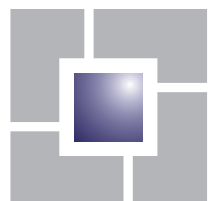


**Ernleye Meadows, Pearl Lane,
Stourport-on-Severn**

Transport Assessment



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transport planning consultants

Ernleye Meadows, Pearl Lane,
Stourport-on-Severn

Transport Assessment

15th December 2020

DN/NS/18333-05 Transport Assessment_FINAL

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1.0 INTRODUCTION

- 1.1 David Tucker Associates (DTA) has been commissioned by Barratt Homes to provide highways and transport advice and to prepare a Transport Assessment to support a full planning application for 331 dwellings with associated highway infrastructure on land at Ernleye Meadows, Pearl Lane, Stourport-on-Severn. A copy of the site masterplan is attached at **Appendix A**. This report considers up to 400 dwellings.
- 1.2 This Transport Assessment (TA) has been prepared in accordance with the National Planning Policy Framework (NPPF) February 2019, which states that all developments that generate significant amounts of movements should be supported by a Transport Statement or Transport Assessment and Travel Plan.
- 1.3 This report considers the transport and highways implications associated with the proposals and is structured as follows:
- Chapter 2: Policy Context
 - Chapter 3: Existing Conditions
 - Chapter 4: Development Proposals
 - Chapter 5: Traffic Generation and Distribution
 - Chapter 6: Traffic Impact Assessment
 - Chapter 7: Conclusions.
- 1.4 Detailed discussions have been held with Worcestershire County Council regarding the development proposals, and it was agreed that the impact of the development on Stourport town centre would be tested using VISSIM microsimulation. The details of the modelling results are summarised within this report.
- 1.5 This TA considers the potential transport and highways impacts of the proposals including the impact of development generated traffic on the capacity and safety of the surrounding road network. It concludes that proposed development would have no material residual adverse impact on the safe operation of the local highway network.

2.0 POLICY CONTEXT

2.1 National Policy

National Planning Policy Framework

- 2.1.1 In February 2019, the Government published a revised National Planning Policy Framework (NPPF). This report should therefore be read in the context of the new NPPF.
- 2.1.2 Paragraph 109 of the NPPF is clear that: *"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".*
- 2.1.3 Within this context, the NPPF identifies in Paragraph 110 that applications for development should:
- "a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
 - b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
 - c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
 - d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
 - e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."*
- 2.1.4 Paragraph 111 of the NPPF goes on to state that: *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed".*
- 2.1.5 In reinforcing the principle of supporting sustainable development, paragraph 10 stipulates that at the heart of the Framework is *"...a presumption in favour of sustainable development"*.

2.2 Local Planning Policy

Wyre Forest District – Local Plan Pre-Submission (2016-2036)

- 2.2.1 The draft Local Plan identifies where development sites for homes and business will be and the services and infrastructure needed to support them.
- 2.2.2 The development site is provisionally allocated under Site Reference AKR/14 for 250 dwellings. Policy 33.5 Pearl Lane states:
1. Access to be taken from Pearl Lane.
 2. Additional boundary tree planting will be required along northern, western and southern boundaries in particular to reduce the impact on the rural landscape and screen the development from the A451 and Redhouse Lane.
 3. Development should be sympathetic to the setting of the historic buildings in Dunley, especially Dunley Hall.
 4. There is an opportunity to design an area of open space in the northern part of the site to buffer the setting of Dunley and potentially conserve significant archaeology in situ.
 5. A full impact assessment on any below ground archaeological assets should be included as part of a Heritage Statement at the planning application stage.
 6. A 10m buffer will be required alongside the Blackstone to Astley Aqueduct which runs north to south through the site.
 7. The potential to open up the spring fed culverted watercourse which runs west to east to provide biodiversity benefit should be investigated. A public footpath also runs alongside the watercourse and this should be further buffered from development to maintain the views out into the wider rural landscape.
 8. No additional discharge must be made from the development as there are issues of surface water flooding on the estate opposite. This should be dealt with on site by SuDS and integrated into the wider green infrastructure provision.
 9. New development should front onto Pearl Lane to help merge the new development with the existing urban edge.

2.2.3 Key transport policies include:

Policy 13 – Transport and Accessibility in Wyre Forest

2.2.4 Proposals must demonstrate that:

- i. The location and layout of development will minimise the demand for travel
- ii. They offer viable sustainable transport choices, with a particular focus on active travel modes
- iii. They address road safety issues
- iv. They are consistent with the delivery of the Worcestershire Local Transport Plan objectives.

2.2.5 Travel Plans will be required for all major developments. These must set out measures to reduce demand to travel by private cars and must seek to promote and support increased walking, cycling and public transport uses.

2.2.6 Transport Assessments are required for all major developments and must be carried out in compliance with relevant national and local policies and guidance.

3.0 EXISTING CONDITIONS

3.1 Site Location

3.1.1 The site is located approximately 2.1km to the southwest of Stourport-on-Severn Town and 0.5km from Astley Cross Village. The location of the site is shown in **Figure 1**.

3.1.2 The A451 Dunley Road runs along the northern border of the site heading westbound, and the B4194 Pearl Lane runs along the eastern border of the site, heading southbound. The site is bordered by open fields primarily of agricultural use to the north, west and south and to the east by the residential village of Astley.

3.2 Highway Network

3.2.1 The northern edge of the site borders the A451 Dunley Road, a single carriageway road subject to a 40-mph speed until it reaches halfway across the northern site boundary where it changes to the national speed limit heading southwest.

3.2.2 The A451 is the main route into Stourport-on-Severn from the south and continues north to Kidderminster.

3.2.3 The eastern boundary of the site borders the B4194 Pearl Lane, a single carriageway road subject to the national speed limit.

3.3 Existing Traffic Flows

3.3.1 In order to establish existing flows in the vicinity of the site, automated traffic counts (ATC) were undertaken at various locations in proximity to the site. These include:

- A451 Dunley Road, south of the Dunley Rd/ Ribbesford Rd crossroads junction; and
- Pearl Lane, south east of the Dunley Rd/ Ribbesford Rd crossroads junction

3.3.2 Both ATC's were undertaken from 13/05/2019 to 26/05/2019 and the volumetric and speed data was recorded for 2 weeks and has been summarised in **Table 1** below. The full ATC 7 data output is attached at **Appendix B**.

Table 1 – Dunley Road and Pearl Lane

Direction	Volumetric				Speed	
	5-Day Average	7-day Average	AM Peak	PM Peak	85th %ile	Average
Dunley Road						
Northbound	2715	2480	324	270	52.1	45.1
Southbound	2589	2393	253	253	53.1	45.6
Pearl Lane						
Northbound	1160	1007	217	230	52.0	44.8
Southbound	1000	875	184	160	51.0	45.1

3.3.3 Manual Classified Turning Count (MCC) analysis were carried out at junctions required by the Worcestershire Highway Authority:

- Minster Rd/ Church Dr/ A451/ Worcester St crossroads
- Worcester Rd/ Hartlebury Rd roundabout
- Mitton St/ Severn Rd junction
- Vale Rd/ Mitton St/ Lion Hill junction
- Lombard St/ Mitton St/ High St/ Lickhill Rd junction
- Lion Hill/ Lodge Rd T-junction
- Lion Hill/ Mart Ln/ York St
- High St/ York St/ Bridge St/ New St mini roundabout
- Dunley Road/ Pearl Ln/ Ribbesford Rd crossroads

3.4 Personal Injury Collisions

3.4.1 Personal Injury Collision (PIC) data has been obtained from Worcestershire County Council for the most recent five-year period between 01/06/2014 and 31/05/2019. The PIC output plan and full reports are attached at **Appendix C**.

3.4.2 The study area includes;

- Dunley Road/ Pearl Lane/ Ribbesford Road crossroad junction, Dunley Road south of the crossroad junction past the northern border of the site and extending north east along Dunley Road across the River Severn and into Stourport-on-Severn town centre where the A451 meets Lickhill Road.

- B4194 Pearl Lane along the site's eastern boundary up to the T-junction where Red House Road meets Pearl Lane.

3.4.3 There have been 15 PICs recorded in the last 5-years within the analysed area. These are summarised in **Table 2** below.

Table 2 – PIC Data Summary

PIC no.	Severity	No. Vehicles	Veh. 1	Veh. 2	No. Casualties
1	Slight	1	Car		1
2	Slight	1	3.5 HGV		1
3	Slight	1	Car		1
4	Slight	2	Car	Car	2
5	Slight	2	Car	Car	4
6	Slight	1	Car		1
7	Slight	2	Car	Trike	1
8	Slight	2	Car	Car	2
9	Slight	2	HGV	Car	1
10	Slight	1	Car		1
11	Slight	1	Car		1
12	Serious	1	Car		1
13	Slight	2	Car	Car	1
14	Slight	1	Car		1
15	Slight	1	Car		1

3.4.4 Fourteen of the 15 PICs recorded have been classified as 'Slight' with the remaining PIC being classified as 'Serious' in severity.

3.4.5 The PIC classified as 'Serious' occurred on the 28/03/2018 the Lickhill Road/ High Street/ Lombard Street/ Mitton Street cross roads junction where vehicle movements are controlled by give-way lines. The PIC is described as being a result of:

"Vehicle 1 (car) was travelling at low speed negotiating a junction in the Town Centre on Lickhill Road and it's junction with High Street. Elderly pedestrian (Casualty) stepped into Carriageway and a collision between the Vehicle 1 and pedestrian occurred."

3.4.6 None of the 'Slight' PICs recorded within the study area involved any 'vulnerable' road users, namely cyclists or pedestrians. Additionally, all of the PICs recorded were the result of careless driving and errors of judgement and not fundamental design or alignment issues existing along the current highway network.

- 3.4.7 Thorough review of this PIC data demonstrates that there are no existing highway safety concerns within the vicinity of the proposed development site and that no mitigation measures are required.

3.5 **Pedestrian and Cycle Access**

- 3.5.1 There is a footway on the eastern side of Pearl Lane between Dunley Road and Cotswold Avenue. There is a further footway connection through to Cleeve Close approximately halfway along the site frontage and along Red House Road to the south. These provide safe and convenient continuous pedestrian links into and through the Astley Kings and Astley Cross residential areas.
- 3.5.2 Due to the environment of the adjacent residential areas, cyclists will be encouraged to cycle on carriageway, which is advocated by the Department for Transport's Local Transport Note 2/08 for Cycle Infrastructure Design. It suggests that for the busy pedestrian areas and where there are a large number of side roads and property accesses along routes, on-road cycling reduces the potential for conflicts.
- 3.5.3 Therefore, local facilities within the surrounding residential areas as well as the further destinations in the town centre can be safely accessed by pedestrians and cyclists.
- 3.5.4 There is an existing Public Rights of Way (Route 530) intersecting the site in an east-west direction connecting to Pearl Lane to the east and Public Right of Way Route 522 to the west.

3.6 **Bus Services**

- 3.6.1 The nearest bus stop is located approximately 300m from the site on Abberley Avenue. Abberley Avenue is served by the number 3 bus. Another stop located approximately 800m south of the site access (Pearl Lane) at Red House Road provides access to the 294 and 296 buses. These services, their routes and frequency, are summarised in **Table 3** below.

Table 3 – Bus Services

Number	Route	Maximum Frequency & First and Last Service					
		Mon-Fri		Sat		Sun	
3	Kidderminster - Areley Kings - Kidderminster	15 mins		15 mins		1 hour	
		First	Last	First	Last	First	Last
		624	2029	654	2029	932	1732
294/296	Kidderminster - Worcester	2 hours		2 hours		no service	
		First	Last	First	Last		
		705	1630	718	1630		

3.6.2 The number 3 service is a circular service stopping in Stourport centre as well as Kidderminster. The 2011 census data shows that for the area of the development 40% of residents currently work in Stourport or Kidderminster. Therefore, the existing bus service not only provides a high frequency (four hourly service) it also has excellent potential to replace journey to work car trips from the development. The first and last services occur prior to and after the traditional working day.

3.7 Local Facilities

3.7.1 Astley Cross village and Stourport-on-Severn Town Centre have a number of services and facilities including education, retail, leisure, healthcare and employment. A Local Facilities Plan is shown at **Figure 1**.

3.7.2 It is generally considered that for distances under 2km, walking offers the greatest potential to replace short car trips. For distances under 5km, cycling also has the potential to substitute for short car trips. All of the services summarised below are within this guideline walking and cycling distances and therefore it is concluded that the site is sustainably located.

Education

3.7.3 The nearest primary school to the site is St Bartholomew's Primary School, located 1.1km east of the site off Princess Way. The door to door walking distance is well within the national average. During the public consultation concerns were raised regarding the level difference between the site and the school. A further site visit was undertaken to specifically walk the routes to the school. The first was the right of way from Pearl Lane, across Abberley Avenue onto Areley Common to the school. Whilst the school is up the hill it is not considered overly demanding even if pushing a buggy. The second route was

from Cotswold Avenue through to Areley Common which is a flatter route given the northern parcel of the site is at a higher level than the south.

3.7.4 Whilst the concerns of the public at the consultation were noted, it is not considered the gradient of either route would materially affect the ability for a future resident to walk from the site to the primary school.

3.7.5 The nearest secondary school is Stourport-on-Severn High School located 3.3km northeast of the site, north of the town centre.

Retail

3.7.6 Astley Cross has a pharmacy, post office, convenience store, newsagents and public houses.

3.7.7 Stourport-on-Severn Town Centre has all the retail outlets that would be expected in a Town Centre including banks, markets and supermarkets.

Leisure

3.7.8 Wyre Forest Leisure Centre is the closest leisure facility to the site, located on the edge of Kidderminster, 6.1km from the site. The centre has a pool, gym, sports hall and an outdoor sports pitch. This centre can be reached from the site by cycling in around 21 minutes, or by travelling on the number 3 bus service which takes approximately 30 minutes 'door-to-door'.

3.7.9 Bewdley Leisure centre is located 7.4km from the site and provides similar facilities to Wyre Forest Centre. This centre can be reached by bike in around 30 minutes or by travelling on the number 296 bus which takes approximately 27 minutes 'door-to-door'.

3.7.10 There are a number of recreational grounds including Areley Kings Football Club in the Town Centre, as well as Stourport Boat Club and Wilden Village Cricket Club.

3.7.11 During the public consultation concerns were raised regarding the operation of the Wobbly Wheel Car Boot sale on the land opposite the site to the north of Dunley Road. Unfortunately, the car boot had ceased operation prior to the public consultation and is

not due to reopen until April. Therefore, no on-site observations were possible. However, the proposed junction into the site will provide appropriate junction protection parking restrictions and the right turn lane will provide additional width for through traffic to carefully assess any stationary traffic waiting to turn into the site.

Healthcare

3.7.12 In terms of access to healthcare provision, York House Medical Centre is located on York Street by the marina and Stourport Health Centre Medical Practice is located off Worcester Street in the Town Centre.

3.7.13 The closest hospital to the site offering A&E services is Worcestershire Royal Hospital located 25km southeast of the site on the outskirts of Worcester.

Employment

3.7.14 There are a variety of employment opportunities within Stourport-on-Severn. The centre serves numerous high street shops, independent retailers, public houses, banks, eateries, pharmacies and more.

3.7.15 There are additional opportunities for employment, such as Sandy Lane Industrial Estate approximately 4.5km to the west of the site and Wilden Industrial Estate, 1.1km to the northeast of the site.

3.7.16 Kidderminster, Droitwich Spa and Worcester are existing principal employment destinations.

3.7.17 The site is located in the Wyre Forest 014 middle super output area (MSOA).

3.7.18 The 2011 census data demonstrates that the mode share for people driving a car or van to work within the area is 76% with an additional 7% of residents within this MSA getting to work either as a passenger in a car/ van or on foot. An overall summary of all 'method of travel to work' data is shown in **Table 4** below.

Table 4 – Summary of Wyre Forest 014 Method of Travel to Work

Modal Choice	Wyre Forest 014
Driving a Car or Van	76%
On Foot	7%
Passenger in Car or Van	7%
Bus, Minibus or Coach	6%
Bicycle	1%
Train	1%
Other Method of Travel to Work	2%

3.8 Summary

- 3.8.1 Overall, the site is considered to be well located in terms of accessibility to local facilities. Opportunities for increasing the number of residents travelling to work by sustainable modes resulting in lower dependency on the car are abundant. Enhancing accessibility between the development site and these local facilities are identified within this Transport Assessment.

4.0 DEVELOPMENT PROPOSALS

4.1 Overview

- 4.1.1 The proposals are for the promotion of a site to cater for up to 400 dwellings on land off Dunley Road / Pearl Lane.

4.2 Site Access

- 4.2.1 It is proposed to serve the site from two points of access. The first access will be located on the northern border of the site off Dunley Road and the second point of access will be located on the eastern border of the site off Pearl Lane.
- 4.2.2 Both points of access will be designed to required standards in terms of visibility in accordance with DMRB guidelines. Due to the recorded 85th percentile speeds of traffic being circa 50mph, the required SSD is 160m. Therefore, the access to the north onto Dunley Road will be an 'x' distance of 2.4m and 'y' distances of 160m. The access onto Pearl Lane will have an 'x' distance of 2.4m and 'y' distances of 160m.
- 4.2.3 The access to the north onto Dunley Road is shown on **DTA Drawing 18333-05-1** with the access onto Pearl Lane being shown on **DTA Drawing 18333-05-2**.
- 4.2.4 Both accesses have been designed to cater for the manoeuvring of large vehicles, in order to test this both access points have been tracked with a large 3 axle refuse vehicle. These are shown on **DTA Drawing 18333-05-1** and **DTA Drawing 18333-05-2**.

4.3 Pedestrian and Cycle Links

- 4.3.1 An established network of footways and crossing points throughout the local area provides direct and convenient access to a range of facilities and public transport connections. Measures to delivering enhanced connectivity between the proposed development and local services are identified below.
- 4.3.2 Foot/ cycle access to the proposed development would be achieved through a number of connection points, as indicated on the illustrative masterplan attached as **Appendix A**, including:

- Via new cycleway connection to Pearl Lane
- Via new footway link to existing provision on Cotswold Avenue with cycleway connection to Pearl Lane.

4.3.3 The proposed footway/ cycleway proposed is shown on **DTA Drawing 18333-05-2**.

4.3.4 With regard to the development site, it would be designed to facilitate foot and cycle movements along desire lines through the development, linking to the external access points. This will include the provision of:

- 2m footway along all road routes through the site.
- Dedicated cycle routes throughout the site linking into the existing Public Rights of Way.
- Retention of existing Public Rights of Way through the site.
- Series of public open spaces with pedestrian routes to help retain existing ecology.

4.4 **Car Parking Provision**

4.4.1 Car parking provision is set out in Worcestershire County Council's Streetscape Design Guide. For residential developments it states:

- 1-bedroom Unit – 1 space
- 2-3 bedroom Units – 2 spaces
- 4-5 bedroom Units – 3 spaces

4.4.2 The guidance further states that garages are excluded from the car parking calculations due to the ability to convert them into habitable accommodation.

4.5 **Travel Plan**

4.5.1 A Residential Travel Plan has been prepared under a separate cover. The aim of the Travel Plan is to promote sustainable travel to the site by modes such as walking, cycling and public transport, and reducing the need to travel by single occupancy car driver trips.

5.0 TRAFFIC GENERATION AND DISTRIBUTION

5.1 Trip Generation

- 5.1.1 To estimate the potential traffic generation of the site the TRICS database was used. TRICS (7.6.1) has been interrogated for 'all person' multi modal surveys of residential sites. The surveys selected were those in England (excluding Greater London). The person trip rates, and trip generation is presented in **Table 5** below and the full TRICS outputs is attached at **Appendix D**.

Table 5 – Person Trip Rate and Generation Summary for 400 Proposed Dwellings

	Time								
	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)			24 Hours		
	In	Out	Total	In	Out	Total	In	Out	Total
Trip Rates (Per dwelling)	0.182	0.721	0.903	0.599	0.234	0.833	3.735	3.823	7.558
Trip Generation (400 Dwellings)	73	288	361	240	94	333	1494	1529	3023

- 5.1.2 The Census JTW data detailed at paragraph 3.7 demonstrates that 76% of trips are undertaken by car driver. This modal share has been applied to the person trip rates presented in **Table 5** above, and the resulting vehicle trip rate and associated traffic generation for the site is set out in **Table 6** below.
- 5.1.3 A comparison has also been undertaken against the vehicular trip rates taken from TRICS. It shows in **Table 6** that applying the car driver mode share to the person trips results in a higher vehicle trip generation. Therefore, it is considered that trip rates proposed are robust.

Table 6 – Vehicle Trip Rate and Generation Summary for 400 Proposed Dwellings (Based on 76% Vehicles)

	Time								
	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)			24 Hours		
	In	Out	Total	In	Out	Total	In	Out	Total
Trip Rates (76% Car Driver Mode Share)	0.138	0.548	0.686	0.455	0.178	0.633	2.838	2.905	5.743
Trip Generation	55	219	275	182	71	253	1,135	1,162	2,298
Trip Rates (TRICS)	0.113	0.351	0.464	0.321	0.135	0.456	2.043	2.088	4.131
Trip Generation	45	140	186	128	54	182	817	835	1,652

5.2 VISSIM

5.2.1 To inform the VISSIM modelling work, the following 6-hour traffic generation has been used as presented in **Table 7** below.

Table 7 – 6 Hour Trip Generation for VISSIM Modelling

Time Period	Trip Rate			Trip Generation		
	Arrival	Departure	Total	Arrival	Departure	Total
0700-0800	0.081	0.372	0.453	33	149	181
0800-0900	0.138	0.548	0.686	55	219	275
0900-1000	0.149	0.208	0.357	60	83	143
1600-1700	0.406	0.226	0.632	162	90	253
1700-1800	0.455	0.178	0.633	182	71	253
1800-1900	0.372	0.224	0.596	149	90	238

5.3 Traffic Distribution

5.3.1 The forecast residential traffic generation has been distributed using 2011 Census Journey to Work data for the MSOA Wyre Forest 014. A breakdown of the distribution of 'all modes' trips from this area to employment destinations is summarised in **Table 8** below.

Table 8 – Summary of resident's workplace destinations from Wyre Forest 014 MSOA

Destination	Percentage
Wyre Forest	57%
Malvern Hills	6%
Wychavon	4%
Worcestershire	9%
Bromsgrove	3%
Redditch	1%
Birmingham	4%
Shropshire	1%
Dudley	3%
Other	9%
TOTAL	100%

-
- 5.3.2 Based on this Census data and using an online mapping tool, trip distribution has been carried out base upon the most direct routes to those most popular employment locations. The anticipated distribution is attached at **Appendix E**.
- 5.3.3 During the public consultation conflicting issues were raised by members of the public in relation to the potential routes available to future residents of the site looking to head north and north west. Some claimed that over the bridge was the only viable route due to the narrow constraint of section of High Street in Bewdley. Other attendees claimed that the route into Bewdley was “perfectly fine as long as drivers were sensible”.
- 5.3.4 It is considered the proposed distribution for the development traffic is realistic and takes into account peak hour congestion as well as the physical constraints of available routes.
- 5.4 **Committed Development**
- 5.4.1 An application for a new medical centre located to the south of the river off Dunley Road (Application 19/0565/FUL) has recently been granted planning permission. The medical centre is to replace and combine Stourport Health Centre and York House Medical Centre.
- 5.4.2 Therefore, the majority of vehicle trips associated with the proposed centre will already be on the road network in Stourport.
- 5.4.3 The associated net change in vehicle movements through the High Street/ York Street/ Bridge Street/ New Street Junction is 42 vehicles in the AM peak period and 20 vehicles in the PM peak period.
- 5.4.4 The net change in development flows presented in the submitted (and approved) addendum TA shows that in the AM peak there will be an increase of 4 vehicle trips travelling north over the bridge, which would be in the same direction during that time as the proposed Pearl Lane development traffic.
- 5.4.5 In the PM peak there is no forecast net change in vehicle movements south over the river that would coincide with the Pearl Lane development traffic.
- 5.4.6 The proposed medical centre site access is forecast to operate with no queueing or delay

and would therefore, not material affect the capacity assessments undertaken and presented in section 6 of this report.

5.4.7 All other committed developments will be contained within Temprow growth figures.

6.0 TRAFFIC IMPACT

6.1 Introduction

6.1.1 The impact of the proposals on the local road network and in particular the site access junctions have been assessed using industry standard junction modelling software. The following junctions have been modelled:

- Pearl Lane/ Dunley Road/ Ribbesford Road Crossroads.
- Proposed Site Access/ Dunley Road; and
- Proposed Site Access/ Pearl Lane.

6.1.2 The wider impact on Stourport Town Centre has been assessed using the Stourport Town Centre VISSIM model.

6.2 Future Growth

6.2.1 It has been agreed that a 2021 and 2026, and a 2036 end of Plan scenarios will be tested. The 2019 counted traffic flows have been factored up using local TEMPRO growth factors for Wyre Forest 014, where the site is located. The factors for the AM and PM Peak for the future years are summarised in **Table 9** below.

Table 9 – Temprow Growth Factors – Wyre Forest 014

Future Year	AM Peak	PM Peak
2019-2021	1.0059	1.0067
2019-2026	1.0299	1.0296
2019-2036	1.0814	1.0815

6.3 Impacts on the Local Network (Junction Assessments)

Pearl Lane/ Dunley Road/ Ribbesford Road Crossroads

6.3.1 This junction is a 4-arm crossroad junction, with Dunley Road comprising the major arm and Pearl Lane and Ribbesford Road comprising the minor arms. This junction has been modelled in the PICADY module of the Junctions9 software.

6.3.2 The results of this junction assessment are summarised in **Table 10** below and the outputs are attached at **Appendix F**.

Table 10 – Pearl Lane/ Dunley Road/ B4194 Junction Summary Results

	AM				PM			
	Q (PCU)	Delay (s)	RFC	LOS	Q (PCU)	Delay (s)	RFC	LOS
2019 Base								
Stream B-CD	0.2	9.02	0.14	A	0.2	9.15	0.18	A
Stream B-AD	0.7	12.01	0.41	B	0.5	11.61	0.35	B
Stream A-BCD	0.0	5.12	0.02	A	0.1	5.01	0.06	A
Stream D-AB	0.1	7.51	0.13	A	0.1	7.29	0.10	A
Stream D-BC	0.2	9.02	0.16	A	0.1	8.85	0.11	A
Stream C-ABD	0.0	5.07	0.01	A	0.0	5.19	0.03	A
2021 Base								
Stream B-CD	0.2	9.05	0.14	A	0.2	9.21	0.18	A
Stream B-AD	0.7	12.07	0.42	B	0.5	11.70	0.35	B
Stream A-BCD	0.0	5.11	0.02	A	0.1	5.00	0.06	A
Stream D-AB	0.1	7.52	0.13	A	0.1	7.30	0.10	A
Stream D-BC	0.2	9.04	0.16	A	0.1	8.87	0.11	A
Stream C-ABD	0.0	5.07	0.01	A	0.0	5.19	0.04	A
2021 Base + Dev								
Stream B-CD	0.3	11.20	0.22	B	0.3	10.29	0.23	B
Stream B-AD	1.2	16.30	0.55	C	0.7	13.76	0.41	B
Stream A-BCD	0.0	5.14	0.02	A	0.1	4.78	0.06	A
Stream D-AB	0.2	8.18	0.15	A	0.2	8.31	0.14	A
Stream D-BC	0.2	10.08	0.19	B	0.2	10.32	0.19	B
Stream C-ABD	0.1	4.93	0.04	A	0.1	5.23	0.05	A
2026 Base								
Stream B-CD	0.2	9.17	0.15	A	0.2	9.37	0.19	A
Stream B-AD	0.8	12.42	0.43	B	0.6	11.97	0.36	B
Stream A-BCD	0.0	5.10	0.02	A	0.1	5.00	0.06	A
Stream D-AB	0.2	7.62	0.13	A	0.1	7.37	0.11	A
Stream D-BC	0.2	9.17	0.16	A	0.1	8.96	0.12	A
Stream C-ABD	0.0	5.06	0.02	A	0.1	5.18	0.04	A
2026 Base + Dev								
Stream B-CD	0.3	11.50	0.24	B	0.3	10.48	0.24	B
Stream B-AD	1.3	16.93	0.56	C	0.7	14.07	0.42	B
Stream A-BCD	0.0	5.13	0.02	A	0.1	4.78	0.06	A
Stream D-AB	0.2	8.28	0.15	A	0.2	8.40	0.14	A
Stream D-BC	0.2	10.23	0.20	B	0.2	10.44	0.19	B
Stream C-ABD	0.1	4.93	0.04	A	0.1	5.22	0.05	A
2036 Base								
Stream B-CD	0.2	9.50	0.16	A	0.3	9.77	0.21	A
Stream B-AD	0.8	13.16	0.45	B	0.6	12.59	0.38	B
Stream A-BCD	0.0	5.08	0.02	A	0.1	4.97	0.06	A
Stream D-AB	0.2	7.78	0.14	A	0.1	7.55	0.11	A
Stream D-BC	0.2	9.38	0.17	A	0.1	9.19	0.13	A
Stream C-ABD	0.0	5.04	0.02	A	0.1	5.16	0.04	A
2036 Base + Dev								
Stream B-CD	0.3	12.15	0.25	B	0.3	11.00	0.26	B
Stream B-AD	1.4	18.30	0.59	C	0.8	14.89	0.44	B
Stream A-BCD	0.0	5.10	0.02	A	0.1	4.76	0.07	A
Stream D-AB	0.2	8.48	0.16	A	0.2	8.63	0.15	A
Stream D-BC	0.3	10.50	0.21	B	0.3	10.75	0.20	B
Stream C-ABD	0.1	4.91	0.04	A	0.1	5.21	0.05	A

Arms – Arm A Dunley Road (East), Arm B Pearl Lane, Arm C Dunley Road (West), Arm D B4194

6.3.3 The results show that the junction will operate within capacity in all the assessment scenarios, with the addition of the development traffic.

Proposed Site Access/ Dunley Road

6.3.4 It is proposed to provide a priority T-junction to serve the development site from Dunley Road. This junction has been modelled in the PICADY module of the Junctions9 software. The results are summarised in **Table 11** below and the outputs are attached at **Appendix F**.

Table 11 – Proposed Site Access/ Dunley Road Junction Summary Results

	AM			PM		
	Q (PCU)	Delay (s)	RFC	Q (PCU)	Delay (s)	RFC
	2021 Base + Dev					
Stream B-AC	0.3	10.65	0.23	0.1	9.07	0.08
Stream C-AB	0.0	5.33	0.00	0.0	5.55	0.01
	2026 Base + Dev					
Stream B-AC	0.3	10.71	0.23	0.1	9.12	0.08
Stream C-AB	0.0	5.34	0.00	0.0	5.56	0.01
	2036 Base + Dev					
Stream B-AC	0.3	10.85	0.23	0.1	9.21	0.08
Stream C-AB	0.0	5.36	0.00	0.0	5.59	0.01

Arms – Arm A Dunley Road East, Arm B Site Access, Arm C Dunley Road West

6.3.5 The results show that the junction will operate within capacity in all the assessment scenarios, with the addition of the development traffic.

Proposed Site Access/ Pearl Lane

6.3.6 It is proposed to provide a priority T-junction to serve the development site from Pearl Lane. This junction has been modelled in the PICADY module of the Junctions9 software. The results are summarised in **Table 12** below and the outputs are attached at **Appendix F**.

Table 12 – Proposed Site Access/ Pearl Lane Junction Summary Results

	AM			PM		
	Q (PCU)	Delay (s)	RFC	Q (PCU)	Delay (s)	RFC
	2021 Base + Dev					
Stream B-AC	0.3	8.74	0.25	0.1	7.38	0.08
Stream C-AB	0.0	5.91	0.04	0.2	6.63	0.12
	2026 Base + Dev					
Stream B-AC	0.3	8.76	0.25	0.1	7.39	0.08
Stream C-AB	0.0	5.90	0.04	0.2	6.62	0.12
	2036 Base + Dev					
Stream B-AC	0.3	8.79	0.25	0.1	7.43	0.09
Stream C-AB	0.1	5.89	0.04	0.2	6.61	0.13

Arms – Arm A Pearl Lane South, Arm B Site Access, Arm C Pearl Lane North

6.3.7 The results show that the junction will operate within capacity in all the assessment scenarios, with the addition of the development traffic.

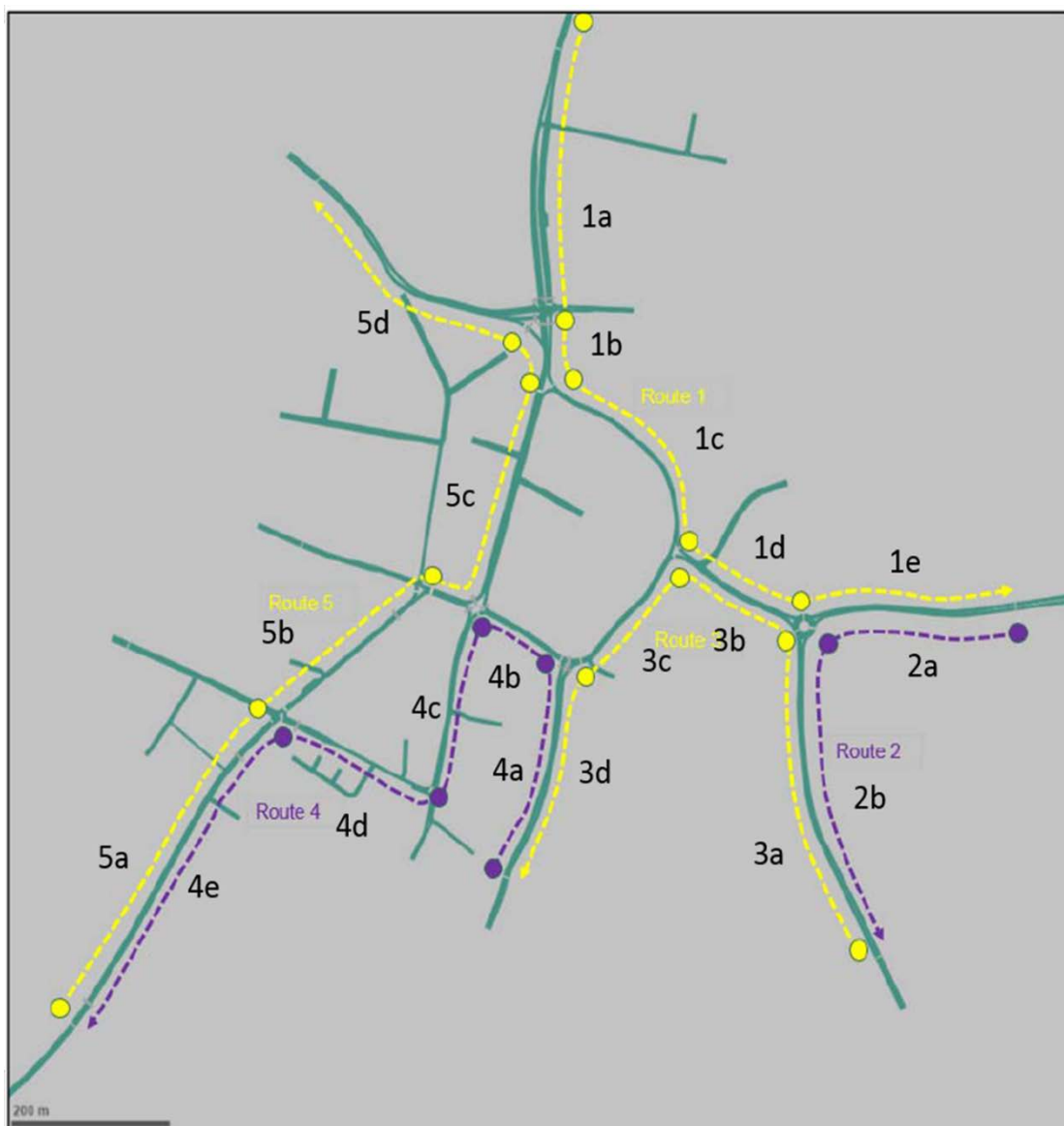
6.4 Impact on the Wider Highway Network (VISSIM)

6.4.1 The VISSIM modelling has been subject to ongoing discussions and subsequent agreement regarding the extent of the modelled area, the validation of the model and also the growth assumptions used.

6.4.2 The model has been validated to journey times and given the network configuration in and around the centre of Stourport being merges and one-way it is considered the most appropriate way to identify the development's impacts are regarding delay (i.e. change in journey times).

6.4.3 The outputs of the VISSIM model exercise are provided in **Appendix G** with the summary results being provided below.

6.4.4 The network has been split into 5 routes which are presented in the graphic below.



6.4.5 As can be seen each route is split into various sections which all have reported changes in journey times from the VISSIM model. **Tables 13-17** below presents the 2026 changes in journey times for each route for each of the three-hour AM and PM periods.

Table 13 – Route 1 - 2026 Journey Impacts Summary

	Route 1 Overall Delay in seconds				
	Base	2026 Ref	2026 Ref + Dev	2026 Ref - Base	2026 Difference
07:00-08:00	169	181	201	12	20
08:00-09:00	229	299	350	70	51
09:00-10:00	145	171	184	26	13
16:00-17:00	153	183	185	30	2
17:00-18:00	149	258	262	109	4
18:00-19:00	132	169	177	37	8

Table 14 – Route 2 - 2026 Journey Impacts Summary

	Route 2 Overall Delay in seconds				
	Base	2026 Ref	2026 Ref + Dev	2026 Ref - Base	2026 Difference
07:00-08:00	70	71	71	1	0
08:00-09:00	100	119	113	19	-6
09:00-10:00	68	78	83	10	5
16:00-17:00	72	77	77	5	0
17:00-18:00	89	74	90	-15	16
18:00-19:00	75	75	90	0	15

Table 15 – Route 3 - 2026 Journey Impacts Summary

	Route 3 Overall Delay in seconds				
	Base	2026 Ref	2026 Ref + Dev	2026 Ref - Base	2026 Difference
07:00-08:00	105	106	105	1	-1
08:00-09:00	111	111	112	0	1
09:00-10:00	109	110	110	1	0
16:00-17:00	124	123	126	-1	3
17:00-18:00	211	153	184	-58	31
18:00-19:00	140	140	166	0	26

Table 16 – Route 4 - 2026 Journey Impacts Summary

	Route 4 Overall Delay in seconds				
	Base	2026 Ref	2026 Ref + Dev	2026 Ref - Base	2026 Difference
07:00-08:00	144	144	144	0	0
08:00-09:00	152	153	154	1	1
09:00-10:00	151	153	153	2	0
16:00-17:00	166	179	181	13	2
17:00-18:00	214	279	283	65	4
18:00-19:00	172	266	267	94	1

Table 17 – Route 5 - 2026 Journey Impacts Summary

	Route 5 Overall Delay in seconds				
	Base	2026 Ref	2026 Ref + Dev	2026 Ref - Base	2026 Difference
07:00-08:00	170	170	171	0	1
08:00-09:00	209	219	274	10	55
09:00-10:00	178	187	274	9	87
16:00-17:00	192	186	193	-6	7
17:00-18:00	208	185	185	-23	0
18:00-19:00	180	173	175	-7	2

6.4.6 The greatest impact in journey times is on route 5 where there is forecast to be an increase in 2026 with the proposed development, of 55 seconds over the entire 1.3km route during the AM peak period.

6.4.7 It is clear the peak periods remain the busiest hours of the network.

6.4.8 **Table 18-22** below present the 2036 changes in journey times.

Table 18 – Route 1 - 2036 Journey Impacts Summary

	Route 1 Overall Delay in seconds				
	Base	2036 Ref	2036 Ref + Dev	2036 Ref - Base	2036 Difference
07:00-08:00	169	204	211	35	7
08:00-09:00	229	367	406	138	39
09:00-10:00	145	236	259	91	23
16:00-17:00	153	239	248	86	9
17:00-18:00	149	346	338	197	-8
18:00-19:00	132	330	330	198	0

Table 19 – Route 2 - 2036 Journey Impacts Summary

	Route 2 Overall Delay in seconds				
	Base	2036 Ref	2036 Ref + Dev	2036 Ref - Base	2036 Difference
07:00-08:00	70	73	73	3	0
08:00-09:00	100	154	144	54	-10
09:00-10:00	68	104	102	36	-2
16:00-17:00	72	81	89	9	8
17:00-18:00	89	98	149	9	51
18:00-19:00	75	105	185	30	80

Table 20 – Route 3 - 2036 Journey Impacts Summary

	Route 3 Overall Delay in seconds				
	Base	2036 Ref	2036 Ref + Dev	2036 Ref - Base	2036 Difference
07:00-08:00	105	105	106	0	1
08:00-09:00	111	112	113	1	1
09:00-10:00	109	111	119	2	8
16:00-17:00	124	127	137	3	10
17:00-18:00	211	195	282	-16	87
18:00-19:00	140	185	294	45	109

Table 21 – Route 4 - 2036 Journey Impacts Summary

	Route 4 Overall Delay in seconds				
	Base	2036 Ref	2036 Ref + Dev	2036 Ref - Base	2036 Difference
07:00-08:00	144	144	145	0	1
08:00-09:00	152	156	160	4	4
09:00-10:00	151	156	172	5	16
16:00-17:00	166	185	190	19	5
17:00-18:00	214	289	294	75	5
18:00-19:00	172	292	293	120	1

Table 22 – Route 5 - 2036 Journey Impacts Summary

	Route 5 Overall Delay in seconds				
	Base	2036 Ref	2036 Ref + Dev	2036 Ref - Base	2036 Difference
07:00-08:00	170	173	175	3	2
08:00-09:00	209	275	330	66	55
09:00-10:00	178	321	411	143	90
16:00-17:00	192	210	218	18	8
17:00-18:00	208	235	239	27	4
18:00-19:00	180	202	217	22	15

6.4.9 The same change in journey time is forecast on route 5 during the AM peak period.

6.4.10 The largest impact in 2036 is forecast to be 87 seconds in the PM peak period on route 3. This is a c1km route from the Worcester Road to the Tesco superstore.

6.4.11 Whilst an increase of 87 seconds over a 1km is not considered significant, it is likely that in the future years the shoulder peaks will continue to experience greater increase in traffic than the traditional peak periods due to “peak spreading”. This is where rather than travelling during the normal 8-9 and 5-6 peak times commuters will set off earlier or later to reduce the delay to their journey.

6.4.12 In addition, working practices such as flexible working hours and home working will also reduce the forecast traffic growth during the peak periods.

6.4.13 The 2036 forecast results include numerous assumptions on traffic growth but in reality, those matters such as peak spreading, home working etc will reduce the future traffic demands of the proposed development on the local and wider highway network. Therefore, these forecast impacts are not likely to materialise.

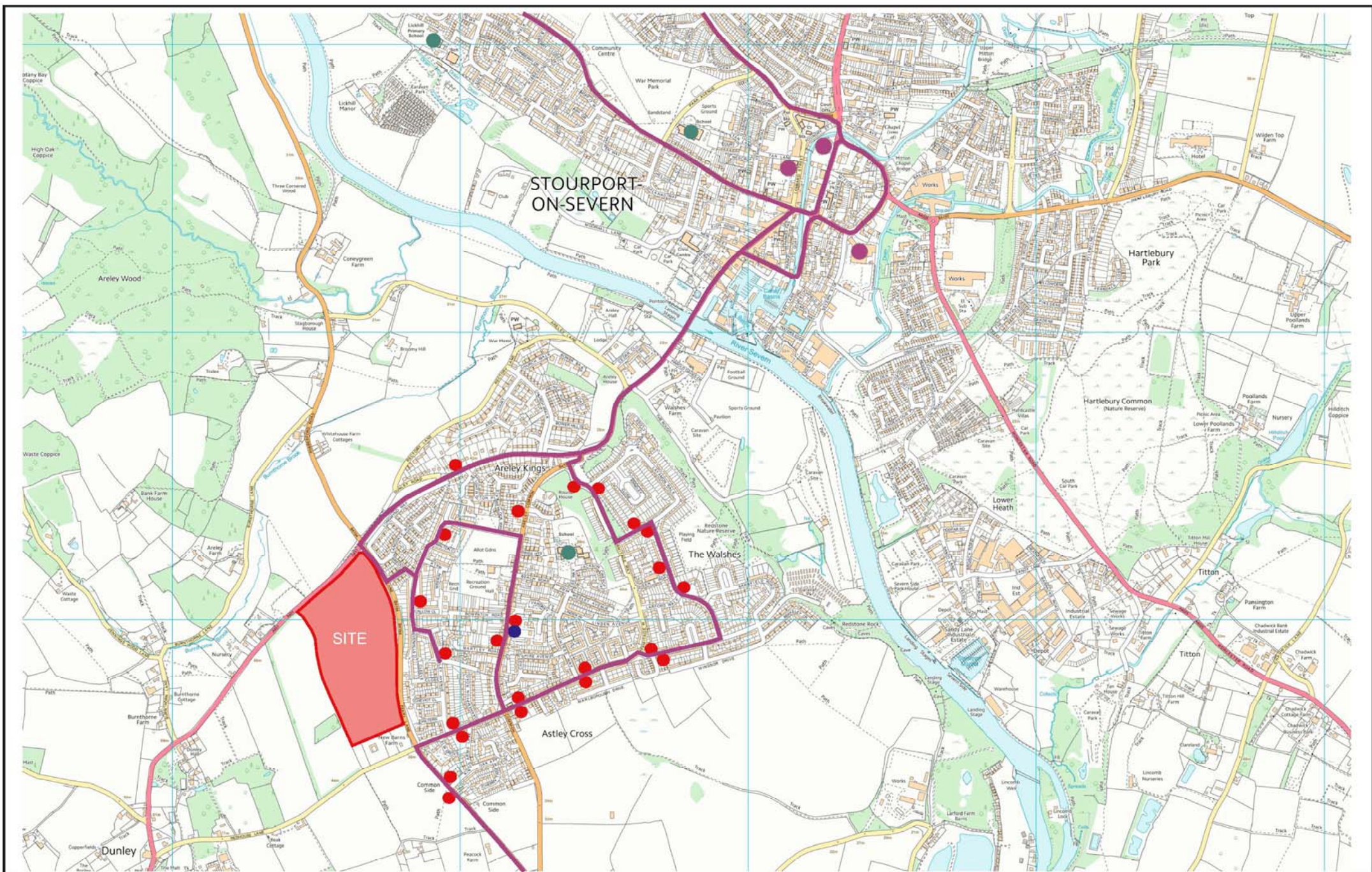
6.4.14 A recent example if this is the DfT traffic forecasts (TEMPro) that were released in late 2019. Whilst this TA is based on the previous higher forecasts for the local junction modelling, the Stourport Local Growth rates have reduced by 3% in both the AM and PM peak periods. This clearly shows that traffic growth in the future is forecast to increase at a much lower rate than previous national indicators had suggested.

-
- 6.4.15 Therefore, when considering the impacts of the development in 2026, it has been demonstrated through both the local junction modelling and wider VISSIM exercise that the development would not result in any significant increases in queueing or delay.
- 6.4.16 In 2036 whilst the forecast delay is due to increase through the town the impacts are still generally less than the growth that is forecast to occur with just general growth in background traffic.
- 6.4.17 Finally, and importantly, the development site is currently allocated for development in the emerging local plan meaning that the forecast traffic growth across Stourport will include an allowance for traffic associated to this proposed development. Therefore, both the local junction and wider VISSIM modelling will include an element of double counting the potential traffic from the site.

7.0 CONCLUSION

- 7.1 This Transport Assessment has reviewed the highways and transport implications of proposals for up to 400 dwellings on land at Ernleye Meadows, Pearl Lane, Stourport-on-Severn.
- 7.2 The site is well located to local amenities and facilities, including Stourport Town Centre and has a high frequency bus service.
- 7.3 The traffic generation has been estimated and distributed onto the local network. Future year traffic forecasts also include wider development growth. This has informed the design of the access and the appraisal of the off-site impact. Accordingly, the operation of the site access has been modelled which shows that there is adequate capacity to accommodate the additional traffic generation.
- 7.4 Parking provision on site will be provided in accordance with parking standards set by the Worcestershire County Council.
- 7.5 A Travel Plan has been prepared under a separate cover and aims to reduce single occupancy car driver trips to/ from the site and encourages alternatives to travel such as walking, cycling and public transport.
- 7.6 In accordance with NPPF paragraph 109, the additional traffic would not have a material impact on the safety or operation of the local road network and it can clearly be concluded that the impact of the development will not be “severe” and overall there are no justifiable reasons for refusal on highway grounds.

Figures



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Notes:

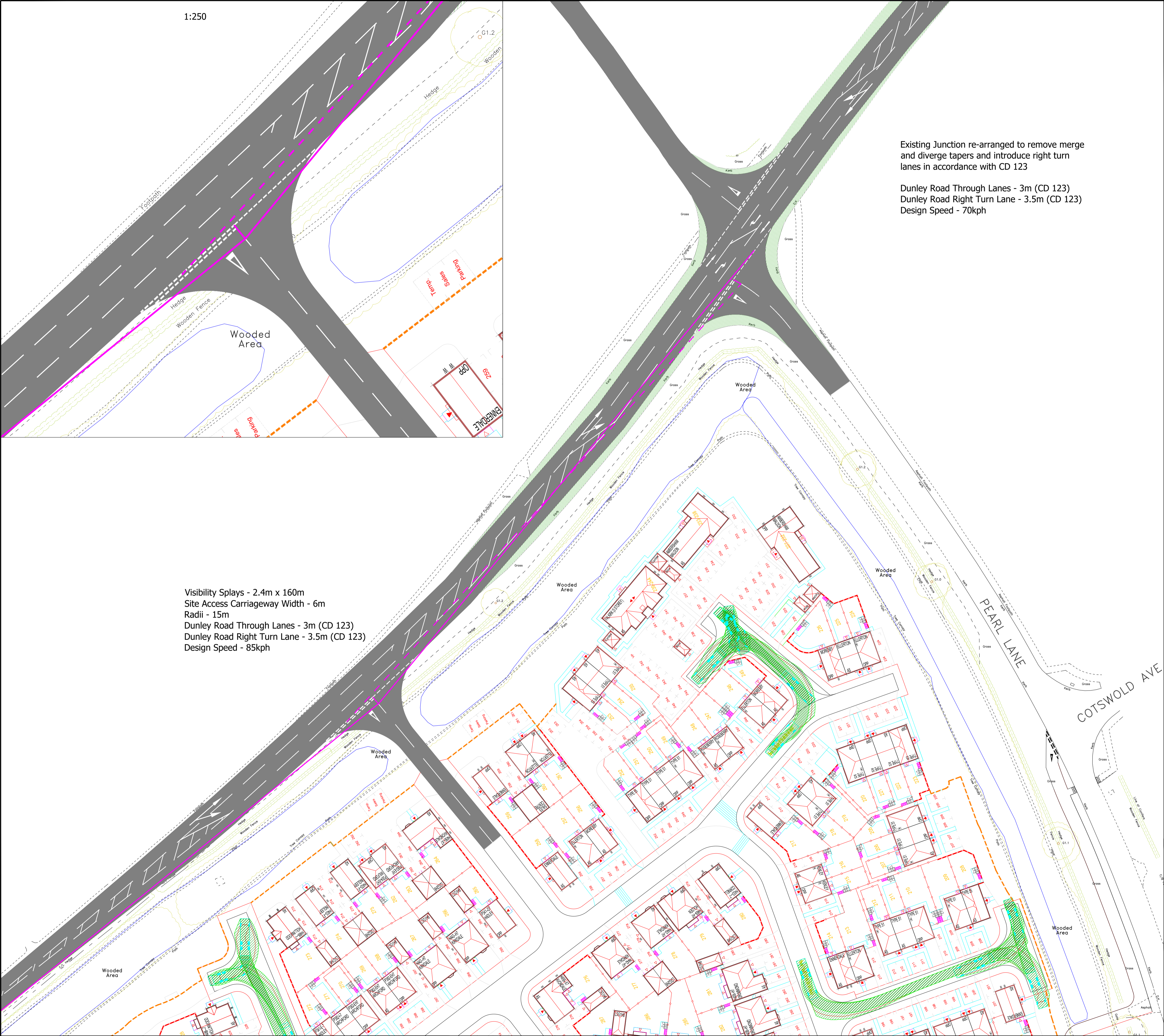
- Site
- Bus Stop
- Supermarket
- Primary School
- Convenience Store
- Bus Routes

Figure 1
 Drawing Title Site Location Plan
 Job Title Ermeley Meadows, Pearl Lane, Stourport
 Client Barratt Homes

Scale : NTS



Drawings



1:250

Existing Junction re-arranged to remove merge and diverge tapers and introduce right turn lanes in accordance with CD 123

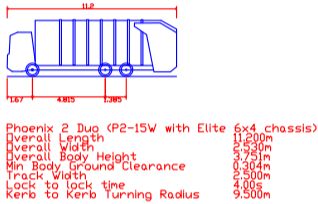
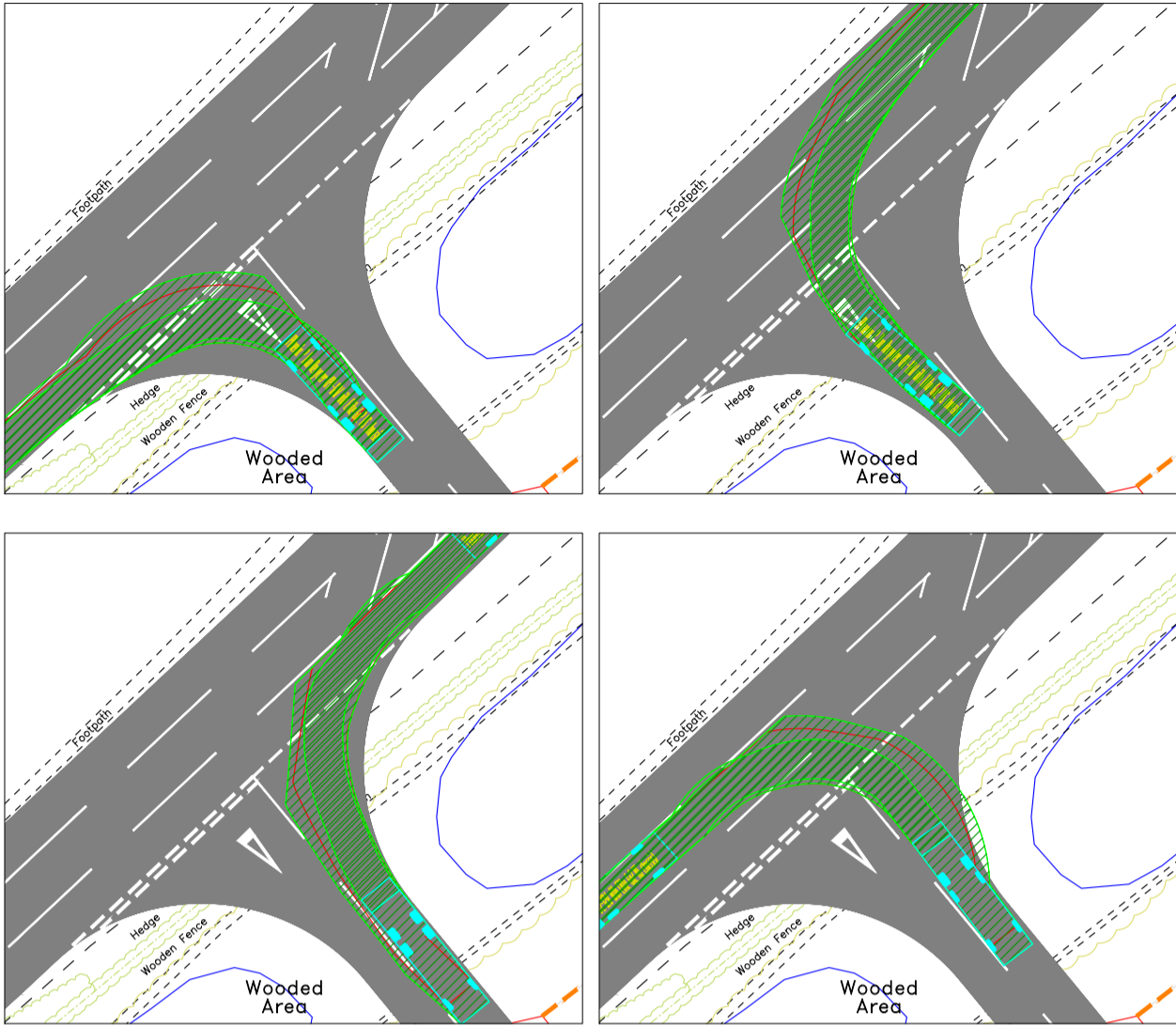
Dunley Road Through Lanes - 3m (CD 123)
Dunley Road Right Turn Lane - 3.5m (CD 123)
Design Speed - 70kph

Visibility Splays - 2.4m x 160m
Site Access Carriageway Width - 6m
Radii - 15m
Dunley Road Through Lanes - 3m (CD 123)
Dunley Road Right Turn Lane - 3.5m (CD 123)
Design Speed - 85kph

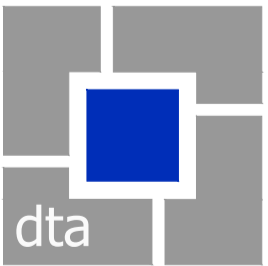
Based upon the ORDNANCE SURVEY MAPS with the permission of THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE,

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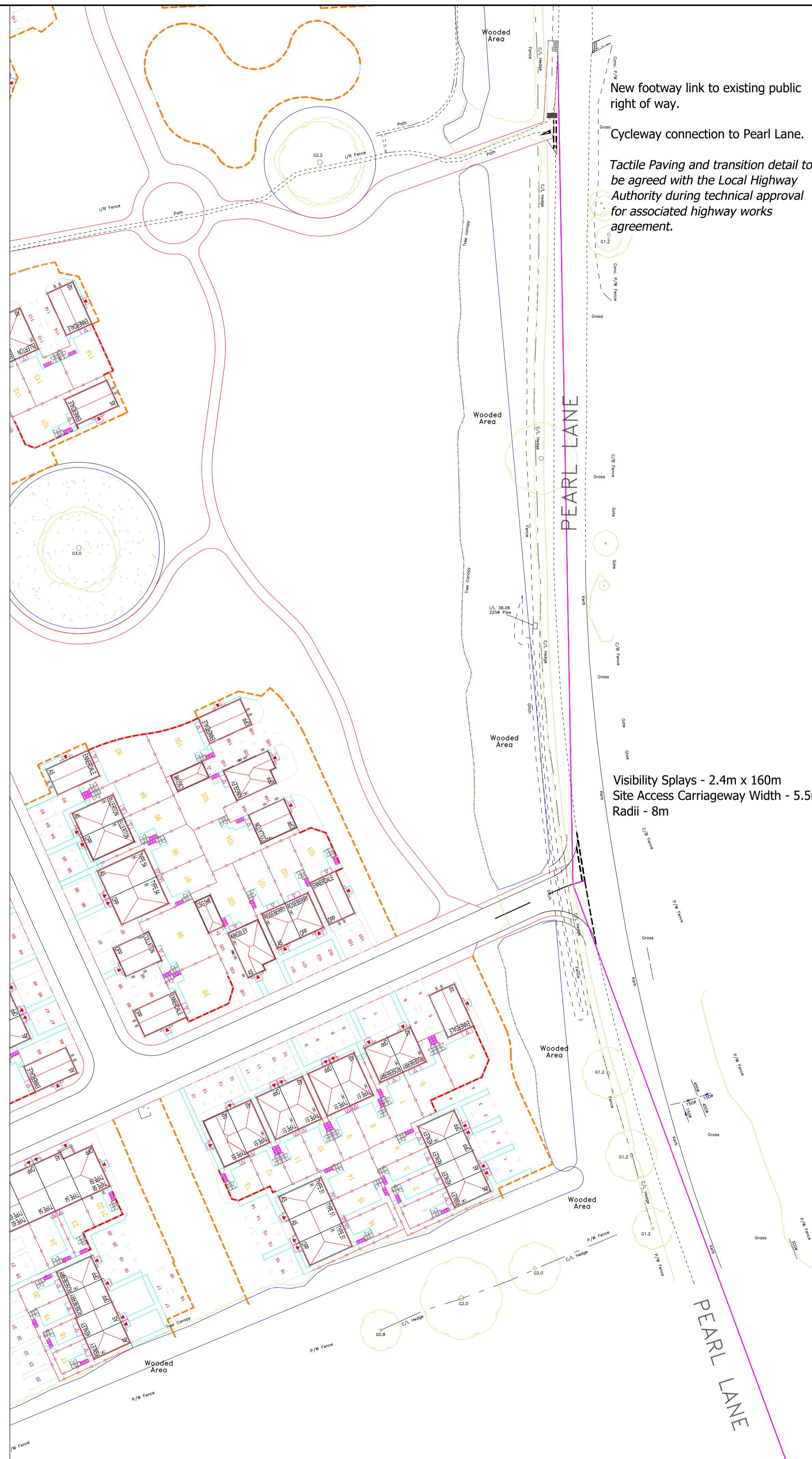
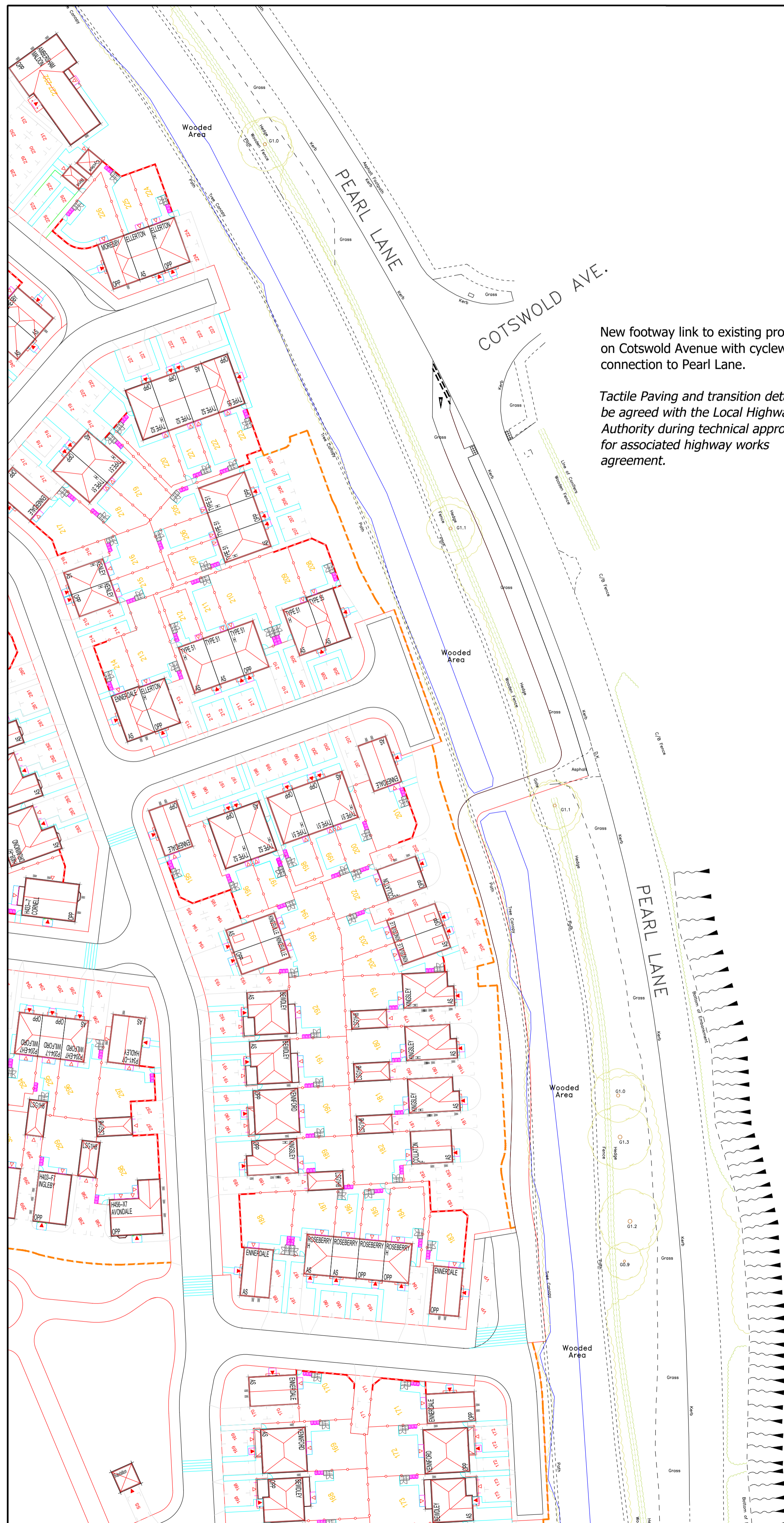
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JOB TITLE		Pearl Lane	CLIENT
DRAWING TITLE		Land West of Pearl Lane, Stourport-on-Severn	
		North Site Access – Dunley Road	
SCALE	DRAWN BY	DATE	DRAWING No
1: 500@A1	DN	Dec 20	18333-05-1
			REVISION



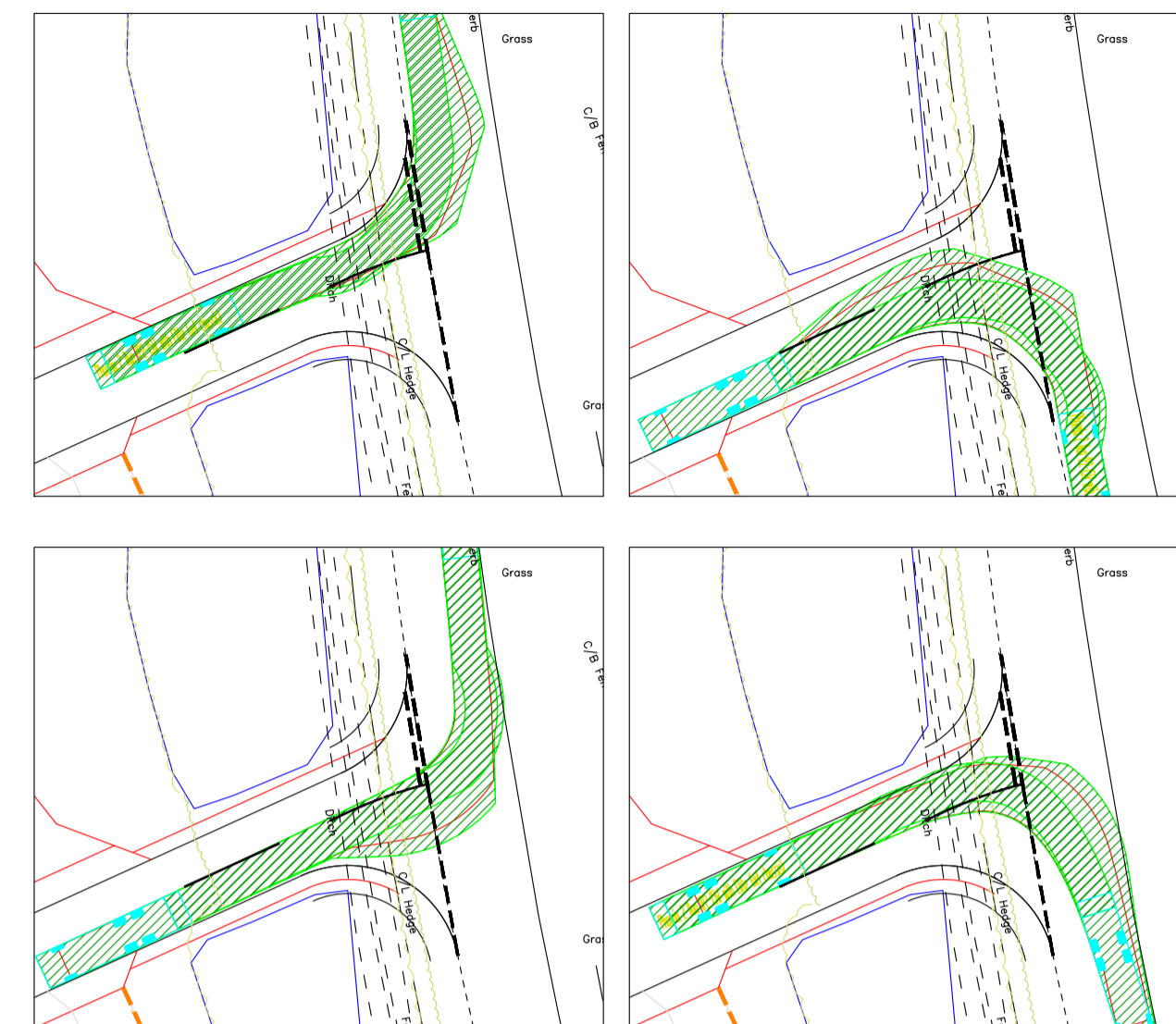
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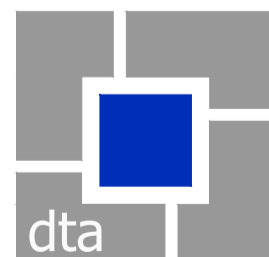
Barratt Homes



Based upon the ORDNANCE SURVEY MAPS with the permission of THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE,



Visibility Splays - 2.4m x 160m
Site Access Carriageway Width - 5.5m
Radii - 8m

REV	DATE	DESCRIPTION	INITIALS
<div><div><div><p>david tucker associates transport planning consultants</p><p>Forester House, Doctors Lane Henley-on-Arden Warwickshire. B95 5AW Tel: +44(0)1564 793598 Fax: +44(0)1564 793983 www.dtatransportation.co.uk</p></div></div></div>			
JOB TITLE		CLIENT	
Pearl Lane		Borratt Homes	
DRAWING TITLE			
Land West of Pearl Lane, Stourport-on-Severn			
Eastern Pedestrian/ Cycle and Vehicle Accesses			
SCALE	DRAWN BY	DATE	DRAWING No
1: 500@A1	DN	Dec 20	18333-05-2
			REVISION

END OF PART 1