

# Cottam Parkway Station

## Access Options Assessment – Technical Report

July 2020

*Version 2.1 FINAL*

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## Document control sheet

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# 1. Introduction

## 1.1 Purpose of Document

This report supplements the findings of the GRIP Stage 2 Station Feasibility and Options Development Report, prepared by Network Rail, in relation to Cottam Parkway Station.

Five station siting location options are identified within the GRIP2 feasibility report; Option 1, Option 2/2a/2b and Option 3. All options are considered feasible however key constraints are identified to minimise the effects on costs and programme. Option 2b is considered an optimised version of options 2 and 2a.

With consideration to the station sitting options presented within the GRIP2 feasibility report, associated access arrangements have been developed further by Lancashire County Council (LCC) highways engineers. Four alignment options for the feeder road are presented within this report as; Route A, Route B, Route C, and Route D.

Associated options for crossing Lancaster Canal via a new structure have been considered by LCC structural engineers and are also considered within this report.

**The report provides a technical appraisal of the station access options informed by LCC subject matter specialists and in doing so identifies a preferred solution.**

It is assumed the reader has prior knowledge of the scheme. For additional context please read this document in conjunction with:

- *Network Rail GRIP Stage 2 report 'Cottam Parkway Station Feasibility and Options Development Report' (2019) Document Ref: 157955-NRD-1600-PBN-EMF-000001, Issue: P02*

## 1.2 Station Siting Options

The Network Rail GRIP 2 feasibility and options development report outlines the following station siting options (figure 1.1) for consideration:

- Option 1 – located partly below the future PWDR Bridge and the overhead power lines.
- Option 2 – situated to the west of Lea Road
- Option 2a – situated to the east of and adjacent to Darkinson Lane/Sidgreaves Lane.
- Option 2b – situated between option 2 and 2a and is an optimised version of these two options.
- Option 3 – located on a curved portion of the track in the centre of the area and situated to the west of Darkinson Lane.



Figure 1.1 Station Siting Options

### 1.3 Network Rail preference

Key constraints identified in the GRIP 2 feasibility and options development report by Network Rail to minimise the effects on costs and programme are to avoid unnecessary placement of a station on sections of curved tracks, minimise – or ideally negate – signalling alterations, minimise on-wards maintenance of the track, and avoid unnecessary alterations to the overhead lines.

Detailed consideration is outlined with the Network Rail report. The following conclusions from a Network Rail perspective are stated, indicating Option 2b as the preferred option:

- Option 1 – Non-preferred
- Option 2 – Acceptable
- Option 2a – Acceptable
- **Option 2b – Preferred**
- Option 3 – Highly non-preferred

## 2. Access arrangements

### 2.1 Feeder Road

LCC highways engineers developed four primary, single carriageway width, highways access alignment options:

- Routes A and B providing access to station location options 1 and 3 via Cottam Link Road at the roundabout to be developed as part of the PWD (making this a 4 arm roundabout).
- Routes C and D providing access to all station location options (1, 2, 2a, 2b, and 3) via a new junction (likely a roundabout) to be added to Cottam Link Road. These alignments then cross the canal, route C to the east of Quaker Bridge and route D to the west before re-joining a widened Sidgreaves Lane (standard single carriageway).

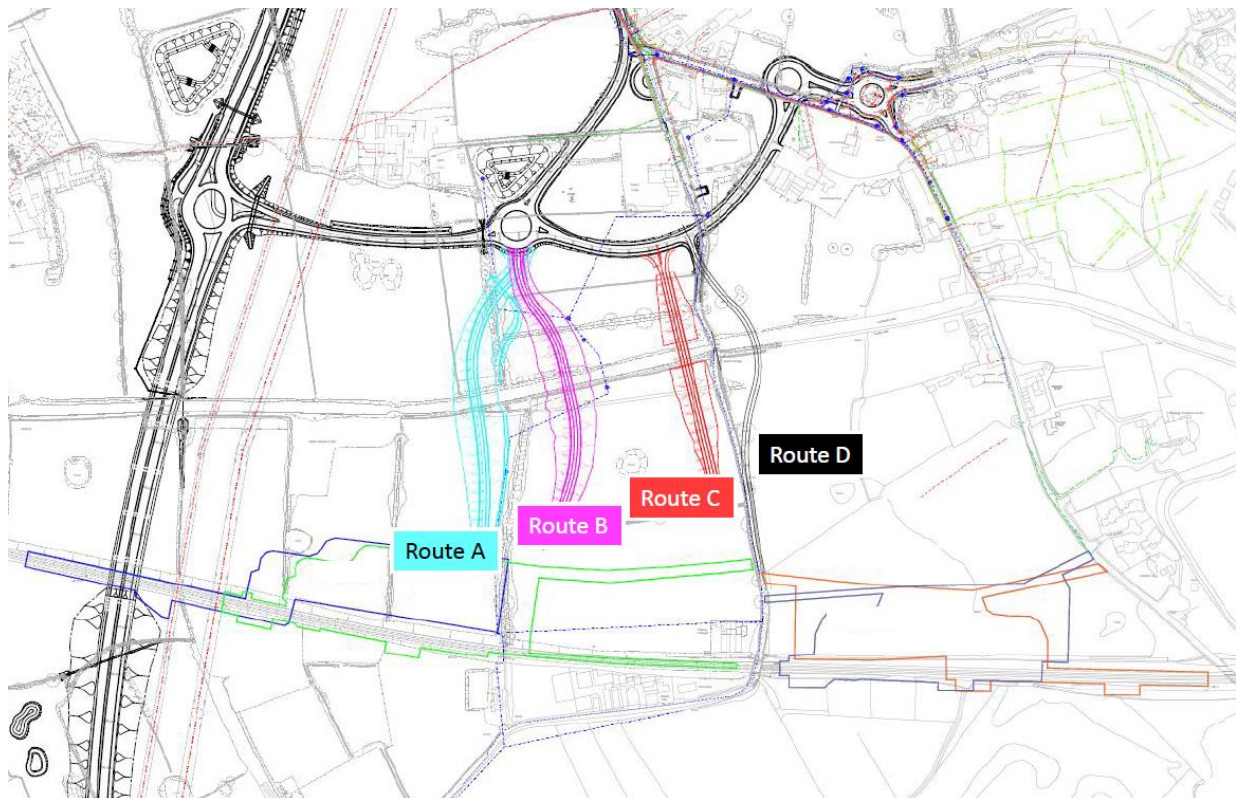


Figure 2.1 Feeder Road Route Options

**Route C considered as preferred** (no station location options precluded).

Full details are outlined within **Appendix A – Highway Options Report**

### 2.1.1 Landscape and Visual Impacts

Outline landscape and visual impacts associated with the 4 feeder road route options are presented in **Appendix B – Outline Landscape & Visual Impacts Assessment**.

#### Landscape Effects

Route B and Route C are considered to have the lowest level of impact.

#### Visual Effects

Route A is considered to have the lowest level of impact.

*Further assessment and details of mitigation based on the selection option will be included within the scheme Environmental Statement prepared in accordance with the planning application.*

### 2.1.2 Environmental Constraints

Outline appraisal of the environmental constraints associated with the 4 feeder road route options are presented in **Appendix C – Environmental Constraints Technical Note**.

*Further assessment and details of mitigation based on the selection option will be included within the scheme Environmental Statement prepared in accordance with the planning application.*

## 2.2 Canal Bridge Options

Based on the preference for feeder road option Route C, options for a bridge crossing of the Lancaster canal were investigated by LCC Bridge Engineers.

The existing Quaker Canal Bridge (no. 837) at this location is not a viable solution. The bridge is a single span masonry arch bridge. Clearance between parapets is only 2.8m. The bridge is owned by the Canal and Rivers Trust and is Grade II listed. Due to its listed status, it is not possible to modify the bridge to provide the required access to the station.

Four options for crossing were considered as follows:

- **Bridge Option 1** - 3 span precast concrete arch with reinforced concrete abutments and piers. The spandrel walls and parapets will be brick clad. The main centre arch will span the canal whilst the 2 smaller side arches will span the farm access tracks.
- **Bridge Option 2** - 3 span pre-stressed beam with reinforced concrete deck supported on reinforced concrete piers located between the canal and farm tracks.
- **Bridge Option 3** - Single span reinforced concrete, pre-stressed beam bridge over the canal with pre-cast concrete box culverts either side to maintain the farm access tracks.



- **Bridge Option 4** - Steel Girder Bridge with reinforced concrete deck slab. Single or multi-span depending on steel girder size required for the span and allowable construction depth of bridge. Intermediate supports will reduce overall beam depth.

**Bridge Option 1 considered as preferred.**

Full details are outlined within **Appendix D – Bridge Options Technical Note.**

## 2.3 Cycling and walking

Lancashire County Council are currently developing a new Cycling and Walking Strategy for the county, with the vision of getting more people cycling and walking for everyday and leisure journeys in Lancashire. The strategy has three targets:

1. To double the number of people cycling by 2028
2. To increase the number of people walking by 10% by 2028, with a particular focus on increasing the percentage of children aged 5-10 usually walking to school
3. To bring levels of physical inactivity in every district below the national average by 2028

The surrounding area is currently predominantly rural in nature however North West Preston will experience a significant growth in housing provision as per the Local Plan, notably as a result of the approved North West Preston masterplan which is supported by the PWD and EWLR highways schemes. Cottam Parkway Station is intended to serve the North West Preston area; high quality walking and cycling access to the station should be included to reduce car dependency, particularly within a 10km radius,

**Station location option 2/2a/2b preferable** as cycling and walking access can be provided from both east (Lea Road) and west (Sidgreaves Lane [National Cycle Route 62] / the new feeder road).

## 2.4 Bus Access

Bus service provision in the area is currently fairly limited however the planned increase in housing developments is likely to result in the introduction of additional services. To limit the impact on bus services of additional stopping time at Cottam Parkway Station, access should ideally seek to avoid adding significant journey time to buses routes.

Station Options 1 and 3 would require existing bus routes to undertake a long detour to a dead-end via feeder road and then back up to Cottam Link Road. This would be unfavourable to bus operators due to the additional journey time and longevity of service could not be guaranteed.

**Station location option 2/2a/2b is considered to be preferred.** This location would allow for a connection to Lea Road enabling existing/new services to access the station via a bus gate. This location also offer the possibility of permeability through the site for buses which could be attractive to potential new services.



## 3.Impacts on landowners

### 3.1 Initial Assessment

Preston, South Ribble and Chorley are developing their Central Lancashire Local Plan, and have carried out a Call for Sites exercise in order to meet future housing needs.

Homes England have put forward Call for Sites reference number CLCFS00241 that includes land associated with stations location options 1, 2/2a/2b and 3.

Land associated with siting option 2/2a/2b has also been put forward as a potential development site by another party (Call for Sites reference number CLCFS00356). It was determined that a pre-application had been submitted to Preston City Council by a housing developer.

### 3.2 Key Land and Property Considerations

North of the railway line:

- Options 1 & 3 positive discussion however potentially more complex property issues than other options.
- Land parcel associated with option 2/2a/2b identified as land for development by housing developer however numerous positive discussions have taken place between LCC, Preston City Council, the developer and the land agent. Developer willing to revise masterplan and work with LCC to accommodate station.

South of the railway line:

- Land agents impacted by options 1 & 3 have not yet been approached.
- Option 2/2a/2b partly same land owner as north therefore positive discussions have taken place including potential to provide maintenance and pedestrian access to southern platform
- Option 2/2a/2b would also potentially impact golf course – no approach to date.
- Option 2 may provide easier station maintenance access for the south than option 2a or 2b – this is to be explored further.

**Option 2/2a/2b generally considered to be the preferred** land parcel with land acquisition highly likely to negotiate by agreement.

Full details are outlined within **Appendix E – Estates Surveyor Report**

## 4. Conclusion

For the reason outlined within this technical report, a station siting location in the land parcel east of Sidgreaves Lane (options 2/2a/2b) is considered to be the preferred by Lancashire County Council. This site would be supported by the preferred feeder road alignment option of Route C, comprising; new junction with Cottam Link Road, new canal bridge passing west of Quaker Bridge, new junction at the southern extent of Sidgreaves Lane (north of railway line) providing access to the station, and upgrade of Sidgreaves Lane to standard single carriageway along its length between the two new junctions

Subject to further discussion with landowners, a revised car park layout is proposed to reduce land take to the north. The southern station platform and maintenance access are proposed to be located as far east as possible to limit the impact on landowners south of the railway line.

The preferred option for based on requirements south of the railway line is **option 2** however option 2b is not precluded and a hybrid solution (*option 2c*) should be considered in further discussions with Network Rail.

An outline plan based on station option 2 with revised car park layout is contained in **Appendix F – Preferred Option Site Plan**

# **Appendix A**

## **Cottam Parkway Highway Options Report**

*Version 1.1 Final*

## Document control sheet

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## 1 Introduction

The LCC Highways Department have commented upon the constraints of both Lea Road and Sidgreaves Lane for vehicles, cycles and pedestrians accessing the station. This also includes the two canal bridges, both 18th century Grade II Listed. Capacity of these structures should be ascertained in the development of any access solution for the sites considered. In addition to capacity of the structures, vertical and horizontal highway alignment and sighting on the approaches to the structures will need to be addressed. One solution is to minimise the need to use these roads, with the provision of a new dedicated access roadway to the station. A viable alternative is to upgrade the roads and provide smaller structures alongside the existing. Any new access points proposed that connect with the existing roads can be made one-way to reduce the impact of additional vehicles servicing the station. The option provided help address the issue of using both canal bridges, and both the 18th century Grade II Listed bridges.

Paragraph 108 of the NPPF states:

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

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree or development.'*

Access for various options whilst PWD is under construction is located in Figure 2.5.

See the link for highway access report; [V:\S&P\Planning\Policy\Projects\Transforming Cities Fund\RW02 Cottam Parkway\04 Planning\Option Selection\Draft Options Report](#)



Figure 1-1 : Map and images showing Quakers Bridge and Lea Road Canal Bridge

## 2 Alignment arrangements

### 2.1 Highway alignment

There are general principles that underlines the alignment arrangements for a highway. The alignment design was undertaken in accordance with DMRB's 'Visibility and road geometry requirements'. These must guidance must be followed in order to design highway access onto the station.

### 2.2 General design principles and assumptions:

- Road long fall gradients no greater than 6%
- Visibility and road geometry requirements to DRMB
- Canal clearances based on CRT guidance
- Design speed 30mph



## 2.2.1 Option 1 (ROUTE A)

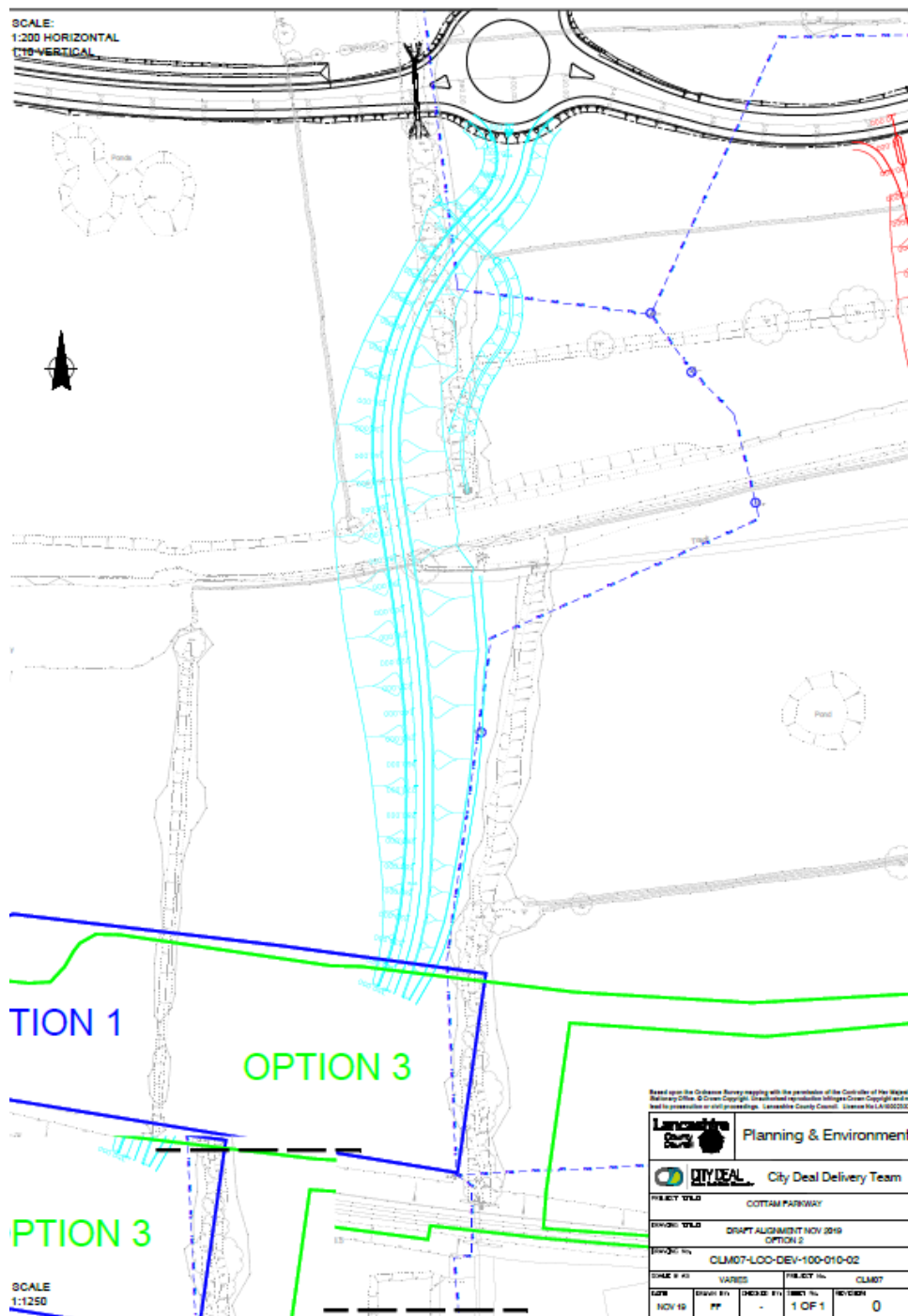


Figure 2-1 : Alignment for option 1 (Route A)

The alignment is designed to spur off the Cottam link roundabout heading south.

The point of connection of the existing arms determines the available point of connection for the proposed new arm.

The verticality of the alignment is kept as close to existing ground level as possible before a 6% incline is induced to climb to the appropriate plateau height to bridge over the canal

The finished road height is dictated by the levels of provision required by the CRT under the structure plus the construction build-up of the bridge deck and road construction.

The 6% is the maximum acceptable gradient in the DMRB, although is not favourable or advised for long section non-motorised users such as cyclists

The hog curvature i.e. the crest arc is the minimum curvature applicable to achieve the minimum stopping sight distances for the design speed of the road of 30mph.

The alignment immediately bears southwest and then bears south again.

This is to enable the alignment and the associated embankment earthworks to avoid an existing culvert under the canal.

The watercourse will require an additional culvert and the existing watercourse diverted outside of the footprint of the new road embankment. The alignment crosses the canal with a straight and perpendicular.

The perpendicular arrangement over the canal is to reduce the effective span of the structure. It also improves constructability because the structure can be built with straight elements.

The alignment then heads south with a vertical gradient of 6% to return to existing ground level. The ground level in this location reduces the further south you go, and therefore the alignment is chasing ground level.

### **Generally**

The alignment is circa 350m long because of the sinuous nature of it avoiding existing features, crossing the canal perpendicular and then returning to existing ground with the maximum allowable gradient. This option will not be taken forward.

## 2.2.2 Option 2 (ROUTE B)

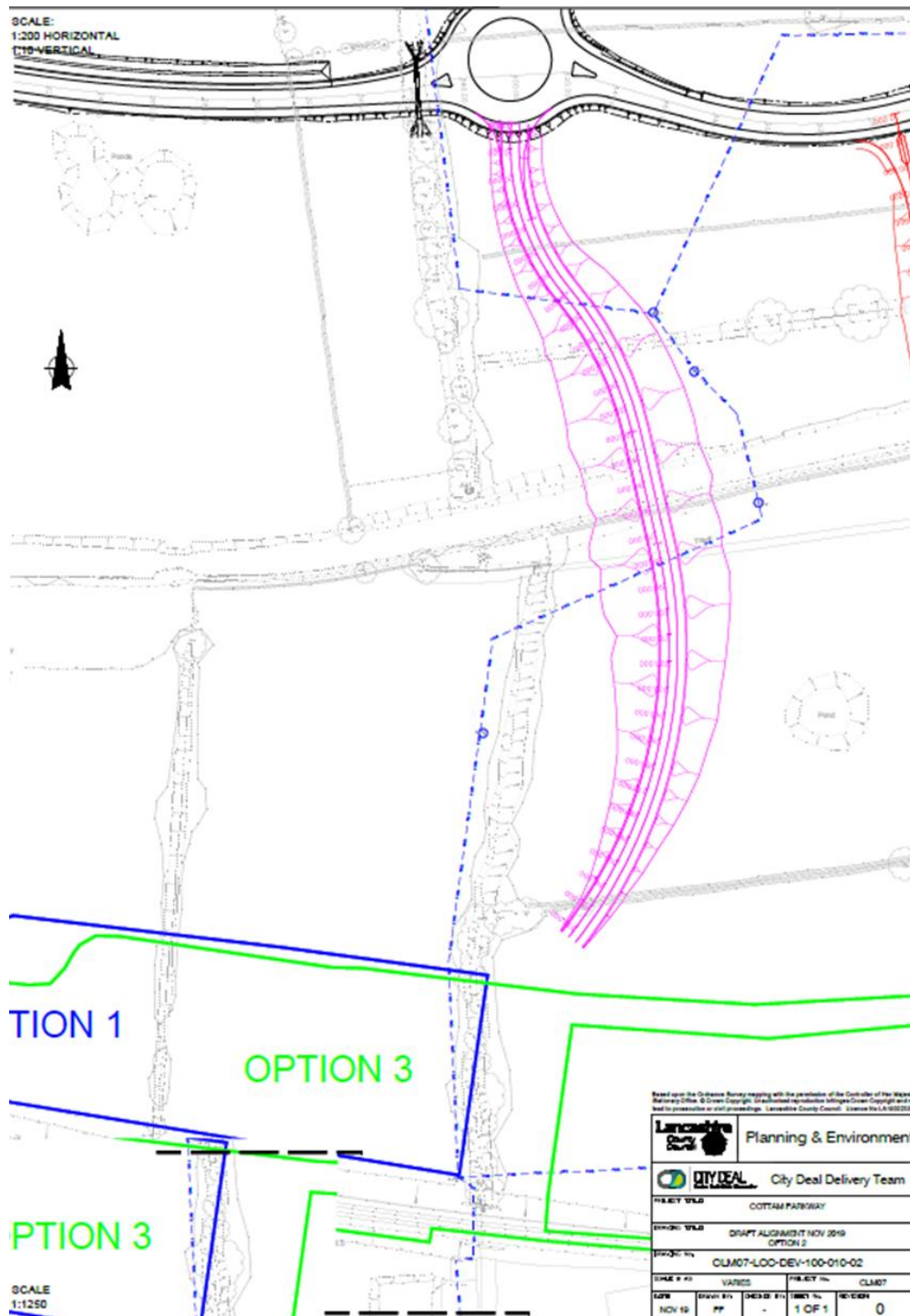


Figure 2-2 : alignment for option 2 (Route B)

The alignment is designed to spur off the Cottam link roundabout heading south.

The point of connection of the existing arms determines the available point of connection for the proposed new arm.

The verticality of the alignment is kept as close to existing ground level as possible before a 6% incline is induced to climb to the appropriate plateau height to bridge over the canal.

The finished road height is dictated by the levels of provision required by the CRT under the structure plus the construction build-up of the bridge deck and road construction.

The 6% is the maximum acceptable gradient in the DMRB, although is not favourable or advised for long section non-motorised users such as cyclists

The hog curvature i.e. the crest arc is the minimum curvature applicable to achieve the minimum stopping sight distances for the design speed of the road of 30MPH.

The alignment immediately bears south east and then bears south again.

This is to enable the alignment and the associated embankment earthworks to avoid an existing culvert under the canal. The alignment crosses the canal with a straight and perpendicular.

The perpendicular arrangement over the canal is to reduce the effective span of the structure.

It also improves constructability because the structure can be built with straight elements.

The alignment then heads southwest with a vertical gradient of 6% to return to existing ground level. The ground level in this location reduces the further south you go, and therefore the alignment is chasing ground level.

### **Generally**

The alignment is circa 330m long because of the sinuous nature of it avoiding existing features, crossing the canal perpendicular and then returning to existing ground with the maximum allowable gradient. Due to existing ground condition for this arrangement, it will not be feasible to adopt this option for road access to the station.

### 2.2.3 Option 3 (ROUTE C) preferred

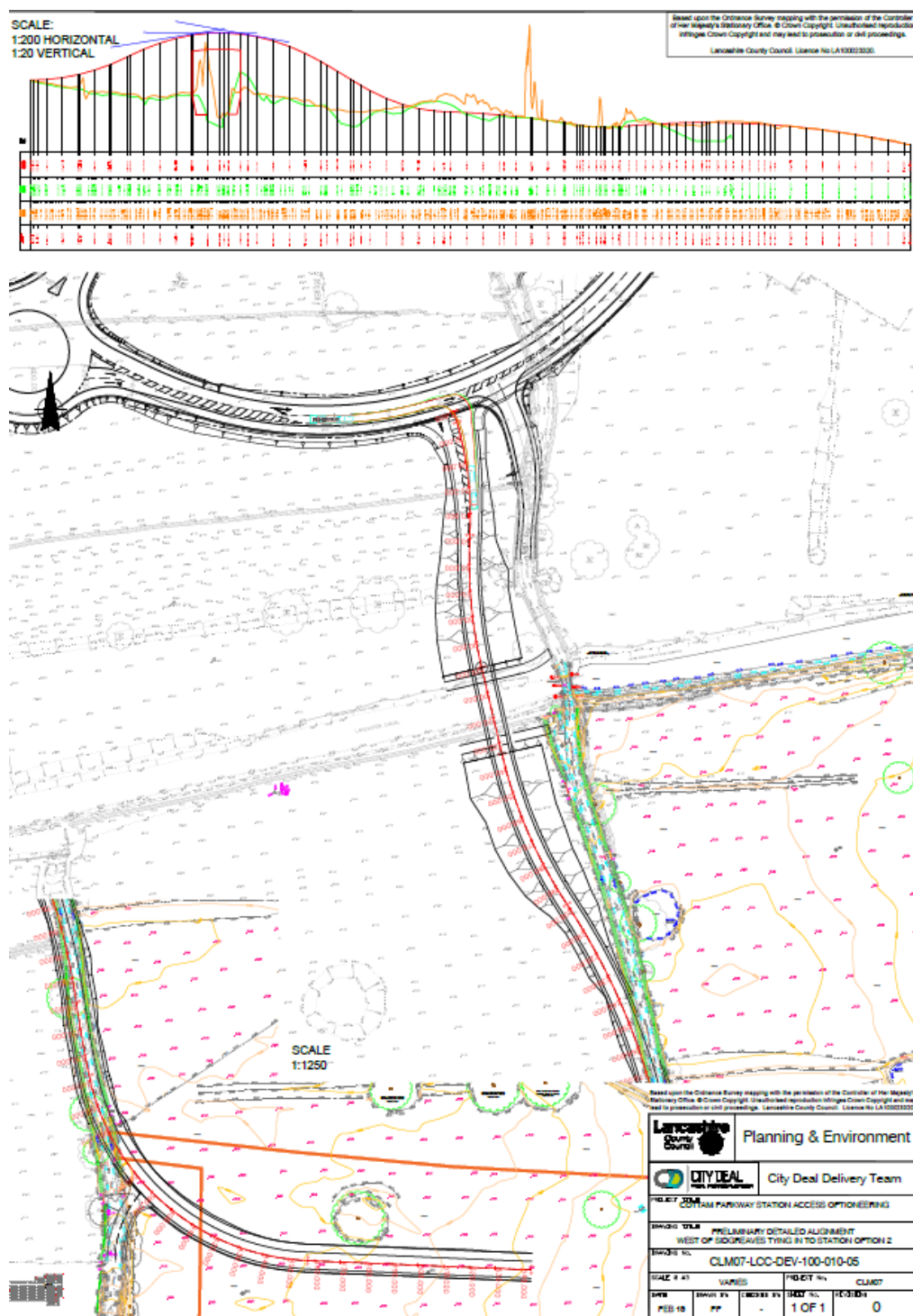


Figure 2-3: Alignment for option 3 (Route C)

The alignment is designed to tee off the link road between the Cottam link roundabout and the double roundabout to the east. The alignment bears southwest of Sidgreaves Lane.

An initial priority junction design is overcapacity when running a sensitivity test for demand associated with 500 parking spaces. As an uncontrolled junction with capacity for fewer numbers of vehicles, this will require the link to be widened to provide ghost island hatch markings and a deceleration lane with right turn reservoir on the eastbound approach. A demand for a larger number of vehicles may require signal control and additional width for that infrastructure.

A roundabout will be able to handle the demand for the proposed 500 parking spaces at this junction. This will be subject to discussion with PWD team to agree on changing the arrangement for junction provision west of Cottam Link road.

The verticality of the alignment is induced to 6% as soon as possible to climb to the appropriate plateau height to bridge over the canal.

The finished road height is dictated by the levels of provision required by the CRT under the structure plus the construction build-up of the bridge deck and road construction.

The 6% is the maximum acceptable gradient in the DMRB, although is not favourable or advised for long section non-motorised users such as cyclists.

The hog curvature i.e. the crest arc is the minimum curvature applicable to achieve the minimum stopping sight distances for the design speed of the road of 30mph.

The alignment crosses the canal with a straight and perpendicular.

The perpendicular arrangement over the canal is to reduce the effective span of the structure. It also improves constructability because the structure can be built with straight elements.

The alignment then heads south with a vertical gradient of 6% to return to existing ground level.

### **Generally**

The alignment is circa 270m long because of the straight nature and the ground is generally higher in this area south of the canal. The alignment can tie back in to Sidgreaves Lane, which provides the opportunity for it to replace the existing bridge as the main vehicular route, whilst retaining it for NMU's. This will be the preferred option.

#### 2.2.4 Option 4 (ROUTE D)

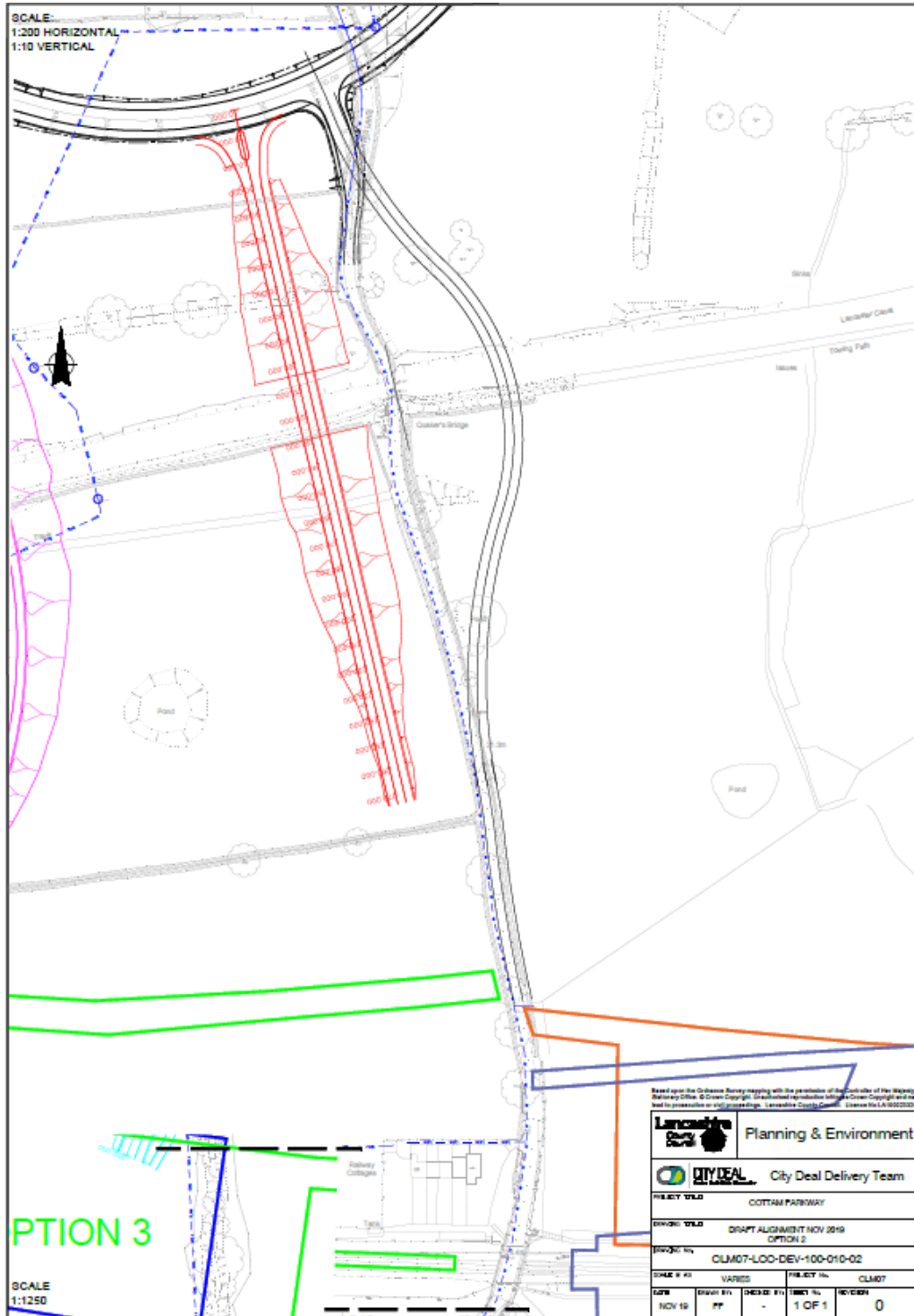


Figure 2-4 : alignment for option 4 (Route D)

Unable to fully assess as not enough topographical information held for vertical alignment

Known Bat roost present based on previous surveys present in this location therefore ruled out due to ecological impacts.





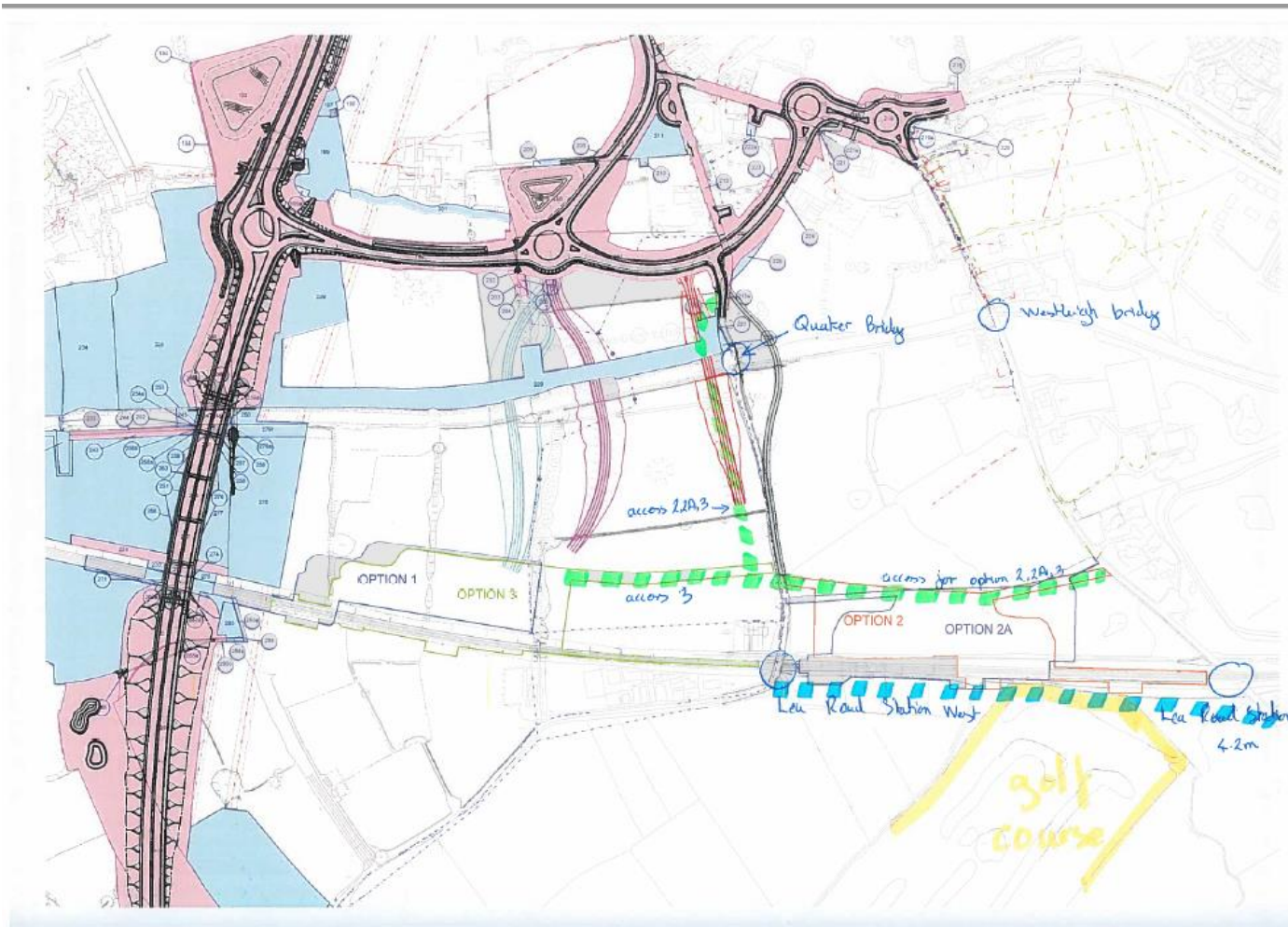


Figure 2-5: Access for various options whilst PWD is under construction



### **3 Construction access**

This provides access to various options whilst PWD under construction

#### **3.1 Station Siting Option 1**

As the station for this option is constructed within the PWD site boundary and under the Lea Viaduct, there is no possibility to construct this until the PWD site is completed. The viaduct has a 3 year build programme which finishes early 2023.

There is also a fundamental issue with this option, the southern (westbound track) platform would be built in the space currently used as a track to provide a connection for the farmer to access fields on either side of the PWD, the platform would sever this and there is no sensible alternative for the farmer to use.

##### *Access to construct*

As the Lea viaduct is not completed until January 2023, access through the PWD site would not be possible. As construction of the platforms would also be delayed until the same time alternative access arrangements have not been considered.

#### **3.2 Station Siting Option 3**

The completed footprint of this station does not affect any of the PWD site. However, the temporary land required could overlap the area used for soil storage on the PWD site.

##### *Access to Construct*

To build the station and access road we need to have construction access to the north and south banks of the canal and the north and south side of the railway.

##### *North of canal*

Cottam Link road severs Sidgreaves Lane but the PWD construction site must take measures whilst constructing for access to be maintained for properties on Sidgreaves Lane. It is possible to use the same measures for getting access north of the canal. However, the temporary land for the PWD extends along the canal bank and the new access road bridge needs to cross this. There may be issues with CDM regulations to comply with if this option is taken forward.



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#### *South of the canal/North of railway*

The issue here is Quaker canal bridge on Sidgreaves Lane which is narrow hump bridge on a bend and it is unlikely that heavy construction machinery could use this to get south of the canal so an alternative must be found. The alternative shown on the plan is to access via Lea Road. Lea Road crosses the canal from the north and whilst the bridge again is narrow it is not as humped or as narrow as Quaker bridge, from the south the road travels down to the A5058 on a relatively straight alignment, there is a low bridge at 4.2m but any plant over this height can reach the site from the North.

#### *South of railway*

The bridge over the railway on Sidgreaves Lane has recently been upgraded as part of the Blackpool rail line electrification. It has no weight restriction and should be capable of taking any of the construction traffic likely to use it; there may be some temporary alteration to the road alignment immediately south of the bridge if long vehicles need to access the site. The temporary access from Lea road would be used to access this bridge.

### **3.3 Station Siting Option 2**

The completed footprint or any additional temporary requirement of this site does not affect the PWD in any way.

#### *Access to construct*

To build the station and access road we need to have construction access to the north and south banks of the canal and the north and south side of the railway.

#### *North of canal*

Cottam Link road severs Sidgreaves Lane but the PWD construction site must take measures whilst constructing for access to be maintained for properties on Sidgreaves, we can use those same measures for getting access north of the canal. However, the temporary land for the PWD extends along the canal bank and the new access road bridge needs to cross this. There may be issues with CDM regulations to comply with if this option is taking forward.



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#### *South of the canal/North of railway*

The issue here is Quaker canal bridge on Sidgreaves Lane is a narrow hump bridge on a bend and it is unlikely that heavy construction machinery could use this to get south of the canal so an alternative must be found. The alternative shown on the plan is to access via Lea Road. Lea Road crosses the canal from the north and whilst the bridge again is narrow, it is not as humped or as narrow as Quaker bridge, from the south the road travels down to the A5058 on a relatively straight alignment, there is a low bridge at 4.2m but any plant over this height can reach the site from the North.

#### *South of railway*

The bridge over the railway on Sidgreaves Lane has recently been upgraded as part of the Blackpool rail line electrification. There are no weight restriction and should be capable of taking any of the construction traffic likely to use it, there may be some temporary alteration to the road alignment immediately south of the bridge if long vehicles need to access the site. The temporary access from Lea road will be used to access this bridge.

An alternative would be to access the south of the railway from Lea Road; this would pass through part of the land used for the adjacent golf course.

### **3.4 Summary**

If building whilst the PWD construction site is active, access to build Cottam Parkway must be from the East and this does appear achievable. It would need agreement with the developer around Option 2 to use their land for access.

All of these are based on verbal advice from the Structures team that Quaker bridge is unsuitable for construction traffic. It is advisable to get structures to check whether this is anecdotal or based on actual conditions of the bridge.

## **4 Conclusion**

All access options need to negotiate the canal and will require either new bridges, and/or modifications to the existing structures if deemed unsuitable, of inadequate strength or of insufficient width. Hybrid access options should not be ruled out, as the existing road network could provide part of a segregated vehicular access and/or provide suitable combined footpath/cycleway access.



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LCC Highways Department have also commented on the suitability of using the existing roads as part of the access route to the station. Both Lea Road and Sidgreaves Lane are also unsuitable principally due to their limited, or lack of footpaths, width and sight lines.

This is not an issue for any options. Station Siting Options 1 and 3 can connect directly with the new roundabout to the north and options 2, 2a and 2b can connect via a new junction to the north. They also have the added advantage that they can have one-way accesses and egresses. This will reduce the bi-directional flow onto the surrounding roads. This has not been assessed at this stage, but it is a possibility and could prove a cost effective solution for a combined foot/cycle/vehicular access system

## **5 Reference**

*<http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol6/section2/td1607.pdf>*

**Appendix B**

**Cottam Parkway Highway Options**

**Outline Landscape & Visual Impacts Assessment**

*Version 1.2 Final*



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# COTTAM PARKWAY – HIGHWAY ALIGNMENT OPTIONS

## Outline Local Level Assessment of Landscape and Visual Effects

Option 1 (Route A) – Cyan coloured route on dwg CLM07-LCC-DEV-100-010-02, 1.pdf

Option 2 (Route B) – Magenta coloured route on dwg CLM07-LCC-DEV-100-010-02, 2.pdf

Option 3 (Route C) – Red coloured route on dwg CLM07-LCC-DEV-100-010-02, 3.pdf

Option 4 (Route D) – Black coloured route on dwg CLM07-LCC-DEV-100-010-02, 3.pdf

LANDSCAPE EFFECTS				
CRITERIA	OPTION 1 (Route A)	OPTION 2 (Route B)	OPTION 3 (Route C)	OPTION 4 (Route D)
LANDSCAPE EFFECTS	Loss of: <ul style="list-style-type: none"> <li>pasture grassland</li> <li>16 trees</li> <li>hedgerow adjacent to Lancaster Canal</li> <li>hedgerows to the north of Lancaster Canal including most of the substantial mature hedge between the canal and Cottam link Road</li> </ul>	Loss of: <ul style="list-style-type: none"> <li>pasture grassland</li> <li>2 trees</li> <li>hedgerow adjacent to Lancaster Canal</li> <li>hedgerow to the north of Lancaster canal</li> <li>hedgerow to the south of Lancaster Canal</li> </ul>	Loss of: <ul style="list-style-type: none"> <li>pasture grassland</li> <li>2 trees</li> <li>hedgerow adjacent to Lancaster Canal</li> <li>hedgerow to the north of Lancaster canal</li> </ul> Significant change to the setting of the Grade II listed Quaker's bridge	Loss of: <ul style="list-style-type: none"> <li>pasture grassland</li> <li>8 trees</li> <li>hedgerow adjacent to Lancaster Canal</li> <li>hedgerow to the north of Lancaster canal</li> <li>hedgerow to the south of Lancaster Canal</li> </ul> Significant change to the setting of the Grade II listed Quaker's bridge
LANDSCAPE SUSCEPTIBILITY	Medium	Medium	Medium	Medium
LANDSCAPE VALUE	Medium	Medium	Medium	Medium
LANDSCAPE SENSITIVITY	Moderate	Moderate	Moderate	Moderate
MAGNITUDE OF LANDSCAPE EFFECT Construction Period	Large Adverse	Moderate Adverse	Moderate Adverse	Large Adverse
MAGNITUDE OF LANDSCAPE EFFECT Year 15	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse

(assumes mitigation planting would be provided)				
<b>SIGNIFICANCE OF EFFECT</b> (taking account of cumulative effects, principally with the PWD scheme)	Slight adverse	Slight Adverse	Slight adverse	Slight Adverse

## VISUAL EFFECTS

For details of the receptors assessed below reference should be made to *Preston Western Distributor and East West Link Road Environmental Statement, Volume 2: Main Statement* in particular:

- Chapter 5 Landscape and Visual Impact
- Appendix 5.2 Figure 5.4c Visual Receptors

Receptor	Visual Receptors	Sensitivity				Significance of Effect in the Construction period				Significance of Effect in the Opening Year				Significance of Effect in Year 15			
	Option	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>P27</b>	Footpath FP7	M	M	M	M	LA	LA	LA	LA	LA	LA	LA	LA	MA	MA	MA	MA
<b>P38</b>	Lancaster Canal	H	H	H	H	VLA	VLA	VLA	VLA	LA	LA	LA	LA	MA	MA	MA	MA
<b>R58</b>	Earl's Farm off Sidgreave's Lane	M	M	M	M	VLA	LA	LA	LA	VLA	LA	LA	LA	LA	LA	LA	LA
<b>R60</b>	Railway Cottage, Sidgreaves Lane	M	M	M	M	LA	VLA	VLA	LA	LA	VLA	VLA	LA	MA	LA	LA	LA
<b>R61</b>	Clock House Farm, off Cottam Way	M	M	M	M	MA	LA	LA	LA	SA	LA	LA	LA	SA	MA	MA	MA
<b>R64</b>	Nos. 1 – 5 Railway cottages, Sidgreaves Lane (5no)	M	M	M	M	MA	LA	LA	MA	MA	LA	LA	MA	SA	MA	MA	SA

Receptor not Previously Assessed																	
P	PROW no 44	M	M	M	M	MA	MA	LA	LA	MA	MA	LA	LA	SA	SA	SA	MA

SA – slight adverse

M – moderate

H – high

MA – moderate adverse

LA – large adverse

VLA – very large adverse

# **Appendix C**

## **Cottam Parkway Highway Options Environmental Constraints Technical Note**

*Version 1.1 Final*

## Document control sheet

**Project Title:** Cottam Parkway Station

**Document Title:** OAR – Appendix C – Environmental Constraints Technical Note

**Version No:** 1

**Date:** March 2020

**Author:** Niamh O'Sullivan

### Document history and status

	Status	Created By	Checked By	Date comments provided
Version 1	Draft	Niamh O'Sullivan	Richard Askew	13/07/2020
Version 1.1	Final	Niamh O'Sullivan	Richard Askew	25/09/2020

## Criteria that the scheme must meet

- Minimise impact on existing property;
- Minimise impact on proposed development and land use;
- Provide connectivity for sustainable travel infrastructure;
- Minimise impact on existing road network;
- Meet constraints for accommodating third party infrastructure;
- Meet constraints in terms of topography;
- Minimise landscape and visual impact;
- Minimise impact on environmentally designated sites;
- Minimise ecological impact;
- Minimise impact on listed structures and cultural heritage assets;
- Minimise impact on local facilities; and,
- Minimise impact on cultural and recreational facilities

## Road Access Option Appraisal

### Option 1 (Route A)

Criteria considered	Meets constraint	Comment
Existing properties	Yes	No existing properties requires demolition.
Proposed development and land use	No	The existing land use – farm business could be extinguished due to landtake. PCC site selection area for future mixed housing and employment (CLCFS00241). The embankment required for this access road would sterilise this land for housing/employment.
Connectivity for sustainable travel infrastructure	Yes	There will be a cycletrack along the access road connecting to the proposed cycletrack on Cottam Link Road
Existing road network	Yes	Will connect into the proposed Cottam Link Road (Sidgreaves Roundabout)
Meet constraints in terms of topography	No	The topography in this area leads to large embankment for the access road.
Landscape and visual impact		<i>See Outline Landscape and Visual Impact Report</i>



Environmental designation sites	No	This route considers the location of environmental designated sites however there would be a negative impact on Lancaster canal is a designated biological heritage site. A bridge will cross the canal.
Ecological impact	Yes	A moderate bat roost tree is 20m from the alignment Near (100m) a pond that contained toad larvae in 2018. There are breeding and wintering birds in the area.
Listed structures and cultural heritage assets	Yes	Stone-built syphon taking ditch water under Lancaster Canal. (asset 75) may be impacted by the embankment. The roman road could be in this location along the Lancaster canal. The redirected ditch will go through relict field boundary (asset 143) running on an east/west alignment in field just north of canal.
Local facilities	Yes	Will not affect any local facility
Cultural and recreational facilities	Yes	Will not affect any cultural and recreational facilities

### **Option 2 (Route B)**

<b>Criteria considered</b>	<b>Meets constraint</b>	<b>Comment</b>
Existing properties	Yes	No existing properties requires demolition.
Proposed development and land use	No	The existing land use – farm business could be extinguished due to landtake. PCC site selection area for future mixed housing and employment (CLCFS00241). The embankment required for this access road would sterilise this land for housing/employment.
Connectivity for sustainable travel infrastructure	Yes	There will be a cycletrack along the access road connecting to the proposed cycletrack on Cottam Link Road
Existing road network	Yes	Will connect into the proposed Cottam Link Road (Sidgreaves Roundabout)

Meet constraints in terms of topography	No	The topography in this area leads to large embankment for the access road
Landscape and visual impact		<i>See Outline Landscape and Visual Impact Report</i>
Environmental designation sites	No	This route considers the location of environmental designated sites however there would be a negative impact on Lancaster canal is a designated biological heritage site. A bridge will cross the canal
Ecological impact	Yes	Near (100m) a pond that contained toad larvae in 2018. There are breeding and wintering birds in the area.
Listed structures and cultural heritage assets	Yes	The roman road could be in this location along the Lancaster canal. The alignment will go through relict field boundary (asset 143) running on an east/west alignment in field just north of canal.
Local facilities	Yes	Will not affect any local facility
Cultural and recreational facilities	Yes	Will not affect any cultural and recreational facilities

### **Option 3 (Route C)**

<b>Criteria considered</b>	<b>Meets constraint</b>	<b>Comment</b>
Existing properties	Yes	No existing properties requires demolition.
Proposed development and land use	No	The existing land use – farm business could be extinguished due to landtake but is as far to the east as possible. PCC site selection area for future mixed housing and employment (CLCFS00241)..
Connectivity for sustainable travel infrastructure	Yes	There will be a cycletrack along Darkinson Lane connecting to the proposed cycletrack on Cottam Link Road
Existing road network	Yes	Will connect into the proposed Cottam Link Road.
Meet constraints in terms of topography	No	The topography in this area reduces the embankment for the access road compared to option 1 and 2.

Landscape and visual impact		<i>See Outline Landscape and Visual Impact Report</i>
Environmental designation sites	Yes	This route considers the location of environmental designated sites however there would be a negative impact on Lancaster canal is a designated biological heritage site. A bridge will cross the canal
Ecological impact	Yes	A moderate category bat roost tree is 20m from the alignment There are breeding and wintering birds in the area. Water vole evidence near Quaker bridge.
Listed structures and cultural heritage assets	Yes	The roman road could be in this location along the Lancaster canal. The alignment will go through relict field boundary (asset 143) running on an east/west alignment in field just north of canal. The alignment will be near to Quaker Bridge which is a listed building.
Local facilities	Yes	Will not affect any local facility
Cultural and recreational facilities	Yes	Will not affect any cultural and recreational facilities

#### **Option 4 (Route D)**

<b>Criteria considered</b>	<b>Meets constraint</b>	<b>Comment</b>
Existing properties	Yes	No existing properties requires demolition.
Proposed development and land use	No	PCC site selection area for future mixed housing and employment (CLCFS00241). Also in PCC site allocation area for future housing on a site that overlaps with CLCFS00241
Connectivity for sustainable travel infrastructure	Yes	There will be a cycletrack along Darkinson Lane connecting to the proposed cycletrack on Cottam Link Road
Existing road network	Yes	Will connect into the proposed Cottam Link Road.
Meet constraints in terms of topography	No	The topography in this area reduces the embankment for the access road compared to option 1 and 2.

Landscape and visual impact		<i>See Outline Landscape and Visual Impact Report</i>
Environmental designation sites	Yes	This route considers the location of environmental designated sites however there would be a negative impact on Lancaster canal is a designated biological heritage site. A bridge will cross the canal
Ecological impact	No	Two low category bat roost trees would need to be removed due to alignment There are breeding and wintering birds in the area. Water vole evidence near Quaker bridge. Alignment would go through pond, although in 2018 there were no GCN in this pond.
Listed structures and cultural heritage assets	Yes	The roman road could be in this location along the Lancaster canal. The alignment will be near to Quaker Bridge which is a listed building.
Local facilities	Yes	Will not affect any local facility
Cultural and recreational facilities	Yes	Will not affect any cultural and recreational facilities

# **Appendix D**

## **Cottam Parkway Bridge Options Technical Note**

*Version 1.0 Final*

# Document control sheet

**Project Title:** Cottam Parkway Station

**Document Title:** OAR – Appendix D – Bridge Options Technical Note

**Version No:** 1

**Date:** March 2020

**Author:** David Bevan

## Document history and status

	Status	Created By	Checked By	Date comments provided
Version 1	Draft	David Bevan	Richard Askew	N/A
Version 1	Final	David Bevan	Richard Askew	N/A

## 1. Background

- Access is required across the Lancaster Canal to link the proposed Cottam Parkway station to Cottam Link Road off the new PWD road.
- The existing Quaker Canal Bridge (no. 837) at this location is not a viable solution. The bridge is a single span masonry arch bridge. Clearance between parapets is only 2.8m. The bridge is owned by the Canal and Rivers Trust and is Grade II listed. Due to its listed status, it is not possible to modify the bridge to provide the required access to the station.
- It has been assumed that the access road will be located to the west of Sidgreaves Lane.
- The canal is on embankment where the bridge is proposed to cross the canal.
- Minimum clearance over the canal is 3.5m and 2.7m over the towpath.
- The distance between the proposed station location and Cottam link road is fairly short. The minimum soffit height over the canal is significantly higher than existing ground level due to the canal being on embankment. Even allowing for maximum highway gradients on approach to the bridge, there is a limited envelope for the bridge to fit into.
- CRT are more likely to accept a design that compliments the canal and towpath.
- There are farm access tracks parallel to the canal on both sides. It has been assumed that these tracks are to be maintained.
- There is a sewer within the site. Depending on the highway alignment, the sewer may need diverting.
- Construction access has not been considered specifically for each option below as it is considered to be an issue generally for the scheme. Access for construction plant and materials to the field south of the canal will be required for both the access road and the station and this is not likely to be possible using the highway network.

## 2. Options

### Option 1 (Preferred)

3 span precast concrete arch with reinforced concrete abutments and piers. The spandrel walls and parapets will be brick clad. The main centre arch will span the canal whilst the 2 smaller side arches will span the farm access tracks.

### **Advantages**

- Aesthetically pleasing structural form.
- 3 span structure requires shallower construction depth for the deck over a single span structure, to fit within the limited construction envelope.
- Intermediate piers set back from edge of canal and towpath to maintain pleasant environment along canal.
- 3 span structure reduces extent of embankment required.
- Limited maintenance throughout structure life.
- Use of precast elements over the canal is simpler and reduces risk of polluting watercourse. This form of construction will have a lesser impact on the operation of the canal.

## **Disadvantages**

- Achieving the clearance through the farm accommodation spans using an arch structure will lower the invert level and as a result require additional embankment or retaining wall on the farm track approaches to the bridge. This is because the invert of these spans will be lower than the existing ground level.

## **Option 2**

3 span pre-stressed beam with reinforced concrete deck supported on reinforced concrete piers located between the canal and farm tracks.

## **Advantages**

- Use of precast elements over the canal is simpler and reduces risk of polluting watercourse. This form of construction will have a lesser impact on the operation of the canal.
- 3 span structure reduces extent of embankment required.
- 3 span structure requires shallower construction depth for the deck over a single span structure, to fit within the limited construction envelope.

## **Disadvantages**

- More enclosed around canal without intentionally increasing the central span length for the purpose of improving the canal environment.
- The bridge will be visible from the surrounding area and this form of construction will not blend sympathetically with the local environment.

## **Option 3**

Single span reinforced concrete, pre-stressed beam bridge over the canal with pre-cast concrete box culverts either side to maintain the farm access tracks.

## **Advantages**

- Function over design. This arrangement will not be aesthetically pleasing but will span the canal and tracks as required.
- The use of box culverts should reduce overall construction time.

## **Disadvantages**

- More enclosed around canal without intentionally increasing the central span length for the purpose of improving the canal environment.

## **Option 4**

Steel Girder Bridge with reinforced concrete deck slab. Single or multi-span depending on steel girder size required for the span and allowable construction depth of bridge. Intermediate supports will reduce overall beam depth.

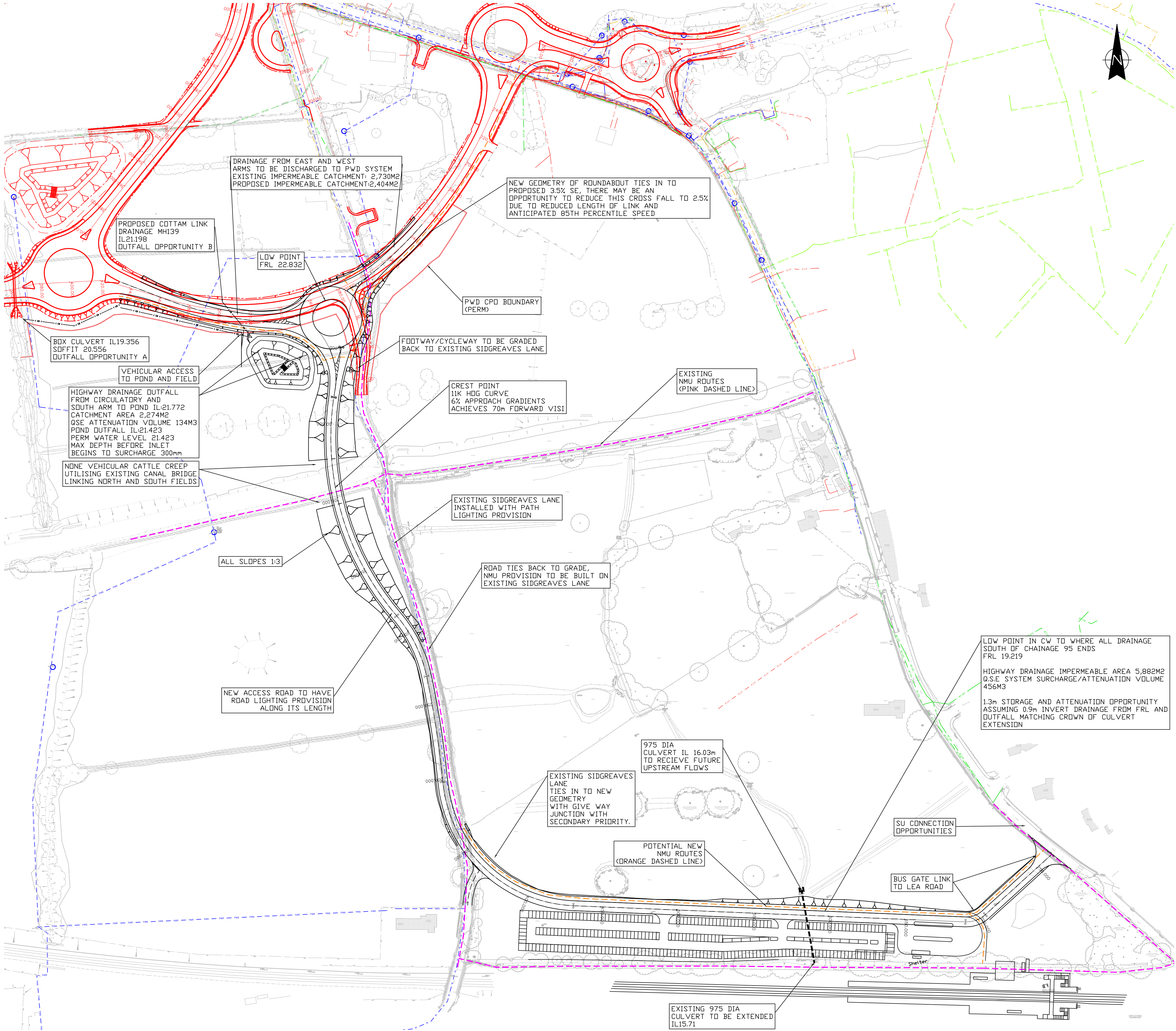
## **Advantages**

- More aesthetically pleasing than concrete pre-stressed beams. Steelwork can also be painted to improve appearance.

## **Disadvantages**

- Regular maintenance required e.g. painting appx every 20 years. Maintenance work over the canal can be costly and difficult logistically.





Planning & Environment



City Deal Delivery Team

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DRAWING TITLE: APPENDIX F DESIGN, ACCESS AND DRAINAGE STRATEGY				
DRAWING No. CLM07-LCC-DR-0100-1005				
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