Spring Lane Farm Ltd

Spring Lane Farm

Transport Statement

January 2024 (Revision A)

BANCROFT CONSULTING

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Spring Lane Farm Ltd

Spring Lane Farm

Transport Statement

January 2024

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DRAFT	Dec 2023	Draft report issued to Project Team for comments

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1.0 INTRODUCTION AND DEVELOPMENT PROPOSALS

1.1 Bancroft Consulting were appointed by Spring Lane Farm Ltd to provide highways and transportation advice in respect of proposals to convert existing agricultural buildings within its farm, providing a new café facility for visitors to the site.

1.2 The current proposals comprise a total gross floor area of 270 sqm within the café, of which 165 sqm would be public space. In addition, an external area immediately to the east of the barn would be used, as required, for café servicing, storage and/or additional staff parking. The proposed site layout plan is included at **Appendix A** and this shows how the proposed facility would be accessed from the main car parking area that serves the existing farm shop facility.

1.3 Since initial instructions in 2021 detailed assessments have been undertaken in support of important changes to the site layout. In highways and transportation terms, these can be summarised below:

- Trip Generation and Parking Appraisal (June 2021)
- Technical Note (Revision A) March 2022

A full description of the above documents is provided within **Section 2** of this Transport Statement.

1.4 In light of the above, the objective of this Transport Statement is to assess the latest proposals considering the previously agreed position with Nottinghamshire County Council (NCC), acting as the Highway Authority. The key focus of the report will be to demonstrate how the current level of established infrastructure, in terms of access and parking layout, would be sufficient to serve the proposed scheme.

1.5 This report considers the requirements of the National Planning Policy Framework [NPPF] (MHCLG, December 2023), Paragraph 114 of which states the following:

> *"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:*

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location.

b) safe and suitable access to the site can be achieved for all users.

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost-effectively mitigated to an acceptable degree."

1.6 In addition to the above, Paragraph 115 of the NPPF states:

"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."

1.7 This assessment also takes into account best practice advice contained in the document 'Manual for Streets' (DfT, 2007), and its companion document 'Manual for Streets 2 – Wider Application of the Principles' (CIHT, September 2010). In addition, due regard has been given to the locally adopted Nottinghamshire 'Highway Design Guide' (NCC, January 2021). Throughout the course of this project, a number of site vsits have been undertaken to review the existing conditions and surrounding highway network.

2.0 BACKGROUND INFORMATION

2.1 Trip Generation and Parking Appraisal

2.1.1 To establish the potential for conversion at the site a detailed assessment of existing conditions at the site was undertaken, to assess the potential impact of previous proposals for a café at the site. The report was submitted to NCC by email on 5 July 2021, and the officer responded by email on 21 July 2021 confirming that the reports details were broadly acceptable. Comments were raised in respect of the potential access layout and these will be addressed later in this section.

2.1.2 The report considered partial demolition and conversion of approximately 740sqm of agricultural buildings to deliver 315sqm of E(b) Class Use at the site. This included up to 90 covers, a servery, plus kitchen and storage areas. It was expected that the proposals would result in an additional 5 full time and 5 part time employees on site, which equated to 8 full time equivalent (FTE) staff members.

2.1.3 Based on detailed visitor surveys and analysis of annual customer information at the farm shop for 2019 (pre COVID), it was concluded that the existing farm shop activity creates a typical maximum parking demand of 25 vehicles within the site parking area. Using this information, alongside generic survey data, it was also established that a revised car parking layout with 77 spaces would satisfy the Highway Authority's published car parking standards whilst also meeting predicted demand for both the café and farm shop uses.

2.1.4 It was also agreed with the Highway Authority that "*the number of trips will not place in the peak hours*", as stated within the officers email of 21 July 2021.

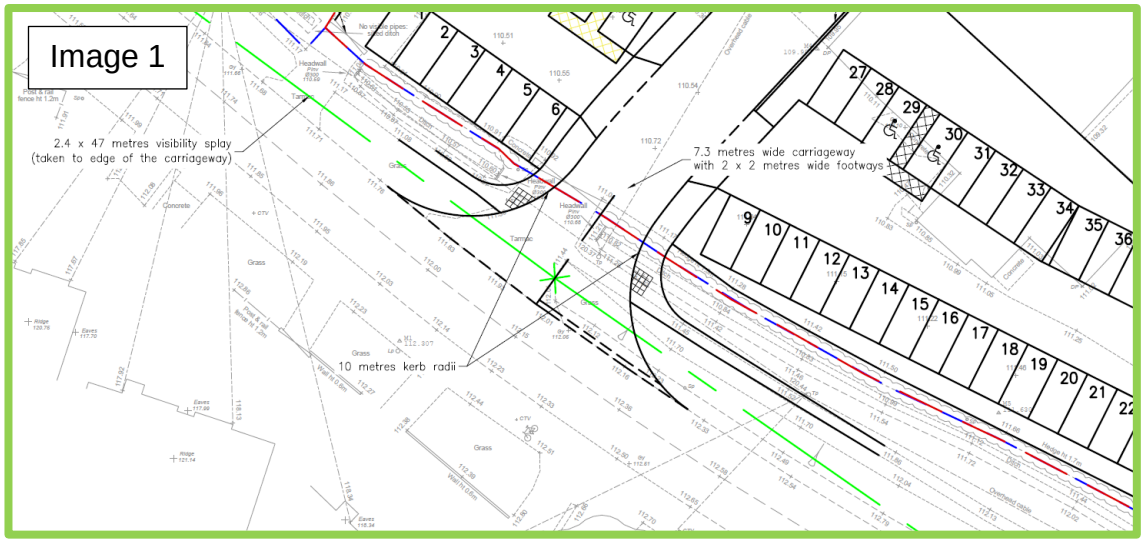
2.1.5 Full details of the submitted Trip Generation and Parking Appraisal are included at **Appendix B**, whilst the Highway Authority's emailed response is provided at **Appendix C**.

2.2 Technical Note

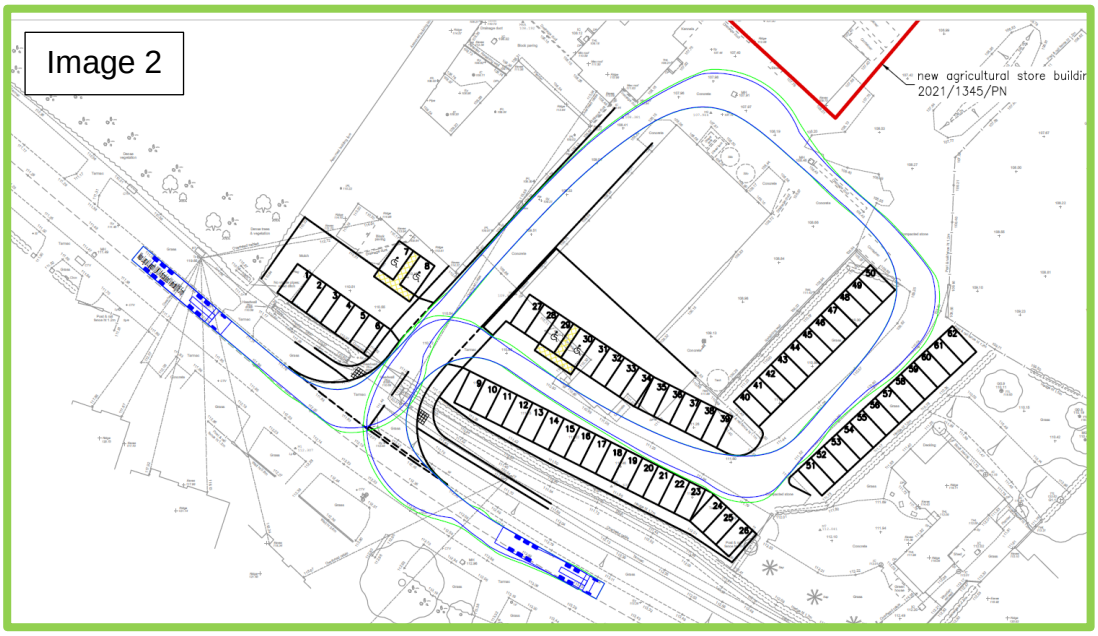
2.2.1 Following submission of the Trip Generation and Parking Appraisal it was decided that an alternative strategy was required in developing the site. This included the submission of a GPDO application in 2021 to provide important upgraded storage facilities within the farm itself. In May 2022 planning permission – reference 2022/0354 was granted for major improvements to the site entrance and ancillary on-site circulation and car parking arrangements.

2.2.2 The proposals for the improved access and parking layout were submitted within the accompanying Technical Note, which included the results of a speed survey and the access to confirm appropriate visibility splays. Drawing Number F21029/02 Revision A set out the 'Proposed Access Layout and Visibility Assessment', which following approval has now been implemented at the site. **Image 1** below shows an extract of this drawing (not to scale).

Image 1



2.2.3 To address the change in circulating movement within the farm area, Drawing Number F21029/04 Revision A of the Technical Note demonstrated how the existing layout could be reconfigured to deliver 62 car parking spaces (including 4 disabled bays). It also demonstrates how the proposed new unit could be satisfactorily served by a 16.5 articulated lorry that manoeuvres through the proposed new car parking and access layout. **Image 2** below shows an extract of this drawing (not to scale).



2.2.4 A full copy of the submitted and approved Technical Note is included at **Appendix D** for information.

3.0 EXISTING CONDITIONS

3.1 Details of the existing site layout and operations were set out previously within Section 3 of the Trip Generation and Parking Appraisal and although some of these points have been updated (see below) they should be read in conjunction with this report.

3.2 As described earlier in this report, the site access now reflects the approved scheme that was implemented as part of the GPDO application. Drawing Number F21029/02 Revision A shows a 7.3 metres wide carriageway with two metres wide footways and 10 metres control radii within the layout. Also, it confirms how 2.4 x 47 metres visibility splays can be achieved in line with the recently implemented 30 mph speed limit on Spring Lane.

3.3 To assess current highway conditions in the vicinity of the site access, **Image 1** below shows an extract of personal injury accident records covering the most recent five years of available data. This shows three 'slight' incidents at the B684/Spring Lane mini roundabout junction but nothing else at or in close proximity to the site access on Spring Lane.

4.0 TRANSPORT CONSIDERATIONS

4.1 Change in traffic conditions

4.1.1 The current proposals represent a reduction from 315 to 270 sqm gross floor area, with a corresponding decrease to 165 sqm of public space (from 214 sqm). Table 1 of the Trip Generation and Parking Appraisal set out the predicted trip generation associated with the current agricultural unit, whilst Table 3 presented the proposed café daily trip generation profile based on the previous 315 sqm gross floor area. The findings were then combined in Table 4 to confirm the net change in daily traffic generation (see Appendix B).

4.1.2 Table 3 of the Trip Generation and Parking Appraisal has now been updated to reflect the reduced total gross floor area of 270 sqm, with the results shown in **Table 1** of this report. Similarly, Table 4 of the Trip Generation and Parking Appraisal has also now been updated to reflect this reduction in floor area on the net change in daily traffic generation. The results of this update are shown in **Table 2** of this report. The results set out in **Table 2** show how the reduction in floor area only serves to reduce the peak hour movements from 8 to 7 two way movements in the evening peak hour. Overall, there would be a reduction in the net increase from 97 to 80 daily two-way movements associated with the proposed use.

4.1.3 In reviewing the updated calculations, using the previously agreed approach, it is clear that the proposals would continue to generate only minimal changes in the peak hour turning movements at the site access. It is understood that the recently implemented site access improvements have been widely welcomed by staff and customers and should therefore continue to be suitable to serve the proposed activities without the need for further amendment.

4.1.4 From these updated calculations it should be reasonable to conclude that the proposed development would deliver safe and suitable access without any severe residual cumulative impact within the surrounding highway network.

Sustainable Transport

4.1.5 The site is served by footways on both sides of Spring Lane, where a shared footway/cycleway runs along the southern edge of Spring Lane. These facilities then connect to surrounding links that serve the nearby areas to ensure walking and cycling is a reasonable choice of travel for staff and visitors to the site.

4.1.6 Bus stops are also located close to the B684 / Spring Lane junction ensuring that the site is well served by bus services throughout the week. Inspection of Nottingham City Transport's website confirms that Route Number 47 provides services at approximately 30 minute intervals along Spring Lane.

4.1.7 It is also important to recognise how sustainable transport is not just about ensuring access by walking, cycling, and public transport. Locating development where it can benefit from shared trips is also a key element in reducing unneccsary peak hour single occupancy car journeys. In this instance the Trip Generation and Parking Appraisal identified how 39% of customers visiting the farm shop would "*be likely to visit the proposed coffee shop / café at the same time*". The survey results also indicated that around 10% of all potential future visitors considered they would likely travel to the site by car as a passenger, suggesting that shared occupancy car trips would be a significant factor in the overall sustainable transport options.

Parking Provision

4.1.8 In line with the layout shown on Drawing Number F21029/04 Revision A of the Technical Note, the proposed development would be served by 62 car parking spaces, including 4 disabled bays. Section 5 of the Trip Generation and Parking Appraisal established how the maximum parking accumulation for the existing activities was 25 cars, at 1045 hours, of which 10 were confirmed as being staff vehicles.

4.1.9 It was then established using the Highway Authority's parking standards that the proposals would require a further 47 parking spaces, resulting in a total car parking provision of 77 spaces. This was the supported by a demand based

assessment that confirmed a maximum accumulation of 67 car parking spaces at the combined site operation.

4.1.10 Adjusting this calculation to reflect the current reduced proposals (165 sqm of public area) results in a total maximum requirement of 33 spaces for the public area and 4 spaces for the staff, or 37 spaces for the proposed café and 62 spaces overall. This aligns with the number of spaces shown within the previously approved site layout plan at Drawing Number F21029/04 Revision A and should continue to satisfy requirements for the proposed development. Additional staff car parking would be provided within the 'service yard' area immediately adjoiing the café conversion. This is intended as a flexible use space and not available for general public parking.

4.1.11 In addition to the car parking provision, it is recommended that the proposed development is served by a minimum of 2 short stay cycle parking spaces, one of which should be allocated to parking for adapted cycles for disabled people. These cycle parking spaces would be located adjacent to the building entrance within the main car parking area.

Site Servicing

4.1.12 Drawing Number F21029/04 Revision A shows how an articulated lorry would be able to manoeuvre through the site as required. Other smaller service vehicles associated with the proposed café would be able to utilise this route if required although it is expected that the majority would be able to safely manoeuvre within the internal access layout.

5.0 SUMMARY

5.1 Bancroft Consulting were appointed by Spring Lane Farm Ltd to provide highways and transportation advice in respect of proposals to convert existing buildings within its farm, providing a new café facility for visitors to the site. The current proposals comprise a total gross floor area of 270 sqm within the café, of which 165 sqm would be public space.

5.2 The proposals seek to utilise the recently implemented and significantly improved site access junction, as shown in Drawing Number F21029/02 Revision A. This provides a layout that meets the Highway Authority's standard requirements for the predicted usage, including geometry and achievable visibility splays. It should therefore be reasonable to conclude that safe and suitable access could be delivered through this arrangement.

5.3 It was previously established that the nature of the proposed development would not generate significant peak hour activity. The reduced scale of proposals now beng considered mean that this position remains true for the latest scheme and, as such, the proposed development should not generate a severe residual cumulative impact within the surrounding highway network, such that further detailed assessment would be required.

5.4 The proposed development would be served by up to 62 car parking spaces, which would be shared with the adjacent farm shop (additional, unallocated staff-only spaces are available within the yard area immediately adjacent to the proposed café). Detailed calculations have shown how this would align with the Highway Authority's adopted parking standards for the proposed use and meet the predicted maximum parking accumulation levels. In addition to the car parking, a minimum of 2 cycle parking spaces should be provided for visitors to the proposed café, including 1 space that is allocated for adapted cycles used by disabled people.

5.5 Visitors to the proposed development would have a choice of alternative transport modes within the existing surrounding infrastructure, which includes footways, cycleways, and local bus services. Travel surveys at the existing farm

shop also indicate how shared vehicle trips would also be a significant part of visitor travel to the proposed development.

5.6 In summary, this Transport Statement clearly demonstrates how the latest proposals would not result in any significant impact within the surrounding highway network. In addition, this report helps to confirm suitable access, parking and servicing arrangements for the proposed development. It is therefore considered that the proposed development would comply with current planning policy and best practice design guidance. Hence, the Highway Authority should be in a position to provide their support for the development in accordance with the NPPF.

Time Period	Trip Rates (per 100sqm)		Traffic Generation (270sqm)			Parking Accumulation (initial occupancy = 0 spaces)
	Arrive	Depart	Arrive	Depart	Total	
						0
07:00-08:00	0.000	0.000	0	0	0	0
08:00-09:00	0.932	0.466	3	1	4	2
09:00-10:00	1.631	0.350	4	1	5	5
10:00-11:00	2.563	1.748	7	5	12	7
11:00-12:00	3.379	3.262	9	9	18	7
12:00-13:00	2.796	2.447	8	7	15	8
13:00-14:00	1.631	2.563	4	7	11	5
14:00-15:00	2.913	2.563	8	7	15	6
15:00-16:00	2.447	3.262	7	9	16	4
16:00-17:00	1.165	1.748	3	5	8	2
17:00-18:00	1.165	1.398	3	4	7	1
18:00-19:00	0.117	0.932	0	3	3	-2
19:00-20:00	0.000	0.000	0	0	0	-2
20:00-21:00	0.000	0.000	0	0	0	-2
21:00-22:00	0.000	0.000	0	0	0	-2
Daily	20.739	20.739	56	58	114	

TABLE 1: PROPOSED CAFÉ / COFFEE SHOP DEVELOPMENT TRAFFIC GENERATION - (TRICS 'FARM DIVERSIFICATION' WEEKDAY TRIP RATES)

Time Period	Existing Agricultural Building			Proposed Café / Coffee Shop			Net Change		
	Arrive	Depart	Total	Arrive	Depart	Total	Arrive	Depart	Total
07:00-08:00	0	0	0	0	0	0	0	0	0
08:00-09:00	2	1	3	3	1	4	1	0	1
09:00-10:00	4	1	5	4	1	5	0	0	0
10:00-11:00	4	1	5	7	5	12	3	4	7
11:00-12:00	2	2	4	9	9	18	7	7	14
12:00-13:00	3	2	5	8	7	15	5	5	10
13:00-14:00	1	4	5	4	7	11	3	3	6
14:00-15:00	1	4	5	8	7	15	7	3	10
15:00-16:00	0	1	1	7	9	16	7	8	15
16:00-17:00	0	1	1	3	5	8	3	4	7
17:00-18:00	0	0	0	3	4	7	3	4	7
18:00-19:00	0	0	0	0	3	3	0	3	3
19:00-20:00	0	0	0	0	0	0	0	0	0
20:00-21:00	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0
Daily	17	17	34	56	58	114	39	41	80

TABLE 2: NET CHANGE IN DAILY TRAFFIC GENERATION PROFILE (WEEKDAY)

APPENDIX A – SITE LAYOUT PLANS

BARN

HOUSE

PROPOSED
RESTAURANT

FLEXIBLE SPACE

ADDITIONAL STAFF
PARKING/SERVICING

HOUSE

N

AREA
FOR
CYCLE
HOOPS

APPROVED PARKING
LAYOUT 2022/0354

FARM SHOP

APPROVED PARKING
LAYOUT 2022/0354

SPRING LANE

0 1 2 3 4 5 10m

REV. A JAN.2024 CYCLE HOOPS INDICATED

CLIENT SPRING LANE FARM LTD

PROJECT PROPOSED RESTAURANT

DRAWING PROPOSED SITE PLAN

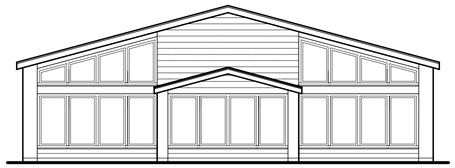
DATE JANUARY 2024 SCALE 1:200 @ A1

DRG. No. 223:20:2'A'

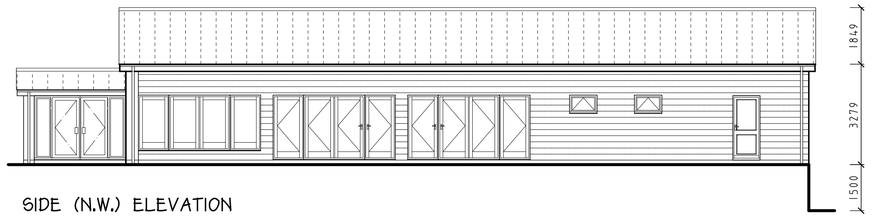
ARCHITECTURAL
SERVICES

21 Doverbeck Drive
Nottingham NG14 6ER
tel: 07977 768 424

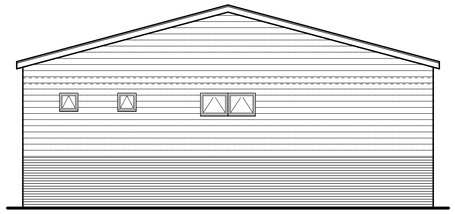
pauljohnson@apex-design.co.uk



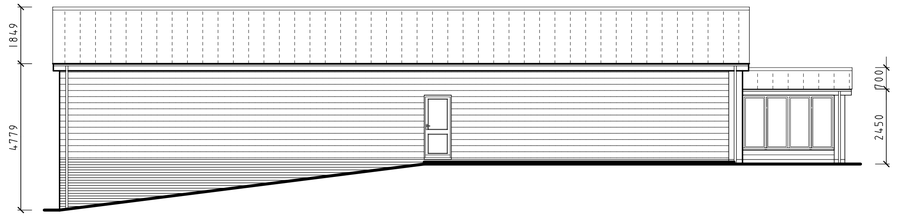
FRONT (S.W.) ELEVATION



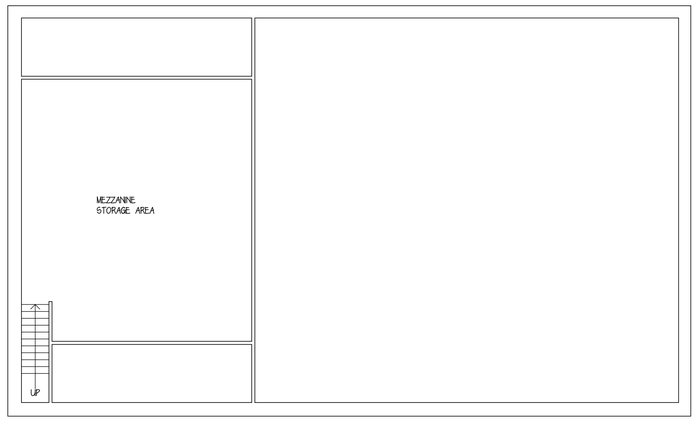
SIDE (N.W.) ELEVATION



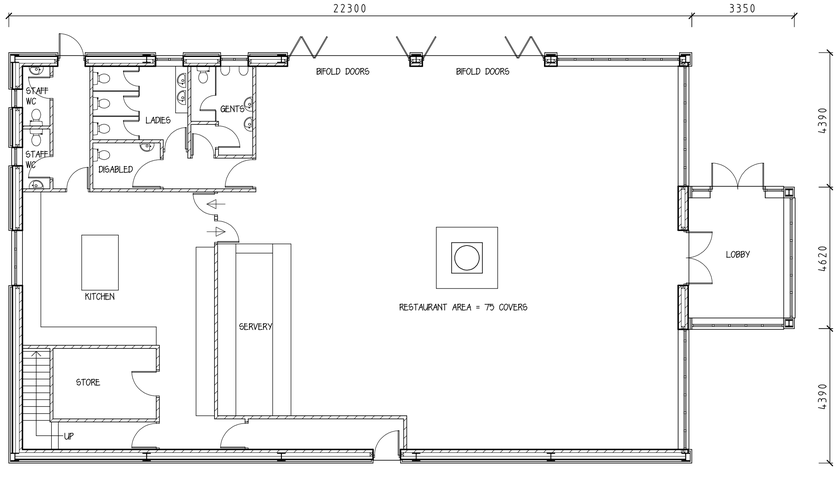
REAR (N.E.) ELEVATION



SIDE (S.E.) ELEVATION



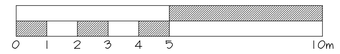
MEZZANINE FLOOR PLAN



GROUND FLOOR PLAN

MATERIAL SPECIFICATION:

ROOF - DARK GREY PLASTIC COATED PROFILE SHEETING AS EXISTING BAKERY ON SITE
FASCIAS AND SOFFITS - BLACK UPVC
RAINWATER GOODS - BLACK UPVC
CLADDING - CEDRAL LAPWOOD C03 CLAY BROWN LAID HORIZONTALLY
PLINTH BRICK - BLUE BRICK
WINDOWS AND DOORS - DARK GREY ALUMINIUM



CLIENT SPRING LANE FARM LTD

PROJECT PROPOSED RESTAURANT

DRAWING PROPOSED PLAN AND ELEVATIONS

DATE JANUARY 2024 SCALE 1:100 @ A1

DRG. No. 223:20:1

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APPENDIX B – TRIP GENERATION AND PARKING APPRAISAL (EXCLUDING APPENDICES - AVAILABLE ON REQUEST)

Spring Lane Farm Ltd

Spring Lane Farm, Mapperley Plains

Trip Generation and Parking Appraisal

June 2021

BANCROFT CONSULTING

bancroftconsulting.co.uk

Spring Lane Farm Ltd

Spring Lane Farm, Mapperley Plains Nottinghamshire

Trip Generation and Parking Appraisal

June 2021

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TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 Bancroft Consulting were appointed by Spring Lane Farm Ltd to provide highways and transportation advice in respect of proposals to redevelop approximately 740sqm of agricultural buildings to 315sqm of E(b) Class Use at Spring Lane Farm and formalise parking arrangements on land to the north of Spring Lane, Nottingham. Figure 1 shows a detailed site location plan.

1.2 This Trip Generation and Parking Appraisal has been produced to assess how the proposals could change demand for travel at the site and agree a strategy for trip generation and parking provision with the highway authority as part of the ongoing transport assessment and subsequent planning application.

1.3 The scope of this Trip Generation and Parking Appraisal has been agreed with Alison Green of Highways Development Control (South) for Gedling Borough Council and Broxtowe Borough Council areas and associated correspondence is attached at **Appendix A**.

1.4 Traffic and car parking accumulation surveys were undertaken on Thursday 22 and Saturday 24 April 2021 to inform the content of this report.

2.0 DEVELOPMENT PROPOSALS

2.1 Introduction

2.1.1 The proposals comprise the redevelopment of approximately 740sqm of agricultural buildings to 315sqm of E(b) Class Use at Spring Lane Farm and formalise parking arrangements on land to the north of Spring Lane, Mapperley Plains, Nottingham. The latest site masterplan is included in **Appendix B.**

2.1.2 Proposals include for 90 covers within the coffee shop / café which includes indoor and outdoor seating, servery, kitchen and storage area. The proposals would result in an additional 5 full time and 5 part time employees on site which equates to approximately 8 full time equivalent (FTE) staff members.

2.1.3 The proposed coffee shop / café is proposed to operate the same opening hours as the Farm Shop from Tuesday to Saturday between the hours of 0900 and 1700 hours, and from 1000 to 1500 hours on Sundays and would be closed on Mondays.

2.1.4 The proposed development is to use the existing servicing and refuse provision of the existing Spring Lane Farm Shop and shall generate no additional servicing / refuse vehicle trips to/from the site.

2.1.5 The development proposals include for the formalisation of the existing car park to the front of the site. The proposals would provide 77 marked car parking spaces. 21 of the 77 car parking spaces would be located in an overspill car park to the east of the proposals. The surface of the overspill car park is proposed to be laid to grass with reinforced plastic. The proposed layout is illustrated in the masterplan located at **Appendix B.**

3.0 EXISTING CONDITIONS

3.1 Site Layout

3.1.1 The site currently comprises approximately 2540sqm of agricultural buildings currently used for livestock, storage, and a farm shop selling local produce located to the north of Spring Lane in Mapperley Plains, Nottingham. Access to the site can be gained via a priority access to the northern edge of Spring Lane.

3.1.2 The existing access is shared between the agricultural uses of the farm, farm shop customers and staff. Agricultural traffic routes through the car park via the gated access between the farm shop and agricultural buildings in order to access the operational farm buildings.

3.1.3 The site currently has no marked parking spaces however the site frontage is allocated to customer and staff parking. Ad-hoc parking of agricultural machinery and associated vehicles occurs within the operational farming site itself, located to the rear of the site where vehicles can access the respective farming areas.

3.1.4 **Figure 1** shows a detailed site location plan in context with its local surroundings. The site is bound by agricultural fields to the north and east and neighbouring residential dwellings lie to the southeast of the site. Spring Lane bounds the south of the site extending from west to south east, beyond which lies residential dwellings.

3.1.5 The site is situated on the edge of the residential area of Mapperley and is approximately 120m to the south east of the B684 Mapperley Plains. Nottingham City Centre lies approximately 5.1km to the south west of the site.

3.2 Highway Layout

3.2.1 The existing access comprises a 15.0m wide bell mouth priority junction. The access is unsurfaced with no road markings. Steel gates are positioned in the access approximately 8.0m from the northern carriageway boundary, where the access narrows to approximately 6.0m in width.

3.2.2 Spring Lane is a two-way, single carriageway road which is subject to a 40mph speed limit restriction. A Restricted Road Order (RRO) is currently being made for Spring Lane reducing the speed limit from 40mph to 30 mph. The restriction change is proposed from a point 42m southeast of its junction with the B684 Mapperley Plains in a to a point 17 metres east of its junction with Hartland Drive. NCC Statement of Reasons for the RRO details the following:

> *'The proposed speed limit would replace the existing 40mph speed limit. The current speed limit would remain at 40mph between near [sic] Hartland Drive and Lambley. The lower speed limit would cover all the residential roads off Spring Lane and would give more time for drivers to react to turning vehicles. The lower speed limit would bring benefits to the vulnerable users of Spring Lane, i.e cyclists, horse riders and pedestrians.'*

3.2.3 Spring Lane extends from the B684 Mapperley Plains approximately 120m northwest of the existing site access, to the village of Lambley approximately 2.4km east of the site.

3.2.4 The carriageway measures approximately 6.0m wide in the vicinity of the site access with wide grassed verges located either side of the carriageway. To the northern side of the carriageway grassed verges are provided with a 1.0m surfaced track for pedestrians. To the southern side, a 3.0m shared footway / cycleway is provided adjacent to the carriageway with a grassed verge situated between the footway / cycleway and the residential properties to the southern side of the carriageway. The residential dwellings are afforded driveway access directly from Spring Lane.

3.3 Operation Details

3.3.1 Operating times for the Spring Farm site are from 0700 to 1800 hours daily and the farm shop is open from 0900 to 1700 hours Tuesday to Saturday and from 1000 to 1500 hours on Sundays. The farm shop is closed on Mondays.

3.3.2 The Spring Lane Farm Shop currently expects approximately 3 to 4 servicing trips per day from Monday to Friday between 0700 and 1700 hours. Larger deliveries

for the butchery or bakery are encouraged to arrive at the site prior to the shop opening time of 0900 hours. Delivery vehicles route through the car park and park between the farm shop and agricultural buildings to unload. The vehicles then use the farmyard to the rear of the agricultural buildings to turn and exit the site in forward gear.

3.3.3 There are currently four refuse trips undertaken per week for the Spring Lane Farm site which are as follows:

- Gedling Borough Council Commercial Landfill Waste (once a week on a Tuesday);
- Enva Cardboard Recycling (Once a week on a Tuesday);
- JG Pears Waste Butchery Meat/Bone Disposal (Once a week on a Wednesday); and
- Gedling Borough Council Domestic Landfill Waste (Once a week on a Friday which empties refuse on the highway only).

3.2.5 On site observations revealed that the narrow width of the site access and lack of white lining resulted in poor vehicle positioning within the bell mouth of the site access as vehicles exited the site. This resulted in vehicles waiting within the carriageway of Spring Lane to give way for vehicles exiting the site.

3.4 Survey Results

Traffic Surveys

3.4.1 To establish baseline traffic conditions, a fully classified traffic survey was instructed to be undertaken at the site access of Spring Lane Farm. The traffic survey was carried out by Road Data Services on Thursday 22 and Saturday 24 April 2021. The weekday surveys were conducted between the hours of 0730 to 0930 and from 1530 to 1830 hours and the weekend survey was undertaken from 1100 to 1500 hours. The traffic survey data is attached at **Appendix C** for reference.

3.4.2 The traffic survey data has been summarised and the weekday highway peak hours were found to be from 0730 to 0830 hours in the AM peak and from 1645 to 1745 hours in the PM peak. During these peak periods the existing Spring Lane

Farm site generated 4 and 19 two-way vehicular trips in the AM and PM peak periods respectively.

3.4.3 The results of the traffic survey found that the weekend peak period was from 1100 to 1200 hours and during this period the existing Spring Lane Farm site generated 136 two-way vehicular trips. The traffic flow diagram labelled **Figure 2** summarises the peak hour traffic flows identified by the traffic surveys.

Car Parking Accumulation Surveys

3.4.4 To ascertain the existing parking demand of the Spring Lane Farm site and assess the suitability of the car park to accommodate demand from both the shop and proposed café uses, car parking accumulation surveys were undertaken on Thursday 22 April and Saturday 24 April 2021. Results are presented within **Appendix D.**

3.4.5 The parking accumulation summary illustrates that during the weekday period, a maximum parking accumulation of 25 vehicles was identified at 1045, 10 of which were identified as being staff vehicles.

3.4.6 The parking accumulation summary illustrates that during the weekend survey, a maximum parking accumulation of 23 vehicles was identified at 1145, 6 of which were identified as being staff vehicles.

3.4.7 The surveys identified that the peak periods of activity for the existing Spring Lane Farm site are between 1045 and 1145 hours during the week and from 1115 to 1215 hours on a weekend. The results affirm that the weekday peak operational hours of the existing Spring Lane Farm site do not coincide with the peak highway periods.

3.5 Annual Customer Footfall

3.5.1 Till receipt data was collated and summarised by Spring Lane Farm Ltd to provide an indication of demand profiles throughout the year, month by month. Results are illustrated within charts located at **Appendix E**.

3.5.2 During 2019, the number of customers visiting the Farm Shop was evenly spread across the year with a noticeable increase in customers during March, November and December. During 2020 customer visits increased by an average of 12% across the year with considerable increases during the months of March to June, and October to December. These considerable increases are likely owing to the Covid-19 pandemic with more customers shopping locally.

3.5.3 Across all years summarised the peak hours for customer visits were found to be from 1100 to 1300 hours. The lowest number of customer visits were seen to be during the typical highway peak periods from 0800 to 0900 hours and from 1700 to 1800 hours.

3.6 Customer Questionnaires

3.6.1 Customer surveys were undertaken at the Spring Lane Farm Shop on Thursday 22 and Saturday 24 April 2021. In Total 320 customer surveys were completed with 98 during the Thursday and 233 during the Saturday, which equates to a 42% response rate on the weekday Thursday (WD) and 49% response rate on the weekend Saturday (WE).

3.6.2 Customers were asked questions in order to ascertain their interest in using a potential café at the site and to understand where adjustments could be made to the predicted demand for parking at the proposed development. Survey questions asked of the customers were approved by NCC. A template of the survey and corresponding results can be found at **Appendix F.** The survey questions and summary of the findings are as follows:

<u>How often do you visit the store?</u>

3.6.3 It was found that the majority of weekday (41%) and weekend (46%) customers visit the store once per week. Around 15% of customers visit more than once per week. A minimum of 2% of customers were found to be first time visitors indicating that the Farm Shop is presently increasing its customer base.

Which time of the day are you most likely to visit the Farm Shop?

3.6.4 The peak hours for weekday visitors (54%) are between 1000 and 1200 hours with 95% of customers visiting before 1500 hours. The peak hour for weekend customers (23%) is between 1000 and 1100 hours with 95% of customers found to visit before 1500 hours.

Would you use a coffee shop on-site?

3.6.5 78% of weekday customers and 77% of weekend customers said they would use a coffee shop or cafe, only 9% of all customers would not use an on-site coffee shop. Of those that would use the coffee shop 50% and 57% of weekday and weekend customers would use the proposed coffee shop when using the farm shop. This equates to 39% of weekday and 44% of weekend customers being likely to link trips to the proposed coffee shop with those already taken to Spring Lane Farm Shop.

Which time of the day would you be likely to attend the coffee shop?

3.6.6 Customers attending during the week are more likely to concentrate their trips to the coffee shop across the hours of 1100 to 1300 with 74% of customers opting to attend during these hours. 96% of customers would be likely to visit the coffee shop before 1500.

3.6.7 The introduction of a coffee shop would not alter the likely visiting times of weekend customers with the majority (22%) opting to visit between 1000 to 1100 hours with 94% of customers found to visit before 1500 hours.

How long is your typical visit to the store?

3.6.8 The majority of weekday (40%) and weekend customers (45%) spend 15 to 20 minutes on site presently. It was found that 32% and 27% of weekday and weekend customers take between 20 to 25 minutes for their visit respectively. 99% of customers take less than 30 minutes for their visit to the Farm Shop.

Did you arrive by car or other mode?

3.6.9 Surveys found that 81% of weekday and 72% of weekend customers drive a car to the Farm Shop, 9% and 10% travel as a passenger in a car, and 11% and 17%

travel on foot. At weekends more customers travel by various travel modes with three customers arriving on a bicycle and one on a motorcycle.

How are you likely to travel to the coffee shop?

3.6.10 Surveys found that customers visiting the coffee shop would not be likely to change their choice of travel mode.

3.6.11 Customer surveys also confirmed that all but one of the customers visited the site from Nottingham. The customer who wasn't from Nottingham travelled from Leicester.

3.7 Analysis

3.7.1 The outputs and results of the traffic surveys, car parking surveys, annual customer data and questionnaires were considered in order to draw conclusions that are measurable and could be used to produce a strategy for trip generation and parking provision calculations.

3.7.2 It has been found that the site results in minimal highway impact during the weekday peak highway periods of 0730 to 0830 hours and 1645 to 1745 hours as the peak period of farm shop activity do not coincide with the highway peak periods which are typically between 1100 and 1200 hours as identified in the till receipt data, parking accumulation surveys and customer questionnaire data.

3.7.3 The weekend highway peak period and farm shop peak periods coincide with each other at between 1100 and 1200 hours as evidenced by the traffic surveys, car parking accumulation surveys, customer questionnaire and till receipt data. The introduction of the proposed coffee shop would not be seen to alter the existing weekday or weekend peak periods of the site.

3.7.4 Observing the worst-case scenario in terms of parking demand at the site, during a weekday 89% of customers currently travel via private car to site and car parking occupancy surveys identified that a maximum of 25 car parking spaces were occupied at any one time. This would result in spare capacity of 52 car parking spaces based upon the proposed car parking layout of 77 spaces.

3.7.5 A minimum of 39% of existing trips would visit the café at the same time resulting in a proportion of linked trips being associated with the proposed coffee shop.

3.7.6 A minimum of 77% of existing customers said that they would use a coffee shop on site, indicating that there is certainly demand for the proposals and the proposals would be supported by existing customers.

4.0 TRANSPORT CONSIDERATIONS

4.1 Change in Traffic Conditions

4.1.1 The proposals comprise the redevelopment of approximately 740sqm of agricultural buildings to 315sqm of E(b) Class Use at Spring Lane Farm.

4.1.2 The proposed development would increase the number of vehicular trips on the local road network. The potential increase in trips has been calculated based upon the survey data collated from similar sites using the industry recognised TRICS database.

4.2 Existing Development (740sqm agricultural use)

4.2.1 The traffic survey which was carried out by Road Data Services on Thursday 22 2021 revealed that the weekday highway peak hours were found to be from 0730 to 0830 hours and 1645 to 1745 hours. During these peak periods the existing Spring Lane Farm site generated 4 and 19 two-way vehicular trips in the AM and PM peak periods respectively. The trips generated by the existing agricultural building to be developed could not be identified from the survey data, as one access point is used for all agricultural buildings within the Spring Lane Farm site, therefore a TRICS assessment has been undertaken for the existing agricultural building in order to quantify the likely number of trips generated.

4.2.2 The category 'Mixed – Farm Diversification' was selected as this 'sub-category' most appropriately reflects the existing agricultural site use. The existing agricultural building has a GFA of 741sqm and the database was searched for similar sites with surveys which were carried out on a weekday.

4.2.3 This search resulted in one site being chosen as being a suitable comparator site. Windmill Animal Farm was situated in Talscough in Lancashire (TRICS reference CH-01-I-03). This site has a GFA of 2,500sqm and is located in a rural location surrounded by fields, with small local roads heading in various directions. The nearest main route is the A59 to the east of the site, which heads north and south. Full details of the TRICS search can be seen at **Appendix G.**

4.2.4 The following trip rates (per 100sqm) given for the selected site were therefore deemed appropriate for the proposed development.

- morning peak (0800 to 0900 hours) 0.280 arrive 0.140 depart
- evening peak (1700 to 1800 hours) 0.000 arrive 0.000 depart

4.2.5 Based on the above trip rates, the existing development of 741sqm could generate the following vehicle movements:

- morning peak (0800 to 0900 hours) 2 arrive 1 depart 3 total
- evening peak (1700 to 1800 hours) 0 arrive 0 depart 0 total

4.2.6 **Table 1** shows the daily traffic generation and parking accumulation profile for the existing development based on the selected trip rates, which demonstrates a maximum parking accumulation of 9 vehicles at 1200 to 1300 hours.

4.3 Proposed Development (315sqm farm coffee shop / cafe)

4.3.1 The TRICS database was interrogated to determine suitable trip rates for the proposed farm shop. The category 'Mixed – Farm Diversification' was searched, however there are a limited number of potential sites to choose from. The Alder Carr Farm in Ipswich (SF-16-C-01) site was selected which accommodated a farm shop (215sqm), café (300sqm) and several other uses such as a pottery shop, haberdashery, confectionary, cycle shop and other retail uses (550sqm). The café and farm shop made up less than 50% of the total GFA.

4.3.2 As the site was a 'Mixed' use site, trip generation information was not available in a TRICS report format. The site was interrogated, and vehicle arrivals, departures and accumulations were converted manually to trip rates based upon a GFA of 515sqm. As the site houses multiple uses, and to represent a worst-case scenario, the trip generation calculations assumed that the farm shop and café (515sqm) generated 60% of the total vehicle trips to and from the site. TRICS output data is included in **Appendix G. Table 2** illustrates the total trips surveyed at Alder Carr Farm, the calculated 60% of trips and resulting trip rates.

4.3.3 The following trip rates (per 100sqm) were calculated from the selected site and were deemed appropriate for the proposed development.

- morning peak (0800 to 0900 hours) 0.932 arrive 0.466 depart
- evening peak (1700 to 1800 hours) 1.165 arrive 1.398 depart

4.3.4 Based on the above trip rates, the proposed development of 315sqm could generate the following vehicle movements:

- morning peak (0800 to 0900 hours) 3 arrive 1 depart 4 total
- evening peak (1700 to 1800 hours) 4 arrive 4 depart 8 total

4.3.5 **Table 3** identifies the peak weekday operating period of the proposed café / coffee shop as 1100 to 1200 hours which reflects the results of the customer questionnaires. **Table 3** also shows the daily traffic generation and parking accumulation profile for the proposed development based on the 'worst case' trip rates from the similar site identified as Alder Carr Farm in Ipswich, which demonstrates a maximum parking accumulation of 10 vehicles at 1200 to 1300 hours.

4.3.6 **Table 3** identifies that the proposed development is anticipated to generate 4 and 8 two-way trips in the AM and PM peak periods respectively. This equates to one additional trip every 15 minutes and 7.5 minutes in the AM and PM peak periods respectively.

4.4 Net change

4.4.1 The overall net change in traffic is as follows (full details of which are shown at **Table 4.**

- morning peak (0800 to 0900 hours) 1 arrive 0 depart 1 total
- evening peak (1700 to 1800 hours) 4 arrive 4 depart 8 total

4.4.2 The above assessment demonstrates that the proposed café / coffee shop development would result in a minimal increase in vehicular movements.

4.5 Sensitivity Test

4.5.1 Spring Lane Farm Shop is a popular local retail facility, and the resulting traffic generation of the proposed café / coffee shop does not appear to reflect the

popularity of the establishment. To present a robust assessment, additional calculations have been undertaken taking a bespoke approach to the traffic generation assessment. The specific proposals and the existing uses of the site have been considered in order to present a worst-case scenario in terms of traffic generation and parking demand.

4.5.2 The surveys revealed that 39% of trips taken to the farm shop would be linked trips to the café / coffee shop. The customer survey response rate data in **Appendix F** identifies that the highest number of visitors to the site on the survey day of Thursday 22 April 2021 was found to be between 1000 and 1100. The data shows that the busiest periods are between 1000 and 1500.

4.5.3 The proposed café / coffee shop is proposed to operate the same opening hours as the existing farm shop and it is anticipated that the busier periods of the café / coffee shop would extend from 1100 to 1500 hours over lunchtime and prior to school closing times.

4.5.4 The proposed café / coffee shop development includes for 90 covers which are to be split across 30 tables. For calculation purposes and to present a worst-case scenario in terms of traffic generation and parking demand, it has been assumed that the proposed café / coffee shop would reach 100% capacity between the hours of 0900 and 1500. A trip rate factor of 1.5 vehicles per table has been applied to calculate the traffic generation, and a 50% overlap is assumed to occur between each hour to allow for dwell time and to calculate vehicle departures and parking accumulation.

4.5.5 The data in **Table 5** illustrates the proposed development trip generation calculations. It should be noted that **Table 5** illustrates that during the Saturday highway peak period of 1100 to 1200 hours, the proposed development is anticipated to attract no new visitors to the site. This is owing to high numbers of visitors at the farm shop on a Saturday lunchtime of which, 39% are expected to make a linked trip to the proposed café / coffee shop and this number of visitors would accommodate 100% of the seating capacity within the proposed development. Weekend vehicular trips have therefore not been considered in

further detail within this assessment, as the proposed development is seen to generate no impact on the local highway during the weekend peak periods.

4.5.6 **Table 6** identifies that the proposals would generate 8 and 21 two-way trips in the AM and PM peak periods and a maximum parking demand of 27 car parking spaces would be required to accommodate the proposed development.

4.5.7 **Table 7** takes into account the existing 740sqm of agricultural use in order to generate the net change in traffic generation of the proposed development. The results illustrate that during the weekday peak periods of 0800 to 0900 and 1700 to 1800 the proposed development would attract an additional 5 and 21 two-way trips. The additional traffic generation assessments result in a slight increase when compared to the earlier TRICS based analysis however the traffic generation remains at low levels in the AM and PM peak periods as the proposed café / coffee shop would be closed during these times.

4.5.8 The traffic survey data which was obtained on Thursday 22 April 2021 has been used to determine the anticipated trip distribution of the proposed development. Trip distribution associated with the development proposals is illustrated within **Figure 3**.

4.5.9 The trip distribution has been used to predict the turning movements of the weekday peak hour traffic movements generated by the proposed development. The proposed weekday peak hour traffic movements illustrated in **Figure 4** identifies that all traffic associated with the proposed development shall arrive and depart from the east of Spring Lane, resulting in no right turning traffic movements into the site from Spring Lane associated with the development proposals.

4.5.10 This level of trips would not result in a material impact on the local highway network and would not require mitigation measures to be investigated. Therefore, it is considered that due to the non-material change in peak hour traffic conditions, the proposals would not have a “severe residual cumulative impact”.

5.0 PARKING ASSESSMENT

5.1 Car Parking

5.1.1 With respect to parking standards in the local area, Gedling Borough Council (GBC) uses the Nottinghamshire County Council's (NCC) Design Guidance. NCC minimum parking standards are contained within section 4.2 of the Highways Design Guide.

5.1.2 Table 4.2.2 contains details for minimum parking requirements for commercial developments. The document states that for restaurants / cafes, one space per 5sqm of public area and 1 space per 2 FTE staff members should be provided.

5.1.3 Applying NCC's minimum parking standards to the proposed development results in a maximum of 43 car parking spaces being required for 214sqm of public area, in addition to 4 spaces for staff, totalling 47 required car parking spaces to accommodate the development proposals.

5.1.4 The parking surveys that were undertaken and detailed within Para.2.5 state that across the weekday and weekday periods surveyed, a maximum parking accumulation of 25 vehicles was identified at 1045, 10 of which were identified as being staff vehicles and 15 were customers vehicles. Therefore, an existing car parking requirement of 25 vehicles should be allocated to use of the Spring Lane Farm Shop within the revised car parking layout illustrated at **Appendix B.**

5.1.5 The existing demand of 25 car parking spaces for the farm shop and the minimum required provision of 47 car parking spaces for the proposed coffee shop / café, result in in a total provision of 72 car parking spaces being required. The proposed car parking provision of 77 car parking spaces therefore accords with NCC's minimum car parking standards and also accommodates the 27 car parking spaces identified as being required by the demand-based assessment of the proposed development.

5.1.6 The results of the customer questionnaire revealed that 39% of customers visiting the farm shop would be likely to visit the proposed coffee shop / café at the same time resulting in a percentage of linked trips being applicable to the existing farm shop. Taking this information into consideration when calculating the required parking provision for the site as a whole, a reduction of 39% could be applied to the surveyed demand of (15) parking spaces for the customers of the farm shop.

5.1.7 Applying the linked trips factor of 39% to the maximum accumulation of 15 customer car parking spaces results in a minimum required provision of 10 parking spaces for farm shop customers.

5.1.8 Taking account of the linked trips reduction, revised car parking requirements of the Spring Lane Farm Shop and proposed café / coffee would be 10 farm shop customers, 10 farm staff members, 43 café customers and 4 café staff members. Resulting in a total of 67 car parking spaces.

5.1.9 Proposals include for 77 car parking spaces which would result in spare capacity of 10 car parking spaces when using the 39% linked trip factor. The proposed parking capacity accords with NCC's minimum parking standards and would provide overspill parking provision for growth in popularity of the farm shop and peak periods such as December months.

5.2 Accessible Parking

5.2.1 NCC's Parking Standards state that for business premises which have employees and visitors, one bay or 5% of the total parking provision should be allocated to disabled motorists. Based on this approach, NCC's minimum parking standards for disabled motorists results in a requirement of 4 disabled car parking spaces for the Spring Lane Farm Shop and proposed coffee shop / café.

5.3 Cycle Parking

5.3.1 Table 4.2.7 of NCC's Parking Standards state that for medium retail establishments of 200 to 1000sqm, 1 short stay space per 200sqm should be provided, and 5% of that capacity should be provided for adapted cycles for

disabled people. This equates to a required minimum provision of 2 short stay cycle parking spaces, one of which should be allocated to parking for adapted cycles for disabled people.

5.3.2 The standards also state that long stay secure and covered cycle parking would be required for medium retail developments. The minimum standards require that 1 long stay parking space is provided per 200sqm of development, and 5% of that capacity should be provided for adapted cycles for disabled people. This equates to a required minimum provision of 2 long stay cycle parking spaces, one of which should be allocated to parking for adapted cycles for disabled people.

5.3.3 The total minimum cycle parking requirement for the proposed coffee shop / café is 1 standard short stay cycle parking space, 1 short stay disabled cycle parking space, 1 standard secure and covered cycle parking space and 1 secure and covered disabled cycle parking space.

5.3.4 As the customer questionnaire surveys identify, 2.5% of farm shop customers are likely to travel to the site via bicycle. In line with expected demand, 2.5% of the total car parking provision shall be allocated to short stay cycle parking spaces for visitors of the existing Spring Lane Farm shop. This allocation equates to 2 short stay cycle parking spaces being required to serve the existing Spring Lane Farm Shop.

5.3.5 The above standards indicate that a site-wide total provision of 3 short stay cycle spaces, 1 short stay disabled cycle space, 1 secure and covered standard cycle space and 1 secure and covered disabled cycle space.

5.4 Motorcycle Parking

5.4.1 Para 4.2.6 of NCC's Parking Standards state:

> *The parking standard for motorcycles and mopeds is one space, plus an additional space for every 10 car parking spaces. Parking spaces should normally be 2.5m x 1.5m with a 1m space between each bike. A secure ground anchor point is required for each space.*

5.4.2 Providing motorcycle parking in line with NCC guidance would result in a provision of 9 spaces, however owing to the nature of the development and modal split of existing visitors to the site, the figure of 9 motorcycle spaces is not to be provided within the proposed car parking layout.

5.4.3 Motorcycle parking shall be provided based upon the demand-based assessment of the modal split information gathered through the customer survey questionnaires. The customer questionnaires revealed that 0.4% of customers travelled to site via motorcycle. 1% of the total car parking provision shall therefore be allocated to motorcycle parking and 1 motorcycle parking space shall be provided.

5.5 Servicing

5.5.1 NCC's statement for servicing vehicles for the site as a whole is:

'You must make provision within the site for service and delivery vehicles to be loaded and unloaded clear of the highway.'

5.5.2 Proposals are for the proposed coffee shop / café to utilise the existing arrangements for refuse and servicing. This involves associated vehicles accessing the site via the main entrance and parking to the rear of the gates between the farm shop and the proposed café / coffee shop building on the access track to the operational farm area. Vehicles are instructed to drive down to the farmyard to turn around in order to drive out in forward gear. The loading and unloading of service vehicles shall take place clear of the highway, and thus accords with NCC servicing requirements.

5.5.3 The site access provides a limited width of 6.0m to accommodate exiting vehicles waiting to exit and vehicles accessing the site. When servicing or agricultural vehicles access or egress the site, motorists respectfully stop and leave sufficient room for the larger vehicles to manoeuvre through the site access point before they seek to progress. Although a rare occurrence, unusually large vehicles such as articulated vehicles are provided with assistance by staff members by stopping vehicle movements within the car park to prevent vehicle conflict.

6.0 SUMMARY AND CONCLUSIONS

6.1 Bancroft Consulting were appointed by Spring Lane Farm Ltd to provide highways and transportation advice in respect of proposals to redevelop approximately 740sqm of agricultural buildings to 315sqm of E(b) Class Use at Spring Lane Farm and formalise parking arrangements on land to the north of Spring Lane, Nottingham. This Trip Generation and Parking Appraisal has been produced with the objective of demonstrating to Highways Officers at Nottinghamshire County Council (NCC) how the proposals could change demand for travel at the site and agree a strategy for trip generation and parking provision as part of the ongoing Transport Assessment and subsequent planning application.

6.2 The various surveys identified that the AM and PM weekday highway peak periods do not coincide with the peak periods of the site. The peak period of the site has been found to be 1100 to 1200 hours during both weekdays and weekends. The weekend highway peak of 1100 to 1200 hours period coincides with the weekend peak periods of the site. The introduction of the proposed café / coffee shop would not alter the hours of peak traffic generation of the development.

6.3 Highway trip generation figures have been based upon similar sites from the TRICS database. Weekday trip generation factors for arrivals and departures of the proposed cafe / coffee shop were calculated as 0.932 and 0.466 in the highway AM peak period 1.165 and 1.398 in the highway PM peak period resulting in 4 and 8 two-way vehicular trips anticipated to be generated by the proposed café / coffee shop in the AM and PM highway peak periods, respectively. These calculations resulted in a maximum car parking demand of 10 parking spaces based on car parking accumulation.

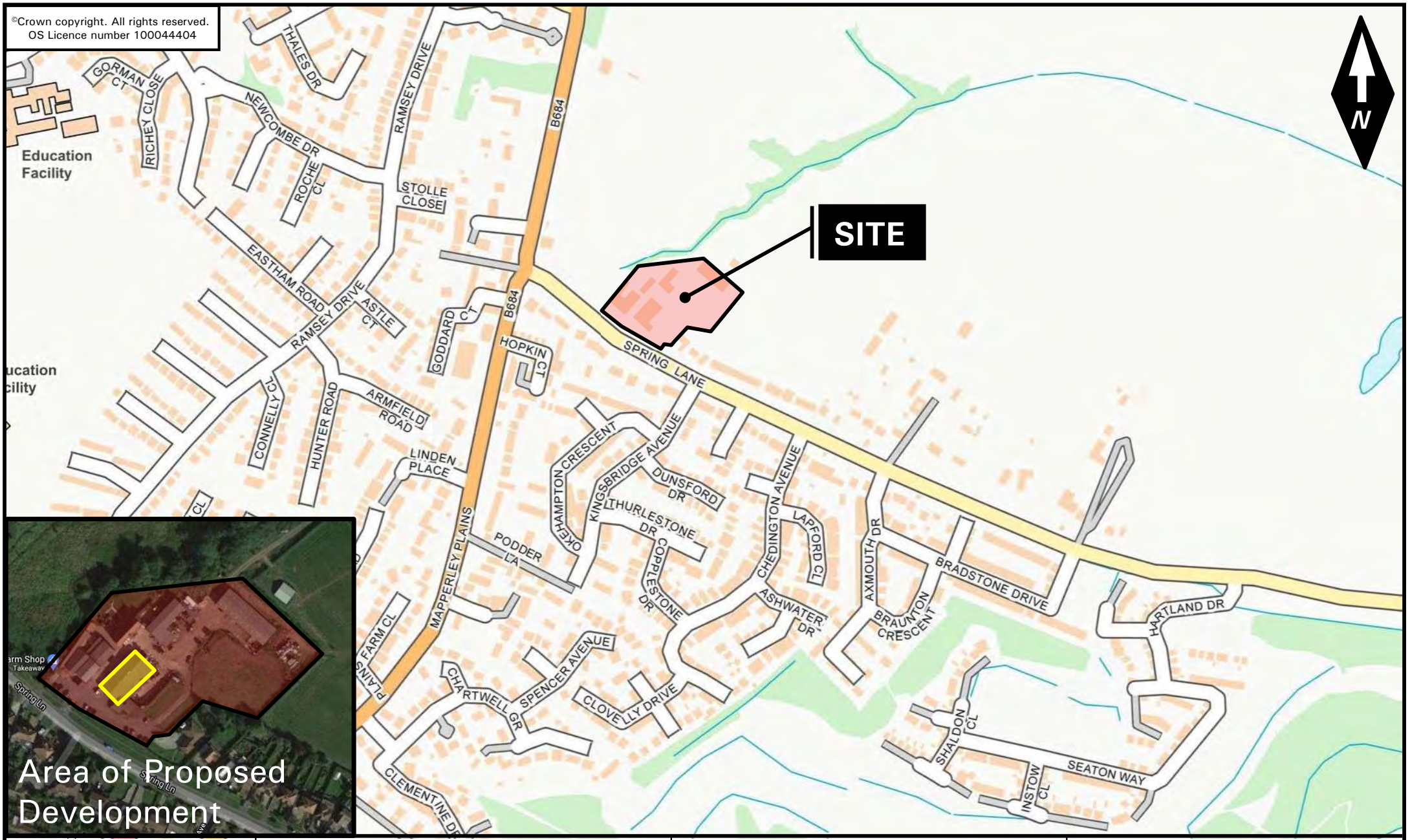
6.4 A trip generation sensitivity test was also undertaken for the proposed development by taking a bespoke approach considering the linked trip factors and the number of covers at the proposed café / coffee shop. This identified that during the weekday AM and PM peak hour periods, 5 and 21 two-way peak hour trips would be generated by the proposed development, and a maximum car parking demand of 27 car parking spaces based on car parking accumulation.

6.5 Trip distributions based upon recent traffic surveys revealed that all weekday traffic associated with the proposed café / coffee shop would arrive and depart to the east of the site on Spring Lane, resulting in no right turning movements associated with the development proposals on Spring Lane.

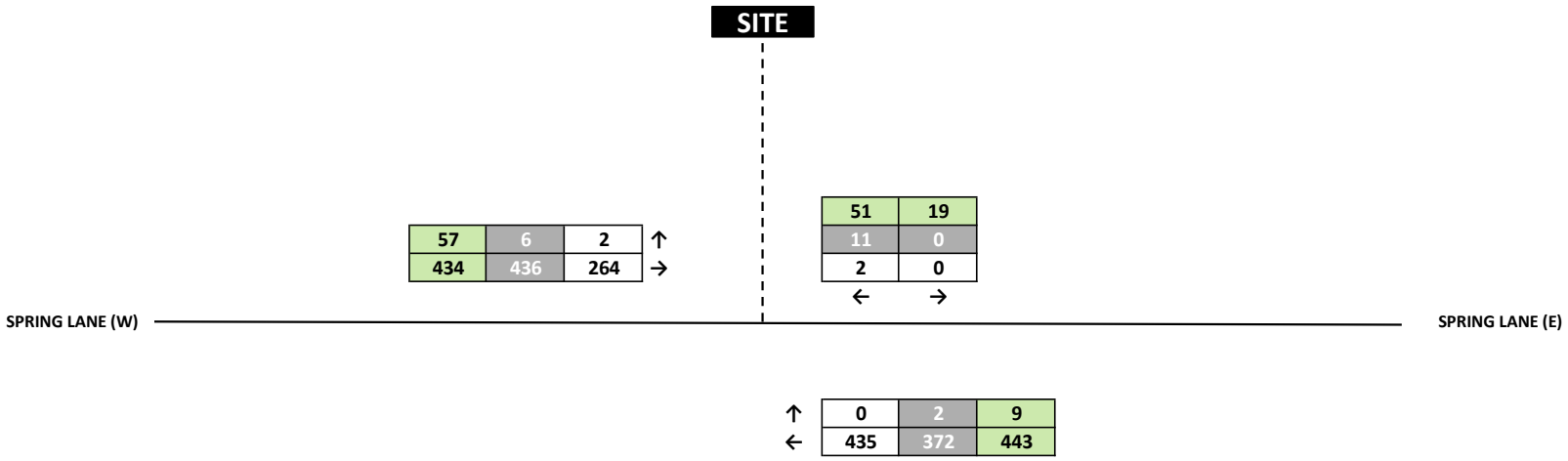
6.6 Observing the worst-case scenario in terms of existing parking demand at the site, a maximum of 25 car parking spaces were surveyed to be occupied at any one time. NCC's minimum car parking standards require 47 car parking spaces to be provided for the proposed café / coffee shop which totals a maximum of 72 required car parking spaces. Parking reductions could be considered due to the linked trips associated with the farm shop reducing the requirement of the total parking spaces to 67. Proposals include for 77 car parking spaces which accords with NCC's minimum parking standards, parking demand assessments and would result in spare capacity for future growth and busier seasonal periods.

6.7 Proposals are for the proposed coffee shop / café to utilise the existing arrangements for refuse and servicing. The loading and unloading of service vehicles shall take place clear of the highway, and thus accords with NCC servicing requirements.

6.8 To conclude, this assessment clearly demonstrates that the increased activity of the proposed development would not materially increase the number of vehicular trips generated by the site during the highway peak periods. Anticipated parking demand would be accommodated by the proposals and would not lead to a severe off-site impact.



SCALE: Do Not Scale	CLIENT: SPRING LANE FARM LIMITED	JOB TITLE: SPRING LANE FARM SHOP	BANCROFT CONSULTING
DATE: 14.04.21			
DRAWN: CAB	TITLE: DETAILED SITE LOCATION PLAN	JOB NUMBER: F21029	FIGURE: 1



KEY

←	↑	→		
x	x	x	=	AM Peak Hour (0730 - 0830)
x	x	x	=	PM Peak Hour (1645 - 1745)
x	x	x	=	Weekend Peak (1100 - 1200)

= Turning Movement

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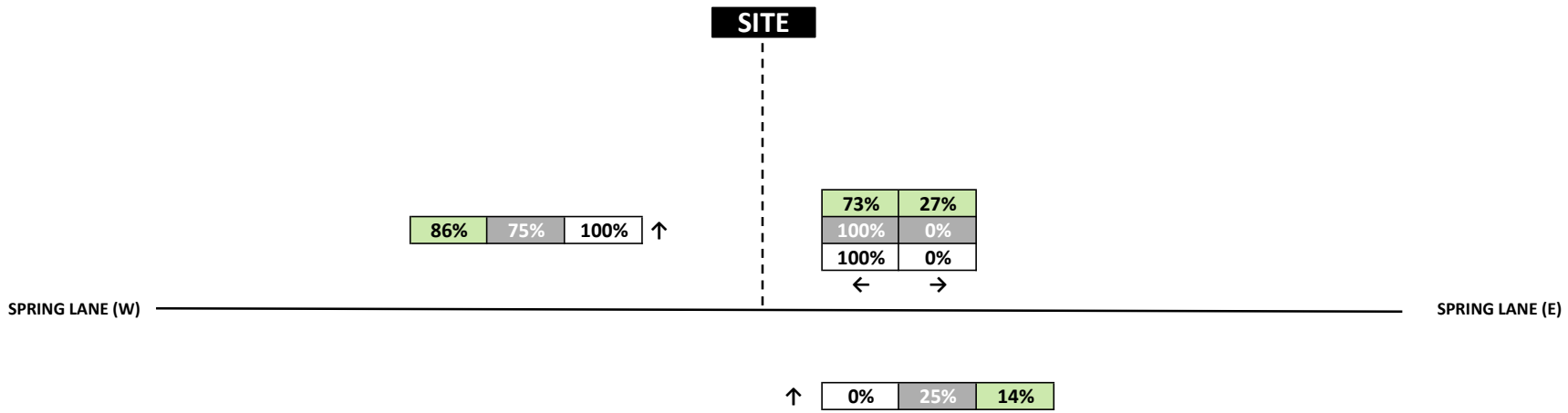
FIGURE 2

EXISTING TRAFFIC FLOWS

SPRING LANE FARM SHOP

JOB NUMBER: F21029

DRAWN BY: CAB



KEY

←	↑	→		
x	x	x	=	Turning Movement
x	x	x	=	AM Peak Hour (0730 - 0830)
x	x	x	=	PM Peak Hour (1645 - 1745)
x	x	x	=	Weekend Peak (1100 - 1200)

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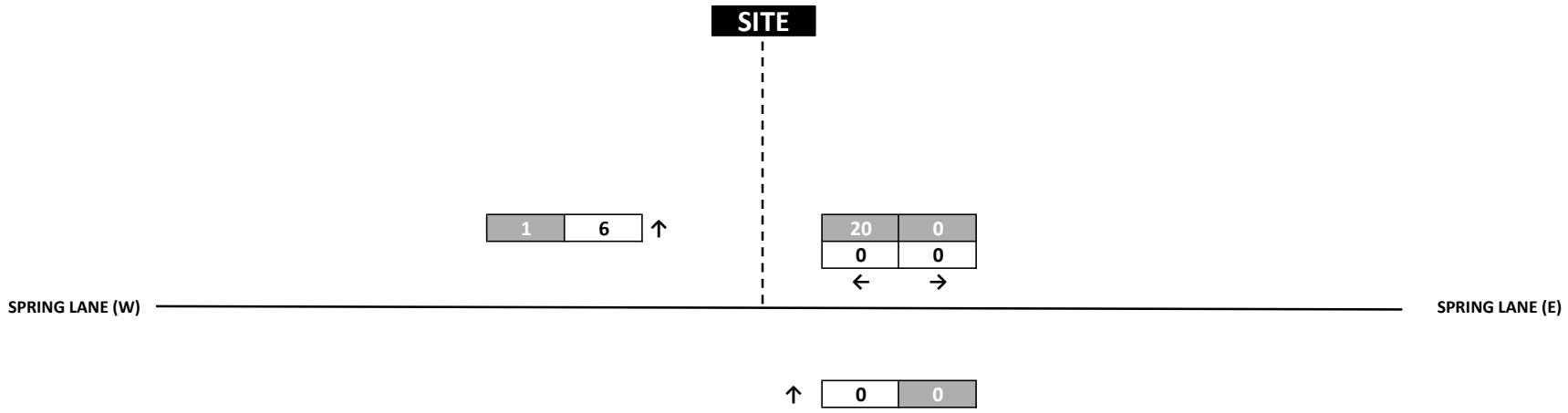
FIGURE 3
DISTRIBUTION

SPRING LANE FARM SHOP
JOB NUMBER: F21029

DRAWN BY: CAB



KEY

←	↑	→		
x	x	x	=	AM Peak Hour (0730 - 0830)
x	x	x	=	PM Peak Hour (1645 - 1745)

= Turning Movement

BANCROFT CONSULTING

FIGURE 4

PROPOSED WEEKDAY TRAFFIC FLOWS

SPRING LANE FARM SHOP

JOB NUMBER: F21029

DRAWN BY: CAB

Time Period	Trip Rates (per 100sqm)		Traffic Generation (741 sqm GFA)			Parking Accumulation (initial occupancy = 0 spaces)
	Arrive	Depart	Arrive	Depart	Total	
						1
07:00-08:00	0.000	0.000	0	0	0	1
08:00-09:00	0.280	0.140	2	1	3	2
09:00-10:00	0.520	0.160	4	1	5	5
10:00-11:00	0.560	0.200	4	1	5	8
11:00-12:00	0.320	0.240	2	2	4	8
12:00-13:00	0.360	0.320	3	2	5	9
13:00-14:00	0.120	0.520	1	4	5	6
14:00-15:00	0.160	0.520	1	4	5	3
15:00-16:00	0.040	0.200	0	1	1	2
16:00-17:00	0.000	0.120	0	1	1	1
17:00-18:00	0.000	0.000	0	0	0	1
18:00-19:00	0.000	0.000	0	0	0	1
19:00-20:00	0.000	0.000	0	0	0	1
Daily	2.360	2.420	17	17	34	

TABLE 1: EXISTING AGRICULTURAL DEVELOPMENT TRAFFIC GENERATION PROFILE (TRICS 'FARM DIVERSIFICATION' WEEKDAY TRIP RATES)

Time Period	100% of Alder Carr Farm Site Trips			60% of Alder Carr Farm Site Trips			Trip Rates for 60% of the Alder Carr Farm Site		
	Arrive	Depart	Total	Arrive	Depart	Total	Arrive	Depart	Total
07:00-08:00	0	0	0	0	0	0	0.000	0.000	0.000
08:00-09:00	8	4	12	5	2	7	0.932	0.466	1.398
09:00-10:00	14	3	17	8	2	10	1.631	0.350	1.981
10:00-11:00	22	15	37	13	9	22	2.563	1.748	4.311
11:00-12:00	29	28	57	17	17	34	3.379	3.262	6.641
12:00-13:00	24	21	45	14	13	27	2.796	2.447	5.243
13:00-14:00	14	22	36	8	13	22	1.631	2.563	4.194
14:00-15:00	25	22	47	15	13	28	2.913	2.563	5.476
15:00-16:00	21	28	49	13	17	29	2.447	3.262	5.709
16:00-17:00	10	15	25	6	9	15	1.165	1.748	2.913
17:00-18:00	10	12	22	6	7	13	1.165	1.398	2.563
18:00-19:00	1	8	9	1	5	5	0.117	0.932	1.049
19:00-20:00	0	0	0	0	0	0	0.000	0.000	0.000
Daily	178	178	356	107	107	214	20.738	20.738	41.476

TABLE 2: ALDER CARR FARM TRAFFIC GENERATION PROFILE
(TRICS 'FARM DIVERSIFICATION' WEEKDAY TRIP RATES)

Time Period	Trip Rates (per 100sqm)		Traffic Generation (315sqm)			Parking Accumulation (initial occupancy = 0 spaces)
	Arrive	Depart	Arrive	Depart	Total	
						0
07:00-08:00	0.000	0.000	0	0	0	0
08:00-09:00	0.932	0.466	3	1	4	2
09:00-10:00	1.631	0.350	5	1	6	6
10:00-11:00	2.563	1.748	8	6	14	8
11:00-12:00	3.379	3.262	11	10	21	9
12:00-13:00	2.796	2.447	9	8	17	10
13:00-14:00	1.631	2.563	5	8	13	7
14:00-15:00	2.913	2.563	9	8	17	8
15:00-16:00	2.447	3.262	8	10	18	6
16:00-17:00	1.165	1.748	4	6	10	4
17:00-18:00	1.165	1.398	4	4	8	4
18:00-19:00	0.117	0.932	0	3	3	1
19:00-20:00	0.000	0.000	0	0	0	1
20:00-21:00	0.000	0.000	0	0	0	1
21:00-22:00	0.000	0.000	0	0	0	1
Daily	20.739	20.739	66	65	131	

TABLE 3: PROPOSED CAFÉ / COFFEE SHOP DEVELOPMENT TRAFFIC GENERATION - (TRICS 'FARM DIVERSIFICATION' WEEKDAY TRIP RATES)

Time Period	Existing Agricultural Building			Proposed Café / Coffee Shop			Net Change		
	Arrive	Depart	Total	Arrive	Depart	Total	Arrive	Depart	Total
07:00-08:00	0	0	0	0	0	0	0	0	0
08:00-09:00	2	1	3	3	1	4	1	0	1
09:00-10:00	4	1	5	5	1	6	1	0	1
10:00-11:00	4	1	5	8	6	14	4	5	9
11:00-12:00	2	2	4	11	10	21	9	8	17
12:00-13:00	3	2	5	9	8	17	6	6	12
13:00-14:00	1	4	5	5	8	13	4	4	8
14:00-15:00	1	4	5	9	8	17	8	4	12
15:00-16:00	0	1	1	8	10	18	8	9	17
16:00-17:00	0	1	1	4	6	10	4	5	9
17:00-18:00	0	0	0	4	4	8	4	4	8
18:00-19:00	0	0	0	0	3	3	0	3	3
19:00-20:00	0	0	0	0	0	0	0	0	0
20:00-21:00	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0
Daily	17	17	34	66	65	131	49	48	97

TABLE 4: NET CHANGE IN DAILY TRAFFIC GENERATION PROFILE (WEEKDAY)

TABLE 5: PROPOSED DEVELOPMENT TRIP CALCULATIONS

Thursday			
Time Period	**Farm Shop Customers**	**39% Linked Trips**	**Number of Café Customers**
09:00 - 09:59	24	9	37
10:00 - 10:59	37	14	32
11:00 - 11:59	33	13	33
12:00 - 12:59	34	13	33
13:00 - 13:59	27	11	35
14:00 - 14:59	32	12	34
15:00 - 15:59	21	8	20
16:00 - 16:59	24	9	23
17:00 - 17:59	1	0	1
Total	233	91	247

Saturday			
Time Period	**Farm Shop Customers**	**39% Linked Trips**	**Number of Café Customers**
09:00 - 09:59	63	25	5
10:00 - 10:59	66	26	4
11:00 - 11:59	79	31	0
12:00 - 12:59	65	25	5
13:00 - 13:59	60	23	7
14:00 - 14:59	53	21	9
15:00 - 15:59	39	15	15
16:00 - 16:59	27	11	19
17:00 - 17:59	0	0	0
Total	452	176	65

Time Period	Traffic Generation (90 covers)			Parking Accumulation (initial occupancy = 0 spaces)
	Arrive	Depart	Total	
				0
07:00-08:00	0	0	0	0
08:00-09:00	8	0	8	8
09:00-10:00	37	19	56	27
10:00-11:00	32	35	67	24
11:00-12:00	33	33	66	25
12:00-13:00	33	33	66	25
13:00-14:00	35	34	69	26
14:00-15:00	34	35	69	25
15:00-16:00	20	27	47	18
16:00-17:00	23	22	45	20
17:00-18:00	1	20	21	1
18:00-19:00	0	0	0	1
19:00-20:00	0	0	0	1
20:00-21:00	0	0	0	1
21:00-22:00	0	0	0	1
Daily	256	256	512	

TABLE 6: PROPOSED CAFÉ / COFFEE SHOP DEVELOPMENT TRAFFIC GENERATION - TAILORED APPROACH

Time Period	Existing Agricultural Building			Proposed Café / Coffee Shop			Net Change		
	Arrive	Depart	Total	Arrive	Depart	Total	Arrive	Depart	Total
07:00-08:00	0	0	0	0	0	0	0	0	0
08:00-09:00	2	1	3	8	0	8	6	-1	5
09:00-10:00	4	1	5	37	19	56	33	18	51
10:00-11:00	4	1	5	32	35	67	28	34	62
11:00-12:00	2	2	4	33	33	66	31	31	62
12:00-13:00	3	2	5	33	33	66	30	31	61
13:00-14:00	1	4	5	35	34	69	34	30	64
14:00-15:00	1	4	5	34	35	69	33	31	64
15:00-16:00	0	1	1	20	27	47	20	26	46
16:00-17:00	0	1	1	23	22	45	23	21	44
17:00-18:00	0	0	0	1	20	21	1	20	21
18:00-19:00	0	0	0	0	0	0	0	0	0
19:00-20:00	0	0	0	0	0	0	0	0	0
20:00-21:00	0	0	0	0	0	0	0	0	0
21:00-22:00	0	0	0	0	0	0	0	0	0
Daily	17	17	34	256	256	512	239	239	478

TABLE 7: NET CHANGE IN DAILY TRAFFIC GENERATION PROFILE (WEEKDAY)

Jarodale House
7 Gregory Boulevard
Nottingham NG7 6LB

0115 960 2919
office@bancroftconsulting.co.uk

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APPENDIX C – NCC EMAIL OF 21 JULY 2021

Chris Bancroft

From: Alison Green <alison.green@nottscc.gov.uk>
Sent: 21 July 2021 12:22
To: Sarah Strauther
Subject: RE: Spring Lane Farm Shop, Mapperley Plains

Follow Up Flag: Follow up
Flag Status: Flagged

Sarah
Thank you for your email showing the trip generation for the site which appears acceptable. I agree the number of trips will not take place in the peak hours. However as you have discussed the access needs addressing in terms of the width and also it may help if a radius kerb arrangement is provided and possibly the gradient if possible. The current highway design guide asks for 5.8m in width, however it may be better on this site to allow 6.0m width arrangement.
There also maybe more arriving on foot so could pedestrian splays be considered.

The car parking areas will need to show dimensions of 2.4m x 4.8m absolute minimum with 6.0m aisle widths as they appear to be not to theses dimensions on the plan but it is hard to measure. End spaces will need to be 3.3m next to a boundary/wall/hedge.

Kind Regards
Alison

From: Sarah Strauther <sarah@bancroftconsulting.co.uk>
Sent: 05 July 2021 14:41
To: Alison Green <alison.green@nottscc.gov.uk>
Cc: Chris Bancroft <chris@bancroftconsulting.co.uk>; Yvette Cross <yvette@bancroftconsulting.co.uk>
Subject: Spring Lane Farm Shop, Mapperley Plains

Good Afternoon Alison,

I have been working with Chris on the Spring Lane Farm development and I'm aware that you've had discussions regarding the preparation of a Trip Generation and Parking Appraisal to confirm the potential change in turning movements and parking demand to be anticipated by the development proposals at the site. Further to your request and detailed requirements regarding turning counts, parking accumulation surveys, till receipt data and customer surveys, a Trip Generation and Parking Appraisal has been prepared to establish an accurate picture of the potential change in conditions arising from the proposals with clear conclusions on the suitability of the access to accommodate predicted traffic movements along with the overall level of parking spaces that should be provided.

Annual footfall data from till receipts revealed that the operational peak hours of the farm shop were found to be from 1100 to 1300 hours. The lowest number of customer visits were seen to be during the typical highway peak periods from 0800 to 0900 hours and from 1700 to 1800 hours. Customer questionnaires revealed that a minimum of 39% of existing trips would visit the café at the same time resulting in a proportion of linked trips being associated with the proposed coffee shop, and a minimum of 77% of existing customers said that they would use a coffee shop on site, indicating that there is certainly demand for the proposals and the proposals would be supported by existing customers. Car parking accumulation surveys revealed that the peak periods of activity for the existing Spring Farm site are between 1045 and 1145 hours during the week and from 1115 to 1215 hours on a weekend. The results affirm that the weekday peak operational hours of the existing Spring Lane Farm site do not coincide with the peak highway periods.

Trip generation was calculated for the proposed development based upon similar sites, and also with calculation of a bespoke trip generation based upon the specific site operation and proposals. After offsetting the assumed trips

generated by the existing agricultural building, the trip generation exercise revealed that only 5 and 21 vehicle trips would be generated by the proposals during the weekday AM and PM highway peak hours. During a weekend peak hour of 1100 to 1200 hours, the proposed development would generate no new trips on the network due to the linked trips taken by existing customers to the proposed café / coffee shop.

The traffic surveys revealed that the majority of arrivals and departures were taken from the eastern direction along Spring Lane and confirmed that the majority of existing trips to and from the existing development were undertaken outside the highway peak periods. When the existing patterns of distribution were applied to the predicted traffic associated with the proposed development this revealed that the proposed development would result in no right turning trips arriving in the weekday AM or PM peak hour trips.

The car parking accumulations identified that during the existing peak periods of use, there was significant capacity within the proposed carp parking layout to accommodate the number of car parking spaces required by the parking standards of the highway authority. It has been observed that several of the car parking spaces may need repositioning or removal in order to accommodate the movements of servicing and refuse vehicles. Swept path analysis and design of the car park and site access arrangements should be detailed within the Transport Assessment. The minimum parking standards for disabled motorists require 4 disabled car parking spaces to be provided within the proposed car parking layout. A minimum total provision of 3 short stay cycle spaces, 1 short stay disabled cycle space, 1 secure and covered standard cycle space and 1 secure and covered disabled cycle space should be provided within the proposed parking layout. Parking demand assessments revealed that the proposed parking layout should also accommodate one motorcycle parking space.

The assessment clearly demonstrates that the increased activity of the proposed development would not materially increase the number of vehicular trips generated by the site during the highway peak periods and anticipated parking demand would be accommodated by the proposals and would not lead to a severe off-site impact. Using the analysis and calculations contained within the Trip Generation and Parking Appraisal we would aim to agree a clear way forward in terms of trip generation, distribution and parking provision for inclusion within the Transport Assessment which would be submitted in support of the anticipated planning application for the proposed café / coffee shop. Once we have established these points, the Transport Assessment would address any recommended access improvements and internal layout requirements.

I trust that the above details are in order and would be grateful if you could respond with your feedback on the attached Trip Generation and Parking Statement. Please feel free to contact me if you have any queries regarding the above.

Kind Regards,
Sarah

Sarah Strauther
Principal Engineer
Bancroft Consulting Limited

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TRANSPORT ASSESSMENTS / ROAD SAFETY AUDITS / ACCESS APPRAISAL / HIGHWAY DESIGN / TRAVEL PLANS / CONCEPTUAL DESIGN AND MASTERPLANNING

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APPENDIX D – TECHNICAL NOTE (FULL COPY)

Spring Lane Farm Ltd

Spring Lane Farm, Spring Lane

Technical Note (Revision A)

March 2022

BANCROFT CONSULTING

bancroftconsulting.co.uk

SPRING LANE FARM LTD,

SPRING LANE FARM, SPRING LANE

TECHNICAL NOTE

MARCH 2022

1.0 INTRODUCTION AND BACKGROUND

1.1 Bancroft Consulting were appointed by Spring Lane Farm Ltd to provide highways and transportation advice in respect of proposals to deliver essential access and parking infrastructure improvements at their Spring Lane Farm site on Spring Lane in Nottinghamshire. The works are required to negate potential parking and servicing conflicts between the current farming enterprise and the farm shop and facilitate clear access to the recently permitted agricultural store building that is to the rear of the site and is to be accessed through the front area occupied by the Farmshop.

1.2 The proposed works comprise:

1. Improvements to the existing site access junction on Spring Lane.
2. Formalisation of the internal parking layout.

1.3 Details of the proposed works are set out in the following drawings, which are attached to this report.

- F21029/01 Revision A 'General Layout Arrangement'
- F21029/02 Revision A 'Proposed Access Layout and Visibility Assessment'
- F21029/03 Revision A 'Proposed Access Gradients'
- F21029/04 Revision A 'General Layout Arrangement and Swept Path Assessment'

1.4 Details of the existing site layout are set out within **Drawing Number F21029/05**.

1.5 This report follows numerous site visits over the past 12 months, which have included a speed survey at the existing access on Spring Lane, following the recent change in speed limit from 40 to 30 mph. The results of the survey are included at **Appendix A**, which demonstrate 85th percentile speeds of 31.99 in the westbound direction and 31.90 in the eastbound direction. Also included in Appendix A are the calculated

visibility splay requirements from these results, which are for 47 metres in both directions.

1.6 It is understood that the new agricultural store building will generate occasional seasonal movements by large articulated lorries collecting grain. This will be alongside other general agricultural movements that regularly arrive and depart the site throughout a typical year of activities. The farmshop also generates HGV movements on a weekly,weekday basis (up to 6 daily) and the proposed scheme should deliver much needed improvements for all users at the site.

2.0 REVIEW OF PROPOSALS

F21029/01 Revision A 'General Layout Arrangement'

2.1 **Drawing Number F21029/01 Revision A** confrms the general arrangement of the proposed works, with a much improved bellmouth junction that provides a straight and moire direct route for agricultural vehicles to manoeuvre through to the rear of the site. The increased control radii will also make it easier for larger vehicles to turn to and from the site.

2.2 To address ongoing concerns regarding the conflict between pedestrians walking between the designated parking areas and the farmshop entrance, crossing the access road, the layout now seeks to provide a clearer alignment of the main internal through route with defined access points and pedestrian harborage areas. By removing the end bay of an existing agricultural store the designated parking area would be formally marked out with 39 parking spaces plus up to an additional 23 spaces through upgrade to the overspill parking area to cater for peak visitor usage.

2.3 To help minimise any risk of conflict between pedestrians and agricultural vehicles an alternative additional pedestrian access would be created at the western end of the site frontage, serving the farmshop.

F21029/02 Revision A 'Proposed Access Layout and Visibility Assessment'

2.4 **Drawing Number F21029/02 Revision A** provides further clarity on the detailed highway layout associated with the proposed junction improvements. It confirms how

the existing narrow gateway would be widened to 7.3 metres in line with standard requirements for accesses accommodating large articulated vehicles. This would be supported by the removal of the dropped kerb arrangement and provision of 10 metres control radii.

2.5 The existing pedestrian facilities would be improved by the inclusion of tactile paving at the access, leading to formal 2 metres wide footways serving the site.

2.6 The drawing also demonstrates how the required 2.4 x 47 metres visibility splays could be achieved in each direction at the proposed site access within highway land.

F21029/03 Revision A 'Proposed Access Gradients'

2.7 In response to concerns previously raised by Nottinghamshire County Council, acting as the Highway Authority, **Drawing Number F21029/03 Revision A** demonstrates how the existing access gradient could be improved to assist agricultural vehicle turning movements associated with the new barn and other site users.

2.8 In establishing the proposed layout it should be noted that the existing access arrangement operates with a steep initial gradient that drops by approximately 1 metre from the edge of Spring Lane to the start of the car park area, with a particularly steep section immediately adjacent to Spring Lane (circa 1:10 gradient). The proposed improvements would reconfigure this alignment to deliver 1:12 transition gradients at either end of a 4 metres long section of 1:6 gradient. This is based on advice published for car park design and, although they do not strictly comply with the Highway Authority's standard access requirements, should offer an improvement over the existing arrangement.

2.9 Internally, the drawing shows how the access road continues to fall and the recommendations also include the provision of some retaining walls and railings where pedestrian movement is likely.

F21029/04 Revision A 'General Layout Arrangement and Swept Path Assessment'

2.10 It is envisaged that the new agricultural store building will facilitate seasonal visits by large articulated lorries associated with grain and other goods stored on-site. To facilitate this, it is proposed that the site would operate a one-way circuit for these and also other large vehicles associated with farm shop deliveries . **Drawing Number F21029/04 Revision A** confirms how a Maximum UK Articulated Lorry (16.5 metres long) could undertake the required manoeuvre through the site without conflict with any car parking spaces.

3.0 SUMMARY

3.1 The proposed improvement works are designed facilitate safer access by large HGVs manoeuvring between Spring Lane and the new agricultural store. They seek to address ongoing concerns regarding the current conflict between visitors to the farmshop and regular HGV movements crossing this desire line.

3.2 The proposed layout offers a significantly improved junction arrangement with formal control radii, a wider access road, and a less severe access gradient. Visibility splays could also be delivered in line with observed approach speeds and calculated splay requirements. Internally, pedestrians will be provided with clearer harbourage areas to avoid conflict with more defined parking spaces to ensure a more efficient arrangement that avoids blockage of the necessary HGV routes, particularly in the immediate vicinity of the site entrance..

DRG. No.	REV. No.
F21029/01	A

NOTES:

shared surface arrangement leading up to the entrance of the farm shop

recommended retaining wall/railing

overspill parking area (potential for spaces to be constructed in grasscrete or similar material)

main pedestrian access point

improved vehicular access point

main parking area

Grid North

REV.	DATE	DESCRIPTION	DRN	CHK'D
A	11.03.22	REVISED WITH PROJECT TEAM COMMENTS	WM	CJB

CLIENT

SPRING LANE FARM LTD

CONTRACT

SPRING LANE FARM SHOP

TITLE

GENERAL LAYOUT ARRANGEMENT

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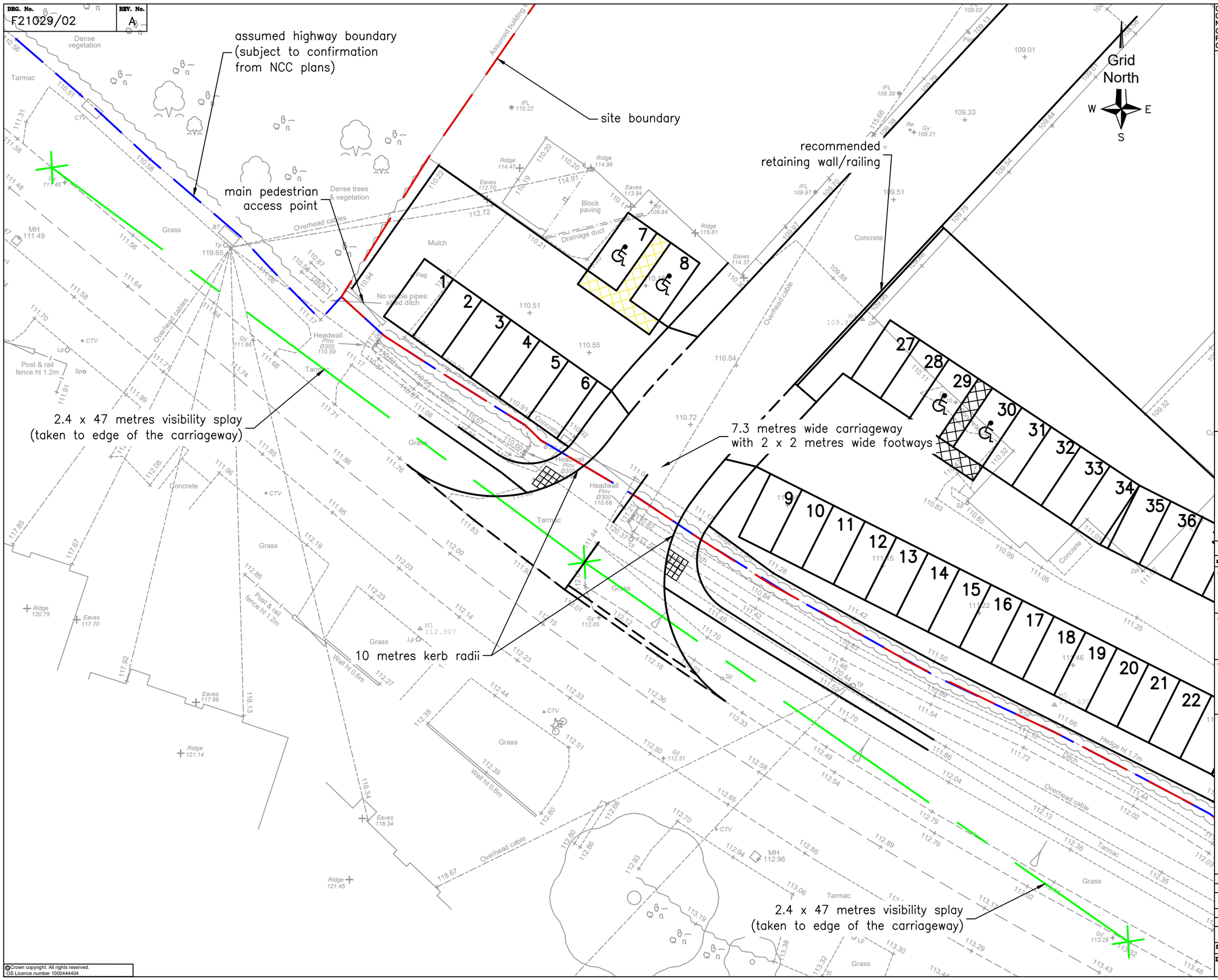
e office@bancroftconsulting.co.uk

DRAWN BY	
NAME (PRINT)	DATE
WM	04.02.22
CHECKED BY	
NAME (PRINT)	DATE
CJB	04.02.22

SCALE	STATUS
1:250@A2	PRELIMINARY

DRG. NO.	REV
F21029/01	A

DRG. No. F21029/02 | REV. No. A



NOTES:

REV.	DATE	DESCRIPTION	DRN	CHK'D
A	11.03.22	REVISED WITH PROJECT TEAM COMMENTS	WM	CJB

CLIENT
SPRING LANE FARM LTD

CONTRACT
SPRING LANE FARM SHOP

TITLE
PROPOSED ACCESS LAYOUT AND VISIBILITY ASSESSMENT

BANCROFT CONSULTING
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DRAWN BY	
NAME (PRINT)	DATE
WM	04.02.22
CHECKED BY	
NAME (PRINT)	DATE
CJB	04.02.22

SCALE 1:250@A3 | STATUS PRELIMINARY

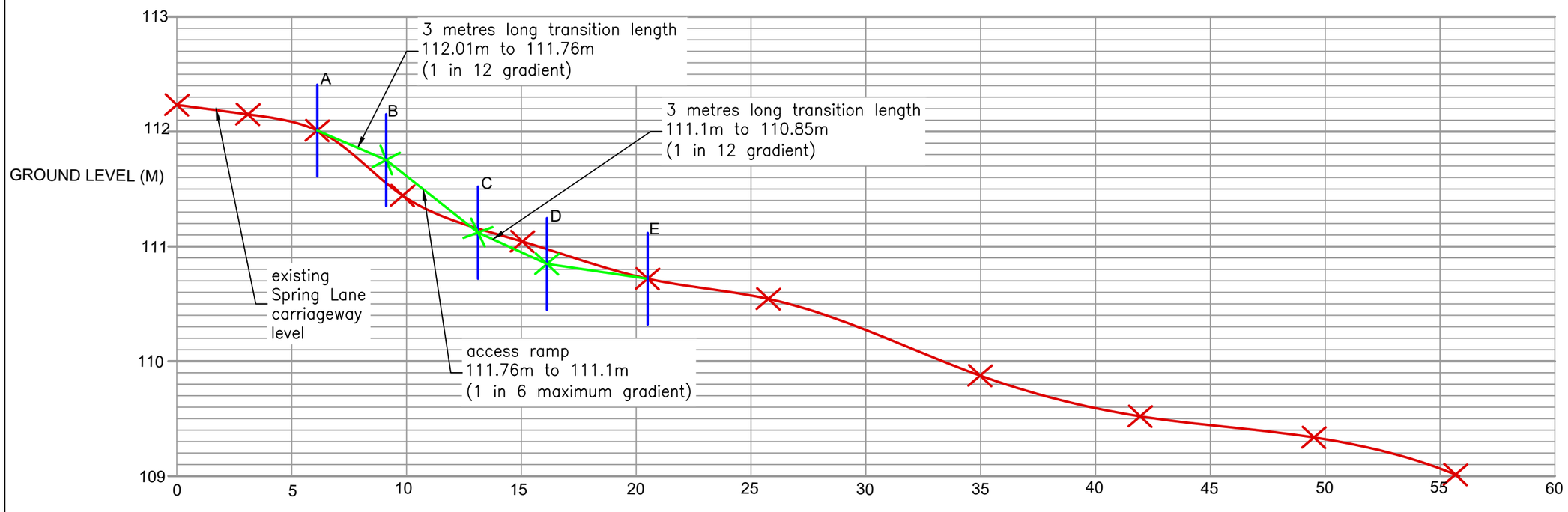
DRG. NO. F21029/02 | REV A

DRG. No. F21029/03 | REV. No. A

NOTES:

EXISTING LEVELS (FROM SPRING LANE INTO THE SITE)

- POINT 1 = 112.23M
- POINT 2 = 112.15M
- POINT 3 = 112.01M
- POINT 4 = 111.44M
- POINT 5 = 111.04M
- POINT 6 = 110.72M
- POINT 7 = 110.54M
- POINT 8 = 109.88M
- POINT 9 = 109.51M
- POINT 10 = 109.33M
- POINT 11 = 109.01M



REV.	DATE	DESCRIPTION	DRN	CHK'D
A	11.03.22	REVISED WITH PROJECT TEAM COMMENTS	WM	CJB

CLIENT: SPRING LANE FARM LTD

CONTRACT: SPRING LANE FARM SHOP

TITLE: PROPOSED ACCESS GRADIENTS

BANCROFT CONSULTING

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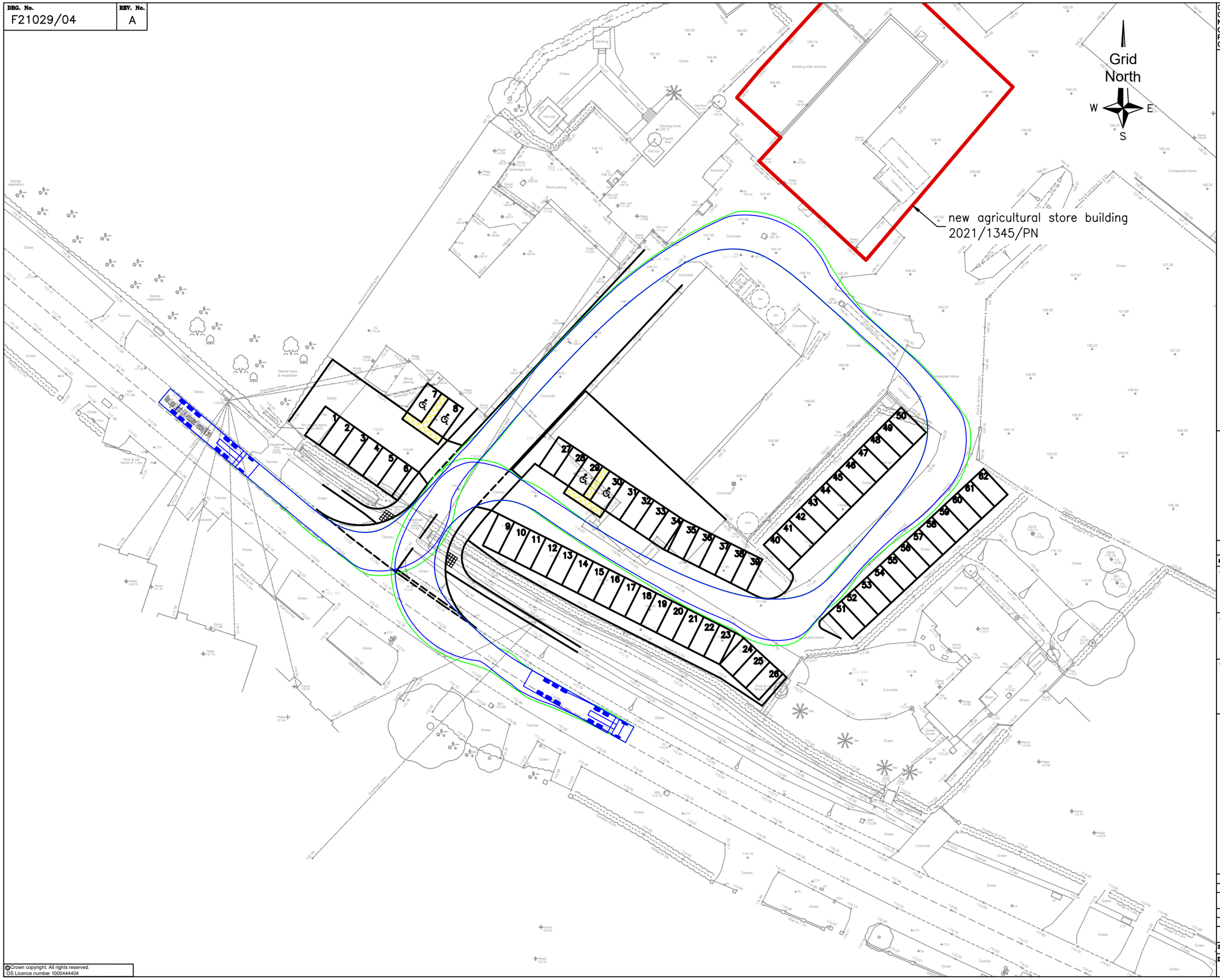
DRAWN BY	
NAME (PRINT)	DATE
WM	04.02.22
CHECKED BY	
NAME (PRINT)	DATE
CJB	04.02.22

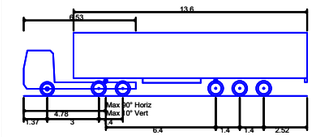
SCALE 1:200@A3 | STATUS PRELIMINARY

DRG. NO. F21029/03 | REV A

DRG. No.	REV. No.
F21029/04	A



NOTES:



Max Legal Length (UK) Articulated Vehicle (16.5m)	
Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

REV.	DATE	DESCRIPTION	DRN	CHK'D
A	11.03.22	REVISED WITH PROJECT TEAM COMMENTS	WM	CJB

CLIENT

SPRING LANE FARM LTD

CONTRACT

SPRING LANE FARM SHOP

TITLE

GENERAL LAYOUT ARRANGEMENT AND SWEPT PATH ASSESSMENT (MAX UK ARTICULATED VEHICLE)

BANCROFT CONSULTING

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DRAWN BY	
NAME (PRINT)	DATE
WM	04.02.22
CHECKED BY	
NAME (PRINT)	DATE
CJB	04.02.22

SCALE	STATUS
1:500@A3	PRELIMINARY

DRG. NO.	REV
F21029/04	A

DRG. No.	REV. No.
F21029/05	

NOTES:

REV.	DATE	DESCRIPTION	DRN	CHK'D

CLIENT

SPRING LANE FARM LTD

CONTRACT

SPRING LANE FARM SHOP

TITLE

EXISTING SITE PLAN

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DRAWN BY	
NAME (PRINT)	DATE
WM	11.03.22
CHECKED BY	
NAME (PRINT)	DATE
CJB	11.03.22

SCALE	1:500@A3	STATUS	PRELIMINARY
DRG. NO.	F21029/05	REV	

APPENDIX A – SPEED SURVEY RESULTS

observed speed mph	no. of readings n	n×x	n×x²
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	1	21	441
22	0	0	0
23	0	0	0
24	4	96	2304
25	7	175	4375
26	14	364	9464
27	24	648	17496
28	36	1008	28224
29	30	870	25230
30	31	930	27900
31	18	558	17298
32	8	256	8192
33	11	363	11979
34	3	102	3468
35	4	140	4900
36	4	144	5184
37	3	111	4107
38	2	76	2888
39	0	0	0
40	0	0	0
41	0	0	0
42	0	0	0
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n=	Σv=	Σv²=
Total Σ	200	5862	173450

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Spring Lane Farm Shop**
direction: **Westbound**
day: **Thursday**
date **04.11.21**
time: **0940 to 1041**

SUMMARY

mean	29.31 mph	47.2 kph
85%ile	31.99 mph	51.5 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$

m= 29.31 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$

∑ (v - m)² = 1634.78

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$

s= 2.68 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$

p= 31.99

checks: 85%ile/mean = 1.09
should be 1.1 to 1.25

S.D./mean = 0.09
should be approx 1/6 (0.17)

SPRING LANE FARM SHOP - WESTBOUND SPEED SURVEY RESULTS

observed speed mph	no. of readings n	n×x	n×x²
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	1	22	484
23	0	0	0
24	8	192	4608
25	10	250	6250
26	21	546	14196
27	18	486	13122
28	35	980	27440
29	22	638	18502
30	37	1110	33300
31	18	558	17298
32	12	384	12288
33	1	33	1089
34	6	204	6936
35	4	140	4900
36	2	72	2592
37	2	74	2738
38	1	38	1444
39	0	0	0
40	1	40	1600
41	0	0	0
42	1	42	1764
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n=	Σv=	Σv²=
Total Σ	200	5809	170551

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Spring Lane Farm Shop**
direction: **Eastbound**
day: **Thursday**
date **04.11.21**
time: **0940 to 1041**

SUMMARY

mean	29.05 mph	46.7 kph
85%ile	31.90 mph	51.3 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$ *m=* 29.05 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$ $\sum(v - m)^2 =$ 1828.60

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$ *s=* 2.85 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$ *p=* 31.90

checks: 85%ile/mean = 1.10
should be 1.1 to 1.25

S.D./mean = 0.10
should be approx 1/6 (0.17)

SPRING LANE FARM SHOP - EASTBOUND SPEED SURVEY RESULTS

Vehicle speeds	**31.99**	mph				
	51.47	kph				
	14.30	v (m/s)				
	204.43	v^2				
Driver Perception-Reaction time	**1.5**	t (s)				
	21.45	v x t				
Deceleration Rate	**0.45**	g				
	4.41	d (m/s)				
	8.83	2d				
Gradient	**0.00**	a*				
	4.41	d+0.1a				
	8.829	2(d+0.1a)				
	v t		+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**21.45**		+	**23.15**	=	**44.60**
SSD Bonnet Adjusted (SSD+2.4)**	**47.00**					

Formula: $SSD = vt + v^2/2(d+0.1a)$

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate ($g = 9.81m/s^2$)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: SPRING LANE FARM SHOP - WESTBOUND

Vehicle speeds	**31.90**	mph				
	51.33	kph				
	14.26	v (m/s)				
	203.28	v^2				
Driver Perception-Reaction time	**1.5**	t (s)				
	21.39	v x t				
Deceleration Rate	**0.45**	g				
	4.41	d (m/s)				
	8.83	2d				
Gradient	**0.00**	a*				
	4.41	d+0.1a				
	8.829	2(d+0.1a)				
	v t		+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**21.39**		+	**23.02**	=	**44.41**
SSD Bonnet Adjusted (SSD+2.4)**	**46.81**					

Formula: *$SSD = vt + v^2/2(d+0.1a)$*

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

	Manual for Streets 2		**DMRB**	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate ($g = 9.81m/s^2$)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: SPRING LANE FARM SHOP - EASTBOUND

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