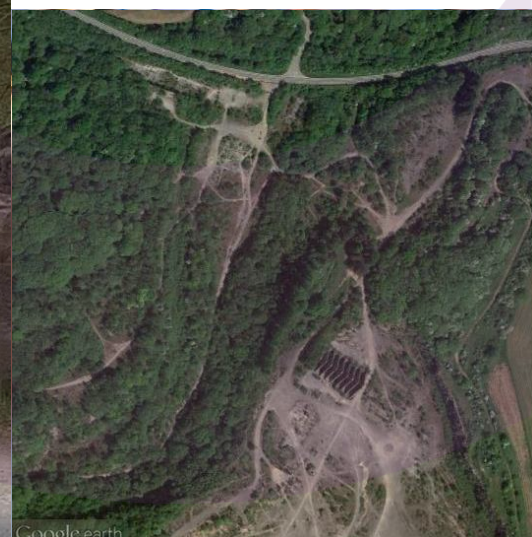


Hanson UK Ltd

## Westdown Quarry

Transport Assessment



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### Report for

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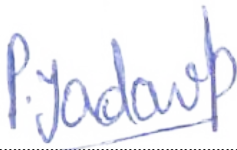
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This document has been produced by Wood Group UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

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### Document revisions

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# 1. Introduction

## 1.1 Background

- 1.1.1 This Transport Assessment (TA) has been prepared to support the planning submission to recommence working at Westdown Quarry, near Frome in Somerset (hereafter referred to as 'the Proposed Scheme'). Westdown Quarry has the benefit of the following existing planning permissions:
- Interim Development Order (IDO) permission dated 23/10/1992 (Ref. IDO/M/1/A); and
  - Review of Old Mineral Planning Permission (ROMP) for the winning and working of limestone dated 04/11/1998 (Ref: 016248/005)<sup>1</sup>.
- 1.1.2 The existing planning permissions for Westdown Quarry provide no indication of any restrictions on the volume heavy goods vehicles (HGV) movements or any restrictions on the quantity of material leaving the site. Notwithstanding this, the existing July 1996 planning permission for the nearby Whatley Quarry (reference 109/22/002) states at Condition 30 that no more than 4 million tonnes of the total output from the site in any one calendar year shall be transported by road.
- 1.1.3 As the resumption of working at Westdown Quarry would be to complement existing operations at Whatley Quarry, and allow the latter to focus on the despatch of aggregates using the on-site rail head facility, it can be confirmed that it is Hanson's intention that moving forwards, Whatley and Westdown combined would operate within the limits of the existing Condition 302, i.e. no more than 4 million tonnes per annum (mtpa) would be transported from the Sites via road.

## 1.2 Developer and Project Team

- 1.2.1 Hanson UK Ltd has appointed Wood Group UK Ltd (hereafter referred to as 'Wood'), environmental and engineering consultants, to advise on technical and environmental aspects, including the traffic and transport documents which support the planning submission. Wood's Transport Team has been responsible for the preparation of this Transport Assessment (TA).

## 1.3 TA Production Guidelines

- 1.3.1 This TA has been produced in consultation with the planning and highways officers within Somerset County Council (SCC) and transport related comments from SCC's scoping opinion (Ref: SCC/3703/2020/PA) is included in Appendix A. The TA related items raised in the Council's scoping opinion included:
- Investigation of collision data (5 years) – Addressed in **Chapter 3**;
  - Traffic Flows/Trip Generation related to HGV and private vehicles movements – Addressed in **Chapter 5**;

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<sup>1</sup> The ROMP relates to three former planning of smaller parcels:

- Ref. 15343 dated 28/02/1952;
- Ref. 24765 dated 29/10/1954; and
- Ref. 24765A dated 02/01/1967.

<sup>2</sup> Condition 30 of Whatley Quarry planning permission Ref. 109122/002 (dated 6 July 1996)

- Visibility of the site access and speed data if required – Addressed in **Chapter 4**;
- Trip distribution information including assumptions - Addressed in **Chapter 5**;
- Travel Plan (TP) – Addressed in **Chapter 4**;
- Parking related information - Addressed in **Chapter 4**; and
- Access detailed drawing - Addressed in **Chapter 4**.

1.3.2 In addition to above consultation response, Wood sent further queries to SCC to discuss additional issues for a robust assessment, such as the use of historic traffic data due to the ongoing COVID-19 scenario, traffic growth factors, location of receptors, and any known committed developments locally. The original queries were sent on 15 July 2020 and then intermittently through to the 5 October 2020. On the 5th of October SCC confirmed that queries were being dealt with however since this time, Wood has not received a response back from SCC. In the absence of the SCC response, the standard approach has been taken to resolve outstanding issues regards this Transport Assessment which is hoped will be acceptable to SCC.

1.3.3 The development proposals and the TA have also been informed by relevant planning documentation which are set out in **Chapter 2**.

## 1.4 Structure of the TA

1.4.1 The remainder of the report is structured as follows:

- **Chapter 2** sets the background policy issues relevant to the development;
- **Chapter 3** describes the current conditions within the defined study area and a review of the transport network;
- **Chapter 4** describes the development proposals including access arrangements;
- **Chapter 5** presents the associated traffic characteristics of the Proposed Scheme and an assessment of the impact the Proposed Scheme traffic will likely have on the surrounding road network; and
- **Chapter 6** summarises the proposals and concludes the impact of the scheme.

## 2. Policy Context

### 2.1 Introduction

- 2.1.1 In producing any technical planning document, it is essential to set this against the relevant national, regional and local policies that apply at the time. This chapter aims to provide a summary of these policies and their relevance to the project.
- 2.1.2 This chapter will review the areas of national and local policies which are pertinent to the development proposals in terms of highways and transportation. The following chapter covers each of the policy areas in more detail.

### 2.2 National Policy

#### National Planning Policy Framework (NPPF) – February 2019

- 2.2.1 The National Planning Policy Framework (NPPF, 2019) sets out the Government's planning policies for England and how these should be applied. The NPPF must be taken into account in the preparation of local and neighbourhood plans and is a material consideration in planning decisions. At the heart of the NPPF is a presumption in favour of sustainable development, an approach which should be followed by local planning authorities in their plan making and decision taking. Decision takers at every level are encouraged, where appropriate, to consider favourably applications for sustainable development and an emphasis is also made within the NPPF on local planning authorities working proactively with applicants at pre-application stage to secure this.
- 2.2.2 The NPPF identifies the need to favour sustainable transport modes to enhance travel choice, and to locate developments that generate significant movement where the need to travel will be minimised and the use of sustainable transport modes can be maximised.
- 2.2.3 The NPPF sets out that all developments that generate significant amounts of movement should be supported by a Transport Statement or a TA and a Travel Plan (TP) (paragraph 111), the latter being identified as a key tool to deliver sustainable transport objectives.
- 2.2.4 With specific regards to highway considerations in decision making, the NPPF (paragraph 109) states:

*"Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe".*

#### Guidance on Transport Assessment, (Department for Transport, 2007)

- 2.2.5 Based on the indicative thresholds contained in Appendix B of the Department for Transport (DfT) archived Guidance on Transport Assessment (2014), a TA and TP would be required for a storage or distribution of 5,000 sqm or more. Whilst this guidance has been archived, it is still a point of reference as it has not been replaced by alternative guidance.

## 2.3 Local Policy

### Somerset Minerals Plan, Development Plan Document 2015 – 2030 (adopted February 2015)

- 2.3.1 Policy DM9 (Minerals Transportation) states that planning permission for mineral development will be granted subject to the application demonstrating that the road network serving the proposed site is suitable or can be upgraded to a suitable standard to sustain the proposed volume and nature of traffic without having an unacceptable adverse impact on distinctive landscape features or the character of the countryside or settlements. Particular regard should be given to:
- highway safety;
  - alignment;
  - proximity to buildings;
  - air quality;
  - the integrity of the road network including construction and any impacts on capacity; and
  - disruption to local communities.
- 2.3.2 Proposals for mineral development that will generate significant transport movements must be supported by a TA and TP. The TA will need to demonstrate that appropriate consideration has been given to the alternatives to road transport, including rail, as a primary freight transport option. Alternatives to road transport should be pursued if they are demonstrated to be practicable and beneficial.

### Mendip District Local Plan Part 1: Strategy and Policies 2006 – 2029 (adopted 2014)

- 2.3.3 Development Policy 9 (Transport Impact of New Development) states that where appropriate, development proposals must demonstrate how they will improve or maximise the use of sustainable forms of transport (particularly by means other than the private car), and shall include, where relevant, the submission of TPs and/or TAs.

## 2.4 Summary

- 2.4.1 The above policy documents set out the policy objectives relating to the proposed development in terms of transport infrastructure development. These will enable strategies to be put in place to ensure that the scheme will not have adverse impacts on the local transport facilities.
- 2.4.2 For robustness and based on the national and local guidance documents, it is assumed that a TA will be required in support of the planning submission.
- 2.4.3 Production of a Travel Plan has been scoped out. Details can be found in the **Section 4.4** of this report.



## 3. Existing Conditions

### 3.1 Existing Site

- 3.1.1 Westdown Quarry is a dormant limestone quarry located approximately ~ 5 km to the southwest of Frome, in Somerset. In total, the site measures ~ 67.4 hectares (ha). Extraction last took place at this site in the late 1980s.
- 3.1.2 The quarry is bounded to the north by the Bulls Green Link Road, a quarry link road constructed in the 1990's and by the A361 to the south. To the west of the site is Asham Wood and to the east are agricultural fields. Access to Westdown Quarry is via the Bulls Green Link Road, to the north of the site. At present, there are three access points into the quarry – the first of these is located ~150 m west of the junction with Stony Lane, the second is a further ~200 m west of the first one and the third one is a further ~320 m west of the second one.
- 3.1.3 The A361 is the closest strategic road which runs along the southern boundary of the site and provides a direct link to other strategic roads.
- 3.1.4 **Figure 3.1** shows the Site location and the surrounding transport infrastructure.

### 3.2 Sustainable Transport

#### Rail

- 3.2.1 The nearest railway station is Frome railway station which is located some 7.4 km north east of the Site. The station is well served with services to major settlements including Gloucester, Weymouth, Weymouth, Westbury and Salisbury. **Figure 3.2** shows the location of Frome railway station.

#### Bus

- 3.2.2 There is no bus service in the vicinity of the site. Nearest bus stops are located in Nunney village which lies ~1.5km east of the site. The distance between the site and Nunney village exceeds the recommended walking distance. Therefore, the site is considered to not be within walking distance of the local bus stops.
- 3.2.3 The bus stops located in Nunney village are served by the following services with various frequencies:
- 31 (two services a day, 07:50 (first service) - 16:35 (second service)): Beckington – Frome – Nunney - Bruton – Castle Cary – Ansford School; and
  - 162 (four services a day, 07:32 (first service) - 18:52 (last service)): Shepton Mallet – Stoke St. Michael – Nunney – Frome.
- 3.2.4 The bus service 162 runs across Nunney village and service 31 runs along southern edge of the Nunney village. **Figure 3.2** shows the location of bus stops.

## Walking and Public Rights of Way (PRoW)

- 3.2.5 There are a range of PRoWs in the vicinity of the site. The following PRoWs either touch or cross the site boundary:
- SM 8/9 (bridleway) across the site from south west to north; and
  - SM 8/11 (footpath) on south-western side.
- 3.2.6 Other PRoWs close by include:
- FR 18/29 (bridleway) on the norther side of the Bulls Green Link Road;
  - FR 18/30 (bridleway) on the eastern side;
  - FR 12/43 (bridleway) on the eastern side;
  - FR 12/42 (footpath) east side of C2533 road;
  - FR 17/15 (footpath) south east side of A361;
  - FR 17/3 (footpath) north west side of A361;
  - FR 17/4 (footpath) west side of A361;
  - SM 8/12 (bridleway) south east side of Merehead Quarry; and
  - SM 8/11/1 (bridleway) east side of Merehead Quarry.
- 3.2.7 The local roads around the site are rural in nature without footways. **Figure 3.2** shows the existing PRoWs through the study area.

## Cycling

- 3.2.8 The National Cycle Networks (NCN) Route 24 is located approximately 4.5 km north east of the site near Frome. The NCN route 24 is a 120 km route which runs from Bath Radstock, Frome, Warminster and Salisbury and connects with other NCN routes.
- 3.2.9 The local road network in the vicinity of the site is rural in nature without cycle facilities.
- 3.2.10 **Figure 3.2** shows the NCN route 24 in the local area.

## Summary of Sustainable Transport

- 3.2.11 Based on the assessment presented above, there are very limited opportunities for sustainable transport. However, access to the Proposed Development by sustainable modes of transport would be unlikely due to the nature of the proposals.

## 3.3 Local Road Network

- 3.3.1 The local road network is maintained by SCC. The closest principal road is the A361 which connects site to the strategic road network in the region.
- 3.3.2 As part of the Proposed Development it is intended to re-use as much of the existing infrastructure as feasible, upgrading where appropriate. The existing road network near to the Site is considered to be of reasonable quality.

3.3.3 **Figure 3.1** illustrates the existing road network local to the Site which is summarised below.

- **Bulls Green Link Road** – This road is a two-way single carriageway road running along the northern boundary of the proposed site and is subject to a 60mph speed limit. This road was built to serve quarry traffic from the quarries located in the eastern Mendips. It connects the site to the A361 via the C2533. There are no streetlights and footways along this road.
- **C2533** – This is a two-way single carriageway road subject to a 60mph speed limit. It runs between Knaptons Hill Road and the A361 and it is mainly used by local quarry traffic. There are no streetlights and footways along this road.
- **A361** – This is a two-way single carriageway road that runs between Beckhampton and Glastonbury. The road is subject to the national speed limit (NSL) in the vicinity of the site with double solid central lines. This is a principal road which connects the site to the strategic road network. The streetlights and footways on the A361 are restricted to minor settlements.
- **Knaptons Hill** – This is a two-way single carriageway road which runs between Mells and Egford Hill Road. The road is subject to the NSL apart from the residential areas where it is subject to 30mph. The section of the road located east of the C2533 towards Frome has a HGV restriction. There are no streetlights and footways along this road.

## 3.4 Local Road Safety Consideration and Assessment

- 3.4.1 Records of all reported accidents have been obtained from SCC for the five-year period from 01/07/2015 to 30/06/2020 for the local highway network. These records are presented in **Appendix B**.
- 3.4.2 A total of 13 accidents occurred within the assessment area, of which two were fatal, two were serious and nine were slight. One of these accidents involved a vulnerable road user. **Table 3.1** summarises the number of accidents over the assessment period in the vicinity of the site.

**Table 3.1** Summary of Accident Record

Road/Junctions	Total Records	Fatal	Serious	Slight	Accident by Type	
					Vulnerable	HGVs
<b>Bulls Green Link Road</b>	1	0	0	1	0	0
<b>C2533</b>	4	1	0	3	1 (motorcycle)	0
<b>A361</b>	5	1	2	2	0	2
<b>Knaptons Hill</b>	3	0	0	3	0	0

- 3.4.3 The following details the accidents mentioned in **Table 3.1**.
- 3.4.4 **Bulls Green Link Road:** One slight accident was recorded on the Bulls Green Link Road at the access of Westdown Quarry approximately 360m west of Stony Lane. This accident occurred due to driver error, when a car slowed to turn left into the access but the vehicle behind failed to slow and therefore collided with the rear of the front vehicle.

- 3.4.5 **C2533:** One fatal and three slight accidents were recorded on the C2533 between A361 and Knaptons Hill. The fatal accident occurred when a minibus passenger struck head on the interior of the vehicles. One of the slight accidents occurred when a motorcyclist lost control and collided with a wall. Two of the slight accidents occurred due to driver error, when car drivers failed to look properly during the turning manoeuvres.
- 3.4.6 **A361:** One fatal, two serious and two slight accidents were recorded on the A361 within the assessment area. The fatal accident occurred when a passenger was traveling in a taxi and fell from a wheelchair. One of the serious accidents occurred when an HGV collided into the rear of the HGV in front which was slowing down to turn left. One of the serious accidents occurred due to driver error, when a car crossed a double white line whilst overtaking and collided with an oncoming car. One of the two slight accidents occurred when a driver failed to stop in time and collided into the rear of the car in front which stopped to give the way to another vehicle. One of the two slight accidents occurred approximately 700m northeast of Leighton and involved an HGV. Accident factor of this slight accident is unknown as this accident is missing from the data provided by SCC.
- 3.4.7 **Knaptons Hill:** Three slight accidents occurred on Knaptons Hill within the assessment area. All three slight accidents occurred due to driver errors such as losing control, failed to look properly, and following too close.
- 3.4.8 The above information shows that most of the accidents were caused by driver error. Therefore, it is concluded that driver awareness is the main cause of most accidents rather than the highway infrastructure. Overall, there are no trends suggesting that the proposed development would exacerbate this situation.

## 3.5 Base Traffic Flow Data

- 3.5.1 In order to understand the existing traffic conditions on the road network surrounding the Site, traffic count data from different sources were interrogated.
- 3.5.2 Given the ongoing situation with COVID-19, Wood was unable to gather representative baseline data (traffic counts) to inform the Transport Assessment. It is not recommended that baseline data is acquired while a government lockdown is in force as traffic has been noted to have fallen by at least 50% and that is unrepresentative of usual traffic conditions. In the absence of the new traffic survey data, available historic data were used and growthed by using TEMPro growth rates to form the basis for assessment of this project.
- 3.5.3 The following historic traffic data has been used to develop the 2020 Baseline traffic flow:
- Bulls Green Link Road (150m west of Stony Lane) – year 2019 (commissioned by Wood for Whatley Quarry access study);
  - C2533 (existing Whatley Quarry access (entrance (in/out) and exit only)) – year 2019 (commissioned by Wood for Whatley Quarry access study);
  - C2533 (south of Bulls Green Link Road) - year 2018 (obtained from Somerset County Council);
  - A361 (east of C2533) – year 2019 (Department for Transport (DfT) count location ID 56981(data from the same permeant count location as that used for the Halecombe deepening application in 2016 and it is assumed this will be acceptable to SCC again); and
  - A361 (west of C2533) – year 2019 (DfT count location ID 37041 (as for ID 56981, data from the same permeant count location as that used for the Halecombe deepening application).



3.5.4 The raw traffic count survey data are available on request.

3.5.5 **Table 3.2** below shows the background traffic growth factors which have been used to develop the 2020 base traffic flow. The growth rates have been developed based on the National Trip End Model (NTEM) growth rates extracted from the DfTs Trip End Model Presentation Program (TEMPro) 7.2 software for the Mendip area.

Table 3.2 Growth Rate

Year	AM	PM
2018 to 2019	1.0153	1.0149
2019 to 2020	1.015	1.0147

3.5.6 Due to the current market conditions and a greater shift towards rail as a consequence at present Whatley Quarry is not utilising all of its current allowances which is 4 million tonnes per annum (mtpa) via road. In this case, the following two baseline scenarios have been developed:

- **Scenario 1:** Base flow including existing Whatley Quarry traffic.
  - ▶ Existing Whatley Quarry traffic removed from baseline counts;
  - ▶ Remaining traffic in baseline counts growthed to 2020; and
  - ▶ Existing Whatley Quarry traffic added back to growthed 2020.
- **Scenario 2:** Base flow including permitted Whatley Quarry traffic.
  - ▶ Existing Whatley Quarry traffic removed from baseline counts;
  - ▶ Remaining traffic in baseline counts growthed to 2020; and
  - ▶ 4mtpa Whaley Quarry traffic added onto growthed 2020 traffic.

3.5.7 It should be noted that in the baseline traffic counts Whatley Quarry was running at around 75% of the permitted 4mtpa. **Table 3.3** shows the existing Whatley Quarry two-way traffic in the weekdays during AM and PM peaks.

Table 3.3 Existing Whatley Quarry Traffic

Peak Period	Total Vehicles	HGV
AM	60	38
PM	69	34

3.5.8 **Table 3.4** and **Table 3.5** show the two-way 2020 base traffic flows on the key road links in the vicinity of the Site.

Table 3.4 2020 Base Traffic Flow (Existing Whatley Quarry Traffic) – Scenario 1

Link No	Link	AM		PM	
		Total Vehicles	HGV	Total Vehicles	HGV
1	Bulls Green Link Road (between the proposed site access and C2533)	127	24	164	9
2	C2533 (between Bulls Green Link Road and A361)	305	115	200	36
3	A361 (east of C2533)	1335	139	1415	84
4	A361 (west of C2533)	974	66	1032	40
5	C2533 (near Whatley Village)	225	68	171	38

Table 3.5 2020 Base Traffic Flow (Permitted Whatley Quarry traffic) – Scenario 2

Link No	Link	AM		PM	
		Total Vehicles	HGV	Total Vehicles	HGV
1	Bulls Green Link Road (between the proposed site access and C2533)	127	24	164	9
2	C2533 (between Bulls Green Link Road and A361)	364	174	237	72
3	A361 (east of C2533)	1384	188	1445	114
4	A361 (west of C2533)	984	71	1038	42
5	C2533 (near Whatley Village)	284	127	207	75

## 4. Development Proposals

### 4.1 Development Proposals

- 4.1.1 Whilst not currently operational, Westdown Quarry does benefit from extant planning consents. However, it is intended that future activity at the Site would be in lieu of the agreed traffic volumes as set out in Condition 30 of the 1996 Whatley Quarry permission (4mtpa via road) (Application Reference 109122/002). Therefore, the HGV traffic from Westdown Quarry and Whatley Quarry combined should not exceed the equivalent of 4 million tonnes per annum.
- 4.1.2 Total permitted reserves at Westdown Quarry are identified as some 160 million tonnes (mt). It is proposed that extraction would be at a rate of ~2.0 million tonnes per annum (mtpa), with the mineral processed on site before being transported by road to local markets. This would clearly mean that the quarry would need to operate beyond its current permitted end date of 2042. However, as this is some considerable way off, it is proposed that a separate planning submission be made, closer to the end date of the current permissions, to extend the life of the quarry.
- 4.1.3 Extracted materials would be processed using mobile processing plant within the quarry, and to ensure safety and the free flow of traffic both on and off site, all HGV traffic to and from the quarry will utilise a new access point to be constructed off the Bulls Green Link Road. A new weighbridge, site office and staff welfare facilities, with associated parking, will also be constructed.

### 4.2 Site Operation

- 4.2.1 The Site has good access to the surrounding highway network. It is envisaged that HGVs would access the site from the wider transport network via the A361, A362, C2533 and Bulls Green Link Road.
- 4.2.2 The operational assumptions that relate to traffic and transport are as follows:
- The proposed delivery hours would be from 6am till 8pm Monday to Friday and 6am till 12pm on Saturdays and Sundays, 50 weeks of the year;
  - 57% of the daily road deliveries will be sent out between 6am to 12pm and the remaining 43% will be sent out between 12pm and 8pm;
  - Materials will be transported in Rigid HGVs (20 tonnes) and Articulated HGVs (30 tonnes). Of total number of HGVs 65% will be Rigid and 35% will be Articulated; and
  - The anticipate number of on-site staff is 56 (40 permanent staff and 16 contractors).

### 4.3 Access and Movement

- 4.3.1 It is proposed that a new site access, in form of a priority junction, will be constructed off the Bulls Green Link Road. A separate detailed access study has been carried out by Wood on behalf of Hanson. The proposed access is subject to discussion and approval from SCC. The access study report has been presented in **Appendix C**.
- 4.3.2 All HGVs related to the Site will travel eastwards along a stretch of the Bulls Green Link Road for ~1km, before travelling in a southerly direction along the C2533 to the A361 and in a northerly direction along the C2533 to the A362. Based on the current Whatley Quarry delivery locations, it is

envisaged that 87% of the HGV trips will be between the Site and the A361 to the south and 13% of the trips will be between the Site and the A362 to the north. Traffic turning onto and off the Bulls Green Link Road would come from a route that is already used by the permitted Whatley Quarry traffic. Only the ~1km stretch along the Bulls Green Link Road represents a new part of the vehicle route.

- 4.3.3 According to Appendix 1 (The Somerset Freight Map) of Somerset Freight Strategy Transport Policies 2011, the Bulls Green Link Road and C2533 (between Bulls Green Link Road and the A361) are part of the Local Freight Routes, and the A361 is a part of the County Freight Routes. Therefore, it is concluded that these roads are suitable for HGV movements and majority of development traffic will utilise these designated routes as preferred in the Council's scoping opinion.
- 4.3.4 In terms of the northerly direction, a current traffic order prevents the use of the route via Knaptons Hill, Eggford and Broadway to and from Frome. Therefore, any northbound quarry traffic via the C2533 will turn left into the Knaptons Hill (west).
- 4.3.5 **Figure 4.1** shows the proposed route of the HGVs.

## 4.4 Sustainable Travel Opportunities and Travel Plan

- 4.4.1 Given the rural location of the Proposed Development in relation to the public transport network (the nearest bus stops being some 1.5km away, which equates to a 15 – 20 minute walk), coupled with the operational hours (starting at 06:00 and finishing at 20:00) which do not coincide with the nearest bus services, the opportunity for employees to travel to work by public transport is not a viable choice. The distance of the site from the established cycle network and lack of footway connections to local amenities and establishments also means that travel by alternative sustainable modes is unlikely to be chosen by employees and contractors.
- 4.4.2 Car-sharing is something that can be promoted by the employer, although it should be recognised that with only 40 employees plus 16 contractors spread over two shifts, the chances of finding a suitable car sharer would be small.
- 4.4.3 Considering the factors identified above, it is considered that the application of modal share targets would be unreasonable as the viability of an effective Travel Plan and achieving modal shift is very limited. Therefore, production of a Travel Plan has been scoped out. However, to identify and support travel choice initiatives, a site travel information pack will be developed and distributed to staff. The travel information pack will provide information on travel by bus and cycle and will promote car sharing amongst employees on the same shift.

## 4.5 Parking Facilities

- 4.5.1 According to the SCC Parking Strategy, the Site is located in Zone C (green) low population area which is predominately rural. Due to the rural location of the site, lack of sustainable transport links and nature of the site operation, as a worst-case scenario it is predicted that private vehicle will be the dominant mode of transport for employees.
- 4.5.2 It is considered that all parking demand related to employees will be met by on-site provision. The Site has plenty of works area to accommodate parking requirements of permanent employees and contractors. Considering the negligible possibility of cycle use by employees for commuting, cycle parking is not proposed at this stage. However, if it is required in the future it will be implemented along with the proposed staff welfare facilities.
- 4.5.3 In terms of HGV parking, all HGVs will remain at Whatley Quarry for parking as it is currently. It is envisaged that the same HGVs will be serving both the quarries in rotation depending on the demand and requirements.



## 5. Traffic Impact Assessment

### 5.1 Traffic Flow Scenarios

- 5.1.1 In order to establish a basis for understanding the impact of any new development, it is necessary to develop and compare a series of robust future traffic flows for the situation where the development does not occur (Do Minimum) and when it does (Do Something). There are two key future years, 2022 (opening) and 2042 (current permission ends). In terms of the total traffic on any road link, 2042 will be the peak year (future plus development traffic). Therefore, 2042 has been chosen as the assessment year for the traffic impact assessment on local road network.
- 5.1.2 As mentioned in **Section 3.5**, currently Whatley Quarry is sending less material via road than permitted. Therefore, for this assessment, the following two future base "Do Minimum" scenarios have been developed:
- Scenario 1 – future base (including existing Whatley Quarry traffic); and
  - Scenario 2 – future base (including permitted Whatley Quarry traffic (4mtpa)).
- 5.1.3 The "Do Something" scenario comprises future base plus development traffic (i.e. Westdown Quarry 2mtpa + Whatley Quarry 2mtpa) as a worst-case scenario.

### 5.2 Background Traffic Growth

- 5.2.1 Levels of background traffic growth are variable, dependent upon the predicted increase in economic activity within the area. The growth rates have been developed based on the National Trip End Model (NTEM) growth rates extracted from the DfTs Trip End Model Presentation Program (TEMPro) 7.2 software for the Mendip area. In terms of growth rates for 2042, the traffic forecast contained within TEMPro 7.2 only covers a period up to 2040 and as a result the 2019 to 2040 growth rates has been used as proxy for each year between 2040 and 2042 to calculate the final growth rates for 2019 to 2042.
- 5.2.2 **Table 5.1** below shows the background traffic growth factors which have been used to develop 2042 base traffic flow.

Table 5.1 Growth Rate

Year	AM	PM
2019 to 2042	1.2157	1.217

- 5.2.3 In the vicinity of the Site, a planning register check has indicated that there are no significant additional committed developments which will have impact on the road network within the assessment area. It should also be noted that the baseline traffic used to inform this assessment already includes operational traffic of other local quarries such as **Halecombe Quarry, Torr Works Quarry and Coleman's Quarry Complex (aka Holwell Quarry)**. From a check, there are no significant permitted proposals to increase the traffic flow from these quarries currently. Therefore, committed development traffic has not been considered in the calculation of the future background traffic.

## 5.3 Development Traffic

### Trip Generation

- 5.3.1 To comply with the current Whatley Quarry permission, it is proposed that the combined HGV traffic from Westdown Quarry and Whatley Quarry will not exceed the equivalent of the permitted 4mtpa. In future, both the quarries will be running simultaneously. The calculation of development traffic is based on the worst-case scenario of 4mtpa (i.e. Whatley Quarry 2mtpa + Westdown Quarry 2mtpa) via road.

### HGV Traffic

- 5.3.2 Hanson has provided the delivery related information contained within **Table 5.2** with which to inform the trip generation process.

**Table 5.2** Proposed Future Operational Details (haulage via road)

Items	Westdown Quarry	Whatley Quarry	Details
<b>Tonnes per year</b>	2,000,000	2,000,000	Total allowances via road is 4,000,000t.
<b>HGV size</b>	35% Artic (30t load) and 65% Rigid (20t load)	35% Artic (30t load) and 65% Rigid (20t load)	Based on the current Whatley Quarry HGV split.
<b>Quarry operational hours</b>	Mon-Fri (6am to 8am); Sat-Sun (6am to 12pm)	Mon-Fri (24hrs); Sat (6am to 12pm); Sun (closed) (same as existing)	
<b>Road haulage hours per weekdays</b>	14 (6am to 8pm)	10 (6pm to 4m)	It is proposed that all haulage via road from Whatley Quarry will occur between 6pm and 4am.
<b>Total number of HGVs per week</b>	1767	1767	50 working weeks per year.
<b>Total number of HGVs per weekdays</b>	302	353	Based on the number of road haulage hours and operational days per week. Whatley Quarry does not operate on Sunday.
<b>Peak flow profile</b>	8.14% AM peak and 6.14% PM peak	0%	Westdown Quarry: peak percentages are based on the current haulage profile of the Whatley Quarry. Whatley Quarry: no haulage via road during peak hours as mentioned above.
<b>Number of HGVs AM peak per weekdays</b>	25	0	No haulage via road from Whatley Quarry during peak hours.
<b>Number of HGVs PM peak per weekdays</b>	19	0	No haulage via road from Whatley Quarry during peak hours.

Items	Westdown Quarry	Whatley Quarry	Details
<b>AM peak HGV movements per weekdays</b>	50	0	Two-way
<b>PM peak HGV movements per weekdays</b>	38	0	Two-way

- 5.3.3 As shown in **Table 5.2**, it is proposed that all road haulage from Whatley Quarry (2mpta) will be carried out between 6pm to 4am. Therefore, during peak hours the overall development traffic will either reduce or will have minor increment on the local road network depending on the base scenario.

### Light Vehicles Traffic

- 5.3.4 It is envisaged that all employees including permanent staff and contractors will commute in private vehicles in a scattered manner depending upon their shift hours. **Table 5.3** below shows the key facts related to the light vehicle generation.

**Table 5.3** Light Vehicles Details (staff and contractors)

Items	Westdown Quarry	Whatley Quarry	Details
<b>Proposed employees per day</b>	56 (40 staff and 16 contractors)	No change in the number of existing employees	In terms of employees at Whatley Quarry, no changes have been proposed as current employees also serve to rail haulage.
<b>Total light vehicle per day</b>	56 (proposed)	207 (existing)	Whatley Quarry: based on the 2019 traffic survey of the Whatley Quarry access.
<b>Total light vehicles movements per day</b>	112 (proposed)	414 (existing)	Whatley Quarry: based on the 2019 traffic survey of the Whatley Quarry access.
<b>AM peak flow profile</b>	8.3% In and 3% Out (proposed)	No change in the existing pattern	Westdown Quarry: based on the existing Whatley Quarry staff arrival and departure pattern.
<b>PM peak flow profile</b>	6.1% In and 10% Out (proposed)	No change in the existing pattern	Westdown Quarry: based on the existing Whatley Quarry staff arrival and departure pattern
<b>Number of light vehicles AM peak per weekdays</b>	5 In and 2 Out (proposed)	15 In and 7 Out (existing)	Whatley Quarry: based on the 2019 traffic survey of the Whatley Quarry access.
<b>Number of light vehicles PM peak per weekdays</b>	3 In and 6 Out (proposed)	11 In and 24 Out (existing)	Whatley Quarry: based on the 2019 traffic survey of the Whatley Quarry access.
<b>AM peak light vehicles movements per weekdays</b>	7 (proposed)	22 (existing)	Two-way
<b>PM peak light vehicles movements per weekdays</b>	9 (proposed)	35 (existing)	Two-way

- 5.3.5 As shown in **Table 5.3**, there will be no change in the existing light vehicles related to Whatley Quarry. Therefore, there is only an increase in seven light vehicles in the AM peak and nine light vehicles in the PM peak on the local road network.

## Trip Distribution

### HGV Distribution

- 5.3.6 The distribution of the HGVs is based on the current Whatley Quarry delivery locations. It is considered that HGVs from Westdown Quarry will also use the same route to deliver materials and there will be no change in the current route of the Whatley Quarry HGVs. **Table 5.4** shows the HGV percentage distribution on the local road network.

Table 5.4 HGV Distribution

Route	HGV%
C2533 North (to A362)	13%
C2533 South (to A361)	87%
<b>Total</b>	<b>100%</b>
<b>Distribution of 87% on A361</b>	
A361 (east)	72%
A361 (west)	15%

- 5.3.7 As shown in **Table 5.4** above, a majority of the HGV traffic will route south to A361 via C2533.

### Light Vehicles Distribution

- 5.3.8 The distribution of light vehicle trips on to the local highway network has been based upon census data. The UK Census 2011 WE02EW Work Place Zone E33050086 was interrogated as this is the work place zone where the site lies. **Table 5.5** presents the percentage distribution of light vehicles on the local road network.

Table 5.5 Light Vehicles Distribution

Route	Westdown Quarry	Whatley Quarry
Knaptons Hill (west)	36%	59%
Knaptons Hill (east)	12%	38%
Unnamed Road via Whatley Village	20%	0%
A361 (east)	5%	0%
A361 (west)	3%	3%
Bulls Green Link Rd (west)	22%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>



## 5.4 Impact of the Development Traffic on the Surrounding Road Network and Key Junctions

### Local Road Network – Flow Changes

- 5.4.1 The Do Minimum scenario have been compared to the Do Something scenario of 2042 to understand the percentage changes in traffic flow due to the development traffic on the local road network. The assessment for both of the scenarios has been set out in **Table 5.6** and **Table 5.7** which present the changes in the 2042 AM peaks.
- 5.4.2 The key increase in traffic is noted at Link 1, the Bulls Green Link Road in the short section between the new site access and the C2533. This is as a function of a very low base traffic figure on a road that has been specifically upgraded/constructed for local quarry operations. Though the percentage impact would be 36% on the link, this is actually only an increase of 55 vehicles in both scenarios.
- 5.4.3 The remaining impacts are very low on the other four local links in Scenario 1 and it is noted that Whatley village would experience a reduction in vehicles in the AM peak. In Scenario 2, all remaining four links would experience a reduction in traffic.

Table 5.6 2042 Future Year Traffic Comparison – AM (Scenario 1)

Link No	Link	2042 Base (DM Scenario 1)		2042 Base + Development (DS)		Difference			
		Total Vehicles	HGV	Total Vehicles	HGV	Total Vehicles	Total Vehicles %	HGV	HGV%
1	Bulls Green Link Road (between the proposed site access and C2533)	152	28	207	78	55	36%	50	19%
2	C2533 (between Bulls Green Link Road and A361)	356	131	365	140	9	3%	8	1%
3	A361 (east of C2533)	1593	161	1601	168	7	0%	7	0%
4	A361 (west of C2533)	1164	78	1165	79	2	0%	0	0%
5	C2533 (near Whatley Village)	258	75	232	47	-25	-10%	-29	-9%

**DM Scenario 1:** Do Minimum (including existing Whatley Quarry traffic); **DS:** Do Something 4mtpa haulage via road (Westdown 2mtpa+Whatley 2mtpa)

Table 5.7 2042 Future Year Traffic Comparison – AM (Scenario 2)

Link No	Link	2042 Base (DM Scenario 2)		2042 Base + Development (DS)				Difference	
		Total Vehicles	HGV	Total Vehicles	HGV	Total Vehicles	Total Vehicles %	HGV	HGV%
1	Bulls Green Link Road (between the proposed site access and C2533)	152	28	207	78	55	36%	50	19%
2	C2533 (between Bulls Green Link Road and A361)	415	190	365	140	-50	-12%	-50	-8%
3	A361 (east of C2533)	1642	210	1601	168	-42	-3%	-42	-2%
4	A361 (west of C2533)	1174	83	1165	79	-9	-1%	-4	0%
5	C2533 (near Whatley Village)	316	134	232	47	-84	-27%	-87	-22%

5.4.4

**DM Scenario 2:** Do Minimum (including permitted Whatley Quarry traffic); **DS:** Do Something 4mtpa haulage via road (Westdown 2mtpa+Whatley 2mtpa)

5.4.5

**Table 5.8** and **Table 5.9** present the changes in 2042 PM peak between Do Minimum (DM) and Do Something (DS) for both scenarios.

Table 5.8 2042 Future Year Traffic Comparison – PM (Scenario 1)

Link No	Link	2042 Base (DM Scenario 1)		2042 Base + Development (DS)				Difference	
		Total Vehicles	HGV	Total Vehicles	HGV	Total Vehicles	Total Vehicles %	HGV	HGV%
1	Bulls Green Link Road (between the proposed site access and C2533)	196	10	241	48	45	23%	38	15%
2	C2533 (between Bulls Green Link Road and A361)	231	36	232	36	1	0%	0	0%
3	A361 (east of C2533)	1691	95	1691	95	0	0%	0	0%
4	A361 (west of C2533)	1234	47	1234	46	0	0%	-1	0%
5	C2533 (near Whatley Village)	200	42	177	13	-24	-12%	-28	-13%

**DM Scenario 1:** Do Minimum (including existing Whatley Quarry traffic); **DS:** Do Something 4mtpa haulage via road (Westdown 2mtpa+Whatley 2mtpa)

Table 5.9 2042 Future Year Traffic Comparison – PM (Scenario 2)

Link No	Link	2042 Base (DM Scenario 2)		2042 Base + Development (DS)				Difference	
		Total Vehicles	HGV	Total Vehicles	HGV	Total Vehicles	Total Vehicles %	HGV	HGV%
1	Bulls Green Link Road (between the proposed site access and C2533)	196	10	241	48	45	23%	38	15%
2	C2533 (between Bulls Green Link Road and A361)	271	76	232	36	-39	-14%	-40	-13%
3	A361 (east of C2533)	1724	128	1691	95	-33	-2%	-33	-2%
4	A361 (west of C2533)	1241	50	1234	46	-7	-1%	-3	0%
5	C2533 (near Whatley Village)	240	82	177	13	-64	-27%	-68	-26%

**DM Scenario 2:** Do Minimum (including permitted Whatley Quarry traffic); **DS:** Do Something 4mtpa haulage via road (Westdown 2mtpa+Whatley 2mtpa)

- 5.4.6 Analysis of **Table 5.8** to **5.9** shows a similar pattern to the AM peak results. An increase of 23% on the short and rural link between the new site access and the C2533 on Link 1 and minor impacts at the other links, and for many reductions in traffic.
- 5.4.7 The Do Something scenario shows less impact against Do Minimum in Scenario 2 than in Scenario 1 as currently Whatley Quarry is not utilising its full allowances as set out above.

### Local Road Network – Capacity

- 5.4.8 The traffic flows of the Do Something scenario have been compared to the traffic flows recommended for rural roads, such as those found within the study area, in Table 2.1 of DMRB TA 46/97 (Traffic Flows Ranges for use in the Assessment of New Rural Roads, Feb 1997) to understand the impact of development traffic on the capacity of the local road network.
- 5.4.9 Whilst this guidance has been withdrawn recently (March 2020), it is still a point of reference as it has not been replaced by an alternative guidance. According to TA 46/97, the total daily maximum traffic flow on a two-way single carriageway (S2) should be 13,000 and on a two-way wide single carriageway (WS2) should be 21,000. To establish the recommended AM and PM peak traffic flows, the daily recommended traffic flows were factored (AM (0.0775) and PM (0.082127)) based on the latest DfT Road Traffic Statistics<sup>3</sup>. **Table 5.10** shows the summary of link capacity.

<sup>3</sup> <https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra>

Table 5.10 Link Capacity – 2042 Future Year (future base plus development traffic)

Link No	Link	2042 Future Base + Development Traffic (total vehicles) (* Do Something)		Recommended Traffic Flow (total vehicles) Based on TA 46/97		
		AM	PM	AM	PM	Category
1	Bulls Green Link Road (between the proposed site access and C2533)	207	241	1008	1068	S2
2	C2533 (between Bulls Green Link Road and A361)	365	232	1008	1068	S2
3	A361 (east of C2533)	1601	1691	1628	1725	WS2
4	A361 (west of C2533)	1165	1234	1628	1725	WS2
5	C2533 (near Whatley Village)	232	177	1008	1068	S2

\*Do Something: 4mtpa haulage via road (Westdown 2mtpa+Whatley 2mtpa)

5.4.10 **Table 5.10** shows that local road network has enough capacity to accommodate the 2042 growthed base traffic plus development traffic without a need for any improvement schemes.

### Junction - Bulls Green Link Road/C2533

5.4.11 In terms of junctions, the proposal will only have an impact on the Bulls Green Link Road/C2533 junction. Directional changes in the traffic flow will be the key impact along with slight changes in the overall junction traffic flows. **Table 5.11** shows the overall changes in the total traffic flow at the junction. These minor changes will occur due to the proposed employees at Westdown Quarry, existing low traffic from Whatley, and the proposed night road haulage from Whatley Quarry.

Table 5.11 Changes in Traffic Flow – Junction Total

Period	Against DM Scenario 1		Against DM Scenario 2	
	All Vehicles	HGV	All Vehicles	HGV
AM Peak	+20	+15	-39	-44
PM Peak	+12	+5	-28	-35

**DM Scenario 1:** Do Minimum (including existing Whatley Quarry traffic); **DM Scenario 2:** Do Minimum (including permitted Whatley Quarry traffic)

5.4.12 **Table 5.11** shows that even against the worst case base scenario (DM scenario 1), overall vehicle increment at the junction will be negligible, one vehicle in every three minutes is the likely impact during the peak hour (AM). Google live traffic also shows that there is no capacity issue at this junction currently. Therefore, capacity assessment is not considered to be necessary and the effect of the development at this junction is considered to be negligible.

## Proposed Site Access

- 5.4.13 As mentioned in **Section 4.3**, a separate study has been carried out for the proposed new site access. A capacity analysis of the proposed layout of the site access junction has been undertaken using JUNCTIONS 9. **Table 5.12** summarises the results of the capacity assessment of the 2042 Future Base with the proposed development scenario. This scenario consists of the 2042 background traffic and the proposed development traffic.

Table 5.12 2024 Future Base with the Proposed Development

Movement	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Queue (vehicles)	Delay (min)	RFC	Queue (vehicles)	Delay (min)	RFC
B-C	0.0	0.00	0.00	0.0	0.10	0.00
B-A	0.1	0.24	0.10	0.1	0.22	0.09
C-AB	0.0	0.10	0.00	0.0	0.10	0.00
Junction Delay (min)		0.04			0.03	

Arm A: Bulls Green Link Road (east)

Arm B: Site Access

Arm C: Bulls Green Link Road (west)

- 5.4.14 Using the JUNCTIONS 9 model with the 2024 Future Base plus the proposed development traffic, the junction still performs with ample spare capacity. With RFCs (Ratio of Flow to Capacity) considerably below 0.85 and negligible queuing, the model shows that the proposed junction will operate well within capacity.
- 5.4.15 Details of all capacity assessments incorporated within this section are presented in **Appendix D**.
- 5.4.16 Based on the 2019 traffic survey, the two-way seven days 85<sup>th</sup> percentile speed is 62.8 mph. This data might be required in the future during discussions with SCC about the proposed new site access. The raw traffic count survey data are available on request.

## Summary

- 5.4.17 In terms of the effects on the local roads near the Site, the proposals will only cause significant increase in the traffic flows on a short stretch of the Bulls Green Link Road (~1 km stretch) which is rural and has no sensitive properties and locations along this stretch. Calculations indicate that the local road network has enough capacity to accommodate the development traffic in the future base scenarios.
- 5.4.18 The Bulls Green Link Road/C2533 junction will see an increment of maximum one vehicle in every three minutes during peak hours due to the proposals, but this is a junction with no existing accident or capacity issues and any increment in the traffic flows due to the development proposal is negligible. Therefore, it is concluded that development traffic will not cause any capacity issue at this junction.
- 5.4.19 In terms of the proposed new site access, an assessment has been undertaken and the proposed junction layout is provided with the capacity to accommodate the proposed development.

## 6. Summary and Conclusions

### 6.1 Introduction

- 6.1.1 The aim of the TA is to assess and demonstrate that the development proposals can be accommodated within the existing transport network to a standard that is accepted by SCC, the highway authority.
- 6.1.2 This chapter summarises these proposals and the outcome of the traffic impact assessment.

### 6.2 Summary of Location and Development Proposals

- 6.2.1 Westdown Quarry is a dormant limestone quarry located approximately ~ 5 km to the southwest of Frome, in Somerset and surrounded by the Bulls Green Link Road, C2533, Knaptons Hill, A361 and A362. The proposals includes extraction of minerals at a rate of ~2mtpa, with the mineral processed on site before being transported by road to local markets. The combined HGV traffic from the Site and Whatley Quarry will not exceed the 4mtpa mineral haulage via road as currently permitted at Whatley Quarry. A new weighbridge, site office and staff welfare facilities, with associated parking, will also be constructed.
- 6.2.2 It is anticipated that HGVs would access the Site from the wider transport network via the A361, A362, C2533 and Bulls Green Link Road. 87% HGVs will route south to the A361 via C2533. Light vehicles will also use other local roads.

### 6.3 Summary of Assessments

- 6.3.1 The Bulls Green Link Road, C2533 and A361 are part of the designated HGV routes as set out in the Somerset Freight Strategy. 87% percent of quarry traffic will route through these roads which are suitable for HGV movements. The existing local road network has enough capacity to accommodate the development traffic.
- 6.3.2 In term of junctions, the proposal will cause only directional change at the Bulls Green Link Road/C2533 junction . Change in the overall traffic flow at the junction will be negligible. Therefore, the proposals will not cause any capacity issue at this junction.
- 6.3.3 The proposed new site access junction will have ample capacity to accommodate traffic from the proposed development.

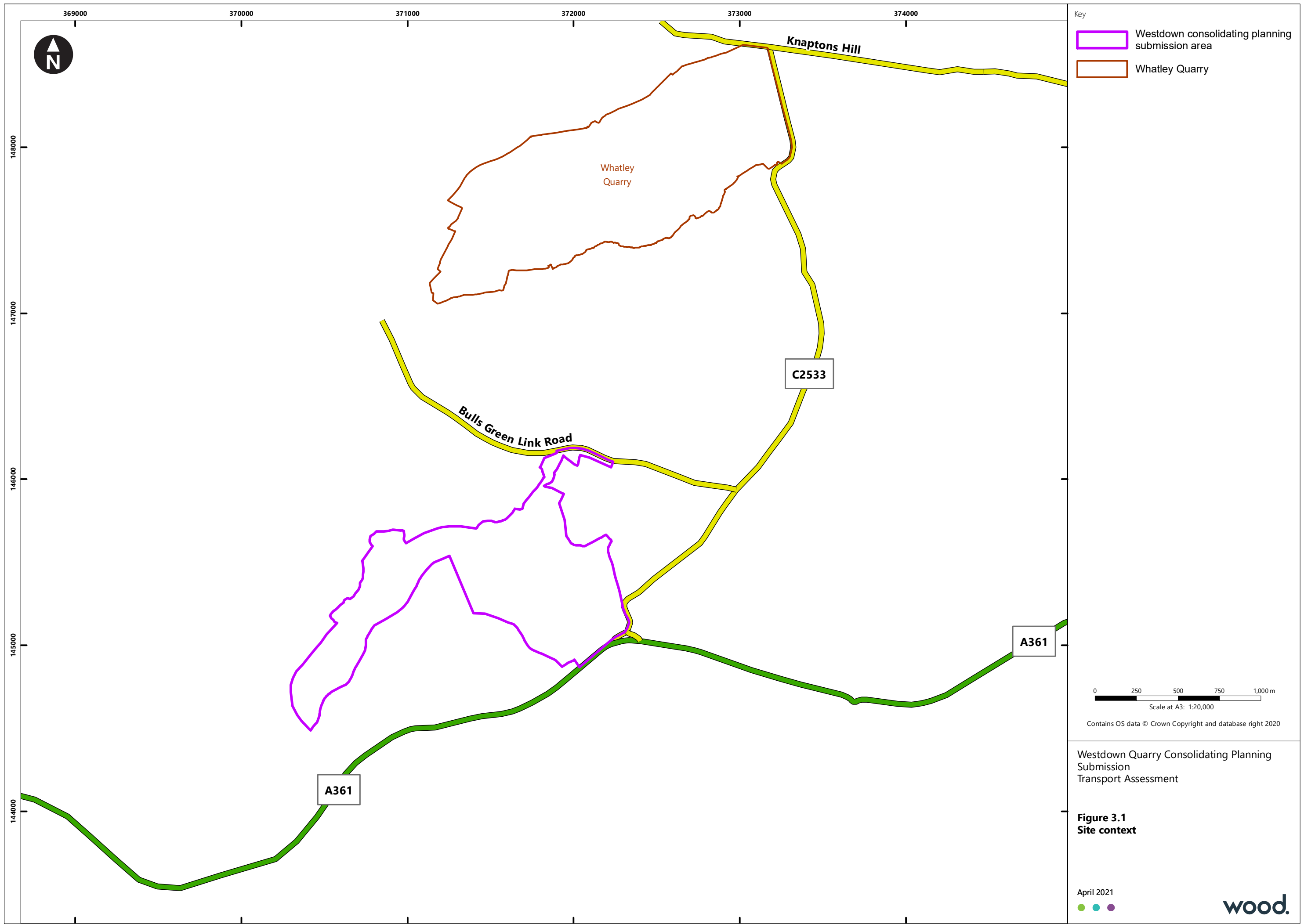
### 6.4 Conclusions

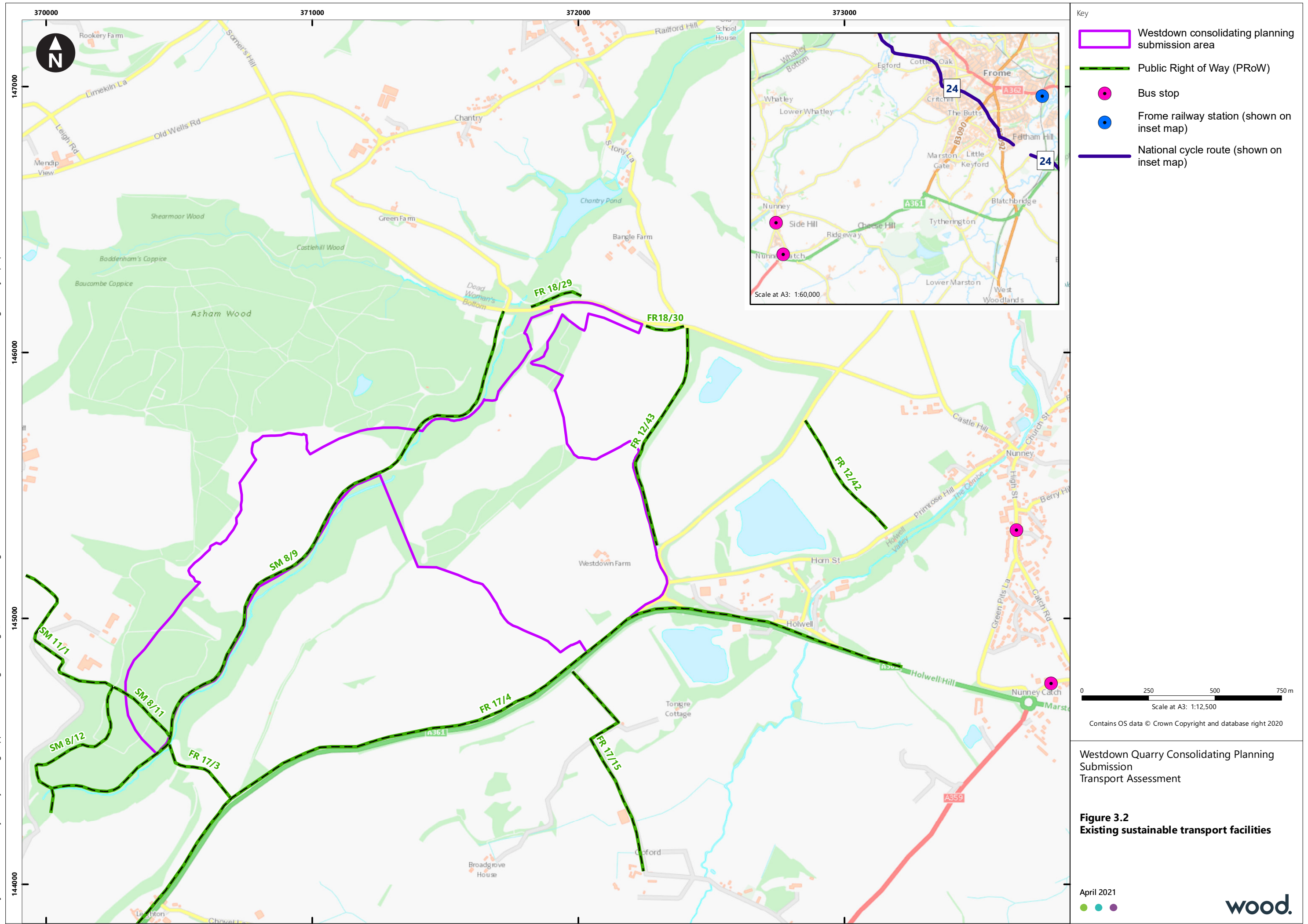
- 6.4.1 After considering existing conditions, road safety and investigating the capacity of the local road network and key junction, it is concluded that the impact of the development traffic can be accommodated on the existing transport network without impacting on the local environment.

## Figures



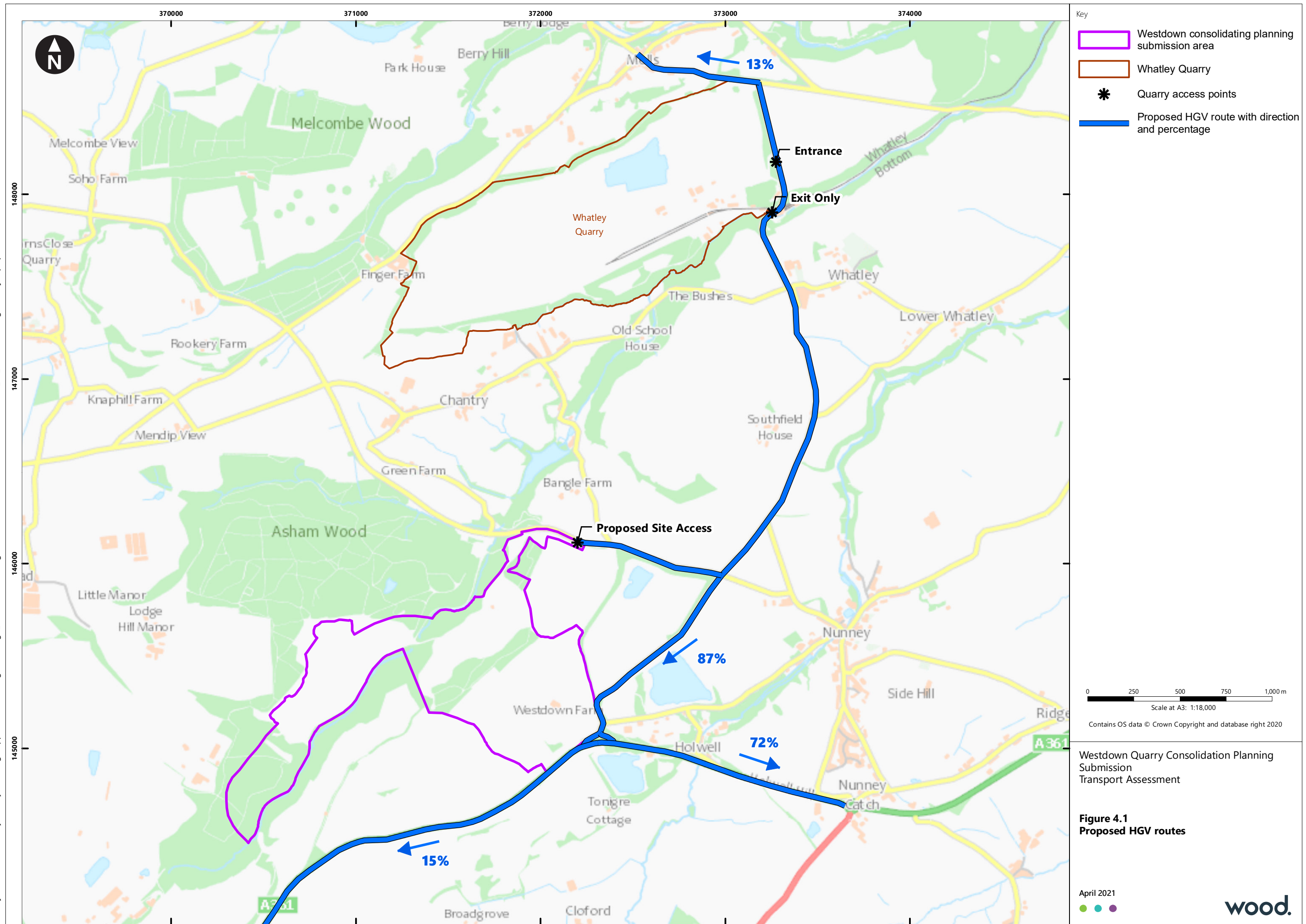
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# Appendix A

## Scoping Communication with SCC

More information on biodiversity issues in Somerset can be found here:  
<https://www.somerset.gov.uk/waste-planning-and-land/biodiversity/> Somerset's Biodiversity Action Plan can also be found here:  
[https://somersetdrainageboards.gov.uk/conservation\\_11\\_1271066518.pdf](https://somersetdrainageboards.gov.uk/conservation_11_1271066518.pdf)

The applicant can expect conditions relating to the protection of biodiversity, alongside any others recommended (which meet the tests) at the consultation stage, as part of any permission granted. It is likely that the restoration and potentially ecological management may be subject to a long-term management plan that will be subject to a S106 to ensure that the long-term aspirations for the site are fully met. Draft heads of terms should be submitted if this is the case / is required.

## **Traffic and transport**

Highway Safety and associated environmental impacts of traffic is a significant issue for the re-establishment of workings.

The general principle of the ES, as outlined earlier, should be considered in relation to traffic and transport when preparing the application.

The following paragraphs and policies are relevant to the proposal on this issue.

- Paragraph 108 of the NPPF (2019);
- Policy DM9: Minerals transportation of the SMP (2015);
- Development Policy 9 – Transport Impact of New Development of the MLP 1 (2014).

*Response received as part of the Scoping Opinion Request from the Highway Authority:*

*I have now reviewed the documentation received on the on 29th June 2020 and would offer the following comments.*

*With regard to the above pre-application the Highway Authority would require with any planning application submission a Transport Assessment to support the proposal. This document should at a minimum contain the following information.*

- *Collision Data: The developer will be required to carry out an investigation into this data from the past 5 years to ascertain whether there are any patterns associated with this site.*
- *Traffic Flows/ Trip generation: It is noted that the proposal does not seek to increase HGV movements per sae instead movements will be distributed between Whatley Quarry and Westdown Quarry. This will need to be set out within any documentation clearly defining where the HGV movements are along the local highway network any additional increase in private vehicles into the sites should also be included within the data provided.*
- *Traffic Speeds*

- *Visibility splays for the proposed new access need to be commensurate with the posted speed limit, if this cannot be achieved and a relaxation is required it may be necessary to undertake a speed survey to ascertain the vehicle speed and the full results will be included within the TA.*
- *Trip distribution: The Highway Authority will require the distribution data and assumptions to be provided to ensure that an assessment has been undertaken.*
- *Travel Plan: A Travel Plan would be required in line with current Somerset County Council Guidance as a stand-alone document. The type of plan to be provided will be in accordance with the following triggers and where necessary secured via a s106 agreement.*
- *Parking: Vehicle and cycle parking information should be provided for the proposed vehicles associated with the site ... this to include HGV parking as necessary as well as staff parking. All parking should be in accordance with SCC Parking Strategy.*
- *Access: Detailed drawings will be required indicating the point of access in detail, providing the following:*
  - *Its formation/construction geometry and width (no less than 5m wide);*
  - *Site layout;*
  - *Turning and internal site arrangements;*
  - *Parking space arrangements;*
  - *Provision of drainage.*
  - *Access visibility splays.*

#### *Land Control and Ownership:*

*At the time of the planning submission, the red line/blue line plan should be appropriately drawn to be an accurate representation of the applicant's full land ownership and control. The Highway observations and comments will be based on the information provided by/on behalf of the applicant as verified by the Local Planning Authority, and such the information will be deemed true and accurate at the time of assessment. Should any element of the supporting detail, including red and blue line landownership or control details, subsequently prove to be inaccurate, this may partially or wholly change the view of the Highway Authority for this (or any associated) application. As such the Highway Authority would reserve the right to revisit our previously submitted comments and readdress where deemed necessary.*

*Where planning permission has already been granted, any inaccuracies which come to light may seriously affect the deliverability of the permission. If this includes highway works either on or adjacent to the existing public highway that may be the subject of a specific planning condition and/or legal agreement attached to the aforementioned consent, it may result in a situation whereby that condition cannot then be discharged.*

*I trust the above is helpful but would confirm that the advice given is offered on an informal basis having regard to the information that is at hand at the present time and is wholly without prejudice to the formal consideration given on any planning application submitted for planning permission on the site. I would also point out that any advice given by the Highway Authority can either be acceptable or rejected by*



*the Local Planning Authority in the determination of the planning application. At the time of reviewing this Pre App this does not restrict the Highway Authority to requesting further information if required to ensure a robust and credible evidence base is produced.*

*Additional officer comments:*

The view of the Highway Authority should be considered when preparing the application, with regards to the data, required plans and the preparation of a **Transport Statement (TS)**. The Highways Authority can be contacted on: <https://www.somerset.gov.uk/roads-and-transport/highway-authority-consultation-on-planning-process/>. Should this be taken detailed feedback could be provided on a draft of the proposed **Transport Assessment** should this be considered useful. The Transport Assessment will need to demonstrate that appropriate consideration has been given to the alternatives to road transport, including rail, as a primary freight transport option. Alternatives to road transport should be pursued if they are demonstrated to be practicable and beneficial. This will be of particular importance due to the links between this proposal and the proposal at Whatley Quarry. It is recommended that the details of receptors are agreed with the Highway Authority and Environmental Health prior to commencing work on the assessment.

Proposals for mineral development that will generate significant transport movements must be supported by a **Travel Plan**.

To ensure compliance with the relevant national guidance and local policy, the application should:

- Highlight appropriate opportunities to promote sustainable transport modes can be – or have been – taken up (if appropriate);
- Highlight any links to other areas of the ES are clear e.g. amenity impacts, biodiversity etc.

Somerset County Council's Freight Strategy<sup>6</sup> acknowledges the impact of the quarrying industry in relation to traffic movements, especially in the Mendips. Routing of these lorries should be directed where possible along the routes identified in the Somerset Freight Map (Appendix One, Freight Strategy)<sup>7</sup>.

The existing planning permissions for Westdown Quarry provide no indication of any restrictions on the volume HGV movements or any restrictions on the quantity of material leaving the site. Notwithstanding this, the existing July 1995 planning permission on the neighbouring Whatley Quarry (reference 109/22/002) states at condition (30) that no more than 4 million tonnes of the total output from the site in any one calendar year shall be transported by road. The Scoping Report confirms the applicant's intention to combine operations in terms of annual tonnage and HGV movements. Whatley and Westdown combined would operate within the limits of the existing condition (3) i.e. no more than 4 million tonnes per annum would be

---

<sup>6</sup> Somerset Freight Strategy, Transport Policies 2011

<sup>7</sup> <http://www.somerset.gov.uk/irj/go/km/docs/CouncilDocuments/SCC/Documents/Environment/Strategic%20Planning/Freight%20Strategy%20Adopted%20Dec%202011.pdf>



transported from the sites via road. It has been further confirmed by Hanson that vehicles would access and leave Westdown Quarry via a newly constructed access point located off the Bulls Green Link Road and that vehicles would turn right out of the site, to then travel south towards the A361.

The applicant highlights that as Westdown Quarry is not currently operational and it is intended that any future activity at the site would be in lieu of the agreed traffic volumes from the February 1996 Whatley Quarry permission. Therefore, if the HGV traffic from Westdown Quarry and Whatley Quarry combined does not exceed the equivalent of 4 million tonnes per annum, then it follows that the majority of the transportation effects would have already been considered and accepted as part of the February 1996 permission for Whatley Quarry. It is acknowledged that the resumption of working at Westdown Quarry would however result in an altered pattern of distribution for the quarry HGVs.

The applicant can expect conditions relating to highways movements and tonnages as part of any permission granted. There may be a requirement for a S106 requirement in relation to highway matters and draft heads of terms should be submitted as part of the application.

## Historic Environment

The general principle of the ES, as outlined earlier, should be considered in relation to the historic environment when preparing the application.

Parts of the site have been previously subject to quarrying, and it is assumed that all features of archaeological interest within this area have been removed. Other parts of the site appear not to have been affected and remain in use as agricultural fields. Effects on known heritage assets will therefore be considered only where these are located within the footprint of the site, and in locations which have not already been subject to quarrying.

The following paragraphs and policies are relevant to the proposal on this issue.

- Paragraph 189 of the NPPF (2019);
- Paragraphs 193-195 of the NPPF (2019);
- Paragraph 197 of the NPPF (2019);
- Policy DM3: Historic environment of the SMP (2015);
- Development Policy DP3: Heritage of the MLP (2014).

*Response received as part of the Scoping Opinion Request from the Lead Local Flood Authority:*

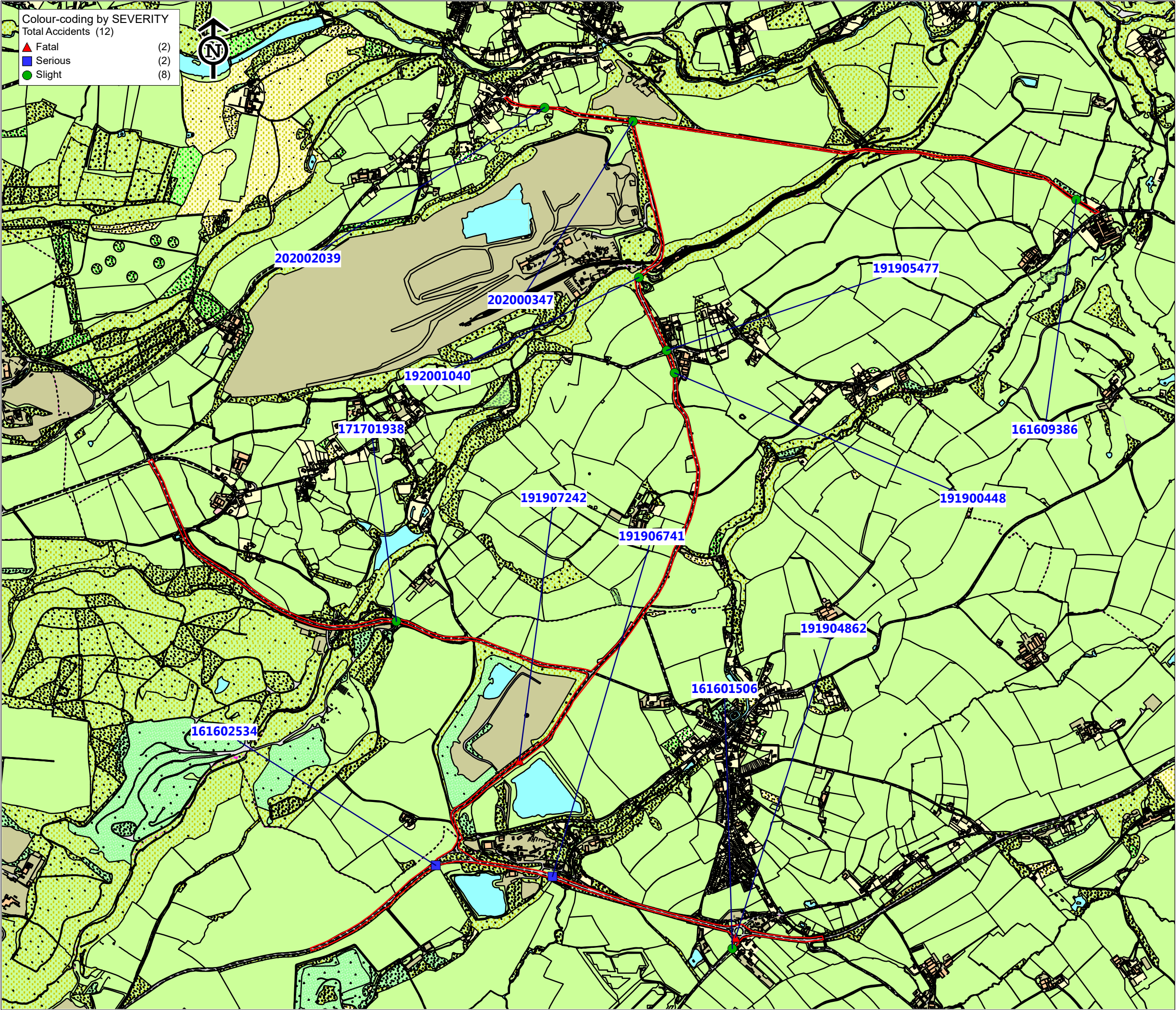
The screening opinion documents for both sites include chapters that deal with issues associated with the Historic Environment. The SOs describe the scope of the assessment that is based on heritage assets (and their setting) that may be impacted by the proposals.



# Appendix B

## Accident Records





# Whatley

Collisions  
between  
01/07/2015  
and  
30/06/2020

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CORRECT AT TIME  
OF PRINTING



SCALE	1 : 17500
DATE	09/11/2020
DRAWING No.	0048/2020
DRAWN BY	M.P.D
CHECKED BY	D.H

**Collisions between dates**      **01/07/2015 and 30/06/2020**    (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

161601506      01/02/2016      Monday      Time 1614    Vehicles 2    Casualties 1    Slight  
 Fine without high winds                      Road surface Dry                      Daylight: street lights present  
 Special Conditions None                      Road Type Single carriageway  
 V2 WAS FOLLOWING V1 ALONG A361 COMING FROM FROME. AT NUNNEY CATCH RAB V1 TURNED LEFT  
 TOWARDS BRUTON ON THE A359 FOLLOWED BY V2. V1 SLOWED TO TURN LEFT INTO A DRIVEWAY.  
 V1 STOPPED TO ALLOW ANOTHER VEH OUT - V2 COLLIDED WITH REAR OF V1.  
 Occurred on      A359, 50M SOUTH OF A361, TRUDOXHILL.

Vehicle Reference	1	Car	Going ahead
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Back	Age of Driver	22
Vehicle direction	NE to SW		
FRV	Not foreign registered vehicle	Journey	6
Casualty Reference:	1	Age:	22
	Female	Driver/rider	Severity: Slight

Vehicle Reference	2	Car	Going ahead
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Front	Age of Driver	29
Vehicle direction	NE to SW		
FRV	Not foreign registered vehicle	Journey	6

161602534      15/03/2016      Tuesday      Time 1550    Vehicles 2    Casualties 2    Serious  
 Fine without high winds                      Road surface Dry                      Daylight: street lights present  
 Special Conditions None                      Road Type Single carriageway  
 V1 WAS TRAVELLING EAST TOWARDS FROME: THE CARRIAGEWAY IN THAT DIRECTION OPENS UP FROM SINGLE TO  
 DOUBLE. V1 OVERTOOK AND MOVED INTO THE SECOND LANE BUT CONTINUED TO PULL ACROSS THE ROAD INTO  
 THE LANE OF ONCOMING TRAFFIC CROSSING A DOUBLE WHITE LINE AND COLLIDED WITH ONCOMING V2.  
 Occurred on      A361 HOLWELL QUARRY, WANSTROW.

Vehicle Reference	1	Car	Overtaking moving vehicle on its offside
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Front	Age of Driver	59
Vehicle direction	W to E		
FRV	Not foreign registered vehicle	Journey	6
Casualty Reference:	1	Age:	59
	Female	Driver/rider	Severity: Serious

Vehicle Reference	2	Car	Going ahead
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Front	Age of Driver	64
Vehicle direction	E to W		
FRV	Not foreign registered vehicle	Journey	Journey as part of work
Casualty Reference:	2	Age:	64
	Male	Driver/rider	Severity: Slight



**Collisions between dates**      **01/07/2015 and 30/06/2020**    (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

161609386      12/12/2016      Monday    Time 2140    Vehicles    2    Casualties    1    Slight  
 Fine without high winds                      Road surface    Dry                      Darkness: no street lighting  
 Special Conditions    None                      Road Type    Unknown  
 V1 & V2 TRAVELLING NORTH WEST. V1 TRAVELLING FORWARD. V2 WAS TAILGATING  
 AND COLLIDED WITH REAR OF V1. V2 FAILED TO STOP..  
 Occurred on      KNAPTONS HILL. WHATLEY

Vehicle Reference	1	Car	Going ahead
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Did not impact	Age of Driver	20
Vehicle direction	SE to NW		
FRV	Not foreign registered vehicle	Journey	6
Casualty Reference:	1	Age:	20
		Male	Driver/rider
			Severity: Slight

Vehicle Reference	2	Car	Going ahead
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Front	Age of Driver	50
Vehicle direction	SE to NW		
FRV	Not foreign registered vehicle	Journey	6

171701938      01/03/2017      Wednesday    Time 1255    Vehicles    2    Casualties    1    Slight  
 Fine without high winds                      Road surface    Wet/Damp                      Daylight: street lights present  
 Special Conditions    None                      Road Type    Single carriageway  
 V1 & V2 TRAVELLING WEST. V2 SLOWED TO TURN LEFT INTO WESTDOWN QUARRY.  
 V1 NOTICED A DOG WALKER ABOUT TO CROSS FROM OFFSIDE. V1 BRAKED AND SLOWED  
 .WHICH WAS SHUNTED FORWARD INTO A LARGE BOULDER.  
 Occurred on      BULLS GREEN LINK ROAD, NUNNEY.

Vehicle Reference	1	Agricultural vehicle	Going ahead
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Front	Age of Driver	39
Vehicle direction	E to W		
FRV	Not foreign registered vehicle	Journey	Journey as part of work
Vehicle Reference	2	Car	Turning left
Not in restricted lane			No skidding, jack-knifing or overturning
First point of impact	Back	Age of Driver	49
Vehicle direction	E to W		
FRV	Not foreign registered vehicle	Journey	6
Casualty Reference:	1	Age:	49
		Male	Driver/rider
			Severity: Slight

Collisions between dates 01/07/2015 and 30/06/2020 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

191900448 23/01/2019 Wednesday Time 1250 Vehicles 2 Casualties 1 Slight  
Fine without high winds Road surface Dry Daylight: street lights present  
Special Conditions None Road Type Unknown  
V1 & V2 TRAVELLING NORTH. V1 STOPPED TO TURN RIGHT EAST.  
V2 FAILED TO STOP IN TIME AND COLLIDED WITH REAR OF V1.  
Occurred on UNCLASSIFIED ROAD, AT JCT WITH SUMMERFIELD FARM, WHATLEY.

Vehicle Reference 1 Car Waiting to turn right  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Back Age of Driver 58  
Vehicle direction S to E  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 1 Age: 58 Female Driver/rider Severity: Slight

Vehicle Reference 2 Goods between 3.5 and 7.5 tonnes Going ahead  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Front Age of Driver 35  
Vehicle direction S to N  
FRV Not foreign registered vehicle Journey 6

Collisions between dates 01/07/2015 and 30/06/2020 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

191906741 01/04/2019 Monday Time 1550 Vehicles 2 Casualties 4 Serious  
Fine without high winds Road surface Dry Daylight: street lights present  
Special Conditions None Road Type Single carriageway  
V1 & V2 TRAVELLING WEST. V1 WAS WAITING TO TURN LEFT SOUTH.  
V2 FAILED TO NOTICE THIS AND COLLIDED WITH REAR OF V1.  
Occurred on A361 HOLWELL HILL, WANSTROW.

Vehicle Reference 1 Goods >= 7.5 tonnes mgw Turning left  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Nearside Age of Driver 54  
Vehicle direction E to S  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 1 Age: 54 Male Driver/rider Severity: Slight

Vehicle Reference 2 Goods >= 7.5 tonnes mgw Going ahead  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Front Age of Driver 33  
Vehicle direction E to W  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 2 Age: 33 Male Driver/rider Severity: Serious  
Casualty Reference: 3 Age: 39 Male Passenger Severity: Serious  
Casualty Reference: 4 Age: 31 Male Passenger Severity: Serious



## Whatley

Vehicle Reference	2	Car				Waiting to turn right
Not in restricted lane						No skidding, jack-knifing or overturning
First point of impact	Front		Age of Driver	56		
Vehicle direction	SW to SE					
FRV	Not foreign registered vehicle				Journey	6
Casualty Reference:	2	Age:	79	Female	Passenger	Severity: Slight

Vehicle Reference	1	Taxi		Going ahead
Not in restricted lane				No skidding, jack-knifing or overturning
First point of impact	Did not impact		Age of Driver	50
Vehicle direction	SE to N			
FRV	Not foreign registered vehicle		Journey	Journey as part of work
Casualty Reference:	1	Age:	87	Female
				Passenger
				Severity:
				Fatal

Collisions between dates 01/07/2015 and 30/06/2020 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

192001040 16/10/2019 Wednesday Time 1400 Vehicles 1 Casualties 1 Slight  
Fine without high winds Road surface Dry Daylight: no street lighting  
Special Conditions None Road Type Unknown  
V1 TRAVELLING NORTH EAST. RIDER LOST CONTROL, V1 HIT A KERB AND COLLIDED  
WITH A WALL. RIDER OF V1 FELL FROM MACHINE.  
Occurred on UNNAMED ROAD, WHATLEY.

Vehicle Reference 1 Motorcycle over 50cc and up to 125cc Going ahead  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Offside Age of Driver 18  
Vehicle direction SW to NE  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 1 Age: 18 Male Driver/rider Severity: Slight

191907242 30/11/2019 Saturday Time 1309 Vehicles 1 Casualties 1 Fatal  
Fine without high winds Road surface Dry Daylight: no street lighting  
Special Conditions None Road Type Single carriageway  
V1 TRAVELLING NORTH EAST. PASSENGER STRUCK HEAD ON INTERIOR OF THE VEH.  
Occurred on UNCLASSIFIED ROAD, NUNNEY.

Vehicle Reference 1 Minibus Going ahead  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Did not impact Age of Driver 68  
Vehicle direction SW to NE  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 1 Age: 85 Male Passenger Severity: Fatal

Collisions between dates 01/07/2015 and 30/06/2020 (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

202000347 15/01/2020 Wednesday Time 0857 Vehicles 2 Casualties 1 Slight  
Fine without high winds Road surface Wet/Damp Daylight: no street lighting  
Special Conditions None Road Type Single carriageway  
V1 TRAVELLING NORTH, V2 TRAVELLING EAST. V1 TURNED RIGHT EAST AND COLLIDED WITH V2.  
Occurred on KNAPTONS HILL, AT JCT WITH UNCLASSIFIED ROAD, MELLS.

Vehicle Reference 1 Car Turning right  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Front Age of Driver 21  
Vehicle direction S to E  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 1 Age: 21 Female Driver/rider Severity: Slight

Vehicle Reference 2 Car Going ahead  
Not in restricted lane No skidding, jack-knifing or overturning  
First point of impact Front Age of Driver 51  
Vehicle direction W to E  
FRV Not foreign registered vehicle Journey 6

202002039 25/01/2020 Saturday Time 1740 Vehicles 1 Casualties 1 Slight  
Fine without high winds Road surface Dry Darkness: no street lighting  
Special Conditions None Road Type Single carriageway  
V1 TRAVELLING WEST. DRIVER LOST CONTROL, V1 ENDED UP IN A GRASS VERGE AND COLLIDED WITH A WALL.  
Occurred on KNAPTONS HILL MELLS.

Vehicle Reference 1 Car Going ahead  
Not in restricted lane Skidded and overturned  
First point of impact Front Age of Driver 19  
Vehicle direction E to W  
FRV Not foreign registered vehicle Journey 6  
Casualty Reference: 1 Age: 19 Male Driver/rider Severity: Slight

**Collisions between dates**      **01/07/2015 and 30/06/2020**    (60) months

**Selection:**

Selected using Manual Selection

**Notes:**

Whatley

Collisions involving:

	Fatal	Serious	Slight	Total
Motor vehicles	2	2	7	11
2-wheeled motor vehicles	0	0	1	1
Pedal cycles	0	0	0	0
Horses and other	0	0	0	0
Total	2	2	8	12

Casualties:

	Fatal	Serious	Slight	Total
Vehicle driver	0	2	8	10
Passenger	2	2	2	6
Motorcycle rider	0	0	1	1
Cyclist	0	0	0	0
Pedestrian	0	0	0	0
Other	0	0	0	0
Total	2	4	11	17



# Appendix C

## Westdown Access Study Report

# Technical note:

## Westdown Quarry – Access Options

---

### 1. Introduction

- 1.1.1 Hanson Aggregates (Hanson) have asked Wood Environment and Infrastructure Solutions UK (Wood) to consider access options at the Westdown Quarry site in Somerset, the location of which is shown in **Figure 1.1**.
- 1.1.2 The Westdown site is bounded by Bulls Green Link Road along the northern boundary and by the A361 to the south. Wood have previously undertaken access option considerations for the Westdown site. Four access locations were considered, all of which were located on the Bulls Green Link Road on the northern site boundary. These are shown in **Figure 1.1**. Bulls Green Link Road is a single lane carriageway of approximate 7.0m width and 60mph (delimited) speed limit.
- 1.1.3 A summary of the previous work is included in **Appendix A**. This work was based on LIDAR and Ordnance Survey data and did not produce conclusive results and Wood recommended the following to be undertaken to support the assessment:
- *Consider the purchase of third-party land;*
  - *Arrange a full topographical survey for accesses 1, 2, 3 and 4;*
  - *Undertake a services search at accesses 1, 2, 3 and 4; and*
  - *Provide an approximate cost estimate for highway re-profiling."*
- 1.1.4 Following the consideration of this advice, Hanson asked Wood to undertake an additional access options assessment based on the results of the services search and topographical survey data to give a more accurate result. Additionally, Hanson requested that access points at three locations on the southern boundary of the site should be considered. This included an access directly from the A361 (access 5) and two from unnamed roads adjacent to the southern site boundary (access 6 and 7) which are also shown in **Figure 1.1**. These roads are also single lane carriageways with 60mph speed limits.
- 1.1.5 Based on an initial assessment using aerial mapping, the Wood team identified issues with Access 7: although it is located on the outside of the bend, just to the south, the road bends in the opposite direction, restricting horizontal visibility, with the same problem to the north. Google Street View suggests that vertical visibility is restricted too. Considering these factors, it was concluded that Access 7 would be problematic and costly to construct. Therefore, it was agreed with Hanson that Access 7 would not be included within the more detailed access options assessment.
- 1.1.6 This Technical Note (TN) reports on the access options assessment and is set out as follows:
- Section 2 – Methodology;
  - Section 3: Preliminary Access Design;
  - Section 4: Assessment (including safety, cost, land take, environment, public rights of way, services and utilities, consenting and delivery); and
  - Section 5: Summary.

## 2. Methodology

- 2.1.1 To undertake a more detailed assessment of the access options into the Westdown Quarry site, Wood proposed using three additional types of data to inform the assessment:
- Topographical data;
  - Highway boundary data; and
  - Services data.
- 2.1.2 Two 3D topographical surveys were commissioned, one along the unnamed road adjacent to the northern site boundary and another which covered the A361 and the unnamed road which runs adjacent to the southern site boundary. The topographical survey was undertaken for a distance of 215m either side of each access to cover the maximum visibility splay required at each access location. This data forms the basis of the 3D AutoCAD model developed to undertake the access options assessment detailed later in this TN.
- 2.1.3 Highway boundary data was requested from Somerset County Council (SCC) for all the roads where an access is proposed off the local highways network. Wood digitised the highways boundary data and this has been used within 3D AutoCAD model which was developed to undertake the access options assessment detailed later in this TN.
- 2.1.4 A services data search was also undertaken for each of the access points plus a distance of 215m either side of the junction based on the extent of the required visibility splay. This data was then incorporated into the 3D AutoCAD model.
- 2.1.5 It should be noted that Access 2 includes for two options. Previous iterations of the document have considered this access as an entry only access. To allow for a fair comparison with the other two-way accesses in this document, Access 2a in the assessments below makes assumptions for the impacts of a two-way entry at this access option. This access option has not been designed in detail but the assumptions for the additional impacts of this access option at Access 2 are considered valid.

## 3. Preliminary access design

### 3.1 Design and visibility splays requirements

- 3.1.1 The previous study was based on LIDAR data, OS mapping and assumptions. This more refined study has been conducted using topographical survey data which provides more accurate and detailed information as it is measured on-site. The 3D AutoCAD model of the roads based on the topographical survey data provides a basis to undertake the assessment of the vertical alignment of the access locations and the required visibility splays.
- 3.1.2 To conduct a horizontal visibility assessment of each access option, visibility requirements from the Design Manual for Road and Bridges (DMRB) CD 123 and Table 2.10 of CD 109 have been used. The visibility requirements based on road design speeds are set out in Table 2.10 of CD 109. Of relevance to this study are the following:
- 60mph design speed – a horizontal visibility of 215m; and
  - 50mph design speed – a horizontal visibility of 160m.



- 3.1.3 Based on the previous work, it is proposed to reduce the speed limit from 60mph to 50mph at accesses 1, 2, 3 and 4 to allow safe access to be provided. Therefore, the design speed at accesses 1, 2, 3 and 4 is 50mph. Accesses 5 and 6 are also located on roads with 60mph speed limits and this assessment has considered the feasibility of achieving the required visibility splay.
- 3.1.4 To undertake a vertical visibility assessment of each access option, a height profile of each road captured in the topographical survey has been generated using the 3D AutoCAD model. The location of each access option has been placed on the profile. This has allowed Wood to undertake vertical visibility assessments of each access location using the guidance set out in Chapter 2 of the DMRB, CD 109. The guidance sets out the envelope of visibility shall be measured from a driver eye height of between 1.05m to 2m (measured at the access location) and an object height between 0.26m and 2m (measured at the end of the visibility splay). Any sections of the highway or any other obstacles which lie within the envelope will impede the vertical visibility and should be addressed.
- 3.1.5 Wood requested from Hanson design specifications for an access and for the largest regular expected vehicle. Hanson provided a specification of a Cement Tanker (14.78m\*3.03m (including mirror)).
- 3.1.6 In the absence of a Hanson specific access design the preliminary design of each access option has been undertaken using the guidance set out in DMRB CD 123. The guidance sets out that for a simple priority junction in a rural area, a 15m corner radius and a taper of 1:10 over a distance of 25m should be used for the design. Wood have followed this guidance and created all access options to this specification, with the inclusion of a 7.3m wide access road continuing into the Westdown site. At this stage, it is not clear how these accesses will be used (one-way or two-way) and so all the accesses apart from option 2 (identified in the previous assessment as entry only) have been designed as two-way for added flexibility.
- 3.1.7 All the access designs have been tested for suitability using the Autodesk Vehicle Tracking application. An articulated HGV (16.5m\*3.15m (including clearance envelope)) has been used to perform a Swept Path Analysis as this vehicle is longer than the Hanson Cement Tanker.

## 3.2 Access options

- 3.2.1 The access options are discussed below.

### Access 1

- 3.2.2 Access 1 was considered in the previous access options assessment and uses an existing bell mouth access into the Westdown Quarry site, as such no structural access design proposals have been made at this location. However, tidying, removing boulders plus surface treatments may be needed. The horizontal visibility (2.4 x 160m) and vertical visibility splay are not impeded at any location from this access point and are considered to be appropriate. **Figure 3.1** shows the horizontal visibility splays from Access 1. Wood consider that with appropriate minor refurbishment this option could be suitable for use as an access to the Westdown site but would require a speed reduction to 50mph.

### Access 2 & 2a

- 3.2.3 Access 2 was assessed in the previous access options assessment as an entry only access. The access uses an existing bell mouth access into the Westdown Quarry site, as such no structural access design proposals have been made at this location. However, tidying, removing boulders and surface treatments may be needed. Although this is an existing access the vertical visibility in the

previous assessment was found to be below standard as this is limited to a distance of 30m which is well below the required 160m at the design speed of 50mph.

- 3.2.4 Further assessment has been undertaken within 3D AutoCAD for an entry only access. Wood identified that the vertical visibility is restricted and will require re-profiling of the road over a length of 153m and the horizontal visibility is limited at 30m. Wood consider that with appropriate re-profiling works and the cut back/management of vegetation this option could be suitable for use as an access to the Westdown site.
- 3.2.5 **Figure 3.2** shows the area of carriageway which will need to be re-profiled to achieve vertical visibility and the area of highway land needed for visibility for Access 2.
- 3.2.6 Access 2a would be in the same position as Access 2 but would allow for vehicles to exit the site as well and result in additional impacts and reprofiling of the carriageway as set out in detail over the rest of this access note.

### Access 3

- 3.2.7 Access 3 was assessed in the previous access options assessment and would require construction of a new access bell mouth and visibility splay. In the previous assessment it was identified that visibility and surfacing works at this access would be required.
- 3.2.8 Further assessment using the 3D AutoCAD model created from topographical data has identified that the vertical visibility is limited and will require re-profiling of the road over a length of 126m to the east and 156m to the west. The horizontal visibility is currently limited by vegetation, therefore an estimated 136m of vegetation will need to be removed to the west and 30m of vegetation removed to the east to achieve the desired visibility of 160m as set out in CD 109 for a design speed of 50mph. Wood consider that with appropriate re-profiling works and the cut back/management of vegetation this option could be suitable for use as an access to the Westdown site.
- 3.2.9 **Figure 3.3** shows the preliminary design of the proposed Access 3 as well as details of the horizontal and vertical visibility splays, profiles and the area of highway land needed for visibility.

### Access 4

- 3.2.10 Access 4 was assessed in the previous access options assessment and would require construction of a new access bell mouth and visibility splay. In the previous assessment it was identified that visibility and surfacing works at this access would require the use of third-party land.
- 3.2.11 Further assessment using the 3D AutoCAD model created from topographical data has identified that the vertical visibility is limited and will require re-profiling of the road over a length of 150m to the east and 66m to the west. The horizontal visibility is currently limited by vegetation, therefore an estimated 129m of vegetation will need to be removed to the west and 140m of vegetation removed to the east to achieve the desired visibility of 160m. Wood consider that with appropriate re-profiling works and the cut back/management of vegetation this option could be suitable for use as an access to the Westdown site.
- 3.2.12 **Figure 3.4** shows the preliminary design of the proposed Access 4 as well as details of the horizontal and vertical visibility splays, profiles and the area of highway land needed for visibility.

## Access 5

- 3.2.13 Access 5 is located on the A361 at the southernmost periphery of the Westdown site and is being assessed for the first time in this TN. This would be a new access location and is currently hedgerow.
- 3.2.14 Assessment of the vertical visibility using the 3D model has identified that the vertical visibility is restricted to the north and will require re-profiling of the road over a length of 200m. The horizontal visibility is currently limited by hedgerow in both directions. It is estimated that approximately 45m of vegetation/hedgerow to the north and 195m to the south will need to be removed to achieve the desired visibility splay of 215m for a road with a design speed of 60mph.
- 3.2.15 Wood consider that with appropriate re-profiling works and the cut back/management of vegetation this option could be suitable for use as an access to the Westdown site.
- 3.2.16 **Figure 3.5** shows a preliminary design of the proposed Access 5 as well as the as details of the horizontal and vertical visibility splays and profiles.

## Access 6

- 3.2.17 Access 6 is located on an unnamed road on the southern boundary of the Westdown quarry site and is being assessed for the first time in this TN. This is a new access location and is currently hedgerow.
- 3.2.18 This road has a speed limit of 60mph, so the desired visibility for the proposed junction will be 215m as set out in CD 109. However, the visibility is constrained in this location due to the presence of junctions to the east and the west. To the east there is a junction with another unnamed road after 70m and to the west the junction with the A361 after 68m. Highways design convention dictates that visibility is only needed to the adjacent junctions. Assessment of the vertical visibility has been undertaken using the 3D model which has identified that the vertical visibility has no limitations at this access location. The horizontal visibility is currently limited by hedgerow in both directions. It is estimated that approximately 53m of vegetation/hedgerow to the northeast and 28m to the west will need to be removed to achieve the visibility desired.
- 3.2.19 Wood consider that with appropriate cut back/management of vegetation this option could be suitable for use as an access to the Westdown site.
- 3.2.20 **Figure 3.6** shows the preliminary design of the proposed Access 6 as well as the as details of the horizontal and vertical visibility splays, profiles and the land requiring vegetation clearance to ensure suitable visibility.

# 4. Assessment

## 4.1 Consultation

- 4.1.1 During the consultation exercise undertaken for the Haydon's Ground access options study, the verbal advice from SCC Highways was that this type of query doesn't sit well within the internal structure of the Council, it does not fall within the remit of the Traffic Management and Road Safety Team nor the Highways Development Control or indeed the Local Planning Authority (Mendip District). The advice recommended that we email the Highways Development Control Team regarding any specific access proposals, rather than requesting consideration of a number of options. Therefore, consultation should be undertaken once Hanson determine their preferred access option.

## 4.2 Safety

- 4.2.1 Personal Injury Accident (PIA) data has been obtained from SCC and the online database crashmap, which plots accidents recorded by UK police forces across the UK. Accident data within the vicinity of the accesses for the most recent five-year period (October 2013 to September 2018) has been assessed. This data indicated two accidents in the vicinity of Accesses 1, 2, 3, 4, 5 and 6. These accidents were at Access 2 and Access 6.

### Access 2

- 4.2.2 One slight accident occurred at the location of Access 2 and 2a and was due to driver error, when a car slowed to turn left into the access but the vehicle behind failed to slow and therefore collided with the rear of the vehicle in front. In terms of road safety, due to the existing low visibility at this access location to the horizontal alignment of the highway, there is considered to be an existing accident concern.

### Access 6

- 4.2.3 One serious accident occurred approximately 60m south-west of the proposed Access 6 on the A361. The serious accident occurred due to driver error, when a car crossed a double white line during overtaking and collided with an oncoming car. This accident occurred significantly away from the location of the access 6 and was due to driver error.

### Accident summary

- 4.2.4 The accident assessment indicates that only two accidents were recorded over five-year period in the vicinity of the potential accesses. Though both accidents were caused by driver error, road bend near the location of Access 2 remain a concern. Consequently, the safety rating of each access location, except Access 2 & 2a (high), has been categorised as low.

## 4.3 Cost

- 4.3.1 The construction cost of the schemes is calculated based on the Spon's price book 2019 (3<sup>rd</sup> quarter of 2020). **Table 4.1** summarises the indicative construction cost estimate for each access option.

Table 4.1 Estimated construction cost

Access Option	Total	Estimated accuracy (-15%)	Estimated accuracy (+30%)
1	*£40,000	*£34,000	*£52,000
2	**£1,033,075	**£878,114	**£1,342,997
2a	***£2,066,150	***£1,756,228	***£2,685,994
3	£1,617,667	£1,375,017	£2,102,968
4	£712,620	£605,727	£926,406
5	£1,067,483	£907,361	£1,387,729

Access Option	Total	Estimated accuracy (-15%)	Estimated accuracy (+30%)
6	£129,987	£110,489	£168,983

\* Due to no physical highways alteration required and only minor refurbishment, bolder removal, bridleway diversion and change of speed limit a minimal cost has been estimated.

\*\* Entry only option (assessed cost).

\*\*\*Estimated approximate cost for a full access (entry and exit) based on the assessed cost for the entry only option.

- 4.3.2 The costs set out in **Table 4.1** do not include the cost of internal layout construction, mitigation of environmental issues related to internal layout, land purchase costs and realignment of existing utilities however, the cost related to the utility relocation can be obtained from the service provider if required. The costs presented in **Table 4.1** include cost of access construction, contingency, professional and legal consultancy and preliminaries.
- 4.3.3 Consequently, the cost rating for each access locations has been categorised as minimum for Access 1, Low for Access 6, medium for Access 4 and high for Accesses 2, 3 and 5. It should be noted that the cost of the Access 2 in Table 4.1 is based on the entry only option. If this access is considered as a full access (entry and exit) then the cost of the Access 2 would be more than double as a significant length of carriageway also needs to be re-profiled to achieve the 160m visibility to the west side.
- 4.3.4 **Appendix B** includes details of how these costs have been derived.

## 4.4 Land

- 4.4.1 There are two different types of land that may be required to construct each access outside of the existing Westdown Quarry red line boundary: highways land and third-party land. The land take required to achieve safe access with visibility splays to national standards are set out below for both these types of land. It is noted that Access 1 is an existing junction and no additional land would be required for the junction construction.

### Highway land

- 4.4.2 **Accesses 2 & 2a 3, 4, 5 and 6** – Highway land would be required at these access locations to enable vegetation/hedgerow removal and carriageway re-profiling work. The proposed bell mouth junction for Accesses 3, 4, 5 and 6 would also need to be partially accommodated within highway land.

### Third party land

- 4.4.3 **Access 4** – At Access 4 some 35sqm of third-party land is required to accommodate the proposed bell mouth. Based on an aerial view of the required area, it is woodland located at the southeast corner of the proposed access and appears to be part of an adjoining quarry.
- 4.4.4 The third-party land required is shown on **Figure 3.4** for Access 4.

## Summary

- 4.4.5 Consequently, the land take rating for each access has been categorised as negligible for Access 1, straightforward for Access 2 & 2a, 3, 5 plus 6 and complex for Access 4.

## 4.5 Environment

4.5.1 **Table 4.2** summarises an initial construction of the environmental effects of the access options.

Table 4.2 Environmental effects

Access Options	Work required	Environmental effects	Impact Magnitude
1	Minor refurbishment and vegetation clearance	The internal route linking to this access will require construction of an upgraded crossing over Fordbury Water to accommodate the internal haul road. This will have significant impacts on an internationally important ecological receptor, namely the Greater Horseshoe bat, which is a protected species, which would require implementation of environmental mitigation measures.	V. High
2	Minor refurbishment and re-profiling of the carriageway (eastern side of the junction)	It is likely that there could be impacts on soil, water, landscape and visual with the re-profiling of the carriageway (eastern side of the junction).	Low
2a	Minor refurbishment and re-profiling of the carriageway (either side of the junction)	It is likely that there could be impacts on soil, water, landscape and visual with the re-profiling of the carriageway (either side of the junction).	Medium
3	New bell mouth, re-profiling of the carriageway and vegetation clearance/tree trimming/tree removal	It is likely that there will be impacts on soil, water, landscape and visual with the re-profiling of the carriageway. There will be impacts on the fauna and flora biodiversity with the vegetation removal and landscape and visual impacts with the provision of new infrastructure.	Medium
4	New bell mouth, re-profiling of the carriageway and vegetation clearance/tree trimming/tree removal	It is likely that there will be impacts on soil, water, landscape and visual with the re-profiling of the carriageway. There will be impacts on the fauna and flora biodiversity with the vegetation removal and impacts on landscape and visual impact with the provision of new infrastructure.	Medium
5	New bell mouth, re-profiling of the carriageway and vegetation/hedgerow clearance	It is likely that there will be impacts on soil, water, landscape and visual with the re-profiling of the carriageway. There will be impacts on the fauna and flora biodiversity with the hedgerow removal and impacts on landscape and visual impact with the provision of new infrastructure.	Medium
6	New bell mouth and vegetation/hedgerow clearance	There will be impacts on the fauna and flora biodiversity with the hedgerow removal and impacts on landscape and visual impact with the provision of new infrastructure.	Medium

## 4.6 Public Rights of Way (PRoW)

4.6.1 The following two access proposals would affect PRoW routes.

## Access 1

- 4.6.2 A bridleway (Ref: SM 8/9) runs across the site and crosses the carriageway near the east side of Access 1. The section of this PRoW which is located within the site boundary might also need to be re-aligned based on the internal road layout.

## Access 4

- 4.6.3 Two bridleways join the carriageway near the proposed Access 4. The bridleway FR 12/43 runs along the site boundary and joins the carriageway at the location of proposed Access 4. The bridleway FR 18/30 runs along the main carriageway in a very short section and joins the carriageway at the west corner of proposed Access 4. Both bridleways will need to be re-aligned or re-routed to accommodate the proposed bell mouth of Access 4.
- 4.6.4 Consequently, the PRoWs management rating for each access has been categories as negligible for Accesses 2 & 2a, 3, 5 and 6 and medium for Accesses 1 and 4.

## 4.7 Services and utilities

- 4.7.1 A utility search has been carried out to identify the services in the vicinity of the access locations. **Table 4.3** summarises the existing services located within the assessment area.

Table 4.3 Summary services and utilities

Access Options	Services and Utilities	Description	Impact Magnitude
1	BT Overhead, BT Underground, Electricity Overhead	A BT Overhead line crosses the main carriageway south-north at the location of access. A detailed survey and consideration of internal road layout is needed to determine whether it will need to be relocated to facilitate the access. A BT Underground and an Electric Overhead line exists within the western visibility splay. However, it is very unlikely that they will affect visibility.	Low
2	BT Overhead, BT Underground, unknown overhead	Two BT Overhead lines exist to the west of the access. Two BT Underground lines are located at the southwest corner of the access. An unknown overhead line crosses the main carriageway south-north at the east corner of the access. However, it is very unlikely that they will affect visibility as re-profiling will be required east side only.	Low
2a	BT Overhead, BT Underground, unknown overhead	Two BT Overhead lines exist to the west of the access. Two BT Underground lines are located at the southwest corner of the access. An unknown overhead line crosses the main carriageway south-north at the east corner of the access. Re-aligning of BT services might be required to accommodate western re-profiling.	High
3	BT Overhead, Unknown overhead	BT Overhead lines exist within the east visibility splay. However, it is very unlikely that it will affect visibility. An unknown overhead line runs east-west across the Access 3 and so a wooden post and the lines may need to be relocated to build the proposed access.	Medium
4	BT Overhead, unknown overhead	BT Overhead lines exist within both the east and west visibility splays. However, it is very unlikely that they will affect visibility. An unknown overhead line runs east-west across the Access 4 and so a couple of wooden posts and the lines may need to be relocated to build the proposed access.	Medium
5	BT Underground, Electricity Overhead	A BT underground line exists within the carriageway in front of the proposed access location. Re-aligning of this line might be required to build the bell mouth of the proposed access.	High

Access Options	Services and Utilities	Description	Impact Magnitude
		Electricity Overhead lines exist within the south-western visibility splay. However, it is very unlikely that they will affect visibility.	
6	BT Underground, BT Overhead, unknown overhead	BT Underground lines are located along the main carriageway opposite the location of proposed access. However, they will not have any impact on the construction of the proposed access. BT Overhead lines and an unknown overhead line exist within the north visibility splay. However, it is very unlikely that they will affect visibility.	Low

## 4.8 Consenting

- 4.8.1 It is likely that a Section 278 Highways Act application and/or a New Roads and Street Works Act application will be needed to construct the proposed bell mouths or to re-profile the carriageway. **Table 4.4** summarises the magnitude of the consent related to each access.

Table 4.4 Summary of consenting

Access Options	Work Required	Potential Consent Required	Impact Magnitude
1	Minor refurbishment, vegetation clearance and PRow management	Licence for minor work (Section 171 and 65), PRow management and Speed limit reduction.	Low
2	Minor refurbishment and re-profiling of the carriageway (eastern side of the junction)	Licence for road work (Section 278) and Speed limit reduction.	Medium
2a	Minor refurbishment and re-profiling of the carriageway (either side of the junction)	Licence for road work (Section 278) and Speed limit reduction.	Medium
3	New bell mouth, re-profiling of the carriageway and vegetation clearance/tree trimming/tree removal	Licence for road work (Section 106 and 278) and Speed limit reduction.	Medium
4	New bell mouth, re-profiling of the carriageway and vegetation clearance/tree trimming/tree removal	Licence for road work (Section 106 and 278), PRow management and Speed limit reduction.	Medium
5	New bell mouth, re-profiling of the carriageway and vegetation/hedgerow clearance	Licence for road work (Section 106 and 278).	High (A Road)
6	New bell mouth and vegetation/hedgerow clearance	Licence for road work (Section 106 and 278).	Medium

- 4.8.2 In any event, an application for determination of conditions for mineral site under the provisions of the Environment Act 1995 and possibly an application under the Town & Country Planning Act 1990 would be needed for changes to the site.
- 4.8.3 Consultation with those affected by the order and/or who may have an interest in the proposals including the town or parish council will be needed which ever consenting route is chosen. It is



considered that the time taken to secure the permission for using the existing accesses with minor improvements will be much less than the schemes involve re-profiling of the carriageway as the number of effected parties will be lower.

## 4.9 Delivery

- 4.9.1 It is estimated that the delivery timescales for the use of the existing accesses would be quicker than the new proposed accesses and the schemes involving re-profiling of the carriageway. **Table 4.5** summarises the magnitude of the delivery of each access.

Table 4.5 Summary of delivery timescale

Access Options	Work Required	Descriptions	Impact Magnitude
1	Minor refurbishment, vegetation clearance and PRoW management	Minor work required	Short
2	Minor refurbishment and re-profiling of the carriageway (eastern side of the junction)	Consenting and construction work required	Medium
2a	Minor refurbishment and re-profiling of the carriageway (either side of the junction)	Consenting and construction work required	Long
3	New bell mouth, re-profiling of the carriageway and vegetation clearance/tree trimming/tree removal	Consenting and construction work required	Long
4	New bell mouth, re-profiling of the carriageway and vegetation clearance/tree trimming/tree removal	Consenting and construction work required, third party land negotiations	Long
5	New bell mouth, re-profiling of the carriageway and vegetation/hedgerow clearance	Consenting and construction work required along on A Road	Long
6	New bell mouth and vegetation/hedgerow clearance (potentially less traffic management)	Consenting and less construction work required	Medium

## 5. Summary and findings

### 5.1 Overview

- 5.1.1 The rating of each access options in terms of safety, cost, land, environment, PRoW, services and utilities, consenting and time taken to deliver is been presented in **Table 5.1**.

Table 5.1 Access Options and Their Ratings

	Access 1	Access 2	Access 2a	Access 3	Access 4	Access 5	Access 6
<b>Safety Issues</b>	Low	High	High	Low	Low	Low	Low
<b>Cost</b>	Minimal	High	High	High	Medium	High	Low

	Access 1	Access 2	Access 2a	Access 3	Access 4	Access 5	Access 6
<b>Land</b>	Negligible	Straight Forward	Straight Forward	Straight Forward	Complex	Straight Forward	Straight Forward
<b>Environment</b>	V. High	Low	Medium	Medium	Medium	Medium	Medium
<b>PRoW</b>	Medium	Negligible	Negligible	Negligible	Medium	Negligible	Negligible
<b>Services and Utilities</b>	Low	Low	High	Medium	Medium	High	Low
<b>Consenting</b>	Low	Medium	Medium	Medium	Medium	High	Medium
<b>Delivery</b>	Short	Medium	Long	Long	Long	Long	Medium

## 5.2 Further discussion/Other influencing factors

- 5.2.1 Thus far, this report is focussed on the highway's opportunities and constraints of potential access options at Westdown Quarry. However, these considerations must be put into a wider environmental and operational context in that the identified potentially suitable accesses all present other constraints and opportunities.

### Access 1

- 5.2.2 Of the eight factors considered (i.e. safety, cost, land requirements, environment, public rights of way, services and utilities, consenting and delivery), this access option scores very well in all areas except the environment and public access.
- 5.2.3 Access to the site via this option requires the construction of an upgraded crossing over Fordbury Water to accommodate the internal haul road. However, extensive survey effort across the site has concluded that Asham Wood and the green corridor of Fordbury Water are significant locations for foraging and roosting Greater Horseshoe bats. This highly protected species travels in a south-west to north east direction along the Fordbury Water valley and it is considered that severance of this flight corridor would be strongly opposed by Natural England and the Minerals Planning Authority's ecologist – especially given that Great Horseshoe bats fly at low levels and would potentially collide with HGVs accessing and leaving the site during dawn and dusk hours in the summer months. Though the construction cost of the Access 1 is minimal, implementation of the environmental mitigation measures related to internal layout could be significantly expensive and difficult to achieve.
- 5.2.4 In addition to the ecological issue, the use of Access 1 would require the re-routing of footpath SM8/9, which crosses the potential access point.

### Access 2 & 2a

#### Access 2

- 5.2.5 Of the eight factors considered (i.e. safety, cost, land requirements, environment, public rights of way, services and utilities, consenting and delivery), this access option scores very well in all areas except cost, delivery and safety. This is because to obtain the requisite visibility splays from this access point, some significant re-profiling of the highway (Bulls Green Link Road) would be required. It is however worth noting that there would be no requirement to purchase third party

land for this option (the costs of which are excluded from the costs set out in this report), utilities works would be minimal and that the estimated costs for the Access 2 (entry only) is second highest compared to the other available northern access options. Nevertheless, as mentioned in Section 4.3, this option would be the costliest option if this is considered as a full access. In terms of road safety, the location of this access is a concern.

### Access 2a

- 5.2.6 Of the eight factors considered (i.e. safety, cost, land requirements, environment, public rights of way, services and utilities, consenting and delivery), this access option scores very well in Environment and Public Rights of Way, Land and Consenting. However, the access would be costly, have a long delivery period, requiring significant road reprofiling and is at a location where there are existing highways safety concerns and impacts of existing services. This access option would be the costliest of all options to deliver.
- 5.2.7 It should be noted that to ensure like for like comparison of all the access options considered (i.e. entry and exit), Access Option 2a will be used at Access Location 2.

### Access 3

- 5.2.8 Of the eight factors considered (i.e. safety, cost, land requirements, environment, public rights of way, services and utilities, consenting and delivery), this access option scores very well in all areas except cost and delivery. This is because to obtain the requisite visibility splays either side from this access point, some significant re-profiling of the highway (Bulls Green Link Road) would be required. This option would require vegetation clearance, tree trimming, tree removal and the construction of a new bell mouth.
- 5.2.9 However, it is worth noting that there would be no requirement to purchase third party land for this option (the costs of which are excluded from the costs set out in this report). This option could also require some moderate utilities work (i.e. relocation of overhead wires on post).

### Access 4

- 5.2.10 Like Access 2 & 2a and 3, Access 4 would also require re-profiling of the existing Bulls Green Link Road to achieve requisite visibility splays. This option would require vegetation clearance, tree trimming, tree removal and the construction of a new bell mouth, which in addition to highways land, would require the purchase of third party land (the costs of which are excluded from the costs set out in this report). The estimated cost of this work is lower than the other available northern access options. This option could also require some moderate utilities work (relocation of overhead wires on posts).
- 5.2.11 There is also an existing bridleway – FR 18/30, which runs in an east-west direction from Access 4, along the field boundary inside the site. This, however, appears short (~300 m) and fragmented in that it does not join up with any other part of the wider PRow network. If Access 4 were to be used, this short length of bridleway would need to be diverted or extinguished.

### Access 5

- 5.2.12 Of the eight factors considered (i.e. safety, cost, land requirements, environment, public rights of way, services and utilities, consenting and delivery), this access option scores poorly in several areas i.e. services, consenting, delivery and cost. Development of an access at this point would require re-profiling of the existing highway to achieve the requisite visibility splays. Furthermore, a BT

underground line exists within the carriageway in front of the proposed access location. Re-aligning of this line is likely to be required to build the bell mouth of the proposed access.

- 5.2.13 Finally, following discussion with Hanson, it is understood that an access point on the south-eastern side of the quarry would not be the best option from an operational perspective. To avoid the unnecessary sterilisation of viable mineral deposit, it is understood that the access infrastructure along with other associated infrastructure such as wheel wash, weighbridge, site offices, vehicle parking and stores etc. must be located on the northern part of the wider site.

## Access 6

- 5.2.14 Of the eight factors considered (i.e. safety, cost, land requirements, environment, public rights of way, services and utilities, consenting and delivery), this access option scores well in all areas. However, following discussion with Hanson, it is understood that an access point on the south-eastern side of the quarry would not be the best option from an operational perspective. To avoid the unnecessary sterilisation of viable mineral deposit, it is understood that the access infrastructure along with other associated infrastructure such as wheel wash, weighbridge, site offices, vehicle parking and stores etc. must be located on the northern part of the wider site.

## 5.3 Conclusions and next steps

- 5.3.1 Based on the criteria considered in this access study, the following conclusions can be drawn:
- If cost, land, consenting and delivery are paramount then **Access 1** would be preferable. However, the environmental impact of the required upgrade to the internal haul road to this access option would be very high and implementation of environmental mitigation measures would be significantly expensive and difficult to achieve;
  - If environmental, PRoW impacts and effect on services are to be minimised then **Access 2** would be preferable, but the construction costs would be higher than the cost of other options if it is considered as a full access (**Access 2a**); and
  - Of the remaining potential accesses (**3,4,5,6**), all four present constraints that would have to be overcome and as such all could be applicable access if these issues can be overcome. Though **Access 3** is an expensive option, there is nothing which cannot be resolved to implement this option. **Access 4** has an issue with third party land and utilities which if overcome would be a suitable access. **Accesses 5 & 6** are operationally in the wrong location (plus Access 5 is the most complex of the new access options to bring forward due to issues with services and utilities), and thus have been discounted by Hanson.
- 5.3.2 Following further discussion with Hanson around the advantages and disadvantages of each access option, it is concluded that the preference is for **Access 3** to be taken forward as the proposed access point for the Westdown Quarry site. **Table 5.2** summarises the key tasks which need to be undertaken to address the access option issues at Access 3.

Table 5.2 Summary of key tasks at preferred access option - Access 3

Task	Comments
Change in speed limit	A request to change speed limit in the vicinity of access option 3 from 60mph to 50mph needs to be applied for in accordance with the latest Department for Transport Guidance (DfT Circular 01/2013). Though there is a scope to achieve approximately 215m visibility (suitable for existing speed limit 60mph) from access option 3, reduction in the speed limit will

Task	Comments
	be preferred as it will reduce re-profiling work and other related impacts. If required, a detailed assessment needs be carried out to define the impacts of implementing measure to achieve 215m visibility.
<b>Road reprofiling, bell mouth construction, vegetation clearance and tree trimming/tree removal</b>	Relevant licences (Section 106 and 278) need to be obtained for carrying out of works to the public highway. A Traffic Management Plan (TMP) needs to be prepared and agreed with the local authority to perform any measure work on the public highway to minimise impact on the other road users and the movement of local traffic.
<b>Services and Utilities</b>	Relevant service providers need to be consulted to understand the requirements and implementation of an overhead line diversion which crosses the location of the bell mouth.
<b>Detail Design</b>	After securing planning permission a detail design of this access option needs to be prepared for construction purpose.

5.3.3 Based on the information provided in this technical note, to take Access 3 forward, it is our recommendation that the following be carried out:

- Review of compatibility with the internal layout;
- Consultation with SCC; and
- Detailed environmental assessment of the proposals.

Issued by

Pranav Yadav

Approved by

Glyn Price

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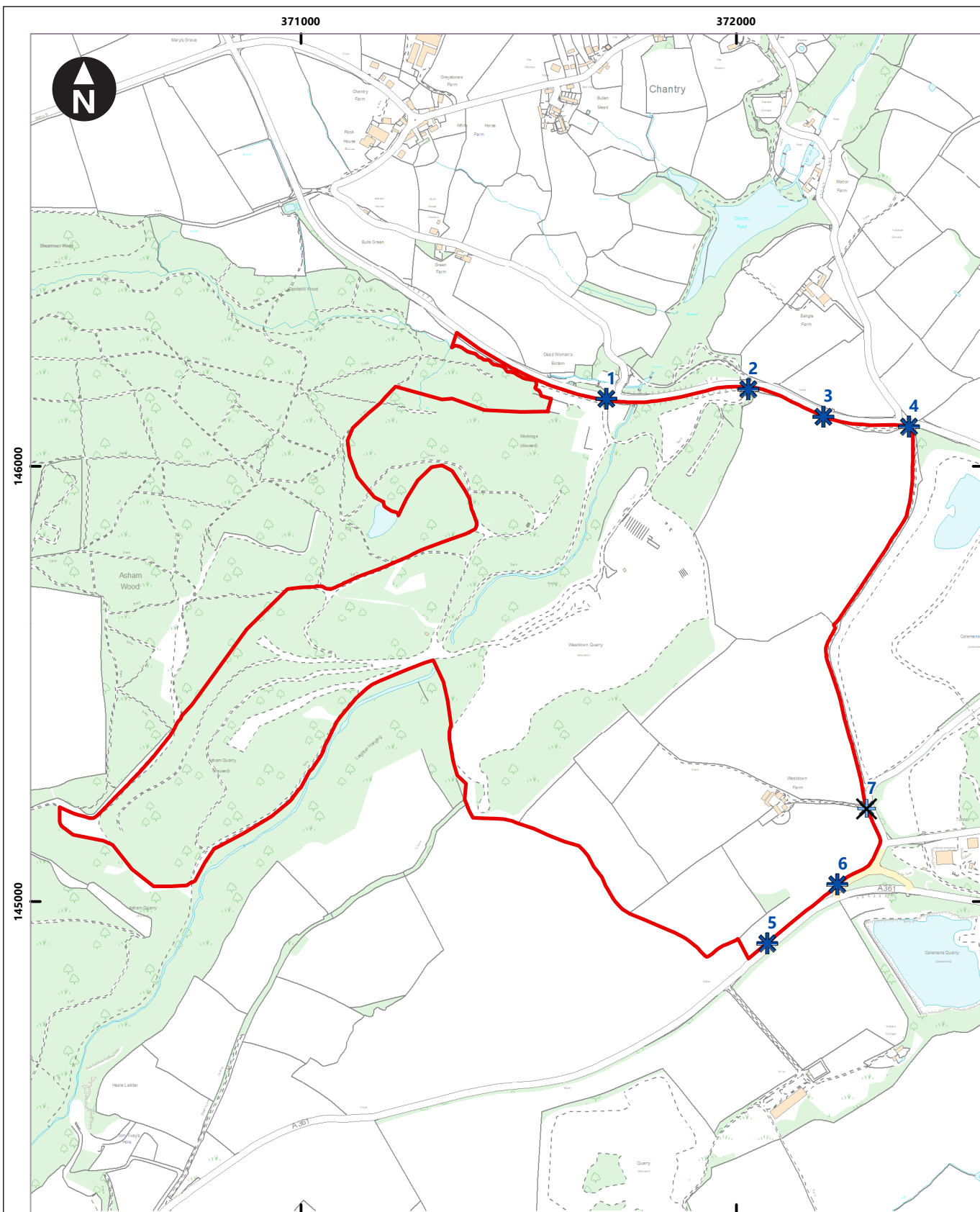
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# Figures



Key



Study area



Access location



Access not considered in this report

0 100 200 300 400 500 600 700 m

Scale at A4: 1:12,500

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0100031673

Westdown Quarry - Access Options

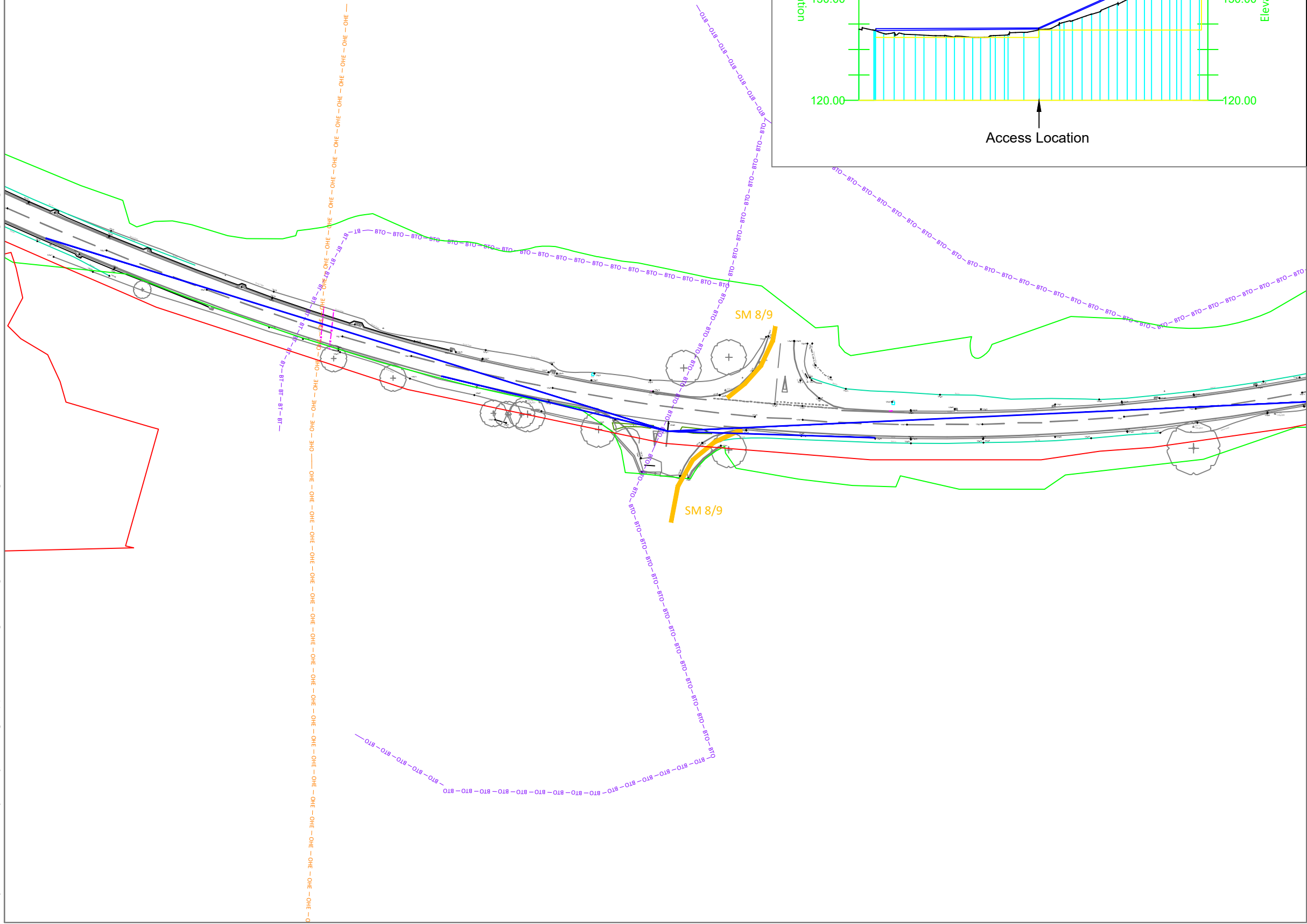
**Figure 1.1**  
**Location plan**

January 2021

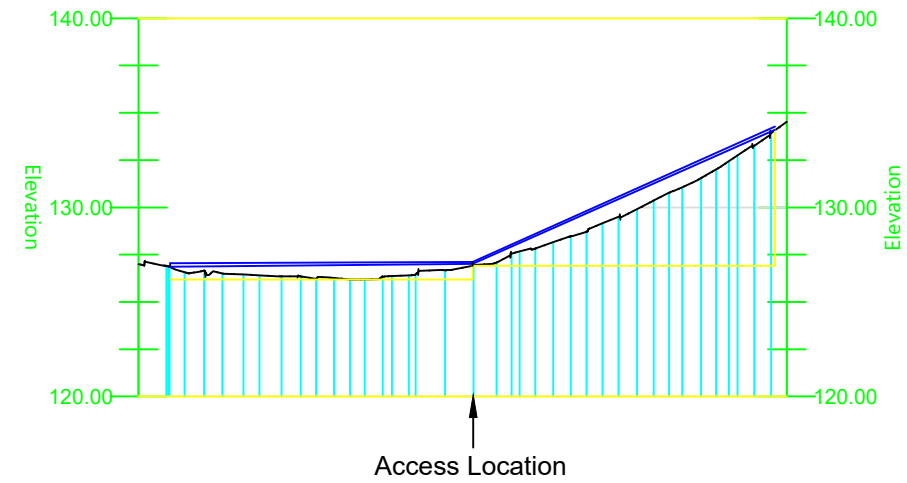


**wood.**





Profile View of Access 1



Key

- 2.4 x 160m visibility splay
- PRoW SM 8/9
- BT Overhead services
- Overhead electricity services
- Overhead line
- Trees
- Highway boundary
- Site boundary

0 m 50 m

Scale 1:1000 @ A3

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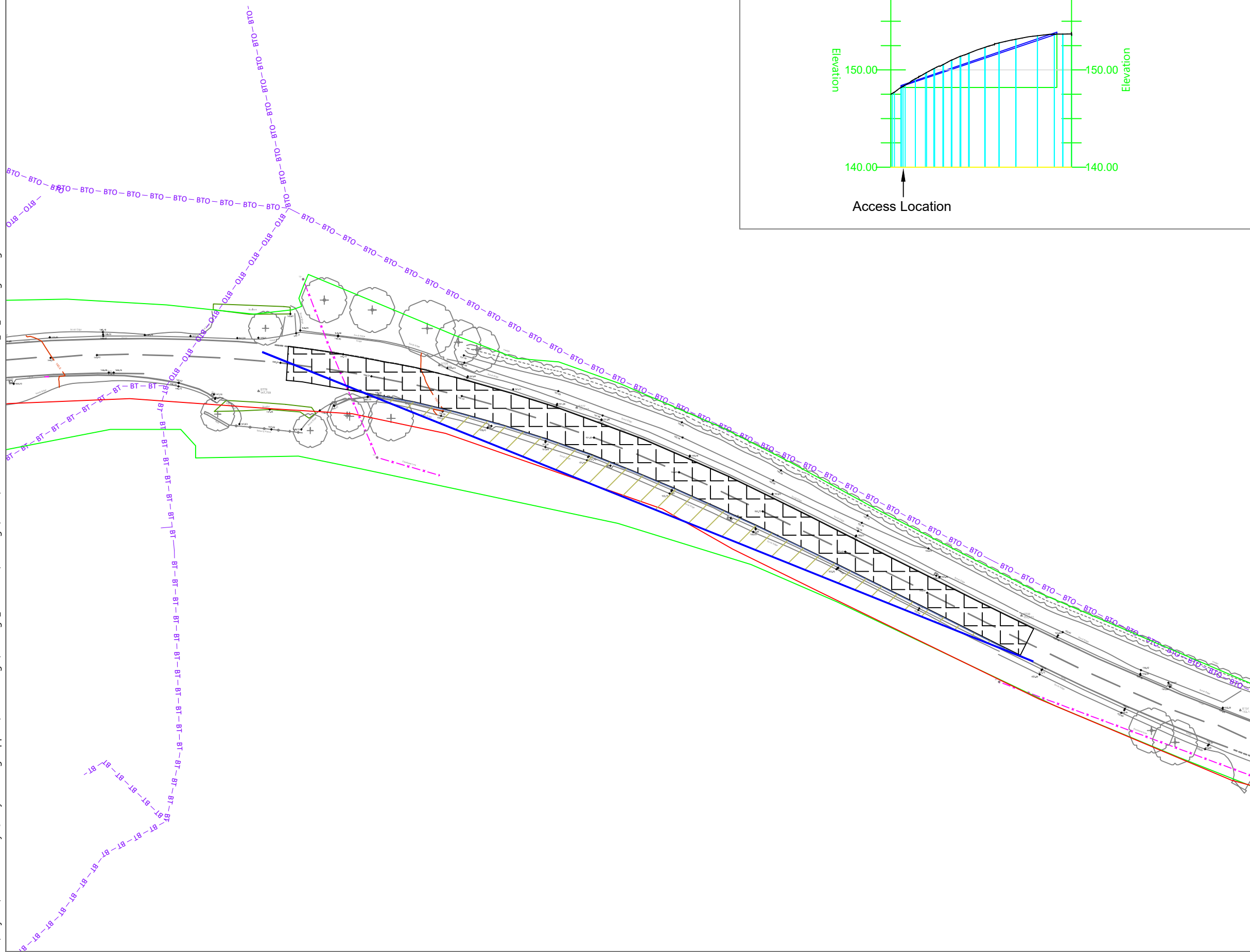
Westdown Quarry - Access Options

**Figure 3.1**  
**Access 1 scheme**

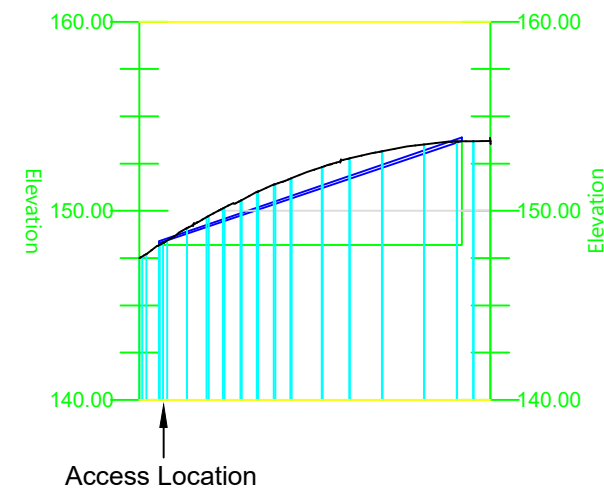
January 2021



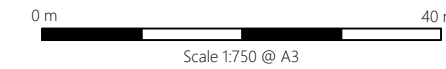
**wood.**



Profile View of Alignment - Access 2



- Key
- 2.4 x 160m visibility splay
  - 160m forward visibility
  - Area to be reprofiled
  - BT Services
  - BT Overhead services
  - Overhead line
  - Trees
  - Highway boundary
  - Highway land required for visibility
  - Site boundary



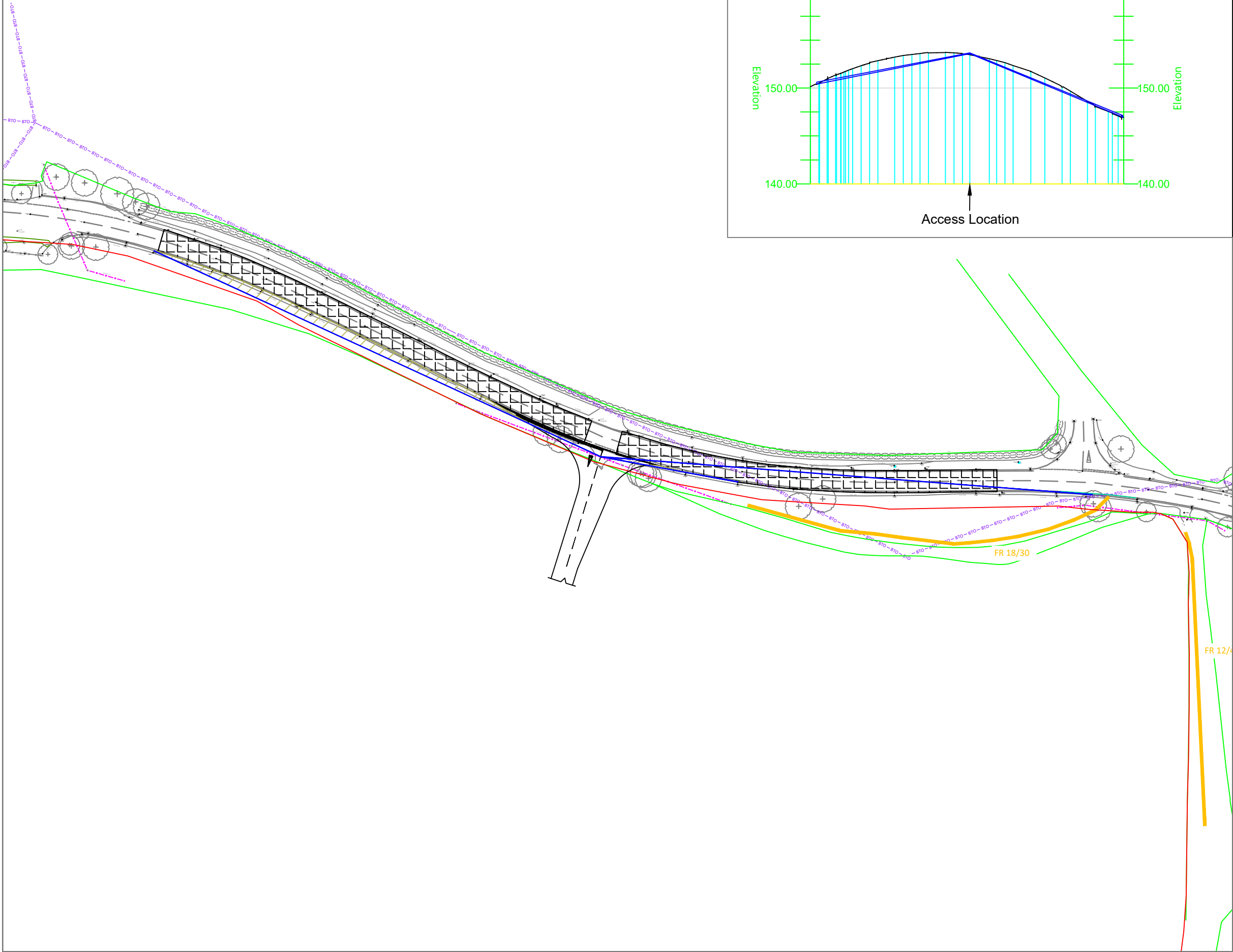
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Westdown Quarry - Access Options

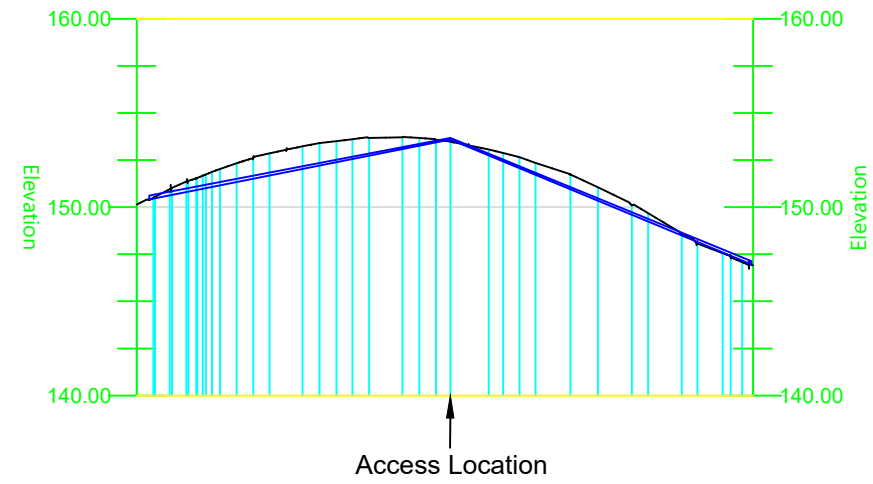
**Figure 3.2**  
**Access 2 scheme- entrance only**

January 2021





Profile View of Alignment - access 3



Key

- 2.4 x 160m visibility splay
- Access design
- BT overhead services
- Overhead line
- Trees
- Highway boundary
- PRoW FR 18/30 and FR 12/43
- Area to be reprofiled
- Highway land required for visibility
- Site boundary

0 m 50 m  
Scale 1:1250 @ A3

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Westdown Quarry - Access Options

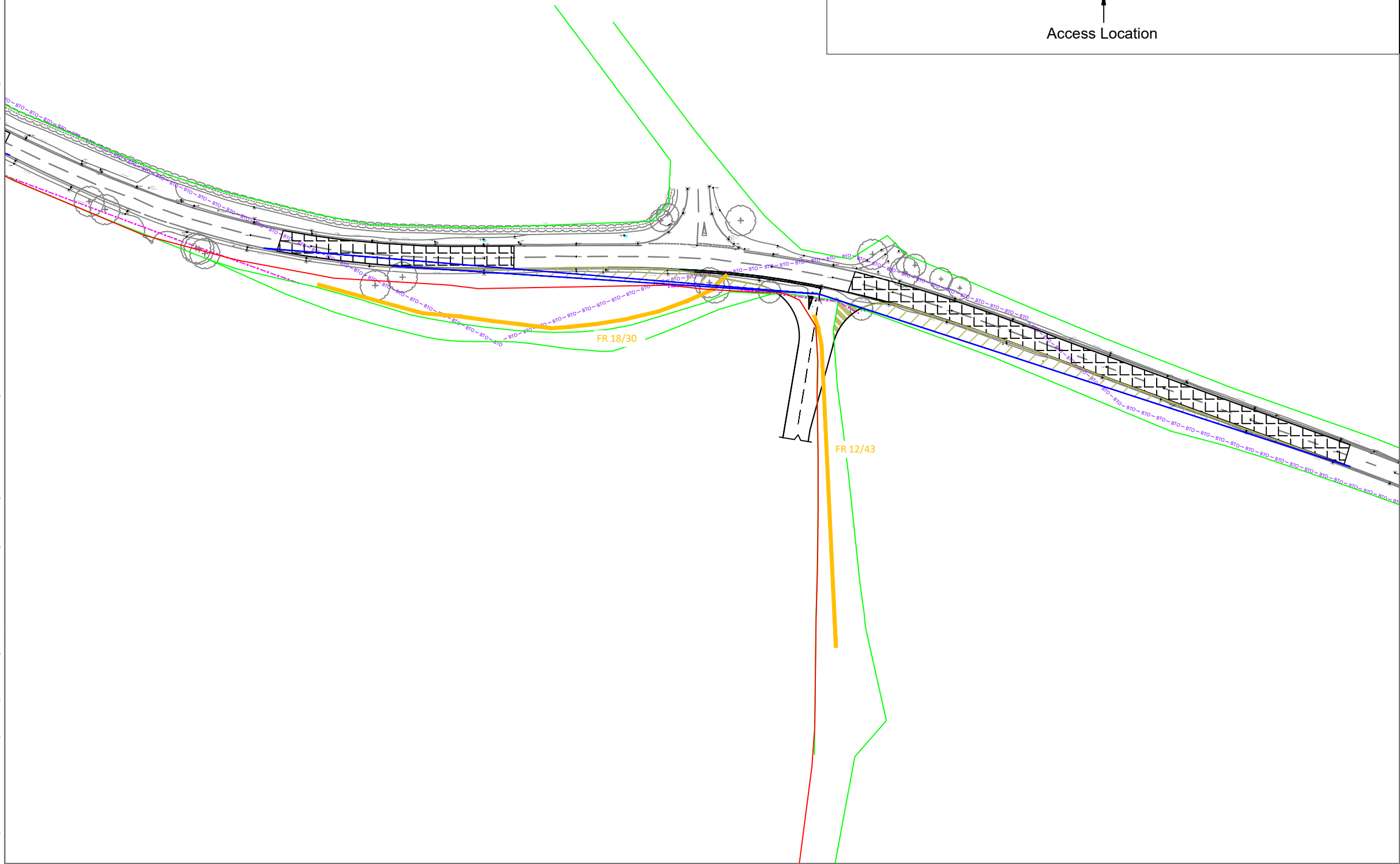
Figure 3.3  
Access 3 scheme

January 2021

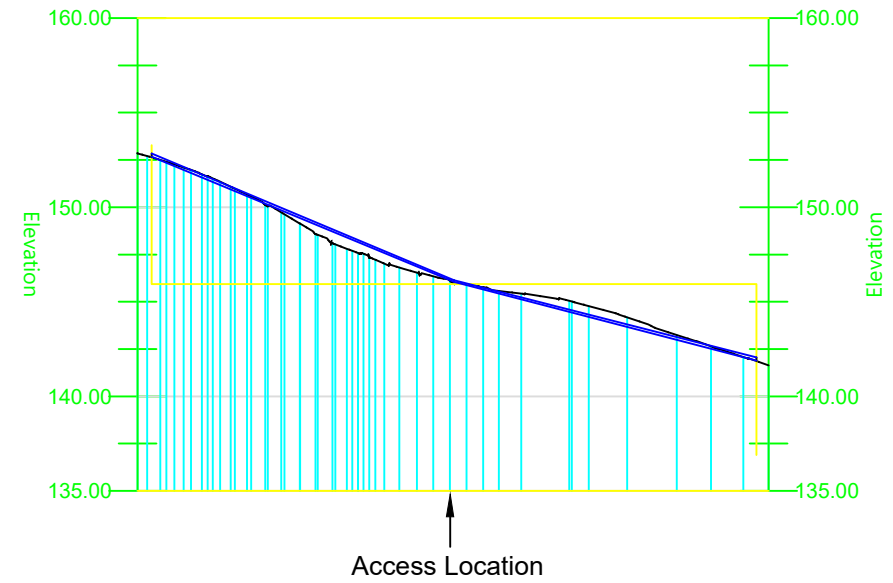


wood.

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\ID Design\_Technical\Drawings\CAD\40380-WOOD-XX-XX-DR-OT-0001\_50\_P01.dwg Originator: ADAM.GUY



Profile View of Access 4



Key

- 2.4 x 160m visibility splay
- Access design
- BT overhead services
- Overhead line
- Trees
- Highway boundary
- PRoW FR 18/30 and FR 12/43
- Area to be reprofiled
- Highway land required for visibility
- Third party land required
- Site boundary

0 m 50 m  
Scale 1:1250 @ A3

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Westdown Quarry - Access Options

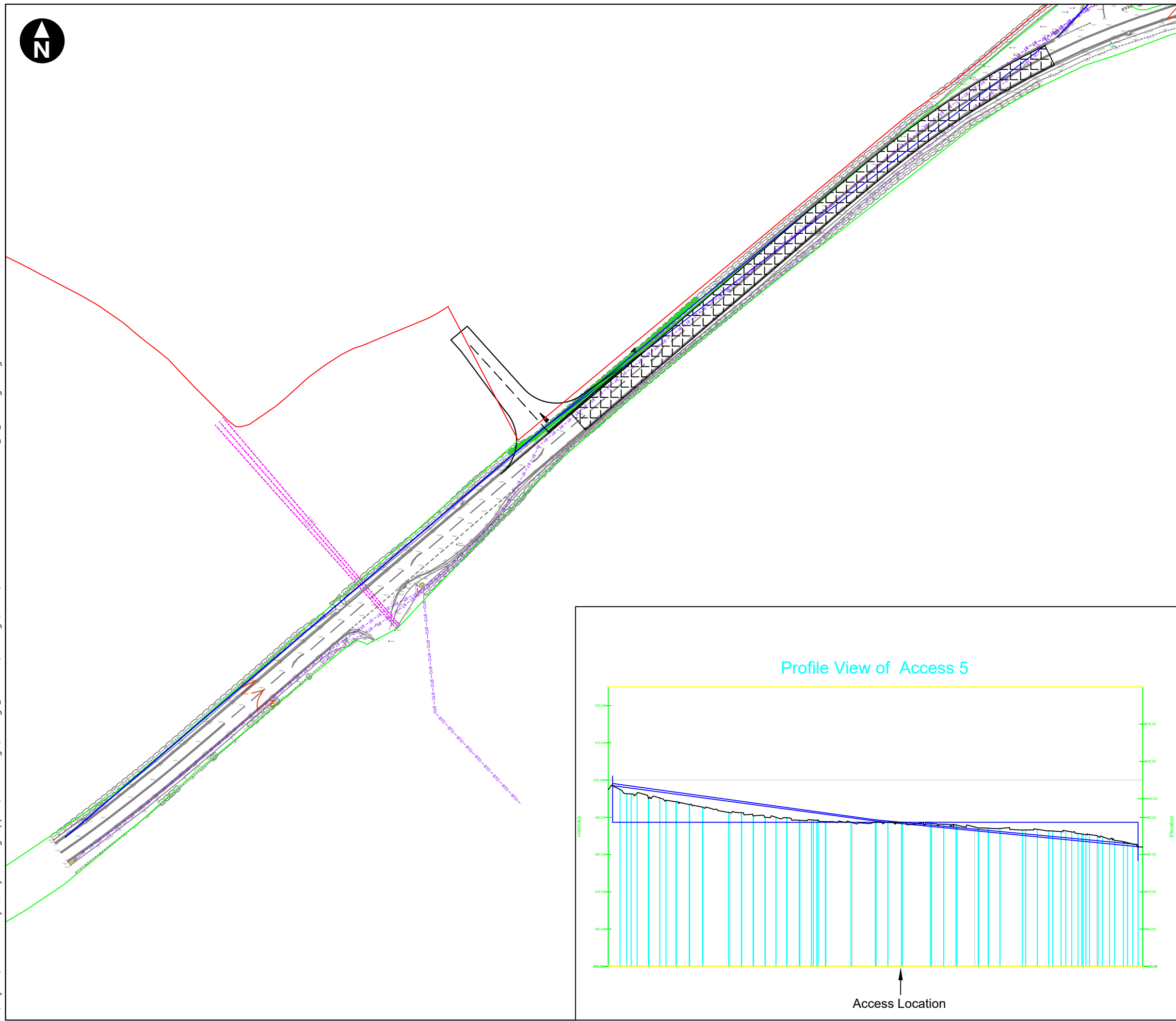
**Figure 3.4**  
**Access 4 scheme**

January 2021



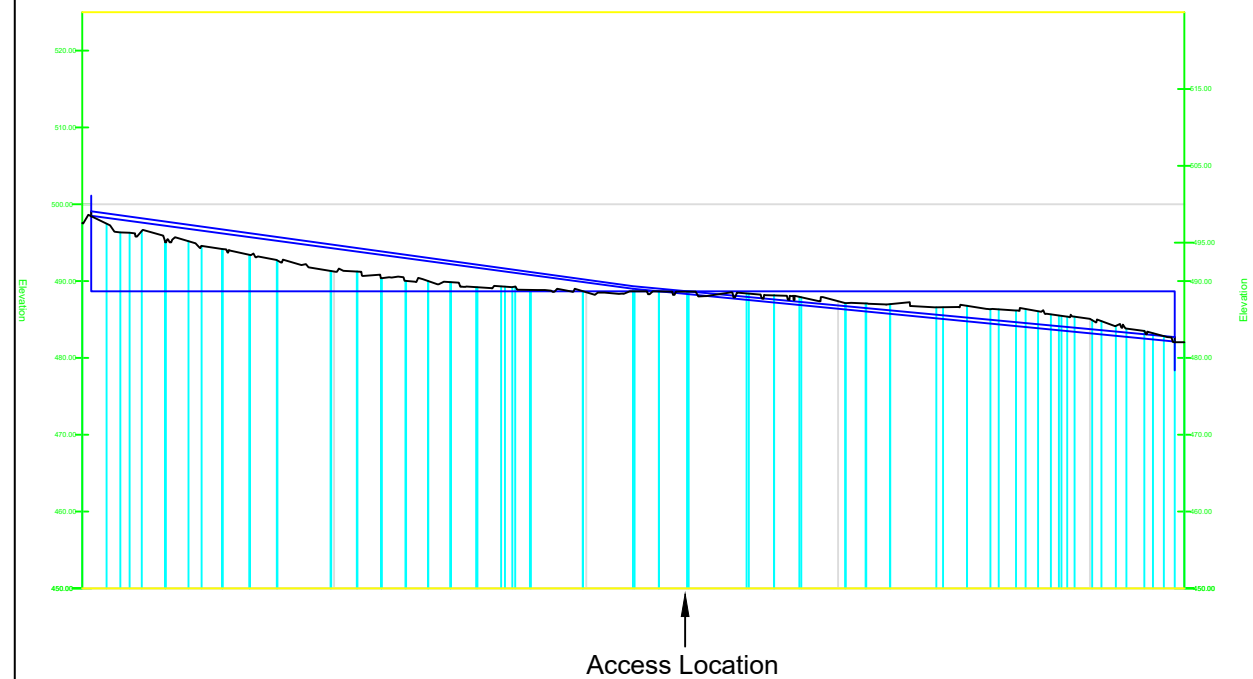
**wood.**

H:\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\Design\_Technical\Drawings\ACAD\40380-WOOD-XX-DR-OT-0002\_S0\_P01.dwg Originator: ADAM.GUY



- Key
- 2.4m x 215m visibility splay
  - Access design
  - BT overhead services
  - BT services
  - Overhead line
  - Hedgerow required to be removed
  - Area of highway to be reprofiled
  - Highway boundary
  - Site boundary

Profile View of Access 5



0 m 50 m

Scale 1:1250 @ A3

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Westdown Quarry - Access Options

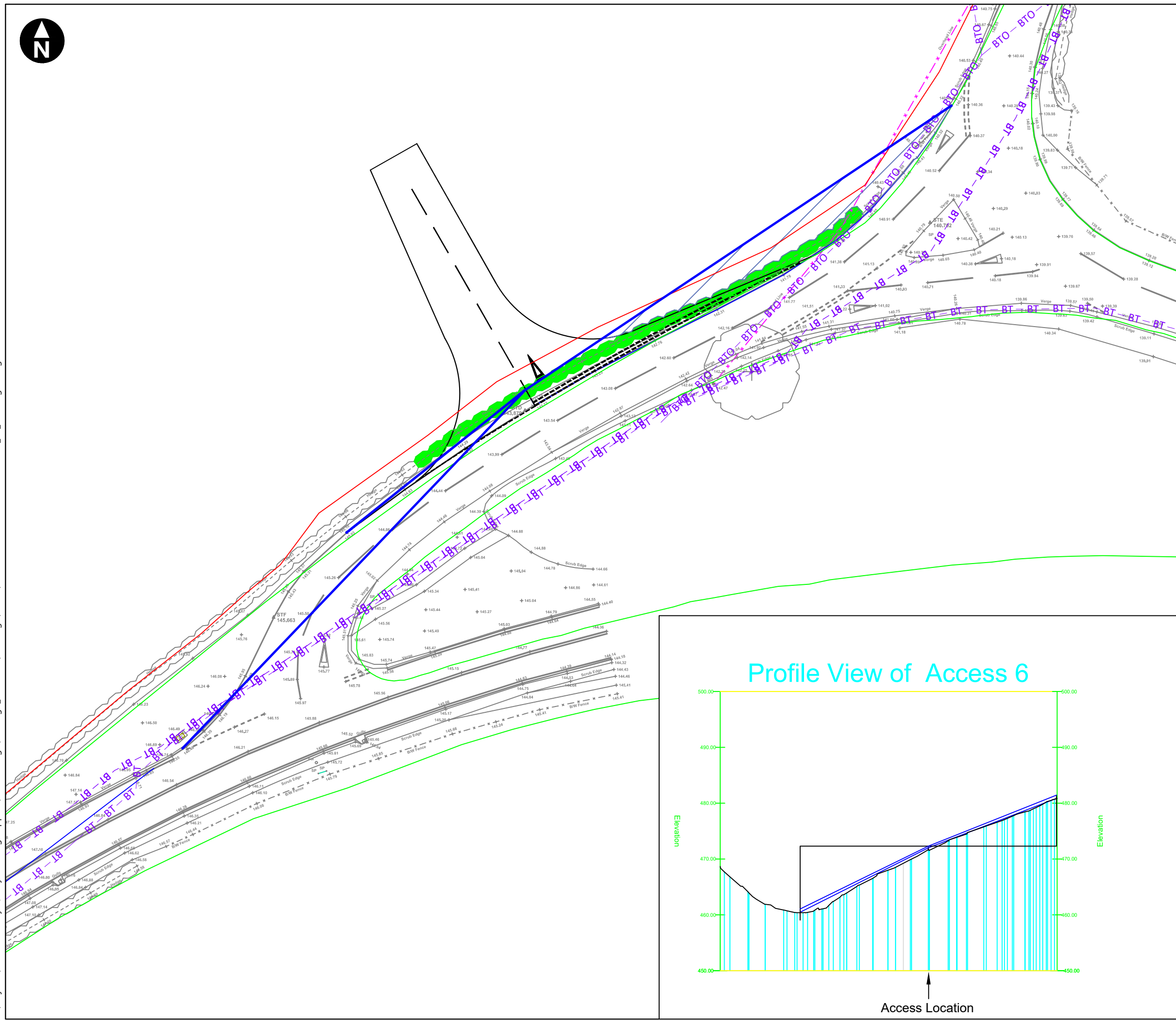
**Figure 3.5**  
**Access 5 scheme**

January 2021

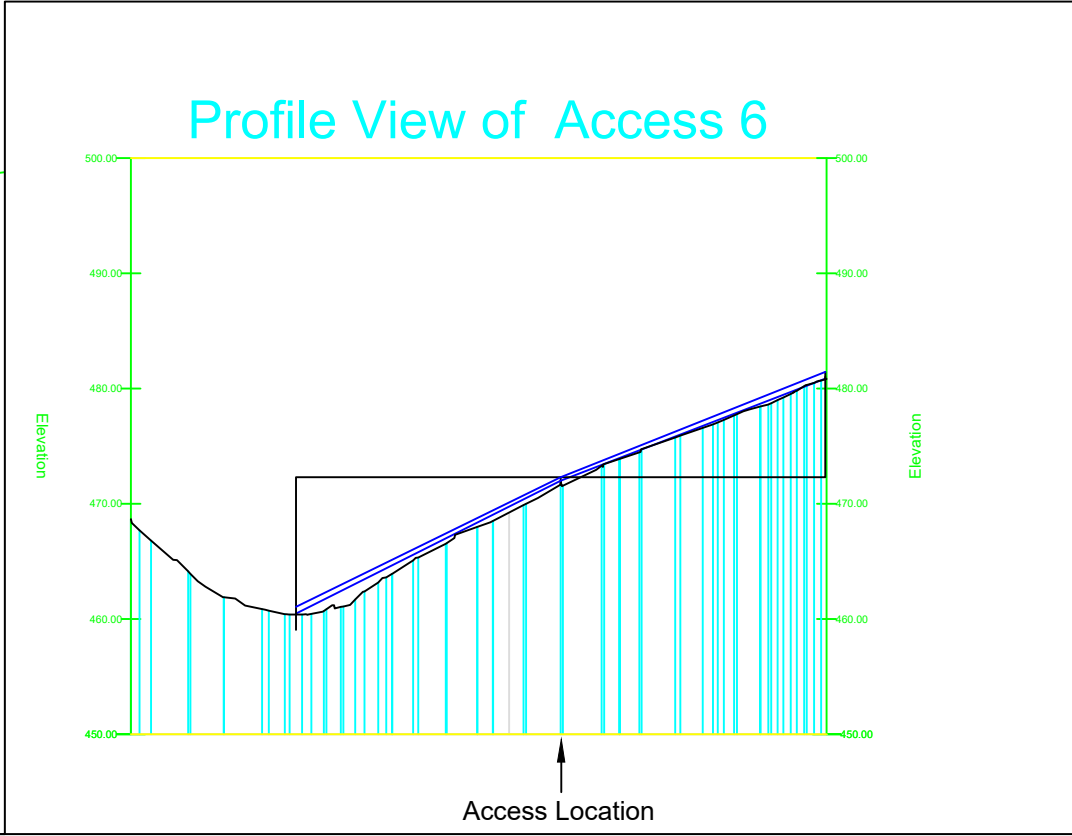


**wood.**





- Key
- 2.4m x 70m visibility splay
  - Access design
  - BT overhead services
  - BT services
  - Overhead line
  - Hedgerow required to be removed
  - Trees
  - Highway boundary
  - Vegetation clearance
  - Site boundary



0 m 30 m  
Scale 1:500 @ A3  
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Westdown Quarry - Access Options

**Figure 3.6**  
**Access 6 scheme**

January 2021

# Appendix A

## Initial Access Options Assessment



# Summary of initial access options assessment for Westdown Quarry

The four access locations were considered in AutoCAD LIDAR and OS mapping. The access locations were assessed using the AutoCAD model to understand the suitability of each access with regards to vertical and horizontal visibilities based on the requirements set out in the Design Manual for Roads and Bridges (DMRB) CD 109 (formerly TD 9/93). Based on the speed limit, a horizontal junction visibility splay of 215m is required to the left and right. Where there are difficulties in achieving this due to the visibility splay being partially in third party land or due to bends or dips in the road, consideration has been given to a speed limit reduction which results in a reduced length of visibility splay. A speed limit reduction would need to be negotiated with the highway authority.

The results of the initial access options for Westdown Quarry as previously reported to Hanson are set out in **Table 1.1**.

**Table 1.1** Initial access options assessment based on LIDAR data and OS mapping

Access	Proposed Use	Left Visibility	Right Visibility	Comments
<b>North Western existing access (Access 1)</b>	Exit	215m	160m	<ul style="list-style-type: none"> <li>Verge trimming will be needed within the highway boundary to the west to maintain the 215m visibility;</li> <li>To the east the vertical the visibility is acceptable, however the visibility splay required to achieve 215m will enter third party land on the opposite side of the carriageway. Therefore, a speed limit reduction to 50mph will be needed for which the visibility splay requirements are reduced to 160m;</li> <li>160m visibility to the east can be achieved by verge trimming;</li> <li>PRoW in the vicinity of this access crosses the internal access and crosses the highway at the access location, therefore significant mitigation is required to cater for PRoW users;</li> <li>At this stage the presence of other statutory services is not known; and</li> <li>Impacts on the ecological corridor.</li> </ul>
<b>South Eastern existing access (Access 2)</b>	Entry		160m	<ul style="list-style-type: none"> <li>A speed limit reduction to 50mph will be needed due to constraints in achieving the required 215m visibility splay;</li> <li>Forward visibility has been assessed to 160m;</li> <li>The vertical alignment of the road limits visibility from 30m onwards;</li> <li>The vertical alignment of the road would have to be re-profiled to achieve the desired visibility constraints; this would be needed over 120m with a maximum a depth of 1.3m;</li> <li>Verge trimming will also be needed to maintain visibility; and</li> <li>At this stage the presence of other statutory services is not known.</li> </ul>
<b>Field Gate Access (Access 3)</b>	Exit	160m	160m	<ul style="list-style-type: none"> <li>In both directions the visibility splay is limited by the vertical alignment of the road.</li> <li>To the east, visibility is limited at 50m. To the west, visibility is limited at 30m.</li> </ul>

Access	Proposed Use	Left Visibility	Right Visibility	Comments
				<ul style="list-style-type: none"> <li>A longer visibility splay could be achieved through reprofiling the road. This could be minimized through a speed limit reduction also.</li> <li>To the east, 37m of road would need to be re-profiled to achieve a 160m visibility splay at a maximum depth of 0.75m.</li> <li>To the west, 114m of road would need to be re-profiled to achieve a 160m visibility splay at a maximum depth of 1m.</li> <li>Verge trimming will also be needed to maintain visibility.</li> <li>Telegraph poles are located in the visibility splay in both directions. At this stage the presence of other statutory services is unknown.</li> </ul>
<b>Field Gate Access (Access 4)</b>	Exit	160m	160m	<ul style="list-style-type: none"> <li>A 215m visibility splay is not achievable and a speed limit reduction to 50mph would be needed;</li> <li>There are small encroachments into the vertical visibility splay to the east (0.2m);</li> <li>The visibility splay to the east would also require third party land take and the removal of trees and hedgerow;</li> <li>Visibility to the west would require verge trimming to maintain visibility;</li> <li>Telegraph poles are located in the visibility splay in both directions. At this stage the presence of other statutory services is not known; and</li> <li>There is a Public Right of Way (PRoW) in the vicinity of this access. Discussion with the PRoW officer would be required to ascertain the implications.</li> </ul>



## Appendix B

### Estimated Costs

**ESTIMATE SUMMARY SHEET**  
**BASIS OF COSTINGS - ASSUMPTIONS / EXCLUSIONS**  
**PROJECT: 40380 - Westdown Quarry**

<b>1 BASIS OF COSTINGS</b>		
1.01	Base Date	3Q20
1.02	Basis of Procurement	Competitively Tendered
1.03	Location	Somerset, England
1.04	Class of Estimate	Feasibility
<b>2 EXCLUSIONS (UNLESS OTHERWISE STATED)</b>		
2.01	Tender Price Inflation	
2.02	VAT	
2.03	Capital Allowances recovery	
2.04	Planning constraints	
2.05	Land / property purchase costs	
2.06	Party Wall / Rights of Light costs	
2.07	Payments to adjacent property owners or tenants for access or disruption	
2.08	Finance costs, Planning and Building Regulations Application fees	
2.09	Costs associated with any Section 106 / 278 agreements & CIC	
2.10	Decommission / remove / divert existing services (unless stated otherwise)	
2.11	Services/infrastructure diversion or upgrades	
2.12	Costs associated with any contamination or invasive plant species	
2.13	Works to existing boundary walls or beyond the boundary of the site.	
2.14	Costs associated with archaeological investigations and / or discoveries	
2.15	Costs associated with ecological requirements and / or constraints	
2.16	Removal of asbestos and other hazardous materials or contaminated ground or ordnance.	
2.17	Significant site levelling and grading, retaining walls etc.	
2.18	Abnormal foundations e.g. ground water, major obstructions etc.	
2.19	Phasing of the Works or Restricted working hours	
<b>3 ASSUMPTIONS</b>		
3.01	Client Contingency included at 10.0%	
3.02	Professional, legal and other consultancy fees allowance of 22.0%	
3.04	Allowance for unmeasured items & small quantity of work 10%	
3.05	Preliminaries and General Items 25.0% & 35%	
<b>4 DRAWINGS/PFD's</b>		
4.01	40380 north section - access 2; received 14th Nov. 2019	
4.02	40380 north section - access 3; received 18th Sept. 2020	
4.03	40380 north section - access 4; received 14th Nov. 2019	
4.04	south section - access 5; received 14th Nov. 2019	
4.05	south section - access 6; received 14th Nov. 2019	
4.06	south section -access6 profile; received 14th Nov. 2019	
<b>5 SUPPLIER QUOTES</b>		
5.1		
5.2		
<b>6 CHECKLIST</b>		
6.1	Price Database rates adjusted to base date ?	YES
6.2	Price Database rates consider Contract Value/complexity/location/General Items ?	YES
6.3	Method of Procurement considered and timescales ?	YES
6.4	Principal Quantities & rates check undertaken ?	YES
Prepared by; Gregory Hilary		Date 30th Sep 2020
Reviewed by; Nigel T Budge		Date 30th Sep 2020

Filename - "Estimate Summary Sheet.xls"

**CAPEX GRAND SUMMARY**

SERIES	DESCRIPTION	Access 1	Access 2	Access 3	Access 4	Access 5	Access 6
		0%	25%	25%	25%	25%	35%
100	Preliminaries and General Items	£0	£153,960	£241,083	£106,203	£159,088	£25,112
200	Site Clearance						
300	Fencing	£0	£0	£2,431	£1,884	£1,884	£1,884
400	Road restraint system	£0	£0	£0	£0	£0	£0
500	Drainage and Service Ducts	£0	£0	£0	£12,576	£148,118	£8,479
600	Earthworks	£0	£492,016	£732,654	£258,730	£282,909	£15,586
700	Pavements	£0	£67,840	£131,928	£110,191	£142,810	£36,543
1100	Kerbs, Footways and Paved Areas	£0	£0	£8,903	£2,631	£2,631	£2,631
1200	Traffic Signs and Road Markings	£0	£0	£750	£179	£151	£102
3000	Trees and Landscaping						
1400	Electrical Work for Road Lighting and Traffic Signs						
1500	Motorway Communications						
1600	Piling and Embedded Retaining Walls						
1700	Structural Concrete						
1800	Steelwork for Structures						
1900	Protection of Steelwork Against Corrosion						
2000	Waterproofing for Structures						
2100	Bridge Bearings						
2300	Bridge Expansion Joints and Sealing of Gaps						
2400	Brickwork, Blockwork and Stonework						
2500	Special Structures						
2700	Accommodation Works, Works for Statutory Undertakers, Provisional Sums and Prime Cost Items						
3000	Landscaping and Ecology						
	Allowance for unmeasured items/small quantities	£0	£55,986	£87,667	£38,619	£57,850	£6,523
	<b>Construction Cost Sub-Total</b>	<b>£0</b>	<b>£769,802</b>	<b>£1,205,415</b>	<b>£531,014</b>	<b>£795,442</b>	<b>£96,861</b>
	<b>Project On-Costs</b>	<b>22.0%</b>	£0	£169,357	£265,191	£116,823	£174,997
	<b>CAPEX SUB-TOTAL</b>	<b>£0</b>	<b>£939,159</b>	<b>£1,470,607</b>	<b>£647,837</b>	<b>£970,440</b>	<b>£118,170</b>
	<b>CONTINGENCY</b>	<b>10.0%</b>	£0	£93,916	£147,061	£64,784	£97,044
	<b>CAPEX TOTAL (EXCLUDING VAT)</b>	<b>£0</b>	<b>£1,033,075</b>	<b>£1,617,667</b>	<b>£712,620</b>	<b>£1,067,483</b>	<b>£129,987</b>
	<b>EST. ACCURACY LOWER LIMIT</b>	<b>-15%</b>	<b>£0</b>	<b>£878,114</b>	<b>£1,375,017</b>	<b>£605,727</b>	<b>£907,361</b>
	<b>EST. ACCURACY UPPER LIMIT</b>	<b>30%</b>	<b>£0</b>	<b>£1,342,997</b>	<b>£2,102,968</b>	<b>£926,406</b>	<b>£1,387,729</b>

**Project:** 40380 Westdown Quarry Planning Support  
**Title:** North section access design - Access 1  
**Drawing:**  
**Notes** -

Base Date Spon's 2019	2Q18	326
Estimate Base Date	3Q20	332
Location Factor	BCIS	1

**wood.**

Highway Geometrics Costs								
Series	Item Description	Assumptions	Quantity	Unit	Rate	Rate (+uplift)	Price	Comment
300	Series 300 - Fencing							
300	Timber rail 1,4m high, four rails		0	m	£15.60	£15.89	£0	Spon's 2019 pg 373
400	Series 400 - Road restraint Systems							
400	Group P1, curved not exceeding 50m radius			m	£195.96	£199.57	£0	Spon's 2019 pg 377
500	Series 500 - Drainage and Service Ducts							
500	150mm clay pipe, average depth 1.50m			m	£74.67	£76.04	£0	Spon's 2019 pg 382
500	150mm clay pipe, Type Z concrete surround			m	£61.82	£62.96	£0	Spon's 2019 pg 382
500	900 x 700 chamber, 1500mm to invert		0	nr	£1,372.67	£1,397.93	£0	Spon's 2019 pg 389
500	Precast concrete gully			nr	£674.75	£687.17	£0	Spon's 2019 pg 397
600	Series 600 - Earthworks							
600	General excavation using backacters, unacceptable material		0	m <sup>3</sup>	£7.99	£8.14	£0	Spon's 2019 pg 407
600	E.O. Excavation of existing tarmac			m <sup>3</sup>	£15.60	£15.89	£0	Spon's 2019 pg 408
600	Disposal off site of excavated material		0	m <sup>3</sup>	£35.00	£35.64	£0	
600	Imported graded material; 400mm		0	m <sup>3</sup>	£31.74	£32.32	£0	Spon's 2019 pg 411
700	Series 700 - Pavement							
700	Granular sub-base, 200mm deep			m <sup>3</sup>	£40.91	£41.66	£0	Spon's 2019, page 425
700	DBM, base 200mm			m <sup>2</sup>	£35.47	£36.12	£0	Spon's 2019, page 426
700	DBM Binder course 50mm			m <sup>2</sup>	£13.90	£14.16	£0	Spon's 2019, page 426
700	DBM Surface 30mm			m <sup>2</sup>	£9.83	£10.01	£0	Spon's 2019, page 426
700	Cutting existing; road surfacing			m	£44.60	£45.42	£0	Spon's 2019, page 428
700	Cold milling of existing Pavement, 75mm depth removal of existing			m <sup>2</sup>	£19.04	£19.39	£0	Spon's 2019, page 429
700	Tack coat , bituminous spray			m <sup>2</sup>	£0.93	£0.95	£0	Spon's 2019, page 429
700	Regulating course			sum	£500.00	£500.00	£0	
1100	Series 1100 - Kerbs, Footways & Paved Areas							
1100	Foundation; (300x150 mm)			m	£5.90	£6.01	£0	Spon's 2019, page 431
1100	Kerbs (straight), 125mm bull nose (125x150 mm)			m	£16.09	£16.39	£0	Spon's 2019, page 431
1100	Kerbs (curved), 125mm bull nose (125x150 mm)			m	£15.55	£15.84	£0	Spon's 2019, page 431
1100	Sub-base to Footpath; 150mm thick hardcore			m <sup>2</sup>	£5.86	£5.97	£0	Spon's 2019, page 434
1100	Footpath/Ped island surfacing			m <sup>2</sup>	£23.81	£24.25	£0	Spon's 2019, page 435
1200	Series 1200 - Traffic Signs & Road Markings							
1200	Intermittent line , 200mm wide with 4m line and 2m gap			m	£1.01	£1.03	£0.00	Spon's 2019, page 441
1200	Stop Line, 200mm wide with 0.6m line and 0.3m gap			m	£2.80	£2.85	£0.00	Spon's 2019, page 441
1200	Stop Line, 100mm wide with 0.6m line and 0.3m gap			m	£1.28	£1.30	£0.00	Spon's 2019, page 441
1200	Triangle			Nr	£12.12	£12.34	£0.00	Spon's 2019, page 442
1200	Self Righting Bollard			No	£225.64	£229.79	£0.00	

**Project:** 40380 Westdown Quarry Planning Support  
**Title:** North section access design - Access 2  
**Drawing:**  
**Notes** -

Base Date Spon's 2019	2Q18	326
Estimate Base Date	3Q20	332
Location Factor	BCIS	1

[illegible]



**Project:** 40380 Westdown Quarry Planning Support  
**Title:** North section access design - Access 3  
**Drawing:**  
**Notes** -

Base Date Spon's 2019	2Q18	326
Estimate Base Date	3Q20	332
Location Factor	BCIS	1

[illegible]

**Project:** 40380 Westdown Quarry Planning Support  
**Title:** North section access design - Access 4  
**Drawing:**  
**Notes** -

Base Date Spon's 2019	2Q18	326
Estimate Base Date	3Q20	332
Location Factor	BCIS	1



Highway Geometrics Costs								
Series	Item Description	Assumptions	Quantity	Unit	Rate	Rate (+uplift)	Price	Comment
300	Series 300 - Fencing							
300	Timber rail 1,4m high, four rails		119	m	£15.60	£15.89	£1,884	Spon's 2019 pg 373
400	Series 400 - Road restraint Systems							
400	Group P1, curved not exceeding 50m radius			m	£195.96	£199.57	£0	Spon's 2019 pg 377
500	Series 500 - Drainage and Service Ducts							
500	150mm clay pipe, average depth 1.50m		65	m	£74.67	£76.04	£4,943	Spon's 2019 pg 382
500	150mm clay pipe, Type Z concrete surround		55	m	£61.82	£62.96	£3,463	Spon's 2019 pg 382
500	900 x 700 chamber, 1500mm to invert		2	nr	£1,372.67	£1,397.93	£2,796	Spon's 2019 pg 389
500	Precast concrete gully		2	nr	£674.75	£687.17	£1,374	Spon's 2019 pg 397
600	Series 600 - Earthworks							
600	General excavation using backacters, unacceptable material		5,353	m³	£7.99	£8.14	£43,561	Spon's 2019 pg 407
600	E.O. Excavation of existing tarmac		268	m³	£15.60	£15.89	£4,257	Spon's 2019 pg 408
600	Disposal off site of excavated material		5,353	m³	£35.00	£35.64	£190,819	
600	Imported graded material; 400mm		622	m³	£31.74	£32.32	£20,093	Spon's 2019 pg 411
700	Series 700 - Pavement							
700	Granular sub-base, 200mm deep		311	m³	£40.91	£41.66	£12,949	Spon's 2019, page 425
700	DBM, base 200mm		1,554	m²	£35.47	£36.12	£56,135	Spon's 2019, page 426
700	DBM Binder course 50mm		1,554	m²	£13.90	£14.16	£21,998	Spon's 2019, page 426
700	DBM Surface 30mm		1,554	m²	£9.83	£10.01	£15,557	Spon's 2019, page 426
700	Cutting existing; road surfacing		78	m	£44.60	£45.42	£3,552	Spon's 2019, page 428
700	Cold milling of existing Pavement, 75mm depth removal of existing			m²	£19.04	£19.39	£0	Spon's 2019, page 429
700	Tack coat , bituminous spray			m²	£0.93	£0.95	£0	Spon's 2019, page 429
700	Regulating course			sum	£500.00	£500.00	£0	
1100	Series 1100 - Kerbs, Footways & Paved Areas							
1100	Foundation; (300x150 mm)		119	m	£5.90	£6.01	£713	Spon's 2019, page 431
1100	Kerbs (straight), 125mm bull nose (125x150 mm)		74	m	£16.09	£16.39	£1,206	Spon's 2019, page 431
1100	Kerbs (curved), 125mm bull nose (125x150 mm)		45	m	£15.55	£15.84	£713	Spon's 2019, page 431
1100	Sub-base to Footpath; 150mm thick hardcore			m²	£5.86	£5.97	£0	Spon's 2019, page 434
1100	Footpath/Ped island surfacing			m²	£23.81	£24.25	£0	Spon's 2019, page 435
1200	Series 1200 - Traffic Signs & Road Markings							
1200	Intermittent line , 200mm wide with 4m line and 2m gap		45	m	£1.01	£1.03	£46.29	Spon's 2019, page 441
1200	Stop Line, 200mm wide with 0.6m line and 0.3m gap		32	m	£2.80	£2.85	£91.25	Spon's 2019, page 441
1200	Stop Line, 100mm wide with 0.6m line and 0.3m gap		32	m	£1.28	£1.30	£41.71	Spon's 2019, page 441
1200	Triangle			Nr	£12.12	£12.34	£0.00	Spon's 2019, page 442
1200	Self Righting Bollard			No	£225.64	£229.79	£0.00	
				SUB TOTAL			£386,192	
	Allowance for unmeasured items & small quantity of work					10%	£38,619	
				Overall Total			£424,811	

**Project:** 40380 Westdown Quarry Planning Support  
**Title:** South section access design - Access 5  
**Drawing:**  
**Notes** -

Base Date Spon's 2019	2Q18	326
Estimate Base Date	3Q20	332
Location Factor	BCIS	1

**wood.**

Highway Geometrics Costs								
Series	Item Description	Assumptions	Quantity	Unit	Rate	Rate (+uplift)	Price	Comment
300	Series 300 - Fencing							
300	Timber rail 1,4m high, four rails		119	m	£15.60	£15.89	£1,884	Spon's 2019 pg 373
400	Series 400 - Road restraint Systems							
400	Group P1, curved not exceeding 50m radius			m	£195.96	£199.57	£0	Spon's 2019 pg 377
500	Series 500 - Drainage and Service Ducts							
500	150mm clay pipe, average depth 1.50m		50	m	£74.67	£76.04	£3,802	Spon's 2019 pg 382
500	150mm clay pipe, Type Z concrete surround		50	m	£61.82	£62.96	£3,148	Spon's 2019 pg 382
500	900 x 700 chamber, 1500mm to invert		100	nr	£1,372.67	£1,397.93	£139,793	Spon's 2019 pg 389
500	Precast concrete gully		2	nr	£674.75	£687.17	£1,374	Spon's 2019 pg 397
600	Series 600 - Earthworks							
600	General excavation using backacters, unacceptable material		5,865	m³	£7.99	£8.14	£47,723	Spon's 2019 pg 407
600	E.O. Excavation of existing tarmac		421	m³	£15.60	£15.89	£6,690	Spon's 2019 pg 408
600	Disposal off site of excavated material		5,865	m³	£35.00	£35.64	£209,050	
600	Imported graded material; 400mm		602	m³	£31.74	£32.32	£19,446	Spon's 2019 pg 411
700	Series 700 - Pavement							
700	Granular sub-base, 200mm deep		407	m³	£40.91	£41.66	£16,973	Spon's 2019, page 425
700	DBM, base 200mm		2,037	m²	£35.47	£36.12	£73,582	Spon's 2019, page 426
700	DBM Binder course 50mm		2,038	m²	£13.90	£14.16	£28,850	Spon's 2019, page 426
700	DBM Surface 30mm		2,038	m²	£9.83	£10.01	£20,402	Spon's 2019, page 426
700	Cutting existing; road surfacing		66	m	£44.60	£45.42	£3,002	Spon's 2019, page 428
700	Cold milling of existing Pavement, 75mm depth removal of existing			m²	£19.04	£19.39	£0	Spon's 2019, page 429
700	Tack coat , bituminous spray			m²	£0.93	£0.95	£0	Spon's 2019, page 429
700	Regulating course			sum	£500.00	£500.00	£0	
1100	Series 1100 - Kerbs, Footways & Paved Areas							
1100	Foundation; (300x150 mm)		119	m	£5.90	£6.01	£713	Spon's 2019, page 431
1100	Kerbs (straight), 125mm bull nose (125x150 mm)		74	m	£16.09	£16.39	£1,206	Spon's 2019, page 431
1100	Kerbs (curved), 125mm bull nose (125x150 mm)		45	m	£15.55	£15.84	£713	Spon's 2019, page 431
1100	Sub-base to Footpath; 150mm thick hardcore			m²	£5.86	£5.97	£0	Spon's 2019, page 434
1100	Footpath/Ped island surfacing			m²	£23.81	£24.25	£0	Spon's 2019, page 435
1200	Series 1200 - Traffic Signs & Road Markings							
1200	Intermittent line , 200mm wide with 4m line and 2m gap		46	m	£1.01	£1.03	£47.32	Spon's 2019, page 441
1200	Stop Line, 200mm wide with 0.6m line and 0.3m gap		25	m	£2.80	£2.85	£71.29	Spon's 2019, page 441
1200	Stop Line, 100mm wide with 0.6m line and 0.3m gap		25	m	£1.28	£1.30	£32.59	Spon's 2019, page 441
1200	Triangle			Nr	£12.12	£12.34	£0.00	Spon's 2019, page 442
1200	Self Righting Bollard			No	£225.64	£229.79	£0.00	
			SUB TOTAL				£578,503	
	Allowance for unmeasured items & small quantity of work					10%	£57,850	
			Overall Total				£636,354	

**Project:** 40380 Westdown Quarry Planning Support  
**Title:** South section access design - Access 6  
**Drawing:**  
**Notes** -

Base Date Spon's 2019	2Q18	326
Estimate Base Date	3Q20	332
Location Factor	BCIS	1

**wood.**

[illegible]

# **Appendix D**

## **Junction Assessment – Site Access**

Junctions 9						
PICADY 9 - Priority Intersection Module						
Version: 9.5.1.7462 © Copyright TRL Limited, 2019						
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Filename: Site Access.j9

Path: \\Sal-fs12\shared\Projects\40380 Whatley Quarry Planning Support\Deliver Stage\Design\_Technical\Data\Transport\Westdown Quarry\Junction Assessment

Report generation date: 16/11/2020 11:40:24

»2042 Future Base + Development, AM

»2042 Future Base + Development , PM

### Summary of junction performance

	AM						PM					
	Set ID	Queue (Veh)	Delay (min)	RFC	LOS	Junction Delay (min)	Set ID	Queue (Veh)	Delay (min)	RFC	LOS	Junction Delay (min)
2042 Future Base + Development												
Stream B-C	D1	0.0	0.00	0.00	A	0.04	D2	0.0	0.10	0.00	A	0.03
Stream B-A		0.1	0.24	0.10	B			0.1	0.22	0.09	B	
Stream C-AB		0.0	0.10	0.00	A			0.0	0.10	0.00	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

### File summary

#### File Description

Title	
Location	
Site number	
Date	16/11/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	GLOBAL\pranav.yadav
Description	

### Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perHour	min	-Min	perMin

### Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (min)	Queue threshold (PCU)
5.75				0.85	0.60	20.00

## Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2042 Future Base + Development	AM	ONE HOUR	07:45	09:15	15	✓
D2	2042 Future Base + Development	PM	ONE HOUR	16:45	18:15	15	✓

## Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000



# 2042 Future Base + Development, AM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (min)	Junction LOS
1	untitled	T-Junction	Two-way		0.04	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Arms

### Arms

Arm	Name	Description	Arm type
A	Bulls Green Link Road (east)		Major
B	Site Access		Minor
C	Bulls Green Link Road (west)		Major

### Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.00			150.0	✓	1.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

### Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare	10.00	9.10	4.90	3.60	3.60		1.00	85	30

## Slope / Intercept / Capacity

### Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	594	0.103	0.261	0.165	0.374
B-C	645	0.095	0.239	-	-
C-B	661	0.245	0.245	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2042 Future Base + Development	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	105	100.000
B		ONE HOUR	✓	26	100.000
C		ONE HOUR	✓	77	100.000

## Origin-Destination Data

### Demand (Veh/hr)

	To			
	A	B	C	
From	A	0	29	76
	B	26	0	0
	C	76	1	0

## Vehicle Mix

### Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	87	19
	B	95	0	0
	C	19	0	0

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0	0
B-A	0.10	0.24	0.1	B	24	36
C-AB	0.00	0.10	0.0	A	0.92	1
C-A					70	105
A-B					27	40
A-C					70	105

## Main Results for each time segment

### 07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0	0	614	0.000	0	0.0	0.0	0.000	A
B-A	20	5	287	0.068	19	0.0	0.1	0.224	B
C-AB	0.75	0.19	634	0.001	0.75	0.0	0.0	0.095	A
C-A	57	14			57				
A-B	22	5			22				
A-C	57	14			57				

### 08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0	0	608	0.000	0	0.0	0.0	0.000	A
B-A	23	6	284	0.082	23	0.1	0.1	0.230	B
C-AB	0.90	0.22	629	0.001	0.90	0.0	0.0	0.096	A
C-A	68	17			68				
A-B	26	7			26				
A-C	68	17			68				

### 08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0	0	600	0.000	0	0.0	0.0	0.000	A
B-A	29	7	279	0.102	29	0.1	0.1	0.239	B
C-AB	1	0.28	622	0.002	1	0.0	0.0	0.097	A
C-A	84	21			84				
A-B	32	8			32				
A-C	84	21			84				

### 08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0	0	600	0.000	0	0.0	0.0	0.000	A
B-A	29	7	279	0.102	29	0.1	0.1	0.239	B
C-AB	1	0.28	622	0.002	1	0.0	0.0	0.097	A
C-A	84	21			84				
A-B	32	8			32				
A-C	84	21			84				

### 08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0	0	608	0.000	0	0.0	0.0	0.000	A
B-A	23	6	284	0.082	23	0.1	0.1	0.230	B
C-AB	0.90	0.22	629	0.001	0.90	0.0	0.0	0.096	A
C-A	68	17			68				
A-B	26	7			26				
A-C	68	17			68				

**09:00 - 09:15**

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0	0	614	0.000	0	0.0	0.0	0.000	A
B-A	20	5	287	0.068	20	0.1	0.1	0.224	B
C-AB	0.75	0.19	634	0.001	0.75	0.0	0.0	0.095	A
C-A	57	14			57				
A-B	22	5			22				
A-C	57	14			57				

# 2042 Future Base + Development , PM

## Data Errors and Warnings

No errors or warnings

## Junction Network

### Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (min)	Junction LOS
1	untitled	T-Junction	Two-way		0.03	A

### Junction Network Options

Driving side	Lighting
Left	Normal/unknown

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2042 Future Base + Development	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	128	100.000
B		ONE HOUR	✓	24	100.000
C		ONE HOUR	✓	91	100.000

## Origin-Destination Data

### Demand (Veh/hr)

	To			
		A	B	C
	A	0	22	106
	B	23	0	1
	C	90	1	0

## Vehicle Mix

### Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	88	4
	B	81	0	0
	C	6	0	0

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.00	0.10	0.0	A	0.92	1
B-A	0.09	0.22	0.1	B	21	32
C-AB	0.00	0.10	0.0	A	0.92	1
C-A					83	124
A-B					20	30
A-C					97	146

### Main Results for each time segment

#### 16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0.75	0.19	616	0.001	0.75	0.0	0.0	0.098	A
B-A	17	4	307	0.056	17	0.0	0.1	0.207	B
C-AB	0.75	0.19	633	0.001	0.75	0.0	0.0	0.095	A
C-A	68	17			68				
A-B	17	4			17				
A-C	80	20			80				

#### 17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0.90	0.22	609	0.001	0.90	0.0	0.0	0.099	A
B-A	21	5	303	0.068	21	0.1	0.1	0.212	B
C-AB	0.90	0.22	628	0.001	0.90	0.0	0.0	0.096	A
C-A	81	20			81				
A-B	20	5			20				
A-C	95	24			95				

#### 17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	1	0.28	600	0.002	1	0.0	0.0	0.100	A
B-A	25	6	298	0.085	25	0.1	0.1	0.220	B
C-AB	1	0.28	620	0.002	1	0.0	0.0	0.097	A
C-A	99	25			99				
A-B	24	6			24				
A-C	117	29			117				

#### 17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	1	0.28	600	0.002	1	0.0	0.0	0.100	A
B-A	25	6	298	0.085	25	0.1	0.1	0.220	B
C-AB	1	0.28	620	0.002	1	0.0	0.0	0.097	A
C-A	99	25			99				
A-B	24	6			24				
A-C	117	29			117				

**17:45 - 18:00**

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0.90	0.22	609	0.001	0.90	0.0	0.0	0.099	A
B-A	21	5	303	0.068	21	0.1	0.1	0.213	B
C-AB	0.90	0.22	628	0.001	0.90	0.0	0.0	0.096	A
C-A	81	20			81				
A-B	20	5			20				
A-C	95	24			95				

**18:00 - 18:15**

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
B-C	0.75	0.19	615	0.001	0.75	0.0	0.0	0.098	A
B-A	17	4	307	0.056	17	0.1	0.1	0.207	B
C-AB	0.75	0.19	633	0.001	0.75	0.0	0.0	0.095	A
C-A	68	17			68				
A-B	17	4			17				
A-C	80	20			80				



