

## THE NETWORK RAIL (CAMBRIDGESHIRE LEVEL CROSSING REDUCTION) ORDER

#### **TRANSPORT AND WORKS ACT 1992**

## TRANSPORT AND WORKS (APPLICATIONS AND OBJECTIONS PROCEDURE) (ENGLAND AND WALES) RULES 2006

## THE NETWORK RAIL (CAMBRIDGESHIRE LEVEL CROSSING REDUCTION) ORDER

### **Design Guide**

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#### 1

## **Executive Summary**

This report sets out the design proposals for the Network Rail (Cambridgeshire Level Crossing Reduction) Order.

Volume 1 describes the design principles and infrastructure components to be incorporated into the project. The infrastructure components described in this document are illustrative and therefore give a good representation of what will be built when the scheme is implemented, but the final works will be subject to detailed design and agreement with the relevant adopting authorities.

Volume 2 describes the design freeze proposals and includes drawings for each level crossing closure proposal. The drawings show the proposed diversion routes together with necessary infrastructure components required to make the routes useable. These proposals have been arrived at following:

- An optioneering process,
- Environmental assessment,
- Extensive landowner, stakeholder and public consultations.

# Volume 1

### 1 Design Objectives and Principles

#### 1.1.1 Introduction

#### 1.1.2 Context

- 1.1.2.1 Network Rail has taken steps to close or reduce potential risk at level crossings on the railway network and is continually looking at ways to improve safety, reliability and value for public money. This is achieved through various existing programmes and initiatives including the National Level Crossing Closure Programme which is based around safety criteria. Additionally, Network Rail has developed the Anglia Level Crossing Reduction Strategy to consider options to provide alternative means of crossing the railway to help expedite the process.
- 1.1.2.2 In particular the strategy will help to:
  - Improve the safety of level crossings users;
  - Deliver a more efficient and reliable railway, which is vital in supporting the regional and UK economy;
  - Reduce the ongoing operating and maintenance cost of the railway;
  - Reduce delays to trains, pedestrians, and other highway users; and
  - Improve journey time reliability for all railway, highway, and other rights of way users.
- 1.1.2.3 The purpose of the Anglia Level Crossing Reduction Strategy is to bring about safety benefits, allow Network Rail to manage their assets more effectively, to reduce the ongoing maintenance liability of the railway and help enable various separate enhancement schemes.
- 1.1.2.4 The Strategy is being coordinated with other projects in the Anglia region where there are relevant interfaces, such as the Network Rail Kings Lynn Service Enhancement scheme.

#### 1.1.3 Design principles

1.1.3.1 In order to extinguish a public or private right of way over a level crossing, allowing the level crossing to be closed or downgraded, an alternative convenient and suitable replacement for existing users has to be provided unless it can be demonstrated that one is not required. The powers to implement level crossing closures in Cambridgeshire are being sought

through an application under the Transport and Works Act 1992 - The Network Rail (Cambridgeshire Level Crossing Reduction) Order;

- 1.1.3.2 This design guide sets out the proposals required for each level crossing closure that are included in the Order application.
- 1.1.3.3 The project is at Network Rail Grip Stage 3 (Option selection) and therefore work has been undertaken to establish design details in principle only, which enabled the works to be assessed and costed, and sufficient land and rights to be acquired under the TWAO application.
- 1.1.3.4 The proposals principally affect public rights of way and as such most of the diversions, new routes and new infrastructure will be adopted by the local Highway Authority (Cambridgeshire County Council).
- 1.1.3.5 Regular consultation has been undertaken throughout the development of the proposals with Cambridgeshire County Council (CCC) to establish their requirements with regard to the design of level crossing closure solutions and necessary works details, via written correspondence, telephone calls and with specific meetings as follows:
  - Grip Stage 1 workshop 30<sup>th</sup> September 2015,
  - Post Round One Consultation Workshop 16th July 2016,
  - Teleconference 28<sup>th</sup> September 2016,
  - Post Round two Consultation Workshop 11th October 2016
  - Bridge/Highway Engineering Meeting 12<sup>th</sup> October 2016.
- 1.1.3.6 The key issues raised by CCC included:
  - Users' safety concerns (walking along busy roads),
  - Inadequate facilities (width of the paths, fencing, rails, surfacing, sign posting, drainage)
  - The length of the diversions,
  - Concerns about opposition from landowners,
  - Cost of compensation for landowners,
  - Impact on adopted roads (increased traffic, damage to the surface),
  - Flooding risk in some areas,
  - Access for residents of new developments.
- 1.1.3.7 Selection of appropriate infrastructure proposals was based on the above concerns and the principles outlined in the documents below:
  - Manual of Contract Documents for Highway Works Volume 1 Specification for Highway Works,
  - Manual of Contract Documents for Highway Works Volume 3 Highway Construction Details,
  - BS 1722-1:2006 Fences. Specification for chain link fences,
  - BS 1722-2:2006 Fences. Specification for strained wire and wire mesh netting fences.
  - BS 1722-5:2006 Fences. Specification for close-boarded fences and wooden palisade fences.
  - BS 1722-7:2006 Fences. Specification for wooden post and rail fences
  - BS 1722-12:2006 Fences. Steel palisade fences. Manufacturing and installation.
     Specification,
  - DMRB BD 29/04 Design Criteria for Footbridges,
  - Traffic Signs Manual Chapter 3,

- Network Rail Management of Fencing and Other Boundary Measures NR/L2/TRK/5100. Issue no 2.
- Suffolk County Council Standard footbridges Type 3-8 (drawing number 2810/101, Revision A), Bridleway Bridge Types 4, 6 & 8 (drawing number 2810/201), Gates Guide
- Path bridges planning, design, construction, and maintenance Paths for All Partnership with support from Scottish Nature Heritage and Forestry Civil Engineering,
- Countryside Access Design Guide Information Sheet No.2.3 Scottish Nature Heritage,
- Leicester County Council Standard Details Drawings Fencing & Gates,
- Jacksons Fine Fencing Drawings,
- British Horse Society "Advice about specification and standards of mounting blocks", "Advice on: Equestrian use of level crossings", "Advice on Gates",
- Department for Transport LTN 2/95 The design of pedestrian crossings,
- Department of the Environment, Transport, and the Regions: *Guidance on the use of Tactile Paving Surfaces*,
- Department for Transport 2005: *Inclusive mobility. A guide to best practice on access to pedestrian and transport infrastructure.*

1.1.3.8 Depending on the scope of the work required to close the crossing, 7 categories have been identified. The table below shows the categories, descriptions, and number of crossings in each category within the Cambridgeshire area. The category and the description of proposed works at each crossing location is listed in volume 2, section 4 of this report.

**Table 1: Level Crossing Proposals Categories** 

Category	y Description	Cambridgeshire Design Freeze Proposals	Crossings
1	Closures that involve no material works as the crossing does not exist on the ground. An example would be where a grade separated solution has been provided but the legal diversion has never been completed.	0	
2	Closures that are extinguishments of the level crossing rights and do not involve any works outside of Network Rail's land. Involves the removal of the crossing apparatus; includes limited extinguishment of only the PRoW routed over the crossing where appropriate.	3	C02, C21, C34
3	Closures where Pubic Rights of Way (PRoWs) are diverted on either private land or within the public highway and that involve no substantive physical works.	5	C04, C08, C09, C11, C29
4	Closures where (PRoWs) are diverted on either private land or within the public highway that involve works such as new steps, new ramps, footway provision etc.	14	C01, C03, C07, C10, C14, C15, C16, C17, C18, C20, C22, C24, C25, C27
5	Closures that involve works on private land or within the public highway but do not affect the PROW.	2	C33, C35
6	Proposals to downgrade the status of the crossing, for example from a public road to a private user worked crossing and bridleway.	5	C12, C13, C26, C28, C30
7	Proposals that will facilitate grade-separated access from each side of the railway as part of another Network Rail Scheme	1	C31
	Total	30	

Source: Based on P3 Design Freeze Plans

## 2 Design Components

#### 2.1 Overview

- 2.1.1.1 Following the discussions with Cambridgeshire County Council the illustrative types and details of infrastructure proposed for the level crossing closures within the county was agreed in principle.
- 2.1.1.2 This design guide provides general information about proposed highways infrastructure to be provided and sets out the reason for the selection of each type of feature for use on the project. Relevant national organisation and Local Authority (LA) standard detail drawings and resources have been adopted in Network Rail's proposals. The works will be completed to the reasonable satisfaction of the Highway Authority.
- 2.1.1.3 Table 2 below shows the infrastructure to be used at each of the Cambridgeshire County crossings. Each of the components used in the Cambridgeshire Area have been described in paragraphs 2.2 to 2.7 of this report. Other types of infrastructure component are shown in Table 2, but only those components included for use in designs within the Cambridgeshire area have been described within this report.

Anglia Level Crossing Reduction Strategy

Туре	Fence Description	C01 C33 C34	C02	C03	C04	C07	C08	C09 C24	C10	C11	C12	C13	C14	C15	C16	C17	C18	C20	C21	C22	C25	C26 C27	C28	C29	C30	C31
		C34						C24														C27				
F1	Fencing with concrete posts and six wires without barbed wire - height	٧					٧											٧								
LI	1.275m	V					٧											٧								
F2	Fencing with concrete posts and six wires and barbed wire - eight 1.275m																									
F3	Fencing with timber posts and intermediate timber posts and wire																									
	wooden - picket fence - height 1.2m																									
F4	Chain Link Fencing to BS 1722 - height 1.8m						٧								٧	٧	٧		٧	٧	٧					
F5	Wooden Palisade fencing to BS 1722 - height 1.8m																									٧
F6	Wooden Post and Three Rail - height 1.3m			٧																						
F7	Stained wire fence with stock proof fence - height 1.35m	٧	٧	٧	٧	٧		٧	٧	٧	٧	٧	٧	٧			٧					- √		٧		
F8	Close Boarded wooden fencing to BS 1722 -height 1.8m																									
F9	Steel palisade security fence - height 2m																									
F10	Acoustic fence - height 2.1m																									
	Gate Description																									
G1	Wicket Wooden Footpath Gate - 1m				1																					
G2	Wooden Bridleway Gate							2			2	2										2			2	
G3	Steel Footpath Gate - used at NR boundary																									
G4	Steel Bridleway Gate - used at NR boundary																									
G5	Single Leaf Acoustic Gate																									
G6	Double Leaf Acoustic Gate																									
G7	Wooden footpath stile																									
G8	3.5-4m wide vehicle gate																									
G9	Kissing Gate	2																								
	Footpath / Bridleway / Footway Description																									
P1	Footpath Type 1 - unsurfaced footpath PROW - 2m	٧		٧	٧		٧	٧					٧	٧			٧	٧						٧		
P2	Footpath Type 2 - unsurfaced bridleway PROW - 3m					٧				٧												٧				
P3	Footpath Type 3 - gravel/stone surface footpath PROW			٧			٧										٧			٧		٧				
P4	Footpath Type 4 - stone block footpath PROW																									
P5	Tarmac planings surfaced Cyclepath																									
P6	Wooden Footpath boardwalk					_																				
P7	Asphalt footway					٧															٧					٧
P8	Planings footway								٧															٧		
P9	Tactile crossing																									
P10	Pedestrian Refuge Island					- 4																				
P11	Hoggin Footpath					٧					2	2										2				
P12	Typical Turning Head										2	2										2			2	
C-B1	Bridge Description													1												
C-B1	Footbridge Type 1 - wooden <5m Footbridge Type 2 - steel composite 5-8m													1				1								
C-B2	Footbridge Type 2 - steel composite 5-8m  Footbridge Type 3 steel >8m	2											1					1								
C- B4	Bridleway Bridge												1									1				
C-B5	Culvert	1																								
C-03	Steps Description	1																								
S1	Wooden sleeper steps																									
S2	Timber board steps					2																				
S3	Mounting blocks								2		2	2													2	
S4	Concrete modular access stairs														2	2							<del>                                     </del>			
	Fingerposts and Singage Description																									
FP1	Finger posts and singage Description  Fingerpost																									
SG	Traffic Signs			1					2		2	2										1			2	
30	Bollards Description			1																						
BO1	Bollard																									2
501	DUIIdI U	I		l											I		l .		l				1			Z

**Table 2: Standard Details Summary Table** 

Source: Based on Design Freeze Plans P3A

Anglia Level Crossing Reduction Strategy

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#### 2.2 Fencing

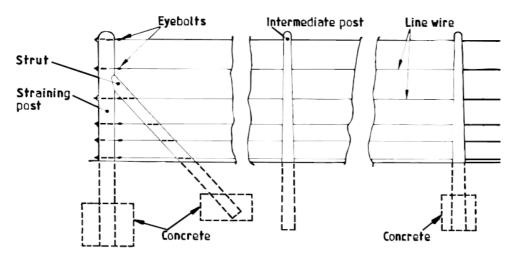
#### 2.2.1 General fencing assessment

- 2.2.1.1 The assessment of fencing within Network Rail land or on the Network Rail boundary has been carried out by Network Rail. The assessment includes the extent and type of fencing required.
- 2.2.1.2 The extent and type of fencing required remote from the rail network has been assessed as part of the general design development by Mott MacDonald.
- 2.2.1.3 The fencing types detailed below are indicative of those that will be provided as part of the works, however, the exact construction details could vary from those shown following detailed design and agreement with adjacent landowners.

#### 2.2.2 Fencing with concrete posts and six wires type F1

2.2.2.1 1.35m high fencing with concrete posts and six wires without barbed wire (Type F1) is considered appropriate for general use to deter trespass onto the railway network. The fence should have 3.15mm diameter zinc or zinc coated high tensile wire, general pattern SC135A and comply with BS 1722-2:2006. Figure 1 shows typical details for this type of fence. The photographs in Figures 2 and 3 are provided to show fencing of a similar nature to F1 fencing but they are for illustrative purposes only and may not represent the exact specification of type F1 fencing.

Figure 1: Fencing with concrete posts and six wires



Source: BS 1722-2:2006

Figure 2:Illustrative example of fencing Type F1



Figure 3:Illustrative example of fencing Type F1



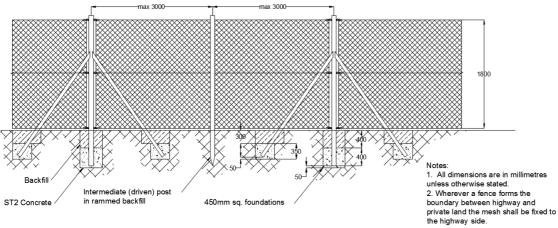
Source: MM site visit

#### 2.2.3 Chain link fencing type F4

2.2.3.1 1.8m high fencing type F4 with concrete posts and chain link mesh in accordance with British Standard 1722-1:2006 is proposed where there is higher risk of trespass on to the rail network. The fence should be style 180B and utilising zinc or zinc coated mesh with high tensile steel wire. Figure 4 represents typical details and dimensions for this type of fence. The photograph in Figure 5 is provided to show fencing of a similar nature to F4 fencing but is for illustrative purposes only and may not represent the exact specification of type F4 fencing.

#### 2.2.3.2

Figure 4: Chain Link Fencing



Source: Mott MacDonald SD 505

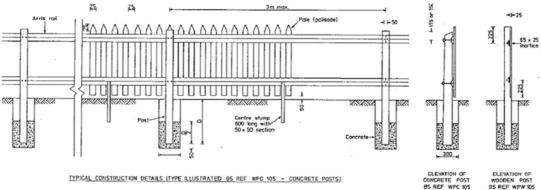
Figure 5: Illustrative example of chain link fencing



#### 2.2.4 Wooden palisade fencing type F5

2.2.4.1 1.8m high wooden palisade fencing with concrete posts (Type F5), specified in accordance with British Standard 1722-5:2006, is proposed at the locations where there is wooden palisade fencing adjacent to the proposed fencing location or where it is more appropriate for use remote from the Network Rail Boundary (Accommodation Fencing). Figure 6 shows typical details and dimensions for this type of fence. The photograph in Figure 7 is provided to show fencing of a similar nature to F5 fencing but is for illustrative purposes only and may not represent the exact specification of type F5 fencing.

Figure 6: Wooden palisade fencing



BS REF	SUITABLE	POST	DETAILS	HEIGHT	NUMBER OF ARRIS	SPACING BETWEEN	VALUE
	USES	LENGTH	SECTION	FENCE	RAILS	RAILS	Ď
WPC 105 WPW 105	Housing, Parks (inner fence)	1600 1650	100 × 100	1050	2	630 550	600
WPC 120 WPW 120	General	1750 1800	100 × 125	1200	2	760 700	600
WPC 150 WPW 150	General	2200 2250	100 × 125	1500	3	540 500	750
WPC 165 WPW 165	Housing	2350 2400	100 x 125	1650	3	615 575	750
WPC 180A WPW 180A	,	2500 2550	100 × 125	1800	3	690 650	750
WPC 1808 WPW 1808	Parks, Railways, Commercial and Public Buildings	2500 2550	100 × 150	1800	3	690 650	750

Source: Leicestershire County Council SD/3/15



Figure 7: Illustrative example of Wooden palisade fencing

Source: http://www.caterhamfencing.co.uk/palisade-fencing/

#### 2.2.5 Wooden Post and Three Rail Fencing type F6

2.2.5.1 1.3m high wooden post and three rail fencing (Type F6) in accordance to BS 1722-7:2006 is proposed at the locations where there is this type of fence adjacent to the proposed fencing. The new fence provides continuity of the landscape. Figure 8 shows typical details and dimensions for this type of fence. The photograph in Figure 9 is provided to show fencing of a similar nature to F6 fencing but is for illustrative purposes only and may not represent the exact specification of type F6 fencing.

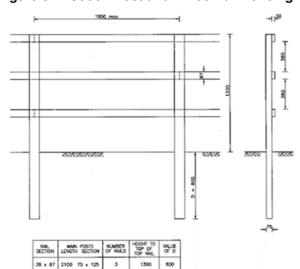


Figure 8: Wooden Post and Three Rail Fencing

Source: Leicestershire County Council SD/3/19

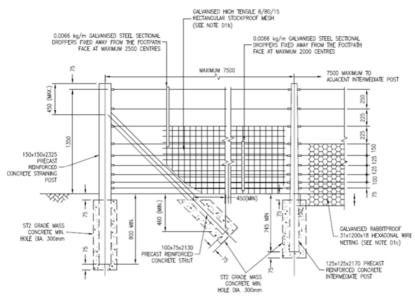
Figure 9: Illustrative example of Type F6 fence



#### 2.2.6 Strained wire fence with stock proof mesh type F7

2.2.6.1 1.35m high strained wire fence with stock proof mesh and concrete posts (Type F7) in accordance with BS 1722-2:2006 has been proposed at the locations where there is a potential risk that animals could stray onto the railway. Figure 110 shows typical details and dimensions for this type of fence. The photograph in Figure 11 is provided to show the stockproof mesh of a similar nature to that used for F7 fencing but is for illustrative purposes only and may not represent the exact specification of type F7 fencing.

Figure 10: Strained wire fence with stock proof fence



1.35m STRAINED WIRE FENCING

Source: Network Rail NR/CIV/SD/380



Figure 11: Illustrative example of stock proof mesh

#### 2.3 Gates

#### 2.3.1 General gates assessment

2.3.1.1 The gate types detailed below are indicative of those that will be provided as part of the works, however, the exact construction details could vary from those shown following detailed design and agreement with adjacent landowners.

#### 2.3.2 G2 Wooden Bridleway Gate

- 2.3.2.1 To enable horses and riders to spend as little time within the railway boundaries as possible, bridle gates should always open away from the railway, should be slowly self-closing and should have no latches.
- 2.3.2.2 1.5m wide wooden bridleway gates type G2 are planned for the crossings where bridleway diversions have been provided or existing all traffic rights of way have been downgraded to bridleway status. Figures 12 and 13 below show indicative details of the proposed bridleway gate and a photograph of an illustrative example of a type G2 gate.
- 2.3.2.3 Bridleway gates should be fitted with CentreWire delayed ProSafe hydraulic hinges set to 8 second closing time. Network Rail gates at level crossings shall not be fitted with a latch if they have a closing mechanism.

Proposed hinges to be CentreWire delayed Prosafe hydraulic hinges

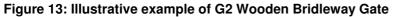
1525

Photograph showing CentreWire delayed ProSafe hydraulic hinges

Detail of Bridleway Gate (Type 2) with CentreWire delayed ProSafe hydraulic hinges

Figure 12: G2 Wooden Bridleway Gate

Source: Mott MacDonald



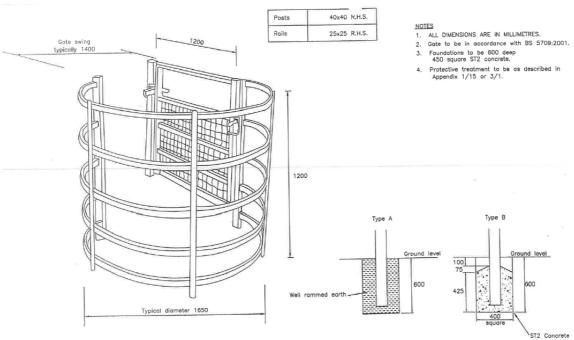


Source: MM site visit

#### 2.3.3 G9 Kissing Gate

2.3.3.1 A steel kissing gate type G9 is proposed at locations where it is considered necessary where the gates are more likely to be left open due to an increased level of usage. The 1.2m high gate is specified in accordance with BS 5709:2001 and will have a diameter of approximately 1.65m. Figure 14 shows typical details and dimensions for this type of gate. The photograph in Figure 15 is provided to show a kissing gate of a similar nature to a G9 gate but is for illustrative purposes only and may not represent the exact specification of type a G9 gate.

Figure 14: Kissing Gate



Source: Thurrock Council standard detail drawing EH127

Figure 15: Illustrative example of a Kissing Gate



Source: MM site visit photograph

#### 2.4 Surfacing

#### 2.4.1 General surfacing assessment

2.4.1.1 The majority of public rights of way considered as part of the scheme are rural routes and therefore have a natural grass surface at present. This is therefore considered the most appropriate surface for many of the proposed diversion routes, however, other surface options

have been proposed where necessary to reflect the nature of the routes and specific site conditions.

2.4.1.2 The surfacing types detailed below are indicative of those that will be provided as part of the works, however, the exact construction details could vary slightly from those shown following assessment of ground conditions, detailed design and agreement with the highway authority.

#### 2.4.2 Footpath Type P1 - unsurfaced footpath PROW

- 2.4.2.1 Footpath Type P1 is a new unsurfaced footpath 2.0m wide to be used as the general surfacing for rural footpath diversions. Where provided adjacent to field edges there will be a minimum offset of 0.5m to ensure that the proposed footpath is clear from adjacent vegetation.
- 2.4.2.2 Where necessary to achieve a suitable walking surface along the route, the existing ground is to be excavated 60-100mm deep and this material will be re-laid, and compacted to form a surface with a crossfall of approximately 2%. The surface should be smooth, well compacted and firm underfoot. Any area where this work is carried out will be re-seeded.
- 2.4.2.3 Figures 16 shows sketch details of the proposed footpath. The photograph in Figure 17 is provided to show a path of a similar nature to a P1 path but is for illustrative purposes only and may not represent the exact specification of type P1 path

2000
Unsurfaced footpath
Edge of field

Figure 16: Footpath Type P1 - unsurfaced footpath PROW

Source: MM sketch

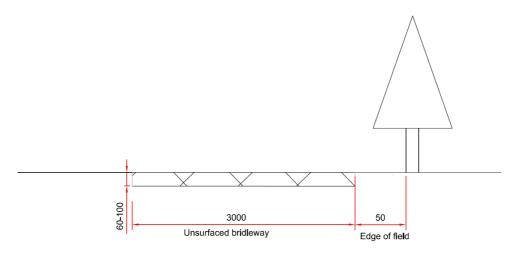


Figure 17: Illustrative example of Type P1 Footpath

#### 2.4.3 Footpath Type P2 - unsurfaced bridleway PROW

- 2.4.3.1 Footpath Type P2 is a new unsurfaced bridleway 3.0m wide to be used as the general surfacing for rural footpath diversions. Where provided adjacent to field edges there will be a minimum offset of 0.5m to ensure that the proposed bridleway is clear from adjacent vegetation.
- 2.4.3.2 Where necessary to achieve a suitable surface along the route, the existing ground is to be excavated 60-100mm deep and this material will be relaid and compacted to form a surface with a crossfall of approximately 2%. The surface should be smooth, well compacted and firm underfoot. Any area where this work is carried out will be reseeded.
- 2.4.3.3 Figure 18 shows a standard detail of the proposed bridleway. The photograph in Figure 19 is provided to show a path of a similar nature to a P2 path but is for illustrative purposes only and may not represent the exact specification of type P2 path.

Figure 18: Footpath Type P2 - unsurfaced bridleway PROW



Source: MM Sketch

Figure 19: Illustrative example of unsurfaced bridleway Type P2

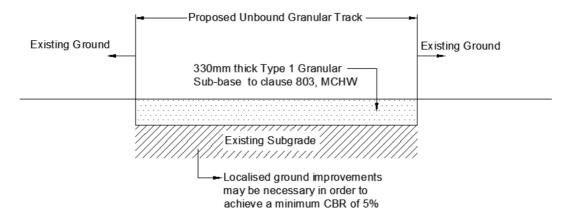


Source: MM site visit

#### 2.4.4 Footpath Type P3 - gravel/stone surface footpath PROW

2.4.4.1 At locations where there is risk of flooding it is proposed to provide a more durable surface that is more appropriate for use in wet conditions. Figure 20 shows the typical sketch of stone/gravel surfaced path construction. The photograph in Figure 21 is provided to show a path of a similar nature to a P3 path but is for illustrative purposes only and may not represent the exact specification of type P3 path.

Figure 20: Footpath Type P3 - gravel/stone surface footpath PROW.



Source: MM sketch

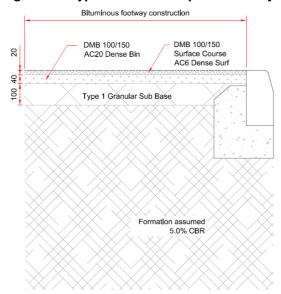
Figure 21: Illustrative example of Type P3 path



#### 2.4.5 P7 Asphalt footway

2.4.5.1 Where a sealed surface is required it is considered appropriate to provide a standard bituminous footway in accordance with MCHW Volume 1, series 900 and the typical detail shown in Figure 22 below. Concrete kerbs or channels will be provided where the footway is next to a carriageway. Concrete edgings will be provided where this type of footway is set back from the carriageway or remote from a highway.

Figure 22: Typical detail of asphalt footway



Source: Mott MacDonald standard detail

#### 2.4.6 P8 Planings footway

2.4.6.1 Asphalt planings surfaced paths, in accordance with MCHW Volume 1, series 800, are proposed where suggested for use by Network Rail and Local Authority highways officers, as a suitable option for use within Network Rail land and highway verges. The width will vary to suit the existing features but will generally be between 1.0 and 2.0m. The photograph in Figure 23 is provided to show a path of a similar nature to a P8 path but is for illustrative purposes only and may not represent the exact specification of type P8 path.

Figure 23: Example of planing path

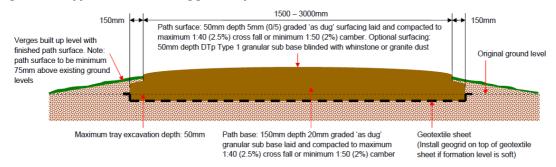


Source: MM site visit

#### 2.4.7 P11 Hoggin Footpath

2.4.7.1 Hoggin, or "dug gravel" that contains a considerable amount of clay or dirt (binder), paths are specified where the routes need to be durable and be suitable for pedestrian / light vehicle / equestrian use. The width of the path varies and will be dependent on the location. Figure 24 below shows a typical detail of a hoggin footpath.

Figure 24: Typical detail of Hoggin footpath



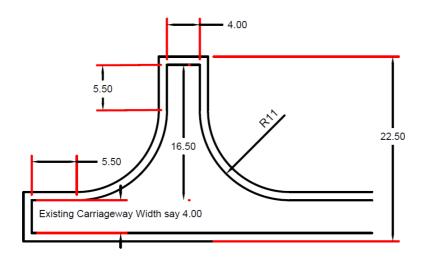
Source: Paths for All Partnership (permission to copy received)

#### 2.4.8 P12 Turning Head

2.4.8.1 At the locations where vehicles have been restricted and the tracks and roads downgraded to bridleway or footpath there is a need to provide safe place to reverse therefore

turning heads have been proposed. The turning head would be 22.5m long, 4m wide and 11m radii. The sketch of the typical turning head has been shown in below Figure 25.

Figure 25: Typical detail of turning head



Source: Mott MacDonald detail

#### 2.5 Bridges and Culverts

#### 2.5.1 General assumptions

- 2.5.1.1 Bridges and culverts are required on proposed diversion routes where appropriate crossings are required over watercourses.
- 2.5.1.2 All watercourses that require a crossing structure are ordinary watercourses which are under the management of the relevant Local Authority (as the Lead Flood Authority), the relevant Internal Drainage Board (IDB), the Local Highway Authority or the riparian landowner.
- 2.5.1.3 All bridge spans requirements have been assessed to ensure that the proposed abutments and structure clear the full extents of each watercourse in order to minimise the impact on water flow, flood risk and ecology.
- 2.5.1.4 The bridge types detailed below are indicative of those that will be provided as part of the works, however, the exact construction details could vary slightly from those shown following assessment of ground conditions, detailed design and agreement with the highway authority.

#### 2.5.2 Type C-B1 Footbridge - wooden <5m

2.5.2.1 The footbridge Type C-B1 is suitable for providing a clear span over watercourses that are up to 5m wide. The footbridge will have a clear deck width of 1.2m. It is constructed from timber beams, with a timber deck and parapet. In between the handrail support posts, vertical timber bars provide a secure side to the bridge. Figures 26 and 27 show typical details and an illustrative example photo of a footbridge type C-B1.

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1500 x 75 x 10 stee flat board clamp handrall posts

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Figure 26: Type C-B1 Footbridge - wooden, up to 5m span

Source: Paths for All Partnership PfaDP/OAT/10





Source: Paths for All

#### 2.5.3 Type C-B2 Footbridge - steel composite 5-8m

2.5.3.1 The footbridge Type C-B2 is suitable for providing a clear bridge span over watercourses that are between 5m and 8m wide. The footbridge will have a clear deck width of 1.5m. It is constructed from steel universal beams and bolted-on angle transoms, with a timber deck and parapet. In between the handrail support posts, vertical timber bars provide a more secure side to the bridge. Figures 28, 29 and 30 show typical details and illustrative example photos of a footbridge type C-B2.

Figure 28: Type C-B2 Footbridge

Source: Paths for All Partnership PfaDP/OAT/13 (permission to copy received)





Source: Path bridges - Paths for All Partnership (permission to copy received)

Figure 30: Glentrool Bridge Steel

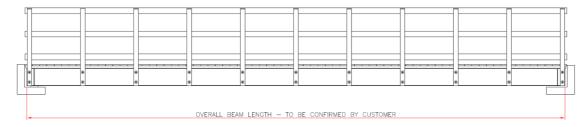


Source: Path bridges - Paths for All Partnership (permission to copy received)

#### 2.5.4 Type C-B3 Footbridge steel >8m

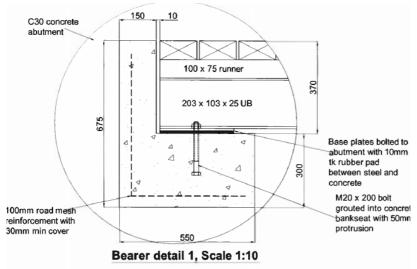
2.5.4.1 The footbridge Type C-B3 is suitable for providing a clear bridge span over watercourses that are over 8m wide. The footbridge will have a clear deck width of 2m. Figures 31 and 32 below show indicative construction details for this type of the bridge. Due to the width of the bridge, concrete bollards will be provided at each end to prevent vehicular access. The timber deck is to be non-slip and with a gradient to comply with Equality Act 2010. Figure 33 shows a photograph of an illustrative example of a Type C-B3 footbridge.

Figure 31: Type C-B3 Footbridge steel >8m



Source: CBT Bridges Data Sheet (copyrights not requested)

Figure 32: Typical Abutment Detail



Source: Path bridges - Paths for All Partnership (permission to copy received)

Figure 33: Illustrative example of footbridge Type C-B3

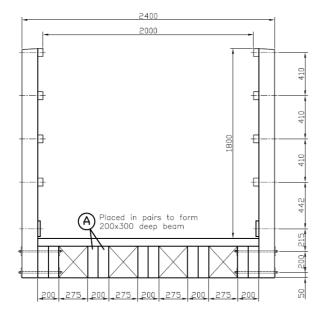


Source: CBT Bridges Data Sheet (copyrights not requested)

#### 2.5.5 Type C-B4 Bridleway Bridge

2.5.5.1 The Bridleway Bridge Type C-B4 has been proposed where diverted bridleways cross existing watercourses and is suitable for providing a clear bridge span over watercourses that are up to 8m wide. The bridge deck is required to be 3m wide with 1.8m high parapets that have infilled solid panels. A timber toe board to prevent hooves from slipping off the deck is also required. Figures 34 and 35 below show indicative construction details for proposed bridleway bridge Type C-B4

Figure 34: Typical details of Bridleway Type C-B4

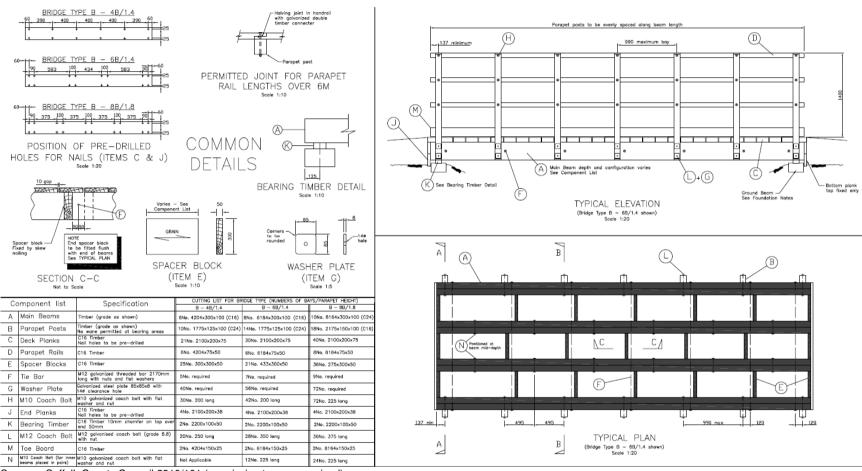


SECTION B-B

Source: Suffolk County Council 2810/101 (permission to copy received)

Anglia Level Crossing Reduction Strategy

Figure 35: Typical details of Bridleway Type C-B4

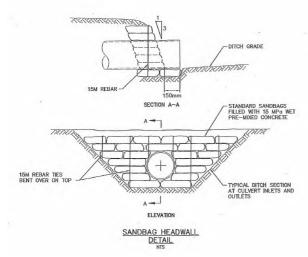


Source: Suffolk County Council 2810/101 (permission to copy received)

#### 2.5.6 Type B5 Culvert

2.5.6.1 Culverts are proposed at locations where is is acceptable to have a restricted opening within the watercourse. Figure 36 below shows typical details of a culverted watercourse.

Figure 36: B5 culvert standard details



Source: Essex County Council

#### 2.6 Steps

#### 2.6.1 General assumptions

2.6.1.1 The step types detailed below are indicative of those that will be provided as part of the works, however, the exact construction details could vary slightly from those shown following assessment of ground conditions, detailed design and agreement with the highway authority.

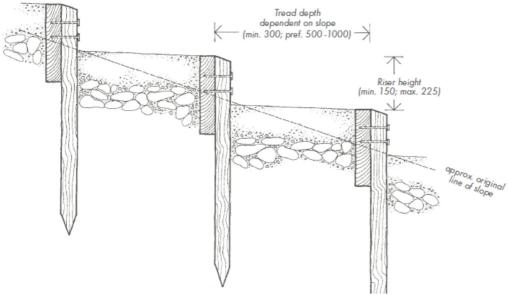
#### 2.6.2 Type S2 Timber board steps

2.6.2.1 Type S2 Timber board steps have been proposed wherever it is considered there is need to improve access to overbridge/underbridges to which the PROWs have been diverted. The steps are 1.2m wide with min 300mm tread depth and min 150mm riser height. Figures 37 and 38 show typical details and a photograph showing an illustrative example of Type S2 Timber board steps.

Figure 37: Illustrative example of timber board steps



Figure 38: Type S2 Timber board steps



Source: Scottish Nature Heritage Information Sheet no 4.1

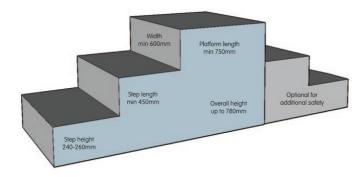
#### 2.6.3 Mounting Blocks Type S3

2.6.3.1 Type S3 mounting blocks for horse riders have been proposed where riders will be required to dismount as part of the proposed changes to the level crossing closures and downgrades. The purpose of the mounting blocks are to reduce the risk of losing control of the horse when dismounting. British Horse Society has set their requirements in "Advice about

specification and standards of mounting blocks" regarding dimensions which are shown in Figure 39 below.

2.6.3.2 Figure 40 shows a photograph of an illustrative example of mounting blocks, however it is not recommended by BHS to install the dismounting post sign right in the way of the riders handling area as in the photo.

Figure 39: Mounting blocks typical details



Source: BHS Advice about specification and standards of mounting blocks

Figure 40: Illustrative example of a mounting block



Source: MM site visit

#### 2.6.4 Type S4 Concrete modular access steps

2.6.4.1 Type S4 Concrete modular steps have been proposed wherever it is considered necessary improve access to overbridge/underbridges to which the PROWs have been diverted and where minimal disturbance to the existing ground is required. Figures 41 and 42 show typical details of concrete modular steps and Figure 43 shows a photograph of an illustrative example of Type S4 steps

Figure 41: Concrete modular access steps

Riser Dimensions

Slope	g	h
	(mm)	(mm)
2/1	295	148
7/4	287	163
3/2	277	179

The stairway system is designed for both permanent and temporary installation and can be applied to embankment slopes with a gradient of between 25 and 45 degrees, ensuring compatibility with most roadside locations.

<u>Please note</u> the angle of the risers will vary subject to the angle of the slope.

Source: Stanton Bonna

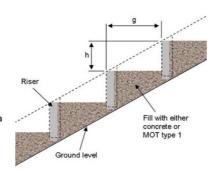
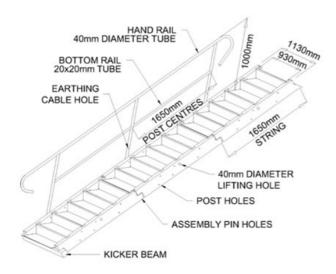


Figure 42: Concrete modular access steps



Source: Stanton Bonna

Figure 43: Illustrative example of concrete modular access steps

Source: Stanton Bonna

#### 2.7 Signs and Bollards

#### 2.7.1 General assumptions

2.7.1.1 The signs and bollard types detailed below are indicative of those that will be provided as part of the works, however, the exact construction details could vary slightly from those shown following further assessment at detailed design and agreement with the highway authority.

#### 2.7.2 Type FP1 Fingerpost

2.7.2.1 Fingerpost signs are proposed where necessary to indicate the PROW route, usually at the start of a path, as well as at junctions with other paths. The locations of the finger post signs are not shown on the design freeze plans as the requirement at each location will be

determined at detailed design stage. Figure 44 below shows a photograph of an illustrative example of a fingerpost sign.

Figure 44: Finger post sign



Source: MM site visit

#### 2.7.3 Type BO1 Bollard

2.7.3.1 Concrete bollards are proposed where necessary to prevent vehicle access over bridleway bridges and at some underbridges and subways. Figure 45 below shows a photograph of an example of a concrete bollard.

Figure 45: Example of concrete bollard



Source: MM site visit

# 2.7.4 Signs

2.7.4.1 Where necessary due to stopping up or downgrade of the public highway, traffic signs are proposed to indicate weight, height and access restrictions. All traffic signs are to be in accordance with the Traffic Signs Regulations and General Directions 2016 and the Traffic Signs Manual Chapter 3 diagram 619 or 619.1 "No through for traffic/vehicle" and diagram 629.2a "Height restriction".

# Volume 2

# Design Freeze Proposals

# 3 Description of Proposals

## **Level Crossing**

# **Description of Proposals**

C01 Chittering, Waterbeach Parish Grid Reference: 551708, 269948 **Existing Context** 

Existing footpath 18, runs as an unsurfaced path crossing north east through flat agricultural fields to Chittering level crossing. On the eastern side of the railway the unsurfaced path then heads north along the field boundary adjacent to the railway to join footpath 16.

### Proposed Work

Proposal Category:

Existing public rights of way over the crossing will be extinguished. Footpath 18 will be diverted onto a new footpath, approximately 250m in length, on the western side of the railway heading north to join footpath 16 and cross the railway at Jack O'Tell level crossing. This will require a newly Created 2-metre wide unsurfaced footpath (Type P1) along the field boundary outside of Network Rail land and provision of two new metal footbridges (approximately 9 metres long) to cross drainage ditches. On the eastern side of the railway approximately 300m metres of current footpath [18] which heads north from Chittering level crossing until it meets footpath 16 will be extinguished.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass on the railway. New signage will be provided.

C02 Nairns No.117 Stretham Parish Grid Reference: 552311, 271921 **Existing Context** 

Private rights of way (in the form of an agricultural track), pass west to east through flat agricultural fields (with a few scattered trees and hedges/fencing) to Nairns No.117 level crossing. On the eastern side of the railway a private track then heads north between Railway Farm and the railway towards the A1123 road.

Proposed Work

Proposal Category: 2

Existing private vehicular rights over the crossing will be extinguished. The diversionary route will use the existing private tracks through the site and no new rights are required for these tracks. No works will be required.

Crossing infrastructure at Nairns No.117 crossing will be removed and fencing will be installed to prevent trespass on the railway.

C03 West River Bridge Thetford Parish Grid Reference: 553110, 274534 **Existing Context** 

Public Footpath 7, promoted as the Ouse Valley Way footpath, runs as an unsurfaced path along the southern side of the river Great Ouse to West River Bridge level crossing. To the east of the crossing the footpath connects to a footbridge which spans the river linking the footpath on the north bank. Fields border the River Great Ouse and there is a large waterbody to the southwest of the level crossing.

Proposed Work

Proposal Category:

Existing public rights of way over the crossing will be extinguished. Footpath 7 will be diverted via a new footpath, approximately 50m in length, to the north, to pass under the existing railway bridge (NR bridge no. 1157) outside of Network Rail land. This will require a newly created 2m wide footpath which will include gravel/stone surfacing (Type P3) beneath the bridge.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass on the railway. New signage will be provided.

C04 No. 20 Meldreth Parish

**Existing Context** 

Grid Reference: 537530, 245088

On the west side of the railway to the south of Meldreth Station, existing footpath 10, runs as an unsurfaced path crossing south east through fields with scattered trees, hedgerow and fencing to No.20 level crossing. On the eastern side of the railway the unsurfaced path then heads east towards Melbourn on a field boundary track to join bridleway 12 near St Johns Farm.

Proposal Category:

#### **Description of Proposals**

3

## Proposed Work

Existing public rights of way over the crossing will be extinguished. Footpath 10 will be diverted via a new footpath, approximately 400m in length, on the western side along the field margin outside of Network Rail land heading north to join the footway on Station Road and across the railway. This will require creation of a 2m wide unsurfaced footpath (Type P2) along the field boundary. On the eastern side of the railway current footpath 10 which heads east from No.20 level crossing, will be extinguished. A new section of 2m wide unsurfaced footpath, approximately 100m in length, will be Created along the field boundary, outside of Network Rail land, adjacent to Station Road to link to existing bridleway 12. Approximately 300m of the existing footpath will be stopped up.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass on the railway. New signage will be provided.

# C07 No.37 Harston Parish Grid Reference:

Proposal Category:

543308, 250779

#### **Existing Context**

Existing footpath 4 runs as an unsurfaced path crossing south east from the village of Harston through agricultural fields with small areas of woodland and running parallel to a watercourse to No. 37 level crossing. On the southern side of the railway the unsurfaced path then heads south east within fields to join the B136 (London Road).

#### Proposed Work

Existing public rights of way over the level crossing will be extinguished. Footpath 4 will be diverted on the western side of the railway via a new footpath, approximately 460m in length, heading north east to B136 (London road). This will require a 3m wide unsurfaced footpath (Type P2) within fields outside of Network Rail land. The diversion then continues south along a 3m wide unsurfaced footpath (Type P2) in field margin adjacent to the eastern side of London Road, approximately 160m in length, crossing bridleway 3 and continuing as 2m wide unsurfaced footpath (Type P1), approximately 120m in length, to the existing bridge on London road to cross the railway. Stepped access will be provided from the new footpath on the north side of the railway to the footway on the existing bridge. Stepped access will also be provided on the south side of the bridge connecting into a new 2m wide unsurfaced footpath (Type P1) heading south, approximately 120m in length, within field boundary adjacent to the western side of London Road. A new hoggin path (Type P11) approximately 120m long will be provided in the highway verge between the end of the in field footpath and the existing hoggin path in the western highway verge

Approximately 175m of footpath 4, leading up to No.37 level crossing on the western side of the railway will be extinguished. The ongoing footpath from No.37 level crossing to Station Road, approximately 500m in length will be extinguished.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass on the railway. New signage will be provided.

# C08 Ely North Junction

Grid Reference: 556137, 281250

#### **Existing Context**

Existing footpath 11, runs as an unsurfaced path crossing north east through agricultural fields with scattered trees and a pond approximately 100m north of the existing footpath, to Ely North level crossing. On the eastern side of the railway line the unsurfaced footpath then heads east before heading north along a parallel railway line to join Ely Road.

#### Proposed Work

## Proposal Category:

3

Existing public rights over the level crossing are to be extinguished. Footpath 11 will be diverted on the west side of the railway via a new 2m wide unsurfaced footpath (Type P1), approximately 150m in length, heading north within field margins, outside of Network Rail land. The footpath will then move into Network Rail land past the residential dwellings to the west and narrow to a minimum of 1.5m wide gravel/stone surfaced footpath (Type P3), leading to Queen Adelaide (Peterborough) crossing to the north. This is where users can cross the railway. Users continue east along Ely Road using the existing southern footway. Approximately 60m of existing footpath immediately east of Ely North level crossing will be extinguished.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass onto the railway.

# C09 Second Drove Ely Parish Grid Reference:

556192, 282299

# **Existing Context**

Bridleway 25 runs north east through fields along Clayway Drove, an existing track, towards Clayway level crossing and connects into footpath 49 leading to Second Drove level crossing. There is a watercourse running parallel to Bridleway 25 and a small area of wooded trees. Footpath 49 continues north east from Second Drove crossing along Second Drove, an existing track through fields.

#### **Description of Proposals**

#### Proposed Work

# Proposal Category:

Existing public rights over the level crossing will be extinguished. Footpath 49 on the western side of the railway will be extinguished, approximately 175m in length, and users will instead make use of existing bridleway 25 heading north east to Clayway level crossing. This is where users will cross the railway. New Bridleway gates (Type G2) will be installed Clayway level crossing in addition to the extisting gates. Users will then be diverted onto a new 2m wide unsurfaced footpath (Type P1), approximately 175m in length, running south along a field margin outside of Network Rail land, to connect into existing footpath 49 on the eastern side of the railway.

Crossing infrastructure at Second Drove level crossing will be removed and fencing will be installed to prevent trespass onto the railway.

# C10 Coffue Drove Downham Parish Grid Reference: 554369, 284158

#### **Existing Context**

Byway 41 runs in a north south direction across the railway via Coffue Drove level crossing, making use of a track, Coffue Drove, through agricultural fields. Byway 41 links to Byway 43 to the north and to Byway 44 and 48 to the south. There is an existing underpass immediately adjacent to the west of Coffue Drove level crossing. There are fields with drainage ditches, scattered trees, and hedgerow on both sides of the railway adjacent to Boat 41.

#### Proposed Work

# Proposal Category:

Existing public rights over the railway will be extinguished. Byway 41 will be diverted on to a route parallel to and west of the railway for a distance of approximately 120m making use of the adjacent underpass immediately west of Coffue Drove level crossing to cross the railway. The byway will have a width and height limitation through the underpass. Signing will be provided to indicate the limited width and headroom. This new byway will connect into the existing byway 41 on the south and north side of the railway. Mounting blocks will be provided on both sides of the railway to allow horse riders to dismount safely before using the underpass. Large vehicles which are unable to use the underpass will use Beald Drove level crossing to cross the railway via byway 43.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass onto the railway.

# C11 Furlong Drove Downham Parish Grid Reference: 551782 286917

#### **Existing Context**

Byway 34 heads north to Straight Furlong underbridge and south to Main Drove where the railway can be crossed at Third Drove level crossing. Byway 33 heads north from Main Drove towards Furlong Drove level crossing where it then continues north past Ash Tree Farm. Footpath 8 intersects byway 34 and connects to Main Drove to the west through fields and across drainage ditches.

#### Proposed Work

# Proposal Category:

3

Existing public rights over the level crossing will be extinguished. A new 3m wide unsurfaced bridleway (Type P2), approximately 660m in length, will be created outside of Network Rail land to connect byway 34 and O Furlong Drove. Footpath 8 will be upgraded to a bridleway, approximately 390m in length between BOAT 33 and Main Drove. Users can then head north west and cross the railway via Straight Furlong underbridge or head south and cross the railway at Third Drove level crossing.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass onto the railway.

# C12 Silt Drove March Parish Grid Reference: 542934, 296719

# **Existing Context**

Silt Road is a public road running north from Upwell Road to Silt Drove level crossing, before continuing north east to Badgeney Road. Silt Road has arable fields adjacent on both sides and there is a dense area of residential properties approximately 175m west. There are several properties adjacent to Silt Road including Rose Cottage and Meadow Croft to the south of the railway.

# Proposed Work

# Proposal Category: 6

Existing public rights over the level crossing will be downgraded to bridleway status. Silt Drove level crossing will remain a user worked crossing for registered users. Bridleway gates, mounting blocks and vehicular turning heads will be provided on both sides of the railway. Motorised users will be diverted from the south of Silt Drove crossing via Upwell Road and Badgeney Road to Badgeney Road level crossing.

# C13 Middle Drove March Parish Grid Reference: 538630,

#### **Existing Context**

The level crossing is currently a public road. Pedestrians can walk on a circular route west of March along the verge of the adopted, surfaced highways Middle Road, Moule Road and Whitemoor Road. The

#### **Description of Proposals**

297573

route leads through agricultural fields. Footpath 27 runs along Plantwater Drove and connects to the circular route on Whitemoor Road.

Proposal Category:

Proposed Work

6

Existing public rights over the level crossing will be downgraded to bridleway status with private rights retained as a user worked crossing for registered users. New bridleway gates and mounting blocks will be provided on both sides of the railway. Motorised users will be diverted along the Whittlesey Road to cross the railway at the automatic half barrier level crossing at Whitemoor Drove. Users will continue on Whitemoor Road to connect back up with Middle Drove. The existing telephone and miniature stop lights will be retained on site at Middle Drove.

C14 Eastrea Cross Drove

Whittlesey Parish
Grid Reference:

530442, 296555 **Existing Context** 

Footpath 50 is located south of Eastrea and links Wype road to footpath 52, which then links to byway 51. Wype Road links to byway 49 and bridleway 60. The existing footpath crosses the railway at Eastrea Cross Drove level crossing and users of the local footpath network can cross the railway at at Eastrea level crossing on Wype Road and at Baileys level crossing on footpath 52.

Proposed Work

Proposal Category:

1 Toposai Galegory

Existing public rights of way over the level crossing will be extinguished. Footpath 50 would be diverted on the north of the railway via a new 2m wide unsurfaced footpath (Type P1) in field margin, outside of Network Rail land, heading west to connect to byway 49 Lake Drove. This new footpath will be approximately 700m in length. A steel footbridge (>8m in length) will be required to cross a drainage ditch along the new footpath route. Users will then head south east on Wype Road using existing verges to cross the railway at Eastrea level crossing. Approximately 350m of footpath 50 to the south of the railway will be extinguished.

Crossing infrastructure will be removed and fencing will be installed to prevent trespass onto the railway.

C15 Brickyard Drove Whittlesey Parish Grid Reference:

529691, 296485 **Existing Context** 

Footpath 48 is located south of Eastrea and links Benwick road to bridleway 60, which then links to byway 49 at the junction with Wype Road. The existing footpath crosses the railway at Brickyard Drove level crossing. Footpath 41 runs along the north of the railway between Fen Lots Drove and Brickyard Drove level crossing.

Proposed Work

Proposal Category:

4

Existing public rights of way over the level crossing will be extinguished. Footpath 48, on the south of the railway, heading north east along an existing track towards the level crossing will be diverted via a new 2m wide unsurfaced footpath(Type P1) cross field around Jamwell Farm. This new footpath is approximately 460m in length heading east and then north east to Wype Road and a new footbridge (approximately 5m in length) will be required to cross a small water feature. Users can then cross the railway via Eastrea level crossing using existing verges. Approximately 164m of footpath 48 to the south of the railway will be extinguished.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

C16 Prickwillow 1

Ely Parish Grid Reference: 559586, **Existing Context** 

The crossing is located approximately 370 m north of the Main Street, Prickwillow. Footpath 57 runs along Branch Bank, east of the River Lark and Footpath 17 runs along the west bank (Padnal Bank).

282817

Proposed Work

Existing public rights of way over the level crossing to be extinguished. Footpath 17 to the south of the railway, heading north along Padnal Bank will be diverted via an existing underbridge adjacent to the west of the level crossing. Users can then continue along footpath 17 to the north of the railway. Steps will be provided on both sides of the railway to provide access down the embankment from footpath 17 to make use of the existing underbridge.

Proposal Category:

4

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

C17 Prickwillow 2

Ely Parish Grid Reference: 559624, 282836 **Existing Context** 

The crossing is located approximately 370 m north of the Main Street, Prickwillow. Footpath 57 runs along Branch Bank, east of the River Lark and Footpath 17 runs along the west bank (Padnal Bank).

Proposed Work

Existing public rights of way over the level crossing to be extinguished. Footpath 57 to the south of the railway, heading north along Branch Bank will be diverted via an existing underbridge adjacent to the east of the level crossing. Users can then continue along footpath 57 to the north of the railway. Steps

Proposal Category:

4

#### **Description of Proposals**

will be provided on both sides of the railway to provide access down the embankment from footpath 57 to make use of the existing underbridge.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

C18 Munceys Fordham Parish Grid Reference: 562341, 269170

Proposal Category:

#### **Existing Context**

Munceys crossing forms part of the unsurfaced public footpath 19 (in both Cambridgeshire and Suffolk) that runs in a north south direction through a rural area. The crossing is located immediately east of a triangular area of woodland planting that contains a large pond, approximately 50m to the north west. Approximately 40m to the north east of the crossing, the path crosses the A142, a busy a public road.

#### Proposed Work

19 (Exning Parish Suffolk) on the southwest side of the railway heading north to the level crossing will have a new a new 2m wide unsurfaced footpath (Type P1), approximately 560m in length, through a small area of woodland immediately southwest of the railway, outside of Network Rail land. This new footpath will create a circular walking route to the west of the level crossing and connect back to footpath 19. To the north east of the railway, footpath 19 will be diverted via a 2m wide unsurfaced footpath (Type P1), running south and parallel to the railway boundary fence for a distance of approximately 535m in length. The footpath diversion continues from this point in a southerly direction as a gravel/stone surfaced footpath (Type P3) along the Network Rail boundary and adjacent to an industrial site for a distance of approximately 315m to meet Landwade Road. Users will make use of the existing verge and carriageway on Landwade Road, for a distance of approximately 90m in a westerly direction. The diversion route then follows a new 2m wide footpath heading west along an existing track, approximately 720m in length to connect to existing footpath 19.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

C20 Leonards Soham Parish Grid Reference: 558967, 272448

#### **Existing Context**

Public footpath 101 is an unsurfaced path that runs in a north easterly direction through agricultural fields from Mill Drove, a public road, approximately 90m west of the crossing, to a sluice where it joins footpath 100, approximately 170m to the north east of the crossing. The immediately surrounding area is predominantly agricultural with Mill Drove Farm and some residential properties along Mill Drove, the nearest. Footpath 114 and byway 113 provide the links to the west of Mill Drove.

#### Proposed Work

Proposal Category:

Existing public rights of way over the level crossing will be extinguished. A 190m length of footpath 101 will be extinguished between Mill Drove and a point 90 m to the east of Leonards level crossing. A section of footpath 114, approximately 110m long, to the west of Mill Drove will also be extinguished. Leonards level crossing users will be diverted north to Mill Drove level crossing. Footpath 114 will be reinstated on the ground (for a distance of approximately 350m) as an unsurfaced path (Type P1) from the point where it meets byway 113 in the south to the field boundary to the north east. From this point a new 2m wide unsurfaced footpath (Type P1) will be created the field margin around Mill Drove Farm (approximately 230m in length) and users will then make use of the existing verge and carriageway on Mill Drove, crossing the railway at Mill Drove level crossing. A new 2m wide unsurfaced footpath (Type P1) will be provided on the east side of the railway connecting Mill Drove to footpath 101, approximately 260m in length. A composite steel and timber footbridge (6m in length) will be required to cross a drainage ditch adjacent to Mill Drove along the new footpath route.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

C21 Newmarket Bridge Ely Parish Grid Reference: 554309, 278140

#### **Existing Context**

Public footpath 24 runs as an unsurfaced path crossing in a north south direction, along the east bank of the River Great Ouse and west of agricultural fields. To the north and south of the railway, the footpath follows the course of the river. The River is approximately 40m west of the Newmarket Bridge crossing. Public footpath 23 runs parallel to footpath 24 on the west bank of the river.

# Proposed Work

This crossing will be closed to public users with private user rights to be retained. Public users would make use of the existing hardstanding footpath via the underbridge to the west of the crossing, approximately 50m in length.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

Proposal Category:

2

Existing Context

C22 Wells Engine Ely Parish Grid Reference: 554160, 278262

Public footpath 23 runs as an unsurfaced path crossing in a north south direction, along the west bank of the River Great Ouse and east of agricultural fields. To the north and south of the railway, the footpath follows the course of the river. The River is approximately 90m east of the Wells Engine crossing. Public footpath 24 runs parallel to footpath 23 on the east bank of the river.

#### **Description of Proposals**

#### Proposed Work

# Proposal Category:

This crossing will be closed to public users with private user rights to be retained. Public users will be diverted to a route under the railway bridge to east of the crossing approximately 190m in length. The new 2m wide footpath will have gravel/stone surfacing (Type P3).

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

# C24 Cross Keys Ely Parish Grid Reference: 556891. 283017

#### **Existing Context**

The Cross Keys level crossing is located at the end of public footpath 50, which runs in a north easterly direction connecting with footpath 15 immediately east of the crossing and joining bridleway 25, approximately 250m to the south west. Footpath 15 runs in a north south direction along the west bank of the River Great Ouse. The river is approximately 50m east of the crossing.

#### Proposed Work

# Proposal Category:

Existing public rights over the level crossing to be extinguished. Users would make use of an existing underbridge to the north of the crossing. Users would be diverted along a new 2m wide unsurfaced footpath (Type P1) to the west of the railway (approximately 1.5km in length) and on existing footpath 15 to the east to access the underbridge or south to cross at C23 Adelaide crossing. Two steel footbridges each approximately 10m long, with concrete bollards at each end to prevent misuse, are proposed to cross a drainage ditch along the route of the new footpath heading north from Cross Keys level crossing. In addition, one composite (steel and concrete) footbridge 8m in length will be provided along the new footpath to the south of Cross Keys level crossing.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

# C25 Clayway Littleport Parish Grid Reference: 557550, 286287

#### **Existing Context**

Clayway crossing is located in a residential area on the eastern outskirts of Littleport. The crossing is located on public footpath 11 which runs in a south easterly direction through the residential area. crosses Sandhill, a public road running parallel to the railway to the east, and joins footpath 15 and 21 approximately 50m east of the crossing. The latter two footpaths run north to south along the west bank of the River Great Ouse, which is located approximately 50m east of the crossing at its nearest point.

# Proposal Category:

# Proposed Work

Existing public rights over the level crossing to be extinguished. Crossing users would make use of Sandhill level crossing to the north. The diversion will make use of Padnal Road and a new 2m wide asphalt footway approximately 12m in length adjacent to the highway on Victoria Street will be created to the west of Sandhill level crossing. The diversion route on the east side of the crossing will make use of footpath 21 or the existing track along Sandhill to connect users to Sandhill level crossing. A 2m wide footpath will be created on a private track to link the northern end of footpath 21 to the adopted highway on the east side of the crossing.

Footpath 11 to Clayway crossing on the west of the railway will be extinguished (approximately 100m in length) to prevent the creation of a dead end.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

# C26 Poplar Drove Littleport Parish Grid Reference: 557742. 288796

# **Existing Context**

The existing byway 32 leads from Horsley Hale on a north-east axis to byway 31 (Poplar Drove). Poplar Drove crosses the railway at Poplar Drove level crossing to connect to the Ten Mile Bank, located approximately 500 m east of the existing level crossing along the River Great Ouse. Poplar Drove is surfaced with tarmac to the east of the level crossing, has an unsealed surface to the west of the level crossing and is currently open to all traffic.

Byway 30, Willow Row Drive, runs 450 m north-east of and parallel to Poplar Drove.

These byways cross through existing agricultural fields and there are a number of dry ditches along the field boundaries, some of which cross under the existing byways.

#### Proposed Work

# Proposal Category:

6

The public rights over the level crossing will be downgraded to a byway with a TRO provided between prescribed points for a width of 1.525m. Private vehicle rights will be given to the necessary parties. Any other public motorised vehicles will be diverted to the A10 to the South. The existing telephone will remain and a locked vehicular gate and bridleway gates will be provided. A new 3m wide unsurfaced bridleway (Type P2), approximately 500m long will be provided running north from Poplar Drove crossing on the east side of and adjacent to the railway, connecting into Willow Row Drive.

# C27 Willow Row/Willow

**Existing Context** 

Road

# **Description of Proposals**

Littleport Parish Grid Reference: 557852, 289282 The existing byway 32 leads from Horsley Hale on a north-east axis to byway 31 (Poplar Drove) and in turn to byway 30 (Willow Row Drive). Willow Row Drive crosses the railway at Willow Row/Willow Road level crossing to connect to the Ten Mile Bank, located approximately 500 m east of the existing level crossing along the River Great Ouse. Willow Row Drive has an unsealed surfaced is currently open to all traffic

Byway 31, Poplar Drove, runs 450 m south west of and parallel to Willow Row Drive.

These byways cross through existing agricultural fields and there are a number of dry ditches along the field boundaries, some of which cross under the existing byways.

## Proposal Category:

4

#### Proposed Work

Existing public rights over the level crossing to be extinguished. Motorised users would have to make use of Poplar Drove (C26) crossing if registered, and public motorised users would be diverted to Littleport Bypass level crossing to the south. A new 3m wide unsurfaced bridleway (Type P2), approximately 500m long, will be provided running south from Willow Row/Willow Road level crossing on the east side of and adjacent to the railway, connecting into Poplar Drove. A steel 8m in length bridleway bridge will be required along the new proposed footpath to cross a drainage ditch. The existing byway 30 (approximately 470m in length) will be downgraded to a bridleway. The surface of the section of byway 31 on the west side of the railway, which runs between Willow Row Drove and Poplar Drove, will be improved with gravel/stone (Type P3) where necessary.

Level crossing infrastructure will be removed and fencing provided to prevent trespass onto the railway.

C28 Black Horse Drove

Littleport Parish Grid Reference: 558578, 292480

#### **Existing Context**

Black Horse Drove is a public road that runs from Ten Mile Bank to the east, crossing the railway at Black Horse Drove level crossing, to a point approximately 240m to the west of the railway, where it becomes a private road. The road crosses through agricultural fields and alongside a number of farm and residential buildings.

# Proposal Category:

6

#### Proposed Work

All public rights would be extinguished at the crossing although public road will continue on either side. The crossing will become a private user worked crossing for registered users.. A turning head will be provided on the east side of the railway.

C29 Cassellls Brinkley Parish Grid Reference: 558061, 256891

#### **Existing Context**

The level crossing is located on the unsurfaced footpath 1 approximately 100m north of the Brinkley Road which links to the A1304 London Road to the west. Footpath 1 runs through a narrow strip of woodland between Brinkley road and Cassells level crossing. On the northern side of the level crossing, footpath 1 runs east adjacent to the railway boundary and unsurfaced footpath 10 runs south-west to Brinkley Road, parallel to the railway, again through a narrow band of woodland and then through a gravelled area informally used as a car park.

# Proposed Work

Proposal Category: 3

Existing public rights over the level crossing to be extinguished and a diversion route will be provided along Brinkley Road and along the existing footpath to the north-west of the railway line. The existing footpath (approximately 100m in length) that links Brinkley Road to the level crossing will be extinguished. The railway would be crossed at Brinkley Road level crossing which has automatic half barriers. The Brinkley Road section of the diversion route would incorporate a section of existing grass verge to the north of Brinkley Road crossing and a new 2m wide asphalt planings footpath (Type P8) approximately 70m in length, within Network Rail land adjacent to Brinkley Road. In addition, a new section of 2m wide unsurfaced footpath (Type P1) will be created to connect existing footpath 1 to Brinkley Road north of the railway, approximately 20m in length.

Crossing infrastructure will be removed and fencing installed to prevent trespass onto the railway.

C30 Westley Road Waterless Parish Grid Reference: 559148, 257742

# **Existing Context**

The level crossing is located approximately 650m east of the A1304 London Road which it links to via byway 1 which is an unsealed surface route running between agricultural fields lined by trees. To the east of the level crossing is Westley. The level crossing is located approximately 1.5km north-east of Six Mile Bottom and is in the vicinity of a number of properties that are outlying from this hamlet.

# Proposed Work

Proposal Category: 6

The crossing will be downgraded to a byway level crossing with a vehicular right of way for authorised users only accessing byway 1. The miniature stop lights and telephone would be retained at this crossing after the downgrade. To cross the railway non-authorised vehicles would use the existing highway and Brinkley Road level crossing, which has automatic half barriers. A TRO will restrict the width of the route to 1.525m over the level crossing. New bridleway gates, with mounting blocks and a turning head for vehicles would be provided in addition to the existing gates at the level crossing.

## **Description of Proposals**

C31 Littleport Station Littleport Parish Grid Reference: 557466

**Existing Context** 

The Littleport Station crossing is located immediately north of Littleport station and connects the station access road on the west side of the railway to the Cambridge bound platform. The access road runs northwards to the station from Station Road, a public highway approximately 80m south of the crossing.

287437

Proposed Work

At Littleport Station the existing carriageway beneath the railway underbridge will be restricted (by bollards) to use by non-motorised users only via a new raised footway (approximately 30m in length). These works will, with the station works proposed under the Network Rail Kings Lynn Service

Proposal Category:

Enhancement scheme (a separate scheme not part of the Anglia Level Crossing Reduction Strategy), enable grade-separated access to the station platforms from each side of the railway.

C33 Jack O'Tell (Adam's

Crossing) Waterbeach Parish Grid Reference:

551835. 270359

**Existing Context** 

Jack O'Tell level crossing provides access to farmland on both sides of the railway and also provides a route across the railway for existing footpath 16 which links Chittering Drove (approximately 650m west of the level crossing) and Long Drove (approximately 900m east of the level crossing).

Proposed Work

Proposal Category:

The private vehicle level crossing will be closed. The public footpath crossing for pedestrians would remain open. In order to cross the railway by vehicular means a combination of private farm tracks and adopted highway would be used to divert to Bannolds level crossing to the south, which has automatic half barriers, or the A1123 to the north. At Jack O'Tell (Adam's Crossing) level crossing pedestrian wicket gates would be provided.

C34 Fysons Waterbeach Parish

Grid Reference: 551489 269230

**Existing Context** 

Fysons level crossing provides access to farmland on both sides of the railway via private unpaved farm tracks which run across agricultural land and link to Long Drove approximately 500m to the east of the level crossing

Proposal Category:

Proposed Work

Existing private rights over the level crossing to be extinguished. In order to cross the railway a combination of private farm tracks and adopted highway would be used to divert to Bannolds level crossing, which has automatic half barriers.

Crossing infrastructure would be removed and fencing installed to prevent trespass onto the railway.

C35 Ballast Pit Waterbeach Parish Grid Reference: 550821,

**Existing Context** 

Ballast Pit level crossing provides private access to a fishing lake on the west side of the railway. The track runs across agricultural land and links to Long Drove approximately 120m to the east of the level

Proposal Category: 5

Proposed Work

Existing private rights over the level crossing to be extinguished. In order to cross the railway a combination of private farm tracks and adopted highway would be used to divert to Bannolds level crossing, which has automatic half barriers. The existing track to the west of Ballast Pit approximately 290m in length) will become a Private Road with a culvert over the watercourse, to connect into byway

Crossing infrastructure would be removed and fencing installed to prevent trespass onto the railway.

# 4 Design Freeze Drawings

