



Nottinghamshire Draft Minerals Plan

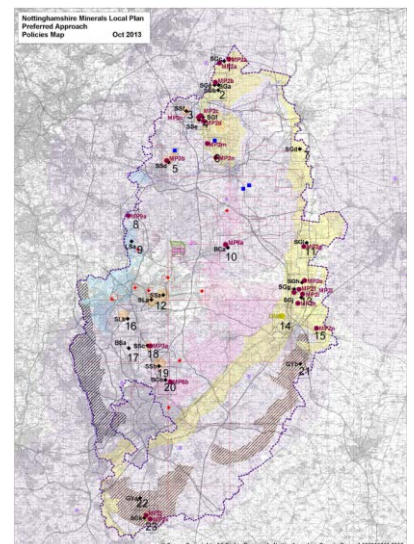
Strategic Transport
Assessment

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URS Infrastructure & Environment UK Limited

Royal Court
 Basil Close
 Chesterfield
 Derbyshire
 United Kingdom
 S41 7SL

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TABLE OF CONTENTS

	EXECUTIVE SUMMARY	
1	INTRODUCTION	1
1.1	Overview	1
1.2	Policy Context	1
	<i>National Planning Policy Framework</i>	<i>1</i>
	<i>Local Transport Plan</i>	<i>2</i>
1.3	Assessment Criteria	3
	<i>Available Guidance.....</i>	<i>3</i>
	<i>Key Transport Assessment Criteria</i>	<i>4</i>
1.4	The Shortlisted Sites	7
2	INITIAL SITE REVIEW	9
2.1	Introduction	9
	<i>MP2a – Finningley Extension</i>	<i>9</i>
	<i>MP2b – Bawtry Road Extension</i>	<i>11</i>
	<i>MP2c – Scrooby North</i>	<i>12</i>
	<i>MP2d – Scrooby South.....</i>	<i>14</i>
	<i>MP2e – Besthorpe East</i>	<i>14</i>
	<i>MP2f – Besthorpe South</i>	<i>16</i>
	<i>MP2g – Langford South</i>	<i>16</i>
	<i>MP2h – Langford North</i>	<i>18</i>
	<i>MP2i – Langford West</i>	<i>18</i>
	<i>MP2k – East Leake East</i>	<i>18</i>
	<i>MP2j – East Leake North</i>	<i>20</i>
	<i>MP2l – Cromwell South</i>	<i>20</i>
	<i>MP2m – Barnby Moor</i>	<i>21</i>
	<i>MP2n – Botany Bay.....</i>	<i>23</i>
	<i>MP2o – Coddington</i>	<i>24</i>
	<i>MP2p - Flash Farm</i>	<i>26</i>
	<i>MP2q - Barton-In-Fabis</i>	<i>27</i>
	<i>MP3a – Bestwood East.....</i>	<i>28</i>
	<i>MP3b – Carlton Forest North.....</i>	<i>30</i>
	<i>MP3c – Scrooby Top North.....</i>	<i>31</i>
	<i>MP6a – Kirton West</i>	<i>33</i>
	<i>MP9a – Holbeck.....</i>	<i>34</i>
	<i>Shelford West.....</i>	<i>36</i>
3	COMPARATIVE ASSESSMENT	38
3.1	Assessment Matrix	38
4	CUMULATIVE IMPACTS	40
4.1	Cumulative Impact Locations	40
4.2	Impact on the Highway Network	47
4.3	Cumulative Assessment	50
	<i>Sites Located in Cluster Map 1.....</i>	<i>52</i>
	<i>Sites Located in Cluster Map 2.....</i>	<i>52</i>

	<i>Other Minerals Plan Sites</i>	53
	<i>Summary</i>	54
5	SUMMARY AND CONCLUSIONS.....	55

EXECUTIVE SUMMARY

The purpose of this report is to provide a strategic Transport Assessment (TA) to examine the proposed sites for inclusion in the MLP in terms of their likely transport impacts. Prior to undertaking this work, Nottinghamshire County Council (NCC) conducted a sifting exercise to identify those sites that were considered to be most likely suitable for inclusion in the MLP. This report therefore builds on this earlier work by considering matters of highway safety, HGV numbers and their likely environmental impact. Each of the sites considered in this report have their own characteristics; however, to draw comparisons between them a matrix has been identified which can be used to assess the proposals at a high level. Five key transport assessment criteria of possible concern have been identified for use within this matrix:

- Type of site (i.e. whether the site is established, forms an extension to an existing site, or would be a new facility), ;
- Access (i.e. whether the site has an existing access, and to what extent this complies with modern highway standards);
- Export Mode (i.e. if there is potential to export by rail or canal, which are generally taken to be more sustainable than export by HGV in terms of the carbon emissions associated with transport, and would result in less congestion);
- Export Route (i.e. the proximity of the site to the strategic highway network, and the quality of any connecting routes to / from the strategic network); and
- Sensitive Receptors (i.e. the presence of any development alongside routes connecting to the strategic highway network, which may be sensitive to the introduction of HGV traffic).

Additionally the duration of site operation is assessed. This criterion is documented separately because the duration of site operations does not act as an impact; rather it acts to magnify the other areas of concern. For example, a site which is otherwise in a good location will not necessarily produce negative impacts for being a long term operation. Conversely a site in a poor location will already score poorly and this would be magnified if the site was a long term operation, or somewhat mitigated if it was of a very short duration.

The above criteria are based on the key issues generally raised by highways development control when considering such schemes.

Using the assessment criteria, each of the sites has been analysed at a high level according to a Red-Amber-Green (RAG) traffic light system. A subjective assessment of each of six key considerations is given below where green suggests that the impact is minimal, amber suggests that the site may have some minor noticeable impacts and red highlights potential issues for that particular criteria. Where issues are identified, potential mitigation has been identified to reduce these impacts.

Duration of site has been separated from the other considerations as this can effectively double count some of the impacts related to the site.

Notwithstanding the findings of this report, it is important to note that a detailed traffic impact assessment of each mineral extraction site, in the form of a suitable Transport Assessment (TA), will be required at the planning application stage.

	Assessment Criteria (See Table 1)						Assessment Score	Existing / Potential Mitigation
	Type of Site	Access	Export Mode	Export Route (Vehicular)	Sensitive Receptors	Duration of Operations		
MP2a	Green	Green	Yellow	Green	Green	Green	Green	
MP2b	Green	Green	Yellow	Green	Yellow	Red	Red	Routing restriction and limit of maximum HGV exports in place.
MP2c	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2d	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2e	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2f	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2g	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2h	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2i	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2j	Green	Green	Yellow	Green	Yellow	Green	Green	
MP2k	Green	Green	Yellow	Green	Green	Red	Yellow	Weight restriction in place.
MP2l	Green	Green	Yellow	Green	Green	Yellow	Green	
MP2m	Yellow	Yellow	Yellow	Green	Green	Green	Yellow	Requires new access, but this appears feasible.
MP2n	Yellow	Yellow	Yellow	Green	Green	Red	Red	Requires new access, but this appears feasible.
MP2o	Yellow	Yellow	Yellow	Green	Green	Yellow	Yellow	Requires new access, but this appears feasible.
MP2p	Yellow	Yellow	Yellow	Green	Green	Red	Yellow	Requires new access, but this appears feasible.
MP2q	Yellow	Yellow	Yellow	Green	Green	Red	Yellow	Requires new access, but this appears feasible.
MP3a	Green	Green	Yellow	Green	Green	Yellow	Green	
MP3b	Green	Yellow	Yellow	Green	Yellow	Red	Red	Low intensity site. Higher rates of extraction would need to be proven via a detailed TA.
MP3c	Green	Green	Yellow	Green	Green	Red	Green	
MP6a	Green	Green	Yellow	Green	Green	Red	Yellow	An existing site with no further intensification of production.
MP9a	Yellow	Yellow	Yellow	Green	Green	Red	Red	Requires new access, but this appears feasible. Weight limits already in place.
Shelford West	Yellow	Yellow	Yellow	Green	Green	Red	Yellow	Requires new access, but this appears feasible.

Table 1 - Matrix of Assessment Criteria Impacts

CONCLUSION

The operation of all MLP sites can be accommodated within the constraints offered by the local highway network. Where transport related issues do arise, it is possible to suitably mitigate against the negative impacts of the extraction activities. Given that minerals can only be extracted from where they are found and where they are economically viable to access, none of the suggested minerals plans sites should be considered unsuitable on transport related grounds.

A cumulative assessment of the sites, where HGV routes associated with the various sites are likely to overlap, has been undertaken to determine the combined highway impacts of HGV movements. It is considered that the cumulative transport impacts from the proposed Mineral Plan sites would have a minimal impact on the highway network.

The highway related impacts contained within this report indicate that there are no outstanding issues that could not be mitigated in order that these mineral extraction sites may be permitted.

1 INTRODUCTION

1.1 Overview

URS was commissioned by Nottinghamshire County Council (NCC) to assist in the delivery of their Draft Minerals Local Plan (MLP). The purpose of this report is to provide a strategic Transport Assessment (TA) to examine the proposed sites for inclusion in the MLP in terms of their likely transport impacts.

Prior to undertaking this work, NCC conducted a sifting exercise to identify those sites that were considered to be most likely suitable for inclusion in the MLP. This report therefore builds on this earlier work by considering matters of highway safety, HGV numbers and their likely environmental impact. A matrix of assessment criteria has been developed to assist with identifying those areas where mineral working would have the least or greatest impact on the highway network. However, it is important to note that a detailed traffic impact assessment of each mineral extraction site, in the form of a suitable TA, will be required at the planning application stage.

1.2 Policy Context

National Planning Policy Framework

The NPPF sets out the Government's planning policies for England and provides a framework to develop localised planning strategies. The document identifies three key components which the planning system has to balance:

- an economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;
- a social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and
- an environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

With regard to transport, the document focuses on, and emphasises, the promotion of sustainable transport. NPPF states that plans and decisions should take account of whether:

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and
- improvements can be undertaken within the transport network that cost effectively limit the impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

NPPF also notes that plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to:

- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;

Specifically in terms of minerals, the NPPF states that:

“Minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. However, since minerals are a finite natural resource, and can only be worked where they are found, it is important to make best use of them to secure their long-term conservation”.

And that, Local Authorities should:

“Safeguard existing, planned and potential rail heads, rail links to quarries, wharfage and associated storage, handling and processing facilities for the bulk transport by rail, sea or inland waterways of minerals, including recycled, secondary and marine-dredged materials;”

Local Transport Plan

The current Nottinghamshire Local Transport Plan (LTP3) produced by Nottinghamshire County Council covers the period between 1st April 2011 and 31st March 2026.

The overall strategic transport goals for Nottinghamshire are to:

- Provide a reliable, resilient transport system which supports a thriving economy and growth whilst encouraging sustainable and healthy travel;
- Improve access to key services, particularly enabling employment and training opportunities, and;
- Minimise the impacts of transport on people’s lives, maximise opportunities to improve the environment and help tackle carbon emissions.

Additionally there are 12 locally identified targets which form an important focus in Nottinghamshire, over the LTP3 period:

- Tackle congestion and make journey times more reliable;
- Improve connectivity to inter urban, regional and international networks, primarily by public transport;
- Address the transport impacts of planned housing and employment growth;
- Encourage people to walk, cycle and use public transport through promotion and provision of facilities;
- Support regeneration;
- Reduce transport’s impact on the environment (air quality, buildings, landscape, noise etc.);
- Adapt to climate change and the development of a low carbon transport system;
- Improve levels of health and activity by encouraging active travel (walking and cycling) instead of short car journeys;

- Address and improve personal safety (and the perceptions of safety) when walking, cycling or using public transport;
- Improve access to employment and other key services particularly from rural areas;
- Provision of an affordable, reliable and convenient public transport network;
- Maintain the existing transport infrastructure (roads, footways, public transport services etc.).

It is the purpose of this report to describe the HGV impacts upon the Highway network as a result of the proposed MLP sites whilst considering the goals and targets set out in the relevant local and national planning policy documents.

1.3 Assessment Criteria

Planning applications supporting a minerals proposal will often include a Transport Assessment (TA) as part of the submission package.

Available Guidance

The Department for Transport (DfT) has issued guidance on how TA documents should be prepared in the form of the Guidance on Transport Assessment (GTA). Furthermore, advice on the design of suitable access to / from developments of varying types are provided in the *Manual for Streets*, the *6Cs Design Guide* (which is a local highway authority design guide approved by Nottinghamshire County Council) and the *Design Manual for Roads and Bridges* (DMRB).

It is important to note, however, that the GTA focuses on matters of access to (general) development by sustainable modes (e.g. walking and cycling routes to housing estates, employment areas etc.) and the measurement of highway capacity. These issues are of lesser importance to minerals sites since quarries are normally located well outside urban centres where opportunities for sustainable movement are not well developed, operational life can be relatively short, and total Heavy Goods Vehicle (HGV) numbers small (when compared with hourly movements generated by other development types). As such, the key issues raised during public consultation mainly focus on those described in the Institute for Environmental Assessment (IEA) *Guidelines for the Environmental Assessment of Road Traffic* (GEART). Although somewhat dated (it was prepared in 1993), this document can be used to judge, in broad terms, the environmental impact of the development in terms of its traffic impact and has been referred to in many recent planning inquiries.

The purpose of the *Guidelines for the Environmental Assessment of Road Traffic* (GEART) is to provide the basis for a systematic, consistent and comprehensive coverage for the appraisal of traffic impacts for a variety of development projects. In terms of general environmental assessment, the guidelines were superseded by the *Guidelines for Environmental Impact Assessment* (GEIA) but they still provide a useful methodology for assessment because the focus is on assessment thresholds relating to traffic impact and not on assessment methodologies for specific types of environmental assessment.

The impacts considered by the GEART Guidelines include; noise, vibration, visual effects, severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation, accidents and safety, hazardous loads, air pollution, dust and dirt, ecological effects, and impact on heritage and conservation areas.

As a guideline, the GEART suggest that highway links (i.e. roads) should be separately assessed when:

Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)

Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% of more. (Guidelines for the Environmental Assessment of Road Traffic, pg14)

The GEART Guidelines go on to state that;

“At a basic level, it should therefore be assumed that projected changes in traffic of less than 10% create no discernible environmental impact,” and that;

“Previous research has identified that the most discernible environmental impacts of traffic are noise, severance, pedestrian delay and intimidation,” and that;

“Other environmental impacts, (e.g. pollution, ecology, etc.) are less sensitive to traffic flow changes, and it is recommended that, as a starting point, a 30% change in traffic flow represents a reasonable threshold for including a highway link within the assessment”.

Pedestrian intimidation is believed to result from a combination of factors which can include; pavement width, proximity to traffic, volume of traffic, number of HGV, type of HGV load (i.e. hazardous) and overall traffic speeds. A threshold has been suggested where speeds over 20mph can result in an ‘extreme’ rating for fear and intimidation.

Whilst the above guidelines have not been used in the scoping stage of the study, they may be used at later stages where appropriate. For this scoping stage, the assessment criteria and framework assessment is used, that is described in the following section.

Key Transport Assessment Criteria

Each of the sites considered in this report would have their own characteristics; however, to draw comparisons between them a matrix has been identified which can be used to assess the proposals at a high level. Five key transport assessment criteria of possible concern have been identified;

- Type of site (i.e. whether the site is established, forms an extension to an existing site, or would be a new facility), ;
- Access (i.e. whether the site has an existing access, and to what extent this complies with modern highway standards);
- Export Mode (i.e. if there is potential to export by rail or canal, which are generally taken to be more sustainable than export by HGV in terms of the carbon emissions associated with transport, and would result in less impacts on society);
- Export Route (i.e. the proximity of the site to the strategic highway network, and the quality of any connecting routes to / from the strategic network); and
- Sensitive Receptors (i.e. the presence of any development alongside routes connecting to the strategic highway network, which may be sensitive to the introduction of HGV traffic).

Additionally the duration of site operation is assessed. This criterion is documented separately because the duration of site operations does not act as an impact; rather it acts to magnify the other areas of concern. For example, a site which is otherwise in a good location will not necessarily produce negative impacts for being a long term operation. Conversely a site in a poor location will already score poorly and this would be magnified if the site was a long term operation, or somewhat mitigated if it was of a very short duration.

The above criteria have been defined and identified by URS for the purposes of writing this report. They are based on our experience in supporting the development of minerals

schemes, and relate to the key issues generally raised by highways development control when considering such schemes.

Employee movements to / from the sites have not been specifically assessed within this report. This is because the key issues relating to minerals sites are normally HGV movements. Also the operating hours of minerals sites normally mean that staff trips occur outside of network peak hours. Where sites are noted to be extension of existing sites, employee movements are not anticipated to change.

Notwithstanding the above, at Planning Application stage a detailed assessment would be required in the form of a formal TA. As a result of the detailed assessment there may be a requirement for a certain level of highway mitigation, the impacts of possible mitigation is not included within the assessment criteria. Strategies such as wheel washing and sheeting of HGV are similarly not included.

The objective of the highway Network Management Plan (HNMP) is to deliver optimum transportation services for highway users in Nottinghamshire. In Keeping with the HNMP, all new site accesses should be subject to a 3-stage Road Safety Audit by Nottinghamshire County Council.

Assessment Criteria	Score	Score Descriptions
Type of Site	Low	<ul style="list-style-type: none"> Existing (or extension of existing) site with established routing agreement and access arrangements.
	Medium	<ul style="list-style-type: none"> Potential new site in area with history of quarrying and whose local road network accommodates other sources of HGV traffic.
	High	<ul style="list-style-type: none"> Potential new site in an area with no history of quarrying and whose local road network does not accommodate HGV traffic.
Access	Low	<ul style="list-style-type: none"> Existing approved access to highway standards. No existing access, but access design has planning approval.
	Medium	<ul style="list-style-type: none"> Existing approved access not to highway standard but no pattern of existing collisions or congestion at access location. No existing access, and subject to agreement with local highway authority which is likely to be accepted.
	High	<ul style="list-style-type: none"> Existing approved access not to highway standard and observed pattern of existing collisions or congestion at access location. No existing access, and subject to agreement with local highway authority which is not likely to be acceptable.
Export Mode	Low	<ul style="list-style-type: none"> All (or majority) of materials would be exported by rail or canal.
	Medium	<ul style="list-style-type: none"> All material exported by high tonnage HGV (20T or 28T).
	High	<ul style="list-style-type: none"> All material exported by HGV of variety of sizes (i.e. trade export sales).
Export Route (Vehicular)	Low	<ul style="list-style-type: none"> Direct onto primary highway network (i.e. 'A' class road) or a road that is a designated freight route. No geometric limitations to HGV movements.
	Medium	<ul style="list-style-type: none"> Onto 'B' Class road with short haul to local strategic network. No geometric limitations to HGV movements. Maintenance issues caused by HGV wear addressed through operator agreements.
	High	<ul style="list-style-type: none"> Onto minor roads which are too narrow for two-way HGV, or via junctions which cannot geometrically accommodate HGV flows.
Sensitive Receptors	Low	<ul style="list-style-type: none"> No properties between the site and the start of the local strategic network ('A' class road or designated freight route).
	Medium	<ul style="list-style-type: none"> A few properties between the site and the start of the local strategic network ('A' class road or designated freight route). Properties set back from the edge of the carriageway.
	High	<ul style="list-style-type: none"> Large number of residential or other sensitive receptors on the roads linking the site to the strategic highway network. Properties close to the carriageway edge. Lack of footpath provision.
Expected duration of operation (Scaling Factor)	Low	<ul style="list-style-type: none"> Short duration site: 1 to 5 years.
	Medium	<ul style="list-style-type: none"> Medium duration site: 5 – 10 years.
	High	<ul style="list-style-type: none"> Long duration site: 10+ years.

Table 2 - Matrix of Key Transport Considerations – Assessment Criteria

1.4 The Shortlisted Sites

The sites which have been shortlisted are presented in Table 3, below. Clay extraction sites typically process their material onsite and therefore do not export any raw material; instead the exports are brick products.

Site ID	Site Name	New or Extension	Expected Output (T per annum)
MP2a	Finningley Extension	Extension	450,000
MP2b	Bawtry Road Extension	Extension	40,000
MP2c	Scrooby North	Extension	80,000
MP2d	Scrooby South	Extension	80,000
MP2e	Besthorpe East	Extension	200,000
MP2f	Besthorpe South	Extension	200,000
MP2g	Langford South	Extension	500,000
MP2h	Langford North	Extension	500,000
MP2i	Langford West	Extension	500,000
MP2j	East Leake North	Extension	180,000
MP2k	East Leake East	Extension	180,000
MP2l	Cromwell South	Extension	200,000
MP2m	Barnby Moor	New	220,000
MP2n	Botany Bay	New	200,000
MP2o	Coddington	New	500,000
MP2p	Flash Farm	New	250,000
MP2q	Barton-In-Fabis	New	220,000
MP3a	Bestwood East	Extension	250,000
MP3b	Carlton Forest North	Extension	25,000
MP3c	Scrooby Top North	Extension	120,000
MP6a	Kirton West	Extension	Processed Brick Loads
MP9a	Holbeck	New	200,000
Shelford West	Shelford West	New	180,000

Table 3 - List of New and Extension Sites over Plan Period

The locations of these Draft Minerals Plan sites are given in Figure 1 below.

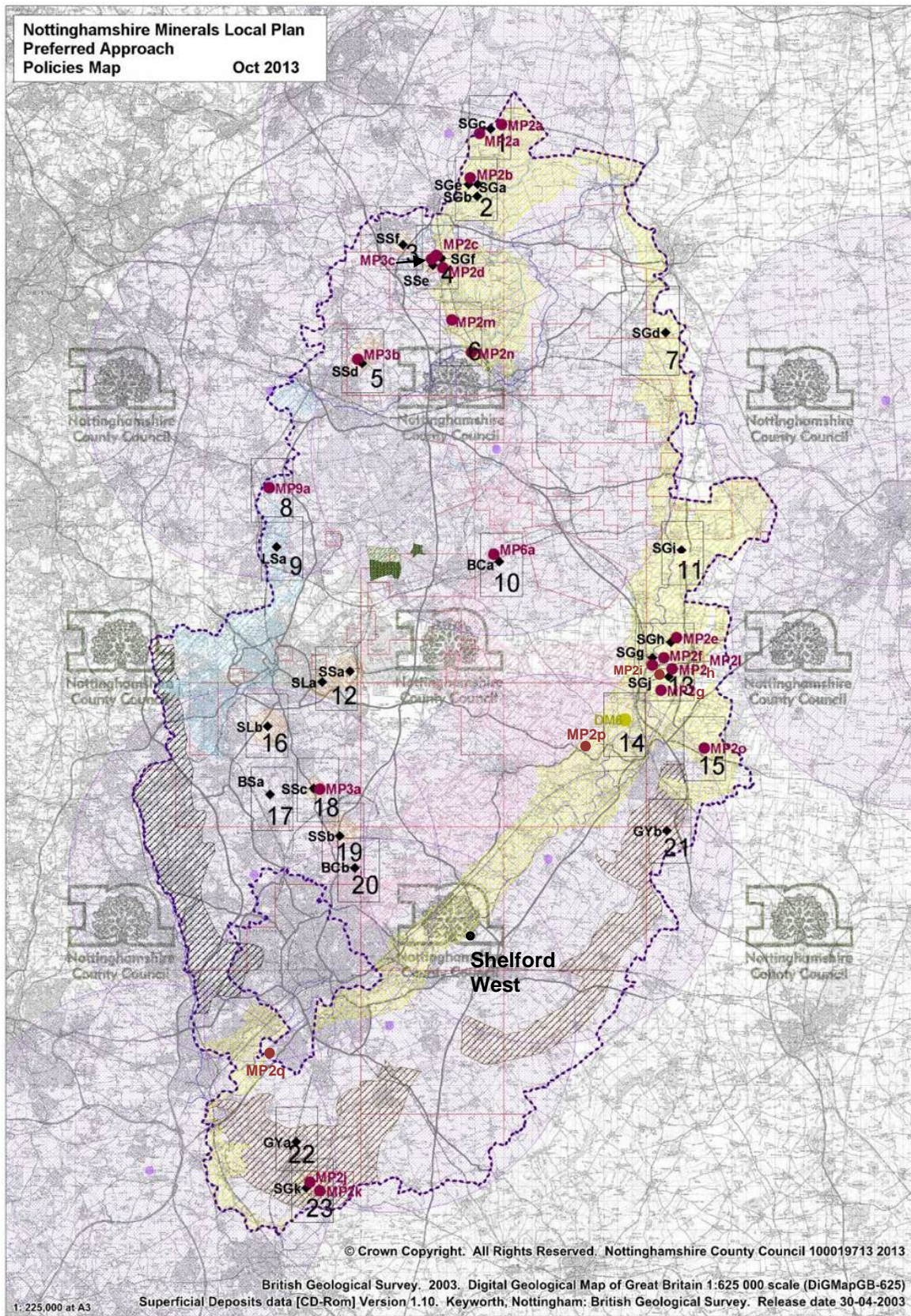


Figure 1 - Map of Minerals Plan Sites (Source: Nottinghamshire County Council - Amended)

2 INITIAL SITE REVIEW

2.1 Introduction

An initial review of the proposed Minerals Plan sites has been undertaken. This review includes an assessment of TA documents for sites made available by NCC.

Where no information was available, it was assumed that materials would be exported using a 20T load. Some recent applications in Nottinghamshire have assumed that 20T loads would be the average size and therefore this has been adopted in the following assessment. It should be noted that some operators will use larger 28T vehicles at their sites as this lowers the cost of transport and results in a more efficient operation. Where larger loads are transported the overall highway impact, in terms of the number of HGV, will be lower than those suggested in this assessment. It should also be noted that where sites are licensed to sell direct to trade, a variety of vehicles could be used to collect materials (including smaller HGV and flat-bed trucks) which would have the effect of increasing HGV movements over and above these estimates. In terms of access, existing sites were assumed to retain their existing points of access, and an initial assessment of potential access has been undertaken for new sites. Mapping software was used to determine the likely routes that would be used by heavy vehicles.

To inform the road safety assessment, Nottinghamshire County Council's Accident Investigation Unit (AIU) interrogated the accident records and provided commentary upon site suitability. The accident analysis has considered the area around the site access, the export route and any cumulative impact of coinciding routes, utilising accident records over the most recent 5 year period and has been compared against the accident records of roads in Nottinghamshire as a whole. These findings are based upon the accident records available at March 2014. Future assessment of access and routes for individual sites will need to consider subsequent accident patterns.

MP2a – Finningley Extension

The Finningley extension site is only partially located in Nottinghamshire, the remaining extension area is contained in the Doncaster Metropolitan Borough Council area. Reflecting this location, the quarry serves both the South Yorkshire and North Nottinghamshire markets. The quarry is accessed via the A614, from which access can then be gained onto the A638 and M18.

The site extracts 400,000 tonnes per annum. As identified in the delivery schedule, it is expected that the Finningley extension would increase the rate of extraction slightly to 450,000 tonnes per annum.



Figure 2 - Access Location Finningley Extension

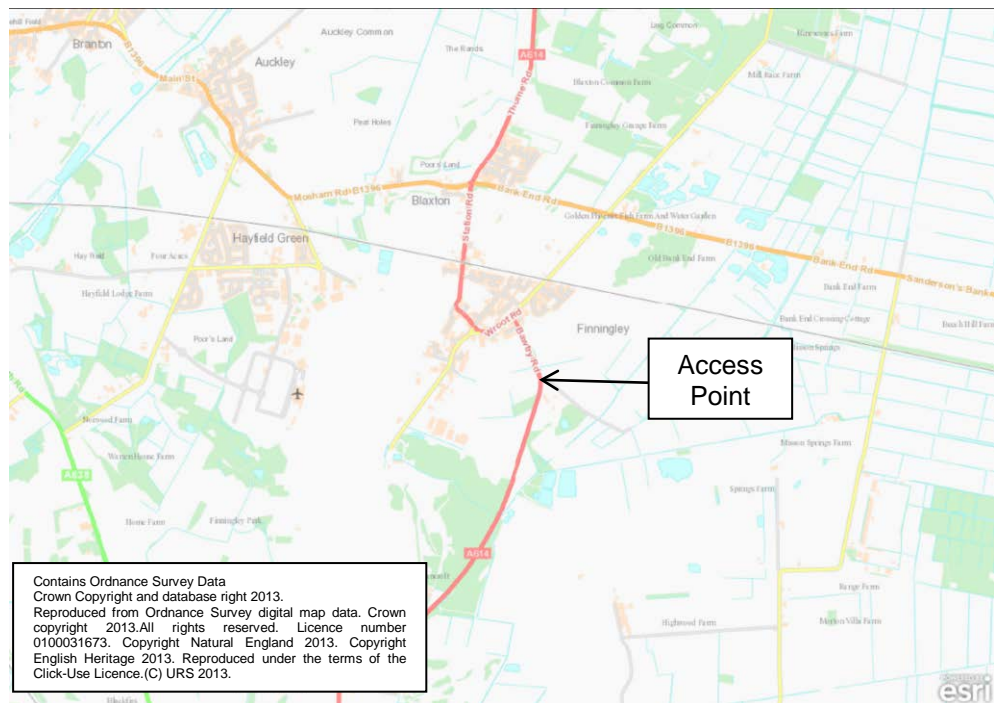


Figure 3 - Site Location - Finningley Extension

Using 20T vehicles, the rate of export of material would be expected to fill 87 HGV per day (therefore 174 two-way HGV movements). Over a 12 hour day this would result in 7 HGV

movements per hour, 14 two-way movements including the return journey for empty vehicles. Routes to Doncaster / South Yorkshire would use High Common Lane and the A638 Great North Road, whereas all other routes would pass through Austerfield to access the A631 and A614 at Bawtry.

The AIU team do not have accident records for this site as the entrance is not within the Nottinghamshire County boundary. On the export route 65 accidents were identified. There have been accident clusters identified travelling east on the A631 at the A161 and A620 roundabouts but these had no HGV involvement. A remedial works improvement is scheduled for the A631/A161 (at Beckingham) roundabout. The A631/A620 roundabout (south of Beckingham) exhibits accident rates which are approximately average for its type and design. There would be a slight increase in HGV numbers but the number of accidents involving HGV are likely to remain small.

MP2b – Bawtry Road Extension

Recent production has averaged 35,000 tonnes per annum and will continue to the end of 2017. The extension will come online at the start of 2018 with an estimated output of 40,000 tonnes per annum. It would be expected that daily HGV movements would increase by 15% of that experienced as a result of this site extension. There is a highway access from the site onto Newington Road. Heavy vehicles will be subject to a routing agreement to avoid the village of Misson and will therefore route along Newington Road towards the A614 Bawtry Road. From Bawtry, the A638 provides routes north towards the M18 and the A614 provides access south towards the A1(M). Markets for this site are expected to be westwards and to south Derbyshire.



Figure 4 - Access Location - Bawtry Road Extension

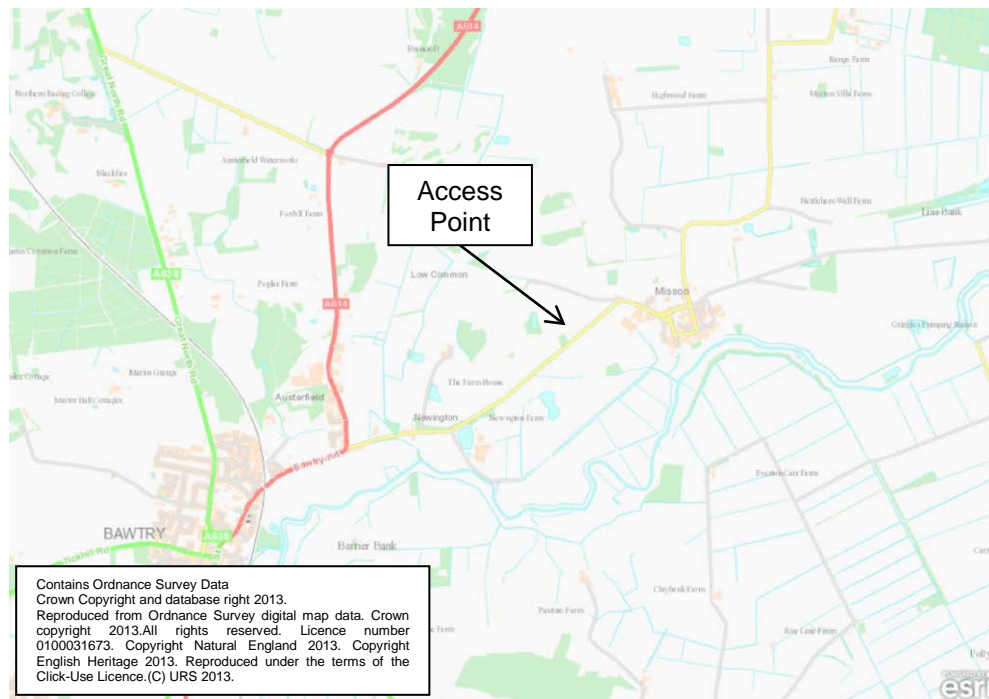


Figure 5 - Site Location - Bawtry Road Extension

Using 20T loads this site would extract 8 full loads of material per day, this is equivalent to less than one load per hour. Including return movements this gives a total of 16 two-way HGV movements per day. The Planning decision notice, however, gives a daily maximum of no more than 15 HGVs leaving the site per day.

The AIU team identified no clusters within the accident search at either the site entrance or the likely export route, with a small predicted increase in the export rate of material there are no reasons to expect safety issues with the operation of this site.

MP2c – Scrooby North

There have been mineral extraction activities at Scrooby since the 1930s. The Scrooby North site would extract 80,000 tonnes per annum. This site's closure is timed to allow a transition to the Scrooby South site at 2025/2026 whilst maintaining the same level of output as the existing site. It is proposed that the site could use an existing previous access onto the A638 between Scrooby and Ranskill, subject to it being suitable for the expected HGV movements.



Figure 6 - Access Location - Scrooby North

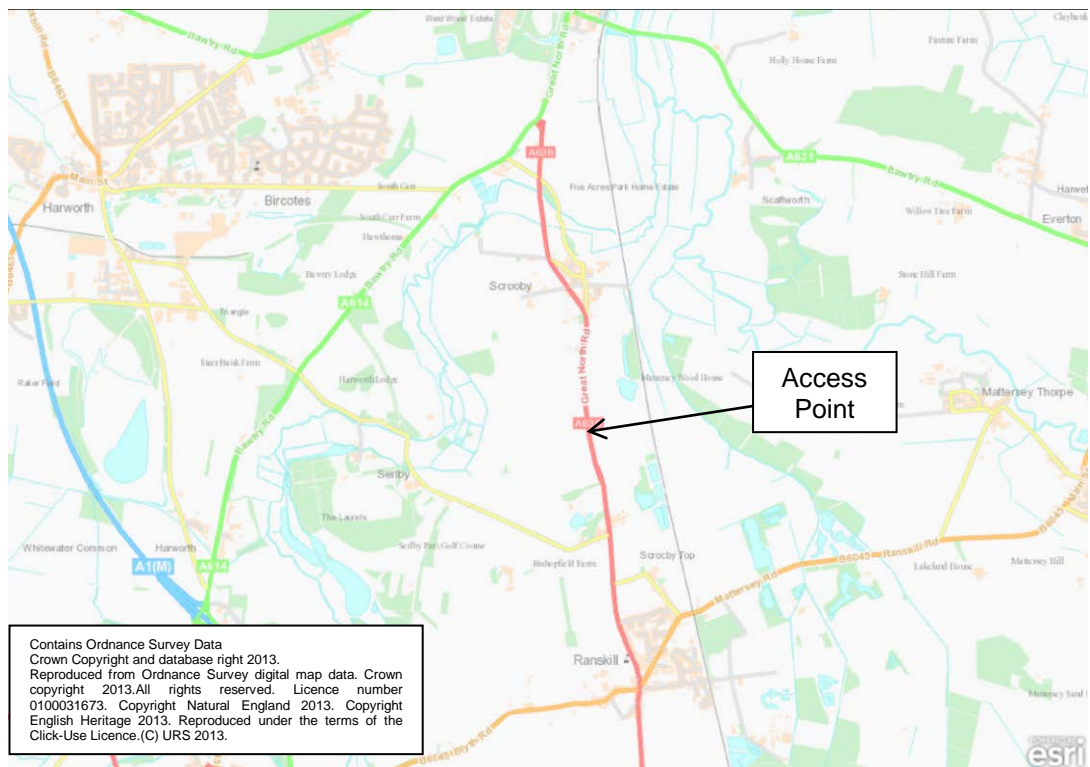


Figure 7 - Site Location - Scrooby North

It is expected that there would be 15 loads of material removed from the site on a daily basis, assuming a 20T vehicle. This equates to one HGV every $\frac{3}{4}$ hour (2 HGV two-way) as a result of this site. The Planning decision notice indicates that no more than 20 vehicles an hour should use the site haul road.

There were 7 accidents identified in the proximity of the access and 24 accidents identified along the export route. The AIU team's accident search has identified no reason to expect safety issues regarding the export route, as an accident cluster site at the A614 roundabout junction and through Ranskill are both below the average expected for these types. An issue has been raised concerning the site access, given that adjacent sites are expected to be worked through part of the same period, right turns are not provided for in separated lanes at this site. It is suggested that a suitable lining scheme could meet the highway authority's requirements to safely allow all HGV right turns to be segregated on the access into all sites.

MP2d – Scrooby South

This site ties into the operational activities at the Scrooby North site (MP2c above). Output from the two sites remains at a constant level, therefore there should be no additional discernible traffic impacts from switching operations between the Scrooby North site and the Scrooby south site.

MP2e – Besthorpe East

This site extracts 200,000 tonnes of material per annum. This level of output is expected to remain the same when the Besthorpe East extension is operating. There is a routing agreement at this site, which would remain, to divert all HGV movements in a northerly direction along the A1133 towards the A57, thereby avoiding the village of Collingham. HGV routing and overall numbers would be expected to remain equal to those already experienced at this site. Additionally, there has previously been the facility to export material by barge directly from this site and it would be desirable for this practice to be used where ever possible to further reduce the impact of HGV traffic. Extraction at this site is timed to allow a transition to the Besthorpe South site at 2027/2028 whilst maintaining the same level of output. Routing and HGV movements would not be expected to be different from the present situation.

Assuming HGV capable of carrying 20T would be used, then there would be 39 loads extracted per day and 78 two-way HGV movements. This results in 7 two-way HGV movements per hour. This is the worst case scenario, in terms of traffic impacts, as it assumes that no material will be transported by the River Trent and therefore foregoing a opportunity to enable the sustainable movement of goods.



Figure 8 - Access Location - Besthorpe East

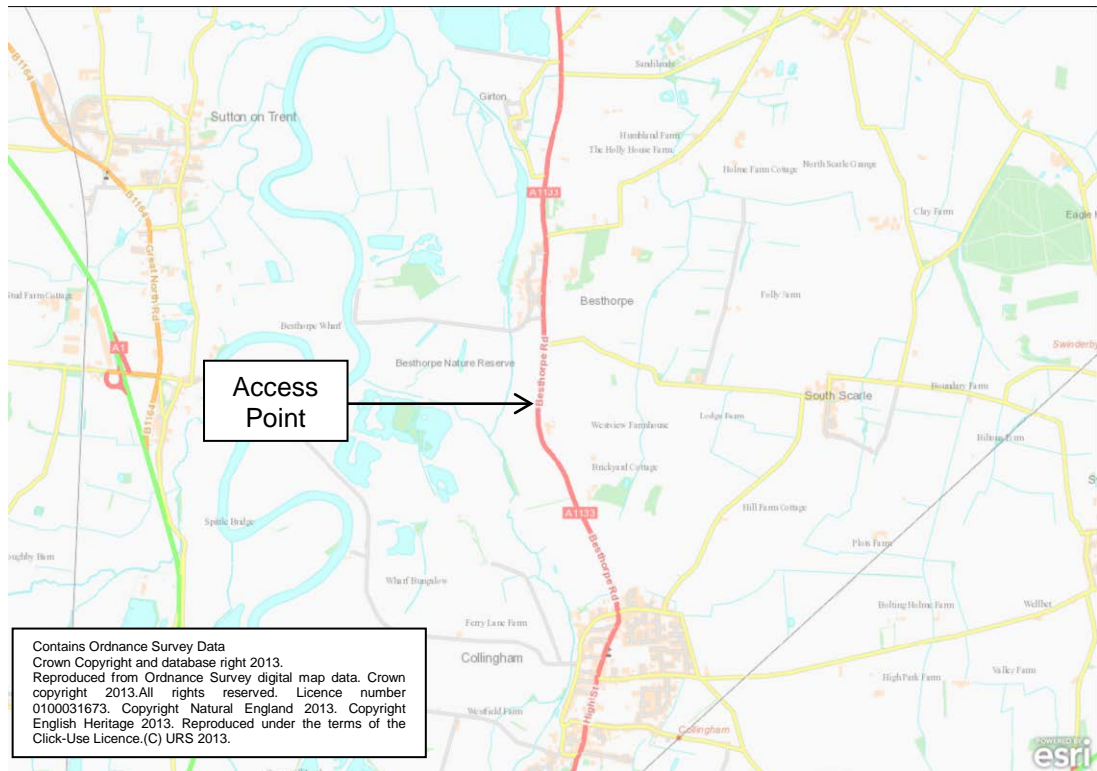


Figure 9 - Site Location - Besthorpe East

The AIU team identified 12 accidents near to the site access and 25 accidents along the export route. Along the A1133 there has been several remedial schemes undertaken, as such all accident clusters have been addressed. No issues have been raised with the site entrance at this location. There will be a reduction in the level of HGV movements from this site and, therefore, there are no overall safety related issues identified at this present time.

MP2f – Besthorpe South

This site ties into the operational activities at the Besthorpe East site (MP2e above). Output from the two sites would remain at a constant level, and therefore there should be no additional discernible traffic impacts from switching operations between the Besthorpe East site and the Besthorpe South site. It would be desirable, if this site too, could maximise the opportunities presented by the River Trent in exporting materials via alternative transport modes.

MP2g – Langford South

This site would extract 500,000 tonnes of material per annum. The existing Langford Lowfields quarry access would continue to be used, which is located on the A1133 to the south of Collingham. The HGV routing agreement requires that all vehicles access the site to and from the south thereby avoiding the village of Collingham. Site visits confirmed that signs are located on the exit instructing this behaviour. There is a route available towards the A46 via Whitemoor Lane, however this route is marked as unsuitable for heavy vehicles and therefore should not be considered an access route for quarry export vehicles. Therefore, all HGV movement will be south along the A1133 through Langford towards the A46. This site's operations will be timed to allow a transition to other Langford sites but maintain a continuous rate of extraction throughout the operation of three sites.

Using 20T vehicles to extract the material, there would be 96 full loads per day. Operating over 12 hours, this would result in 8 HGV outbound movements an hour, giving a total of 16 two-way movements including the return journey.



Figure 10 - Access Location - Langford South

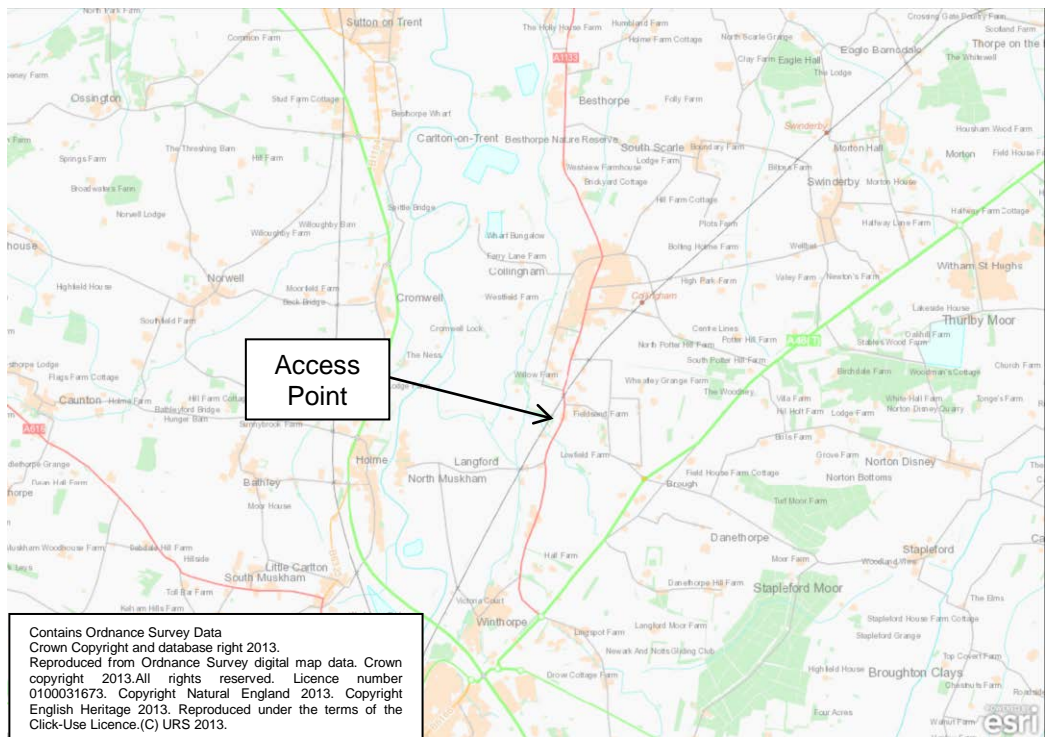


Figure 11 - Site Location – Langford South

There were 9 accidents located in the vicinity of the site access and 11 accidents located on the export route. The AIU team anticipate no safety issues with this site given the use of the existing access, in preference to a new access, and the existing routing agreements. HGV are restricted from movements both through Collingham and along Whitemoor Lane, therefore all movements should be to/from the south utilising the A1133 to the roundabout junction with the A46.

MP2h – Langford North

This site ties into the operational activities at the Langford site. Output from the Langford sites remains at a constant level, therefore there should be no additional traffic impacts from switching operations amongst the Langford sites. The HGV routing agreement would still be required to avoid Collingham along with the HGV restriction along Whitemoor Lane.

MP2i – Langford West

This extension to the Langford site is included within the Minerals Plan to maintain the operational life of the overall site. Output will remain at 500,000 tonnes per annum from 2023 for 2 years and will follow on from Langford South. The site will continue to use the existing access arrangements onto the A1133 to the south of Collingham. In terms of highway traffic impacts it is anticipated that the modification to this site will not have any discernible impact beyond those identified above for MP2g – Langford South site and MP2h – Langford North. No further transport impact assessment is deemed necessary.

MP2k – East Leake East

The quarry located at East Leake extracts 180,000 tonnes of material per annum; and this would remain the case with the East Leake East extension. The operation of this site is timed so that the East Leake North site can become operational in 2029/2030 whilst the overall level of output for both sites remains the same. The site access is via Rempstone Road and onto the A6006 to the south. From here, vehicles may access to the A6 to the south west and the A453 to the north west, access can also be gained to the A60 to the east and the A6006 to the south. There is a weight limit imposed upon Rempstone Road to the northwest and therefore no HGV access through East Leake is permitted.

It would be expected, using 20T vehicles, that there would be 35 loads per day extracted from this site. Over a 12 hour day, this would result in 3 loads per hour and 6 two-way HGV movements per hour. It could be reasonably expected that HGV vehicle routes would equally divided between markets east and west along the A6006. The Planning decision notice determined that there should be no more than 100 (2-way) HGV loads per day.



Figure 12 - Access Location - East Leake East

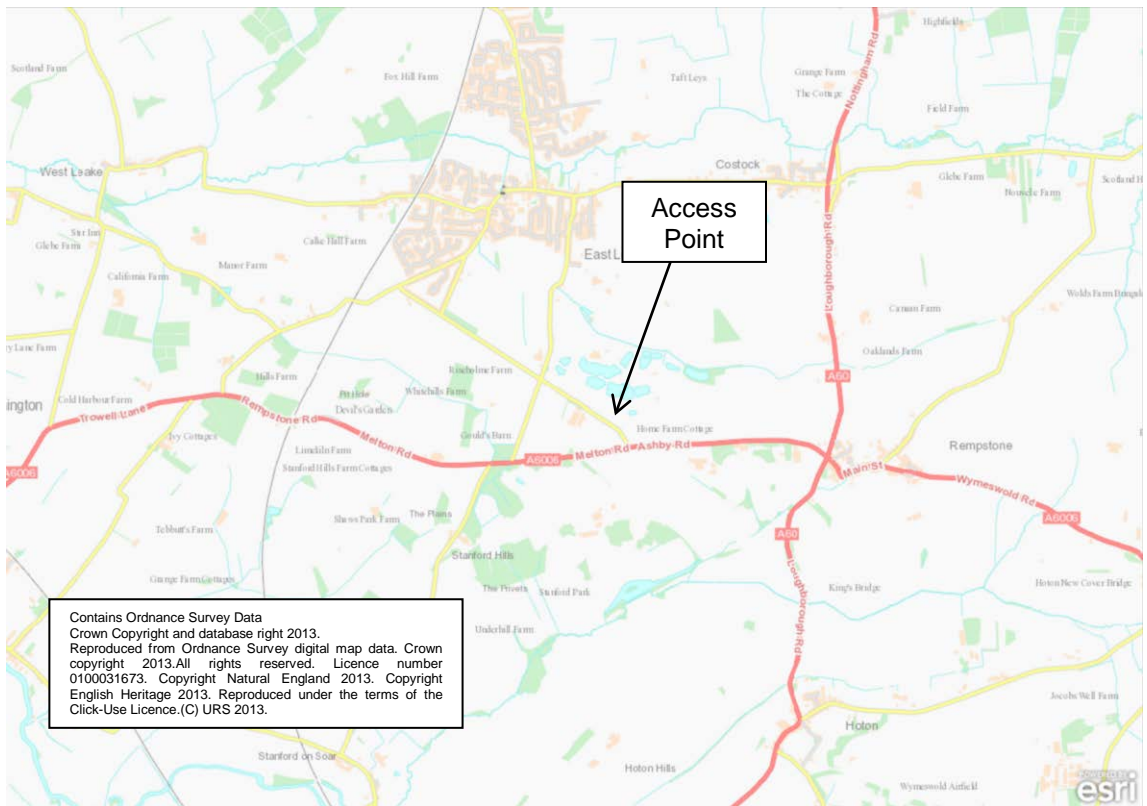


Figure 13 - Site Location - East Leake East

The AIU team identified 37 accidents in the area around the access and 75 accidents along the export route. Given that HGV traffic would utilise the A6006 in approximately equal proportions, the AIU team identified that there are no reasons to expect safety concerns with the extension to operations at this site. No accident clusters were identified at the site access and there were no untreated clusters on the A6006 route.

MP2j – East Leake North

This site ties into the operational activities at the East Leake North site (MP2k above). Output from the two sites remains at a constant level, therefore there should be no additional discernible traffic impacts from switching operations between the East Leake East site and the East Leake North site.

MP2l – Cromwell South

This is an extension site from the Cromwell Quarry (SGg) which is expected to extract 200,000 tonnes per annum, once operational. There is a requirement that HGV traffic from this site would access the A1 directly without passing through the village of Cromwell. It is expected that the close proximity of this site to the A1 would potentially allow material to be exported to markets located to both the north and the south.

Using 20T HGV to export the material, there would be 38 loads per day. Over 12 hours, this equates to 3 HGV loads per hour. A total of 6 HGV movements per hour can be expected, including the return journey by empty vehicles. It is assumed that the A1 north and A1 south markets would be served equally from this site.



Figure 14 - Access Location - Cromwell South

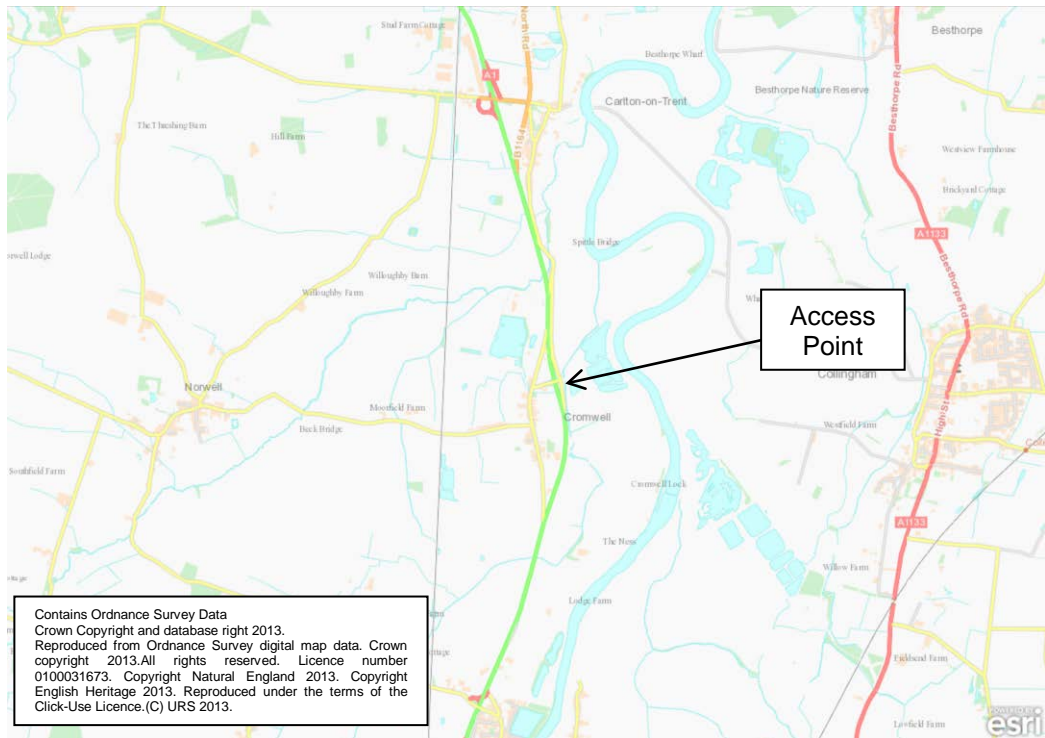


Figure 15 - Site Location - Cromwell South

The site access does not have any collisions in the accident search; one nearby collision was reported but did not involve a HGV. The AIU team did however raise an issue with potential HGV routing in Cromwell; from this site full access can be provided to / from the A1 without passing through Cromwell. The issue appears to be caused with HGV stopping off at the fuel station to the south and combined with the requirement for rest stops and suitable places to park. This issue is being investigated further by Nottinghamshire County Council. Despite this, no accidents were identified along the export route and therefore suitable routing agreements should be adopted to ensure that this site doesn't exacerbate any issues further.

MP2m – Barnby Moor

This is a new site which has not previously been used for modern mineral extraction activities. The rate of extraction would be 220,000 tonnes of material per annum. Site access would be along the A638, the A638 in this location poses no highway issues for a suitable location for site access. It is anticipated that this material would be destined for the processing plant in Auckley to the north. The overall markets for this site would be South Yorkshire and North Nottinghamshire; the most direct route between the site and Auckley would be to use the A638 Great North Road to Bawtry and A614 Bawtry Road to Auckley. This route would pass through the settlements of Ranskill, Scrooby, Bawtry and Auckley. The route is of a suitable width but does pass some sensitive receptors, i.e. places of worship and schools.

Given vehicles capable of transporting 20T of material at a time, and exporting over 5 days a week, there would be 42 loads of material a day (84 two-way HGV movements). Over a 12 hour operating day (0700-1900) this would equate to 2 loads an hour (4 two-way HGV movements).



Figure 16 - Access Location - Barnby Moor

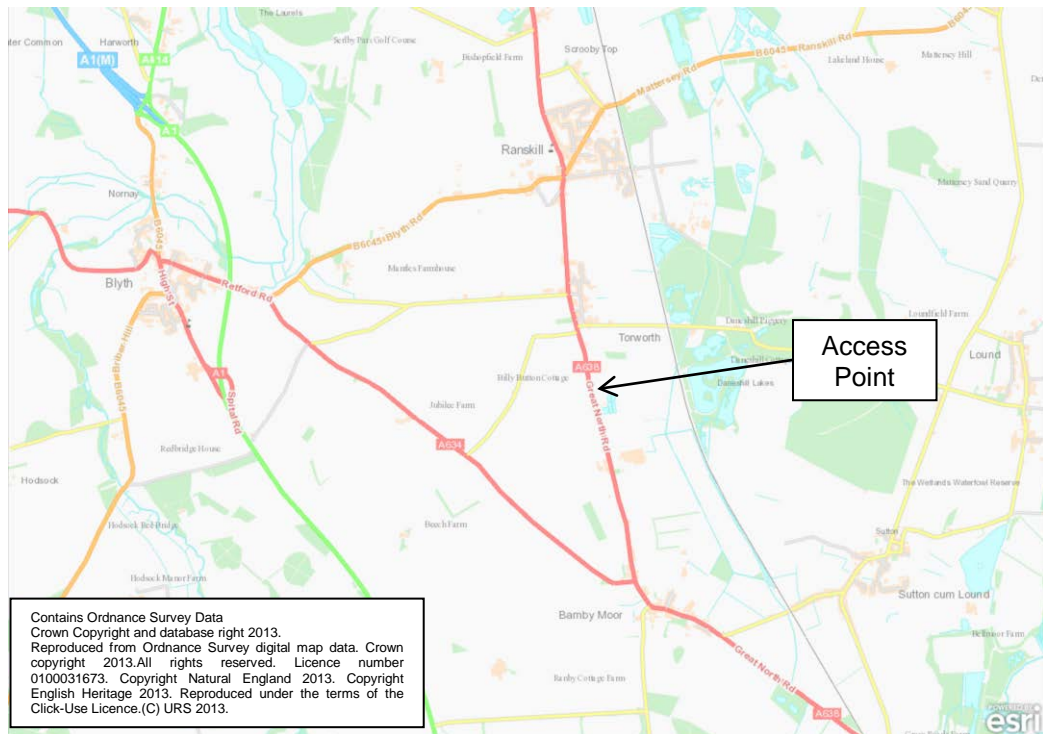


Figure 17 - Site Location - Barnby Moor

The AIU team identified that there had historically been a number of collisions in the vicinity of the proposed site access (33) some of which had amounted to overtaking type accidents.

Right turning HGV could exacerbate this problem especially if the access was located in the 60mph section of A638 rather than that section limited to 40mph. As with any new site it will be subject to a full 3 Stage Road Safety Audit which may identify suitable mitigation measures. Further to this, the route from this site also shows signs of accident clusters (84 along export route) at Ranskill and Scrooby, however these are below average for the type of highway and junctions. An accident cluster also exists at bends located along the A634 west of Blyth Old Bridge and at the A60 Oldcotes roundabout, an analysis of type determined that there was no treatable pattern at the roundabout (remedial works for the A634 bends are being considered for implementation). The route to / from the A1 did not highlight accident problems from the safety assessment period, therefore if all markets for material were to be no further west than the A1, the accident impacts would be limited.

MP2n – Botany Bay

This is a new site which has not previously been used for modern mineral extraction activities. However it forms a replacement for a nearby quarry site at Lound. The site access would be onto the A638 and the markets for the materials are expected to be North Nottinghamshire, Lincolnshire and South Yorkshire, as the Lound quarry previously provided. The annual rate of extraction is expected to be 200,000 tonnes of material.

The A638 Great North Road to Barnby Moor provides access to the A634 towards Blyth. Once at Blyth there are three route options at a priority junction, head south along the A1, head north along the A1 or take a westward route continuing along the A634 towards the A60 which provides access to Doncaster and Worksop or Rotherham.

Given vehicles capable of transporting 20T of material and exporting over 5 days a week, there would be 38 loads of material a day (76 two-way HGV movements). Over a 12 hour operating day (0700-1900) this would equate to 3 loads an hour (6 two-way HGV movements).



Figure 18 - Access Location - Botany Bay

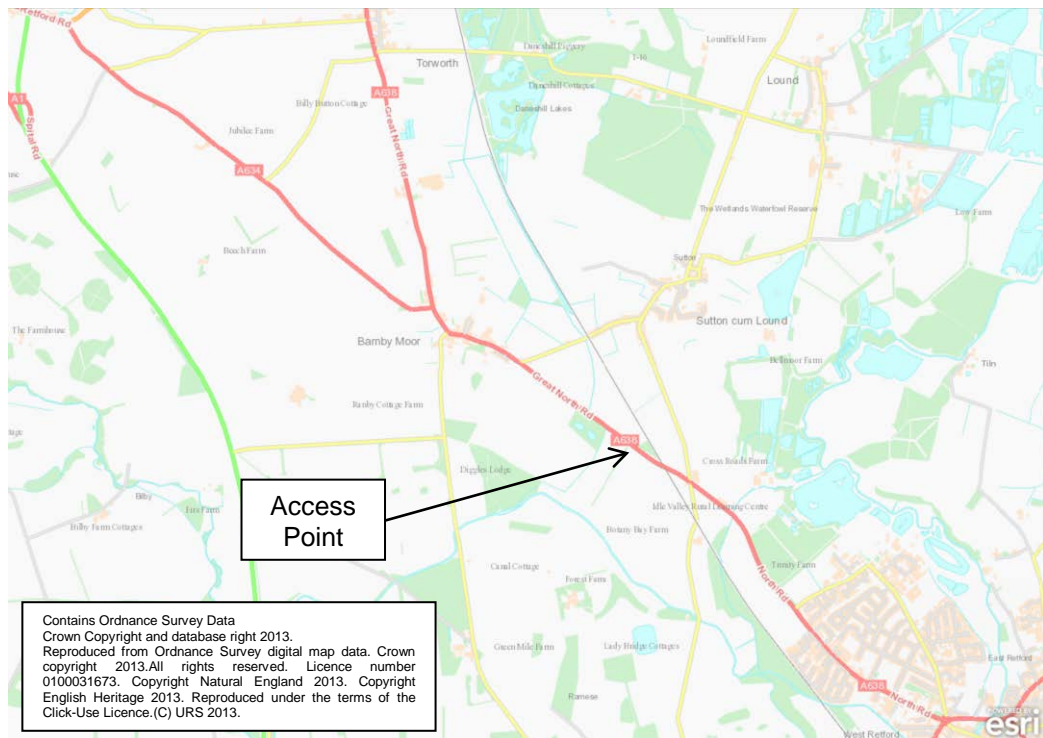


Figure 19 - Site Location - Botany Bay

Accidents in close proximity to the site entrance amount to 33 collisions and 84 along the export route. The site entrance has no safety issues within the accident period; however the AIU team identified that the access should be located central or to the north of the site, away from the rail bridge. It was also noted that there are no edge lines along the A638 at this location. The route north reveals some accident clusters at Ranskill and Scrooby but these are below average for the type of road.

MP2o – Coddington

This is a new site which has not previously been used for modern mineral extraction activities. The annual rate of extraction is expected to be 500,000 tonnes of material. Site access could be to the A17. HGV are already restricted from accessing Drove Lane, Beckingham Road and the village of Coddington. These restrictions would be expected to continue if the site were permitted. Access is therefore restricted to east-west movements along the A17, from here access can be gained to either the A1 facilitating north-south movements or the A46 facilitating NE-SW movements. Markets for this site are expected to be the East Midlands and South Yorkshire therefore A17 westbound followed by A1 north and A46 west are likely to be the key export routes.

Given vehicles capable of transporting 20T of material at a time, and exporting over 5 days a week, there would be 96 loads of material a day (192 two-way HGV movements). Over a 12 hour operating day (0700-1900) this would equate to 8 loads an hour (16 two-way HGV movements). With the restriction and condition of providing a suitable access directly onto the A17, the incremental impact of operating this site for mineral extraction would be negligible given that these primary routes already experience high flows of HGV.

In terms of access, this would need to be proven within a TA supporting the application (including appropriate design). Notwithstanding this, and subject to undertaking speed surveys, the A17 is relatively straight which provides opportunities to provide a variety of

junction types. One option could be to provide a priority junction and restrict HGV movements to a left-out operation (with provision of right-turn harbourage to facilitate right-in movements). The nearby roundabout to the immediate east of the site would facilitate the full range of movement for existing HGV without the need for a (potentially) slow moving HGV to enter what is understood (without speed survey data) to be a relatively high speed road.



Figure 20 - Access Location – Coddington

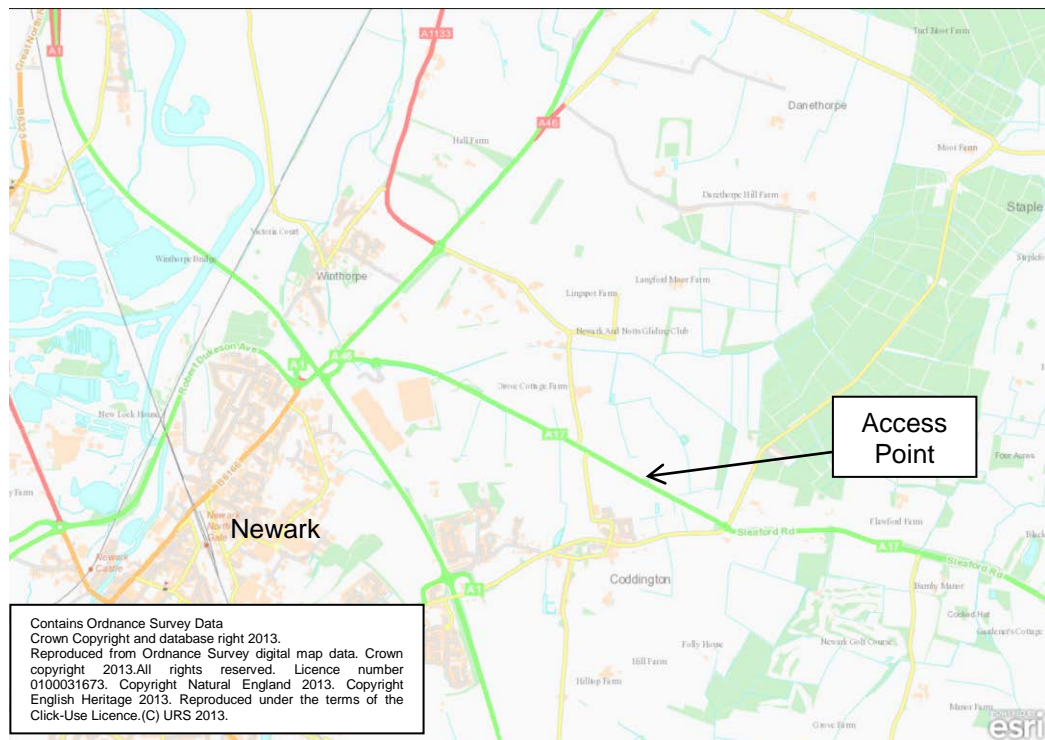


Figure 21 - Site Location - Coddington

There were 26 accidents identified near to the site entrance and 19 located along the export route. The AIU team suggest that access directly onto the A17 may be best served with a roundabout junction designed fully to DMRB standards. Along the export route there is a cluster of accidents located at the Drove Lane south junction. An associated improvement to this junction combined with a site access could facilitate both the site and an accident reduction scheme. Restrictions along Drove Lane, Beckingham Road and Coddington will continue.

MP2p - Flash Farm

This is a new greenfield site which is not currently worked for minerals. The site would be expected to extract between 200,000 tonnes and 250,000 tonnes per annum. The start date for the site would be 2016 and it is expected that this site would be operational for between 10 and 12 years. The site will access the highway network at an existing, to be upgraded, farm track onto the A617 west of Averham village. The junction will take the form of a ghost island priority junction.

It is expected that the site could generate 85 HGV loads per day which results in 170 two-way HGV movements. Over a 12 hour operating day (0700-1900) this would equate to 7 loads an hour (14 two-way HGV movements). According to information supplied by the site promoter regarding the location of the expected markets; 20% of all movements would be to / from the west, 15% through Southwell and the remaining 65% from the east over Kelham Bridge. An Environmental Weight Restriction has since been implemented through Southwell which will no longer provide an export route from this site, it is to be assumed that the 15% HGV movements will split equally between east and west movements on the A617 instead.

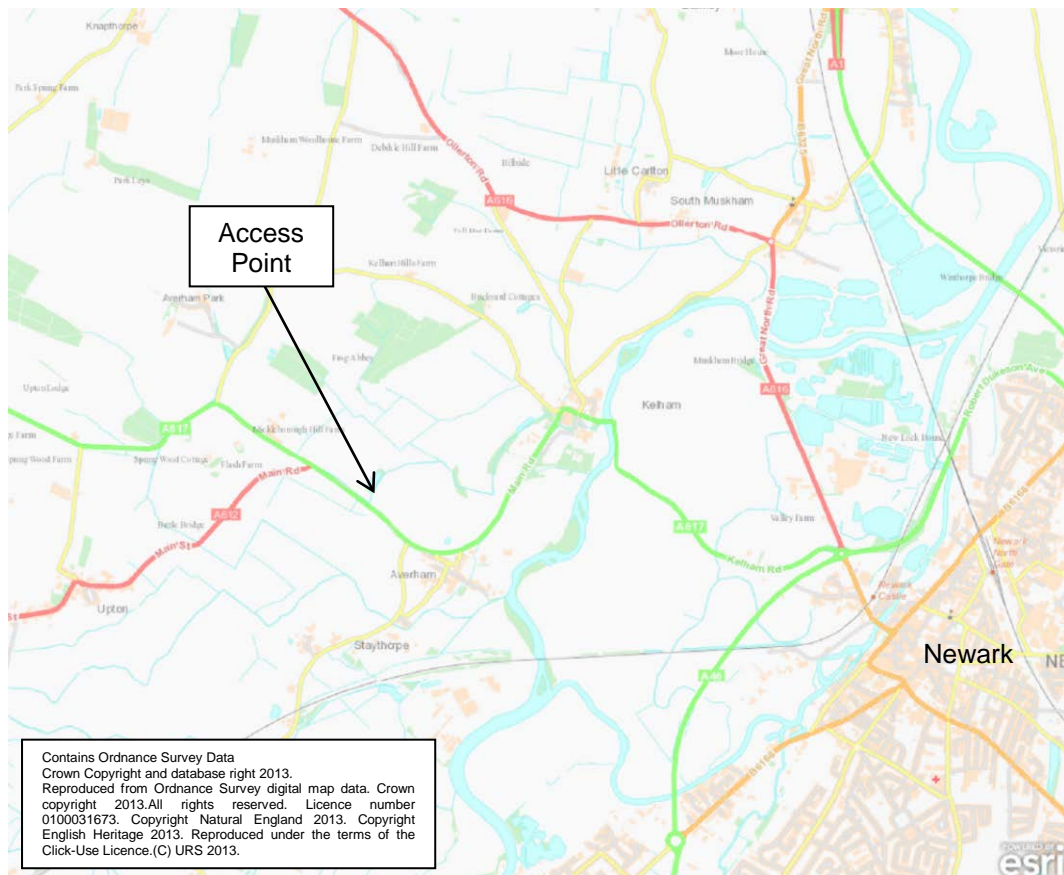


Figure 22 - Site Location – Flash Farm

There were 10 accidents recorded in the vicinity of the site access. The site access was submitted to the AIU team for consideration and it was recommended to slightly adjust the site entrance to increase visibility. The traffic signals at the A612 junction are believed to assist with opening gaps in the traffic flow and to regulate vehicle speeds past the proposed access. Along the expected export route there were 62 accidents identified. Southwell and Kelham are recognised as potentially sensitive locations. Additionally the A617 contains some accident cluster sites. High Friction Surfacing (HFS) and chevron signs have been installed; however it may be necessary to replace some of these as part of a package of mitigation measures for this site.

MP2q - Barton-In-Fabis

This is a new greenfield site which is not currently worked for minerals. The site would be expected to extract 220,000 tonnes per annum. The start date for the site would be 2017 and it is expected that this site would be operational for 13 years. The A453 is undergoing upgrade works which includes the construction of a new roundabout at Mill Hill. It is expected that the Barton-In-Fabis site will be accessed via a new haul road from a section of the retained ‘old-A453’ which ties into this new roundabout. The expected market for this site is the Nottingham conurbation, but markets could attract both eastbound and westbound routes along the A453.

Given vehicles capable of transporting 20T of material at a time, and exporting over 5 days a week, there would be 42 loads of material a day (84 two-way HGV movements). Over a 12 hour operating day (0700-1900) this would equate to 3½ loads an hour (7 two-way HGV movements).

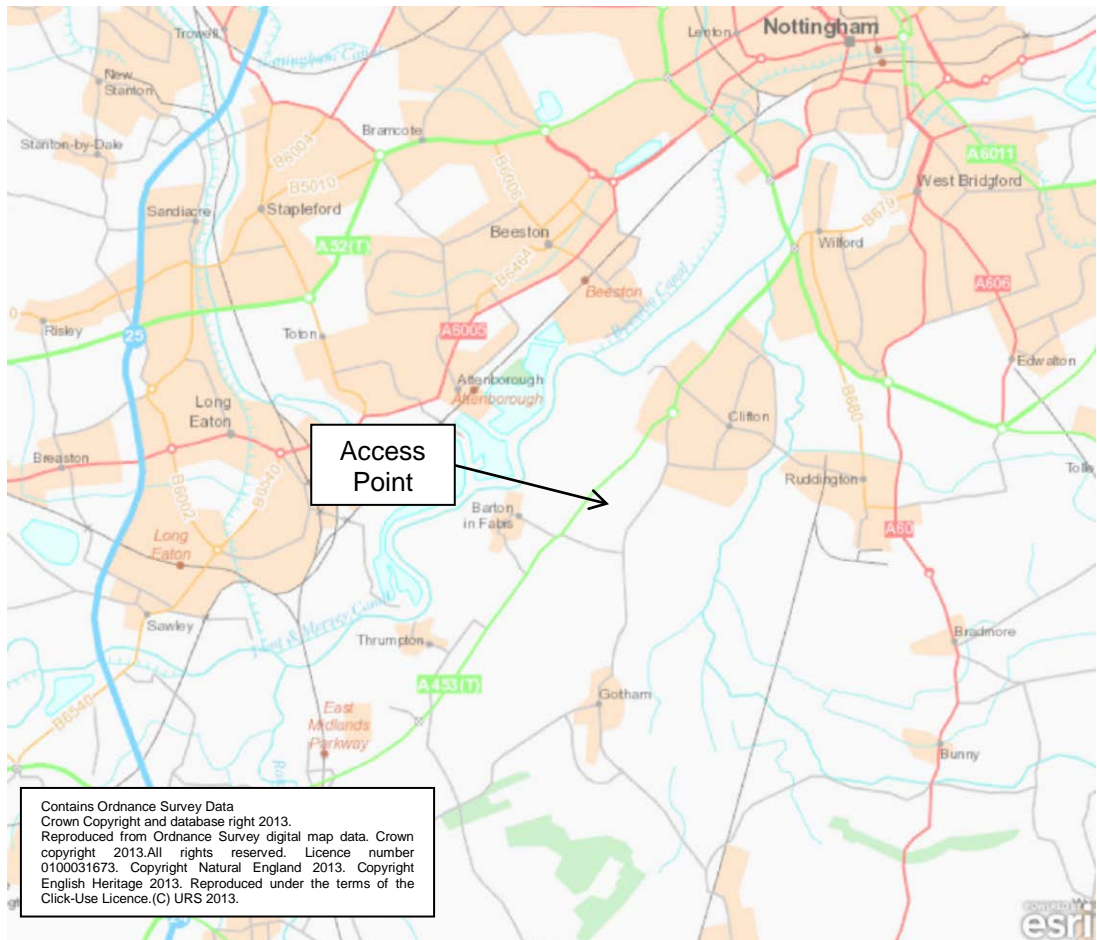


Figure 23 - Site Location – Barton-In-Fabis

The AIU team identified 13 accidents in proximity to the site access, however this is along the A453 which is to be replaced and as such is not representative of conditions to be expected when the site is operational. The AIU team state that the site access would need to be designed and constructed to DMRB standards and that any access would be subject to a three stage Road Safety Audit. Also, a routing agreement should be in place to restrict HGV movements through the village of Thrumpton.

MP3a – Bestwood East

This is an existing site where extraction is 250,000 tonnes per annum. The extension to the site would maintain this existing level of extraction, and therefore the number and routing of HGV observed as a result of the existing operations at this site would remain similar in the future. Access is directly onto the A60 where the markets of Mansfield and Nottingham can be reached to the north and south respectively.

Utilising 20T HGV, it would be expected that there would 48 full loads per day. Over a 12 hour operating day (0700-1900) this would equate to 4 full loads per working hour. The total two-way HGV movement would be 8 vehicles per hour, including the return journey.



Figure 24 - Access Location - Bestwood East

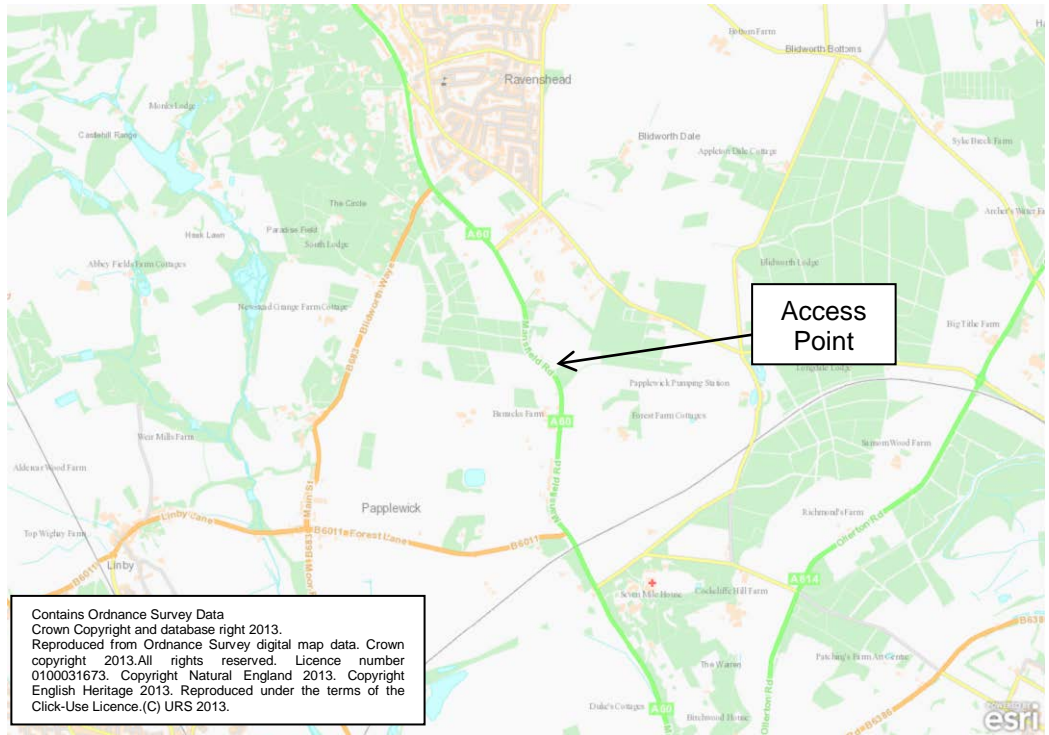


Figure 25 - Site Location - Bestwood East

The AIU team identified that there had been 8 accidents close to the site access and 156 along the likely export route. Near to the site access the AIU team identified a cluster of accidents along a bend however given the accident type and recent resurfacing this is no longer considered to be an issue at this present time. Along the wider A60 route there has been resurfacing and speed reduction measures which suggest that the route will not be an issue for HGV movements to / from the site. Additionally, the A60 / B6011 Forest Lane junction was converted to signals in December 2011. This site should not be an issue based upon existing accident records.

MP3b – Carlton Forest North

This is an existing site where the extraction is 25,000 tonnes per annum, although site visits in 2013 indicated very little activity. Extraction is expected to remain at 25,000 tonnes as a result of the site extension and therefore no intensification of vehicular movements could be expected from this site. The site access is located on the B6045 which provides access to Worksop to the south; to the north east the B6045 provides access to the A1, which in turn gives access to markets further afield to the north and south.

The site access itself is narrow and there are several other small access nearby located in close proximity along the B6045.

Using HGV with a 20T load capacity there would be 5 vehicle loads per day which would result in approximately 1 loaded HGV movement per 2 hours, the return movement would result in a total of 2 HGV movements every 2 hours. Given the possible low rates of extraction any potential issues with site access and adjacent accesses may not be material.



Figure 26 - Access Location - Carlton Forest North

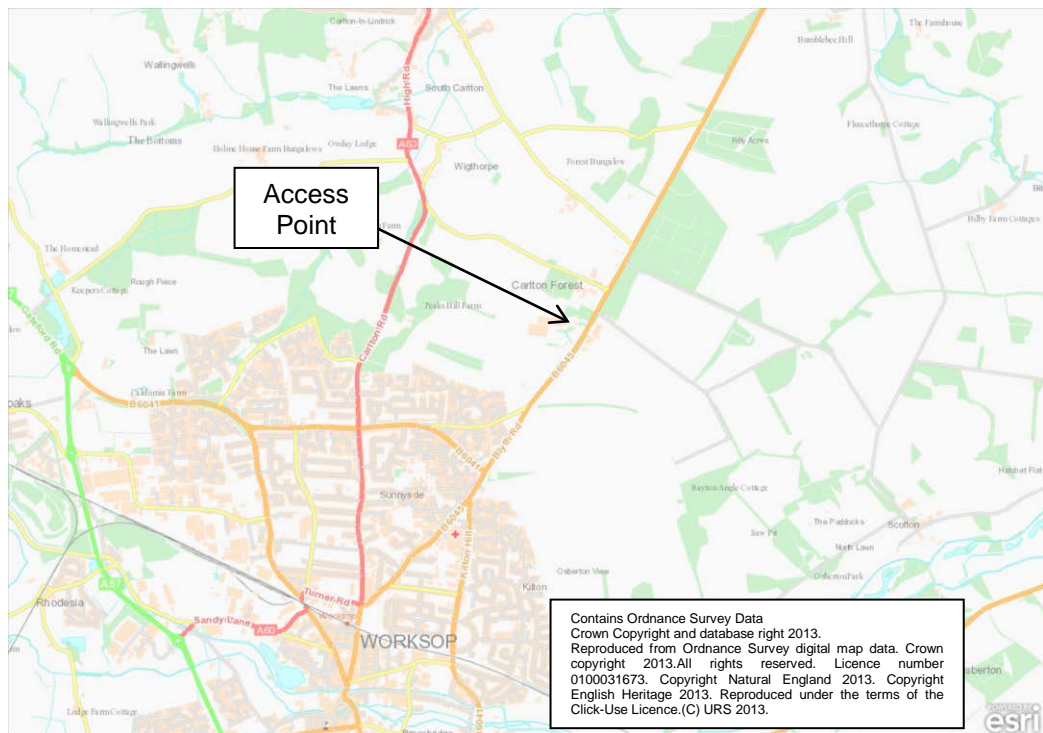


Figure 27 - Site Location - Carlton Forest North

There were 2 accidents in close proximity to the site access and 51 accidents along the export route. The AIU team identified no issues within the defined accident period with the access location especially given the expected low levels of export by HGV. Along the anticipated export route there have been several improvement schemes; B6045 / Hundred Acre Lane was improved in 2009, visibility at B6045 / Thievesdale Lane was improved in 2012/13 and the bend at Hodsock Red Bridge was improved in 2013. There is not expected to be any issues with this site access or export route based upon existing accident records.

MP3c – Scrooby Top North

This is an existing site where the extraction rate is 120,000 tonnes per annum. This is expected to be the case when the extension is operational, therefore there will be no discernible traffic related impacts when the extension site becomes operational. The site will continue to use the existing site access.

During site visits, the majority of HGV movements were towards the north, however this cannot necessarily be assumed to be a typical case given the short nature of the site visit.

Using 20T vehicles, there would be 23 full loads of material extracted from the site each day. This is equivalent to 2 loads per hour, which including the return journey would be around 4 HGV movements per hour as a result of the Scrooby Top North site extension.



Figure 28 - Access Location - Scrooby Top North

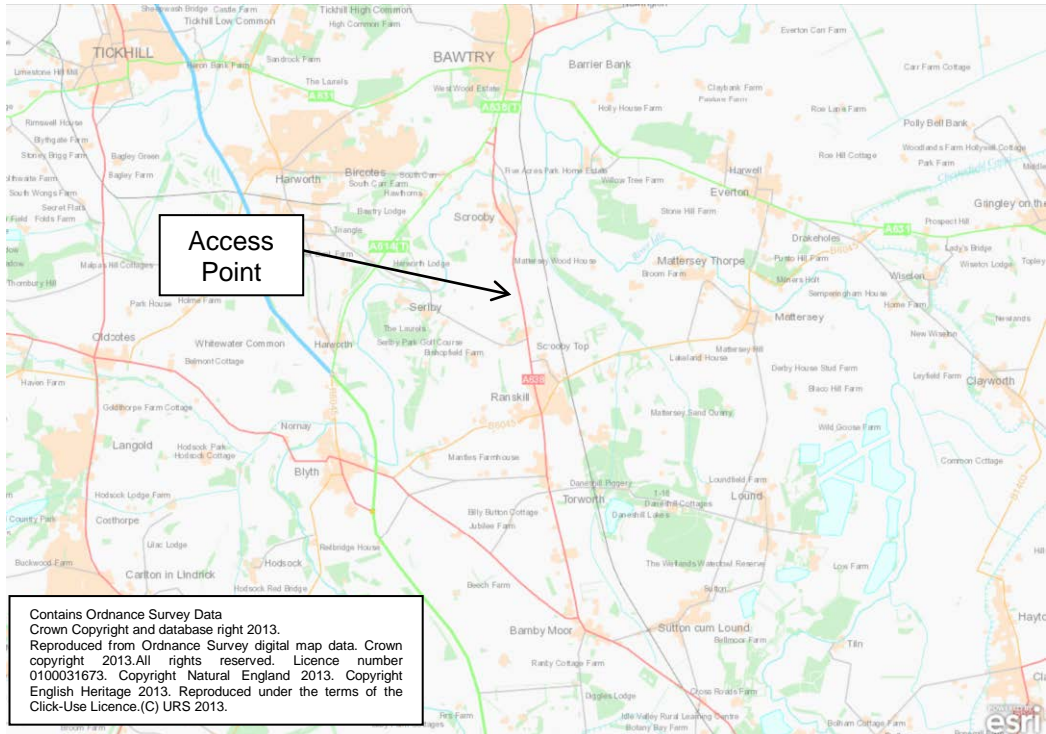


Figure 29 - Site Location - Scrooby Top North

The AIU team identified 7 accidents located near to the site entrance and 24 accidents along the export route. The AIU team has identified no accident clusters at either the access

location or the export route, given that the site is an extension with the existing rates of extraction maintained, there are no safety issues identified with this site.

MP6a – Kirton West

This is an extension of an existing site which utilises the existing highway access arrangements. The site access is onto Acre Edge Road and the A6075 orientated east-west. North-south movements from the site can be achieved by accessing either the A1 to the east or A614 to the west. It is likely that the overall traffic impacts of this extension would not be discernible from the levels of vehicular movement. The previous Planning decision notice contained the condition that no quarry traffic would have direct access onto Kirton Road.

During site visits, it was noted that the A6075 included some sharp bends in both directions from the site but most notably to the east. These present a constraint to two passing HGV at the bends. There are a number of industrial and logistic type businesses along this route and HGV were observed accessing these existing sites. Large HGV increases would cause an issue of queuing and delays along this route.



Figure 30 - Access Location - Kirton West

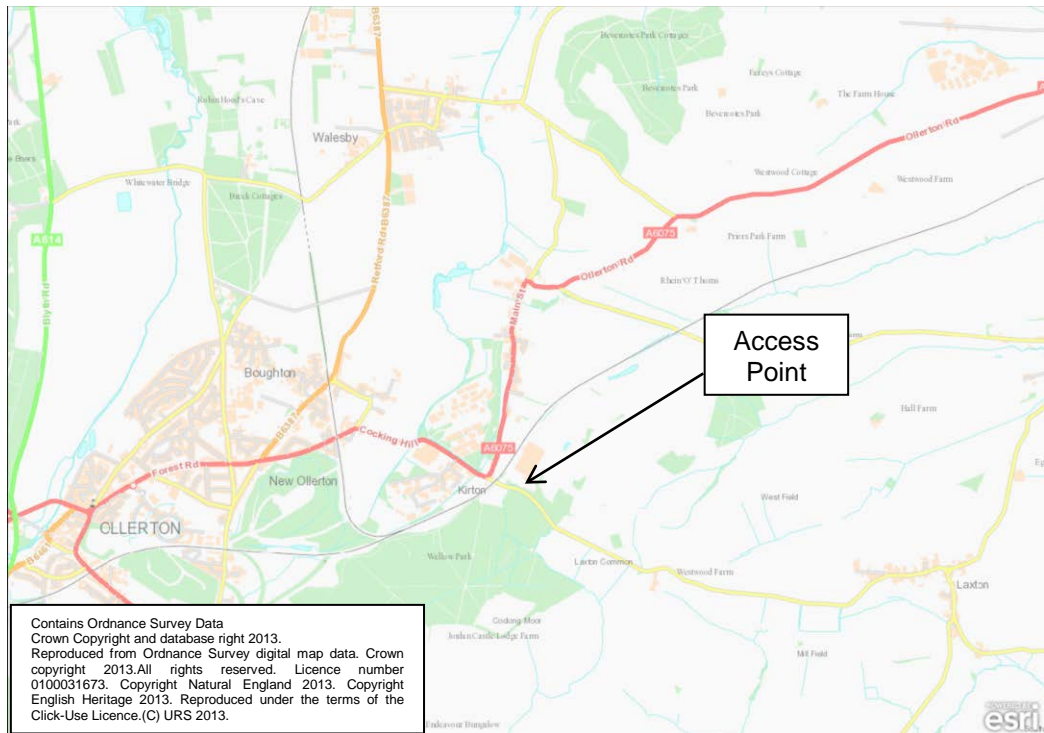


Figure 31 - Site Location - Kirton West

The AIU team identified 11 accidents close to the site entrance and 85 accidents along the export route. Given similar rates of mineral processing as the existing site, the AIU team did not identify any specific collision issues at this time with either the site access or the export route.

MP9a – Holbeck

This is a new Industrial Dolomite quarry, which would be operated as a remote extension to the existing Whitwell Quarry nearby. The site entrance is likely to utilise the A616 at the location of an existing bridleway to the south of the site. The Dolomite would be crushed on site and transported to the Steetley Dolomite Works located adjacent to Whitwell Colliery, via the A616 and Crags Road. The processed mineral from the Steetley Dolomite works would continue to be transported by road using the existing haulage routes. Given the location of this site, consideration of routing into and out of Derbyshire will also be necessary, and wider traffic impacts upon visitors to Creswell Crags (a Site of Special Scientific Interest and potential World Heritage Site) may need further consideration.



Figure 32 – Potential Access Location on A616 - Holbeck

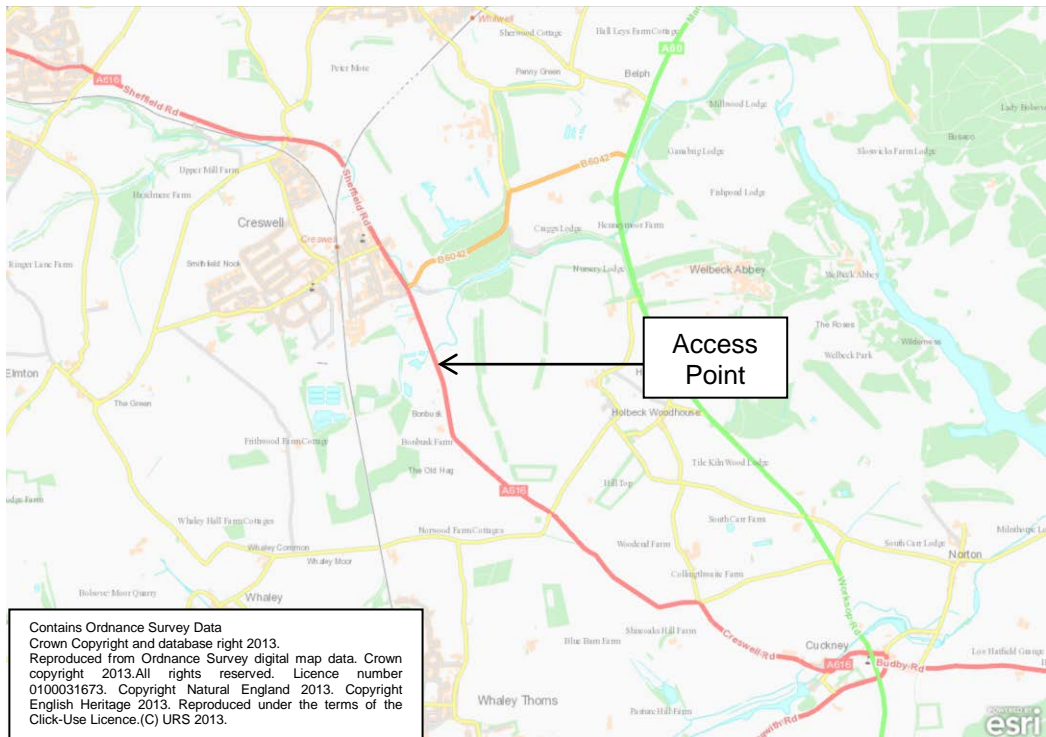


Figure 33 - Site Location - Holbeck

The AIU team identified that there had been 13 accidents in the area around the likely site entrance; however it is possible that the site entrance may be located outside of the Nottinghamshire highway network. The entrance to any new site should be constructed to DMRB standards and be subject to a full 3 stage Road Safety Audit.

There were 60 accidents identified on the possible export routes. The AIU team suggest that improvements may be required to the Cuckney Crossroads if significant increases in HGV traffic can be anticipated. The A60 south of Mansfield is also identified as a potentially sensitive route. The A60 north route has been treated at sites of known collision locations. There are no issues with collisions on the possible A619 export route within Nottinghamshire.

Shelford West

This is a new greenfield site which is not currently worked for minerals. The site is expected to extract 500,000 tonnes per annum. Of this, 180,000 tonnes per annum would be taken from the site via barge along the River Trent to the Colwick industrial estate for use in existing concrete batching plants and an existing asphalt plant. The remaining 320,000 tonnes would be transported by conveyor from the extraction site to a processing plant before being transport by HGV along the road network, via an access onto the A6097.

The start date for the site would be 2016 and it is expected that this site would be operational for 14 years.

The expected market for this mineral is the Nottingham conurbation, but markets could attract both left and right movements along the A6097. It is assumed the 60% of the new HGV movements will head south and therefore turn right out of the site, travel along the A6097 for 1 mile to the A46 (Trunk road) junction. The remaining 40% would head north and is therefore assumed to turn left along the A6097 and cross the River Trent via Gunthorpe Bridge.

Given vehicles capable of transporting 20T of material at a time, and exporting over 5 days a week, there would be 64 loads of material a day transported by road (128 two-way HGV movements). Over a 12-hour operating day (0700-1900) this would equate to 6 loads an hour (12 two-way HGV movements).



Figure 34 – Potential Access Location on A6097 – Shelford West

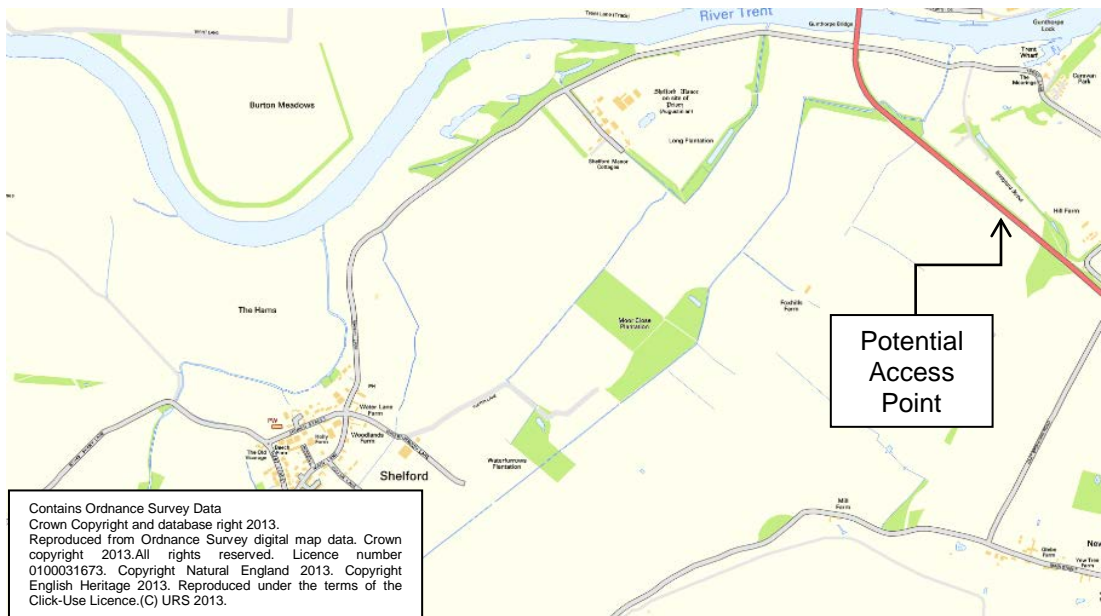


Figure 35 – Site Location - Shelford

The AIU team identified no safety issues within the accident period at the proposed new site entrance on the A6097. The new site entrance should be constructed to DRMB standards and a full 3 stage Road Safety Audit is required. Junction form is to be agreed but signal control junction recommended. High friction road surfacing is required on all approaches.

Several engineering measures have been introduced on the A6097 in recent years including improvement to the junctions at Gunthorpe Bridge and a reduced speed limit. Average speed cameras were installed in November 2013 between Lowdham and Gunthorpe Bridge. These cameras should have a positive effect on accidents to the north of the proposed access, although it is too early to confirm the effectiveness of these measures.

The proposed route south from the site travels through A6097/Kirk Hill signal controlled junction towards the A46. Significant queues form at this traffic signalled junction in peak periods.

3 COMPARATIVE ASSESSMENT

3.1 Assessment Matrix

Using the assessment criteria described in section 1.3 each of the sites can be analysed at a high level using the 'traffic light' system described. A subjective assessment of each of six key considerations is given below where green suggests that the impact is minimal, amber suggests that the site may have some minor noticeable impacts and red highlights potential issues for that particular criteria.

Duration of site has been separated from the other considerations as this can effectively double count some of the impacts related to the site.

	Assessment Criteria (See Table 1)						Assessment Score	Existing / Potential Mitigation
	Type of Site	Access	Export Mode	Export Route (Vehicular)	Sensitive Receptors	Duration of Operations		
MP2a								
MP2b								Routing restriction and limit of maximum HGV exports in place.
MP2c								
MP2d								
MP2e								
MP2f								
MP2g								
MP2h								
MP2i								
MP2j								
MP2k								Weight restriction in place.
MP2l								
MP2m								Requires new access, but this appears feasible.
MP2n								Requires new access, but this appears feasible.
MP2o								Requires new access, but this appears feasible.
MP2p								Requires new access, but this appears feasible.
MP2q								Requires new access, but this appears feasible.
MP3a								
MP3b								Low intensity site. Higher rates of extraction would need to be proven via a detailed TA.
MP3c								
MP6a								An existing site with no further intensification of production.
MP9a								Requires new access, but this appears feasible. Weight limits already in place.
Shelford West								Requires new access, but this appears feasible.

Table 4 - Matrix of Assessment Criteria Impacts

4 CUMULATIVE IMPACTS

4.1 Cumulative Impact Locations

The highway impacts of the HGV movements from all Minerals Plan sites can be examined based upon assumed export vehicle sizes and operational hours of the sites. It has been assumed that all vehicles will be capable of carrying 20T loads from all sites and that all sites would export materials over a 12-hour period during the day. Cumulative impacts will be most important where several sites are in close proximity and the haul routes could reasonably be expected to be shared by the proposed sites. Two areas have been identified where there are sites in close proximity to each other as shown in Table 5 below. Sub maps are provided for these areas (Figure 37 and 38) to show the cumulative impacts.

Sites MP2j and MP2k, located to the south of the mineral plan area, have not been assessed as a cluster as these two sites operate concurrently and would never operate alongside each other. No cumulative impact would result from sites MP2j and MP2k.

Map	Type	Sites ID							
Map 1	Sand and Gravel	MP2e	MP2f	MP2g	MP2h	MP2i	MP2l	MP2o	MP2p
Map 2	Sand and Gravel	MP2a	MP2b	MP2c	MP2d	MP2m	MP2n	MP3c*	

Note: MP3c is a Sherwood Sandstone site

Table 5 – Sub Maps Showing Cumulative Impacts

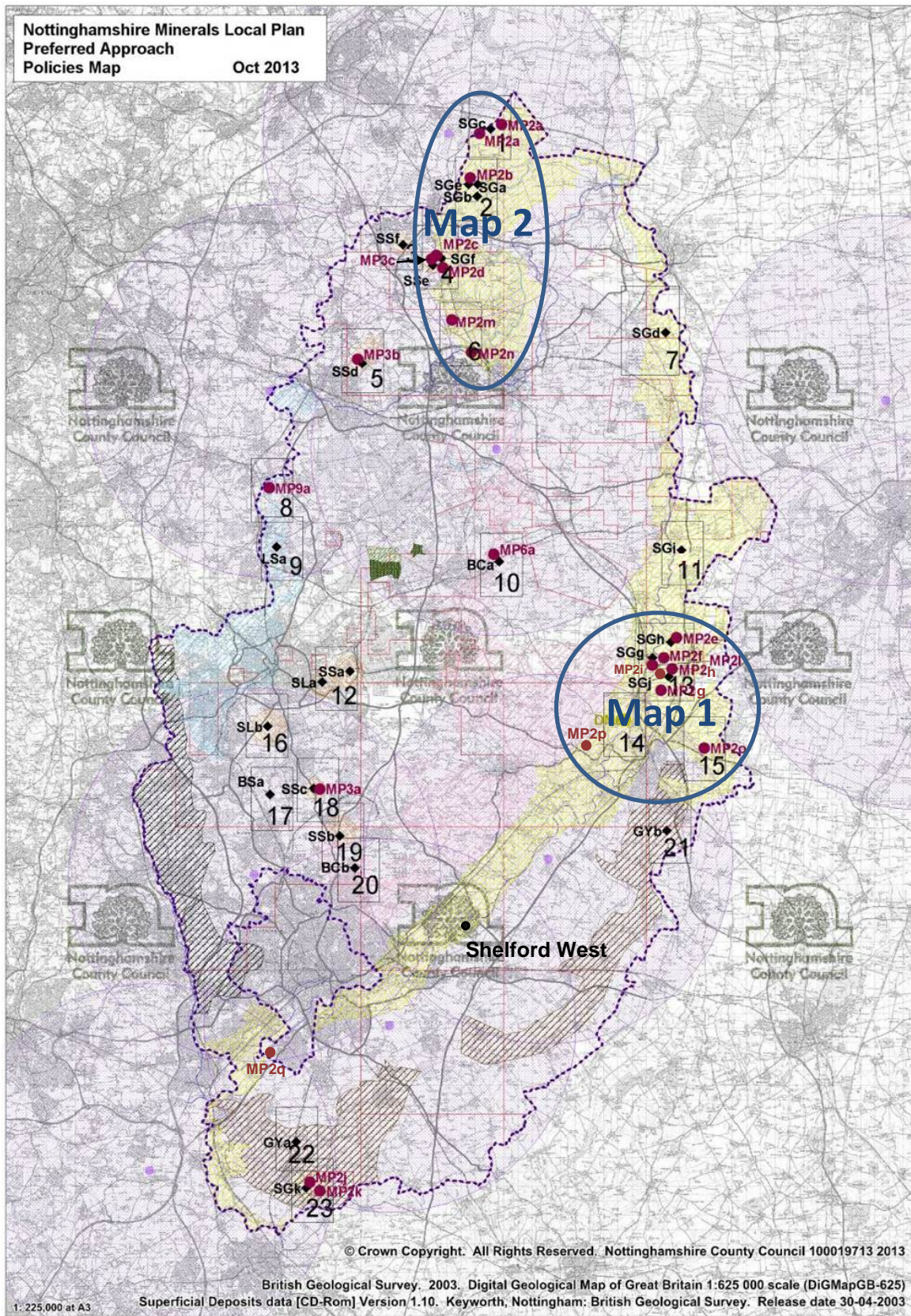
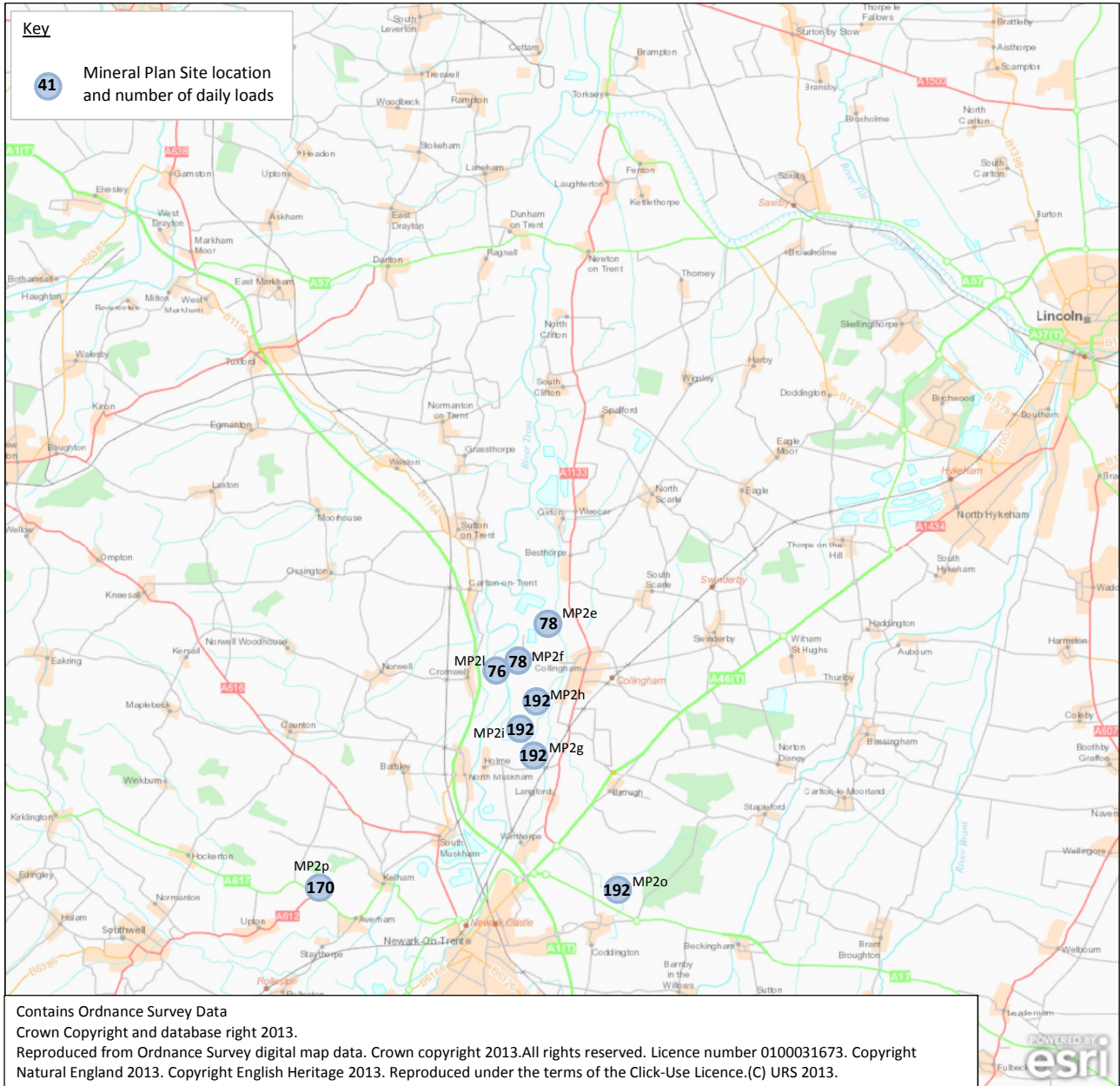


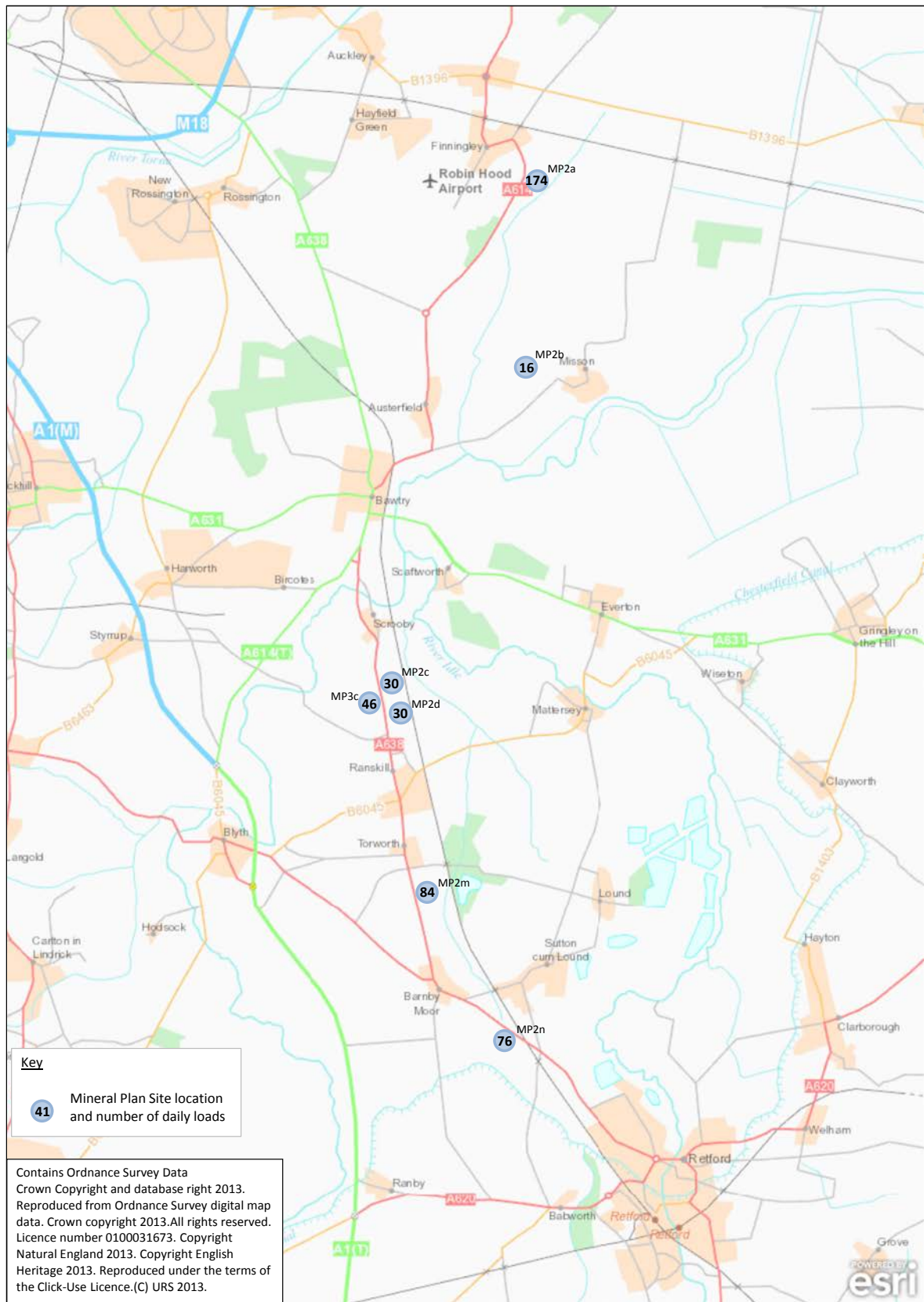
Figure 36 - Map of Minerals Plan Sites – Grouped (Source: Nottinghamshire County Council - Amended)

The daily two-way HGV flows at peak operation, i.e. the loaded and subsequent return journey over 12 hours, at each of the proposed Minerals Plan extraction sites are presented below for each of the inset maps.



Note: Not all Minerals Plan sites are operational at the same time.

Figure 37 – Map 1 - Two-way Daily HGV Movements



Note: Not all Minerals Plan sites are operational at the same time.

Figure 38 - Map 2 - Two-way Daily HGV Movements

The Nottinghamshire Minerals Plan is designed to provide a market led supply of a range of minerals over the whole life of the plan, up to the year 2030, for the local market. To achieve this, each of the Minerals Plan sites would become operational at different points in the future and given the fixed amounts of suitable material available at each site and possible rates of extraction, they will be operational for a different number of years. As a result of this, the cumulative impacts of the workings of the Minerals Plan sites will not occur all at once and will instead be spread throughout the plan period.

Where the cluster sites occur (Map 1 and Map 2 above) there will be localised peaks in mineral output and therefore the cumulative traffic impacts from these sites will need to be assessed for the key years where maximum trip generations are likely to occur.

The year of greatest traffic impact for the Map 1 cluster is expected to occur in 2027 when most mineral extraction is due to take place. Sites MP2l (Cromwell South), MP2o (Coddington), MP2e (Besthorpe East), MP2i (Langford North) and MP2p (Flash Farm) are operational at this time.

The Map 2 cluster experiences maximum mineral extraction between 2019 and 2022 when sites MP2m (Barnby Moor), MP2n (Botany Bay), MP2b (Bawtry Road North) and MP2c (Scrooby North) are operational concurrently.

The delivery schedule for all the Minerals Plan sites is given below in Tables 6 for sand and gravel sites and Table 7 for Sherwood sandstone sites. The shading colours indicate the mineral type to be extracted. Light shading indicates new sites.

Site reference	Site	Annual Output ('000 tonnes per annum)																		
		Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
SGa	Misson West	15	15	15	15	15	15	15												
SGb	Newington South	200	200	200	200	200	200	100												
MP2m	Barnby Moor							110	220	220	220	220	110							
SGc	Finningley	400	400	350	50															
MP2a	Finningley extension			160	450	0	0	160												
SGd	Sturton Le Steeple							100	300	400	500	500	500	500	500	500	500	500	500	500
MP2n	Botany Bay								200	200	200	200	200	200	200	200	200	200	200	200
SGe	Bawtry Road	26	52	52	26	26	26													
MP2b	Bawtry Road North							40	40	40	40	40	40	40	40	40	40	40	40	40
SGf	Scrooby ²			18	9	9														
MP2c	Scrooby North							80	80	80	80	80	80	80	80					
MP2d	Scrooby South															80	80	80	80	80
SGg	Cromwell				200	200	200	200	200	200	200	200	200	200	200	200				
MP2l	Cromwell South																200	200	200	200
MP2o	Coddington												500	500	500	500	500	500	500	500
SGh	Besthorpe	200	200	200	200	200	200													
MP2e	Besthorpe East							200	200	200	200	200	200	200	200	200	200			
MP2f	Besthorpe South																	200	200	200
SGi	Girton	50	15	50	50	50	150	200	200	200	200	200	200	200	200	200	200	200	200	200
SGj	Langford Lowfields	500	500	500	200															
MP2g	Langford South				300	500	500	500	500	500	500	500								
MP2h	Langford West												500	500	250					
MP2i	Langford North														250	500	500	500	500	250
MP2p	Flash Farm					250	250	250	250	250	250	250	250	250	250	250	250	250	80	
MP2q	Barton in Fabis						220	220	220	220	220	220	220	220	220	220	220	220	220	220
SGk	East Leake	180	180	180	180	180														
MP2k	East Leake East						180	180	180	180	180	180	180	180	180	180	180	180	180	180
MP2j	East Leake North																			180
Shelford West	Shelford West					250	500	500	500	500	500	500	500	500	500	500	500	500	500	250

Table 6 – Potential sand and gravel delivery schedule ('000 tonnes per annum)

Site reference	Year	Annual Output ('000 tonnes per annum)																		
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
SSa	Rufford	50	50																	
SSb	Burntstump	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
SSc	Bestwood 2	200	200	200	200	200	200	200	200	200										
MP3a	Bestwood 2 East										250	250	250	250	250	250	250	250	250	250
SSd	Carlton Forest	25	25	25																
MP3b	Carlton Forest North				25	25	25	25	25	25	25	25	25	25	25	25	25			
SSe	Scrooby Top	120	120	120	120	120	120													
MP3c	Scrooby Top North							120	120	120	120	120	120	120	120	120	120	120	120	120
SSf	Serlby	25	25																	

Table 7 – Potential Sherwood Sandstone delivery schedule ('000 tonnes per annum)

4.2 Impact on the Highway Network

So far, the assessment has considered the impacts on the existing highway network for each of the sites in the Minerals Plan in isolation.

Figure 39 and 40 show the highway network conditions in 2013 from information held by Nottinghamshire County Council. This information takes the form of two way Annual Average Daily Traffic (AADT) flows for all vehicles for most links in Nottinghamshire, including all major links. Additionally, information relating to the two-way Annual Average Daily Flows (AADF) for HGV is also presented for the same links in Nottinghamshire.

This allows a qualitative assessment to be made of the likely impacts of the Minerals Plan sites in relation to the existing highway conditions.

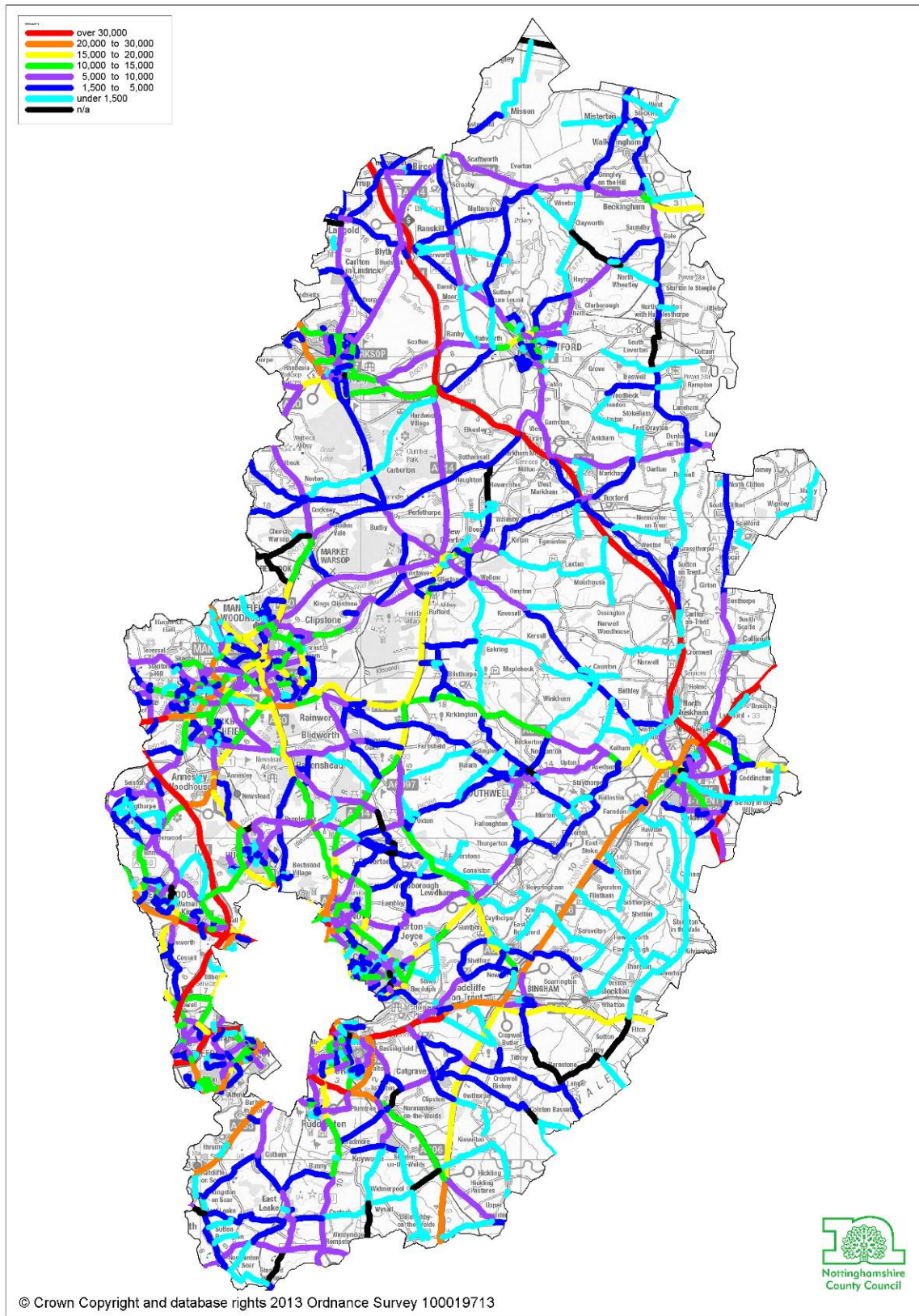


Figure 39 – Annual Average Daily Traffic (AADT) flows for Nottinghamshire

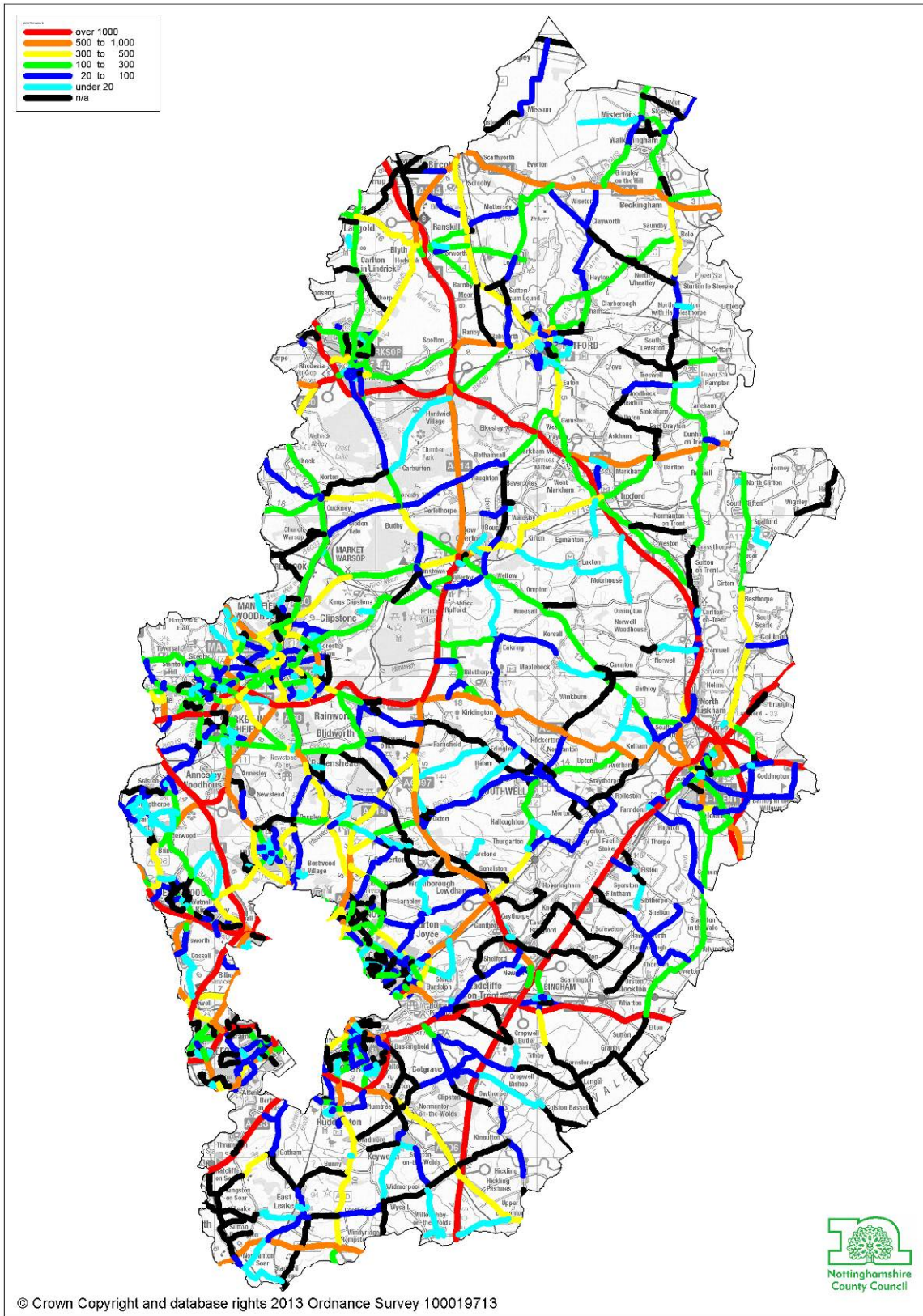
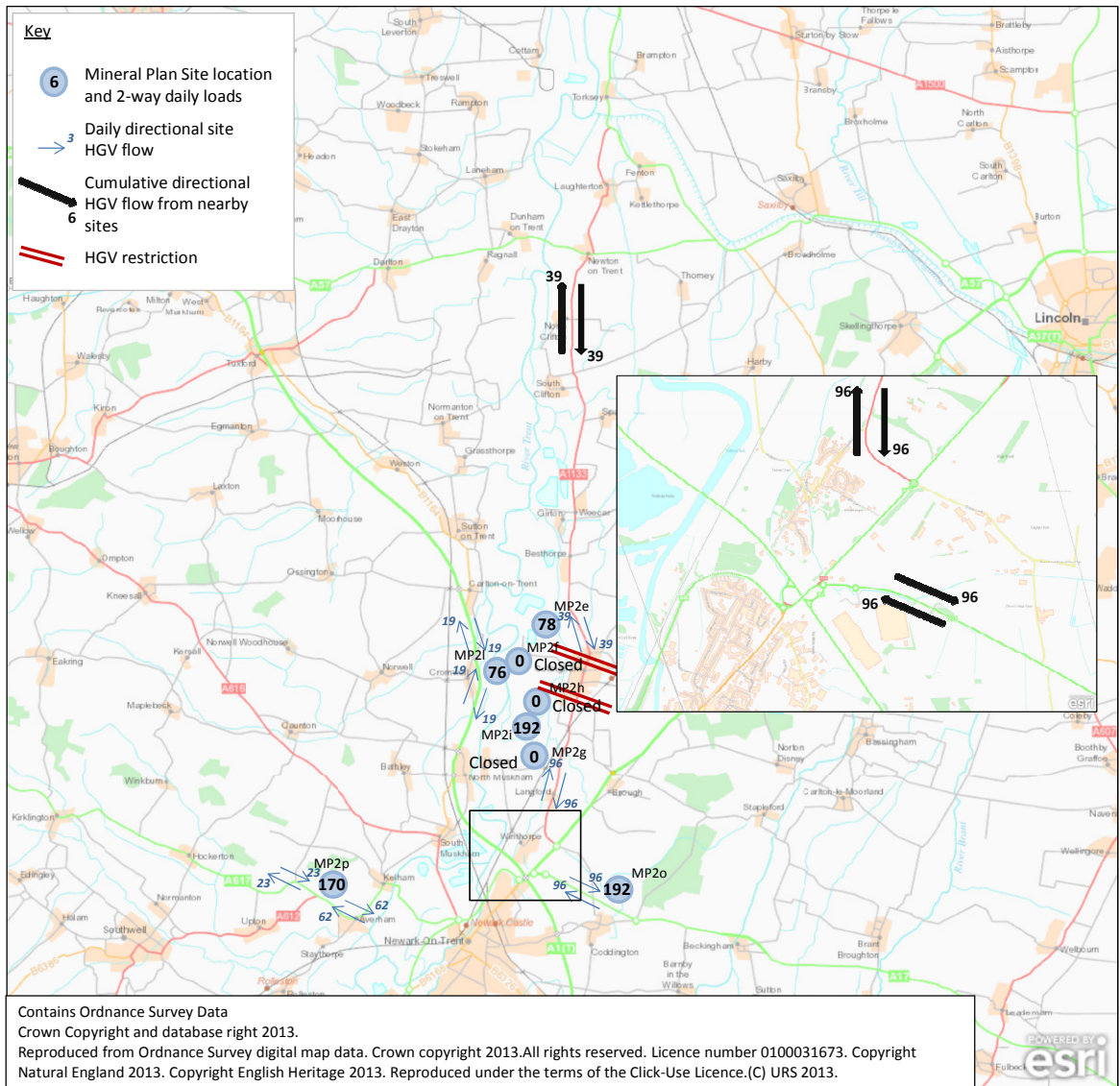


Figure 40 – Annual Average Daily HGV Flows (AADF) for Nottinghamshire

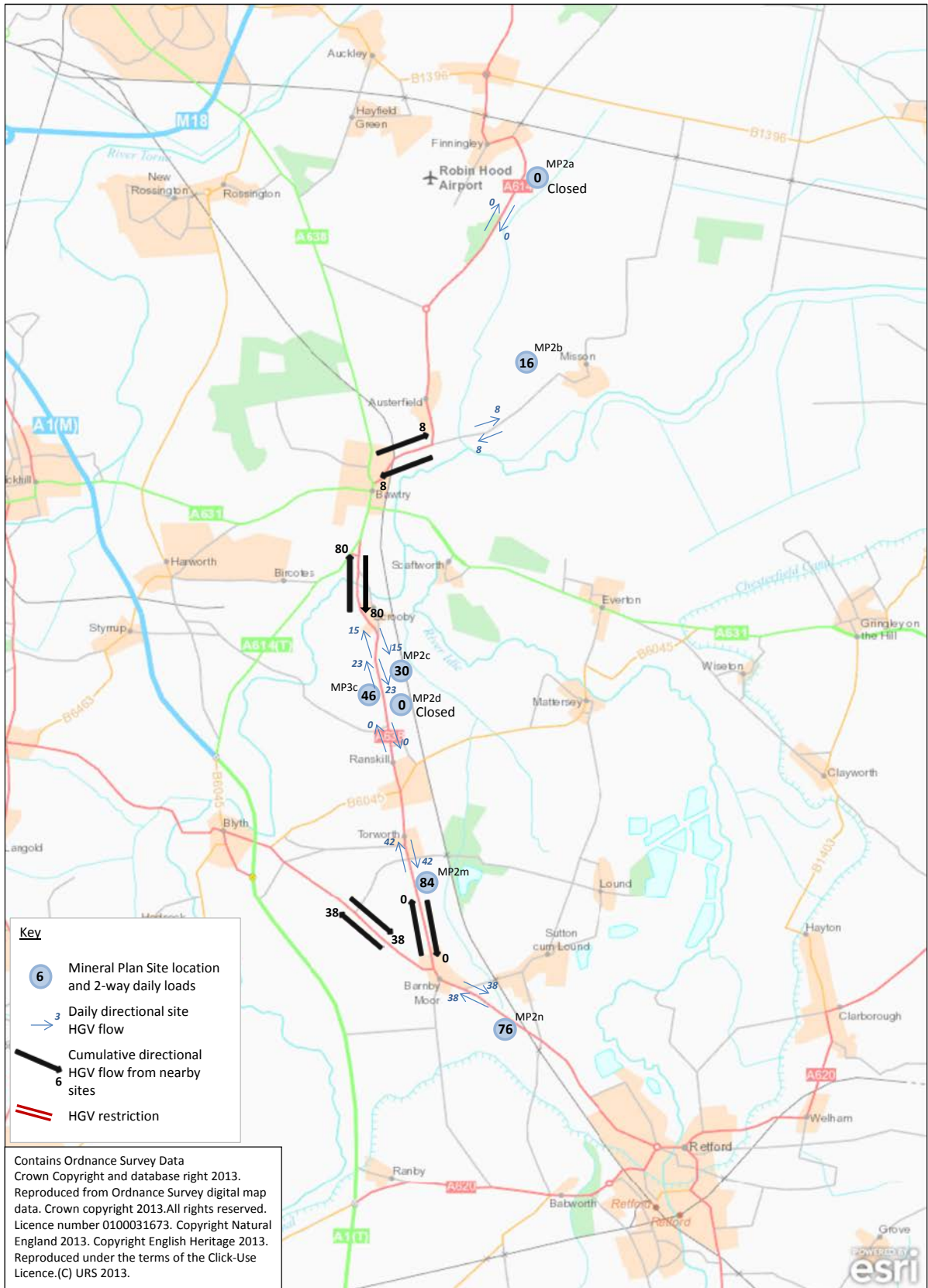
4.3 Cumulative Assessment

Figure 41 shows the cumulative traffic impact assessment for 2027 for the clusters in Map 1. Figure 42 indicates a year in the range of 2019 to 2022 for the clusters in Map 2. Mineral extraction outputs from the active sites are expected to be consistent throughout these periods.



Note: HGV restrictions for Minerals Plan sites will be via Section 106 agreements

Figure 41 - Map 1 - Two-way Daily HGV Movements - 2027



Note: HGV restrictions for Minerals Plan sites will be via Section 106 agreements

Figure 42 - Map 2 - Two-way Daily HGV Movements – 2019-2022

Sites Located in Cluster Map 1

On the A17 Beckingham Road the HGV movements are in excess of 1,000 two way along this section of highway with total vehicle two-way AADT flows in excess of 30,000 vehicles. As a new site, MP2o could generate an additional 192 two way HGV movements along this link. Following the guidance set out in GEART (detailed at 1.3), this site will not trigger either Rule 1 or Rule 2. Rule 1 states that traffic flows should not increase above a 30% threshold for a discernable impact to be noticeable, or the number of HGV should not increase by more than 30%. Rule 2 states that overall traffic flows should not increase above a 10% threshold.

The A1133, which provides highway access to sites MP2e (Besthorpe East), MP2f (Besthorpe West), MP2g (Langford South) and MP2h (Langford North), has AADT flows of 5,000 to 10,000 vehicles two way and two way AADF HGV flows of 300 to 500 vehicles. Given the HGV restriction through Collingham, Site MP2e could generate 78 two way HGV movements to the northern section of A1133 and Site MP2i (Langford West) could generate 192 two way HGV movements to the southern section. As extensions to existing operational sites at Besthorpe (SGh) and Langford Lowfields (SGj) with equal levels of output, the HGV flows identified are already contained and accounted for within the observed 2013 traffic flow data.

Site MP2l (Cromwell South) has direct access to the A1. At this location two way AADT flows are in excess of 30,000 vehicles and two way HGV AADF is in excess of 1,000 vehicles. Given that this site was operational in 2013, the 76 two way HGV movements likely to be generated from this site are already included in the traffic flow data. Impacts of the MP2l site will not be discernable from the 2013 highway conditions.

As a new site, Minerals Plan Site MP2p (Flash Farm) will have additive impacts on the local highway network. It is anticipated that this site could generate 46 two way HGV movements on the A617 northwest of the site entrance. Along this length of the A617, the two way AADT flows are 5,000 to 10,000 vehicles and the HGV flows are between 500 to 1,000 AADF. To the southwest of the site there are two way AADT flows of 10,000 to 15,000 vehicles and two way HGV AADF of 500 to 1,000 vehicles, Site MP2p could add up to 124 HGV in this direction. Measured against the GEART guidance rules, the additional impacts of these sites are likely to be negligible.

Sites Located in Cluster Map 2

Sites MP2c (Scrooby North), MP2d (Scrooby South), MP2m (Barnby Moor) and MP3c (Scrooby Top North) are located alongside the A638 route, and have access onto the A638 between Barnby Moor and Bawtry. At this location, in 2013, there were two way AADT flows were between 1,500 and 5,000 vehicles per day and two way HGV flows of 300 to 500 AADF. Given that Site MP3c is an extension of the Scrooby Top (SSe) site, which was operational in 2013, and that only one site of MP2c and MP2d would be operational at any one time, the total additional two way HGV flow that was not already accounted for in the 2013 data, would be 104 vehicles per day. This may result in a notable increase on the highway network, however GEART Rule 1 suggests that HGV increases which are not greater than 30% would not require a specific link assessment. Similarly Rule 2 suggests that total traffic flow increases that are less than 10% would not require a specific link assessment.

Site MP2b (Bawtry Road Extension) is located alongside Newington Road and could generate up to 16 two HGV movements each day. Along this link, in 2013, the two way AADT flow was between 1,500 and 5,000 vehicles per day. There was no data available for HGV flows along this link although the impact of 16 two way HGV movements is considered to be negligible.

The access to Site MP2a (Finningley Extension) is located in South Yorkshire and as such Nottinghamshire County Council do not hold traffic flow information for this section of the A614. As it is an extension of the Finningley site (SGc) any highway impacts are likely to be already taken account of, and no discernible impact could be expected.

Site MP2n (Botany Bay) is located on the A638 Great North Road. At this location the two-way AADT flows were 5,000 to 10,000 vehicles per day in 2013, of which 300 to 500 AADF were HGV. MP2n is a new site which could have the effect of adding a further 76 two way HGV movements once operational. This is below the GEART Rule 1 guidelines of a 30% increase of HGV movements, and falls below the GEART Rule 2 guidelines of a greater than 10% increase in overall flows.

Other Minerals Plan Sites

The Minerals Plan sites at MP2j/MP2k (East Leake North/East) could generate 35 two-way movements once operational. A site already operates at this location; East Leake (SGk). The 2013 two way AADT on the A6006 is between 5,000 and 10,000 vehicles per day, of which 500 to 1,000 are HGV AADF. On this road, an element of the SGk extraction activities are already included in the 2013 observed flows. This site will have no further discernable impacts given the equal rates of extraction between the sites as the Minerals Plan period progresses.

Site MP2q (Barton-In-Fabis) is located alongside the A453 at Barton-in-Fabis, at this location two way AADT flows are 20,000 to 30,000 vehicles, and over 1,000 two way AADF HGV flows. This site will add 42 two way HGV flows to what will be a recently improved A453. The traffic impacts of this new site will not cause a discernable increase in HGV movements.

Site MP3a (Bestwood East) is located along the A60 south of Ravenshead, the highway has AADT flows of 10,000 to 15,000 vehicles and 300 to 500 AADF HGV. The site is an extension with a slight intensification over the plan period, this could add a further 10 two way HGV, this would result in no discernable impact.

Site MP3b (Carlton Forest North) is located on the B6045. In 2013 it had a two-way AADT flows of between 5,000 and 10,000 vehicles per day. The two-way AADF for HGV was 300 to 500 vehicles. The site could generate up to 10 HGV a day as a result of its operation, which given that this is an extension site, would maintaining the existing output levels. The HGV traffic associated with MP3b is therefore already included within the 2013 flow data. There will be no discernable new traffic impacts.

The rates of extraction and resulting HGV loads for sites MP6a (Kirton West) and MP9a (Holbeck) are less known.

- At site MP6a the export routes lie to the north and to the west. The route to the north has two way AADT flows of 1,500 to 5,000 vehicles and 300 to 500 two way HGV AADF. The route to the west has two way AADT flows of 5,000 to 10,000 vehicles and 300 to 500 two way HGV AADF. Given that this site is already operational, loads from this site are already included in these 2013 flow observations. Any intensification of use may result in increased HGV movements; however a small increase would be unlikely to show any discernable impacts on the highway network.
- Site MP9a is an Industrial Dolomite Quarry and as such it is understood that it will operate as an extension to Whitwell Quarry; however an internal haul road is unlikely to connect the two sites and therefore traffic impacts will accrue to the A616. From the highway network contained within Nottinghamshire, the two-way AADT is 1,500 to 5,000 vehicles per day on the A616 and HGV AADF is in the range 20 to 100. If the quarry were to extract large amounts of material on a regular basis, Rule 1 of the GEART may be exceeded, that is to say a 30% or greater increase in the number of HGV may occur. It may be necessary to collect traffic counts closer to the site entrance to understand the scale of any traffic impacts.

Site Shelford West is located west of Shelford alongside River Trent. Conveyors would transport the material to a processing site next to the A6097. At this location the two way AADT flows are 15,000 to 20,000 and over 1,000 two way HGV flows. This site will add 128

two way HGV flows, of which 75 will utilise the improved A46. The traffic impacts of this new site will not cause a discernable increase in HGV movements.

Summary

Considered cumulatively, the Minerals Plan Sites would not generate an impact on the highway network that would be greater than otherwise expected based upon observations of the existing use of sites.

The GEART guidelines for specific link assessment suggest that there would be no discernable traffic impact overall.

5 SUMMARY AND CONCLUSIONS

An initial review has been presented of the Nottinghamshire Minerals Local Plan proposed sites. The policy context for mineral extraction has been described. The sites have been reviewed based upon their site accesses, likely export modes and highway export routes. The recent highway accident record around the sites has been reviewed by NCC's AIU team and their comments are included in this report.

A total of 23 sites have been assessed, 17 of which are extensions to existing sites and 6 are new sites which do not currently have mineral extraction operations.

A matrix of impacts has been defined and used to provide an assessment of all sites, to highlight any potential issues that may require mitigation for the site to proceed.

A cumulative assessment of the sites, where HGV routes associated with the various sites are likely to overlap, has been undertaken to determine the combined highway impacts of HGV movements. It is considered that the cumulative transport impacts from the proposed Mineral Plan sites would have a minimal impact on the highway network.

All sites are required in order to meet the necessary allocations of minerals as outlined in the Nottinghamshire Minerals Local Plan. The highway related impacts contained within this report indicate that there are no outstanding issues that could not be mitigated in order that these mineral extraction sites may be permitted.