



Twycross Zoo

NATIONAL SCIENCE AND CONSERVATION CENTRE, TWYCROSS ZOO

Transport Statement





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NATIONAL SCIENCE AND CONSERVATION CENTRE, TWYCROSS ZOO

Transport Statement

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DATE: OCTOBER 2023



Twycross Zoo

NATIONAL SCIENCE AND CONSERVATION CENTRE, TWYCROSS ZOO

Transport Statement

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1 INTRODUCTION

1.1 PURPOSE OF REPORT

- 1.1.1. This Transport Statement has been prepared by WSP on behalf of Twycross Zoo ('the client'). It forms part of a full planning application for a National Science and Conservation Centre (NSCC) at Twycross Zoo.
- 1.1.2. The description of development for this application is:
"Development of new animal enclosures and associated infrastructure, new lecturer theatre, education block, education facilities and associated residential block and lodges, new access from Orton Hill, new car park, landscaping and all other associated works."
- 1.1.3. This report considers the highway and transport aspects of the proposed development of the site, and forms part of a suite of supporting documents to the planning application.

1.2 STRUCTURE

- 1.2.1. Following this Introduction, this report will consider and include the following:
- Proposed Development;
 - Proposed Access Arrangements
 - Daily Operations and Trip Generation;
 - Car Park and Servicing; and
 - Conclusions and Recommendations

2 PROPOSED DEVELOPMENT

2.1 BACKGROUND

- 2.1.1. The proposed development seeks to secure the next stage of development in the masterplan for the Zoo – the NSCC. Funding from the UK Government’s Levelling Up Fund was secured for the scheme in 2021.
- 2.1.2. The proposals will make a significant contribution to the international conservation of biodiversity. This purpose-built centre will support conservationists and scientists around the world with a facility for both research and teaching. The Centre is intended to contribute to supporting conservation; animal welfare; biosciences; STEM activities and public engagement with science.

2.2 RELEVANT PLANNING POLICY

NATIONAL POLICY - NPPF

- 2.2.1. Paragraph 105 of the National Planning Policy Framework (NPPF) notes that *“opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.”*
- 2.2.2. Paragraph 111 of the NPPF states 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.”*

LOCAL POLICY - SADMP

- 2.2.3. Policy DM17 of Hinckley & Bosworth Borough Council’s adopted Site Allocations and Development Management Policies DPD (SADMP) supports development that would not have any significant adverse impacts on highway safety.
- 2.2.4. Policy DM18 requires new development to provide an appropriate level of parking provision to serve the development proposed
- 2.2.5. Policy DM10 sets out that development will be permitted provided that where parking is to be provided charging points for electric or low emission vehicles are included where feasible.

2.3 SITE LOCATION AND SURROUNDINGS

- 2.3.1. The site is located within the boundary of Twycross Zoo and comprises land to the south of the Zoo, located partially in the area open to the public (specifically the lemur enclosure) and the private land to the south of this, which has been used as a compound for other aspects of the Zoo.
- 2.3.2. The wider Zoo site has an area of 32ha and is located circa 0.8km to the south-west of Norton-Juxta-Twycross and circa 1.8km to the north-west of Twycross. The Zoo is currently accessed from Burton Road to the north.
- 2.3.3. The application site is circa 1.64ha in area, predominantly comprising fields and green space, with a small area of hardstanding accommodating vehicle parking and various small shed-like structures associated with the Zoo. Access to this area is taken from Orton Hill, where there is an existing formal bellmouth junction. There is a tree belt that runs east-west through the centre of the site, which forms part of the boundary for the existing lemur enclosure. This part of the site falls within the area of the Zoo’s existing licence.

- 2.3.4. The site is bound to the north and east by land and buildings associated with the Zoo. To the south, the site is bound by a hedgerow, beyond which lies agricultural fields. To the west, the site is bound by Orton Hill, beyond which lies further agricultural fields and some associated agricultural buildings, sheds and other structures.
- 2.3.5. The approximate area of the application site is shown by the red line in Figure 2-1 overleaf, with the access from Orton Hill denoted by the yellow arrow:

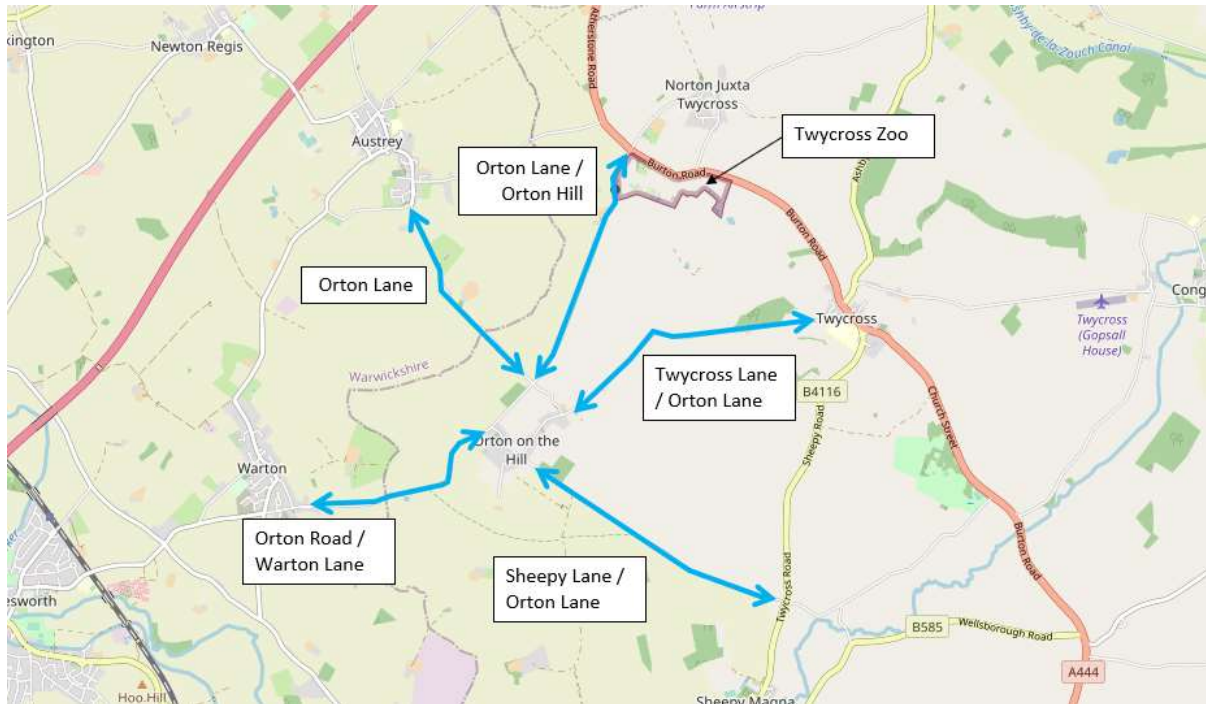
Figure 2-1 - Site location within Zoo estate



2.4 ORTON HILL

- 2.4.1. Orton Hill is a single carriageway road which connects the A444 Burton Road to Orton-on-the-Hill to the south. Its name changes from Orton Hill to Orton Lane approximately two-thirds of the way to Orton-on-the-Hill.
- 2.4.2. Orton Hill has a give-way junction with the A444 and in the vicinity of the site is subject to a 30mph speed limit with narrow verges either side.
- 2.4.3. For much of its length Orton Hill is wide enough to accommodate only one vehicle, and there are frequent passing places to allow a vehicle to wait for oncoming traffic to pass. This is similar to the other two roads that give access to Orton-on-the-Hill from the north and is typical of the rural character of the area. There are two roads which link to the south of Orton-on-the-Hill, Warton Lane and Sheepy Lane, which allow two-way traffic for most of their length, albeit they are narrow and with grass verges on both sides of the carriageway. These roads are shown in Figure 2-2 overleaf:

Figure 2-2 - Local Road Network



2.5 DEVELOPMENT PROPOSALS

2.5.1. Twycross Zoo are looking to deliver three new developments. These include:

- A new Orangutan Habitat
- A National Science Conservation Centre
- Accommodation (Lodges)

ORANGUTAN HABITAT

2.5.2. The Orangutan Habitat will provide a new home for the zoo's existing animals in a much-enhanced environment. It will include both internal and external habitats, animal dens and enrichment equipment. The building also includes zookeeper back of house spaces and a visitor centre.

2.5.3. The ground floor plan for the Orangutan Habitat consists of four dens and three external habitats, accompanied by various stores and service lobbies.

2.5.4. The first-floor plan consists of additional habitats and rooms for research.

2.5.5. On the second floor is a zookeeper catwalk.

NATIONAL SCIENCE CONSERVATION CENTRE (NSCC)

2.5.6. The NSCC comprises of a two-storey higher education campus building. It will offer researchers from around the world the opportunity to study Apes, plus over 100 endangered species in naturalistic complex environments.

2.5.7. Classrooms, breakout rooms, a lecture theatre, and laboratories have all been included within the design to research and educate those who come to visit the facility.

- 2.5.8. Bedrooms (11 on ground floor and 13 on the first floor) have also been included within the design proposal to show where researchers will stay when working.

LODGES

- 2.5.9. Researchers will have the option to stay in longer term accommodation in the form of lodges. The lodges will be a modern interpretation of the unique architecture in Indonesia.
- 2.5.10. These lodges will provide accommodation for members of staff who stay on site to look after/research the animals kept at Twycross zoo.

3 PROPOSED ACCESS ARRANGEMENTS

3.1 ACCESS POINT AND LAYOUT

- 3.1.1. The existing bellmouth junction on Orton Hill will be used to provide access to the NSCC site only. Regular visitors to the Zoo will not be able to use this access.
- 3.1.2. The access on Orton Hill is tarmacked, kerbed, and has sufficient visibility splays in each direction on Orton Hill. A drawing is included in Appendix A showing the layout and visibility splays.

3.2 SWEPT PATH ASSESSMENT

- 3.2.1. A vehicle swept path assessment has been undertaken for the following vehicles using the access:
 - Minibus
 - Refuse vehicle
 - Fire Tender
- 3.2.2. A drawing showing these swept paths is included in Appendix A. As can be seen, all vehicle types can be accommodated by the access point.

4 DAILY OPERATIONS AND TRIP GENERATION

4.1 DAILY OPERATIONS

- 4.1.1. The daily operations of the Orangutan and NSCC are based on research and facilitation. Inside the NSCC are 3No. classrooms, laboratories, a lecture theatre, and a breakout room.
- 4.1.2. Bedrooms are to be provided for use where needed for researchers and staff that may need to stay overnight. Lodges have also been provided to other members of staff who stay on site to look after the wildlife at Twycross. The Orangutan Habitat is being developed to provide a facility with enhanced conditions that will better accommodate the animals and provide more efficient conditions for research.
- 4.1.3. The classrooms and lecture theatre will enhance facilities for existing educational visits to the zoo. There is no forecast uplift in the annual number of school-related educational trips accommodated at the zoo, rather the existing level of educational visits will have an improved experience.

4.2 TRIP GENERATION

- 4.2.1. WSP has liaised with the Zoo to establish the likely trip generation of the proposals as well as the current level of usage of the existing access point.

EXISTING

- 4.2.2. The existing access is currently used for Trade and Contractor deliveries, with around three trips a week on average.

PROPOSED

- 4.2.3. School groups will continue to access the zoo via the main zoo entrance and will travel on foot to the NSCC as part of their visit.
- 4.2.4. Higher education students will access via the Orton Hill entrance and will be catered for by the proposed car park. Some larger spaces are included in the proposals to accommodate minibuses where they are used to transport student groups.
- 4.2.5. The NSCC development will lead to the employment of an additional six employees who would park in the main zoo car park alongside existing employees. Other support staff and education staff at the NSCC are currently already employed by the zoo and would split their time between the main zoo site and the NSCC.
- 4.2.6. Based on the above, the Zoo has provided the following expected level of daily and peak hour vehicle trips likely to be generated through the Orton Hill access:
 - Typical peak hour – 10 vehicles; and
 - Typical peak daily – 25 vehicles.
- 4.2.7. As can be seen, the expected highest number of vehicles arriving at the site in any one hour is 10, around one every six minutes on average. It is considered that this level of demand can be readily accommodated on Orton Hill and at the site access.
- 4.2.8. Additionally, transport and access arrangements for educational establishments visiting the NSCC will be confirmed when the visit is booked in. This gives the zoo control over vehicle arrival and

departure patterns at the site, enabling an ongoing management strategy to be put into place to ensure effective and efficient use of the access and the car park.

- 4.2.9. On occasion a coach may be used to transport students to the site. In these instances, they will be directed to use the main car park for access, and the students would be escorted through the main zoo site to access the NSCC.
- 4.2.10. Given the low level of traffic generation, and the level of control that the zoo has in arranging access for visitors, it is considered that the development would not have any significant adverse impacts on highway safety, in line with Policy DM17 of the SADMP.

5 CAR PARK AND SERVICE ACCESS

5.1 LAYOUT

- 5.1.1. The proposed car park layout is shown on HLM Architects Drawing No TWZ-HLM-00-00-DR-L-00001-P06, a copy of which is included in Appendix B.
- 5.1.2. A central island of parking bays will be provided, with a 6m wide access loop around it. Rows of parking spaces would also be provided along the southern and western edges of the access loop. The proposals include a drop off area in front of the building, and access to a servicing area would be provided in the eastern corner of the car park.

5.2 PARKING NUMBERS

- 5.2.1. Table 5-1 below sets out the proposed level of parking at the site:

Table 5-1 – Proposed parking provision

Type of space	Number provided
Standard	13
Minibus	9
Accessible	3
EV charging	20
Total	45

- 5.2.2. The Leicester Highway Design Guide sets out a standard required level of provision of 1 parking space per 22 sqm for non-residential developments with a floorspace over 1,000 sqm. For this development that would result in a requirement of 63 spaces.
- 5.2.3. It is important to note for this development however that the majority of users will be those already visiting the zoo as part of an educational trip and benefitting from the enhanced facilities.
- 5.2.4. Furthermore, provision is made for higher education students to arrive by minibus, which typically seat around 12 people including the driver. Assuming an average level of car occupancy of two people per car, each minibus space would provide the equivalent of 6 standard car parking spaces. It is therefore considered that the level of parking set out above is appropriate for the proposed development and complies with Policy DM18 of the SADMP.
- 5.2.5. For disabled parking provision, the Leicester Highway Design Guide sets out that for car parks with fewer than 200 spaces, education uses should provide at least one disabled bay, and that leisure uses should provide three bays or 6% of the total parking provision. The proposals are in line with the standards in that regard.
- 5.2.6. Finally, two EV charging spaces are proposed. This will facilitate trips to the site by electric or low emission vehicles and ensures compliance with Policy DM10 of the SADMP.

5.3 SWEPT PATH ASSESSMENT

- 5.3.1. A swept path assessment of service vehicles passing through the car park is included in Appendix C.

6 SUMMARY AND CONCLUSION

6.1 SUMMARY

6.1.1. This Transport Statement has been prepared by WSP on behalf of Twycross Zoo ('the client'). It forms part of a full planning application for a National Science and Conservation Centre (NSCC) at Twycross Zoo.

6.1.2. The description of development for this application is:

"Development of new animal enclosures and associated infrastructure, new lecturer theatre, education block, education facilities and associated residential block and lodges, new access from Orton Hill, new car park, landscaping and all other associated works."

RELEVANT PLANNING POLICY

6.1.3. Paragraph 105 of the National Planning Policy Framework (NPPF) notes that *"opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

6.1.4. Paragraph 111 of the NPPF states 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."*

6.1.5. Policy DM17 of Hinckley & Bosworth Borough Council's adopted Site Allocations and Development Management Policies DPD (SADMP) supports development that would not have any significant adverse impacts on highway safety.

6.1.6. Policy DM18 requires new development to provide an appropriate level of parking provision to serve the development proposed

6.1.7. Policy DM10 sets out that development will be permitted provided that where parking is to be provided charging points for electric or low emission vehicles are included where feasible.

SITE LOCATION AND SURROUNDINGS

6.1.8. The site is located within the boundary of Twycross Zoo and comprises land to the south of the Zoo, located partially in the area open to the public (specifically the lemur enclosure) and the private land to the south of this, which has been used as a compound for other aspects of the Zoo. The application site takes access from an existing junction on Orton Hill.

6.1.9. Orton Hill is a single carriageway road which connects the A444 Burton Road to Orton-on-the-Hill to the south. Its name changes from Orton Hill to Orton Lane approximately two-thirds of the way to Orton-on-the-Hill.

6.1.10. For much of its length Orton Hill is wide enough to accommodate only one vehicle, and there are frequent passing places to allow a vehicle to wait for oncoming traffic to pass. This is similar to the other two roads that give access to Orton-on-the-Hill from the north and is typical of the rural character of the area.

DEVELOPMENT PROPOSALS

6.1.11. Twycross zoo, working with Hinckley & Bosworth Borough Council, are looking to deliver four new developments. These include:

- A new Orangutan Habitat
- A National Science Conservation Centre
- Outdoor classroom
- Lodges

ACCESS

- 6.1.12. The existing bellmouth junction on Orton Hill will be used to provide access to the NSCC site. This access is tarmacked, kerbed, and has sufficient visibility splays in each direction on Orton Hill. A vehicle swept path assessment of the access has also been undertaken and shows that all vehicle types can be accommodated by the access point.
- 6.1.13. WSP has liaised with the Zoo to establish the likely trip generation of the proposals as well as the current level of usage of the existing access point.
- 6.1.14. The expected highest number of vehicles arriving at the site in any one hour is 10, around one every six minutes on average. It is considered that this level of demand can be readily accommodated on Orton Hill and at the site access.
- 6.1.15. Additionally, transport and access arrangements for educational establishments visiting the NSCC will be confirmed when the visit is booked in. This gives the zoo control over vehicle arrival and departure patterns at the site, enabling an ongoing management strategy to be put into place to ensure effective and efficient use of the access and the car park.
- 6.1.16. On occasion a coach may be used to transport students to the site. In these instances, they will be directed to use the main car park for access, and the students would be escorted through the main zoo site to access the NSCC.
- 6.1.17. Given the low level of traffic generation, and the level of control that the zoo has in arranging access for visitors, it is considered that the development would not have any significant adverse impacts on highway safety, in line with Policy DM17 of the SADMP.

PARKING

- 6.1.18. The proposed car park includes standard car parking spaces as well as spaces for those with disabilities, electric vehicles, and minibuses. Further details are set out in Section 5 of this report.
- 6.1.19. The level of parking proposed is considered appropriate for the proposed development and complies with Policy DM18 of the SADMP.
- 6.1.20. The provision of EV charging spaces will facilitate trips to the site by electric or low emission vehicles and ensures compliance with Policy DM10 of the SADMP.
- 6.1.21. Finally, a swept path assessment of service vehicles passing through the car park has been undertaken and demonstrates that there is sufficient space for them to manoeuvre.

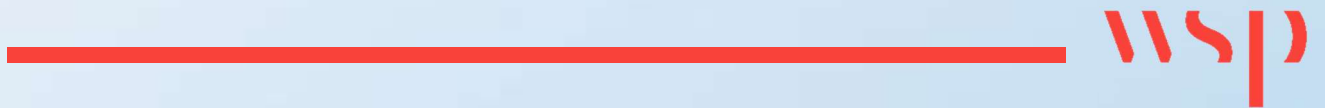
6.2 CONCLUSION

- 6.2.1. Overall, it is considered that the impact of the proposed development on the local highway network would be minor, and the proposals have been demonstrated to be in accordance with relevant local planning policies.

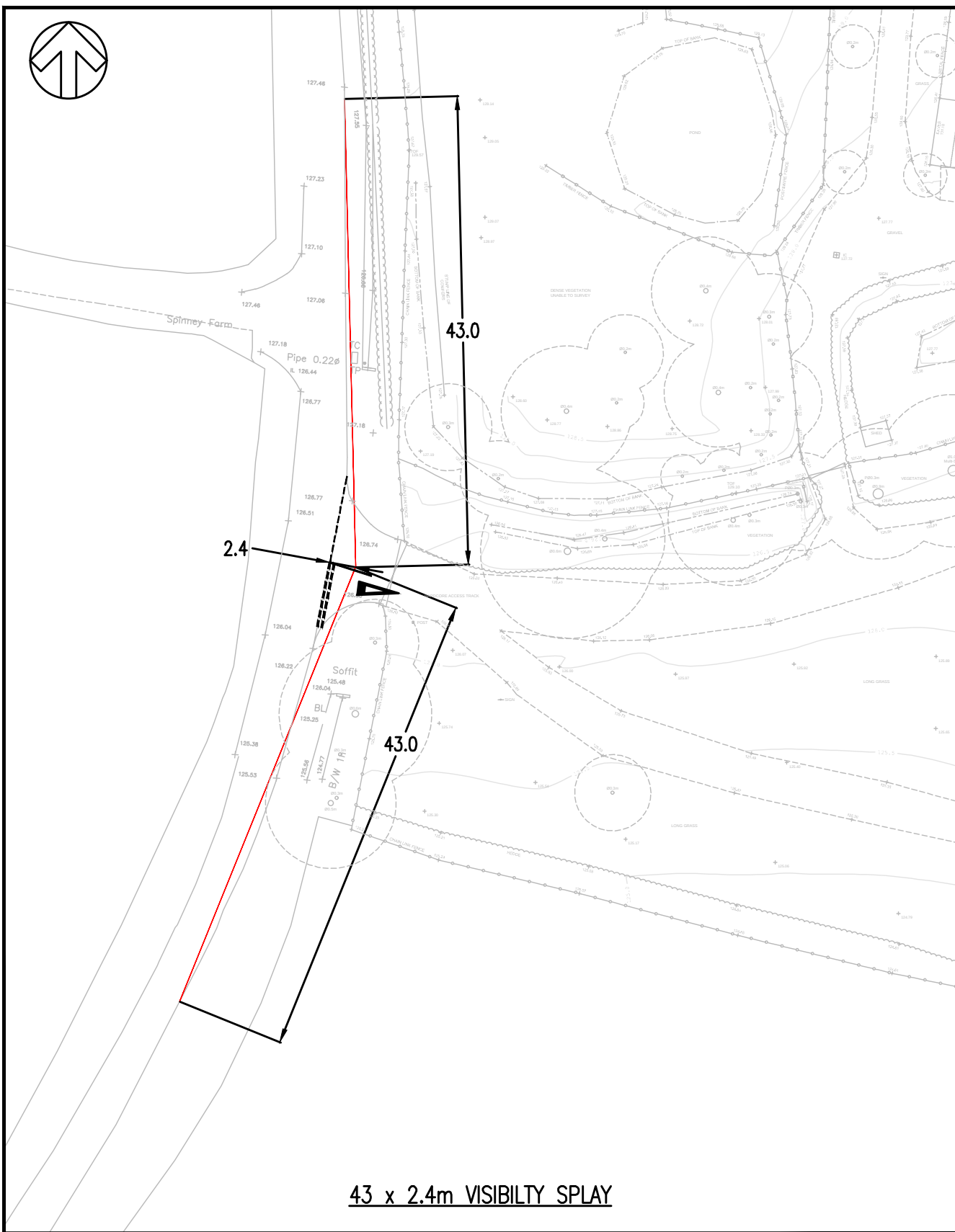
- 6.2.2. Paragraph 105 of the National Planning Policy Framework (NPPF) notes that *“opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.”*
- 6.2.3. Paragraph 111 of the NPPF states 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.”*
- 6.2.4. As demonstrated in this Transport Statement, the proposed development has taken up opportunities to maximise sustainable transport solutions, bearing in mind the rural location, by providing for travel by high occupancy and electric vehicles.
- 6.2.5. The development is not considered to have an unacceptable impact of highway safety or a severe impact on the road network. It is therefore considered that the proposed development is aligned to the NPPF, and there is therefore considered that the proposals are acceptable in highways terms.

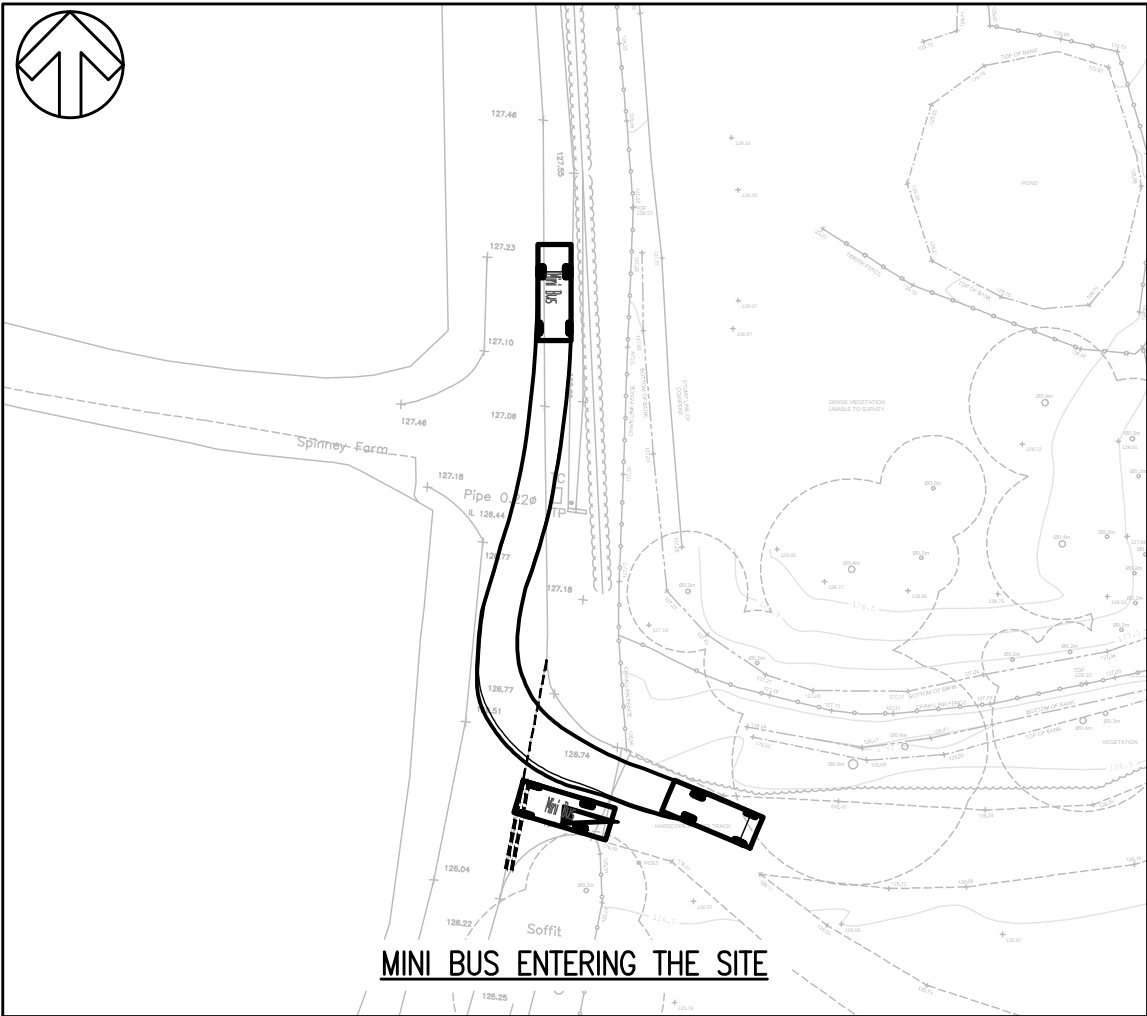
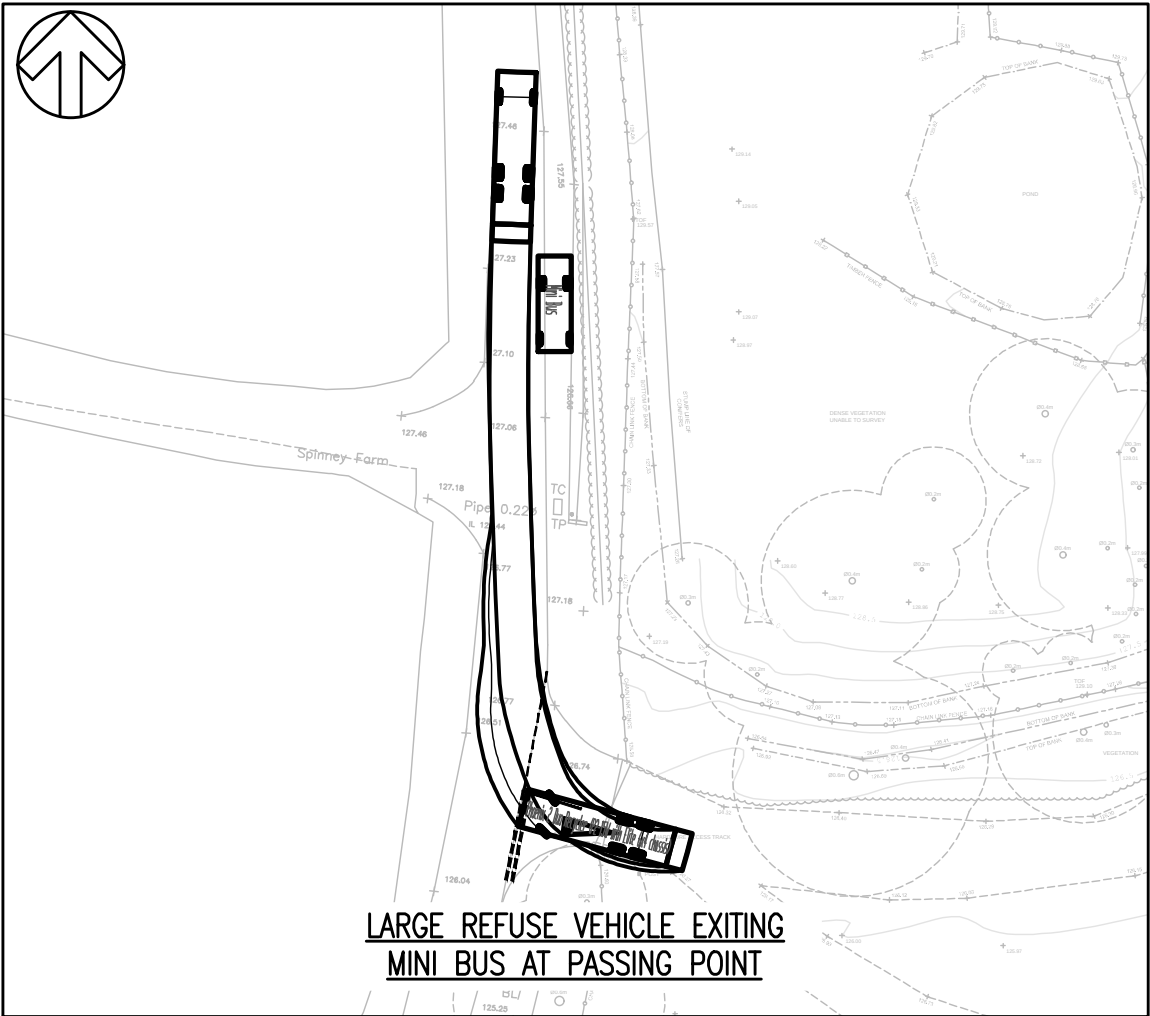
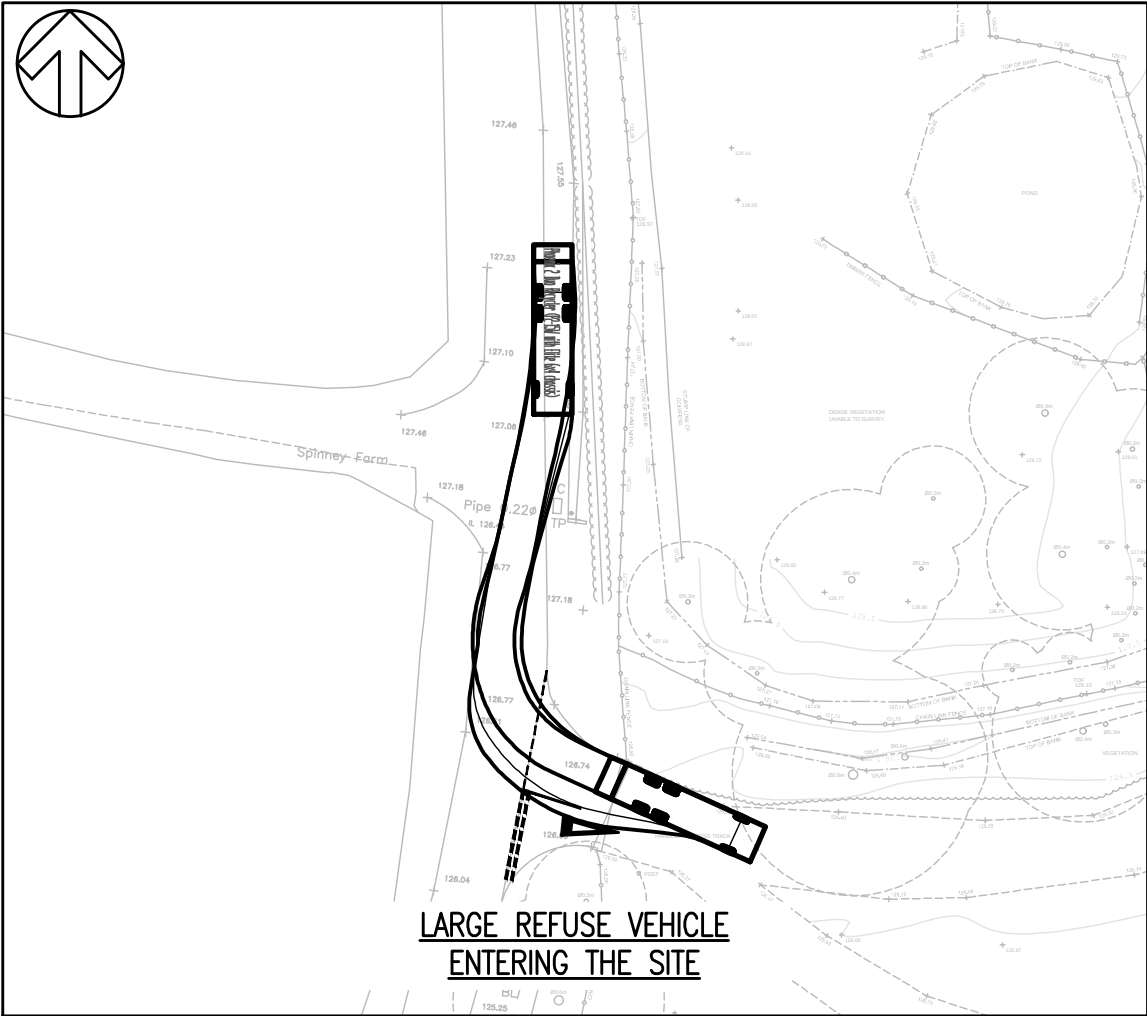
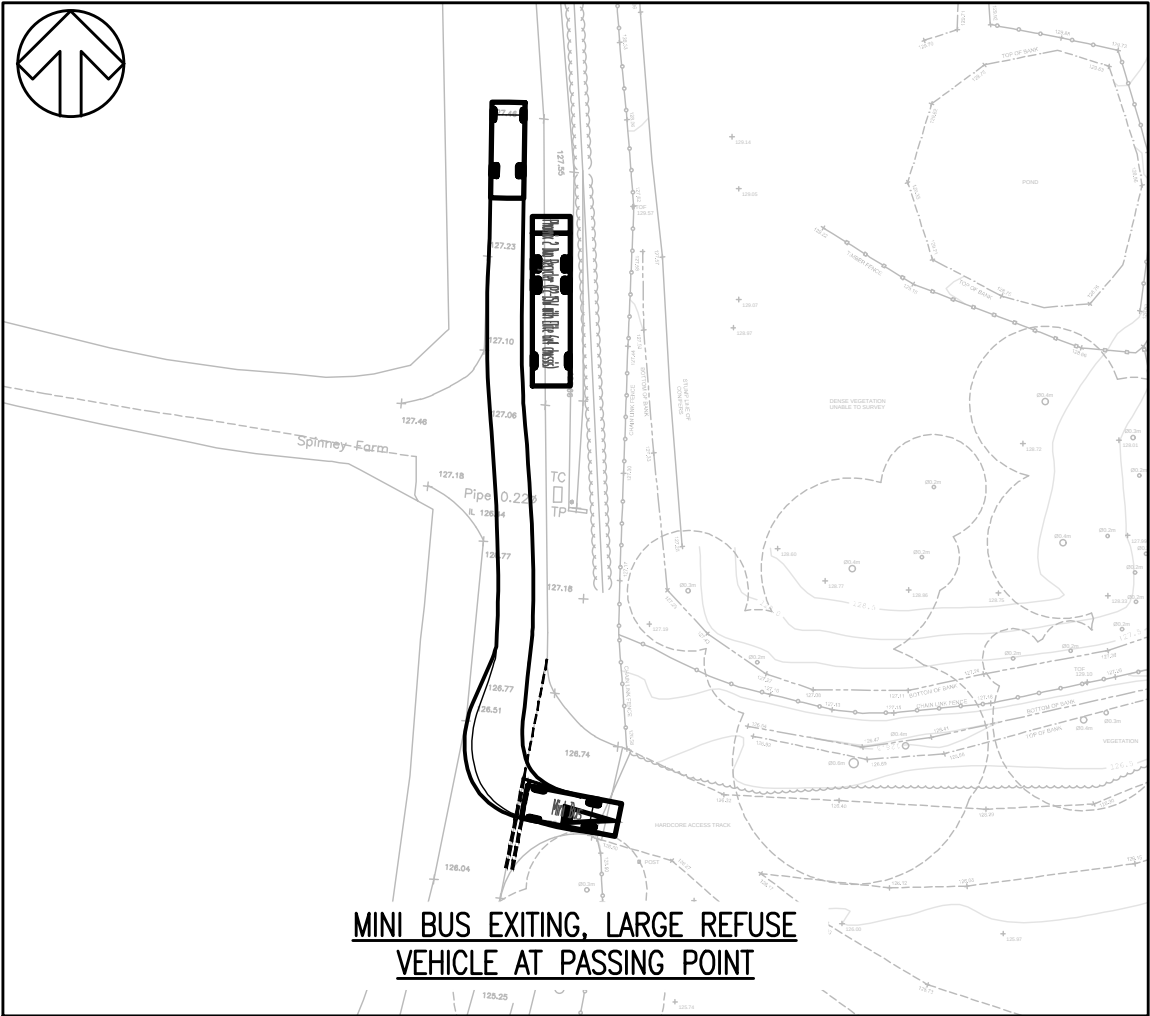
Appendix A

SITE ACCESS LAYOUT AND TRACKING

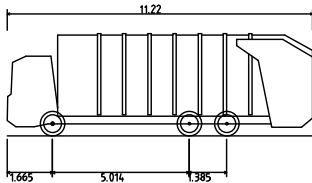


PROJECT: TWYXCROSS ZOO NSCC		PROJECT No: 70096419	
DATE: October 23	DRAWING NO: 70096419 SK01 04102	REV: P01	
BY: DR			
CHECKED: JH			
REVISIONS:		DRAWING STATUS: FOR INFORMATION	
TITLE: NSCC ACCESS VISIBILITY SPLAY			

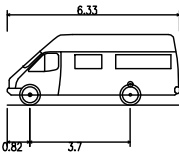




DO NOT SCALE



Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis)
Overall Length 11.220m
Overall Width 2.530m
Overall Body Height 3.756m
Min Body Ground Clearance 0.309m
Track Width 2.530m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 11.550m



Mini Bus
Overall Length 6.330m
Overall Width 2.192m
Overall Body Height 2.601m
Min Body Ground Clearance 0.374m
Track Width 2.192m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 6.450m

P01	04/10/2023	DR	FIRST ISSUE	JH	JH
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION



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CLIENT:

ARCHITECT:

PROJECT:
TWYCROSS ZOO NSCC

TITLE:
PROPOSED ENTRANCE SWEEP PATH

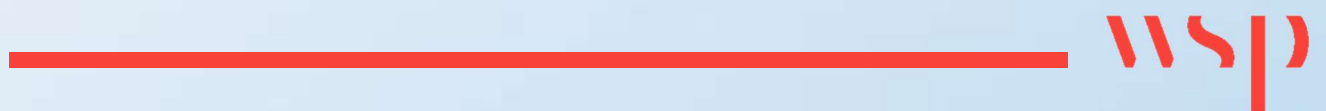
SCALE @ A3: 1:500	CHECKED: JH	APPROVED: JH
PROJECT No:	DESIGNED: DR	DRAWN: DR
DATE: October 23		

DRAWING No: 70096419 SK02 041023	REV: P01
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Appendix B

PROPOSED CAR PARK LAYOUT





	SITE RED LINE BOUNDARY
	DEARAH ZU BOUNDARY LINE
HARD LANDSCAPE	
	PEDESTRIAN GRADE MACADAM -to Maintenance access
	PERMEABLE BLOCK PAVING -to Car park Access and Parking Bays
	PROPOSED SMALL BLOCK PAVING -TO FRONT ENTRANCE
	PROPOSED SMALL BLOCK PAVING
	PROPOSED SEATING WALL -TO 'TEACHING GARDEN'
	SELF BINDING GRAVEL
	STEPPED ACCESS WITH HANDRAIL -TO 'TEACHING GARDEN'
	REINFORCED GRASS SYSTEM TO PARKING AND DROP OFF/ LOADING BAY
STREET FURNITURE	
	PROPOSED TIMBER TOP BENCH
	PROPOSED BOLLARD -to drop off / loading bay
	PROPOSED FIREPIT WITH SEATING
	EV CHARGE POINT
	CYCLE SHELTER 5 hoops, space for 10 bicycles
SOFT LANDSCAPE	
	PROPOSED WILDFLOWER MIX
	PROPOSED ORNAMENTAL PLANTING
	EXISTING TREES To be retained and protected
	WOODLAND TREE PLANTING
	WOODLAND SCRUB PLANTING
	ORNAMENTAL TREE PLANTING
	PROPOSED PLEACHED TREES
	PROPOSED GREEN SCREEN
	BOLLARD LIGHTING

Notes
Check all dimensions on site. Do not scale from this drawing
Report any discrepancies and omissions to HLM Architects
This Drawing is Copyright ©
P22009-00-001-02-0102
TREE REMOVAL PLAN
C159277-01-01
TREE SURVEY
TW2-HLM-00-00-DR-L-00003
EXISTING SITE PLAN & TOPOGRAPHICAL SURVEY

P06	ISSUE FOR PLANNING	29/09/23	NK
P05	UPDATED BUILDING ENTRANCES	21/09/2023	NK
P04	ISSUE FOR CONSULTANT REVIEW AND CO-ORDINATION	15/09/2023	NK
P03	ISSUE FOR TZ COMMENTS	11/09/23	KW
P02	AMENDED RED LINE BOUNDARY	30/11/2022	NK
P01	ISSUE FOR INFORMATION	18/10/2022	NK
Rev	Description	Date	By
Revisions			Suitability
Project		S3 REVIEW & COMMENT	

11-1567-01 Twycross Zoo

Client

Twycross Zoo- East Midland Zoological Society LTD

Title

Proposed Site Plan

Drawing No.

TW2-HLM-00-00-DR-L-00001

Revision

P06

Scale

1:200

NK

Date

29/09/2023

Checked

MC

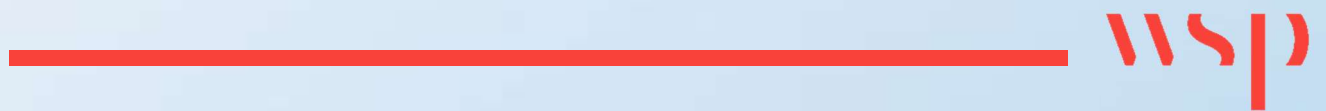
HLM Architects

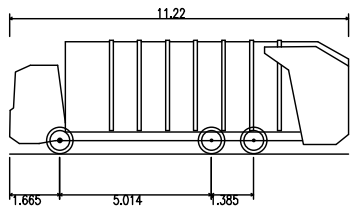
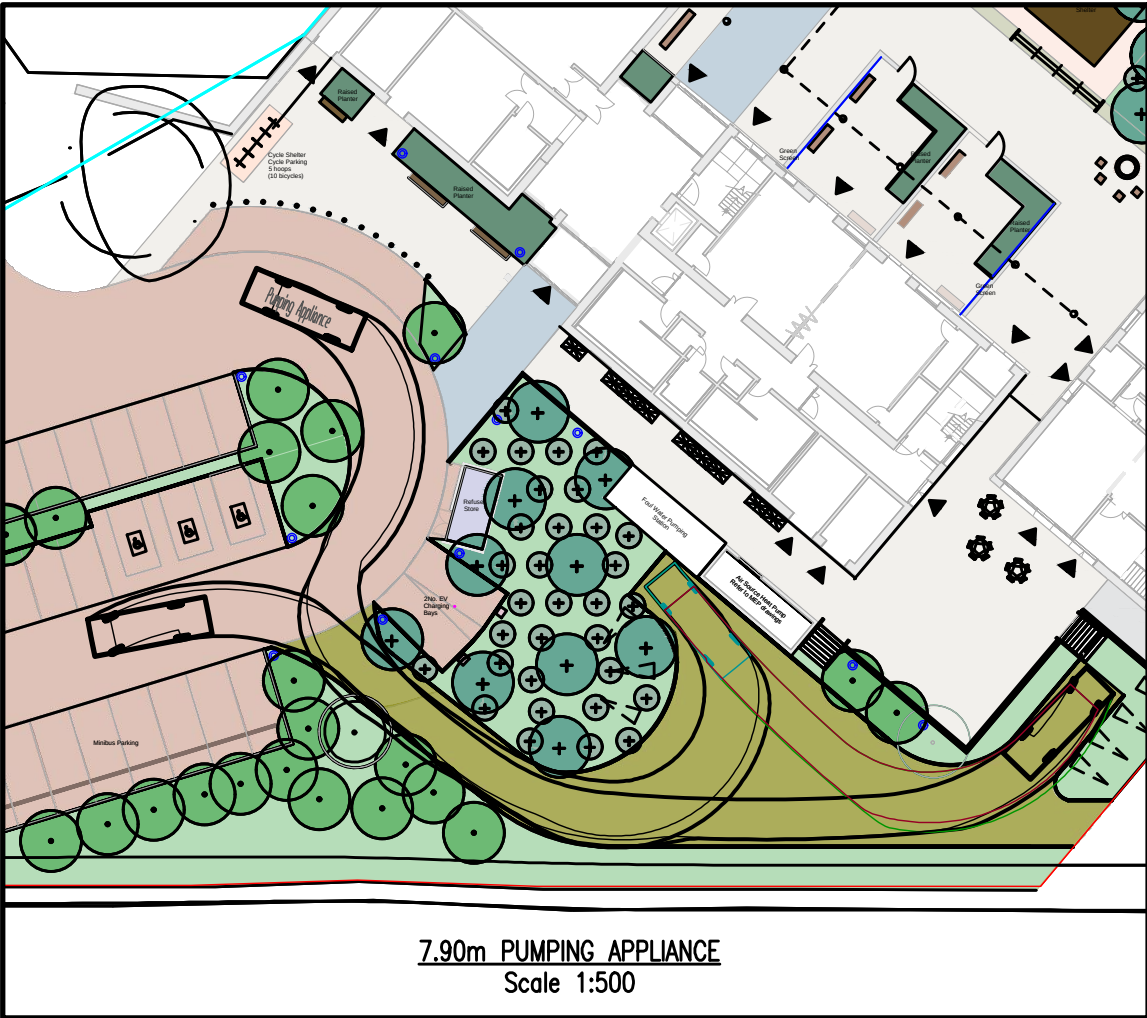
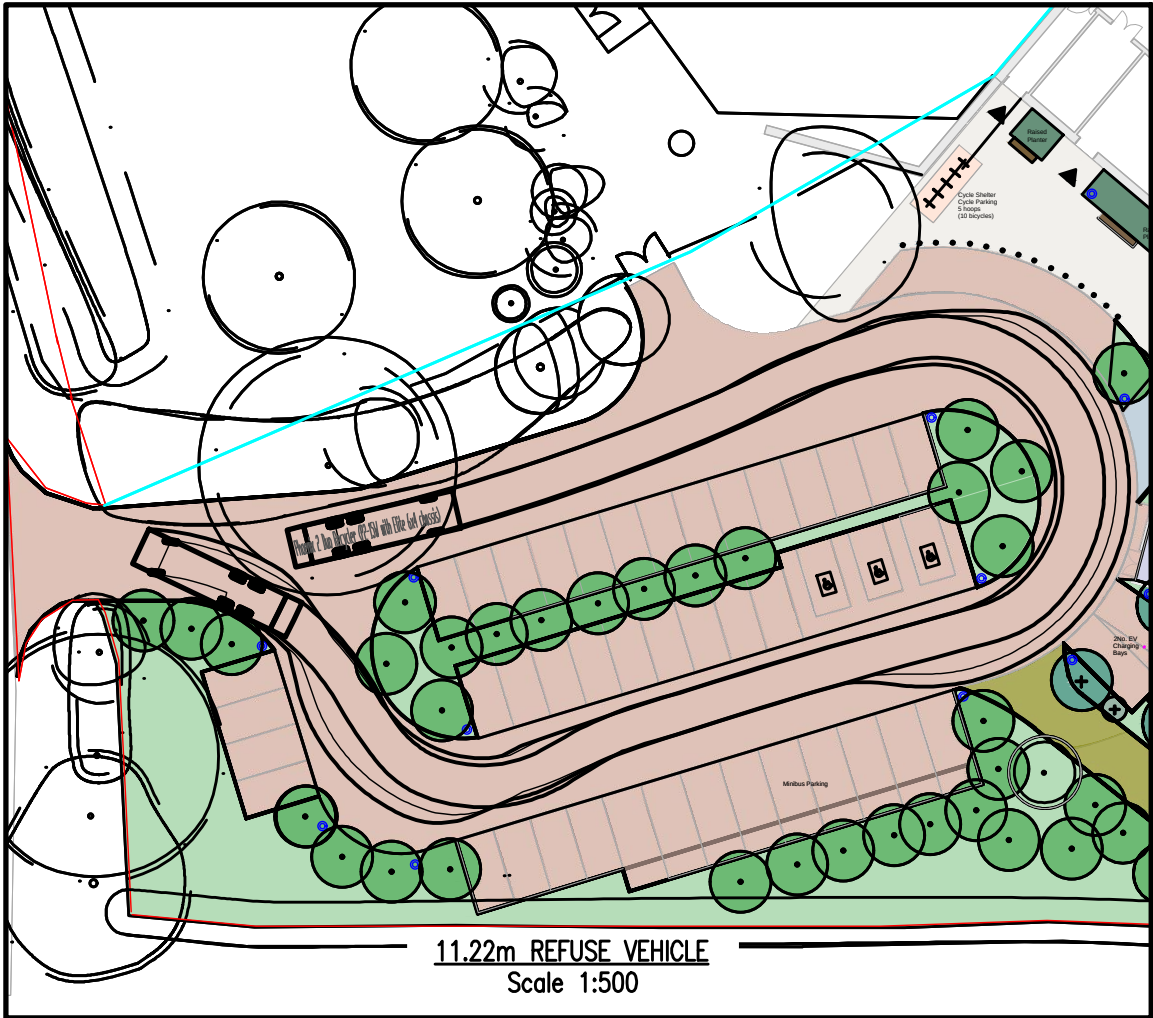
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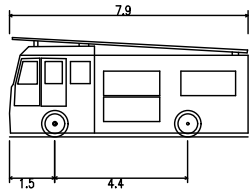
Appendix C

ON-SITE SWEPT PATH ASSESSMENT

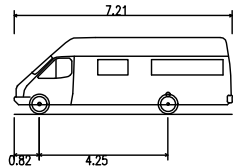




Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis) @ 5mph
Overall Length 11.220m
Overall Width 2.530m
Overall Body Height 3.756m
Min Body Ground Clearance 0.309m
Track Width 2.530m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 11.550m



Pumping Appliance @ 5mph
Overall Length 7.900m
Overall Width 2.500m
Overall Body Height 3.300m
Min Body Ground Clearance 0.140m
Track Width 2.500m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 7.750m



7.5t Panel Van @ 5mph
Overall Length 7.210m
Overall Width 2.192m
Overall Body Height 2.544m
Min Body Ground Clearance 0.316m
Track Width 1.865m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 7.400m

DO NOT SCALE

P01	04/10/2023	DR	FIRST ISSUE	JH	JH
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION



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CLIENT:

ARCHITECT:

PROJECT:

TWYLCROSS ZOO NSCC

TITLE:

SWEPT PATH ANALYSIS

SCALE @ A3:	CHECKED:	APPROVED:
AS SHOWN	JH	JH
PROJECT No:	DESIGNED:	DRAWN:
	DR	DR
		DATE:
		October 23

DRAWING No:	REV:
70096419 SK03 041023	P01

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