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LAND OFF RACECOURSE LANE, STOURBRIDGE OUR REF; 23371/09-17/5110

TECHNICAL NOTE –September 2017

Introduction

Mewies Engineering Consultants Ltd (M-EC) has been commissioned by Feoffees of Old Swinford Hospital to produce a Technical Note (TN) to provide further information in relation to a proposed mixed-use development comprising 40.7 hectares of residential area, a new golf course, primary school and secondary school. A site location plan is included in Appendix A.

At this stage it is envisaged that the development will be as follows:

- Deliver two new schools (primary and secondary) with time-limited funding to secure long term future independence
- Relocate the golf course onto a more suitably sized site, providing a clear urban edge and definitive Green Belt boundary
- Provide a new health centre for Norton
- Deliver infrastructure improvements to relieve pressure on Racecourse Lane
- And ultimately, dispose of land for residential development to secure capital
 - receipt to support the above

This TN will provide information in relation to the development proposals, providing appropriate conclusions in order to demonstrate the suitability of the proposed development and site access proposals in comparison to the existing site use.

Existing Site

The site, which is irregular in shape, is located at the southern-most point of Stourbridge, approximately 2.15km to the south of Stourbridge town centre. The site is bisected by Racecourse Lane, which runs in an east-west direction between Norton Road (A451) and Worcester Lane (B4187), and also provides access to both sides of the site.

Currently, on the northern part of the site lies Stourbridge Golf Club, which takes its main point of access from Worcester Lane (B4187), though as previously mentioned access can still be achieved from Racecourse Lane. The southern portion of the site is currently greenfield land used agriculturally.

The site is bound to the north, east and west by existing residential developments, and to the south by further agricultural land. This is shown in Figure 1, overleaf.



Figure 1: Contextual site location plan

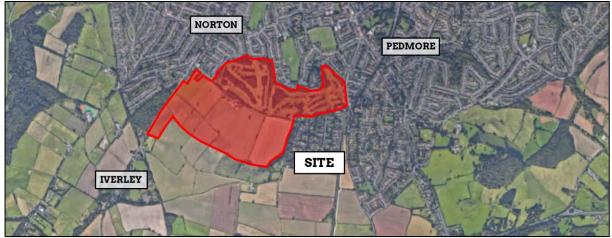


Image source: Google Maps

Sustainability

An accessibility assessment has been undertaken to determine the location of key local facilities and amenities in relation to walking, cycling and public transport, to highlight travel time to these services, and that the routes taken to these are conducive to walking/cycling.

Table 1 below, provides a summary of accessibility to key amenities and facilities from the proposed development over realistic sustainable transport modes. Their accessibility is then shown in context of the targets set out within Table 8 of the Black Country Core Strategy adopted in 2011.

It is noted that a new Black Country Core Strategy is in development though it is planned for adoption in Autumn 2021 and at this early only an Issues and Options Consultation exists.

A plan showing the locations of the facilities in relation to the site can be found on Drawing No. 23371_08_010_02 in Appendix B.



Table 1: Accessibility assessment

1.4	Approx.	Approx. Journey Time (minutes)*					
Facility	Distance (m)	Walking	Cycling	BCCS Target			
Education	••						
Pedmore Church of England Primary School	1480	18	6	Primary: 10-15 mins			
St. Peter's Pre-School	1540	18	6	(walking only)			
Proposed Primary and Secondary School	N/A	-	-	Secondary: 20-25 mins			
Health							
Norton Medical Centre	1450	17	6				
The Broadway Pharmacy	1820	22	8	Health Centre: 10-15 mins			
Proposed Health Centre	N/A	-	-				
Leisure							
Pedmore Cricket Club	1720	20	7				
Stourbridge Lawn Tennis and Squash Club	1860	22	8	N/A			
Proposed 18-hole golf course	N/A	-	-	1			
Retail							
The Greyhound Public House	835	10	3	Fresh Food: 10-15 mins			
Spar (Pedmore)	1400	17	6				

*Assumes a walking speed of 1.4m/s (3.2mph or 5.0kph) taken from the Guidance fo providing for Journeys on Foot (IHT, 2000) and cycling speed of 4m/s (9mph or 14.4kph), taken from Local Transport Note 1/86.

Table 1 demonstrates that in regards to the current Black Country Core Strategy accessibility to facilities is on the borderline of acceptability and the proposed schools and health centre will likely be required.

It is likely that the local authority may request a 'Fresh Food' store facility to also be provided which would be recommended given that current provision exists of a Spar and Co-op facility located 17 and 22 minutes away respectively and would have to support approximately 500 new dwellings.

However, it is noted that almost all of the key facilities and amenities within Stourbridge are located within the 1.6km distance desired by the DFT. The DfT National Travel Survey (England) 2016 found that walking constitutes 25% of all journeys made in a year, and that approximately 80% of all walking trips were under one mile (1.6km). On average, people are willing to travel 16 minutes per walking trip.

Also noted is that in the Issues and Options Consultation document, Question 38 reads: 'Do you think that the current accessibility and density standards are appropriate for green belt release locations? Yes/No; If no, what standards should be applied in these locations and why?'

It is therefore believed that this question shows the potential for a relaxation of the requirements concerning the development and that an argument could be put forward if it was decided that the implementation of a 'Fresh Food' facility wasn't wanted by the development.



<u>Cycling</u>

The DfT National Travel Survey (England) 2016 found that nationally, approximately 2% of people who commute do so principally by cycle. Approximately 14% of the population aged five and over cycle at least once a week, cycling for an average of 24 minutes.

A review of Sustrans.org.uk indicates that there are two National Cycle Routes located within close proximity of the site. The nearest cycle route, National Route 54, is located approximately 2.5km north, just north of Stourbridge town centre. Once complete, the route will span between Stourport and the Peak District taking in Kidderminster, Dudley, Lichfield, Burton and Derby.

A lack of cycleways is also noted within the site's locale therefore possible recommendations are made in the 'Opportunities and Constraints' section later in the report.

<u>Bus</u>

When measured from the approximate site centre, there are no bus stops located within the vicinity of the site which are within a suitable walking distance of the site, as set out by The Institute of Highway and Transportation's document entitled "Guidelines for Planning for Public Transport in Developments" (1999) which recommends a 400m walking distance to the nearest bus stop.

However due to the scale of the site, those located to either the eastern or western stop remain within the 400m guidance with bus stop provision located along Greyhound Lane (adjacent to Stourbridge Road, A451), and Worcester Lane, B4187.

Flag-and-pole stops with timetable information signposted are located on both sides of Greyhound Lane and Worcester Lane. Both of the Greyhound Lane stops (Norton Road) and Worcester Lane stops (Redlake Road) consist of flag-and-pole stops with timetable information signposted and are both served by the 288 Service, described in more detail in Table 2 below, with their routes shown on Drawing 23371_08_010_03 in Appendix C.



Service	Operating Days	Frequency	Route	Provider	
288	Mon – Fri 09:33 – 14:33	Approximately Every 60 mins	Norton to Stourbridge	Diamond Bus	
125	Mon – Fri 09:02 – 17:17	Approximately	Bridgnorth to Stourbridge via	Central Buses	
	Sat 09:05 - 17:17	Every 60 mins	Kidderminster		
25	Mon – Fri 07:55 – 18:18	Approximately	Kidderminster to	Diamond Bus	
	Sat 08:52 – 18:18	Every 60 mins	Stourbridge		
298	Mon – Fri 07:52 – 16:52	Approximately	Stourbridge to Pedmore Fields	Diamond Bus	
	Sat 08:52 – 16:52	Every 60 mins	Circular		
299	Mon – Sat 08:22 – 16:22	Approximately Every 60 mins	Stourbridge to Pedmore Fields Circular	Diamond Bus	
318	Mon – Fri 08:30 – 18:25	Approximately	Bromsgrove to	Hansons	
	Sat 10:29 – 18:25	Every 120 mins	Stourbridge		

Table 2: Bus Service Facilities

Timetable data taken from travelineeastmidlands.co.uk

It is noted that bus accessibility is a constraint to the site and as such it is recommended that improvements to services and connectivity are considered. Possible recommendations are made in the 'Opportunities and Constraints' section later in the report.

Rail

The nearest railway station, Stourbridge Junction, is located circa 2.2km walking distance from the site (1.6km direct). The station operated by London Midland provides connections to nearby locations including: Kidderminster, Birmingham, Stratford and Worcester but also further services which includes connections to London Marylebone station. All of the nearby locations mentioned are accessible within an hour's commute.

Whilst not inside the recommended walking distance, 2.2km is deemed to be an acceptable cycling distance. The station can also be accessed sustainably via the aforementioned 288 bus service.

Junction Review

Racecourse Lane/A451 Norton Road

Vehicle facilities:

Racecourse Lane, A451 Norton Road and Greyhound Lane are connected via a compact roundabout to the west of the site, with the A451 Norton Road forming the northern and southern arms, Racecourse Lane forming the eastern arm and Greyhound Lane forming the western arm. All arms of the roundabout comprise single entry and exit lanes.

It is anticipated that traffic generated from the majority of the development may approach the junction heading northbound on the A451 Norton Road. Any traffic generated by the



health centre or primary school will approach the junction from the east via the existing Racecourse Lane carriageway.

Due to the size of the mixed use development, it is likely improvements to the junction will be required, with a number of vehicle movements being generated from the south and east of the junction. In particular, the junction may require the introduction of traffic signals to control traffic flow at the junction.

The alignment of the southern roundabout arm (A451 Norton Road) may require alteration, due to the fact that at present the northbound lane narrows on approach to the roundabout and given the anticipated increase of traffic; some of which may comprise school buses from the proposed secondary school, the lane narrowing may present safety issues.

Pedestrian facilities:

Dropped kerbs are currently provided across the western arm of the roundabout (Greyhound Lane) and across the eastern arm (Racecourse Lane). There are no further dropped kerb crossings or tactile paving that would safely facilitate the movement of pedestrians across the four arms of the roundabout. In addition to the likely need for traffic signals as stated above, improved pedestrian facilities such as dropped kerbs and tactile paving on all arms of the roundabout may also be required given the likely increase in pedestrian movements produced by the development.

Racecourse Lane/B4187 Worcester Lane

Vehicle facilities:

Racecourse Lane, B4187 Worcester Lane and Redlake Road are joined by a signalised crossroad junction to the east of the site, with the B4187 Worcester Road forming the northern and southern arms of the junction, Racecourse Lane forming the western arm and Redlake Road forming the eastern arm.

Pedestrian facilities:

Dropped kerb crossings inclusive of tactile paving are present on all arms of the crossroad junction. Whilst the junction is signalised for vehicles, there are no controls allowing pedestrians to activate the signals and no signals to demonstrate that pedestrians are permitted to cross; pedestrians are required to wait for a suitable moment to cross the carriageway. The need for improvements to this junction will be dependent on the anticipated vehicle and pedestrian movements to the junction from the site; via the realigned Racecourse Lane carriageway to the north.

Local Highway Characteristics

Given the location of the proposed development, the local highway network is considered to comprise the following:

- Racecourse Lane;
- A451 Norton Road;
- B4187 Worcester Lane;

Racecourse Lane

Racecourse Lane runs in an east-west direction between the aforementioned roundabout junction and crossroad junction. The carriageway is located centrally within the proposed development and will be the spine road for the site, with the majority of the proposed residential dwellings, health centre, and a primary school to the north, and the relocated golf course in addition to the secondary school and further residential dwellings to the south.

Under the development proposals, Racecourse Lane will be realigned on both its eastern and western ends, with the realigned carriageway joining the existing A451 Norton Road and B4187 Worcester Lane carriageways via new junctions. The aforementioned existing



connections between Racecourse Lane and the surrounding highway network will be closed and turning areas provided.

Racecourse Lane carriageway is approximately 5.0-5.5m in width and is largely of a rural nature owing to the fact that the carriageway is bound by grass verge, hedgerow and trees on both sides, and has no existing footways. A 30mph speed limit is in place on entry to the carriageway from both the east and west, however the speed limit changes to 40mph for the central section of the carriageway. A 7.5 tonne vehicle weight restriction is also in place and is signposted from both points of entry, with traffic regulation in the form of single and double yellow lines also present on partial sections of the carriageway.

Surrounding Highway Network

From Racecourse Lane, the wider highway network can be accessed, which provides routes in and around Stourbridge, in addition to wider locations such as Birmingham, Wolverhampton and Kidderminster, resulting in the site having a high level of accessibility. The A451 Norton Road and the B4187 Worcester Road form the immediate highway network to the site.

The A451 Norton Road located to the west of the site runs in a north-east to south-west direction from Stourbridge to Kidderminster and the B4187 Worcester Road located to the east of the site runs in a north-east to south-west direction from the A491 Hagley Road Stourbridge to West Hagley village. Both the B4187 Worcester Road and the A451 Norton Road comprise footways located at a minimum on one side of the carriageway, with street lighting also present on approach to and within the urban environment of Stourbridge.

ATC Data

B4187 Worcester Lane

An ATC was laid adjacent to Stourbridge Golf Club, in the general location of the proposed access. The 7-day ATC took place from Thursday 24th August to Wednesday 30th August positioned in a 40mph posted speed limit area. The full results of the ATC, and a picture showing it in operation, are shown attached in Appendix D.

The ATC recorded an average mean speed northbound of 31.7mph, and southbound of 30.6mph. The 85th percentile speeds were calculated as 35.8mph northbound, and 36mph southbound meaning speeds along Worcester Lane were comfortably within the ACPO limit.

A451 Norton Road

An ATC was planned to take place close to the location of the proposed access along Norton Road. However, due to roadworks by Severn Trent Water the ATC could not be carried out. It is suggested that going forward, an ATC is carried out along this road in order to provide a robust assessment of the highway network.

Access

Below is a description of all the proposed accesses for the development site. Drawings for these accesses can be seen in Appendix E.

Realigned Racecourse Lane/A451 Norton Road junction

It is proposed that the western side of the site will be access via a signalised T-junction, providing separate marked lanes for those turning from the A451 Norton Road into Racecourse Lane, and separate left/right turn lanes for those turning from Racecourse Lane onto the A451 Norton Road. It is anticipated that a signal junction will be the optimum junction type in this location due to the level of traffic likely to be produced by the proposed development, in addition to existing flows along Racecourse Lane which will be directed to this junction.



Realigned Racecourse Lane/B4187 Worcester Road junction

Similarly to the above, it is proposed that a signalised T-junction is provided on the eastern side of the site to provide access from the development spine road to the B4187 Worcester Road. Due to the fact the highway in this location is more constrained, as detailed later in this report, the ability to provide separate marked lanes for turning traffic will require investigation.

A451 Norton Road

The 3.1 hectare residential area of the proposed development that is located directly off of the A451 Norton Road is to be accessed by a priority junction inclusive of a ghost island right turn lane. A footway is to be provided on the northern side of the access, which will continue north on the eastern side of the A451 Norton Road, connecting to the new Racecourse Lane/A451 Norton Road signalised T-junction and further north to the existing footway network.

Accident analysis

A review of Crashmap.co.uk indicates that there are no significant accident issues within the site's vicinity. Only 1 accident is noted within the past 5 years at the junction of the A451 and Racecourse Lane, and only 1 accident is noted as occurring along Racecourse Lane in the past 5 years, whilst no accidents have occurred at the junction of Racecourse Lane and the B4187. Therefore, at the points of access it can be concluded that there are no accident issues.

However, as shown on Figure 2 below, there are notable accident cluster sites (shown in red, with the numbers representing the amount of accidents to have taken place) that will need to be investigated further with the impact of the development on these cluster sites shown.

Figure 2: Accident data



Image source: Google Maps. Data source: Crashmap.co.uk



Opportunities and Constraints

Below is a list of the opportunities and constraints of the site that have been identified in the progress of this report.

Opportunities

Public Right of Way:

At present, public right of way (PRoW) STR0058 extends northbound from Racecourse Lane, passing through Stourbridge golf course, connecting to Melrose Avenue. The PRoW is to be maintained within the proposed development, however given the current nature of the PRoW; being an informal footpath and covered by dense vegetation, the proposed development and relocation of the golf course provides a good opportunity for the PRoW to be formalised. Formalisation of the route may include upgrading the footpath to a tarmac surface, providing street lighting and clearing vegetation to provide a safe and attractive walking route in accordance with the TfL 2005 'The 5Cs of Good Walking Networks'.

In relation to the TfL guidance, the proposed development provides an opportunity for the PRoW to become a 'connected' route, by integrating links from the proposed residential areas to the existing PRoW. Providing this connection will allow the new development to be well connected to the surrounding areas, with direct access to facilities such as playing fields and schools to the north of the site.

Footway/Cycleway link:

The proposed development is to provide a primary school, with access on the western end of Racecourse Lane, and the Racecourse Lane carriageway to the east of the school is to be closed, with the highway link retained and carriageway realigned to the south of the school. Given the closure of the carriageway to the east of the school, there is a good opportunity to provide a footway/cycleway along this existing highway link, which could be continued at a minimum on one side of Racecourse Lane, providing a suitable route for pedestrians and cyclists between the proposed residential areas and the new schools, existing footway network on Norton Road, bus stops and further facilities.

Constraints

Accessibility:

At present, if the development was to go ahead it would require a Spar and Co-op store, 17 and 22 minutes from the site centre respectively, to serve 500 new dwellings. The travel times are narrowly outside of the current local guidance and it would be recommended to also provide a local store facility within the site boundary alongside the health centre and school facilities.

Bus Connectivity:

Currently there are no bus stops located within the 400m guidance provided by The Institute of Highways and Transportation. It is likely that a bus route will need to be diverted through the site. The best option for this is considered to be the 288 Service which already serves the two nearest bus stops to the site and due to its circular route, could most easily be diverted with a diversion along Racecourse Lane when heading towards Stourbridge. This route is shown in Drawing 23371_08_010_04 attached as Appendix F.

A second option would be to divert either the 25 or 125 Service along Racecourse Lane instead of proceeding north along the A451, though this is less preferred as it makes the current bus route more complex in contradiction to Paragraph 5.22 in the "Guidelines for Planning for Public Transport in Developments" (1999) which favours the 'directness and simplicity of a route'.

With a diverted bus route, bus stops consisting of a flag-and-pole design with timetable information should be provided along Racecourse Lane. The stops should be strategically laid out to ensure connectivity to all extents of the site.



It should also be considered to provide an additional set of bus stops along A451 (Norton Road) which would serve the dwellings on the western part of the site. These stops would have bus provision by the 25 and 125 Services.

B4187 Worcester Lane - Land gradient:

The realigned Racecourse Lane will require a new junction on to Worcester Lane on the eastern side of the site. At present, the existing golf course is located adjacent to the B4187 Worcester Lane in the approximate location of the new junction, with a level difference between the golf course and the Worcester Lane carriageway. An access in this location may be feasible, however the level difference will need to be identified so as to ensure access gradient into the site is satisfactory.

B4187 Worcester Lane - Existing right turn lanes:

At present, heading northbound on Worcester Lane, a right turn lane exists providing access to Pedmore Court Road (south of the proposed junction), with an additional right turn lane providing access to Wimbledon Drive (north of the proposed junction). The layout of the new signalised junction will need to take into account the location and layout of existing residential access points including right turn lanes in close proximity to the site. Features such as an existing pedestrian refuge located to the north of the proposed access may require relocation to enable a right turn lane of suitable dimensions to be provided.

B4187 Worcester Lane - Existing service equipment:

A mobile phone mast and associated equipment are located on the western side of Worcester Lane, positioned slightly to the north of the proposed junction. Whilst locating the junction in this location should not affect the mast, its presence should be highlighted as a matter of precaution to ensure there is no conflict between the proposed junction and the mast.

A451 Norton Road- Central island features:

The existing central island features on the A451 Norton Road will need to be removed to provide the proposed signalised junction inclusive of separate lanes for traffic travelling northbound or turning right in to the new Racecourse Lane junction.

A451 Norton Road- Land gradient:

The 3.1 hectare parcel of land on the eastern side of the A451 Norton Road has a steep gradient which will need to be reduced in order to provide an access with a suitable gradient.



Conclusion

The proposed development will provide a betterment in relation to highway operation and safety due to the new spine route across Racecourse Lane.

The development also seeks to increase the provision of local amenities and facilities in the area therefore improving sustainability.

A number of opportunities and constraints exist for the site which could provide a betterment to the local area.

It is suggested that an ATC is carried out along A451 Norton Road and full accident is provided by the local authority to provide a more robust assessment of the highway network.

Based on the information and supporting evidence provided within this TN, it has been established that at present there are no highway or transportation reasons that would prevent access to the site, and the site is well served by a range of local facilities and amenities, making it suitable for future development as presented.



Sarah Williams, BSc (Hons) Simon Prescott, MIHE HA Cert Comp Neil Benison, BSc (Hons) IEng MICE

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APPENDIX A

M-EC The Old Chapel Station Road Hugglescote Leicestershire LE67 2GB



SITE LOCATION PLAN

Project:

Racecourse Lane, Stourbridge

File Ref: 23371

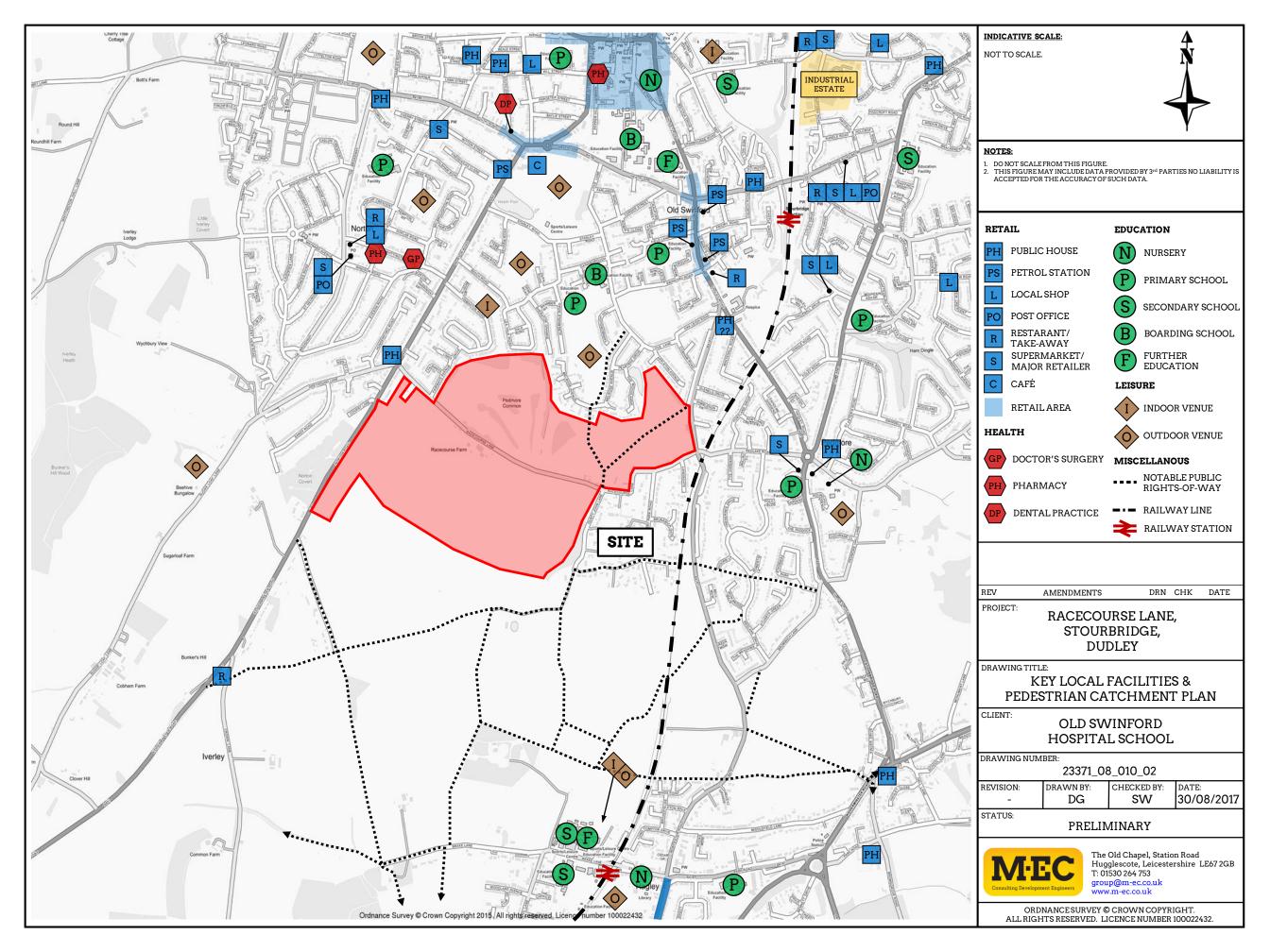
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Nearest Postcode: DY8 2RF

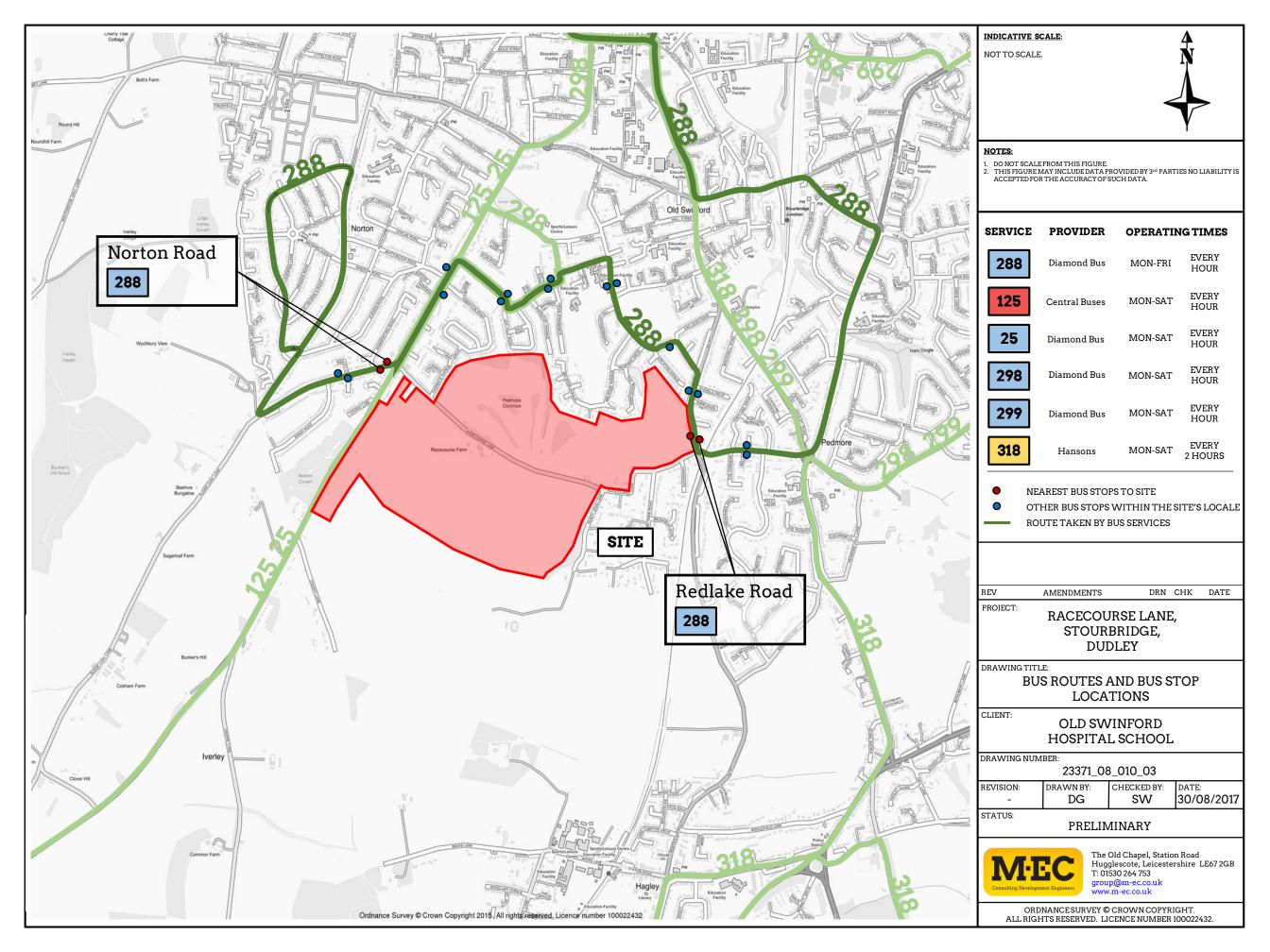


Image source: Google Maps

APPENDIX B



APPENDIX C

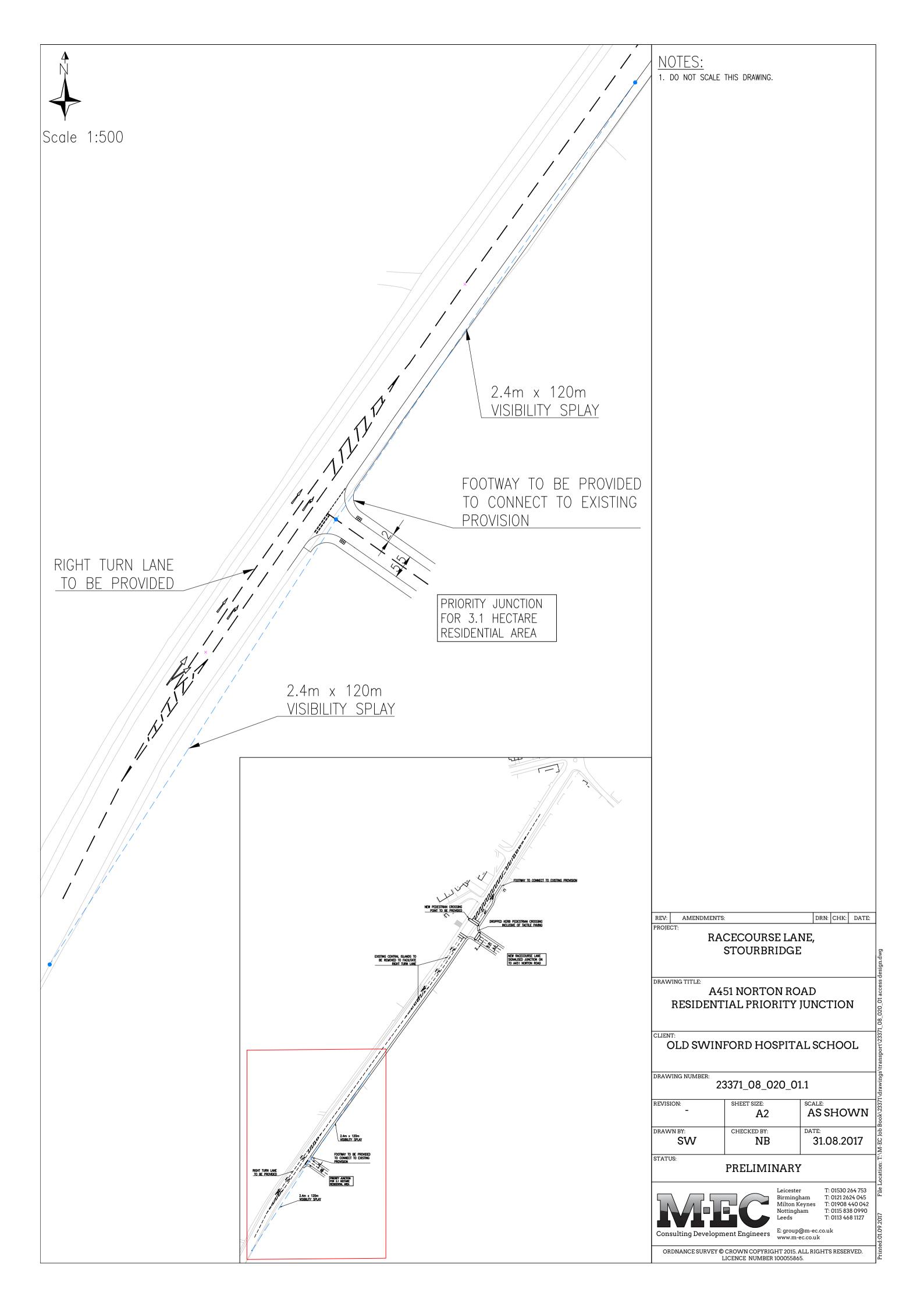


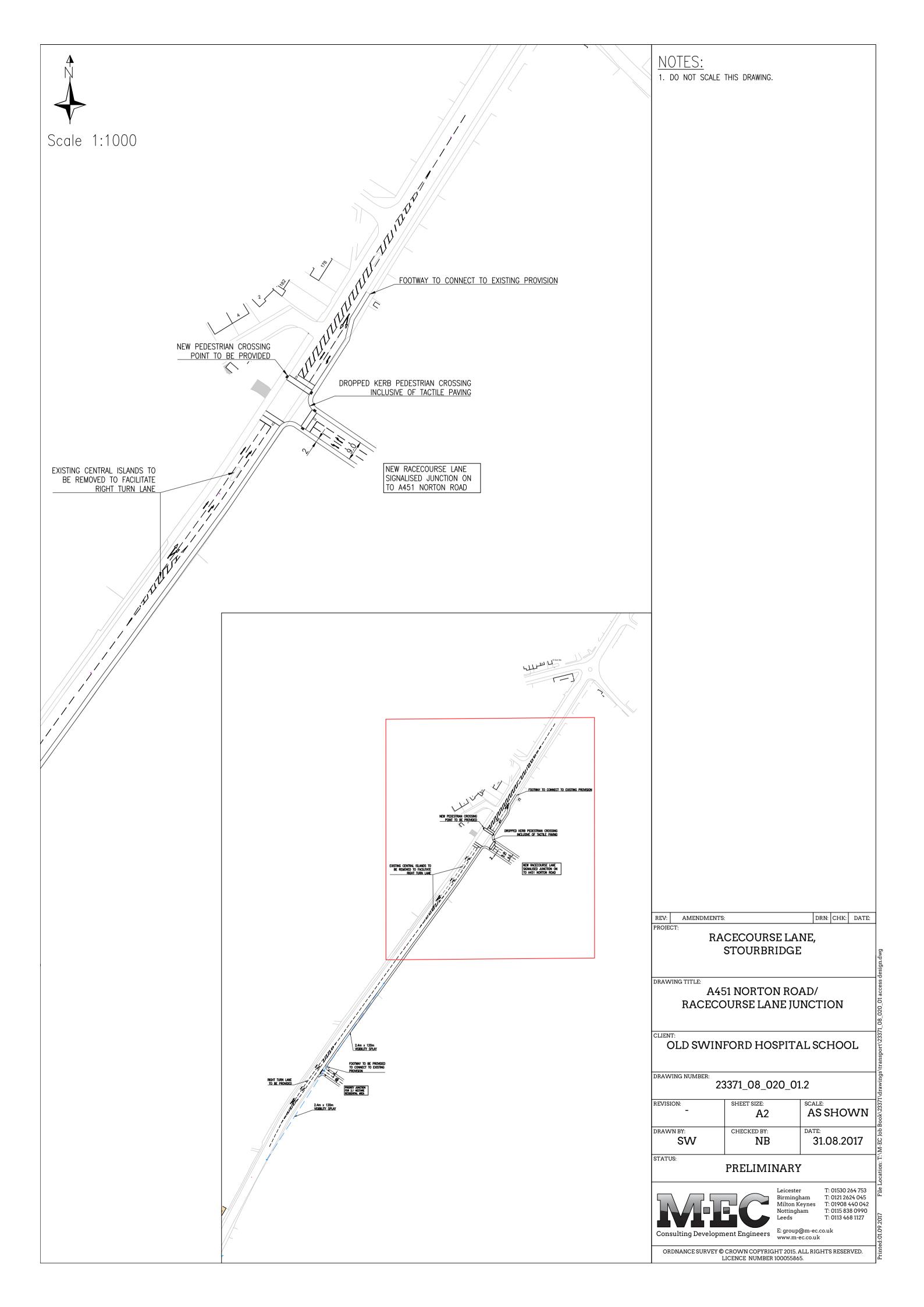
APPENDIX D

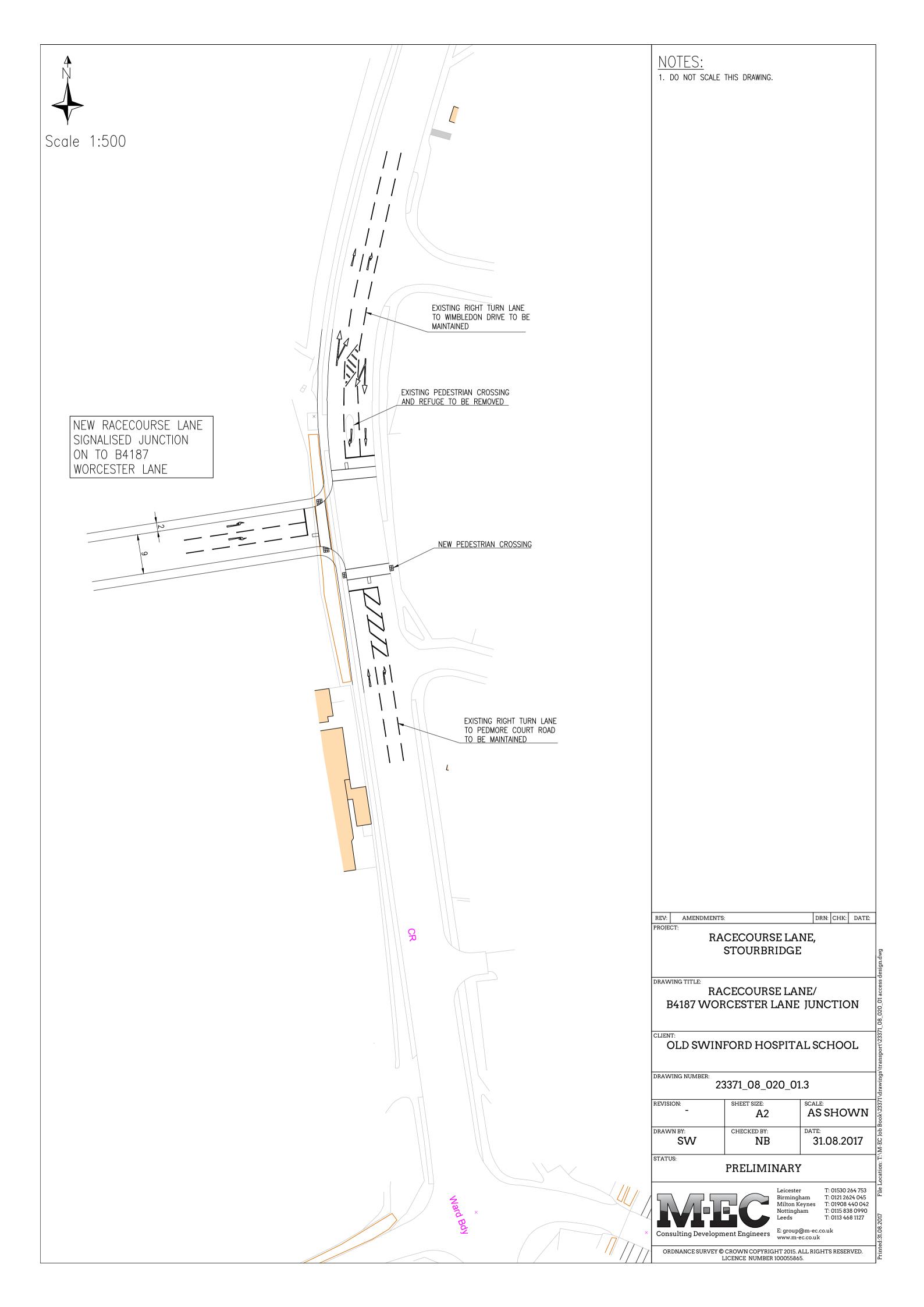
22036	STOURBRIDGE									
	AUGUST 2017			Posted Speed						
Site	Location	Direction	Start Date	End Date	Limit (PSL)	Total Vehicles	5 Day Ave.	7 Day Ave.	Average 85%ile Speed	Average Mean Speed
Site No: 22036002	B4187 Worcester Lane, Stourbridge (LC 20) SO 90535 82422	Channel: Northbound	Thu 24-Aug-17	Wed 30-Aug-17	· 40	19698	3066	2814	35.8	31.7
		Channel: Southbound	Thu 24-Aug-17	Wed 30-Aug-17		22914	3548	3273	36.0	30.6



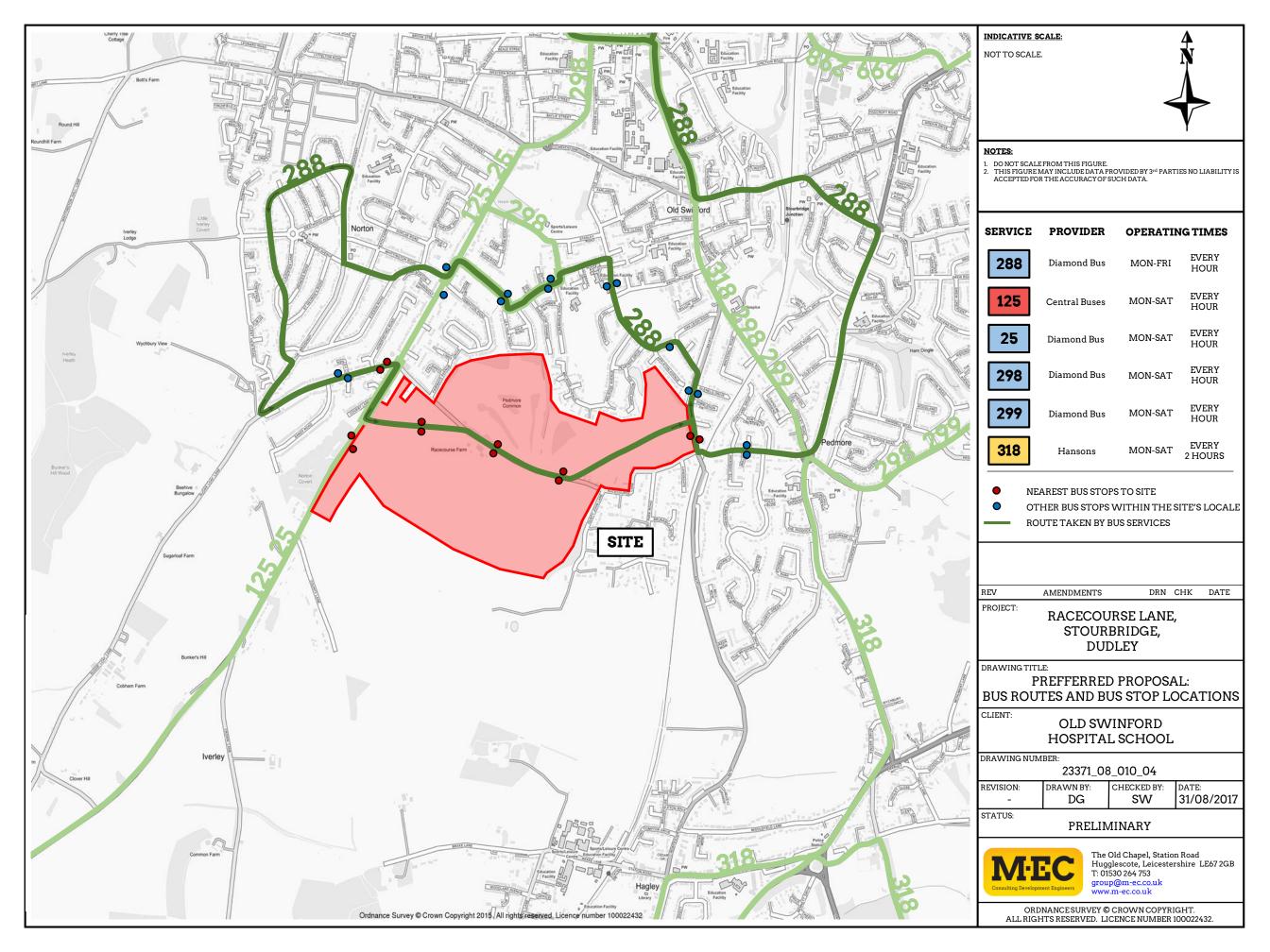
APPENDIX E







APPENDIX F



Civil Engineering

Drainage

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Structures

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Contamination

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Utilities

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