

PROJECT  
**MINERAL REPORT COCKSHUTT TO WEM**

DRAWING TITLE  
**SAND AND GRAVEL RESOURCES MAP  
SCC RESOURCE BLOCK OVERLAY**

DRG No <b>ST16006-001</b>	SCALE <b>1:25,000 @ A3</b>	DATE <b>03/02/2017</b>
DRAWN BY <b>SB</b>	CHECKED BY <b>PJC</b>	APPROVED BY <b>PJC</b>

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<input type="checkbox"/> NEWCASTLE UPON TYNE	TEL 0191 232 0943	<input type="checkbox"/> LEIGH	TEL 01942 260104
<input type="checkbox"/> BIRMINGHAM	TEL 0121 580 0909	<input type="checkbox"/> SHEFFIELD	TEL 0114 245 6244
<input type="checkbox"/> LONDON	TEL 020 7287 2872	<input type="checkbox"/> EDINBURGH	TEL 0131 555 3311
		<input type="checkbox"/> TAUNTON	TEL 01823 703100

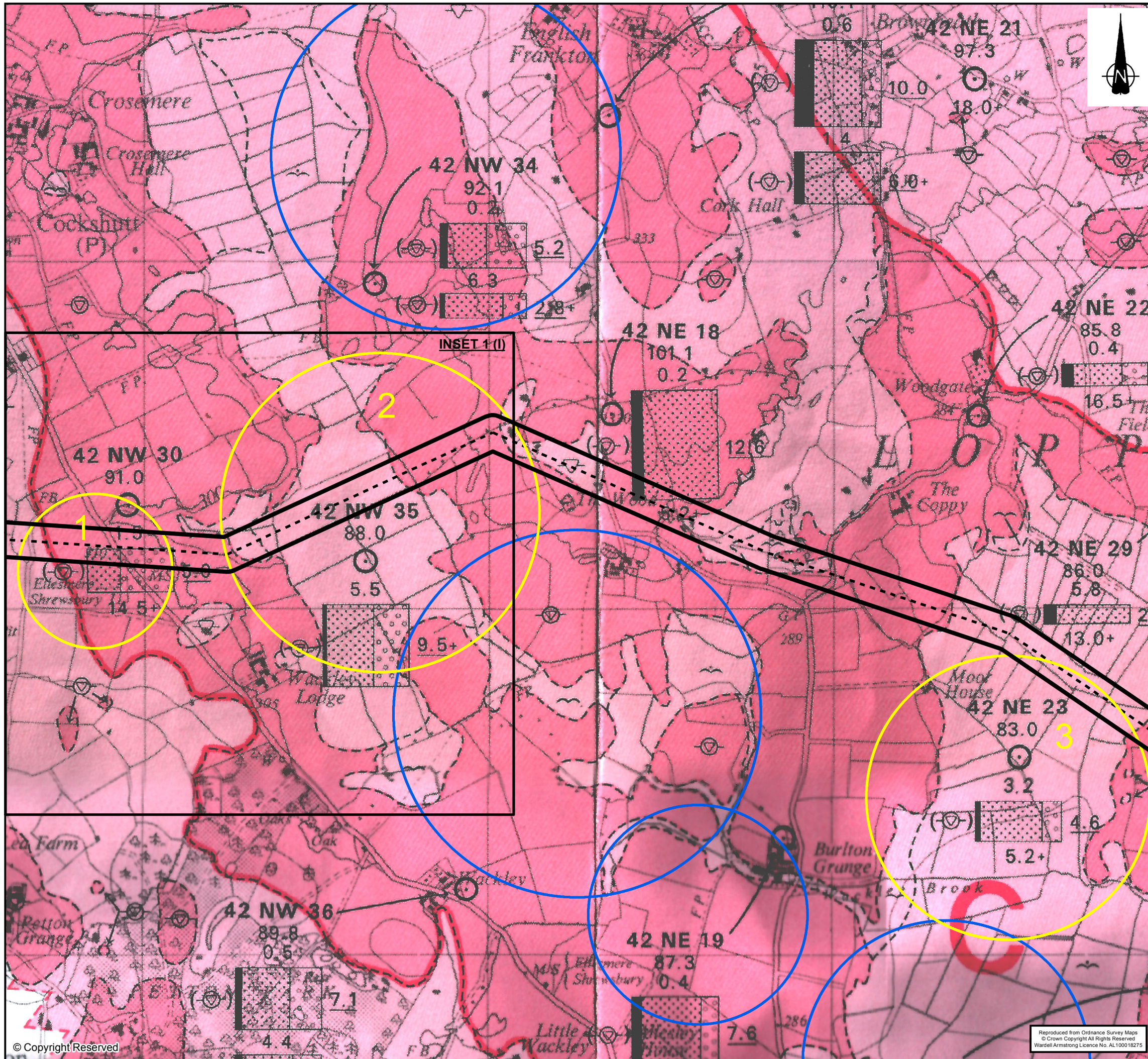
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100m Route Corridor  
 OHL Route dated 19/01/17  
 Potential Resource Block - Intersecting Route Corridor  
 Potential Resource Block - Outside Route Corridor  
 Exposed Mineral  
 Mineral Beneath Overburden

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT	SP ENERGY NETWORKS				

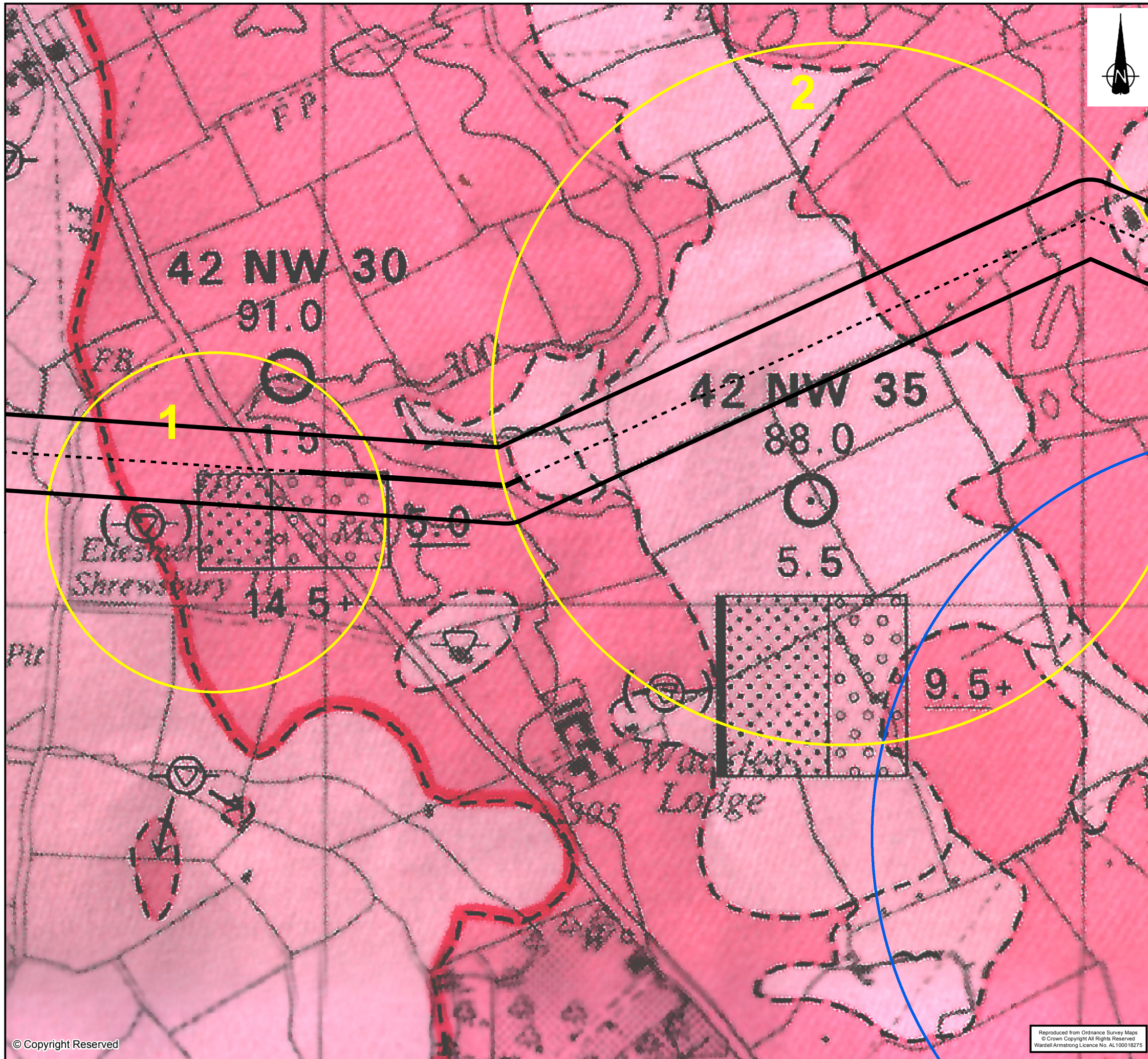
PROJECT  
MINERAL REPORT COCKSHUTT TO WEM








DRAWING TITLE  
SAND AND GRAVEL RESOURCES MAP  
SCC RESOURCE BLOCK OVERLAY  
INSET 1

DRG No	SCALE	DATE
ST16006-002	NTS	03/02/2017
DRAWN BY	CHECKED BY	APPROVED BY
SB	PJC	PJC

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		<input type="checkbox"/> TAUNTON	TEL 01823 703100





-  100m Route Corridor
-  Potential Resource Block - Intersecting Route Corridor
-  OHL Route dated 19/01/17
-  OHL Route dated 19/01/17 - Economic Mineral
-  Potential Resource Block - Outside Route Corridor
-  Exposed Mineral
-  Mineral Beneath Overburden

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
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CLIENT  
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PROJECT  
 MINERAL REPORT COCKSHUTT TO WEM

DRAWING TITLE  
 SAND AND GRAVEL RESOURCES MAP  
 SCC RESOURCE BLOCK OVERLAY  
 INSET 1 (I)

DRG No ST16006-003	SCALE NTS	DATE 03/02/2017
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