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F - Transport, Movement and Access

KEDD Limited

The Hurlstone Partnership

PROPOSED MINERAL EXTRACTION AND PROGRESSIVE RESTORATION SITE AT LEA CASTLE FARM, WOLVERLEY, WORCESTERSHIRE

Transport Statement

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Seven Oaks Farm, Crew Green, Shrewsbury SY5 9AS

Tel: 01743 884849 Fax: 01743 884947 e-mail: office@hurlstones.com

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Transportation Planning, Highway Design and Environmental Assessment

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APPENDICES

1 INTRODUCTION

1.1 NRS Aggregates Limited is seeking planning permission for a mineral extraction site on land at Lea Castle Farm, Wolverley, Worcestershire. It is proposed to progressively restore the site with imported inert fill material as the extraction of approximately 300,000 saleable tonnes of sand and gravel per year continues for a 10 year period.

1.2 The site covers an area of 46 hectares, within which there are two separate areas totalling a combined 26 hectares within which sand and gravel would be extracted and infill material subsequently deposited to create the restored landform providing a mix of agricultural, biodiversity and public amenity uses through the creation of enhanced rights of way.

1.3 The site is located to the north of the B4189 Wolverley Road approximately between its priority junction with Sion Hill to the west and the signal-controlled junction with the A449 and Park Gate Road to the east. It is also approximately 0.35km north of Kidderminster Broadwaters, 0.7km east of Wolverley and 0.37km south west of Cookley.

1.4 As part of the proposed development, which will include the provision of a plant site for the processing of the as-raised mineral prior to sale, a new access would be created onto the B4189. It is proposed to restrict HGV movements at the site access to ensure that all HGVs enter and leave to the east of the access via the A449 signal-controlled junction.

1.5 The Hurlstone Partnership Limited was instructed to assist in the consideration of the proposed access location and also the impact of the proposed development on the local highway network.

1.6 As part of the review, empirical traffic survey data was obtained and a topographic survey of the road was also undertaken in order to ensure that an appropriate access arrangement with suitable visibility splays could be provided.

1.7 Pre-application consultations have been held with Worcestershire County Council, as Local Highway Authority, to agree the principle and form of access together with the scope for the transport assessment of the proposed development.

1.8 The remainder of this report details the findings of the review and confirms that the transport impact of the proposed development would be acceptable when considered in the context of national policy and therefore it should not be prevented or refused on transport grounds.

2 EXISTING ROAD NETWORK

2.1 The B4189 extends approximately 4km between the A442 Kidderminster to Bridgnorth Road to the west and the A449 Kidderminster to Wolverhampton Road to the east. The route initially leaves the A442 as Shatterford Lane before becoming Wolverley Road at its roundabout junction with the B4190 Franche Road within Wolverley, approximately mid-way along its length.

2.2 When leaving the A442 via a priority T junction, the B4189 is initially subject to the national speed limit of 60 mph for single carriageway routes. The speed limit reduces to 30 mph as it enters Wolverley, approximately 180m to the west of the roundabout, at which point the predominantly rural route to the west becomes more urban in nature, with the introduction of street lighting and a pedestrian footway along the south side of the carriageway. A footway on the north side is introduced at the roundabout, where dropped kerb pedestrian crossings with tactile paving to assist the visually impaired are also provided.

2.3 A Primary School is located in the southeast quadrant of the roundabout, which attracts significant on-street parking on the carriageway and verges during the school drop-off and pick-up times.

2.4 Continuing in a generally south-easterly direction from the roundabout, the B4189 passes a Hardwicks Landscape and Building Supplies, Blakershall Lane (which provides access to a Secondary School) a Golf Centre and The Lock Inn Public House, which sits adjacent to a canal. Beyond The Lock Inn, the speed limit increases to 40 mph and the footway on the south side of the B4189 Wolverley Road is temporarily discontinued as it passes a Caravan and Camping Club site and several private driveways / accesses. The B4189 also passes the Heathfield School and Day Nursery before reaching a junction with Sion Hill, which is opposite the access to Lea Castle Farm.

2.5 Continuing around a left-hand bend beyond the Sion Hill junction, the B4189 Wolverley Road begins to climb and the speed limit increases to the national level of 60 mph on this single carriageway route. The carriageway reaches a noticeable crest approximately 120m distant before levelling out prior to another crest around 220m distant, at which point the route descends towards the A449 signal-controlled crossroads junction where the speed limit reduces to 40 mph. The nominal width of the B4189 Wolverley Road between the Sion Hill and A449 junctions is approximately 6.8m and a pedestrian footway is provided along the north side of the carriageway.

2.6 The B4189 Wolverley Road approach to the signals provides a single lane for the left turn onto the A449 to head north towards Wolverhampton; the straight-ahead movement to Park Gate Road; and the right turn onto the A449 to head south towards Kidderminster.

2.7 The speed limit on Park Gate Road increases to the national limit of 60 mph for the single track route immediately beyond the A449. Park Gate Road is a relatively short, straight link extending approximately 450m to a priority T junction with the A451 route from Kidderminster to Stourbridge. The A450 heads southwest converges towards the A449 and the routes meet at a mini-roundabout approximately 800m from the signal-controlled

junction. As a result of this, there is a Traffic Regulation Order imposed on the northbound carriageway of the A449 preventing right turn movements from that route into Park Gate Road, as vehicles heading toward Stourbridge from Kidderminster are directed onto the A451 at the min-roundabout.

2.8 In the vicinity of the signal-controlled junction, the A449 has been constructed to dual carriageway standard. On the northbound approach there are two traffic lanes. The offside lane provides for ahead movements only, as a result of the aforementioned right turn ban, whilst the nearside lane provides for northbound straight-ahead movements and also the left turn into B4189 Wolverley Road.

2.9 The two northbound exit lanes from the junction continue along the dual carriageway extending approximately 115m to the north of B4189 Wolverley Road before merging beyond as the route tapers down to a single lane as the speed limit increases to 50 mph.

2.10 On the A449 southbound approach to the signals, signage advises that there is a 7.5 tonne weight limit 4 miles to the right (i.e. via the B4189) with a further sign below directing HGVs heading towards the A456 West to continue straight ahead. The 7.5 tonne weight limit does not apply along the relevant section of the B4189 between the A449 and A442 junctions.

2.11 On the approach to the stop lines, an offside traffic lane is introduced to provide for right-turning traffic heading into the B4189 Wolverley Road. This is separated from the single ahead and left-turn lane for southbound movements along the A449 towards Kidderminster and those turning left into Park Gate Road. There is sufficient carriageway space for a second ahead lane at the signals and a merge to the south, but the relevant area has been hatched out with road-markings to discourage its use.

2.12 The approach to the junction from Park Gate Road provides a single, combined straight-ahead / right turn lane towards B4189 Wolverley Road / A449 north with a separate left-turn lane for traffic heading south towards Kidderminster.

2.13 Sion Hill heads south from the B4189 Wolverley Road and extends approximately 0.8km to a priority T junction with the A449 approximately 1km southwest of the B4189 Wolverley Road / A449 signals. The width of Sion Lane varies along its length, narrowing to 5.85m in the vicinity of its northern junction and to 5.75m immediately before descending down a 10% gradient towards the A449. It is a predominantly urban route with numerous direct accesses to developments and dwellings plus several road junctions distributed along its length. There are numerous locations where on-street parking is permitted, which effectively reduces the carriageway width. Signs alert drivers to the potential to encounter school children crossing the road and a zebra crossing is provided.

2.14 The speed limit along Sion Hill is initially 40 mph when leaving the B4189 Wolverley Road, but it reduces to 30 mph approximately 150m from the junction, which continues towards and into Kidderminster on the A449.

2.15 As described in the Introduction, it is proposed to route all HGV traffic travelling to/from the site via the B4189 Wolverley Road to the east of the access to the A449 junction, in order to prevent the vehicles travelling through Wolverley and along Sion Hill.

3 EXISTING TRAFFIC FLOWS

3.1 As part of the study, various traffic surveys have been undertaken. Initially, when considering the potential for achieving an access to the site on B4189 Wolverley Road, two Automatic Traffic Counters (ATCs) were installed to record volumes and speeds continuously over a seven-day period between Saturday 12th and Friday 18th March 2016 inclusive, in order to avoid the Easter school holidays.

3.2 Originally, an access position towards the east of the site was considered. As a result ATC Site 1 was fixed to a tree towards the western end of the visibility splay from the potential eastern access position on the more level section of the route between the two crests in the carriageway. The second ATC was fixed to the advanced direction sign facing eastbound drivers descending towards the A449 signal-controlled junction.

3.3 The summaries of the ATC results are provided at Appendix A for information. The results revealed that the traffic flows at Site 1 were an average of 11188 per day over the 7 day period. The daily flows increased to 11729 vehicles per day when averaged over the 5 day period (Monday to Friday) due to the lower flows at the weekends. During the 5 day period, the daily flows varied between 10611 on Tuesday and 13154 on Friday, giving a day to day variation of 2542 vehicles.

3.4 The daily HGV flows varied between 128 (Monday) and 147 (Friday) during the 5 day period, giving a range of 19 HGV movements per day. The daily HGV flows on Saturday and Sunday were 71 and 87 respectively. The HGV flows represented between 0.71% and 1.31% of the daily traffic flows at Site 1.

3.5 During the 5 day period, the AM peak hour was found to occur between 08:00 – 09:00 with an average flow of 1104 movements from daily totals ranging between 928 (Tuesday) and 1330 (Friday), giving a day to day variation of 402 vehicle movements.

3.6 The comparable PM peak hour occurred between 17:00 – 18:00 with an average of 1208 movements from daily totals of between 1119 (Tuesday) and 1398 (Thursday), giving a day to day variation of 279 vehicle movements.

3.7 The Thursday PM peak hour flow of 1398 movements (542 eastbound / 856 westbound) was the highest recorded hourly flow at Site 1.

3.8 In terms of vehicle speeds at Site 1, the 85th percentile eastbound speed was found to be 45 mph from a total of 40272 vehicles, whilst the equivalent westbound speed was 43.6 mph from a total of 38046 vehicles.

3.9 The results from Site 2 revealed a 7 day average daily flow of 11073 vehicles, which increased to 11603 when averaged over the 5 day period. The daily flows over the 5 day period ranged between 10623 (Monday) and 13081 (Friday) giving a day to day variation of 2458 movements.

3.10 The HGV flows at Site 2 were found to vary between 107 (Tuesday) and 180 (Friday) over the 5 day period, giving a day to day variation of 73 movements. The HGV flows on Saturday and Sunday were 83 and 125 respectively. The HGV content of the overall traffic flow varied between 0.85% and 1.38% per day during the 7 day period.

3.11 The AM peak hour flow at Site 2 was also found to occur between 08:00 – 09:00 with an average of 1128 movements over the 5 day period from daily flows ranging between 1009 (Tuesday) and 1323 (Friday), giving a day to day variation of 314 movements.

3.12 The comparable PM peak hour occurred between 16:00 – 17:00 with an average of 1179 movements from daily flows ranging between 988 (Tuesday) and 1352 (Friday), giving a day to day variation of 364 movements.

3.13 The highest hourly flow at Site 2 was found to occur between 17:00 – 18:00 on Thursday, when 1375 movements (541 eastbound / 834 westbound) were recorded.

3.14 The 85th percentile speeds recorded at Site 2 were found to be 43.9 mph eastbound from 40007 vehicles and 42.3 mph westbound from 37506 vehicles.

3.15 An observed turning count was undertaken at the A449 signals over a 12 hour period (07:00 – 19:00) on Tuesday 5th June 2018. The results are provided in Appendix B for information.

3.16 During the survey it was established that a total of 20578 movements were recorded at the junction, of which 22 were cycles, leaving 20556 motor vehicles including 1003 HGVs (4.9%).

3.17 The AM peak hour was found to occur between 07:45 – 08:45 with a total of 2249 movements passing through the junction including 2 cycles. Of the 2247 motor vehicles, 90 were HGVs, which represents 4%. The flows on the A449 to the north of the junction were 1527 including 78 HGVs, whilst those on the A449 south of the junction were 1085 including 63 HGVs. The flow on Wolverley Road was 1164 including 28 HGVs and that on Park Gate Road was 718 including 11 HGVs.

3.18 The PM peak hour occurred between 16:45 – 17:46 with a total of 2360 vehicles passing through the junction including 3 cyclists. Of the 2357 motor vehicles, 53 were HGVs, which represents 2.2%. The flows on the A449 to the north of the junction were 1607 including 48 HGVs, whilst those on the A449 south of the junction were 1151 including 37 HGVs. The flow on Wolverley Road was 1197 including 17 HGVs and that on Park Gate Road was 759 including 6 HGVs.

3.19 The HGV movements through the junction varied between 35 and 108 per hour during the survey period, whilst those travelling along B4189 Wolverley Road varied between 13 and 31 per hour, giving hour to hour variations of 73 and 18 HGV movements respectively.

3.20 As the design of the development site evolved, an alternative access position preferred by the operator was identified further to the west along B4189 Wolverley Road. The alternative access location was considered and a letter-report detailing the findings was prepared. This letter was subsequently submitted to Worcestershire County Council's Highways Department for consideration and a period of correspondence followed. The letter-report and e-mail correspondence is provided at Appendix C for information.

3.21 Notwithstanding Worcestershire County Council's preference for the eastern access, the operator has confirmed that the western access is a more appropriate location when taking into account a wider ranging appraisal of the site and its impact. Given WCCs requirements to take into account uncorrected speeds and in the absence of any recorded data to the west of the proposed access, a further two ATC surveys were undertaken for a 7 day period between Saturday 19th and Friday 25th January 2019. One ATC (Site 1) was fixed to the sign denoting the change from the 40 mph to the national speed limit to the west of the proposed access position, and the second (Site 2) was fixed to a lamp column (LC1) to the east of the proposed access.

3.22 However, due to a technical fault at Site 2 (one of the tubes split and filled with water), the survey at Site 2 was repeated between Tuesday 29th January and Monday 04th February 2019. The summaries of the ATC survey results are provided at Appendix D for information.

3.23 At Site 1 the average daily flow was found to be 11657 per day over the 7 day period. The daily flows increased to 12607 vehicles per day when averaged over the 5 day period (Monday to Friday) due to the lower flows at the weekends. During the 5 day period, the daily flows varied between 11786 on Monday and 13457 on Friday, giving a day to day variation of 1671 vehicles.

3.24 The daily HGV flows varied between 95 (Monday) and 150 (Tuesday) during the 5 day period, giving a range of 55 HGV movements per day. The daily HGV flows on Saturday and Sunday were 51 and 54 respectively. The HGV flows represented between 0.51% and 1.21% of the daily traffic flows at Site 1 during the 2019 survey.

3.25 During the 5 day period, the AM peak hour was found to occur between 08:00 – 09:00 with an average flow of 1264 movements from daily totals ranging between 1121 (Monday) and 1367 (Tuesday), giving a day to day variation of 246 vehicle movements.

3.26 The comparable PM peak hour occurred between 16:00 – 17:00, which also revealed an average of 1264 movements from daily totals of between 1227 (Monday) and 1325 (Friday), giving a day to day variation of 98 vehicle movements.

3.27 The Tuesday AM peak hour flow of 1367 movements (693 eastbound / 674 westbound) was the highest recorded hourly flow at Site 1.

3.28 In terms of vehicle speeds at Site 1, the 85th percentile eastbound speed was found to be 40.4 mph from a total of 37858 vehicles, whilst the equivalent westbound speed was 41.8 mph from a total of 43746 vehicles.

3.29 The results from Site 2 revealed a 7 day average daily flow of 9526 vehicles, which increased to 10287 when averaged over the 5 day period. The daily flows over the 5 day period ranged between 9464 (Monday) and 11700 (Tuesday) giving a day to day variation of 2236 movements.

3.30 The HGV flows at Site 2 were found to vary between 61 (Monday) and 88 (Wednesday) over the 5 day period, giving a day to day variation of 17 movements. The HGV flows on Saturday and Sunday were 38 and 25 respectively. The HGV content of the overall traffic flow varied between 0.36% and 0.82% per day during the 7 day period.

3.31 The AM peak hour flow at Site 2 was also found to occur between 08:00 – 09:00 with an average of 1034 movements over the 5 day period from daily flows ranging between 810 (Monday) and 1212 (Tuesday), giving a day to day variation of 402 movements.

3.32 The comparable PM peak hour also occurred between 16:00 – 17:00 with an average of 1027 movements from daily flows ranging between 913 (Thursday) and 1202 (Tuesday), giving a day to day variation of 289 movements.

3.33 The highest hourly flow at Site 2 was the Tuesday AM peak, when 1212 movements (668 eastbound / 544 westbound) were recorded.

3.34 The 85th percentile speeds recorded at Site 2 were found to be 44.6 mph eastbound from 33658 vehicles and 44.9 mph westbound from 33026 vehicles.

4 HIGHWAY SAFETY

4.1 In order to review the safety performance of the local highway network, Personal Injury Accident data recorded over the most recent 5 year period (2014 – 2018 inclusive) was reviewed, paying particular attention to incidents involving HGVs.

4.2 It was found that there had been a single accident involving a HGV between the Sion Hill and A451 Stourbridge Road junctions inclusive. This occurred at the signal-controlled A449 junction in October 2017 and involved a collision between a HGV turning right and a car continuing ahead through the junction.

4.3 In the event there is a particular feature of the local highway network that results in compromised safety for its users, it is normal to find a number of incidents at that point which have the same characteristics. In this case, only a single PIA involving a HGV has been recorded, which suggests that there are no inherent characteristics of the local road

network that unacceptably compromise safety for or as a result of HGV use, given the apparent activity on the network, as demonstrated by the traffic survey results.

5 PROPOSED DEVELOPMENT

5.1 The proposed development involves the creation of a new quarry which would produce 3,000,000 saleable tonnes of sand and gravel over a period of 10 years at a rate of 300,000 tonnes per annum.

5.2 The sand and gravel would be exported by road in HGVs to customers within the West Midlands area via a new access to be created along the B4189 Wolverley Road, specifically to serve the new quarry.

5.3 It is proposed to create a new access approximately 220m east of the Sion Hill junction and 50m west of Broom Cottage. The proposed access is to take the form of a simple priority junction in accordance with the consultations / discussions with the Highway Authority. As requested by the Highway Authority a kerbed central island will be provided within the bellmouth to prevent HGVs from turning right onto the B4189 Wolverley Road when leaving the site. The bellmouth will also be configured to prevent HGVs from turning left into the access in order to enforce the routeing strategy, which directs all HGV traffic to/from the A449 to the east; thereby avoiding travelling through Wolverley and along Sion Hill. It is proposed to further reinforce the routeing restriction via CCTV at the access.

5.4 In accordance with the requirements of the Highway Authority, the visibility splays at the access have been based upon uncorrected observed speeds by applying the desirable minimum parameters of a 2 second perception reaction time and 0.25g rate of deceleration. Based on the eastbound speed of 40.4 mph recorded at Site 1 and the westbound speed of 44.9 mph at Site 2 recorded during the 2019 traffic surveys, the corresponding visibility requirements are 102.616m to the west and 122.282m to the east.

5.5 The plans provided in Appendix E illustrate the access and visibility splays are achievable on site within the land controlled by the applicant and/or highway authority. Long sections have also been provided to demonstrate that the visibility splays are achievable taking into account the vertical and horizontal alignments of the road.

5.6 Following extraction of sand and gravel, it is proposed to restore the resulting void to a mixed use of agriculture, wildlife habitat and amenity uses via an enhanced public right of way network. In order to facilitate the proposed restoration scheme it is proposed to import soils and overburden arising from construction projects at a rate of 60,000 m^3 per annum.

5.7 Based on other similar sites, the average payload of HGVs exporting sand and gravel is predicted to be 20 tonnes, whilst the imports would average 17 tonnes due to the fact that that some soils and overburden are taken directly from construction sites where there is no weighbridge to fully load the vehicles. The characteristics of the soils and overburden can also vary in terms of their bulking properties and resulting void space when loaded into the HGVs at the construction sites.

5.8 The operator anticipates that 25% of the exported sand and gravel would be transported on a back-haul basis, whereby a vehicle importing a load of infill is cleaned then loaded with sand and gravel for their outbound journey. Back-hauling is desirable from an operational perspective as it reduces transportation costs and maximises driver efficiency, given they can only drive for a limited number of hours per day. The 25% ratio is considered to be achievable based upon the applicant's experience of similar sites.

5.9 Notwithstanding the proposed back-hauling, the Highway Authority has confirmed the assessment should be based on a scenario whereby no back-hauling takes place, resulting in an increased number of additional HGV movements on the network than are actually envisaged to occur. The approach required by the Highway Authority therefore represents a more onerous, worst-case appraisal of the traffic impact associated with the quarry.

5.10 The proposed quarry would employ up to 8 staff on site and would operate between 07:00 -19:00 Monday to Friday and 07:00 – 13:00 on Saturdays, with no working on Sundays or Public Holidays. Based upon the 5.5 day working week and allowing for the extended shut-down between Christmas and New Year, the typical working year equates to 275 operational days.

Development Traffic

5.11 Based on the exporting of 300,000 tonnes of sand and gravel in 20 tonne average payloads over 275 working days per annum, an average of 54.5 (say 55) loads per day would be required, resulting in 110 daily HGV movements.

5.12 Importing 60,000 m^3 of soils and overburden equates to 102,000 tonnes based on an average density of 1.7 tonnes per m^3. When taking into account the 17 tonne average payload and 275 working days per annum, it is established the infilling operations would attract 21.8 (say 22) loads per day, resulting in 44 HGV movements.

5.13 When making no allowance for back-hauling, as requested by the Highway Authority, it is apparent that the proposed development would attract 77 loads / 154 HGV movements per full working day. For comparison with Annual Average Daily Traffic (AADT) flows, which are averaged over 365 days per year, rather than the 275 working days at the site, this equates to 58 loads / 116 HGV movements per day.

5.14 In terms of hourly flows, when distributed over the 12 hour working day, 154 HGV movements equates to 13 movements per hour.

5.15 In addition to the HGV traffic there would also be staff movements to/from the site. Based on the worst case scenario whereby all 8 employees travel independently in a private vehicle, a further 16 movements would be anticipated on the network, with 8 arrivals in the morning and 8 departures in the evening. This level of staff activity represents 12 movements AADT. However, given the proximity of the site to Wolverley, Broadwaters, the northeast part of Kidderminster and Cookley, which are all within a reasonable walking distance, and the majority of Kidderminster falling within an acceptable cycling distance, it

is likely that some employees would either choose to walk, cycle or car-share, resulting in reduced car journeys.

5.16 If allowing for the 25% of sand and gravel exports predicted to be transported on a back-haul basis, the number of HGV s associated with exporting saleable product would reduce to 41 loads / 88 HGV movements per day, resulting in a combined total of 63 loads / 126 HGV movements per full working day and 11 movements per hour 6. The equivalent AADT flow at the site access would be 48 loads / 96 movements per day.

5.17 As described previously, all HGV traffic would be directed towards the A449 via the access design and site rules. As a result all of the HGV traffic would pass through the A449 junction.

5.18 Based on the market locations, taking into account alternative mineral and waste sites in the area, the applicant predicts 60% of the development traffic would travel to / from the north and 40% to / from the south, which equates to 8 movements to the north and 5 movements to the south of the junction per hour during the network peaks. Of the traffic heading to/from the north, there are two potential routes available, depending upon the origin / destination of the trip. Vehicles travelling to / from the south of or into Stourbridge may continue straight ahead and access the A451 Stourbridge Road via Park Gate Road, whilst those heading towards the west or north of Stourbridge or onwards towards Wolverhampton or Bridgnorth may travel along the A449.

5.19 Taking the alternative routes to the north into account, the distribution of the 60% of development trips along the A449 and A451 is predicted to vary between 20 – 40%, which equates to between 3 and 5 vehicles, on each road.

Traffic Impact

5.20 In terms of staff movements, these are not predicted to have a significant impact on the operational capacity of the local road network as they would occur beyond the existing peak hour periods, when traffic flows on the road are lower, as a result of the proposed operating hours of the quarry.

5.21 When considering the HGV activity, based on the observed ATC survey results recorded to the east of the site access, the average weekday (Monday to Friday) flows varied between 10287 and 11603 vehicles with daily variations ranging between 2236 and 2542 movements.

5.22 An increase of 170 movements (assuming all staff movements occur on the same route to the east) represents between 1.5% and 1.8% of the observed flows on the B4189 Wolverley Road to the east of the proposed site access during the 5 day (Monday to Friday) period. It is also apparent that 170 movements represent 7.6% of the observed day to day variations already occurring on the road during the same period.

5.23 When considering the peak hour flows, the same survey results revealed average weekday peak hour flows ranging between 1027 and 1034 movements. An additional 13 movements per hour represents an increase of approximately 1.3% of the existing baseline traffic flow during the peak hours. When considering the day to day variations during the peak hour periods, which ranged from 289 to 402 movements, an additional 13 development trips during the network peaks represents between 3.2% - 4.5% of the observed fluctuations in traffic currently experienced.

5.24 Moving to the A449 traffic signals, the survey results reveal that 13 movements on the B4189 Wolverley Road link represent approximately 1.1% of the AM and PM peak hour flows (1164 and 1197 respectively). It is also apparent that 13 HGV movements fall within the observed hour to hour variation of 18 movements on B4189 Wolverley Road during the 12 hour survey period.

5.25 An additional 5 vehicle movements on the A449 to the north of the junction represents 0.3% of the observed 1527 movements during the AM peak hour and the 1607 movements during the PM peak hour. In terms of the 5 additional movements on the A449 to the south of the junction, these equate to less than 0.5% of the 1085 movements during the AM peak hour and the 1151movements during the PM peak hour. On Park Gate Road, an increase of 5 movements represents 0.7% of the observed 718 movements during the AM peak hour and 759 during the PM peak hour.

5.26 These increases and variations are not considered to be significant in the context of the existing baseline flows and normal traffic fluctuations on the local routes. To place them in context, paragraph 2.10 of TD 41/95 '*Vehicular Access to All Purpose Trunk Roads*' advises: "*Generally, a material increase is considered to be if the turning traffic flows as a result of the development would increase by 5% or more..."*

5.27 It is clear that the turning flows in this case and the increase in traffic volume on the link falls well below the 5% threshold. Indeed it is apparent that the development traffic represents less than 5% of the existing day to day variations experienced during the day and the peak hours.

5.28 Based on TEMPro growth predictions, over the predicted life of the quarry, daily traffic volumes on the local road network are predicted to increase by approximately 8.22%. Any increase in baseline flows as a result of traffic growth would further reduce the proportional increase associated with the proposed development within its active life, reducing the already insignificant impact on the network.

6 CUMULATIVE IMPACT

6.1 Wyre District Council has granted *"Outline planning application to include up to 600 dwellings (C3), up to 3,350sqm of Class B1 employment uses, 150sqm of Class A1/A3/D1 uses (local shop/café/community space), public open space, ecological mitigation, drainage works, infrastructure and ancillary works. Detailed approval is sought for access arrangements, to include the main access from Park Gate Road, secondary access from The Crescent and limited access to a small number of properties from Axborough Lane,*

with all other matters reserved" at the former Lea Castle Hospital site, which lies to the east of the A449 and north of Park Gate Road under application reference 17/0205/OUTL.

6.2 The Transport Assessment submitted as part of the application documents indicates a total of a 150 additional development trips are proposed to pass through the A449 signals during the AM peak hour, of which 61 would travel along B4189 Wolverley Road. The comparable flows during the PM peak hour were identified to be 134 of which 64 are predicted to travel along B4189 Wolverley Road.

6.3 As a result of this increase in traffic, the application proposes significant revisions to the existing signal-controlled junction on the A449. The Transport Assessment advises: *The development is proposed to be opened in phases with the first phase open in 2019 and then approx. 45 dwellings per year until 2031".*

6.4 It is therefore apparent that the approved development would not be fully occupied until at least 2031. However, at present, there are no signs that construction has commenced and therefore it appears that the development programme has slipped.

6.5 Given the junction improvements are designed to accommodate the entirety of the permitted development, which will not be completed until after the quarry based upon the current proposals for the latter, the junction improvements scheme will retain a level of reserve capacity that will not be utilised until the mixed use scheme is completed. As a result, there is no reason to conclude that the proposed quarry development would in any way compromise the capacity of the network to a significant degree based on the timings of the traffic movements associated with the respective schemes.

6.6 The existence of the quarry and its proximity to the Lea Castle Hospital site may offer benefits in terms of impacts on the wider highway network, in terms of providing aggregates to and receiving arisings from the construction project that would otherwise need to be transported over longer distances from other sites.

6.7 In this context, the proposed quarry offers significant potential to support sustainable transport objectives by reducing the need to travel and minimising transport distances.

6.8 It is understood that representations have been made to increase the scale of development by incorporating neighbouring land to include a further 800 dwellings, additional B1 employment uses together with education, leisure and recreation facilities. The proposal is currently being promoted through the local plan process.

6.9 Due to the scale of development, it is apparent that further assessment of the A449 signals would be required, which is likely to lead to an enhanced mitigation scheme at the junction. Again, should such a scheme be designed and approved, based on typical build rates the demand of the development would not be maximised until following completion of the proposed quarry at Lea Castle Farm. Accordingly, this proposed allocation should not be a determining factor in terms of the proposed quarry application.

6.10 Planning application 18/0163/FULL *"Full planning application for a residential development of 91 dwellings, public open space, vehicular and pedestrian access and associated infrastructure"* on land off Stourbridge Road was granted planning permission on 09 August 2018 with no highway objections raised. The Transport Assessment submitted with this planning application confirmed at paragraph 4.4.3 that the A449 / B4189 signals junction was considered in the assessment, amongst other junctions in the area. It reported "*The assessment result indicates that the development alters the car trips by -0.21% to 0.8%...The junctions assessed for development impact do not indicate any significant impact...On this basis it is assumed that no specific off-site mitigation measures are necessary as part of the proposed scheme."*

6.11 Specific reference was made to Park Gate Road at paragraph 4.5.1 of the Transport Assessment, which advised an additional 10 trips passing through its junction with the A451 during the AM peak and 17 trips during the PM peak. Again, it was accepted by the Highway Authority that mitigation measures were not justified based on these small increases, which are comparable to those associated with the proposed quarry site.

6.12 The National Planning Policy Framework (2019) advises at paragraph 109: "*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety or the residual cumulative impacts on the road network would be severe*".

6.13 In circumstances where a suitable access with appropriate visibility splays can be achieved on a road which currently safely accommodates similar vehicle types and where the normal day to day variations in flow significantly exceed the quantum of development traffic it would be difficult to conclude that there would be an unacceptable impact on highway safety or the residual cumulative impacts on the road network would be severe.

6.14 Accordingly, in accordance with the current national policy guidance, planning permission for the proposed development should not be prevented or refused on transport grounds.

7 MITIGATION MEASURES

7.1 Taking into account the ability to deliver a suitable access to serve the site and the insignificant impact of the proposed development in terms of traffic increases in the local context, beyond normal best-practice quarrying protocols, such as maintaining the access road and its visibility provision, maintaining cleanliness of the access and the public highway, sheeting of vehicles etc. no specific mitigation measures are considered necessary or proposed in this case.

8 RESIDUAL IMPACTS

8.1 Following completion of the extraction of the proposed quarry extension, there would be no residual transport impacts beyond the low level of movements to / from the restored land associated with its after-use.

9 SUMMARY

9.1 Planning permission is sought for a mineral extraction site on land at Lea Castle Farm, Wolverley, Worcestershire within which approximately 3 million saleable tonnes of sand and gravel are believed to exist within an area of 26 hectares forming part of the 46 hectare application site.

9.2 The site would be worked over a 10 year period at an output rate of around 300,000 tonnes per annum. It is proposed to progressively restore the site to create the restored landform providing a mix of agricultural, wildlife biodiversity and public amenity uses through the creation of enhanced rights of way with imported soils and overburden as the extraction continues.

9.3 The site is located to the north of the B4189 Wolverley Road between its priority junction with Sion Hill to the west and the signal-controlled junction with the A449 and Park Gate Road to the east. It is also approximately 0.35km north of Kidderminster Broadwaters, 0.7km east of Wolverley and 0.37km south west of Cookley.

9.4 As part of the proposed development, which will include the provision of a plant site for the processing of the as-raised mineral prior to sale, a new access would be created onto the B4189, which would restrict HGV movements at the site access to ensure that all HGVs enter and leave to the east of the access via the A449 signal-controlled junction in order to prevent access through Wolverley and Sion Hill to the west and south.

9.5 The Hurlstone Partnership Limited was instructed to assist in the consideration of the proposed access location, its design and also the assessment of the impact of the proposed development on the local highway network.

9.6 As part of the review, empirical traffic survey data was obtained and a topographic survey of the road was also undertaken in order to ensure that an appropriate access arrangement with suitable visibility splays could be provided.

9.7 Pre-application consultations have been held with Worcestershire County Council, as Local Highway Authority, to agree the principle and form of access together with the scope for the transport assessment of the proposed development.

9.8 The review undertaken confirms that in the worst case, the proposed development would attract an average of 77 loads / 154 HGV movements per day plus 16 movements (8 in / 8 out) associated with staff trips by the 8 employees within the site. The assessment has been based on the 154 HGV movements per day at the specific request of the Highway Authority, on the basis that back-hauling of sand and gravel exports with a load of imported fill be ignored, in order to represent the worst case.

9.9 Based on this assessment, it was found that the additional development traffic represented a very small proportion of the existing, observed traffic flows during the day and peak hour

periods. It was also found that the quantum of development traffic also represented a small proportion of the existing, observed range of day to day and hour to hour variations in traffic flow on the local roads.

9.10 The highest increase over any baseline flow was found to be 1.8%, which falls well below the 5% threshold considered to represent a material increase in traffic. The insignificant impact is highlighted by the fact that the development traffic represents less than 8% of the observed day to day variations currently experienced on the routes.

9.11 The traffic data confirms that the local roads routinely accommodate HGV traffic. The analysis of personal injury accident data recorded over the most recent 5 year period confirmed that there are no inherent characteristics of the local road network that unacceptably compromise safety for or as a result of HGV activity.

9.12 The proposed access has been designed based on observed speed data in accordance with current guidance and the Highway Authority's preference in terms of the visibility standards to be applied. The proposed arrangement meets current design requirements in terms of its geometric layout and visibility provision.

9.13 The cumulative impact of the proposed development has been assessed taking into account the permitted mixed development at the former Lea Castle Hospital site off Park Gate Road and also the permitted 91 dwellings off Stourbridge Road. It was found that neither of these developments would compromise the acceptability of the proposed quarry or vice-versa. Indeed the availability of the proposed quarry to supply sand and gravel to the construction sites and accept arisings from their excavations offers significant potential to support the principles of sustainable transport by reducing the need to travel and minimising transport distances.

9.14 Having considered the findings of the review, its impact was considered against national transport planning policy.

9.15 In circumstances where a suitable access with appropriate visibility splays can be achieved on a road which currently safely accommodates similar vehicle types and where the normal day to day variations in flow significantly exceed the quantum of development traffic it would be difficult to conclude that there would be an unacceptable impact on highway safety or the residual cumulative impacts on the road network would be severe.

9.16 Accordingly, in accordance with the current national policy guidance, planning permission for the proposed development should not be prevented or refused on transport grounds.

APPENDIX A

2016 Automatic Traffic Counts Results Summaries

20048		KIDDERMINSTER MARCH 2016								
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Total Vehicles**	**5 Day Ave.**	**7 Day Ave.**	**Average 85%ile Speed**	**Average Mean Speed**
Site No: 20048001	Site 1, Wolverley Road, Kidderminster (Fence) SO 84161 78788	Channel: Eastbound	Sat 12-Mar-16	Fri 18-Mar-16	60	40272	5975	5753	45.0	39.0
		Channel: Westbound	Sat 12-Mar-16	Fri 18-Mar-16		38046	5754	5435	43.6	37.9

20048		KIDDERMINSTER		Site No: 20048001 Channel: Eastbound		Location	Site 1, Wolverley Road, Kidderminster (Fence)		
TIME PERIOD	Sat 12/03/16	Sun 13/03/16	Mon 14/03/16	Tue 15/03/16	Wed 16/03/16	Thu 17/03/16	Fri 18/03/16	5-Day Av	7-Day Av
Week Begin: 12-Mar-16									
00:00	**31**	41	7	9	8	10	8	8	16
01:00	**9**	30	3	3	5	4	4	4	8
02:00	**10**	2	6	8	6	8	5	7	6
03:00	**5**	8	5	5	8	7	6	6	6
04:00	**8**	8	18	18	19	27	17	20	16
05:00	**21**	27	66	64	71	82	67	70	57
06:00	**62**	49	277	276	286	315	262	283	218
07:00	**116**	72	598	570	600	685	547	600	455
08:00	**191**	101	682	573	589	656	684	637	497
09:00	**333**	211	349	311	341	387	416	361	335
10:00	**413**	298	256	247	250	280	355	278	300
11:00	**386**	436	251	252	251	287	315	271	311
12:00	**530**	509	310	312	331	352	384	338	390
13:00	**524**	529	284	309	308	323	369	319	378
14:00	**485**	480	386	389	405	427	388	399	423
15:00	**424**	585	428	438	441	487	525	464	475
16:00	**405**	662	527	501	509	580	592	542	539
17:00	**422**	433	471	464	466	542	530	495	475
18:00	**286**	334	336	354	360	384	351	357	344
19:00	**189**	196	203	214	211	234	229	218	211
20:00	**102**	111	129	133	138	150	104	131	124
21:00	**64**	67	81	72	76	90	68	77	74
22:00	**89**	41	50	52	53	59	69	57	59
23:00	**49**	15	22	30	26	28	67	35	34
12H,7-19	**4515**	**4650**	**4878**	**4720**	**4851**	**5390**	**5456**	**5059**	**4923**
16H,6-22	**4932**	**5073**	**5568**	**5415**	**5562**	**6179**	**6119**	**5769**	**5550**
18H,6-24	**5070**	**5129**	**5640**	**5497**	**5641**	**6266**	**6255**	**5860**	**5643**
24H,0-24	**5154**	**5245**	**5745**	**5604**	**5758**	**6404**	**6362**	**5975**	**5753**

20048		KIDDERMINSTER		Site No: 20048001 Channel: Westbound		Location	Site 1, Wolverley Road, Kidderminster (Fence)		
TIME PERIOD	Sat 12/03/16	Sun 13/03/16	Mon 14/03/16	Tue 15/03/16	Wed 16/03/16	Thu 17/03/16	Fri 18/03/16	5-Day Av	7-Day Av
Week Begin: 12-Mar-16									
00:00	**28**	43	4	3	2	6	18	7	15
01:00	**15**	22	1	2	1	1	6	2	7
02:00	**6**	3	4	5	4	5	2	4	4
03:00	**1**	7	2	1	1	2	6	2	3
04:00	**5**	7	6	4	7	7	4	6	6
05:00	**10**	6	12	15	14	14	11	13	12
06:00	**33**	32	35	32	38	50	74	46	42
07:00	**90**	60	284	285	288	372	378	321	251
08:00	**158**	116	498	355	364	471	646	467	373
09:00	**304**	309	260	213	232	269	349	265	277
10:00	**395**	381	208	207	206	270	323	243	284
11:00	**517**	450	290	280	295	386	430	336	378
12:00	**509**	498	266	254	288	361	365	307	363
13:00	**491**	509	287	269	284	360	375	315	368
14:00	**405**	449	360	402	413	501	506	436	434
15:00	**361**	356	426	450	467	560	560	493	454
16:00	**312**	330	560	573	603	765	773	655	559
17:00	**322**	260	653	655	676	856	726	713	593
18:00	**290**	208	445	416	460	569	510	480	414
19:00	**197**	176	203	223	230	275	259	238	223
20:00	**116**	103	122	135	143	173	173	149	138
21:00	**73**	71	100	105	113	131	116	113	101
22:00	**86**	63	75	85	87	97	106	90	86
23:00	**61**	31	50	38	45	59	76	54	51
12H,7-19	**4154**	**3926**	**4537**	**4359**	**4576**	**5740**	**5941**	**5031**	**4748**
16H,6-22	**4573**	**4308**	**4997**	**4854**	**5100**	**6369**	**6563**	**5577**	**5252**
18H,6-24	**4720**	**4402**	**5122**	**4977**	**5232**	**6525**	**6745**	**5720**	**5389**
24H,0-24	**4785**	**4490**	**5151**	**5007**	**5261**	**6560**	**6792**	**5754**	**5435**

20048		KIDDERMINSTER		Site No: 20048001 Channel: Combined		Location	Site 1, Wolverley Road, Kidderminster (Fence)		
TIME PERIOD	Sat 12/03/16	Sun 13/03/16	Mon 14/03/16	Tue 15/03/16	Wed 16/03/16	Thu 17/03/16	Fri 18/03/16	5-Day Av	7-Day Av
Week Begin: 12-Mar-16									
00:00	**59**	84	11	12	10	16	26	15	31
01:00	**24**	52	4	5	6	5	10	6	15
02:00	**16**	5	10	13	10	13	7	11	10
03:00	**6**	15	7	6	9	9	12	8	9
04:00	**13**	15	24	22	26	34	21	26	22
05:00	**31**	33	78	79	85	96	78	83	69
06:00	**95**	81	312	308	324	365	336	329	260
07:00	**206**	132	882	855	888	1057	925	921	706
08:00	**349**	217	1180	928	953	1127	1330	1104	870
09:00	**637**	520	609	524	573	656	765	626	612
10:00	**808**	679	464	454	456	550	678	521	584
11:00	**903**	886	541	532	546	673	745	607	689
12:00	**1039**	1007	576	566	619	713	749	645	753
13:00	**1015**	1038	571	578	592	683	744	634	746
14:00	**890**	929	746	791	818	928	894	835	857
15:00	**785**	941	854	888	908	1047	1085	957	929
16:00	**717**	992	1087	1074	1112	1345	1365	1197	1098
17:00	**744**	693	1124	1119	1142	1398	1256	1208	1068
18:00	**576**	542	781	770	820	953	861	837	758
19:00	**386**	372	406	437	441	509	488	456	434
20:00	**218**	214	251	268	281	323	277	280	262
21:00	**137**	138	181	177	189	221	184	190	175
22:00	**175**	104	125	137	140	156	175	147	145
23:00	**110**	46	72	68	71	87	143	89	85
12H,7-19	**8669**	**8576**	**9415**	**9079**	**9427**	**11130**	**11397**	**10090**	**9671**
16H,6-22	**9505**	**9381**	**10565**	**10269**	**10662**	**12548**	**12682**	**11346**	**10802**
18H,6-24	**9790**	**9531**	**10762**	**10474**	**10873**	**12791**	**13000**	**11580**	**11032**
24H,0-24	**9939**	**9735**	**10896**	**10611**	**11019**	**12964**	**13154**	**11729**	**11188**

20048	KIDDERMINSTER	Site No: 20048001	Location	Site 1, Wolverley Road, Kidderminster (Fence)
Sat 12-Mar-16 to Fri 18-Mar-16		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 12-Mar-16	**5154**	51	1.0	4790	92.9	275	5.3	38	0.7	0	0.0
Sun 13-Mar-16	**5245**	149	2.8	4839	92.3	203	3.9	54	1.0	0	0.0
Mon 14-Mar-16	**5745**	35	0.6	5206	90.6	420	7.3	79	1.4	5	0.1
Tue 15-Mar-16	**5604**	44	0.8	5075	90.6	397	7.1	88	1.6	0	0.0
Wed 16-Mar-16	**5758**	48	0.8	5205	90.4	418	7.3	87	1.5	0	0.0
Thu 17-Mar-16	**6404**	48	0.8	5811	90.7	452	7.1	86	1.3	7	0.1
Fri 18-Mar-16	**6362**	30	0.5	5775	90.8	466	7.3	79	1.2	12	0.2
Total Vehicles											
[--]	**40272**	405	1.0	36701	91.2	2631	6.5	511	1.3	24	0.1

20048	KIDDERMINSTER	Site No: 20048001	Location	Site 1, Wolverley Road, Kidderminster (Fence)
Sat 12-Mar-16 to Fri 18-Mar-16		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 12-Mar-16	**4785**	51	1.1	4483	93.7	218	4.6	33	0.7	0	0.0
Sun 13-Mar-16	**4490**	113	2.5	4211	93.8	133	3.0	33	0.7	0	0.0
Mon 14-Mar-16	**5151**	34	0.7	4706	91.4	361	7.0	49	1.0	1	0.0
Tue 15-Mar-16	**5007**	33	0.7	4599	91.9	324	6.5	51	1.0	0	0.0
Wed 16-Mar-16	**5261**	38	0.7	4811	91.5	362	6.9	50	1.0	0	0.0
Thu 17-Mar-16	**6560**	41	0.6	5990	91.3	470	7.2	54	0.8	5	0.1
Fri 18-Mar-16	**6792**	23	0.3	6243	91.9	454	6.7	68	1.0	4	0.1
Total Vehicles											
[--]	**38046**	333	0.9	35043	92.2	2322	6.0	338	0.9	10	0.0

19000		LECHLADE								
		MARCH 2016								
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Total Vehicles**	**5 Day Ave.**	**7 Day Ave.**	**Average 85%ile Speed**	**Average Mean Speed**
Site No: 20048002	Site 2, Wolverley Road, Kidderminster (Info Sign) SO 84476 78766	Channel: Eastbound	Sat 12-Mar-16	Fri 18-Mar-16	60	40007	5938	5715	43.9	35.9
		Channel: Westbound	Sat 12-Mar-16	Fri 18-Mar-16		37506	5665	5358	42.3	36.6

19000		LECHLADE		Site No: 20048002 Channel: Eastbound		Location	Site 2, Wolverley Road, Kidderminster (Info Sign)		
TIME PERIOD	Sat 12/03/16	Sun 13/03/16	Mon 14/03/16	Tue 15/03/16	Wed 16/03/16	Thu 17/03/16	Fri 18/03/16	5-Day Av	7-Day Av
Week Begin: 12-Mar-16									
00:00	**34**	27	11	5	9	9	8	8	15
01:00	**9**	14	8	5	3	2	4	4	6
02:00	**10**	7	3	6	4	4	5	4	6
03:00	**5**	5	9	3	4	11	6	7	6
04:00	**8**	7	13	16	9	12	17	13	12
05:00	**23**	14	78	85	86	74	68	78	61
06:00	**65**	31	273	276	268	296	261	275	210
07:00	**124**	65	605	618	631	599	557	602	457
08:00	**199**	111	643	624	686	666	699	664	518
09:00	**342**	216	404	423	351	393	412	397	363
10:00	**354**	360	284	294	306	285	363	306	321
11:00	**363**	463	306	284	288	292	325	299	332
12:00	**490**	498	285	312	284	355	389	325	373
13:00	**461**	459	293	271	280	320	373	307	351
14:00	**475**	497	316	324	361	429	385	363	398
15:00	**439**	607	469	415	491	496	522	479	491
16:00	**521**	649	508	409	482	587	600	517	537
17:00	**440**	541	457	412	439	541	556	481	484
18:00	**280**	297	295	275	299	378	344	318	310
19:00	**182**	161	156	149	172	242	227	189	184
20:00	**100**	82	87	115	96	152	104	111	105
21:00	**67**	56	82	120	86	90	70	90	82
22:00	**56**	33	40	72	62	57	68	60	55
23:00	**53**	18	26	55	26	30	64	40	39
12H,7-19	**4488**	**4763**	**4865**	**4661**	**4898**	**5341**	**5525**	**5058**	**4934**
16H,6-22	**4902**	**5093**	**5463**	**5321**	**5520**	**6121**	**6187**	**5722**	**5515**
18H,6-24	**5011**	**5144**	**5529**	**5448**	**5608**	**6208**	**6319**	**5822**	**5610**
24H,0-24	**5100**	**5218**	**5651**	**5568**	**5723**	**6320**	**6427**	**5938**	**5715**

19000		LECHLADE		Site No: 20048002 Channel: Westbound		Location	Site 2, Wolverley Road, Kidderminster (Info Sign)		
TIME PERIOD	Sat 12/03/16	Sun 13/03/16	Mon 14/03/16	Tue 15/03/16	Wed 16/03/16	Thu 17/03/16	Fri 18/03/16	5-Day Av	7-Day Av
Week Begin: 12-Mar-16									
00:00	**31**	40	7	13	9	18	18	13	19
01:00	**18**	12	5	5	8	8	6	6	9
02:00	**7**	7	2	4	4	1	2	3	4
03:00	**1**	7	2	2	1	2	6	3	3
04:00	**7**	4	4	6	3	3	4	4	4
05:00	**11**	11	15	11	10	11	11	12	11
06:00	**39**	29	56	62	70	73	73	67	57
07:00	**105**	82	248	256	235	253	357	270	219
08:00	**180**	174	406	385	448	455	624	464	382
09:00	**353**	280	208	251	223	262	350	259	275
10:00	**379**	428	248	220	230	265	309	254	297
11:00	**522**	485	292	253	284	389	416	327	377
12:00	**494**	498	256	241	293	366	357	303	358
13:00	**459**	576	250	273	336	355	376	318	375
14:00	**418**	385	317	334	369	491	512	405	404
15:00	**347**	353	431	368	404	557	550	462	430
16:00	**289**	297	607	579	616	757	752	662	557
17:00	**252**	238	640	652	625	834	682	687	560
18:00	**269**	190	403	446	461	575	514	480	408
19:00	**168**	152	220	222	260	273	263	248	223
20:00	**104**	93	140	173	157	171	170	162	144
21:00	**106**	66	98	134	116	133	115	119	110
22:00	**66**	48	90	81	87	97	110	93	83
23:00	**77**	25	27	39	31	59	77	47	48
12H,7-19	**4067**	**3986**	**4306**	**4258**	**4524**	**5559**	**5799**	**4889**	**4643**
16H,6-22	**4484**	**4326**	**4820**	**4849**	**5127**	**6209**	**6420**	**5485**	**5176**
18H,6-24	**4627**	**4399**	**4937**	**4969**	**5245**	**6365**	**6607**	**5625**	**5307**
24H,0-24	**4702**	**4480**	**4972**	**5010**	**5280**	**6408**	**6654**	**5665**	**5358**

19000		LECHLADE		Site No: 20048002 Channel: Combined		Location	Site 2, Wolverley Road, Kidderminster (Info Sign)		
TIME PERIOD	Sat 12/03/16	Sun 13/03/16	Mon 14/03/16	Tue 15/03/16	Wed 16/03/16	Thu 17/03/16	Fri 18/03/16	5-Day Av	7-Day Av
Week Begin: 12-Mar-16									
00:00	**65**	67	18	18	18	27	26	21	34
01:00	**27**	26	13	10	11	10	10	10	15
02:00	**17**	14	5	10	8	5	7	7	10
03:00	**6**	12	11	5	5	13	12	10	9
04:00	**15**	11	17	22	12	15	21	17	16
05:00	**34**	25	93	96	96	85	79	90	72
06:00	**104**	60	329	338	338	369	334	342	267
07:00	**229**	147	853	874	866	852	914	872	676
08:00	**379**	285	1049	1009	1134	1121	1323	1128	900
09:00	**695**	496	612	674	574	655	762	656	638
10:00	**733**	788	532	514	536	550	672	560	618
11:00	**885**	948	598	537	572	681	741	626	709
12:00	**984**	996	541	553	577	721	746	628	731
13:00	**920**	1035	543	544	616	675	749	625	726
14:00	**893**	882	633	658	730	920	897	768	802
15:00	**786**	960	900	783	895	1053	1072	941	921
16:00	**810**	946	1115	988	1098	1344	1352	1179	1094
17:00	**692**	779	1097	1064	1064	1375	1238	1168	1044
18:00	**549**	487	698	721	760	953	858	798	718
19:00	**350**	313	376	371	432	515	490	437	407
20:00	**204**	175	227	288	253	323	274	273	249
21:00	**173**	122	180	254	202	223	185	209	192
22:00	**122**	81	130	153	149	154	178	153	138
23:00	**130**	43	53	94	57	89	141	87	87
12H,7-19	**8555**	**8749**	**9171**	**8919**	**9422**	**10900**	**11324**	**9947**	**9577**
16H,6-22	**9386**	**9419**	**10283**	**10170**	**10647**	**12330**	**12607**	**11207**	**10691**
18H,6-24	**9638**	**9543**	**10466**	**10417**	**10853**	**12573**	**12926**	**11447**	**10917**
24H,0-24	**9802**	**9698**	**10623**	**10578**	**11003**	**12728**	**13081**	**11603**	**11073**

19000	LECHLADE	Site No: 20048002	Location	Site 2, Wolverley Road, Kidderminster (Info Sign)
Sat 12-Mar-16 to Fri 18-Mar-16		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 12-Mar-16	**5100**	113	2.2	4611	90.4	324	6.4	48	0.9	4	0.1
Sun 13-Mar-16	**5218**	218	4.2	4647	89.1	263	5.0	89	1.7	1	0.0
Mon 14-Mar-16	**5651**	56	1.0	5028	89.0	481	8.5	79	1.4	7	0.1
Tue 15-Mar-16	**5568**	57	1.0	4952	88.9	489	8.8	63	1.1	7	0.1
Wed 16-Mar-16	**5723**	56	1.0	5099	89.1	485	8.5	73	1.3	10	0.2
Thu 17-Mar-16	**6320**	50	0.8	5637	89.2	520	8.2	104	1.7	9	0.1
Fri 18-Mar-16	**6427**	27	0.4	5720	89.0	561	8.7	105	1.6	14	0.2
Total Vehicles											
[--]	**40007**	577	1.5	35694	89.2	3123	7.7	561	1.4	52	0.1

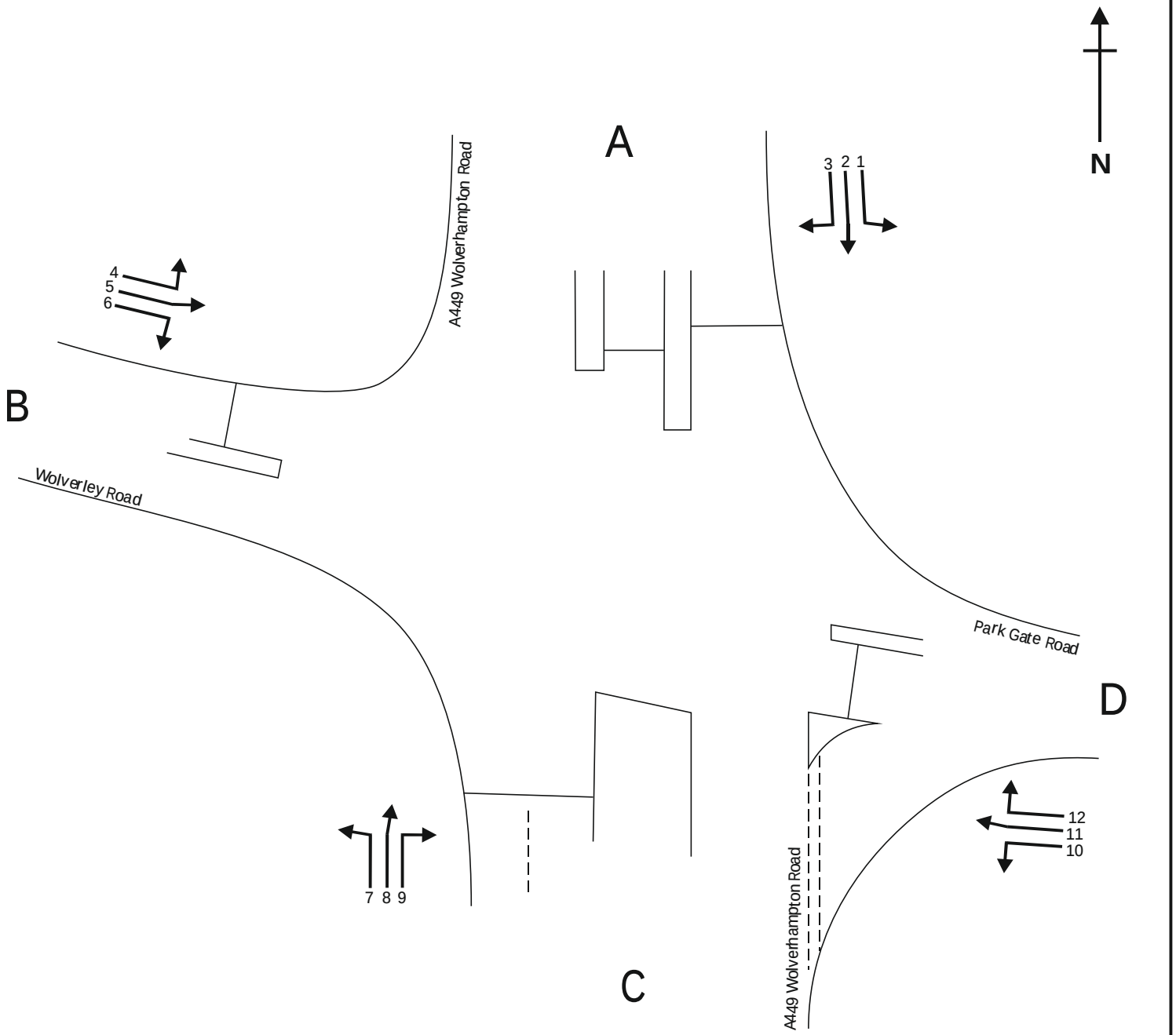
19000	LECHLADE	Site No: 20048002	Location	Site 2, Wolverley Road, Kidderminster (Info Sign)
Sat 12-Mar-16 to Fri 18-Mar-16		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 12-Mar-16	**4702**	92	2.0	4331	92.1	241	5.1	35	0.7	3	0.1
Sun 13-Mar-16	**4480**	212	4.7	4062	90.7	170	3.8	36	0.8	0	0.0
Mon 14-Mar-16	**4972**	52	1.1	4503	90.6	377	7.6	36	0.7	4	0.1
Tue 15-Mar-16	**5010**	34	0.7	4557	91.0	367	7.3	44	0.9	8	0.2
Wed 16-Mar-16	**5280**	40	0.8	4775	90.4	394	7.5	69	1.3	2	0.0
Thu 17-Mar-16	**6408**	43	0.7	5809	90.7	496	7.7	52	0.8	8	0.1
Fri 18-Mar-16	**6654**	27	0.4	6054	91.0	490	7.4	75	1.1	8	0.1
Total Vehicles											
[--]	**37506**	500	1.5	34091	90.9	2535	6.6	347	0.9	33	0.1


Stourbridge (A451)
Kidderminster
A449
Wolverhampton

APPENDIX B

2018 Manual Traffic Survey Results



AXIOM Traffic Limited

For and on behalf of:

THE HURLSTONE PARTNERSHIP LTD

WOLVERLEY

Tuesday 05 June 2018

0700-1900

Drawing N°:	23052 - 01
Site:	1
Location:	A449 Wolverhampton Road / Wolverley Road / Park Gate Road

MANUAL CLASSIFIED COUNTS

JOB REF: 23052

JOB NAME: WOLVERLEY

SITE: 1 DATE: 05/06/2018

LOCATION: A449 WOLVERHAMPTON ROAD / WOLVERLEY ROAD / PARK GATE ROAD DAY: TUESDAY

TIME	MOVEMENT 1 FROM A449 WOLVERHAMPTON ROAD (N) TO PARK GATE ROAD								MOVEMENT 2 FROM A449 WOLVERHAMPTON ROAD (N) TO A449 WOLVERHAMPTON ROAD (S)							
	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT	CAR	LGV	OGV1	OGV2	PSV	MCL	PCL	TOT
07:00	5	1	0	0	0	0	0	6	99	38	3	7	0	2	0	149
07:15	4	0	0	0	0	2	0	6	146	32	7	2	0	3	0	190
07:30	2	1	0	0	0	0	0	3	119	33	9	2	0	1	0	164
07:45	12	0	0	1	0	0	0	13	117	28	5	2	0	1	1	154
H/TOT	23	2	0	1	0	2	0	28	481	131	24	13	0	7	1	657
08:00	6	1	0	0	0	0	0	7	116	23	3	2	0	0	0	144
08:15	7	1	1	0	0	0	0	9	86	31	5	3	0	3	0	128
08:30	2	0	0	0	0	0	0	2	109	28	5	4	0	0	0	146
08:45	4	3	0	0	0	0	0	7	107	21	7	7	0	2	0	144
H/TOT	19	5	1	0	0	0	0	25	418	103	20	16	0	5	0	562
09:00	7	1	0	0	0	0	0	8	103	25	9	1	0	0	0	138
09:15	6	0	0	0	0	0	0	6	105	20	3	4	0	0	0	132
09:30	3	2	0	0	0	0	0	5	76	19	6	3	0	2	0	106
09:45	6	2	0	0	0	0	0	8	92	17	3	7	0	0	0	119
H/TOT	22	5	0	0	0	0	0	27	376	81	21	15	0	2	0	495
10:00	2	0	2	0	0	0	0	4	67	14	6	4	0	0	0	91
10:15	0	0	0	0	0	0	0	0	75	14	5	5	1	0	0	100
10:30	2	0	0	0	0	0	0	2	70	19	7	3	0	0	0	99
10:45	1	2	0	0	0	0	0	3	58	14	4	3	0	1	0	80
H/TOT	5	2	2	0	0	0	0	9	270	61	22	15	1	1	0	370
11:00	2	0	0	0	0	0	0	2	73	15	1	2	0	1	0	92
11:15	5	2	0	0	0	0	0	7	75	13	7	5	0	0	0	100
11:30	3	1	0	0	0	0	0	4	65	16	3	4	0	1	0	89
11:45	2	0	0	0	0	0	0	2	84	19	2	1	1	1	1	109
H/TOT	12	3	0	0	0	0	0	15	297	63	13	12	1	3	1	390
12:00	2	1	1	0	0	0	0	4	79	14	9	2	0	5	1	110
12:15	3	1	1	0	0	0	0	5	65	11	5	2	0	1	0	84
12:30	6	0	0	0	0	0	0	6	79	15	3	5	0	1	0	103
12:45	1	0	0	0	0	0	0	1	60	10	5	5	0	0	0	80
H/TOT	12	2	2	0	0	0	0	16	283	50	22	14	0	7	1	377

APPENDIX C

Letter Report & Correspondence with Highway Authority

The Hurlstone Partnership

Seven Oaks Farm, Crew Green, Shrewsbury SY5 9AS

Tel: 01743 884849 e-mail: office@hurlstones.com Fax: 01743 884947

Mr. R. Smithyman
Kedd Development Limited
15 Bridge Road
Wellington
Telford
TF1 1EB

Our Ref: JPH/jph/151002

13 August 2018

Dear Robin

PROPOSED MINERAL SITE AT LEA FARM, WOLVERLEY, WORCESTERSHIRE

Further to you recent instructions, we are pleased to confirm the findings of the speed and traffic surveys undertaken on the B4189 to the west of the A449 signals, in order to establish what level of visibility would be appropriate at a new site access and whether an access along the site frontage is feasible.

Following a brief site visit in 2015 and a subsequent visit in January 2016, it appeared that an access with visibility splays extending 160m in either direction may be achievable towards the east of the site.

Subsequent detailed topographical survey work was undertaken, and following further investigations in terms of the potential mineral reserves within the site, it was decided to proceed with the review of the access and we were instructed to arrange for traffic/speed surveys to be undertaken.

Two Automatic Traffic Counters (ATCs) were installed on the B4189 to record volumes and speeds continuously over a seven-day period between Saturday 12th and Friday 18th March 2016 inclusive, in order to avoid the Easter school holidays.

ATC Site 1 was fixed to a tree towards the western end of the visibility splay from the potential eastern access position, as shown in the photograph overleaf (noting the access position is close to the electricity pole in the distance within the photograph, which is visible above the vehicles travelling away from the photographer). It also sits towards the eastern end of the eastern visibility splay at the potential western access position, which was considered subsequently.

Photo 1 – ATC Site 1

The second ATC, Site 2, was the Advanced Direction Sign to the west of the A449 traffic lights, as shown in the photograph below:

Photo 2 – ATC Site 2

In terms of the access design, the speeds of the approaching traffic are the key consideration; those being the eastbound speed at Site 1 and the westbound speed at Site 2. From a total sample of 40,272 vehicles over the seven day survey period, the eastbound 85th percentile speed was found to be 45.0 mph. The comparable westbound 85th percentile speed at Site 2 was found to be 42.3 mph from a total sample of 37,506 vehicles.

By way of comparison, the westbound speed at Site 1 was 43.6 mph, whilst the eastbound speed at Site 2 was 43.9 mph from samples of 38,046 and 40,007 vehicles respectively.

The design speeds upon which visibility splays are based are the 85th percentile wet weather speeds. In this case, the weather was fine and dry during the survey period. In order to establish the appropriate wet weather speeds it is appropriate to apply a correction of – 4 kph (-2.5 mph) to the observed speeds, as confirmed by TA22/81 "*Vehicle Speed Measurement on All Purpose Roads".*

Applying the appropriate correction gives design speeds of 42.5 mph (68.4kph) eastbound and 39.8 mph (64.1 kph westbound.

In terms of visibility splays, there are two primary sets of guidance; Design Manual for Roads and Bridges (DMRB), which is the standard applied on the Trunk Road Network; and Manual for Streets 1 and 2 (MfS1 and 2).

Paragraph 2.17 of TD41/95 "*Vehicular Access to All Purpose Trunk Roads*", which forms part of DMRB advises: "*Visibility splays shall be provided to enable emerging drivers using the direct access to have adequate visibility in each direction to see oncoming traffic in sufficient time to make their manoeuvre safely without influencing the major road traffic speed."*

It is therefore apparent that the Y distance splay lengths in DMRB provide for a vehicle in an access or minor arm of a junction to turn onto the priority route and accelerate from rest up to the design speed without the oncoming driver travelling along the priority route reacting or varying their speed. That is to say the driver already travelling along the major road at a given speed does not alter their speed by lifting off the accelerator or braking, as to do so would influence their speed. The identified splay therefore allows sufficient distance for the initial comparatively high closing speed between the vehicles together with the reducing closing speed as the emerging driver accelerates, without influencing the oncoming driver's speed or impeding the through traffic.

This principle is considered important on trunk roads, the most important national strategic routes below Motorways, where there is a desire to maintain the speed of long-distance through-traffic. On non trunk roads or lower order routes with less strategic importance, such as the A449, this consideration is less critical.

In many cases, the natural reaction of a driver experiencing an emerging vehicle is to lift off the accelerator, which instantly nullifies the basis of the DMRB Y distance, as the oncoming speed has, at that point, been influenced.

This is considered acceptable, even on trunk roads, as it is not a DMRB requirement to provide a right turning lane at every priority junction or access on the trunk road network.

The basis of the DMRB Y distance calculation is the assumption of a 2 second perception/reaction time and a deceleration rate of 0.25g. By way of comparison, when designing a right turn lane at a ghost island junction on a Trunk Road, TD42/95 "*Geometric Design of Major/Minor Priority Junctions*" advises at paragraph 7.41: *The deceleration length can be seen on Figs 7/4, 7/5 and 7/6. The deceleration lengths are based on the assumption that vehicles will slow by one design speed step on the trunk road before entering the length. The deceleration rate on the level is assumed to be 0.375g. There is no reaction time as this is a planned manoeuvre."*

By taking the relevant design speeds from DMRB and calculating the distance travelled over 2 seconds, then adding it to the deceleration lengths provided for designing a right turn lane within which it is anticipated vehicles will stop safely, then comparing that to the Y distances specified at junctions, it is demonstrably apparent that the Y distances provide for

more than safe stopping. This additional distance is provided for the reasons stated in paragraph 2.17 of TD41/95, as referenced above, i.e. to maintain a continuous traffic speed.

By contrast, MfS considers the ability of a vehicle to slow down and stop safely. Paragraph 10.1.4 of MfS2 clearly advises that the visibility splay requirements are based on the requirement to stop: "*Stopping sight distance (SSD) is the distance drivers need to be able to see ahead and they can stop within from a given speed. It is calculated from the speed of the vehicle, the time required for a driver to identify a hazard and then begin to brake (the perception-reaction time), and the vehicle's rate of deceleration. For new streets, the design speed for the location under consideration is set by the designer. For existing streets, the 85th percentile wet-weather speed is used*"

It also reiterates the principle of continuous traffic speed on the Trunk Road network at paragraph 9.4.7: *"TD 42/95 recommends that consideration should be given to providing a right turning lane at priority junctions where the side road flow exceeds 500 vehicles per day, but this advice relates to trunk roads where there is an emphasis on providing an unimpeded route for through traffic. It is a relatively low flow, and junctions without right turn lanes will often be able to cater for higher levels of turning traffic without resulting in significant congestion."* (our emphasis).

In terms of the application of MfS principles, paragraph1.3.2 of MfS2 advises "...most MfS advice can be applied to a highway regardless of speed limit. It is therefore recommended that as a starting point for any scheme affecting non-trunk roads, designers should start with MfS" –emphasis as per paragraph 1.3.2 of MfS2.

As the B4189 is not a trunk road, it is therefore apparent that national guidance confirms MfS should be the starting point, not DMRB.

Paragraph 1.3.3 of MfS2 continues *"Where designers do refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban non trunk roads, it is recommended that they bear in mind the key principles of MfS, and apply DMRB in a way that reflects the local context. It is further recommended that DMRB or other standards and guidance is only used where the guidance contained in MfS is not sufficient or where particular evidence leads a designer to conclude that MfS is not applicable."*

At paragraph 1.3.5. MfS2 advises "*Much of the research behind MfS1 for stopping sight distance (SSD) is limited to locations with traffic speeds of less than 40 mph and there is some concern that driver behaviour may change above this level as the character of the highway changes. However, 40 mph speed limits in built-up areas cover a wide range of contexts, from simple urban streets with on-street parking and direct frontage access to 2/3 lane dual carriageways. Furthermore, local context varies not only from street to street but also along the length of a street".*

Paragraph 1.3.6 continues "*Where a single carriageway street with on-street parking and direct frontage access is subject to a 40mph speed limit, its place characteristics are more of a residential street or high street, with higher traffic flows, and may result in actual speeds below the limit. It is only where actual speeds are above 40mph for significant periods of the day that DMRB parameters for SSD are recommended. Where speeds are lower, MfS parameters are recommended*."

At paragraph 1.3.7 MfS2 confirms: *"Similarly, in rural areas many parts of the highway network are subject to the national speed limit but have traffic speeds significantly below 60 mph. Again, in these situations where speeds are lower than 40 mph, MfS SSD parameters are recommended."*

By considering this guidance relative to the observed design speeds, it is apparent that the westbound speed from Site 2 is less than 40 mph, whereas the eastbound speed at Site 1 is above 40 mph. As a result, this could result in an inconsistent approach being taken to the calculation of visibility splays in each direction from the same access, which is illogical, as it is unlikely that driver behaviour would change to a significant extent within the relatively short section of road on either side of the access. It is also apparent that the eastbound speeds between ATC sites 1 and 2 reduce by 1.1 mph over the intervening distance, which demonstrates speeds are not constant in any event, thereby rendering the DMRB Y distance parameters meaningless in terms of highway safety.

Table 10.1 of MfS2 recommends an increase in the perception-reaction time from 1.5 seconds (the MfS parameter) to 2 seconds (DMRB parameter) where speeds exceed 60 kph (37.3 mph), which is inconsistent with paragraph 1.3.7 of MfS2, which identified a threshold of 40 mph (64.7 kph). However, Table 10.1 recommends an absolute minimum deceleration rate of 0.375g above 60 kph, as per DMRB, which is that used when designing for vehicles to stop safely, as explained above. This rate is consistent with that adopted in MfS2 when considering the ability of large vehicles, such as HGV and buses, to stop safely. It is therefore apparent that the difference between DMRB and MfS2 when considering the ability of large vehicles to actually stop is the 0.5 second variation in the perception-reaction time.

Taking the slower 2s time into account, it is calculated that the stopping distance for westbound traffic from the design speed of 39.8 mph observed at Site 2 is 78.609m. The comparable distance for the eastbound traffic from a speed of 42.5 mph observed at Site 1 is 87.058m.

If applying the DMRB Y distance parameters for continuous speeds, the distance for westbound traffic is calculated to be 100.121m, whereas that for the eastbound traffic is 111.589m.

Even if applying the longer DMRB Y distances calculated above, it is apparent that the visibility splays are readily achievable on site, based upon the survey information we have been provided with, and the photographs we took whilst on site, assuming the access centreline is approximately 20.5m to the east of the electricity pole within the site.

Some Authorities take a threshold approach when considering DMRB parameters. Should such an approach be taken in preference to the actual observed speed, the threshold above the actual speeds is 70 kph (43.5 mph), which corresponds with a visibility splay length of 120m. Again, based upon the information we hold, it appears that these visibility splays are also achievable.

In terms of the form of access, we consider a simple priority access arrangement would be acceptable in this case, as the flows along the B4189 are below the threshold at which a right turn lane is required based on DMRB standards for a trunk road (13,000 vehicles per day averaged over 365 days per year). Similarly, the traffic flows on the access fall below the threshold of 300 vehicles per day (averaged over 365 days per year) based the estimated export of up to 300,000 tonnes of sand and gravel per year, the import of up to 60,000 m^3 of inert fill per year, which at 1.7 tonnes per m^3 equates to 102,000 tonnes. We understand that it is envisaged at least 25% of the inert fill material would be transported on a back-haul basis.

Assuming 275 working days per annum with a 20 tonne payload for sand and gravel and 17 tonne payload for inert fill imports, and allowing for the back-hauling of fill at a 25% ratio, it is calculated that on an average working day a total of 72 loads / 146 HGV movements would occur, which when corrected to an average over 365 days (an Annual Average Daily Traffic or AADT figure) equates to 55 loads / 110 HGV movements per day..

On a full working day, assuming 10 working hours, the daily flows equate to approximately 8 loads / 16 movements per hour; the majority of which are expected to travel to/from the east of the site access to connect to the A449 at the signal-controlled junction.

It is understood that based on the identified reserves within the site, the quarry would be operational for approximately 10 years.

As previously intimated, two potential access locations have been identified. The first, the eastern access position, is located closer to the A449. The identified access location, together with a preliminary plan layout illustrating the lateral visibility splays for drivers emerging from the access and the relevant forward visibility splays towards and from a vehicle turning right into the site has been prepared by Greenfield Associates as Drawing No. WY TA 17-1 Proposed Site Entrance.

Following further consideration of the proposed development, a second potential access location was identified further to the west, which is understood to be the preferred location. This position is located approximately 116m to the east of the

40 mph / national speed limit threshold when leaving Wolverley towards the A449. The identified access location, together with a preliminary plan layout illustrating the lateral visibility splays for drivers emerging from the access and the relevant forward visibility splays towards and from a vehicle turning right into the site has been prepared by Greenfield Associates as Drawing No. WY TA 18-1 Proposed Site Entrance.

The visibility splays at this location are also identified to extend 120m, based upon the westbound speeds observed at ATC Site 2 and the proximity of the 40 mph speed limit to the west of the proposed access, into which the visibility splay extends. The visibility splays have also been checked in terms of the vertical profile of the carriageway from a 1.05m drivers' eye height to a 0.6m object height and were found to be deliverable.

In paragraph 89 of the Scoping Opinion from Worcestershire County Council it advises the scope of the required Transport Assessment should be agreed with the Highway Authority well in advance of the application to ensure a suitable evidence base is provided to justify the proposal.

As is apparent from the foregoing, the ATC surveys provide baseline data for the B4189. In addition, a 12 hour (07:00 – 19:00) turning count was undertaken at the B4189 / A449 signals on Tuesday 05 June 2018, which provides further traffic data for use in the assessment.

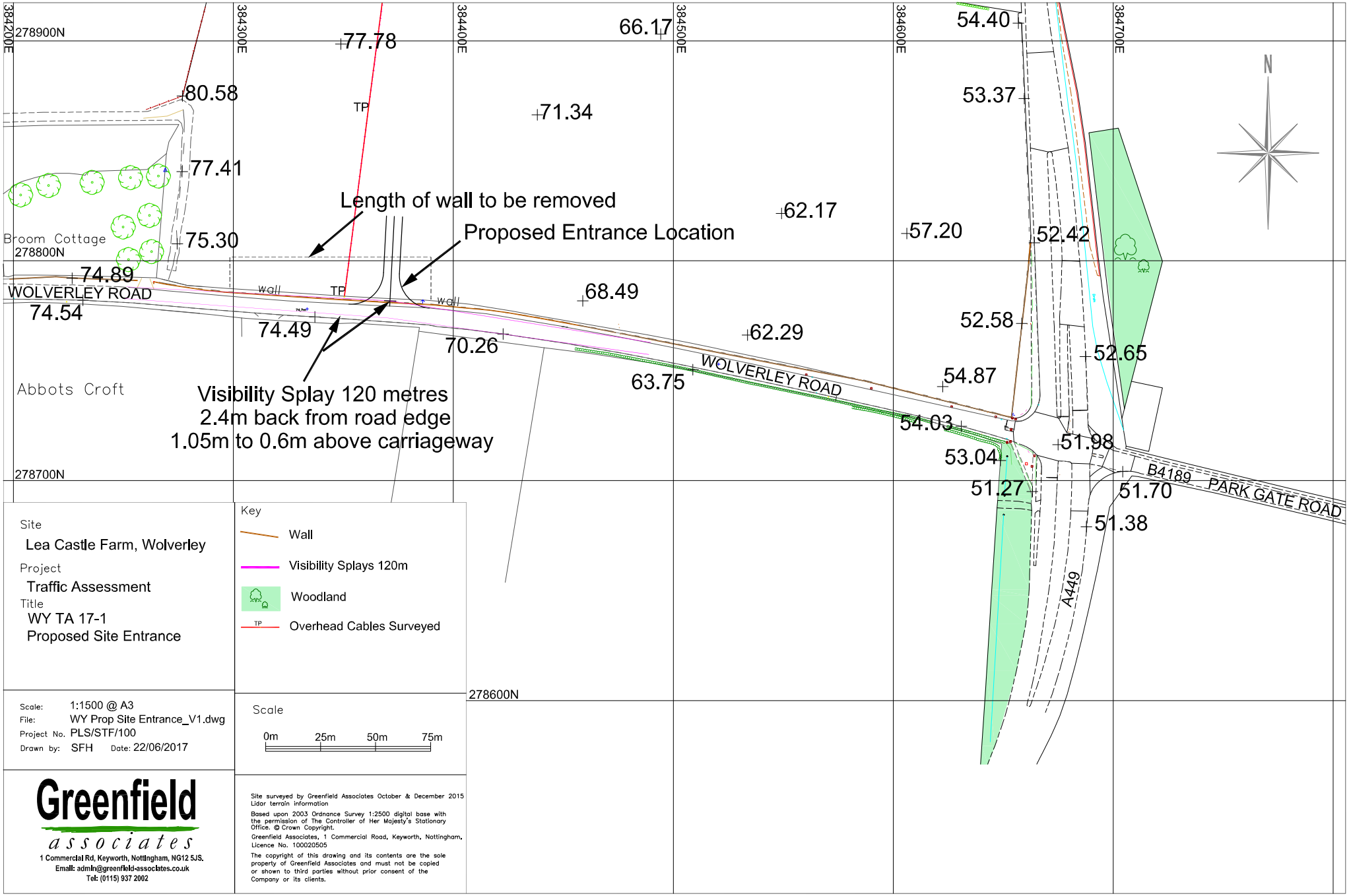
It is considered that analysis of the impact of the proposed development on the B4189 and the A449 via this data and recent collision records to be obtained from the Council should be sufficient.

As a result of the requirement to agree parameters and the scope of the TA with the Highway Authority, we recommend this letter and attachments are provided to the Council for consideration and hopefully agreement.

We trust the foregoing provides sufficient information for your current requirements. However, should you have any queries or require any further assistance, please do not hesitate to contact me on 01743 884849 or 07875 399325.

Yours sincerely

Jeremy Hurlstone
for THE HURLSTONE PARTNERSHIP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80.58
77.78
66.17
54.40
53.37
71.34
77.41
Length of wall to be removed
Proposed Entrance Location
62.17
57.20
52.42
Broom Cottage
75.30
74.89
WOLVERLEY ROAD
74.54
wall
TP
68.49
74.49
70.26
62.29
52.58
52.65
54.87
63.75
WOLVERLEY ROAD
54.03
51.98
Abbots Croft
Visibility Splay 120 metres
2.4m back from road edge
1.05m to 0.6m above carriageway
53.04
51.27
B4189
PARK GATE ROAD
51.70
51.38
A449
N
Site
Lea Castle Farm, Wolverley
Project
Traffic Assessment
Title
WY TA 17-1
Proposed Site Entrance
Key
Wall
Visibility Splays 120m
Woodland
Overhead Cables Surveyed
Scale: 1:1500 @ A3
File: WY Prop Site Entrance_V1.dwg
Project No. PLS/STF/100
Drawn by: SFH Date: 22/06/2017
Scale
0m 25m 50m 75m
Greenfield associates
1 Commercial Rd, Keyworth, Nottingham, NG12 5JS.
Email: admin@greenfield-associates.co.uk
Tel: (0115) 937 2002
Site surveyed by Greenfield Associates October & December 2015
Lidar terrain information
Based upon 2003 Ordnance Survey 1:2500 digital base with the permission of The Controller of Her Majesty's Stationary Office. © Crown Copyright.
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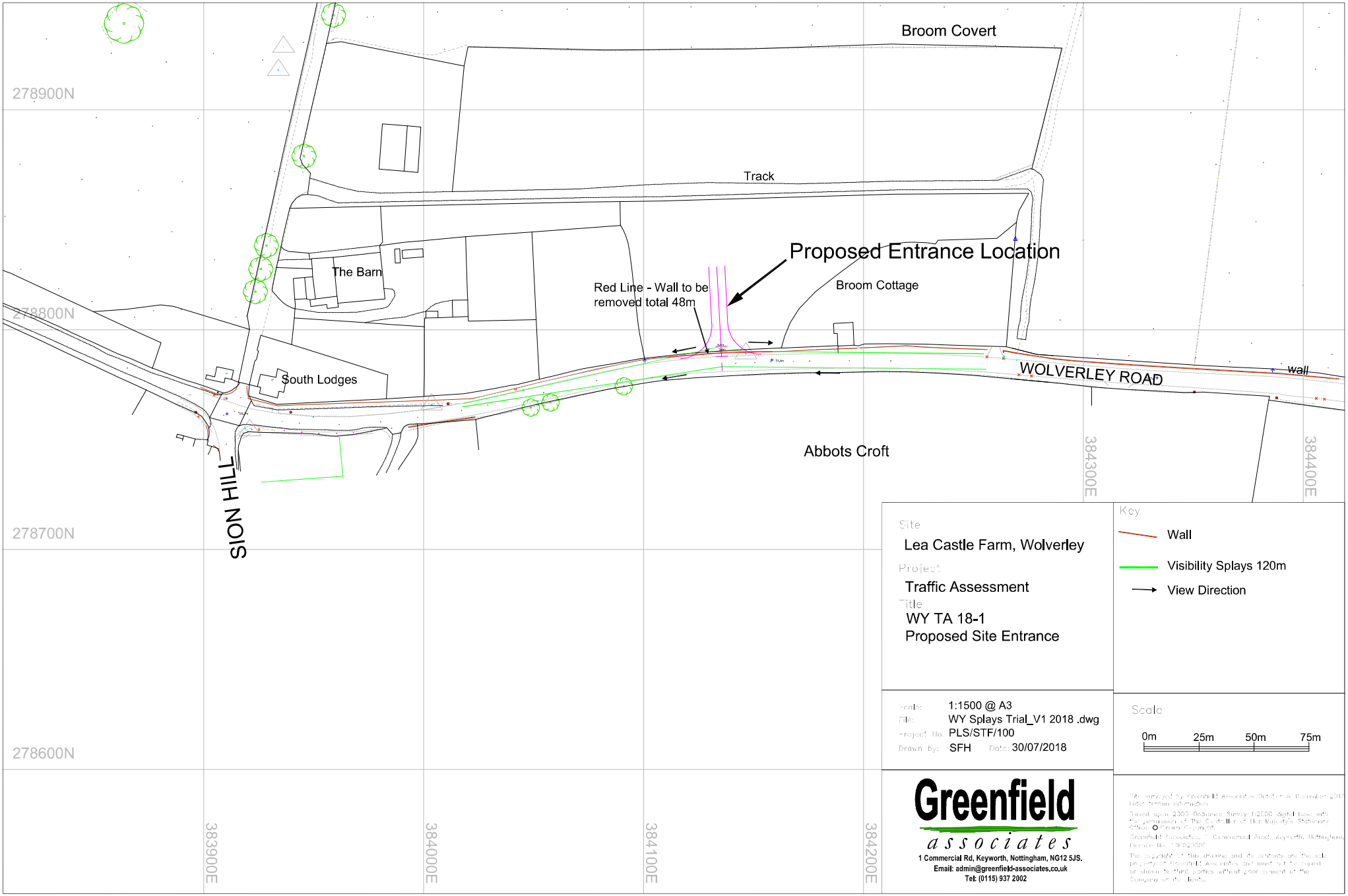

Site
Lea Castle Farm, Wolverley

Project
Traffic Assessment

Title
WY TA 18-1
Proposed Site Entrance

Key
- Wall
- Visibility Splays 120m
- View Direction

Scale: 1:1500 @ A3
File: WY Splays Trial_V1 2018 .dwg
Project No: PLS/STF/100
Drawn by: SFH Date: 30/07/2018

Scale
0m 25m 50m 75m

Greenfield associates
1 Commercial Rd, Keyworth, Nottingham, NG12 5JS.
Email: admin@greenfield-associates.co.uk
Tel: (0115) 937 2002

Jeremy Hurlstone

From: Robin Smithyman <robin@keddltd.co.uk>
Sent: 09 January 2019 09:07
To: Jeremy Hurlstone
Subject: FW: Lea Castle Farm, Wolverley

Hi Jeremy,

I appreciate we are moving into January but I wish you a good new year.

Please see comments at last received from Stephen Hawley.

Grateful for your thoughts and a timeline to produce.

Regards

Robin

From: "Hawley, Stephen" <SHawley@worcestershire.gov.uk>
Date: Wednesday, 9 January 2019 at 09:02
To: Robin Smithyman <robin@keddltd.co.uk>
Subject: RE: Lea Castle Farm, Wolverley

Robin,

I have carefully considered the below comments. Recognising that this is a TA scoping exercise rather than a full TA then I think as much information has been provided as can reasonable be done so for the moment. Based on the additional information I would advise the following.

The TA must take a robust approach to trip generation, therefore no back loading assumption should be made in the assessment.
The access design must use actual recorded speeds which are not adjusted. I cannot be conclusively demonstrated that conditions remained dry for the whole length of the survey period. I would welcome the provision of the traffic survey results not just the summary as part of a future TA appendix. I accept the use of MfS2, but gradient should also be included within that assessment. Desirable Minimum calculations should be provided.
The TA should also include a combined stage 1/2 safety audit.
There is a preference for access design 17-1 as this will encourage movement to the A449 at the signal controlled junction rather than taking the shorter route via Sion Hill which 18-1 could encourage.
I note the reference to signing not right turn on exit, I struggle to see how this can be enforced. I would ask in the junction design could be such that a central splitter island be provided and its alignment be such to physically prevent that movement.

The TA scope is acceptable, I will be particularly interested in how the traffic distribution has been derived. As a final matter there is a footway crossing the frontage, it will still be a key consideration to ensure that there is no detriment to pedestrians crossing the site access.

The County Council has details of signal controlled junction models and controlled specifications which will assist your analysis, this can be obtain from Rob Hill rhill2@worcestershire.gov.uk. Accident data can also be obtained from Ken Dicken kdicken@worcestershire.gov.uk

I would welcome an advanced copy of the draft TA.

I hope this assists

Steve

Stephen Hawley, BSc (Hons) IEng FIHE MCIHT MTPS Certmgmt(Open)
Development Control Engineer
Development Management
Transport Planning Unit
Worcestershire County Council
County Hall, Spetchley Road, Worcester, WR5 2NP
Tel: 01905 843466
Email: shawley@worcestershire.gov.uk

As from 14th June 2018 the Highways Design Guide has been replaced with the Streetscape Design Guide, this document was updated on 31st July 2018. A copy of this document can be found here.

worcestershire county council

From: Robin Smithyman [mailto:robin@keddltd.co.uk]
Sent: 22 October 2018 16:18
To: Hawley, Stephen
Subject: Re: Lea Castle Farm, Wolverley

Dear Steve,

Thank you for your initial comments of the 26th September email and our subsequent telephone conversation. Asa discussed the comments were circulated to the highways consultant involved in the design and assessment of the proposed highways Site development (Jeremy Hurlstone), along with the (NRS) the operator who forwarded them onto their highway's consultant.

The specific details I have received back from both consultants relating to your comments/concerns and the assumptions originally made being:

In terms of the traffic flows, if the back hauling assumption is ignored, the average number of daily loads increased to 77 / 154 movements over 275 days. Taking account of up to 11 staff working on site resulting in another 22 movements per day over 275 days. 176 movements over 275 days equates to 133 movements AADT (averaged over 365 days) so we are well below the 300-vehicle threshold for a right turn lane under TD 42/95. (The original backhaul assumption was made in discussions with the operator as this is what occurs at their existing sites / markets – if this occurs vehicle movements would be further reduced.)

The 7-day average daily traffic flow on the priority route was observed to be an average of 11131 from the 2 ATC sites. Assuming this represents the daily AADT flow for the route and taking into account the 10-year projected life of the development, assuming a start date of 2020 when allowing for planning, establishment etc, the predicted TEMPro growth for the average day over the period is 1.0822, which gives a 2030 AADT flow of 12046. As a result, the proposals would not breach either threshold in terms of the priority route or minor arm flow for provision of a right turn lane set out in the design standards upon which the Council relies. As a result, based on current design standards, even when applied to a trunk road, which sits at the top of the network hierarchy below a Motorway, a ghost island right turning lane would not be required

When considering the safety implications, both consultants conclude that the preferred proposal scheme as submitted is robust and takes account of all safety requirements. However, in further discussions with the operator in respect of markets for the mineral, it has been confirmed there would actually be no requirement for HGVs to

turn right out of the Site. The vehicle route to market would be left out of the site onto Wolverley Road then heading east to the A449 Wolverhampton Road, where it would disperse through the County / West Midlands. This left turn would also provide direct access to the new residential area at the former LEA Castel Hospital Site. No right turn for HGV'S will therefore be proposed within the application.

In discussions with officers and Councillors of Worcestershire County Council and WFDC, we are aware of the emerging local plan housing growth and the consultation documents which could result in placing additional housing developments near the to the Lea Castle Site. We note that the quarry would result in a temporary increase in vehicle movements in conjunction with the phased / progressive construction and permanent residential vehicle use in the area. The cumulative impacts of relevant committed developments would be taken into account within a Transport Statement accompanying a planning application.

It is confirmed that a highway condition survey would take place before the site is established and periodically through the quarry's life and upon its restoration. Any damaged that is attributed to the proposal would be rectified by the operator at their expense. On a more local level a site management plan which deals with highway sweeping, removal of any detritus and how you plan to manage public complaints would be submitted as part of a planning application.

We note all your comments in respect of PROW and will address accordingly. As part of the scheme application it is proposed to establish approximately 2km of new public access involving footpaths and bridleways /cycleways which will both help to connect north /south and east /west public access network arrangements. New PROW to also offer alternative routes set away from the existing road network.

I would be grateful if you could confirm the above is acceptable to proceed to provide the assessment basis for the application / EIA. As requested the scope of the proposed TA is attached to this email.

If you have any queries, please do not hesitate to contact me.

Regards

Robin

From: "Hawley, Stephen" <SHawley@worcestershire.gov.uk>
Date: Monday, 15 October 2018 at 16:01
To: Robin Smithyman <robin@keddltd.co.uk>
Subject: RE: Lea Castle Farm, Wolverley

Robin,

Please find attached the missing attachment.

Steve

From: Hawley, Stephen
Sent: 26 September 2018 09:57
To: 'Robin Smithyman'
Subject: RE: Lea Castle Farm, Wolverley

Robin,

I am sorry for the delay in responding. I have reviewed the technical note and do not agree with the conclusion. The technical note relies on several assumptions and does not consider the safety factor of the arrangement. Given the high main road traffic flows, the size of the vehicles and the frequency of their movements I am of the opinion that a ghost lane is the appropriate junction form. I note that there is an assumption of back loading of inert fill, this cannot be guaranteed so for a robust assessment there should be treated as a separate movement, there is no assumption for staff movements within the paper, finally WFDC are currently looking at their

local plan housing growth and the consultation document places several large housing developments near this site will be increase background flow in the lifetime of the quarry. I am aware that in looking to control the implications of this development is it highly likely that there will be a restriction on the hours of operate to ensure that there is not disruption to key commuter hours which will compress the working day and increase the movements per hour.

I therefore would expect the access detail to be a ghost lane in accordance with 42/95, splay lines should be based on 85th percentile speeds, but given the surveys were over a week and weather conditions will have varied I will not accept a wet weather reduction to those speeds. I would therefore be grateful to receive a revised access detail for consideration based on the above and a tracking drawing.

An access reinstatement detail should also be forthcoming with any application.

Can you please clarify the number of staff that will be on site. We need to consider if a travel plan is required for those individuals.

I will also require a highway condition survey to take place before the site is established, periodically through the quarry's life and upon its restoration. Any damaged that is attributed to this proposal will need to be rectified at your expense. On a more local level we will want to see a site management plan which deals with highway sweeping, removal of any detritus and how you plan to manage public complaints.

The public rights of way officer also raises the following:

The proposal appears to affect or is directly adjacent to the following public rights of way as recorded on the Definitive Map: Wolverley and Cookley footpaths WC-622, WC-623 and WC-624 and Bridleways WC-625 and WC-626. I have enclosed an illustrative plan for your information.

It appears from the plans submitted that there are some minor discrepancies between the plans and the definitive lines of the footpaths as shown on the attached illustrative plan. There appears to be a missing link section between footpaths WC-624 and WC-623 and the line of footpath WC-624 appears to vary from the definitive line. If the applicant would like to obtain a full public rights of way search, they should contact this department.

It is also appears that footpath WC-624 will be obstructed by the construction of a bund at either end. It is not clear from the information provided how this will the footpath to be accommodated once constructed and further details would need to be included in any application.

As vehicular access to / within the site will be in part via the public rights of way. It should be noted that under section 34 of the Road Traffic Act 1988 any person who, without lawful authority drives a motor vehicle on a footpath / bridleway / restricted byway commits an offence. The applicant should make themselves satisfied that they, and anyone else who may use the public rights of way for private vehicular access in connection with the development, has a right to do so. They may wish to seek legal advice on the matter. The County Council is responsible for maintaining the rights of way to a standard suitable for their usual public use as footpaths – we are not responsible for maintaining a surface to be suitable for private vehicular use.

We would therefore recommend that any final application should include:
• Identification of all public rights of way on their definitive lines and how these will be protected and enhanced during the works and on restoration.
• details of any diversion temporary or permanent required.
• detail of how footpath WC-624 will be retained following the installation of screening bunds
• details of how public safety along the any public rights of way retained on their line during the quarrying works will be ensured.

The applicant should also be aware of the following obligations toward the public rights of way:

No disturbance of, or change to, the surface of the paths or part thereof should be carried out without our written consent.

No diminution in the width of the rights of way available for use by the public.

Buildings materials must not be stored on the rights of way.

Vehicle movements and parking to be arranged so as not to unreasonably interfere with the public's use of the rights of way.

No additional barriers are placed across the rights of way. No stile, gate, fence or other structure should be created on, or across, a public right of way without written consent of the Highway Authority.

The safety of the public using the rights of way is to be ensured at all times.

If the development cannot be carried out without temporarily closing the public rights of way for the safety of the public during construction, application should be made at least 6 weeks in advance to the Mapping Team of the Countryside Service at Worcestershire County Council.

For future reference, the applicant should note that all public rights of way crossing or adjoining the proposed development site must be marked on the plan to be submitted with the planning application. While the information supplied by an applicant should make clear how the potential development will impinge on any rights of way.

The applicant should note Policy RST3 of the Worcestershire County Structure Plan which aims to ensure that development does not reduce the utility, convenience, recreational value, attractiveness and historic significance of public rights of way.

The applicant should also be aware of the Department of Environment Circular 1/09 (part 7) which explains that the effect of development on a public right of way is a material consideration in the determination of applications for planning permission and that the grant of planning consent does not entitle developers to obstruct a public right of way.

The Definitive Map is a minimum record of public rights of way and does not preclude the possibility that unrecorded public rights may exist, nor that higher rights may exist than those shown.

I would welcome a TA scope to explain the form of the assessment including the junctions that will be considered, and an updated access proposal.

I am happy to provide additional comments on the updated proposal.

Steve

Stephen Hawley, BSc (Hons) IEng FIHE MCIHT Certmgmt(Open)
Development Control Engineer
Development Management
Transport Planning Unit
Worcestershire County Council
County Hall, Spetchley Road, Worcester, WR5 2NP
Tel: 01905 843466
Email: shawley@worcestershire.gov.uk

As from 14th June 2018 the Highways Design Guide has been replaced with the Streetscape Design Guide, this document was updated on 31st July 2018. A copy of the document can be found here.

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Disclaimer
The advice given by council officers in response to pre-application enquiries does not bind the council's decision making or constitute a formal representation by the council as The Highway Authority. Any views or opinions expressed are given in good faith and to the best of our ability without prejudice to the formal consideration of any future planning application.

However the written advice provided will be taken into consideration by the council in the representation to a future related planning application, subject to the proviso that circumstances and information may change or come to light that may alter that position. In this regard the weight given to pre-application advice will decline over time.

From: Robin Smithyman [mailto:robin@keddltd.co.uk]
Sent: 13 August 2018 15:14
To: Hawley, Stephen
Cc: Robin Smithyman
Subject: FW: Lea Castle Farm, Wolverley

Dear Stephen,

As per our telephone discussion please find attached a copy of the Jeremy Hurlstone Partnership's (Highway Consultants) initial findings in respect of the proposed Site access onto Wolverley Road. Grateful if you could consider and provide any further considerations as to what should be addressed as part of the scope of the TA for the proposed planning application / EIA.

Regards

Robin

Robin Smithyman
Director
15 Bridge Road, Wellington, Telford, Shropshire. TF1 1EB
robin@keddltd.co.uk 07496 154504

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APPENDIX D

2019 Automatic Traffic Counts Results Summaries

23871		WOLVERLEY								
		JANUARY 2019								
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Total Vehicles**	**5 Day Ave.**	**7 Day Ave.**	**Average 85%ile Speed**	**Average Mean Speed**
Site No: 23871001	Site 1, Wolverley Road, Wolverley (40mph Sign) SO 83996 78767	Channel: Eastbound	Sat 19-Jan-19	Fri 25-Jan-19	40	37858	5820	5408	40.4	35.7
		Channel: Westbound	Sat 19-Jan-19	Fri 25-Jan-19		43746	6787	6249	41.8	37.5

23871		WOLVERLEY		Site No: 23871001 Channel: Eastbound		Location	Site 1, Wolverley Road, Wolverley (40mph Sign)		
TIME PERIOD	Sat 19/01/19	Sun 20/01/19	Mon 21/01/19	Tue 22/01/19	Wed 23/01/19	Thu 24/01/19	Fri 25/01/19	5-Day Av	7-Day Av
Week Begin: 19-Jan-19									
00:00	**18**	21	6	7	7	7	7	7	10
01:00	**5**	11	2	0	4	2	2	2	4
02:00	**8**	9	5	1	2	3	1	2	4
03:00	**6**	7	5	5	5	9	6	6	6
04:00	**9**	5	28	25	25	31	25	27	21
05:00	**38**	13	106	101	94	91	88	96	76
06:00	**62**	25	301	305	302	307	282	299	226
07:00	**104**	49	573	607	620	614	579	599	449
08:00	**206**	84	600	693	702	649	671	663	515
09:00	**314**	175	390	404	371	356	387	382	342
10:00	**405**	352	294	296	305	297	305	299	322
11:00	**472**	374	270	277	295	321	375	308	341
12:00	**467**	540	306	280	303	323	355	313	368
13:00	**441**	416	309	351	309	298	380	329	358
14:00	**414**	433	330	343	336	364	416	358	377
15:00	**422**	475	456	446	457	481	548	478	469
16:00	**376**	394	449	466	518	493	553	496	464
17:00	**325**	256	435	454	487	475	443	459	411
18:00	**185**	163	247	280	281	285	282	275	246
19:00	**140**	94	173	174	158	168	169	168	154
20:00	**99**	92	87	102	91	117	101	100	98
21:00	**63**	50	69	65	86	93	72	77	71
22:00	**61**	31	47	39	51	58	71	53	51
23:00	**33**	16	24	28	14	16	40	24	24
12H,7-19	**4131**	**3711**	**4659**	**4897**	**4984**	**4956**	**5294**	**4958**	**4662**
16H,6-22	**4495**	**3972**	**5289**	**5543**	**5621**	**5641**	**5918**	**5602**	**5211**
18H,6-24	**4589**	**4019**	**5360**	**5610**	**5686**	**5715**	**6029**	**5680**	**5287**
24H,0-24	**4673**	**4085**	**5512**	**5749**	**5823**	**5858**	**6158**	**5820**	**5408**

23871		WOLVERLEY		Site No: 23871001 Channel: Westbound		Location	Site 1, Wolverley Road, Wolverley (40mph Sign)		
TIME PERIOD	Sat 19/01/19	Sun 20/01/19	Mon 21/01/19	Tue 22/01/19	Wed 23/01/19	Thu 24/01/19	Fri 25/01/19	5-Day Av	7-Day Av
Week Begin: 19-Jan-19									
00:00	**27**	35	7	11	4	17	18	11	17
01:00	**11**	14	6	9	6	4	4	6	8
02:00	**9**	7	4	4	6	4	2	4	5
03:00	**3**	5	4	2	5	5	1	3	4
04:00	**9**	5	7	4	8	5	4	6	6
05:00	**8**	7	17	18	19	18	14	17	14
06:00	**29**	23	65	75	77	104	87	82	66
07:00	**89**	62	344	536	584	512	483	492	373
08:00	**188**	120	521	674	597	619	594	601	473
09:00	**348**	280	348	331	341	341	339	340	333
10:00	**403**	340	270	280	354	301	338	309	327
11:00	**531**	454	323	277	295	337	498	346	388
12:00	**648**	631	358	368	340	305	427	360	440
13:00	**524**	614	386	320	390	354	525	395	445
14:00	**522**	406	418	469	532	536	569	505	493
15:00	**471**	377	518	540	584	599	671	582	537
16:00	**445**	292	778	791	757	743	772	768	654
17:00	**321**	233	811	835	801	749	775	794	646
18:00	**287**	171	545	533	563	605	496	548	457
19:00	**184**	111	222	229	228	248	259	237	212
20:00	**108**	101	134	138	124	156	142	139	129
21:00	**75**	67	94	109	114	135	114	113	101
22:00	**75**	52	65	71	88	102	97	85	79
23:00	**62**	26	29	36	43	44	70	44	44
12H,7-19	**4777**	**3980**	**5620**	**5954**	**6138**	**6001**	**6487**	**6040**	**5565**
16H,6-22	**5173**	**4282**	**6135**	**6505**	**6681**	**6644**	**7089**	**6611**	**6073**
18H,6-24	**5310**	**4360**	**6229**	**6612**	**6812**	**6790**	**7256**	**6740**	**6196**
24H,0-24	**5377**	**4433**	**6274**	**6660**	**6860**	**6843**	**7299**	**6787**	**6249**

23871		WOLVERLEY		Site No: 23871001 Channel: Combined		Location	Site 1, Wolverley Road, Wolverley (40mph Sign)		
TIME PERIOD	Sat 19/01/19	Sun 20/01/19	Mon 21/01/19	Tue 22/01/19	Wed 23/01/19	Thu 24/01/19	Fri 25/01/19	5-Day Av	7-Day Av
Week Begin: 19-Jan-19									
00:00	**45**	56	13	18	11	24	25	18	27
01:00	**16**	25	8	9	10	6	6	8	12
02:00	**17**	16	9	5	8	7	3	6	9
03:00	**9**	12	9	7	10	14	7	9	10
04:00	**18**	10	35	29	33	36	29	33	27
05:00	**46**	20	123	119	113	109	102	113	90
06:00	**91**	48	366	380	379	411	369	381	292
07:00	**193**	111	917	1143	1204	1126	1062	1091	822
08:00	**394**	204	1121	1367	1299	1268	1265	1264	988
09:00	**662**	455	738	735	712	697	726	722	675
10:00	**808**	692	564	576	659	598	643	608	649
11:00	**1003**	828	593	554	590	658	873	654	729
12:00	**1115**	1171	664	648	643	628	782	673	808
13:00	**965**	1030	695	671	699	652	905	724	803
14:00	**936**	839	748	812	868	900	985	863	870
15:00	**893**	852	974	986	1041	1080	1219	1060	1006
16:00	**821**	686	1227	1257	1275	1236	1325	1264	1118
17:00	**646**	489	1246	1289	1288	1224	1218	1253	1057
18:00	**472**	334	792	813	844	890	778	823	703
19:00	**324**	205	395	403	386	416	428	405	366
20:00	**207**	193	221	240	215	273	243	239	227
21:00	**138**	117	163	174	200	228	186	190	172
22:00	**136**	83	112	110	139	160	168	138	130
23:00	**95**	42	53	64	57	60	110	68	68
12H,7-19	**8908**	**7691**	**10279**	**10851**	**11122**	**10957**	**11781**	**10998**	**10227**
16H,6-22	**9668**	**8254**	**11424**	**12048**	**12302**	**12285**	**13007**	**12213**	**11284**
18H,6-24	**9899**	**8379**	**11589**	**12222**	**12498**	**12505**	**13285**	**12420**	**11483**
24H,0-24	**10050**	**8518**	**11786**	**12409**	**12683**	**12701**	**13457**	**12607**	**11657**

23871	WOLVERLEY	Site No: 23871001	Location	Site 1, Wolverley Road, Wolverley (40mph Sign)
Sat 19-Jan-19 to Fri 25-Jan-19		Channel: Eastbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 19-Jan-19	**4673**	14	0.3	4495	96.2	137	2.9	26	0.6	1	0.0
Sun 20-Jan-19	**4085**	13	0.3	3951	96.7	96	2.4	24	0.6	1	0.0
Mon 21-Jan-19	**5512**	20	0.4	5162	93.7	284	5.2	45	0.8	1	0.0
Tue 22-Jan-19	**5749**	21	0.4	5354	93.1	287	5.0	83	1.4	4	0.1
Wed 23-Jan-19	**5823**	9	0.2	5474	94.0	276	4.7	56	1.0	8	0.1
Thu 24-Jan-19	**5858**	14	0.2	5458	93.2	330	5.6	52	0.9	4	0.1
Fri 25-Jan-19	**6158**	18	0.3	5761	93.6	318	5.2	57	0.9	4	0.1
Total Vehicles											
[--]	**37858**	109	0.3	35655	94.3	1728	4.4	343	0.9	23	0.1

23871	WOLVERLEY	Site No: 23871001	Location	Site 1, Wolverley Road, Wolverley (40mph Sign)
Sat 19-Jan-19 to Fri 25-Jan-19		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Sat 19-Jan-19	**5377**	18	0.3	5082	94.5	250	4.7	25	0.5	2	0.0
Sun 20-Jan-19	**4433**	15	0.3	4192	94.6	194	4.4	30	0.7	2	0.1
Mon 21-Jan-19	**6274**	18	0.3	5752	91.7	449	7.2	50	0.8	5	0.1
Tue 22-Jan-19	**6660**	22	0.3	6088	91.4	478	7.2	67	1.0	5	0.1
Wed 23-Jan-19	**6860**	13	0.2	6265	91.3	508	7.4	67	1.0	7	0.1
Thu 24-Jan-19	**6843**	13	0.2	6250	91.3	503	7.4	68	1.0	9	0.1
Fri 25-Jan-19	**7299**	26	0.4	6666	91.3	537	7.4	64	0.9	6	0.1
Total Vehicles											
[--]	**43746**	125	0.3	40295	92.3	2919	6.5	371	0.8	36	0.1

23871		WOLVERLEY								
		JANUARY 2019								
Site	**Location**	**Direction**	**Start Date**	**End Date**	**Posted Speed Limit (PSL)**	**Total Vehicles**	**5 Day Ave.**	**7 Day Ave.**	**Average 85%ile Speed**	**Average Mean Speed**
Site No: 23871002	Site 2, Wolverley Road, Wolverley (LC 1) SO 84275 78788	Channel: Eastbound	Tue 29-Jan-19	Mon 04-Feb-19	60	33658	5149	4808	44.6	38.7
		Channel: Westbound	Tue 29-Jan-19	Mon 04-Feb-19		33026	5138	4718	44.9	39.7

23871		WOLVERLEY		Site No: 23871002 Channel: Eastbound		Location	Site 2, Wolverley Road, Wolverley (LC 1)		
TIME PERIOD	Tue 29/01/19	Wed 30/01/19	Thu 31/01/19	Fri 01/02/19	Sat 02/02/19	Sun 03/02/19	Mon 04/02/19	5-Day Av	7-Day Av
Week Begin: 29-Jan-19									
00:00	**2**	5	10	9	19	20	7	7	10
01:00	**4**	1	5	2	10	11	3	3	5
02:00	**7**	3	1	3	7	5	1	3	4
03:00	**6**	6	5	6	5	5	7	6	6
04:00	**25**	22	22	20	10	3	31	24	19
05:00	**105**	95	81	71	28	14	98	90	70
06:00	**325**	284	273	262	51	39	308	290	220
07:00	**635**	623	568	520	87	58	509	571	429
08:00	**668**	663	626	527	181	59	483	593	458
09:00	**376**	330	328	322	268	191	337	339	307
10:00	**295**	277	275	267	332	300	292	281	291
11:00	**284**	253	246	258	346	334	259	260	283
12:00	**305**	283	283	292	419	372	260	285	316
13:00	**304**	269	264	281	451	401	273	278	320
14:00	**337**	297	248	301	418	377	256	288	319
15:00	**449**	441	401	449	391	402	367	421	414
16:00	**471**	465	350	396	372	386	432	423	410
17:00	**438**	413	397	345	282	257	381	395	359
18:00	**248**	264	199	216	188	148	228	231	213
19:00	**124**	142	121	145	133	96	155	137	131
20:00	**65**	95	96	98	92	81	65	84	85
21:00	**68**	81	81	61	67	43	78	74	68
22:00	**30**	37	49	59	55	48	34	42	45
23:00	**16**	14	20	55	41	11	16	24	25
12H,7-19	**4810**	**4578**	**4185**	**4174**	**3735**	**3285**	**4077**	**4365**	**4121**
16H,6-22	**5392**	**5180**	**4756**	**4740**	**4078**	**3544**	**4683**	**4950**	**4625**
18H,6-24	**5438**	**5231**	**4825**	**4854**	**4174**	**3603**	**4733**	**5016**	**4694**
24H,0-24	**5587**	**5363**	**4949**	**4965**	**4253**	**3661**	**4880**	**5149**	**4808**

23871		WOLVERLEY		Site No: 23871002 Channel: Westbound		Location	Site 2, Wolverley Road, Wolverley (LC 1)		
TIME PERIOD	Tue 29/01/19	Wed 30/01/19	Thu 31/01/19	Fri 01/02/19	Sat 02/02/19	Sun 03/02/19	Mon 04/02/19	5-Day Av	7-Day Av
Week Begin: 29-Jan-19									
00:00	**9**	12	12	13	21	37	12	12	17
01:00	**1**	4	2	6	9	15	2	3	6
02:00	**4**	3	4	2	7	5	0	3	4
03:00	**1**	1	4	3	2	8	4	3	3
04:00	**11**	7	6	3	9	7	8	7	7
05:00	**19**	16	23	20	11	7	16	19	16
06:00	**100**	76	59	61	32	18	62	72	58
07:00	**460**	356	284	237	84	44	255	318	246
08:00	**544**	467	450	417	138	93	327	441	348
09:00	**324**	257	219	237	214	151	178	243	226
10:00	**308**	217	241	235	345	253	194	239	256
11:00	**277**	265	233	248	400	341	226	250	284
12:00	**295**	270	252	264	437	401	236	263	308
13:00	**357**	271	249	319	395	368	251	289	316
14:00	**465**	392	366	374	395	318	348	389	380
15:00	**546**	458	416	487	290	281	417	465	414
16:00	**731**	614	563	562	304	257	548	604	511
17:00	**675**	641	564	471	279	212	617	594	494
18:00	**418**	427	391	317	206	175	399	390	333
19:00	**199**	215	182	199	150	120	197	198	180
20:00	**115**	136	118	132	105	69	118	124	113
21:00	**95**	104	103	108	89	57	84	99	91
22:00	**135**	74	68	83	61	35	67	85	75
23:00	**24**	33	26	42	63	20	18	29	32
12H,7-19	**5400**	**4635**	**4228**	**4168**	**3487**	**2894**	**3996**	**4485**	**4115**
16H,6-22	**5909**	**5166**	**4690**	**4668**	**3863**	**3158**	**4457**	**4978**	**4559**
18H,6-24	**6068**	**5273**	**4784**	**4793**	**3987**	**3213**	**4542**	**5092**	**4666**
24H,0-24	**6113**	**5316**	**4835**	**4840**	**4046**	**3292**	**4584**	**5138**	**4718**

23871		WOLVERLEY		Site No: 23871002 Channel: Combined		Location	Site 2, Wolverley Road, Wolverley (LC 1)		
TIME PERIOD	Tue 29/01/19	Wed 30/01/19	Thu 31/01/19	Fri 01/02/19	Sat 02/02/19	Sun 03/02/19	Mon 04/02/19	5-Day Av	7-Day Av
Week Begin: 29-Jan-19									
00:00	**11**	17	22	22	40	57	19	19	27
01:00	**5**	5	7	8	19	26	5	6	11
02:00	**11**	6	5	5	14	10	1	6	8
03:00	**7**	7	9	9	7	13	11	9	9
04:00	**36**	29	28	23	19	10	39	31	26
05:00	**124**	111	104	91	39	21	114	109	86
06:00	**425**	360	332	323	83	57	370	362	278
07:00	**1095**	979	852	757	171	102	764	889	675
08:00	**1212**	1130	1076	944	319	152	810	1034	806
09:00	**700**	587	547	559	482	342	515	582	533
10:00	**603**	494	516	502	677	553	486	520	547
11:00	**561**	518	479	506	746	675	485	510	567
12:00	**600**	553	535	556	856	773	496	548	624
13:00	**661**	540	513	600	846	769	524	567	636
14:00	**802**	689	614	675	813	695	604	677	699
15:00	**995**	899	817	936	681	683	784	886	828
16:00	**1202**	1079	913	958	676	643	980	1027	921
17:00	**1113**	1054	961	816	561	469	998	989	853
18:00	**666**	691	590	533	394	323	627	621	546
19:00	**323**	357	303	344	283	216	352	335	311
20:00	**180**	231	214	230	197	150	183	208	198
21:00	**163**	185	184	169	156	100	162	173	159
22:00	**165**	111	117	142	116	83	101	127	120
23:00	**40**	47	46	97	104	31	34	53	57
12H,7-19	**10210**	**9213**	**8413**	**8342**	**7222**	**6179**	**8073**	**8850**	**8236**
16H,6-22	**11301**	**10346**	**9446**	**9408**	**7941**	**6702**	**9140**	**9928**	**9184**
18H,6-24	**11506**	**10504**	**9609**	**9647**	**8161**	**6816**	**9275**	**10108**	**9360**
24H,0-24	**11700**	**10679**	**9784**	**9805**	**8299**	**6953**	**9464**	**10287**	**9526**

23871	WOLVERLEY	Site No: 23871002	Location	Site 2, Wolverley Road, Wolverley (LC 1)
Tue 29-Jan-19 to Mon 04-Feb-19		Channel: Eastbound		

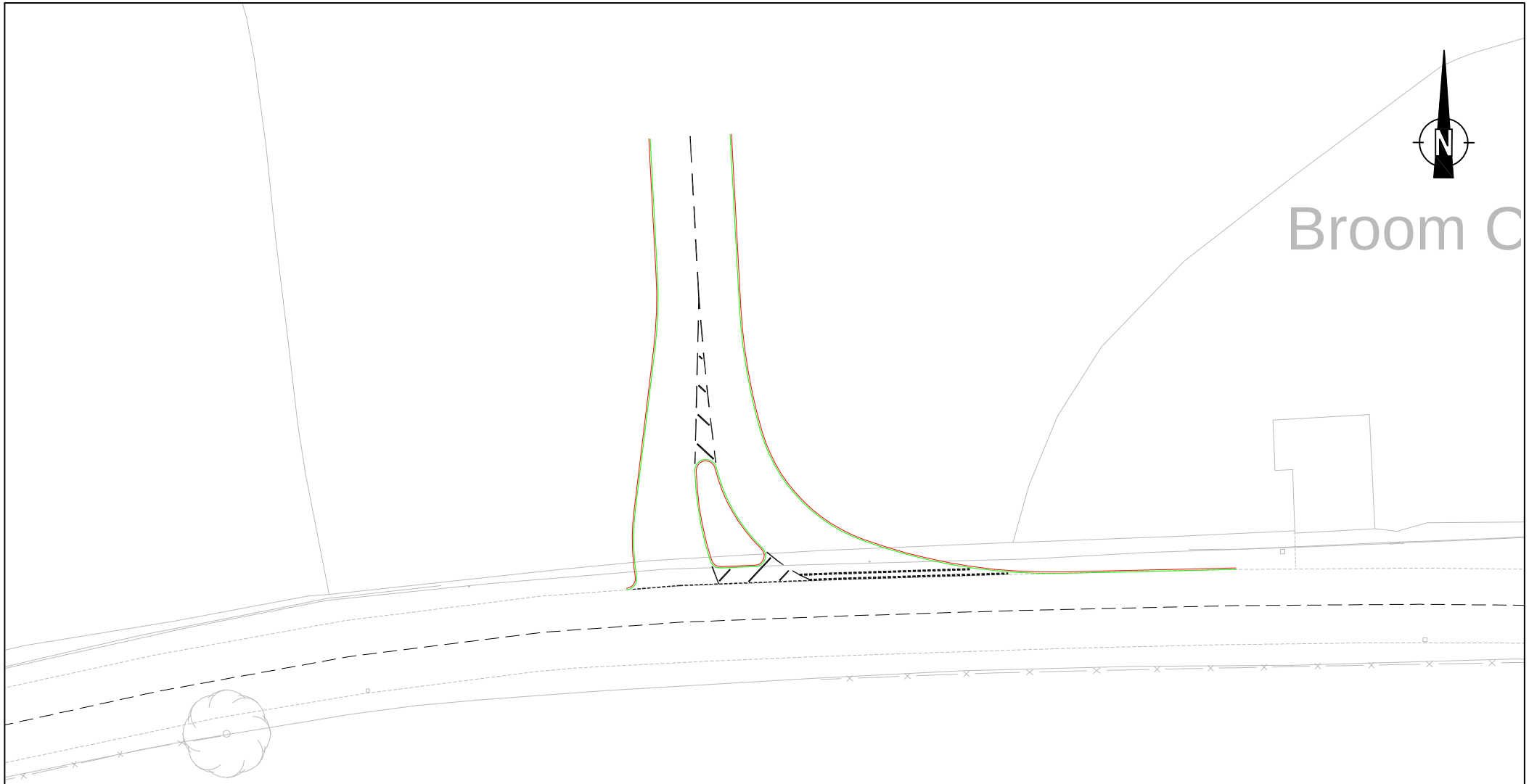
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Tue 29-Jan-19	**5587**	13	0.2	5125	91.7	400	7.2	39	0.7	10	0.2
Wed 30-Jan-19	**5363**	11	0.2	4916	91.7	391	7.3	39	0.7	6	0.1
Thu 31-Jan-19	**4949**	9	0.2	4498	90.9	400	8.1	38	0.8	4	0.1
Fri 01-Feb-19	**4965**	14	0.3	4547	91.6	363	7.3	35	0.7	6	0.1
Sat 02-Feb-19	**4253**	13	0.3	4010	94.3	210	4.9	19	0.5	1	0.0
Sun 03-Feb-19	**3661**	15	0.4	3491	95.4	141	3.9	13	0.4	1	0.0
Mon 04-Feb-19	**4880**	21	0.4	4461	91.4	348	7.1	37	0.8	13	0.3
Total Vehicles											
[--]	**33658**	96	0.3	31048	92.4	2253	6.5	220	0.6	41	0.1

23871	WOLVERLEY	Site No: 23871002	Location	Site 2, Wolverley Road, Wolverley (LC 1)
Tue 29-Jan-19 to Mon 04-Feb-19		Channel: Westbound		

TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Tue 29-Jan-19	**6113**	8	0.1	5447	89.1	607	9.9	45	0.7	6	0.1
Wed 30-Jan-19	**5316**	8	0.2	4738	89.1	516	9.7	49	0.9	5	0.1
Thu 31-Jan-19	**4835**	7	0.1	4299	88.9	494	10.2	31	0.6	4	0.1
Fri 01-Feb-19	**4840**	5	0.1	4333	89.5	457	9.4	36	0.7	9	0.2
Sat 02-Feb-19	**4046**	14	0.4	3704	91.6	307	7.6	19	0.5	2	0.1
Sun 03-Feb-19	**3292**	11	0.3	3084	93.7	184	5.6	12	0.4	1	0.0
Mon 04-Feb-19	**4584**	20	0.4	4080	89.0	454	9.9	24	0.5	6	0.1
Total Vehicles											
[--]	**33026**	73	0.2	29685	90.1	3019	8.9	216	0.6	33	0.1

APPENDIX E

Figures & Plans



The Hurlstone Partnership

Seven Oaks Farm, Crew Green, Shrewsbury SY5 9AS

Tel: 01743 884849 Fax: 01743 884947

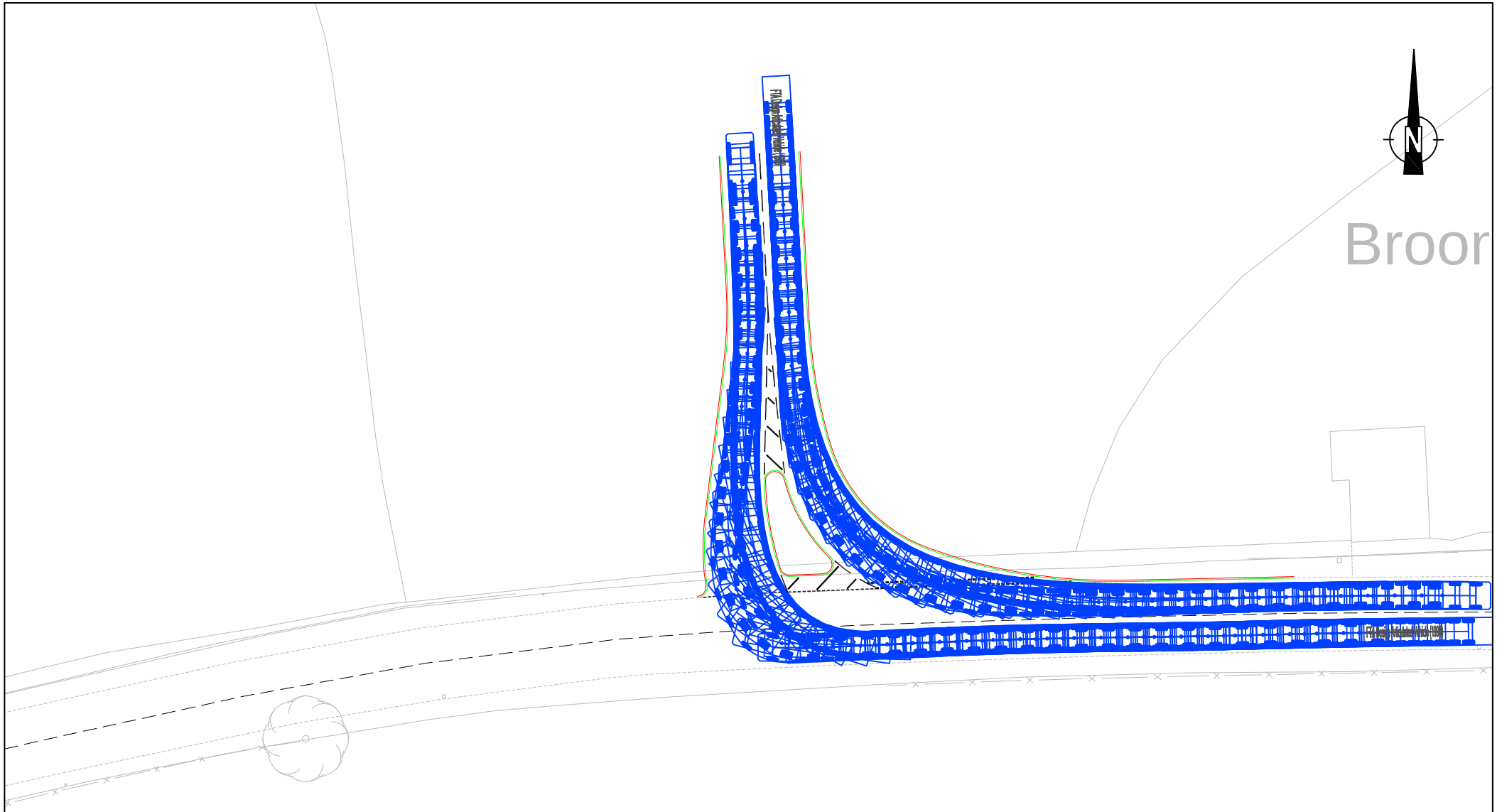
e-mail: office@hurlstones.com

Lea Castle Farm, Wolverley

Proposed Site Access

Preliminary Design Layout

DATE:	Aug 2019
SCALE:	1:500 @ A4
DWG NO.	Figure 1



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Tel: 01743 884849 Fax: 01743 884947

e-mail: office@hurlstones.com

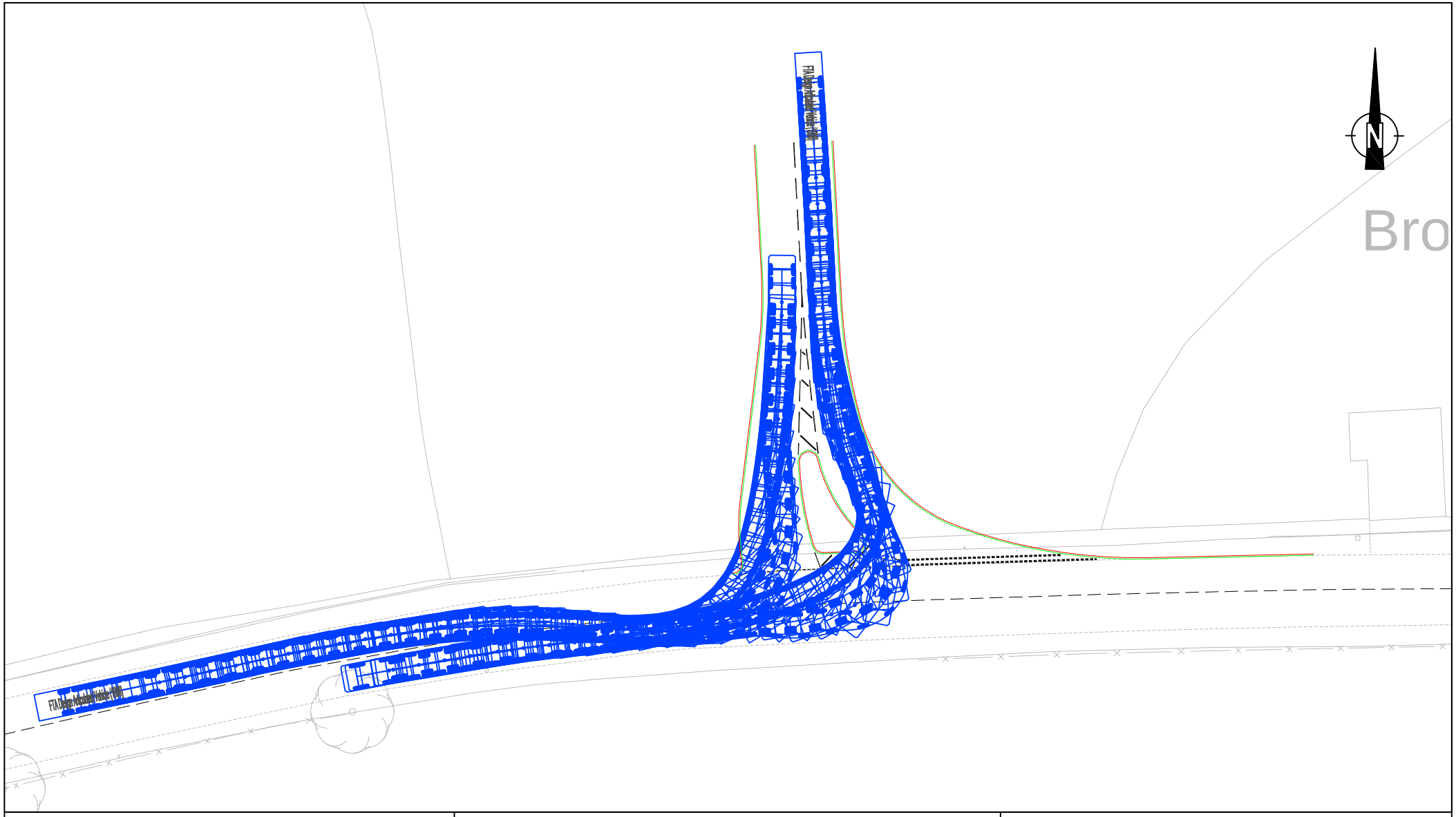
Lea Castle Farm, Wolverley

Proposed Site Access

AUTOTrack of Permitted Movements

16.5m Long FTA Design Articulated HGV

DATE:	Aug 2019
SCALE:	1:500 @ A4
DWG NO.	Figure 2



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Seven Oaks Farm, Crew Green, Shrewsbury SY5 9AS

Tel: 01743 884849 Fax: 01743 884947

e-mail: office@hurlstones.com

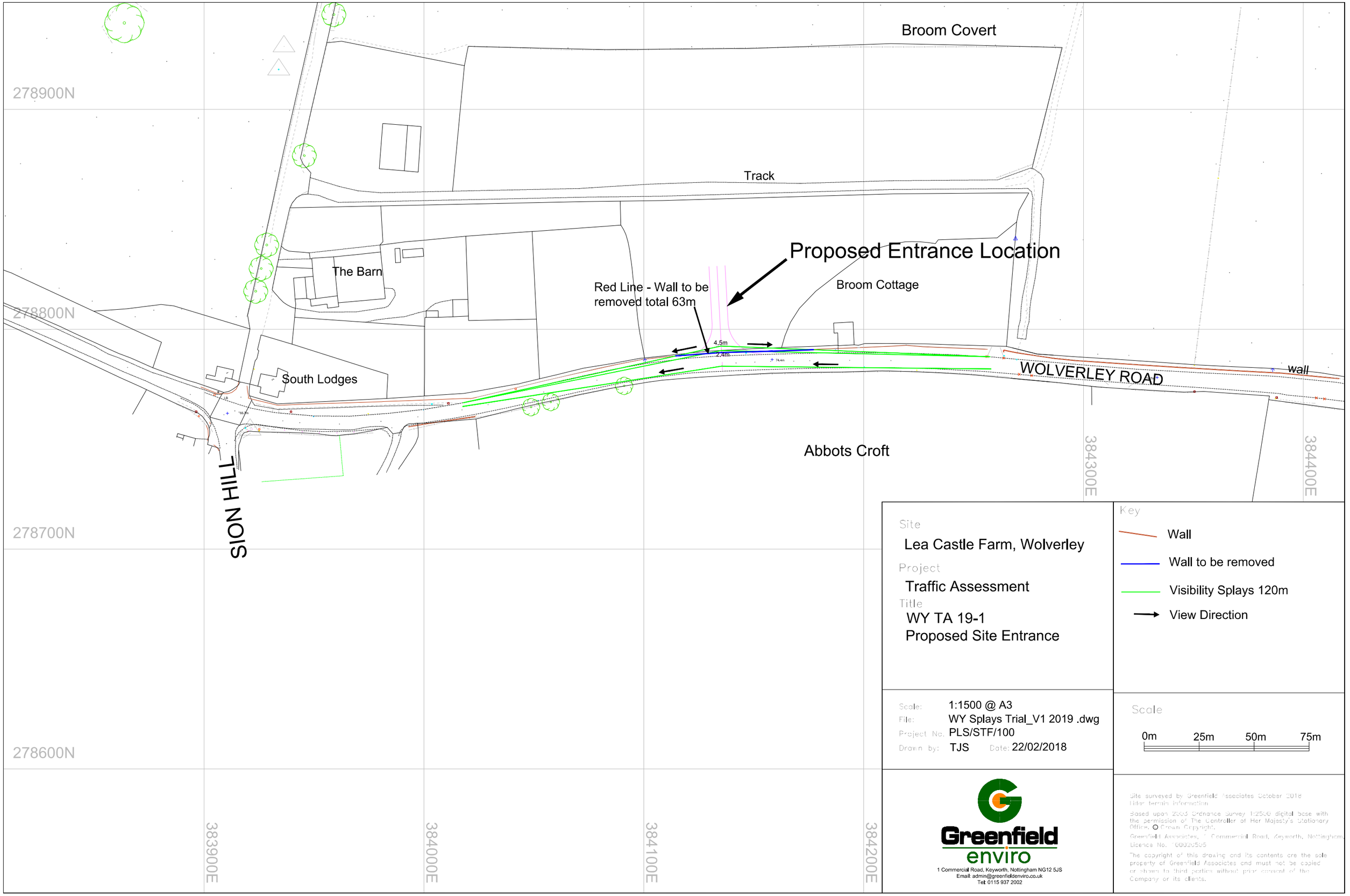
Lea Castle Farm, Wolverley

Proposed Site Access

AUTOTrack of Restricted Movements

16.5m Long FTA Design Articulated HGV

DATE:	Aug 2019
SCALE:	1:500 @ A4
DWG NO.	Figure 3



Site
Lea Castle Farm, Wolverley

Project
Traffic Assessment

Title
WY TA 19-1
Proposed Site Entrance

Key
- Wall
- Wall to be removed
- Visibility Splays 120m
- View Direction

Scale: 1:1500 @ A3
File: WY Splays Trial_V1 2019 .dwg
Project No. PLS/STF/100
Drawn by: TJS Date: 22/02/2018

Scale
0m 25m 50m 75m

Greenfield enviro
1 Commercial Road, Keyworth, Nottingham NG12 5JS
Email: admin@greenfieldenviro.co.uk
Tel: 0115 937 2002

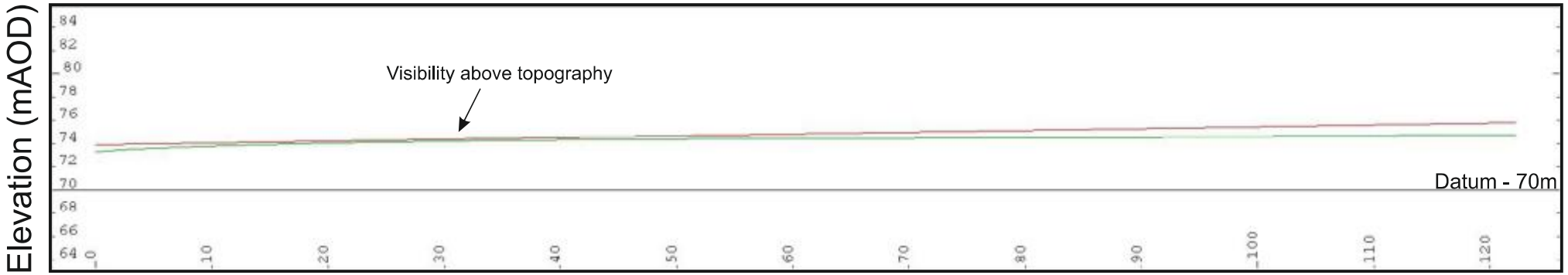
Site surveyed by Greenfield Associates October 2018
Lidar terrain information

Lea Castle Farm, Wolverley

Visibility Splays - Feb 2019

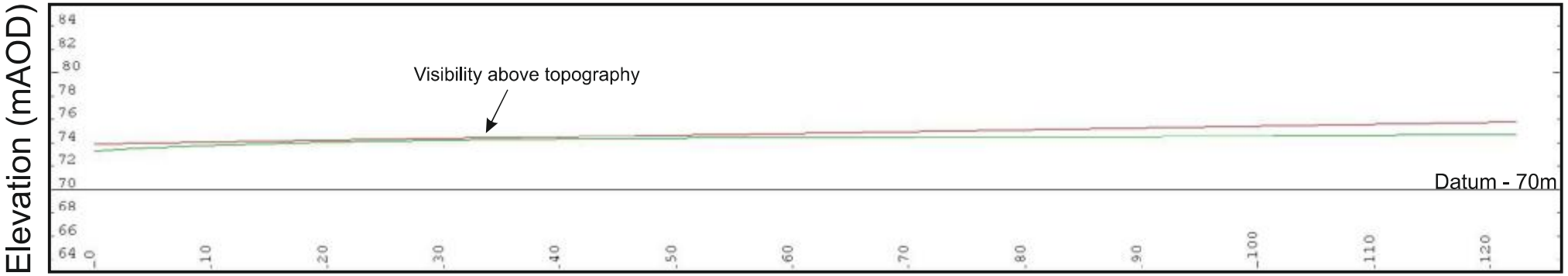
Red Line - Visibility Splay
Green Line - Topography

West East



Foward visibility from a westbound vehicle, towards a stationary vehicle waiting to turn right into the site

West East



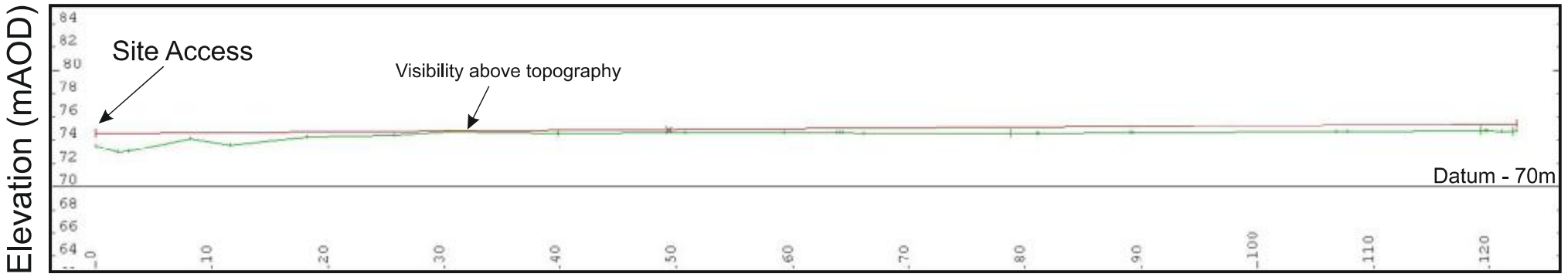
Foward visibility from a stationary vehicle waiting to turn right into the site, towards an oncoming eastbound vehicle

Lea Castle Farm, Wolverley

Visibility Splays - Feb 2019

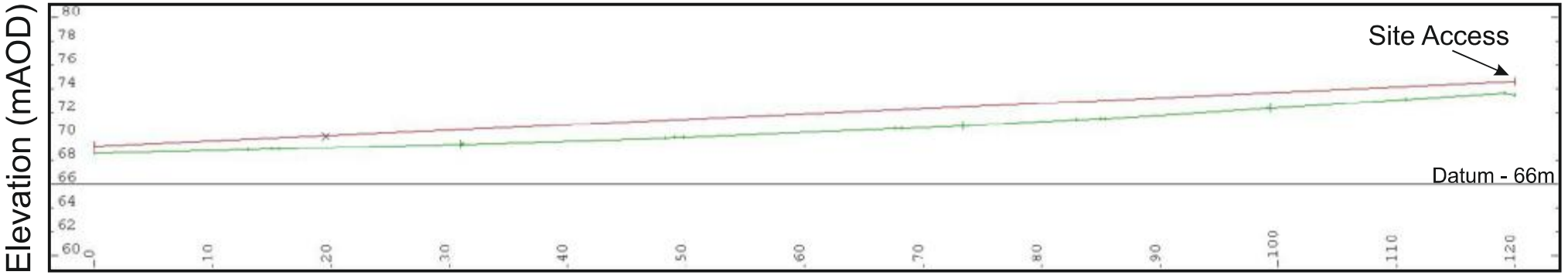
Red Line - Visibility Splay
Green Line - Topography

West East



Lateral visibility 4.5m back and 122.282m east, from a vehicle emerging from the site access

West East



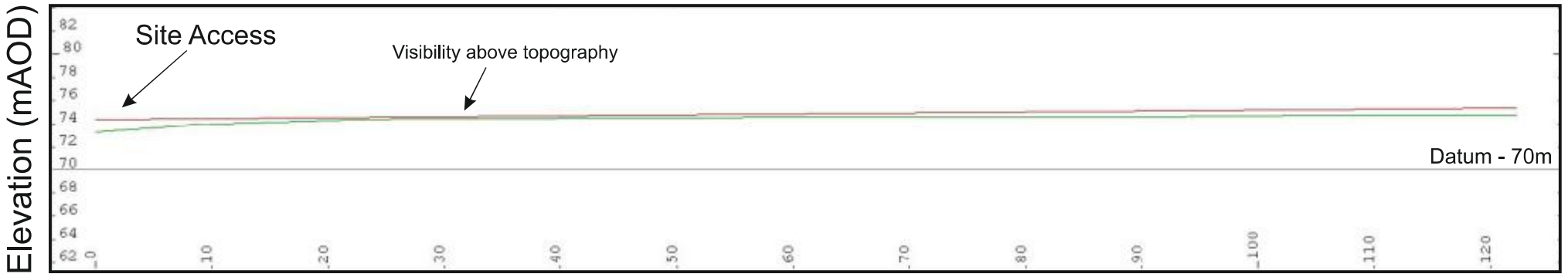
Lateral visibility 4.5m back and 120m west, from a vehicle emerging from the site access

Lea Castle Farm, Wolverley

Visibility Splays - Feb 2019

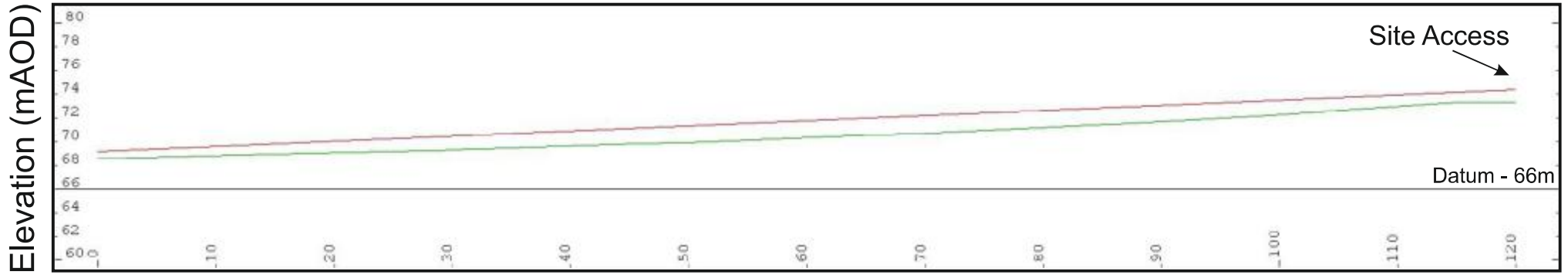
Red Line - Visibility Splay
Green Line - Topography

West East



Lateral visibility 2.4m back and 122.282m east, from a vehicle emerging from the site access

West East



Lateral visibility 2.4m back and 120m west, from a vehicle emerging from the site access