nationalgrid

Visual Impact Provision (VIP) – Peak District (East) Project

JULY 2019

OUTLINE CONSTRUCTION TRAFFIC MANAGEMENT PLAN

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Table of Contents

1 Introduction 1
1.1 Background and Scope 1
1.2 Objectives 2
2 Access strategy 3
2.1 Introduction 3
2.2 Access Strategy 3
2.3 Access Points 3
2.5 PRoW Management 7
2.6 Types of Construction Vehicles 9
2.7 Programme of Works 10
2.8 Site Working Hours 10
2.9 Temporary Road Closures 10
2.10 Management of Trans Pennine Trail Car Park 11
2.11 Public Transport 11
2.12 Abnormal Indivisible Loads (AIL) 11
3 Signing Strategy and core working hours for Traffic Management during Construction 14
3.1 Access Route and Point Signing 14
3.2 Access Track Signing 14
3.3 Temporary Diversion Signing 14
3.4 Signing of Road Works 14
3.5 Construction Traffic Exclusion Areas 14
4 Mitigation Measures 15
4.1 Introduction 15
4.2 HGV Emissions 16
4.3 Highway Condition Surveys 16
4.4 Temporary Traffic Management Procedures (TTM) 16
4.5 Promotional Material/Communications 17
4.6 Emergency Services 17
4.7 Local Residents and Businesses 17
4.8 Planned Engineering Works 17
4.9 Travel Plan 17
4.10 Compliance 18

APPENDICES

Appendix A: Access Points and Public Rights of Way Plan

Appendix B: Access Points Schedule

Appendix C: Altered layout of the Trans Pennine Trail Car Park during Construction

Appendix D: Railway Bridges Structural Assessment

Appendix E: Abnormal Indivisible Load Access Study

1 INTRODUCTION

1.1 Background and Scope

1.1.1 This outline Construction Traffic Management Plan (CTMP) has been produced for the Visual Impact Provision (VIP) Peak District (East) Project (hereafter referred to as the Proposed Project) at Dunford Bridge. This CTMP should be read in conjunction with Chapter 12 (Transport) of the Environmental Assessment Report (EAR). Further information on VIP and the Proposed Project is provided in Chapters 1 (Introduction) and 2 (Project Description) of the Environmental Assessment Report, however for context a summary of the key components of the Proposed Project is provided below:

1.1.2 The undergrounding of the VIP Subsection includes the following main elements that comprise the Proposed Project.

- Removal of the existing Dunford Bridge Sealing End Compound (SEC) to a depth of 1.1m below ground level.
- Removal of the existing VIP Subsection including approximately eight pylons (one of which will be replaced, see replacement tension pylon below) and 2km of OHL.
- Underground Cable 'here on referred to as the Cable Corridor' of approximately 1.8km along the Trans Pennine Trail from the entrance of the Woodhead Tunnel to a proposed new SEC.
- Construction of a new SEC (within Wogden Foot) and replacement tension pylon (with the circuits terminating onto two full tension gantries within the SEC) to connect the Cable Corridor to the remaining existing OHL. A permanent access off the Trans Pennine Trail will be required to the proposed SEC.
- Temporary laydown areas, access tracks (to the pylons to be removed and along the Trans Pennine Trail to the SEC at Wogden Foot) and site offices to facilitate construction activities. Two access tracks will require the temporary widening of a bellmouth.
- Construction and removal of a temporary Trans Pennine Trail diversion for use during the construction phase of the Proposed Project (the diversion will involve the use of two bridges, one being a permanent replacement of an existing bridge over the River Don; the other a temporary bridge to cross over the River Don). The diversion is proposed in farmland immediately north of the River Don.

1.1.3 National Grid is seeking to secure full planning permission by way of a planning application under the Town and Country Planning Act 1990 to Barnsley Metropolitan Borough Council and Peak District National Park Authority for the following developments:

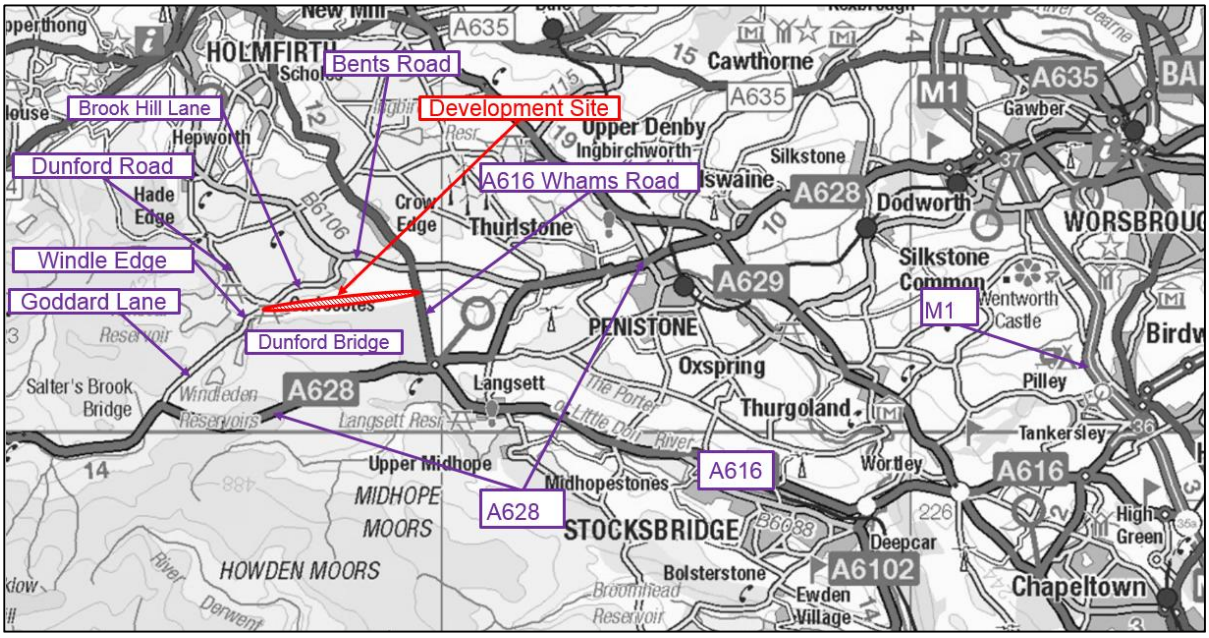
- **Trans Pennine Trail Diversion –** including construction of Permanent Bridge 1 and Temporary Bridge 2, and associated laydown areas.
- **New Sealing End Compound (SEC) -** including associated laydown areas and construction of the permanent access to the SEC.
- **Access Point 7 and Northern Access Road.**

All other works related to the Proposed Project, including that which falls within the Peak District National Park, constitutes ‘Permitted Development’ under Schedule 2 of the Town and Country (General Permitted Development) (England) Order 2015,

subject to the conditions in the order, are covered by an exemption under the Electricity Act or are considered not development as shown on the Consents overview drawing (Planning Drawing PKD_660952_001)

1.1.4 A context map of the application area and its environs is illustrated in Figure 1-1.

Figure 1-1: Context map of the development site



1.1.5 It is intended that the CTMP will be developed further by the Principal Contractor after their appointment should it be required to satisfy any planning condition imposed by Barnsley Metropolitan Borough Council (BMBC).

1.1.6 Following a review of the draft outline CTMP, in July 2019, the highways team at BMBC have confirmed that the report is generally acceptable. The suggestions made by the highways team have been incorporated within this report

1.2 Objectives

1.2.1 This CTMP details the measures to be implemented to manage temporary traffic generated during the construction phase of the Proposed Project. and minimise the impact of construction traffic on existing users of the public highway network. The objectives of the CTMP are outlined below.

- To ensure that the movement of people and materials are achieved in a safe, efficient, timely and sustainable manner;
- To keep construction traffic to a minimum during network peaks to reduce the impact on the highway network during busy periods;
- To ensure that the impact and disruption to the local communities and visitors is minimised;
- To minimise construction trips where possible;
- To ensure the continued monitoring, review and subsequent improvement of the CTMP and measures contained herein;
- To limit the impacts on the Strategic Road Network (SRN) and Local Road Network (LRN); and
- Limit the impacts on the natural and built environment.

2 ACCESS STRATEGY

2.1 Introduction

2.1.1 To provide safe and responsible construction access to the Proposed Project and to help achieve the objectives of this CTMP, the following principles have been used to draw up a suitable access strategy:

- Use the shortest route from the Proposed Project to the LRN, primary and SRN;
- As far as possible, reduce the construction traffic impact on settlements, farmsteads and sensitive receptors;
- Minimise travel on the LRN and maximise use of the haul roads and temporary access roads; and
- Use road sections with good forward visibility, adequate width and suitable gradient.

2.2 Access Strategy

2.2.1 The A628, Goddard Lane, Windle Edge and Brook Hill Lane together will serve as the main access route to all Access Points. All Heavy Goods Vehicles (HGV) and Light Good Vehicles (LGV), including cars, would access the Proposed Project via the A628 and Goddard Lane/Windle Edge. Emergency access will be taken via the access roads identified in this CTMP (Table 2-1), in the unlikely event of an incident. This routing strategy is shown on drawing PDD-33492-LAY-072 included at Appendix A. Further details of the access tracks are provided in a suite of drawings, the references to which are contained within PDD-33492-LAY-072. Appendix A also contains PDD-33492-LAY-032, which provides the details of the proposed Trans Pennine Trail construction.

2.2.2 The routing strategy principles enshrined within this CTMP are likely to be the subject of a planning condition and will therefore be discharged to comply with the statutory requirement. Any changes to the proposed routing strategy would be agreed in consultation with the local highway authority prior to its implementation

2.3 Access Points

2.3.1 For ease of reference, the bellmouth locations on the LRN, primary or SRN from where an access is taken to the Proposed Project have been designated as Access Points (AP). Where access roads meet the public highways, access points will be created unless they are already present, and in such cases, they will be enhanced.

2.3.2 To create a suitable AP off the LRN, existing accesses from public highways would be widened, if needed, to allow the longest construction vehicle (12m to 16.4m in length) to exit/enter the highway safely and without causing an obstruction to other road users. It is likely that APs would be gated and access during the works may be controlled by on-site security. Each AP would be individually designed to meet local conditions and this may involve the removal of topsoil/subsoil and possibly removal (or height reduction/ laying of vegetation) and/or existing boundary fences and gates.

2.3.3 The AP references and the proposed routing strategy from each AP to the nearest point on the SRN are detailed in Table 2-1. All APs identified in Table 2-1, except AP6 and AP7, are existing. The highway geometric requirements for the new temporary APs, and the need for upgrading the existing APs, to enable construction traffic to safely enter and exit the site, is covered in a separate access point schedule included in Appendix B, and in drawing numbers PDD-33492-LAY-027 to PDD-33492-LAY-030, also included at Appendix B.

2.3.4 APs where the visibility is sub-standard and could not be brought up to the required standard, due to site constraints, have been identified within the access point schedule. In such cases, it is proposed that the AP will be manned by a suitably qualified banksman (e.g. LANTRA accredited), to ensure that all vehicles can access the Proposed Project in an adequate, safe and orderly manner without detriment to the public highway.

2.3.5 Access points AP6 and AP7 currently have single gates to enter the respective sites. The width of these access points needs to be increased to allow for double gates to be installed and to enable vehicles to enter and leave the sites in a safe manner. These gates will also need to be set back from the highway to allow vehicles to turn off the highway and park in the area prior to opening the gates and gaining access to the sites. It is worth noting that AP7 will be temporary access point, which will be returned to its current layout at the end of the construction period.

2.3.6 Barnsley council's highway department advised that a temporary speed restriction and signals would be required during road works, that a Section 171 licence would be required for the bellmouth widening at AP7 along with a road condition survey 100m either side of the proposed access.

Table 2-1 Access Point references and Proposed Routing Strategy

Access Point reference	Location of Proposed Access Point	Proposed Routing Strategy from the SRN
AP1	Access Point reference not used	
AP2	Windle Edge junction with an unnamed farmer's track. AP2 is on the eastern side of Windle Edge.	A628 – Goddard Lane – Windle Edge
AP3	Windle Edge junction with the private access track to the Dunford Bridge SEC. AP3 is on the western side of Windle Edge.	A628 – Goddard Lane – Windle Edge
AP4	Windle Edge junction with the pedestrian/ cyclist only access to the Trans Pennine Trail, skirting the northern perimeter wall of the Stanhope Hotel. AP4 is on the eastern side of Windle Edge.	A628 – Goddard Lane – Windle Edge
AP5	Windle Edge junction with the Trans Pennine Trail users' car park. AP5 is on the eastern side of Windle Edge	A628 – Goddard Lane – Windle Edge
AP6	Brook Hill Lane east of Dunford Road. AP6 is on the southern side of Brook Hill Lane.	A628 – Goddard Lane – Windle Edge – Brook Hill Lane
AP7	Brook Hill Lane, on the right-hand bend, to the north of the farmstead, and approximately 650m to the east of Dunford Bridge	A628 – Goddard Lane – Windle Edge – Brook Hill Lane

2.3.7 Passing places will be provided at suitable intervals, along the access tracks as well as the Trans Pennine Trail diversion, and would very much depend on the topography of the location in terms of width of the access track as well as the forward visibility. The exception to this would be a location along the alignment of the Trans Pennine Trail diversion route (accessed via AP5), to the east of the existing timber bridge near the water treatment plant, where a vehicle actuated signalised traffic control system will be in place due to topographical constraints. This is to enable Yorkshire Water service vehicles to safely enter and exit their site and monitoring station along the Trans Pennine Trail diversion route.

2.4 Public Rights of Way - Temporary Public Rights of Way Conflicts

2.4.1 Public rights of way (PRoW) i.e. public footpaths, bridleways or restricted byways are highways protected by law. To divert a PRoW (in this case the affected stretch of the Trans Pennine Trail), a Traffic Regulation Order (TRO) will need to be requested from Barnsley Metropolitan Borough Council. Barnsley Metropolitan Borough Council only has powers to make a TRO for 6 months and hence an application to the secretary of state to request an extension will be required to fulfil the requirements of the construction programme and allow site works to be carried out safely.

2.4.2 Impact of the temporary access tracks on existing PRoWs within the defined Study Area used in the Traffic Assessment is illustrated in drawing PDD-33492-LAY-072, which is included at Appendix A.

2.4.3 Temporary diversions, closures or managed crossings will be required where the Proposed Project affects a PRoW. Table 2-2 below outlines PRoWs affected by the Proposed Project, and the likely durations, with respect to the locations identified in drawing PDD-33492-LAY-072 (Appendix A).

Table 2-2: Summary of PRoW conflicts

Map Ref:	PRoW Ref	PRoW Conflict	Works Location	Durations
1	25	The section of Trans Pennine Trail	Cable Corridor, proposed SEC, Pylon 4ZO158, 4ZO154, 4ZO162	Temporary diversion (purpose built) throughout the duration of works
2	26	Footpath passing through the Trans Pennine Trail Car Park, which ties into the Trans Pennine Trail alignment	Cable Corridor, proposed SEC, Pylon 4ZO158, 4ZO154	Temporary diversion throughout the duration of works
3	11	Bridleway crossing the proposed haul road via AP7	SEC, Trans Pennine Trail diversion, Pylons 4ZO157R, 4ZO156, 4ZO155	Managed crossing for the duration of the project
4	n/a	Trans Pennine Trail diversion coincident with the access track	SEC, Trans Pennine Trail diversion, Pylons 4ZO157R, 4ZO156, 4ZO155	Managed crossing for 12 – 18 months

2.5 PRoW Management

2.5.1 PRoW will be managed during construction of the Proposed Project. Drawing PDD-33492-LAY-072 in Appendix A identifies the locations where there is a conflict between the Proposed Project and a PRoW. These include:

- **Temporary Trans Pennine Trail diversion** (Location 1 in PDD-33492-LAY-072) – The section of Trans Pennine Trail affected comprises the footpath forming the pedestrian and cyclist access into the Trans Pennine Trail, bordering the northern perimeter wall of Stanhope Hotel (official route into the Trans Pennine Trail), and Wogden Foot which would be used by the construction traffic.

  During construction of the Proposed Project, the Trans Pennine Trail will be diverted for approximately 12-18 months along a temporary route north of the River Don to allow for the installation of the Cable Corridor along the existing route of the Trans Pennine Trail. The temporary route will be taken via the existing Trans Pennine Trail car park before following an existing farmers track

which will be upgraded to make it suitable for construction traffic prior to it being used by users of the Trans Pennine Trail diversion.

A Trans Pennine Trail Management Plan has been prepared and is provided as Appendix 2B.6 of the CEMP. The Trans Pennine Trail Management Plan details how users of the Trans Pennine Trail will be managed and co-ordinated with construction activities (see Figure 2.1 of the Environmental Assessment Report for the proposed Trans Pennine Trail diversion and Figure 2.4 for the temporary diversion construction detail).

The proposed Trans Pennine Trail diversion will leave the existing Trans Pennine Trail to the east of the car park at Dunford Bridge and follow the route of an existing farm track, crossing onto the northern side of the River Don across a proposed new permanent bridge and following the course of the river across the fields. The diversion will then cross back to the southern bank over a newly constructed temporary bridge from where, the diversion passes east around the proposed SEC before re-joining the existing Trans Pennine Trail route. The existing track will be upgraded to meet the gradient requirements espoused by the Equality Act 2010, as far as possible. As outlined in the Trans Pennine Trail management plan there are two areas (short sections at Wogden Foot and close to the Yorkshire Water compound) where it's not achievable to meet the 1:20 gradient requirements, in these areas handrails will be considered and a resting point with bench will be installed at the Wogden foot location. A resting point at the section close to the Yorkshire Water compound is not possible due to width constraints.

- **Access tracks coincident with PRoW** (Locations 2 and 4 in PDD-33492-LAY-072) – When the temporary Trans Pennine Trail diversion becomes operational, there will be a short section of the Trans Pennine Trail diversion (location 4), near the SEC, including temporary bridge 2, where the Trans Pennine Trail diversion will be shared with the construction vehicles (PDD-33492-LAY-040). The movement of construction traffic along this section will be controlled during this period by means of manned gate/barrier to prevent potential conflict between Trans Pennine Trail users and the construction traffic that will move between the SEC and the north side of the River Don. For most of the time, the access gates will be open to allow the free movement of pedestrians and other users along the diversion. As per discussions with Barnsley Metropolitan Borough Council during upfront stakeholder engagement this is only likely to be in the region of up to 10 HGV movements per day allowed to use this shared section.

  With regards to the footpath passing through the Trans Pennine Trail car park (Location 2), a section of the car park would be fenced off to prevent interaction between users of the Trans Pennine Trail and the construction traffic (PDD-33492-LAY-010). Warning signs will be placed on the approach to the car park access to make HGV drivers aware of the pedestrian and cyclist movements in the area. This footpath will effectively remain open throughout the duration of works

  Managed crossings of temporary access track (Location 3 in PDD-33492-LAY-072) – The bridleway (PRoW 11) to the north of the river crosses the construction access track the access to which is taken from AP7. It would be disproportionately disruptive to close or divert this PRoW for the duration of use of the access track given that the risk to the public is likely to be lower than crossing a public road due to the relatively low traffic volumes and anticipated low

footpath use. As per the advice obtained from Barnsley Metropolitan Borough Council, considering the low usage of PRoW 11, gates will be installed at the conflict point to provide priority to construction vehicles during the prescribed construction working hours. During these hours, the gates will block the PRoW, with signs to warn PRoW users of the danger as well as signs warning drivers of vehicles using the access track of the likely presence of PRoW users crossing. PRoW users crossing the access track will be required to close the gates temporarily preventing vehicles from using the access track while PRoW users are crossing. Outside of the construction working hours the access rights will be reversed with PRoW users having priority over vehicles.

2.6 Types of Construction Vehicles

2.6.1 The type and details of construction vehicles expected to be used for construction of the Proposed Project are outlined in Table 2-3. These are the typical representative vehicles that have been considered in the Traffic impact assessment and in developing the routing strategy for this CTMP.

Table 2-3: Typical Construction Vehicle Classification

Cars/Light Goods Vehicles (LGVs)	Plant	Heavy Goods Vehicles (HGVs)
Car	Excavator	40 tonne artic (5 axles or more)
Van (gross vehicle weight 3.5 tonnes or less)	Rollers	32 tonne rigid tipper (4 axles)
4x4 pick-up	Winch tractor	18 tonne flat-bed (2 axles)
4x4 transit	Tractor and trailer	7.5 tonne flatbed (2 axles)
Minibus		Concrete Mixers
Welfare Van		Mobile Crane
		Van (gross vehicle weight greater than 3.5 tonnes)
		Flatbed truck carrying pile driving rig with overall weight in excess of 40 tonne
		Flatbed truck carrying cable drums with overall weight in excess of 40 tonne

2.6.2 The two railway bridges on Windle Edge[1] at Dunford Bridge have been subject to a load bearing assessment. The assessment reports concluded that the structures had adequate capacity for 40/44 tonne Assessment Live Loading in accordance with BD21/01 ‘The assessment of highway bridges and structures’, with some limitations. These limitations were: the footway was not assessed on Dunford Railway Bridge 71A

[1] Dunford Railway Bridge No.71 and Dunford Railway Bridge No.71A

due to lack of information and the parapets for both bridges were not assessed. In addition, a further assessment has also been undertaken to assess the suitability of these bridges to carry Abnormal Indivisible Loads (AILs). The assessment has been confined to 4-axle and 5-axle low bed trucks, with specific dimensions and axle weights, carrying a cable drum. The two bridges were assessed to have adequate capacity for the AILs, provided a number of specific conditions are met. Details of the assessment and the conditions are set out within the report titled Abnormal Loads Assessment – Dunford Railway Bridges No.71 and 71A, which is included at Appendix D.

2.7 Programme of Works

2.7.1 As per the current indicative programme, assuming planning consent, on site construction activities would commence in June 2020 and last for a duration of between 1.5- 2.5 years until commissioning and reinstatement is complete.

2.7.2 Completion of pylon removal, reinstatement and demobilisation is estimated to take 8 months including a winter shut down period. Removal of the existing Pylon infrastructure (the VIP subsection) will take place in the period from commencement of the outages to the commission of the new cables and construction of the new SEC. The Trans Pennine Trail diversion will be used to facilitate OHL removal and therefore will remain in situ until the completion of the OHL removal works.

2.8 Site Working Hours

2.8.1 In accordance with the indicative programme of work, the hours of site work are proposed to be:

- Monday to Friday 0700 until 1900.
- Saturday and Sunday 0800 until 1700.

2.8.2 It is worth noting that permitted working hours have yet to be agreed by Barnsley Metropolitan Borough Council and will be confirmed following their review of the planning submission in summer 2019.

2.8.3 Except in the case of emergency, any work required to be undertaken outside of agreed core hours (not including repairs or maintenance) will be further agreed with Barnsley Metropolitan Borough Council prior to undertaking the works. Any proposed changes to the core working hours set out above will be discussed and agreed with the LPA.

2.9 Temporary Road Closures

2.9.1 Approximately four temporary closures are expected to be required for the Proposed Project with each closure lasting around 5-10 minutes to enable the conductors to be lowered to the ground. The conductors once lowered will be cut and then removed from site during the works. The individual closures would be carried out over a duration of 1-2 days. Considering the gradient difference between the eastern and western banks of the Windle Edge, where the OHL spans between 164A and 163, netting and scaffolding may be unviable at this location. This is the only location where a public highway would be affected by the removal of OHL.

2.9.2 Windle Edge is a lightly trafficked road with less than 450 two-way movements over a 12-hour period between 07:00-19:00 during the summer holiday period. No significant disruption or delays are therefore anticipated whilst this stop-go arrangement is in place.

2.9.3 The exact date and timing, as well as the traffic management procedures for the proposed road closure, will be agreed in advance with the Highways officer at Barnsley Metropolitan Borough Council.

2.10 Management of Trans Pennine Trail Car Park

2.10.1 The Trans Pennine Trail car park at Dunford Bridge (AP5) would serve as the main access point into the Proposed Project. It is, however, proposed to keep part of the car park open by separating the parking spaces from the construction access by means of a temporary fence, as shown in the drawing PDD-33492-LAY-10, included at Appendix C. The temporary fence would allow users of the car park to park their vehicles and proceed to the Trans Pennine Trail diversion, on foot, without having to interact with construction traffic.

2.10.2 The proposed design of the car park has been optimised in terms of balancing car parking demand against other demands for construction activities within the site. The proposed layout could accommodate 18 parking spaces including one disabled space. Provision for two horse box parking spaces has also been included within the proposed car park layout, abutting the proposed construction separation fence.

2.10.3 A swept path analysis has been undertaken to ensure that horse boxes that currently use the Trans Pennine Trail car park would be able to safely enter and exit the car park within the altered car park layout (drawing PDD-33492-LAY-10, included at Appendix C).

2.11 Public Transport

2.11.1 The requirement for bus stop relocation is not envisaged as part of the construction works. A swept path analysis has been undertaken to ensure that single decker buses that currently serve the Trans Pennine Trail car park would be able to safely enter and exit the car park in forward gear, within the car park layout (drawing PDD-33492-LAY-10, included at Appendix C).

2.12 Abnormal Indivisible Loads (AIL)

2.12.1 Approximately 6 Abnormal Indivisible Load (AIL) movements per month are anticipated on the Proposed Project during the cable installation phase, to transport the cable drums. An ‘Abnormal Indivisible Load Access Study’ detailing the route strategy for AILs has been prepared and is included at Appendix E of this report. The following paragraphs summarise the key points highlighted in the report.

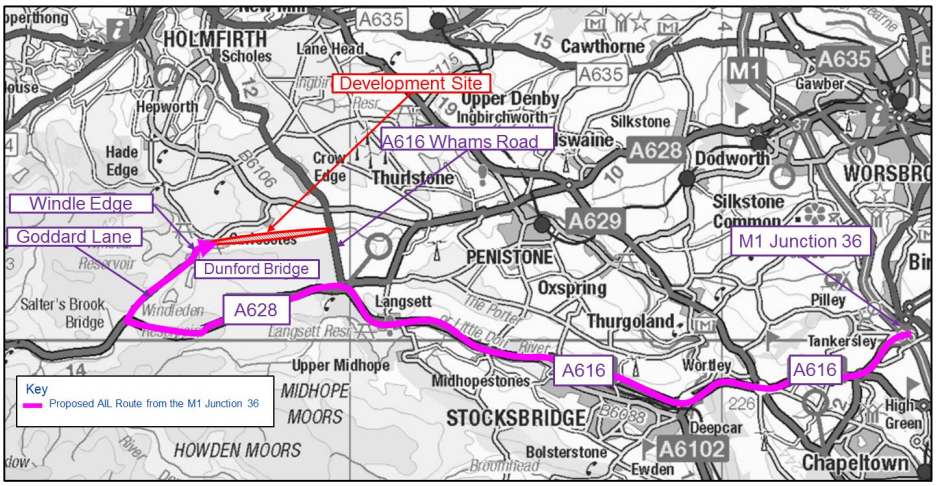
2.12.2 Due to the overall transport weight of the loads being considered (plus carrying trailer) being between 80 tonne and 150 tonne gross weight, the load will be moved under Special Types General Order (STGO) Category 3 legislation, but will not require a Special Order from Highways England.

2.12.3 These STGO Category 3 loads are expected to be delivered by road from a UK port of delivery. Ports on the eastern coast could potentially include Hull, Immingham or

Goole, whereas Liverpool and Avonmouth are potential contenders for delivery from the west. The preferred port of delivery is currently unknown and would only be finalised in the subsequent stages of the project. However, the AIL Access Report asserts that there are no significant negotiability limitations to egress from these ports, since they are regularly used by AILs delivered into the UK at STGO and also Special-Order category. Regardless of the port of delivery, the routeing will be via the major UK motorway and A-road network to junction 36 of the M1. A route from the west would see the AILs travelling east over the M62 and then south on the M1. This is due to the unsuitability of Woodhead Pass for the transport of AILs. The AIL route considered therefore focuses on the potential routes from the junction 36 of M1 to the site.

2.12.4 The preferred route from junction 36 of the M1 will consist of the A616, A628, Goddard Lane/Windle Edge and Trans Pennine Car Park, where the cable drums will be offloaded on to the designated area. The route is depicted in Figure 2-1. It is worth noting that HGVs and AILs are to avoid the route to the Trans Pennine Trail car park via the A616, the B6106 Bents Road and Brook Hill Lane due to poor forward visibility, unsuitable carriageway width and steep gradients.

Figure 2-1: Proposed AIL route from the M1



2.12.5 With regards to negotiating Windle Edge, the South Yorkshire Police have confirmed that the AIL would be permitted to travel along this section under self/private escort, which removes the need to obtain a Temporary Traffic Regulation Order (TTRO). The overall width of 4-axle low bed trailer, carrying the drum, would be 3m. The width of Goddard Lane and Windle Edge varies between 6-7m, along its length. Therefore, full accommodation of Goddard Lane/Windle Edge would not be required whilst the AIL negotiates this section. Additionally, there are several passing places along Goddard Lane, which could potentially be used for temporary layover, if this is required.

2.12.6 A swept path analysis undertaken confirms that the AIL could safely enter the site in reverse gear and exit in forward gear without the need for any access modifications or street furniture removal. This is illustrated in drawing no. 19-970.SPA.01, which is appended to the AIL Access Study report, included at Appendix E. The exact requirements for any street furniture removal would depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements prior to delivery.

2.12.7 The preferred route from junction 36 of the M1 has been structurally cleared by the following structural authorities:

- Highways England Historical Railways Estate
- Network Rail
- Canal and Rivers Trust
- Barnsley Metropolitan Borough Council

2.12.8 At the time of drafting the CTMP, the Highways England Area 12 team have not provided written confirmation that the identified AIL route is acceptable to them. However, the route was cleared by Highways England Area 12, when the AIL report was initially produced in 2016 and, as such, no issues are anticipated. An update will be made available as soon as a response in obtained from Highways England.

3 SIGNING STRATEGY AND CORE WORKING HOURS FOR TRAFFIC MANAGEMENT DURING CONSTRUCTION

3.1 Access Route and Point Signing

3.1.1 Temporary signage will be erected along the proposed construction traffic routes on the LRN to provide access (directional) routing information. These will be placed to ensure that construction vehicles and staff are able to travel directly to the Proposed Project from the SRN. Locations of the temporary signage will be drafted in plan format and approved by the Barnsley Metropolitan Borough Council ahead of installation.

3.1.2 This temporary signage will be provided in the vicinity of the Proposed Project and will provide warning to other road users of the likely presence of construction vehicles. Temporary signage will be produced and agreed with Barnsley Metropolitan Borough Council.

3.1.3 The methodology of installation will be discussed within the access point and haul road construction method statements.

3.2 Access Track Signing

3.2.1 Similar to the above access routes on the public highway, temporary signage will also be erected along temporary construction access tracks where necessary. The signage will provide drivers with information on speed limits and warning (hazard) information relating to potential vehicle conflict areas (cross over points).

3.2.2 Locations of the temporary signage will be drafted in plan format and approved by Barnsley Metropolitan Borough Council ahead of installation.

3.3 Temporary Diversion Signing

3.3.1 In the event that any diversions of traffic along the construction traffic routes are required, temporary signage will be installed by either National Grid and/or Barnsley Metropolitan Borough Council as is standard.

3.4 Signing of Road Works

3.4.1 At this stage, it is not envisaged that road works will need to be carried out on the public highway. However, should this be recommended by the contractor as part of the detailed traffic management proposals, the temporary signing of road works will generally be in accordance with Chapter 8 of the Traffic Sign Regulations and General Directions (TSRGD).

3.5 Construction Traffic Exclusion Areas

3.5.1 All construction vehicles will use only the routes set out in this CTMP. Information on the access routes will be communicated throughout the construction phase to site personnel using site notice boards and staff briefings, including their initial site induction.

4 MITIGATION MEASURES

4.1 Introduction

4.1.1 National Grid will implement a number of mitigation measures as summarised in Table 4-1.

Table 4-1: Management measures

Measure	Extent of Management
Use of defined construction routes	Defined construction traffic routes shall be used, as agreed with the relevant authorities.
Dispersed timings of HGV movements	The timings of HGV movements on the SRN and LRN will be spread across the day to minimise their impacts.
PRoW Management	PRoW will be managed during the construction of the Proposed Project. Drawing PDD-33492-LAY-072, included at Appendix A, outlines the areas of conflict. A Trans Pennine Trail Management Plan has been prepared and is provided as Appendix 2B.6 of the CEMP and details how users of the Trans Pennine Trail will be managed and co-ordinated with construction activities.
Cleaning the public highway of construction related mud	The contractor will determine an appropriate method to reduce the spread of mud onto the public highway for e.g., a wheel cleaning facility or road sweepers.
Highway condition surveys	Highway condition surveys will be undertaken before and after the construction work to establish existing conditions and to rectify defects as appropriate following the construction.
Temporary Traffic Management Procedures (TTM)	TTM will be implemented, where required, to enhance safety conditions on the LRN and mitigate against potential impacts of the construction traffic.
Signing Strategy	A signing strategy will be implemented to provide a) temporary signage along the agreed construction traffic routes from the SRN for construction staff, b) temporary signage along the access tracks containing information on speed limits and hazard warning signs relating to potential vehicle and pedestrian conflict areas (i.e. cross over points) and c) temporary signage for any road closures and diversions required to facilitate the construction works.
Distribution of communication and promotional material	Information packs will be provided to all contractors which will form part of the contractual agreement between the contractors and National Grid.

4.2 HGV Emissions

4.2.1 All vehicles used in the construction of the Proposed Project will be to Euro standard IV class.

4.3 Highway Condition Surveys

4.3.1 Condition surveys will be conducted on the LRN (including access tracks and connections to the LRN) and PRoW. The methodology for undertaking the surveys will be agreed with Barnsley Metropolitan Borough Council prior to being undertaken, if requested.

4.3.2 Mitigation measures would be in place to ensure that the degree of any damage caused by the construction traffic is limited during the works.

4.3.3 The appointed Principal Contractor will agree with the Barnsley Metropolitan Borough Council to carry out a joint inspection to record the before and after condition of the public highway at the access point so that any damage sustained can be repaired to original condition. Alternatively, subject to agreement with Barnsley Metropolitan Borough Council, digital images could be taken with date stamp to detail the condition of the LRN (including access tracks and connections to the LRN) and PRoW prior to commencement of the works.

4.3.4 All architectural features and sign bollards taken down, across the works locations, shall be stored and reinstated at the end of the construction period.

4.4 Temporary Traffic Management Procedures (TTM)

4.4.1 As detailed on the access point schedule (Appendix B), work will be required to improve the existing access points with regards to the visibility and manoeuvrability. The need for suitable TTM would be designed by the appointed contractor in accordance with the Chapter 8 manual during the detailed design stages and agreed with the relevant highways authority, prior to commencement of works. Any TTM proposed would apply to the construction as well as being employed while the Access Points are removed and returned to their original condition. This will include the use of banksmen to assist the egress and ingress of traffic accessing the Access Points as applicable.

4.4.2 The width of AP6 and AP7 needs to be increased to allow for double gates to be installed and to enable vehicles to enter and leave the sites in a safe manner. The gates will also need to be set back from the highway to allow vehicles to turn off the highway and park in the area prior to opening the gates and gaining access to the sites.

4.4.3 Traffic surveys on Windle Edge have revealed that the 85th percentile speed on various sections, on the proposed construction access route, vary between 50kph and 100kph. This translates to an equivalent visibility requirement of 70 to 215m for vehicles emerging from the access points on Goddard Lane/Windle Edge/Brook Hill Lane. A combination of topography and location specific obstacles such as dry-stone walls would mean that the required visibility splay may not be achieved at all access points. In the interest of safety for all users of the LRN, it is recommended that the section of Goddard Lane/Windle Edge/Brook Hill Lane between the access to the Winscar reservoir and access point AP7 is subject to a speed restriction of 20mph . In addition, the section of Goddard Lane/Windle Edge between the A628 and the access to the Winscar reservoir will be subject to a speed restriction of 40mph for the duration of works. The visibility constraints at AP7 have been assessed and it is recommended that the imposed 20mph speed limit on Windle Edge/Brook Hill Lane

is extended to a point 50m east of the proposed AP7, so that the visibility splay to the right complies with the visibility requirements for a 20mph speed limit as set out within the Manual for Streets.

4.4.4 During the pre-application consultation, BMBC have advised that temporary speed restriction and signals would be required during road works, that a Section 171 licence would be required for the bellmouth widening at AP7 along with a road condition survey 100m either side of the proposed access.

4.5 Promotional Material/Communications

4.5.1 Information packs will be provided to all contractors which will form part of the contractual agreement between the Principal Contractor and National Grid. The information pack will contain the details of the following key CTMP requirements:

- Risk Analysis Management Systems (RAMS) guidance;
- HGV restrictions;
- Construction routes;
- Delivery Management Systems (DMS);
- Non-compliance guidance;
- Complaints procedure;
- CTMP protocols and indications required for all contractors including a Code of Good Practice;
- Guidance on standard communication procedures between contractors and site; and,
- CTMP contacts (emergency and non-emergency).

4.6 Emergency Services

4.6.1 The Police, Fire and Ambulance service will be informed of the planned road traffic management, any associated inconveniences and how to avoid them.

4.7 Local Residents and Businesses

4.7.1 Prior to the works, residents and occupiers of land adjoining the works and construction access routes as specified in this CTMP will be informed by National Grid of the plans, including road traffic management, any associated inconveniences and how to avoid them. Local businesses will be approached directly to ensure they are fully informed. Planned and notified community events will also be considered by National Grid when scheduling deliveries.

4.8 Planned Engineering Works

4.8.1 National Grid will work with Barnsley Metropolitan Borough Council highways department to identify any planned engineering works that conflict with the delivery route times for the Proposed Project. Discussions will then be made to minimise disruption to the local community and the planned engineering works.

4.9 Travel Plan

4.9.1 The construction personnel numbers are not expected to exceed one hundred personnel on-site at any one time. In addition, the remote work areas and varied work activities may make it impracticable for construction teams to commute to site other than in a van or LGV. Therefore, it is not considered necessary to produce a travel plan for the Proposed Project.

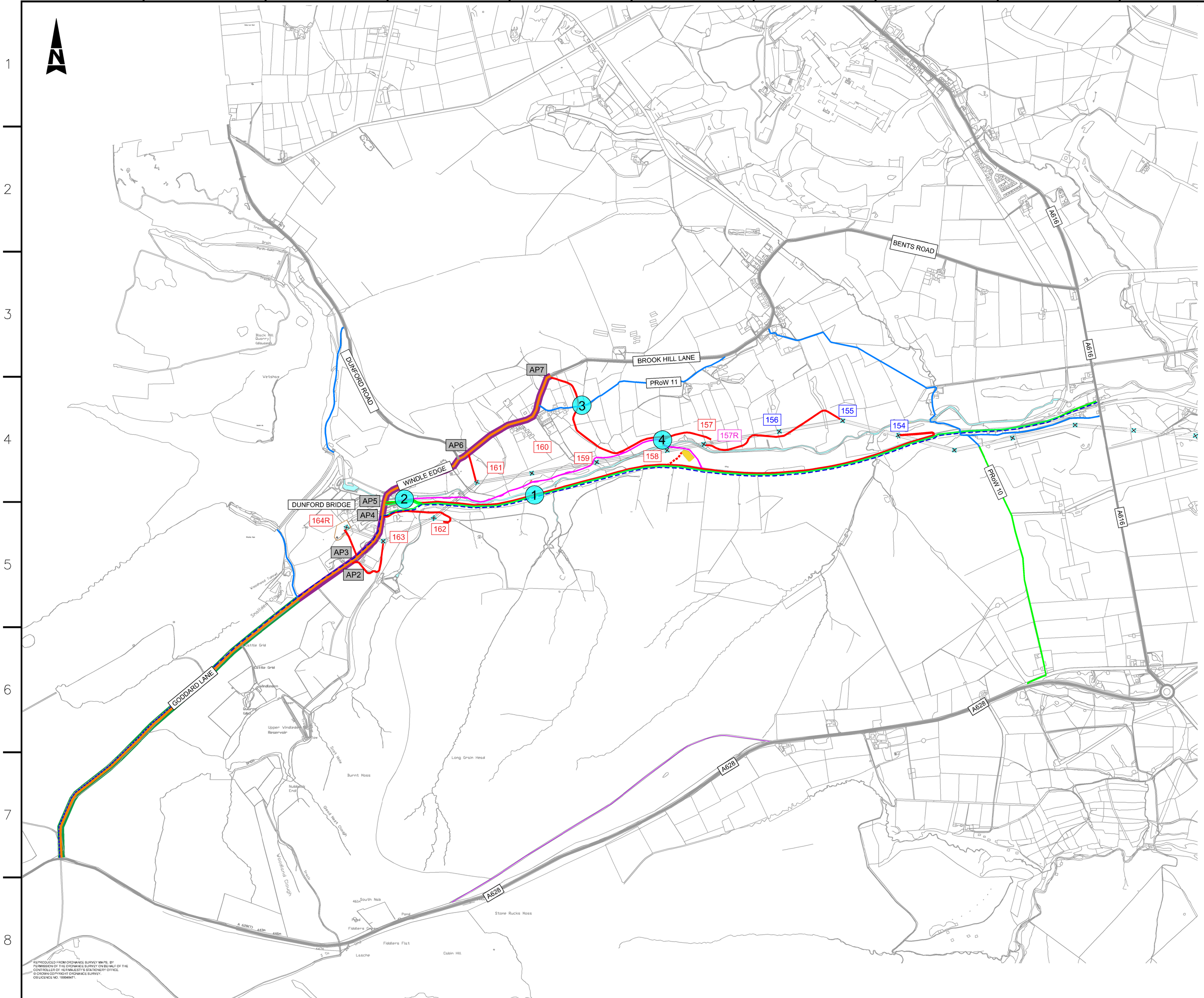
4.9.2 If deemed possible and appropriate, construction teams would be transported to the site from local accommodation or agreed pick-up points in personnel transport vans. These vans will only be parked on site within the defined working areas, and only while construction staff are on site during work hours. Outside of working hours there will be no parking of personnel vans on site.

4.10 Compliance

4.10.1 As part of the CTMP a series of mechanisms will be established to provide all parties with a clear understanding of what enforcement procedures will be applied if the CTMP requirements are not achieved. It is anticipated that the enforcement of the CTMP will include:

- RAMS procedures – Following the award of the contract, the Principal Contractor will implement the Final CTMP and adhere to the requirements and meet the goals through management practices. This will include site inductions for contractors, briefing on the obligations of National Grid standards, induction and adherence to RAMS procedures, DMS briefing, driver inductions and compliance guidance.
- Contractual conditions – to be employed as part of the CTMP compliance methodology and will be built into the contractor's contract, this will be subject to performance review by National Grid; and
- Corrective measures – to be employed if the commitments of the CTMP are breached.

Appendix A – Access Point Location, Access and Public Rights of Way Plan



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NOTES

1. THIS IS A 4.3 DRAWING AND IS FOR DEVELOPMENT PURPOSES ONLY.
2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
3. PUBLIC RIGHTS OF WAY MANAGEMENT IS SHOWN INDICATIVELY AND TO BE AGREED WITH BMBC
4. THE PUBLIC RIGHTS OF WAY DATA CONTAINED WITHIN THIS DRAWING IS PRESENTED FOR INFORMATION ONLY AND REPRESENTS AN INTERPRETATION OF THE DEFINITIVE MAP. THIS IS NOT TO BE REFERRED TO FOR LOCATING, OR THE CURRENT LEGAL STATUS OF PUBLIC RIGHT OF WAY. CONTAINS PUBLIC SECTOR INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE V3.0
5. AP1 IS NO LONGER IN USE.

KEY

- LOCAL ROAD NETWORK PROVIDING ACCESS TO ACCESS TRACK FOR CONSTRUCTION TRAFFIC - HGVs AND LGVs
- SPEED LIMIT RESTRICTED TO 20MPH
- SPEED LIMIT RESTRICTED TO 40MPH
- BRIDLEWAY
- FOOTPATH
- TRANS PENNINE TRAIL DIVERSION
- CYCLE ROUTE 62 (TRANS PENNINE TRAIL)
- PERMANENT ACCESS TRACK TO THE SEALING END COMPOUND
- SEALING END COMPOUND
- AP6 — ACCESS POINTS
- 1 — ACCESS TRACK/PRoW CONFLICT LOCATION (MANAGED)
- 156 — PYLON TO BE RETAINED
- 158 — PYLON TO BE REMOVED
- 157R — NEW PYLON TO BE INSTALLED
- ACCESS ROUTES

REFERENCE DRAWINGS

PDD-33492-LAY-032 (TYPICAL ACCESS TRACK SECTIONS)

PDD-33492-LAY- 027 TO 030 (BELLMOUTH DRAWINGS)

PDD-33492-LAY- 036 TO 040 (FIGURE 2.1 OF ENVIRONMENTAL ASSESSMENT REPORT)

PDD-33492-LAY- 041 TO 044, 064 AND 065 (FIGURE 2.2 OF ENVIRONMENTAL ASSESSMENT REPORT)

PDD-33492-LAY- 046 TO 049 (FIGURE 2.3 OF ENVIRONMENTAL ASSESSMENT REPORT)

Rev	Description	Cre'd	Chk'd	App'd	Date
P8	MODIFIED IN LINE WITH NG COMMENTS	HW	CN	CN	16/07/19
P7	MODIFIED IN LINE WITH NG COMMENTS	HW	CN	CN	20/06/19
P6	MODIFIED IN LINE WITH NG COMMENTS	MAC	CN	CN	03/05/19
P5	UPDATED FOLLOWING NATIONAL GRID AND RSK COMMENTS	ER	GN	GN	03/04/19
P4	UPDATED FOLLOWING NATIONAL GRID COMMENTS	HW	GN	CN	27/03/19
P3	UPDATED FOLLOWING NATIONAL GRID COMMENTS	HW	GN	CN	12/03/19
P2	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	26/2018
P1	FIRST ISSUE	HW	GN	CN	11/2018

nationalgrid

Master Scheme No:	Sub-Scheme No:	Site:
33492	–	400KV OHL

Scheme Name: VISUAL IMPACT PROVISION (VIP) PEAK DISTRICT (EAST) PROJECT

Document Title:

ACCESS POINTS AND PUBLIC RIGHTS OF WAY PLAN

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
W.EASTWOOD	28/07/17	G.NIDHISH	28/07/17	C.NUNN	28/07/17

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
D.SPURR	2D DRAWING	1:10,000	A1	1 of 1	P8

National Grid Document Number:

PDD-33491-LAY-072

FEED Document Number:

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EXAMPLE OF RESTING AREA BENCH

NOTES:
A. DURING VEHICLE MOVEMENTS AT THE SHARED SECTION, THE BANKSMAN SHALL STOP PEDESTRIANS AND ESCORT VEHICLES OVER THE BRIDGE.
B. DIVERTED TPT USERS AT THE SHARED SECTION SHALL HAVE PRIORITY OVER VEHICLES AT ALL TIMES.
C. UNLESS OTHERWISE STATED THE GRADIENT SHALL BE 5% OR LESS FOR PEDESTRIANS AND 10% OR LESS FOR CONSTRUCTION VEHICLES.
D. WHERE PRACTICABLE GRADIENT TO BE NO MORE THAN 1:20 TO COMPLY WITH EQUALITY ACT GRADIENT REQUIREMENTS.

BANKSMAN CONTROLLED PEDESTRIAN BARRIER. BARRIER WILL BE IN OPEN POSITION AT ALL TIMES EXCEPT WHEN VEHICLE MOVEMENTS ARE NEEDED ACROSS THE BRIDGE

EXISTING FENCE TO BE TEMPORARILY REMOVED

PROPOSED TEMPORARY BRIDGE 2. FOR DETAILS REFER TO PDD-33492-LAY-058

PEDESTRIAN SECTION

PROPOSED TEMPORARY BRIDGE LAYDOWN AREA. INCLUDING TEMPORARY CRANE PAD

PROPOSED RESTING AREA. HOGGIN SURFACE 3m x1.5m

BANKSMAN CONTROLLED PEDESTRIAN BARRIER. BARRIER WILL BE IN OPEN POSITION AT ALL TIMES EXCEPT WHEN VEHICLE MOVEMENTS ARE NEEDED ACROSS THE BRIDGE

TEMPORARY OPENING TO STONE WALL

PROPOSED NEW TOWER 157R

EXISTING UNKNOWN BOREHOLE COVER

END OF PEDESTRIAN DIVERSION SIGN

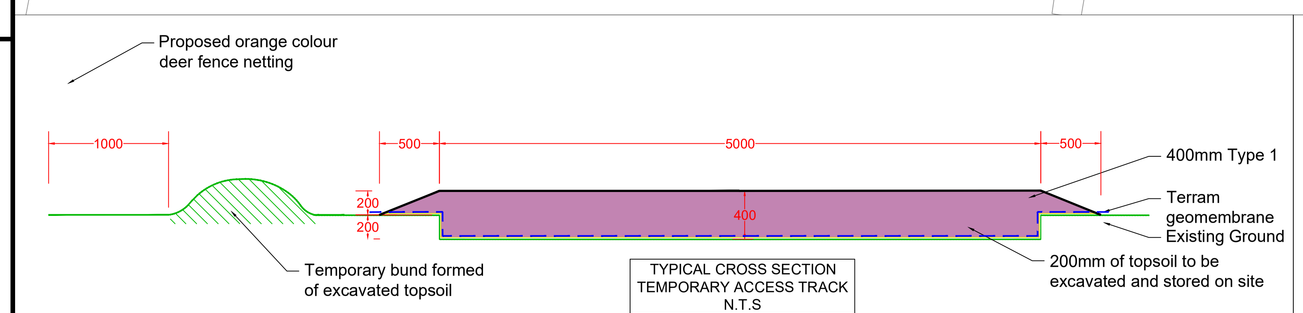
ACCESS TO LAYDOWN AREA THROUGH EXISTING GATE

Trans Pennine Trail

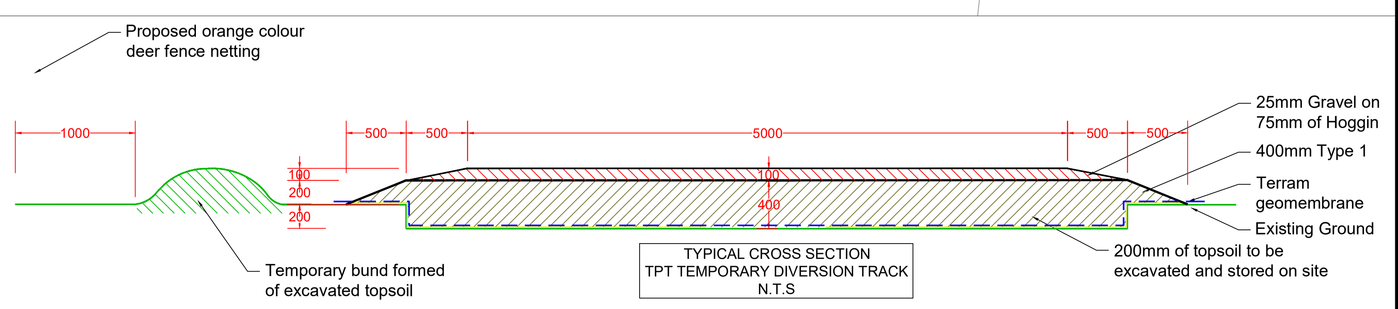
Tower 157

Tower 158

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TYPICAL CROSS SECTION TEMPORARY ACCESS TRACK N.T.S



TYPICAL CROSS SECTION TPT TEMPORARY DIVERSION TRACK N.T.S

NOTES
1. SKETCH IS FOR DISCUSSION ONLY.
2. FLOOD MAPPING SOURCE : STANTEC MODEL

KEY

- PROPOSED ACCESS ROAD, SEE DETAIL A
- PROPOSED TEMPORARY BRIDGE
- PROPOSED TEMPORARY TPT DIVERSION, SEE DETAIL B
- FLOOD AREA 1:100 YEARS
- PROPOSED GABION BASKET (1m X 1m X 1m)
- PROPOSED RETAINING STRUCTURE AND GUARDRAIL
- PROPOSED VEHICLE RESTRAINT SYSTEM
- PROPOSED GUARDRAIL
- PROPOSED BANKSMAN CONTROL POINT
- PROPOSED TEMPORARY SIGN
- PROPOSED PERMANENT MAINTENANCE ACCESS TO SEALING END COMPOUND
- PROPOSED SEALING END COMPOUND

LOCATION PLAN



Rev	Description	Cre'd	Chk'd	App'd	Date
P10	NG COMMENTS ADDRESSED	MAC	CN	CN	16/07/19
P9	NG COMMENTS ADDRESSED	MAC	CN	CN	17/06/19
P8	NG COMMENTS ADDRESSED	PP	CN	CN	22/10/18
P7	NG COMMENTS ADDRESSED	RD	CN	CN	02/08/18
P6	NG COMMENTS ADDRESSED	HW	RR	RR	21/05/18
P5	FLOOD EXTENT UPDATED	PH	RR	RR	07/12/17
P4	DEER FENCE AND GATES ADDED AND CRANE PAD ALTERED	PH	RR	RR	07/12/17
P3	PASSING PLACES AND GABION BASKET DIMENSIONS ADDED	PH	RR	RR	29/09/17
P2	GABION BASKETS ADDED AND CRANE PAD AMENDED	PH	RR	RR	27/09/17
P1	FIRST ISSUE	PH	RR	RR	21/09/17

nationalgrid

Master Scheme No:	Sub-Scheme No:	Site:
33492	–	400KV OHL

Scheme Name: VISUAL IMPACT PROVISION – WORK PACKAGE 1 PEAK DISTRICT NATIONAL PARK

Document Title:

TPT DIVERSION–TEMPORARY BRIDGE 2 GENERAL ARRANGEMENT

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
P.HADJINIKODIMOU	21/09/17	R.RAVEENDRAN	21/09/17	R.RAVEENDRAN	21/09/17

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
D.SPURR	2D DRAWING	1:500	A1	1 OF 1	P10

National Grid Document Number: PDD–33492–LAY–055

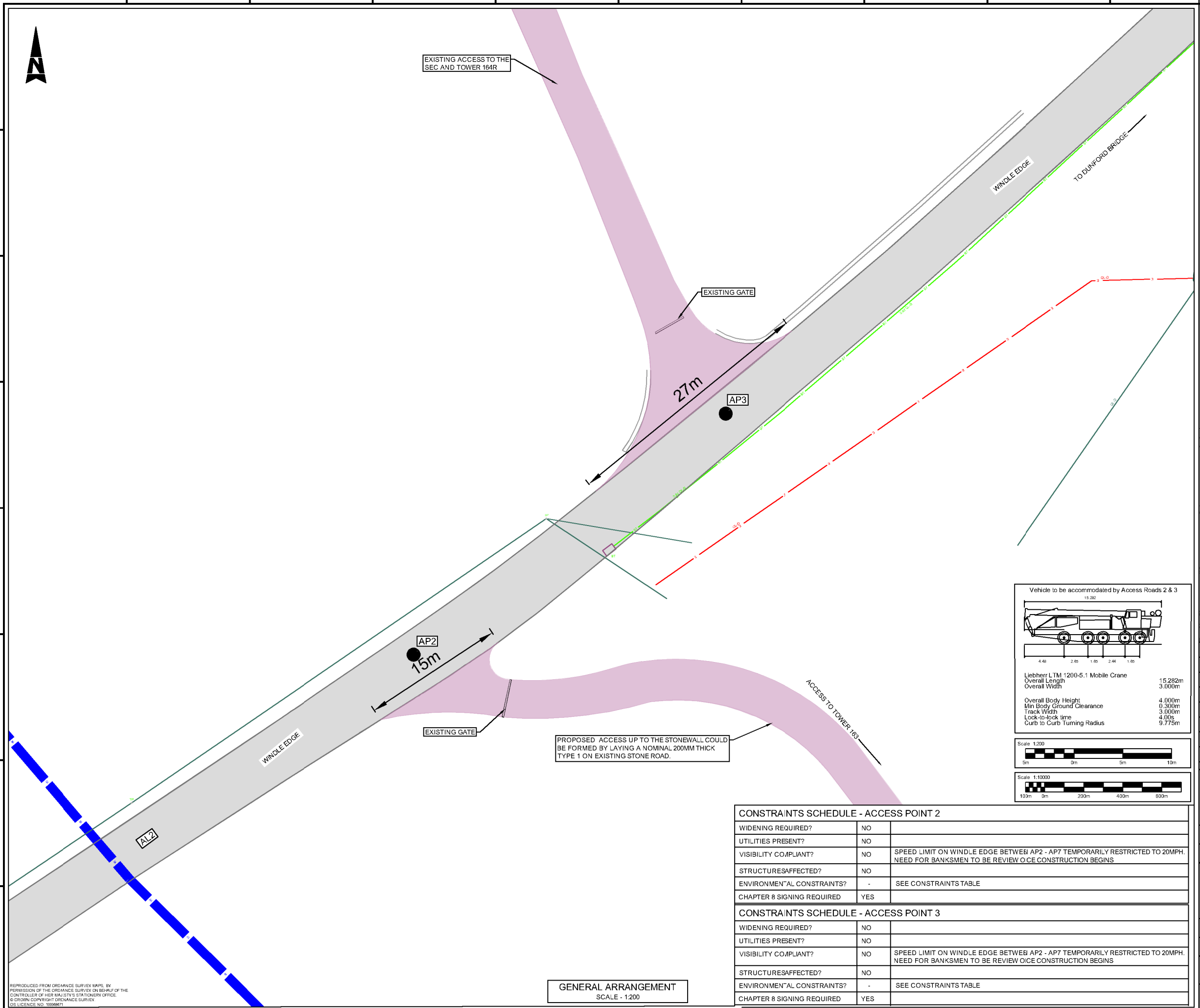
FEED Document Number:

Appendix B – Access Point Schedule

Date: 04/04/2019
FEED Doc: Number - PDD-33492-REP-015
Prepared By - Harry Williams

ACCESS POINTS CONSTRAINTS SCHEDULE - PEAK DISTRICT EAST SCHEME		
Access Point 1		
Constraints		**Comments**
Access point no longer required		
Access Point 2		
Constraints		**Comments**
Widening Required	No	
Utilities Present	No	
Visibility Compliant	No	Speed limit on Windle Edge between Winscar Reservoir enterance and AP7 temporarily restricted to 20mph. Need for banksmen to be reviewed once construction begins
Structures Affected	No	
Environmental Constraints	Yes	Situated within the Western Moors Local Wildlife Site (LWS) and Peak District National Park. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 3		
Constraints		**Comments**
Widening Required	No	
Utilities Present	No	
Visibility Compliant	No	Speed limit on Windle Edge between Winscar Reservoir enterance and AP7 temporarily restricted to 20mph. Need for banksmen to be reviewed once construction begins
Structures Affected	No	
Environmental Constraints	Yes	Situated within the Western Moors Local Wildlife Site (LWS) and Peak District National Park. Adjacent to tree protection buffer zone, trees could require pruning under ACOW supervision. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 4		
Constraints		**Comments**
Widening Required	No	
Utilities Present	Yes	May require protection
Visibility Compliant	No	Speed limit on Windle Edge between Winscar Reservoir enterance and AP7 temporarily restricted to 20mph. Need for banksmen to be reviewed once construction begins
Structures Affected	No	
Environmental Constraints	Yes	Situated within Peak District national park, area is considered at risk of flooding from reservoir failure, AP shared with PRoW 25 (part of TPT), adjacent to area of rhododendron that may need removal ahead of construction. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 5		
Constraints		**Comments**

Widening Required	No	
Utilities Present	Yes	May require protection
Visibility Compliant	No	Speed limit on Windle Edge between Winscar Reservoir enterance and AP7 temporarily restricted to 20mph. Need for banksmen to be reviewed once construction begins
Structures Affected	Yes	Along the temporary trail
Environmental Constraints	Yes	Situated within the Peak District National Park. Area is considered at risk of flooding situated within Flood zone 2 and 3, and at reservoir flood risk. AP shared with PRoW 26 (part of TPT). Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 6		
Constraints		**Comments**
Widening Required	Yes	Existing access to be improved under section 171 license
Utilities Present	TBA	No statutory undertakers data available for this area
Visibility Compliant	No	Speed limit on Windle Edge between Winscar Reservoir enterance and AP7 temporarily restricted to 20mph. Need for banksmen to be reviewed once construction begins
Structures Affected	No	
Environmental Constraints	Yes	Presence of Wall providing reptile refuge will require removal under ECOW supervision. Planning consent for bellmouth widening to be obtained from Principal Contractor. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	
Access Point 7		
Constraints		**Comments**
Widening Required	Yes	Existing access to be improved under section 171 license
Utilities Present	TBA	No statutory undertakers data available for this area
Visibility Compliant	No	Speed limit on Windle Edge between Winscar Reservoir enterance and AP7 temporarily restricted to 20mph. Need for banksmen to be reviewed once construction begins
Structures Affected	No	
Environmental Constraints	Yes	Planning consent for bellmouth widening to be obtained from National Grid. Environmental management and mitigation measures during construction are outlined within the CEMP.
Chapter 8 Signing Required	Yes	



GENERAL ARRANGEMENT
SCALE - 1:200

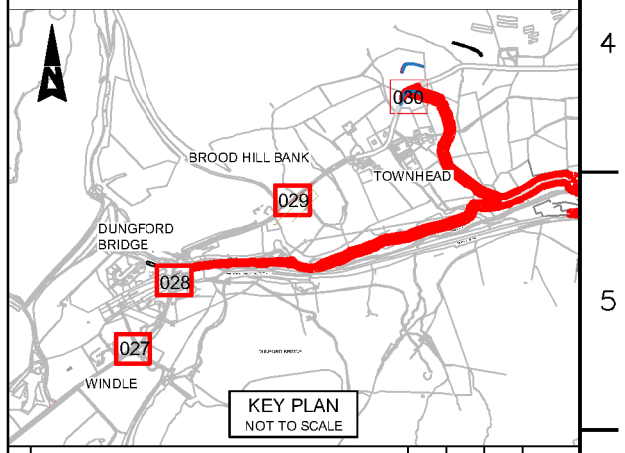
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NOTES:

1. THIS IS A 4.2 DRAWING AND IS FOR DEVELOPMENT PURPOSES ONLY.
2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
3. BACKGROUNDMAPPING IS BASED ON THE TOPO SURVEY, DATED 20/09/2016.
4. RADII DETAILSARE FOR GUIDANCE ONLY.

KEY:

- EXISTING KERB
- EXISTING CARRIAGEWAY
- ACCESS ROAD
- AP1 — ACCESS POINT REFERENCE NUMBER
- ELECTRICITY CABLE
- BRITISH TELECOM CABLE
- WATER MAIN
- OVERHEAD CONDUCTORS



KEY PLAN
NOT TO SCALE

Vehicle to be accommodated by Access Roads 2 & 3

Liebherr LTM 1200-5.1 Mobile Crane

Overall Length	15.282m
Overall Width	3.000m
Overall Body Height	4.000m
Min Body Ground Clearance	0.300m
Track Width	3.000m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	9.775m

Scale 1:200
5m 0m 5m 10m

Scale 1:10000
100m 0m 200m 400m 800m

CONSTRAINTS SCHEDULE - ACCESS POINT 2

WIDENING REQUIRED?	NO	
UTILITIES PRESENT?	NO	
VISIBILITY COMPLIANT?	NO	SPEED LIMIT ON WINDLE EDGE BETWEEN AP2 - AP7 TEMPORARILY RESTRICTED TO 20MPH. NEED FOR BANKSMEN TO BE REVIEW O/CE CONSTRUCTION BEGINS
STRUCTURESAFFECTED?	NO	
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED	YES	

CONSTRAINTS SCHEDULE - ACCESS POINT 3

WIDENING REQUIRED?	NO	
UTILITIES PRESENT?	NO	
VISIBILITY COMPLIANT?	NO	SPEED LIMIT ON WINDLE EDGE BETWEEN AP2 - AP7 TEMPORARILY RESTRICTED TO 20MPH. NEED FOR BANKSMEN TO BE REVIEW O/CE CONSTRUCTION BEGINS
STRUCTURESAFFECTED?	NO	
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED	YES	

Rev	Description	Cre'd	Chk'd	App'd	Date
P4	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	10/04/19
P3	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	04/12/18
P2	SECOND ISSUE	HW	GN	CN	06/11/18
P1	FIRST ISSUE	CM	PH	RR	28/11/16

nationalgrid

Master Scheme No: 33492	Sub-Scheme No: –	Site: 400KV OHL

Scheme Name: VISUAL IMPACT PROVISION – WORK PACKAGE 1
PEAK DISTRICT NATIONAL PARK

Document Title:

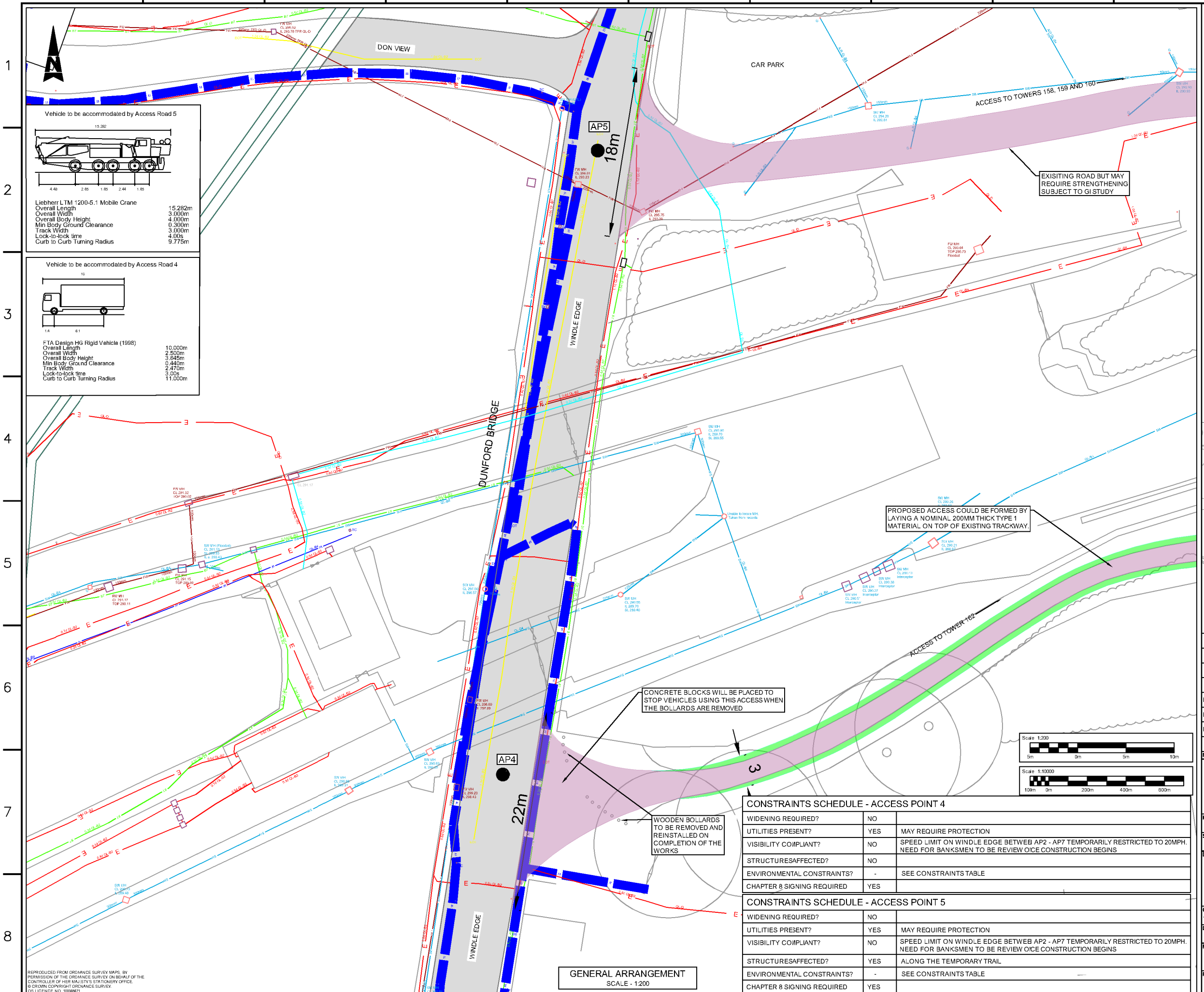
PRELIMINARY BELLMOUTH LAYOUT
AP2 + AP3

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
C. Mugemuzi	28/11/16	P.Hadjinikadimou	28/11/16	R.Raveendran	28/11/16

Development Engr	Document Type:	Scale:	Format:	Sheet(s):	Rev:
D.SPURR	2D DRAWING	1:200	A1	1 OF 1	P4

National Grid Document Number:
PDD–33492–LAY–027

FEED Document Number:



GENERAL ARRANGEMENT
SCALE - 1:200

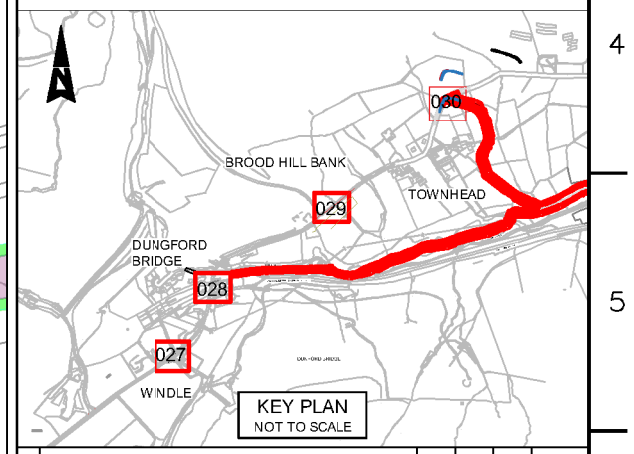
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NOTES:

1. THIS IS A 4.2 DRAWING AND IS FOR DEVELOPMENT PURPOSES ONLY.
2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
3. BACKGROUNDMAPPING IS BASED ON THE TOPO SURVEY, DATED 20/09/2016.
4. RADII DETAILSARE FOR GUIDANCE ONLY.

KEY:

- EXISTING KERB
- ACCESS ROAD
- EXISTING CARRIAGEWAY
- PROPOSED WIDENING SUBJECT TO CONFIRMATION FROM THE DELIVERY CONTRACTOR
- AP1 — ACCESS POINT REFERENCE NUMBER
- ELECTRICITY CABLE
- BRITISH TELECOM CABLE
- GAS MAIN
- DRAINAGE - FOUL WATER
- DRAINAGE - SURFACE WATER
- WATER MAIN
- OVERHEAD CONDUCTORS
- UNIDENTIFIED



CONSTRAINTS SCHEDULE - ACCESS POINT 4

WIDENING REQUIRED?	NO	
UTILITIES PRESENT?	YES	MAY REQUIRE PROTECTION
VISIBILITY COMPLIANT?	NO	SPEED LIMIT ON WINDLE EDGE BETWEEN AP2 - AP7 TEMPORARILY RESTRICTED TO 20MPH. NEED FOR BANKSMEN TO BE REVIEWED ONCE CONSTRUCTION BEGINS
STRUCTURESAFFECTED?	NO	
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED	YES	

CONSTRAINTS SCHEDULE - ACCESS POINT 5

WIDENING REQUIRED?	NO	
UTILITIES PRESENT?	YES	MAY REQUIRE PROTECTION
VISIBILITY COMPLIANT?	NO	SPEED LIMIT ON WINDLE EDGE BETWEEN AP2 - AP7 TEMPORARILY RESTRICTED TO 20MPH. NEED FOR BANKSMEN TO BE REVIEWED ONCE CONSTRUCTION BEGINS
STRUCTURESAFFECTED?	YES	ALONG THE TEMPORARY TRAIL
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED	YES	

Rev	Description	Cre'd	Chk'd	App'd	Date
P4	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	10/04/19
P3	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	04/12/18
P2	SECOND ISSUE	HW	GN	CN	06/11/18
P1	FIRST ISSUE	CM	PH	RR	28/11/18

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Master Scheme No: 33492	Sub-Scheme No: –	Site: 400KV OHL

Scheme Name: VISUAL IMPACT PROVISION – WORK PACKAGE 1 PEAK DISTRICT NATIONAL PARK

Document Title:

PRELIMINARY BELLMOUTH LAYOUT
AP4 + AP5

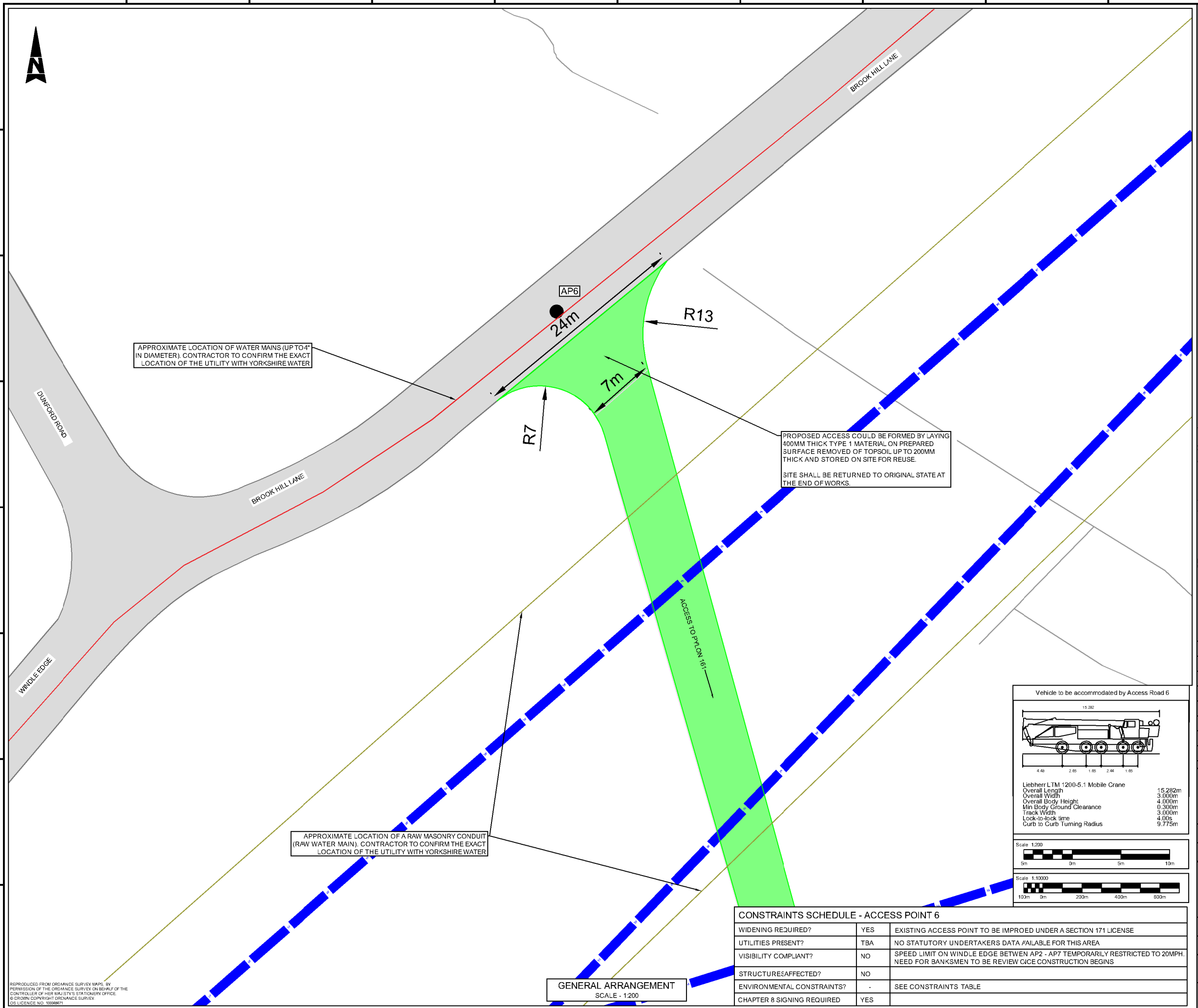
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C. Mugemuzi	28/11/16	P.Hadjinikodimou	28/11/16	R.Raveendran	28/11/16

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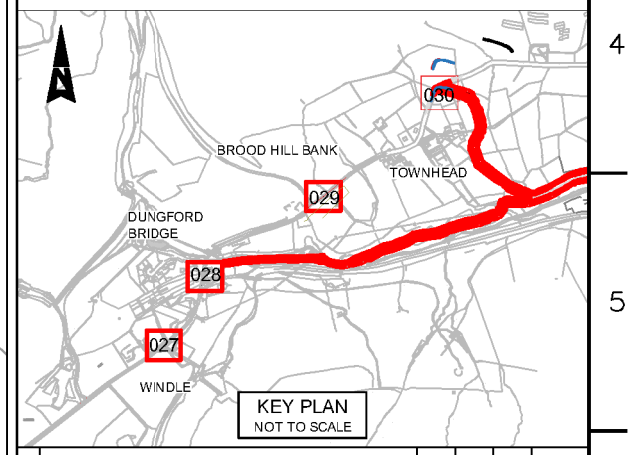
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2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
3. BACKGROUNDMAPPING IS BASED ON THE TOPO SURVEY, DATED 20/09/2016.
4. RADII DETAILSARE FOR GUIDANCE ONLY.
5. UTILITIES NOTPROVIDED YET

KEY:

- EXISTING KERB
- PROPOSED NEW ACCESS ROAD
- EXISTING CARRIAGEWAY
- AP1 — ACCESS POINT REFERENCE NUMBER



KEY PLAN
NOT TO SCALE

Vehicle to be accommodated by Access Road 6

Liebherr LTM 1200-5.1 Mobile Crane

Overall Length	15.282m
Overall Width	3.000m
Overall Body Height	4.000m
Min Body Ground Clearance	0.300m
Track Width	3.000m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	9.775m

Scale 1:200
5m 0m 5m 10m

Scale 1:10000
100m 0m 200m 400m 800m

CONSTRAINTS SCHEDULE - ACCESS POINT 6

WIDENING REQUIRED?	YES	EXISTING ACCESS POINT TO BE IMPROED UNDER A SECTION 171 LICENSE
UTILITIES PRESENT?	TBA	NO STATUTORY UNDERTAKERS DATA AVAILABLE FOR THIS AREA
VISIBILITY COMPLIANT?	NO	SPEED LIMIT ON WINDLE EDGE BETWEN AP2 - AP7 TEMPORARILY RESTRICTED TO 20MPH. NEED FOR BANKSMEN TO BE REVIEW CICE CONSTRUCTION BEGINS
STRUCTURESAFFECTED?	NO	
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED	YES	

Rev	Description	Cre'd	Chk'd	App'd	Date
P4	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	10/04/19
P3	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	04/12/18
P2	SECOND ISSUE	HW	GN	CN	06/11/18
P1	FIRST ISSUE	CM	PH	RR	28/11/18

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Master Scheme No:	Sub-Scheme No:	Site:
33492	–	400KV OHL

Scheme Name: VISUAL IMPACT PROVISION – WORK PACKAGE 1
PEAK DISTRICT NATIONAL PARK

Document Title:

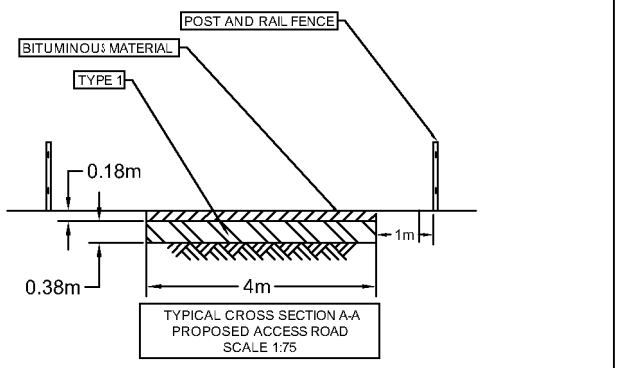
PRELIMINARY BELLMOUTH LAYOUT
AP6

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
C. Mugemuzi	28/11/16	P.Hadjinikodimou	28/11/16	R.Raveendran	28/11/16

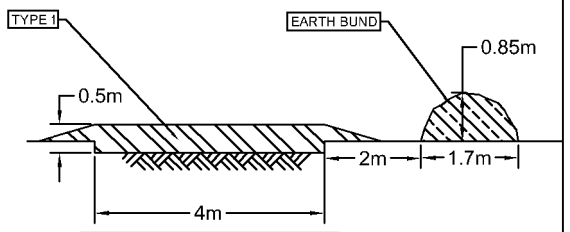
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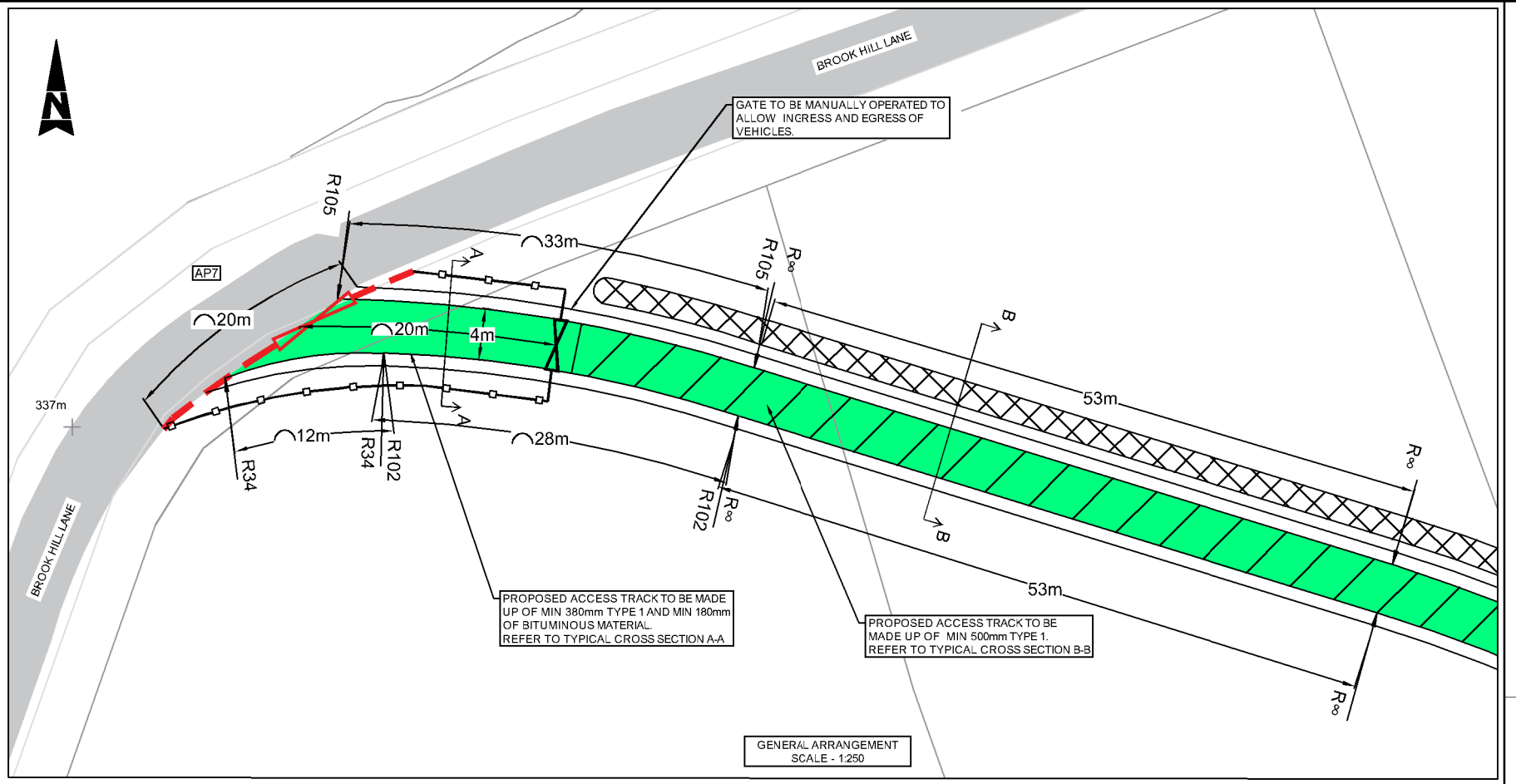
FEED Document Number:



TYPICAL CROSS SECTION A-A
PROPOSED ACCESS ROAD
SCALE 1:75



TYPICAL CROSS SECTION B-B
PROPOSED ACCESS TRACK
SCALE 1:75



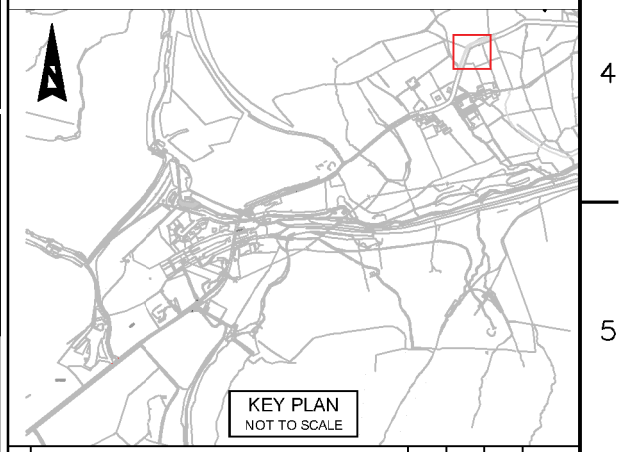
GENERAL ARRANGEMENT
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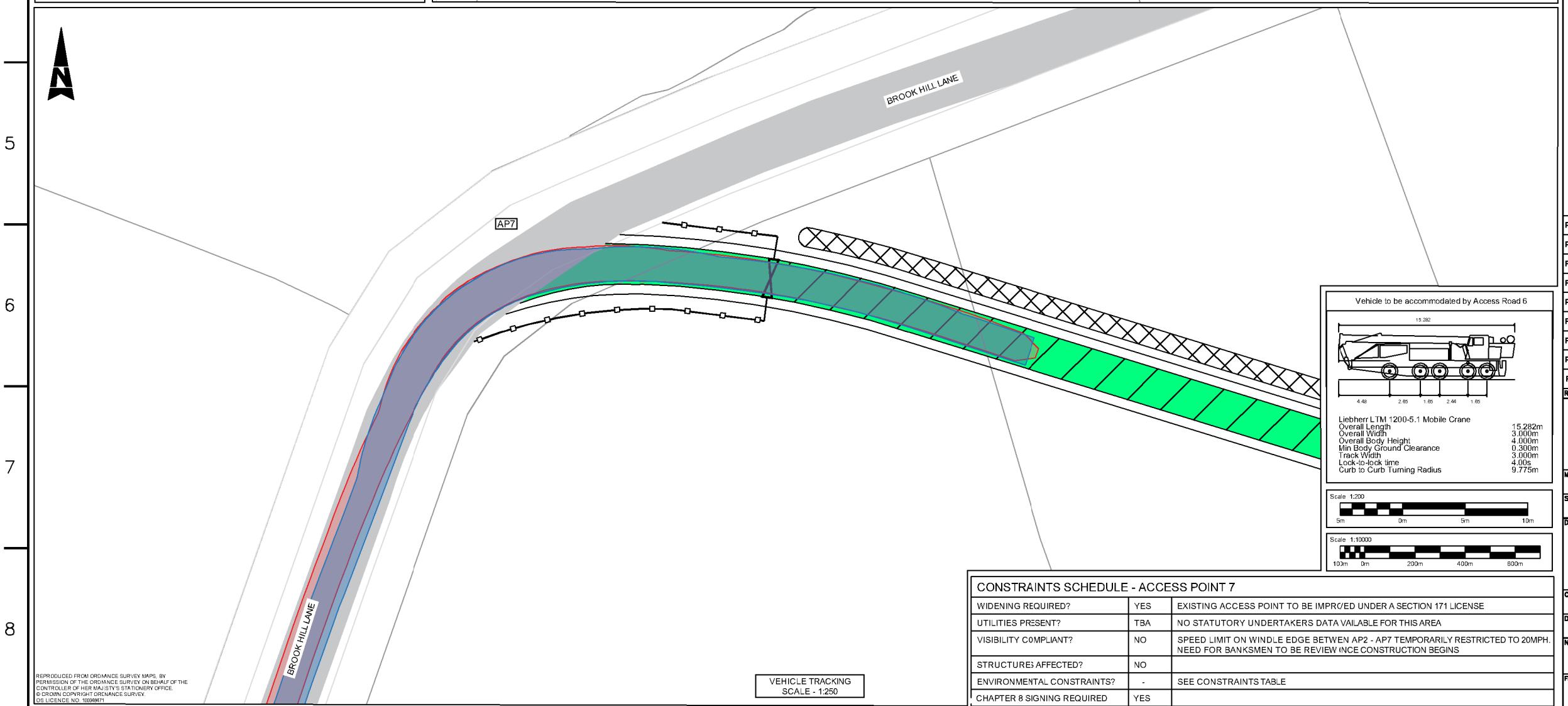
NOTES:

1. THIS IS A 4.2 DRAWING AND IS FOR DEVELOPMENT PURPOSES ONLY.
2. ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE STATED.
3. BACKGROUNDMAPPING IS BASED ON OS MAP DATA ONLY.
4. RADII DETAILS ARE FOR GUIDANCE ONLY. NOT FOR CONSTRUCTION.
5. VEHICLE TRACKING HAS BEEN CARRIED OUT WITH A 16m ARTICULATED LORRY, 10m HGV AND A 15m MOBILE CRANE. ONLY THE MOBILE CRANE IS ILLUSTRATED IN THE DRAWING.
6. TO REDUCE MATERIAL TRANSPORT, EXCAVATED TOPSOIL IS TO BE STORED IN A BUNG ALONG THE ACCESS TRACK.

KEY:

- EXISTING CARRIAGEWAY
- PROPOSED ACCESS ROAD
- PROPOSED ACCESS TRACK
- EARTH BUND
- AP7 — ACCESS POINT REFERENCE NUMBER
- POST AND RAIL FENCE WITH GATE
- STONE WALL AND GATE TO BE TAKEN DOWN AND SET ASIDE FOR REUSE
- VEHICLE TRACKING (IN)
- VEHICLE TRACKING (OUT)





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VEHICLE TRACKING
SCALE - 1:250

Vehicle to be accommodated by Access Road 6

Liebherr LTM 1200-5.1 Mobile Crane	
Overall Length	15.282m
Overall Width	3.000m
Overall Body Height	4.000m
Min Body Ground Clearance	0.300m
Track Width	3.000m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	9.775m

Scale 1:200
5m 0m 5m 10m

Scale 1:10000
100m 0m 200m 400m 800m

CONSTRAINTS SCHEDULE - ACCESS POINT 7		
WIDENING REQUIRED?	YES	EXISTING ACCESS POINT TO BE IMPROVED UNDER A SECTION 171 LICENSE
UTILITIES PRESENT?	TBA	NO STATUTORY UNDERTAKERS DATA VAILABLE FOR THIS AREA
VISIBILITY COMPLIANT?	NO	SPEED LIMIT ON WINDLE EDGE BETWEN AP2 - AP7 TEMPORARILY RESTRICTED TO 20MPH. NEED FOR BANKSMEN TO BE REVIEWINCE CONSTRUCTION BEGINS
STRUCTURES AFFECTED?	NO	
ENVIRONMENTAL CONSTRAINTS?	-	SEE CONSTRAINTS TABLE
CHAPTER 8 SIGNING REQUIRED	YES	

Rev	Description	Cre'd	Chk'd	App'd	Date
P9	UPDATED FOR PLANNING	HW	CN	CN	06/08/19
P8	NG COMMENTS ADDRESSED	MAC	CN	CN	31/07/19
P7	NG COMMENTS ADDRESSED	MAC	CN	CN	26/07/19
P6	NG COMMENTS ADDRESSED	MAC	CN	CN	15/07/19
P5	NG COMMENTS ADDRESSED	MAC	CN	CN	21/06/19
P4	DETAILS ADDED	HW	RR	CN	10/04/18
P3	BELLMOUTH LAYOUT UPDATED	HW	GN	CN	12/12/18
P2	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	04/12/18
P1	FIRST ISSUE	HW	GN	CN	06/11/18

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Master Scheme No:	Sub-Scheme No:	Site:
33492	–	400KV OHL

Scheme Name: VISUAL IMPACT PROVISION – WORK PACKAGE 1
PEAK DISTRICT NATIONAL PARK

Document Title:

PRELIMINARY BELLMOUTH LAYOUT
AP7

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
H.Williams	06/11/18	R.Raveendran	06/11/18	C.Nunn	06/11/18

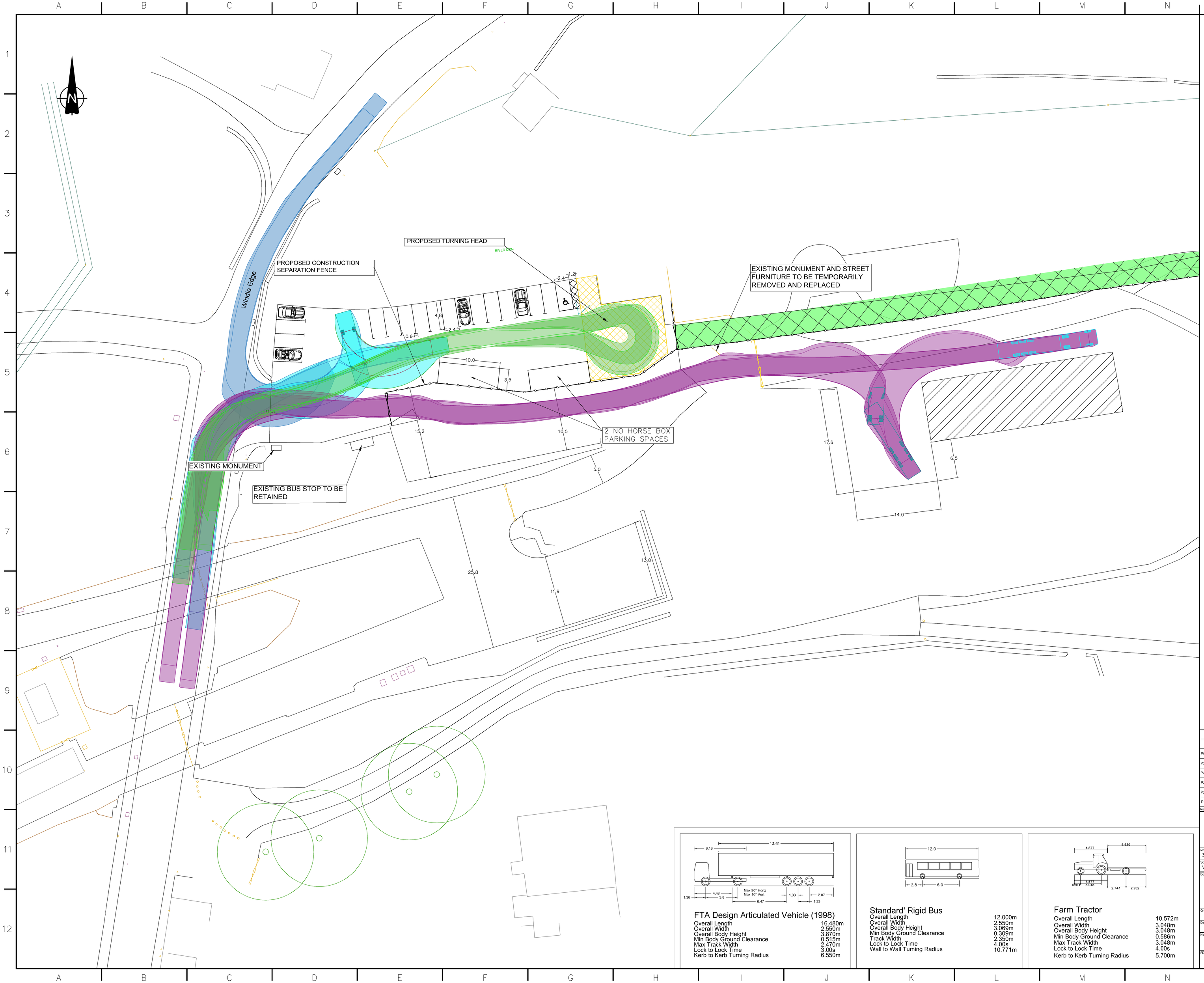
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National Grid Document Number:

PDD-33492-LAY-030

FEED Document Number:

Appendix C - Altered Layout of the Trans Pennine Trail Car Park during Construction



NOTES:

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.

LEGEND:

- PROPOSED TURNING HEAD
- PROPOSED SEPARATION FENCE
- PROPOSED GATE
- EXISTING GATE
- EXISTING FENCE
- ARTICULATED LORRY ROUTE
- BUS ROUTE (NORTH)
- BUS ROUTE (SOUTH)
- HORSE BOX ROUTE
- TEMPORARY LAYDOWN AREA FOR CABLE DRUMS
- TPT DIVERSION

FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	6.550m

Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to Lock Time	4.00s
Wall to Wall Turning Radius	10.771m

Farm Tractor

Overall Length	10.572m
Overall Width	3.048m
Overall Body Height	3.048m
Min Body Ground Clearance	0.586m
Max Track Width	3.048m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.700m

Rev	Description	Cre'd	Chk'd	App'd	Date
P6	UPDATED FOLLOWING NATIONAL GRID COMMENTS	HW	GN	CN	12/03/19
P5	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	26/11/18
P4	ADDITION OF HORSE BOX PARKING	HW	RR	RR	20/06/18
P3	BUS ACCESS FROM THE NORTH	HW	RR	RR	21/05/18
P2	NATIONAL GRID COMMENTS INCORPORATED	HW	RR	RR	16/05/18
P1	FIRST ISSUE	PH	RR	RR	04/07/16

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Master Scheme No:	Sub-Scheme No:	Site:
33492	—	400kV OHL

Scheme Name: VISUAL IMPACT PROVISION WORK PACKAGE 1 PEAK DISTRICT NATIONAL PARK

Document Title: TEMPORARY CAR PARK LAYOUT SHEET 1

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
H.Williams	16/05/16	R.Raveendran	16/05/16	R.Raveendran	16/05/16

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
D.Spurr	LAY	1:200	A0	1	P6

National Grid Document Number: PDD-33492-LAY-010

FEED Document Number: —

PROPOSED TURNING HEAD

PROPOSED CONSTRUCTION SEPARATION FENCE

EXISTING MONUMENT AND STREET FURNITURE TO BE TEMPORARILY REMOVED AND REPLACED

2 NO HORSE BOX PARKING SPACES

EXISTING MONUMENT

EXISTING BUS STOP TO BE RETAINED

Windle Edge

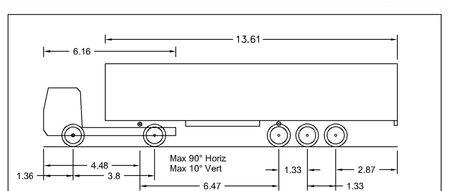
River Don

NOTES:

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.

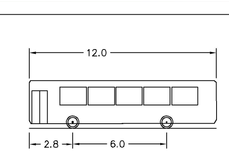
LEGEND:

- PROPOSED TURNING HEAD
- PROPOSED SEPARATION FENCE
- PROPOSED GATE
- EXISTING GATE
- EXISTING FENCE
- ARTICULATED LORRY ROUTE
- BUS ROUTE (NORTH)
- BUS ROUTE (SOUTH)
- HORSE BOX ROUTE
- TEMPORARY LAYDOWN AREA FOR CABLE DRUMS
- TPT DIVERSION



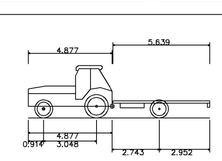
FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
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Max Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	6.550m



Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.069m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to Lock Time	4.00s
Wall to Wall Turning Radius	10.771m



Farm Tractor

Overall Length	10.572m
Overall Width	3.048m
Overall Body Height	3.048m
Min Body Ground Clearance	0.586m
Max Track Width	3.048m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.700m

Rev	Description	Cre'd	Chk'd	App'd	Date
P6	UPDATED FOLLOWING NATIONAL GRID COMMENTS	HW	GN	CN	12/03/19
P5	NATIONAL GRID COMMENTS ADDRESSED	HW	GN	CN	26/11/18
P4	ADDITION OF HORSE BOX PARKING	HW	RR	RR	20/06/18
P3	BUS ACCESS FROM THE NORTH	HW	RR	RR	21/05/18
P2	NATIONAL GRID COMMENTS INCORPORATED	HW	RR	RR	18/05/18
P1	FIRST ISSUE	PH	RR	RR	04/01/18

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Master Scheme No: 33492	Sub-Scheme No: –	Site: 400kV OHL

Scheme Name: VISUAL IMPACT PROVISION WORK PACKAGE 1 PEAK DISTRICT NATIONAL PARK

Document Title:

TEMPORARY CAR PARK LAYOUT
SHEET 1

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
H.Williams	16/05/16	R.Raveendran	16/05/16	R.Raveendran	16/05/16

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
D.Spurr	LAY	1:200	A0	1	P6

National Grid Document Number:

PDD-33492-LAY-010

FEED Document Number:

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Appendix D – Railway Bridges Structural Assessment

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report



70023097-005-RPT-71A-003
MARCH 2019

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

PROJECT NO. 70023097-005

DOC REF. NO. 70023097-005-RPT-71A-003

DATE: MARCH 2019

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

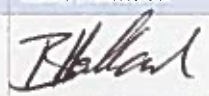
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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For Approval			
Date	March 2019			
Prepared by	Alex Muir Wood			
Signature				
Checked by	Ben Holland			
Signature				
Authorised by	Clive Nunn			
Signature				
Project number	70023097-005			
Document reference	70023097-005-RPT-71A-003			
File reference				

CONTENTS

1. INTRODUCTION 4

1.1. REFERENCES 4

1.2. ABNORMAL LOADS 4

2. DUNFORD RAILWAY BRIDGE NO. 71 ABNORMAL LOAD ASSESSMENT RESULTS 5

2.1. MASONRY ARCH 5

2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS 5

2.3. PARAPETS 5

3. DUNFORD RAILWAY BRIDGE NO. 71A ABNORMAL LOAD ASSESSMENT RESULTS 6

3.1. CONCRETE ENCASED STEEL GIRDER 6

3.2. JACK ARCHES 6

3.3. ABUTMENTS AND FOUNDATIONS 7

4. CONCLUSIONS 8

4.1. DUNFORD RAILWAY BRIDGE NO 71 8

4.2. DUNFORD RAILWAY BRIDGE NO 71A 8

APPENDICES

APPENDIX A ABNORMAL LOADS

EXECUTIVE SUMMARY

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of a package of bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A. The assessment reports concluded that the structures had adequate capacity for 40/44 tonne Assessment Live Loading in accordance with BD21/01 'The assessment of highway bridges and structures', with some limitations. These limitations were: the footway was not assessed on Dunford Railway Bridge 71A due to lack of information and the parapets for both bridges were not assessed.

WSP has been commissioned to assess Dunford Railway Bridge No. 71 and Dunford Railway Bridge No. 71A for two abnormal vehicle loads.

This report records the results arising from the assessment of these abnormal vehicles loads. The assessment results are summarised as follows:

Dunford Railway Bridge No. 71

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
  - wheels are prevented from being on the footway,
  - the vehicle is the only vehicle on the bridge,
  - it is limited to the loading in Appendix A and
  - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

Dunford Railway Bridge No. 71A

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
  - wheels are prevented from being on the footway,
  - the vehicle is the only vehicle on the bridge,
  - it is limited to the loading in Appendix A and
  - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

1. INTRODUCTION

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of three bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A and Clough Beck Culvert. Subsequently, WSP has been commissioned to assess bridges 71 and 71A for two abnormal load vehicles.

1.1. REFERENCES

For the description of the structures, structural condition and analysis methods used in assessment, please refer to the following documents:

Dunford Railway Bridge No.71

Inspection for assessment report, document reference 70023097-005-RPT-71-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71

Approval in Principal Addendum no. 1, document reference 70023097-005-AIP-71-002

Assessment report, document reference 70023097-005-RPT-71-002

Dunford Railway Bridge No.71A

Inspection for assessment report, document reference 70023097-005-RPT-71A-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71A-002

Assessment report, document reference 70023097-005-RPT-71A-002

1.2. ABNORMAL LOADS

The abnormal loads are provided in the Wynns report ‘Abnormal Indivisible Load Access Study – Transportation of Cable Drums to Proposed Laydown Area in Car Park at Dunford Bridge’ revision 2, issued on 14/12/2016. The vehicles are shown on drawing numbers PB-PDE-CD01 (Rev 0) and PB-PDE-CD02 (Rev 0), shown in Appendix A. The axle loads were clarified by Anthony Pearce from Wynns in an email, also included in Appendix A.

2. DUNFORD RAILWAY BRIDGE NO. 71 ABNORMAL LOAD ASSESSMENT RESULTS

2.1. MASONRY ARCH

The masonry arch was assessed for the abnormal loads described in Section 1.2 using the MEXE method as described in the Dunford Railway Bridge No. 71 Approval in Principal and Addendum No. 1, October 2018. The permissible axle loads as a result of the MEXE analysis are compared against the axle load scenario for the abnormal vehicles.

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

BA 16/97 states that the MEXE method should be used with caution for heavier vehicles than the 40/44 tonne category. The permissible axle loadings given for the following bogie (defined as 2 or 3 closely spaced axles) arrangements are as follows:

Single-axle bogie: 42.2 tonnes per axle

Double-axle bogie: 27.2 tonnes per axle

Triple-axle bogie: 24.5 tonnes per axle

The abnormal loads could be described to have a 4 axle (PB-PDE-CD01) or 5 axle (PB-PDE-CD02) bogie. BA16/97 does not give an axle factor for a 4 or 5 axle bogie. For this arch geometry, a comparison for the critical position and load spread of a 40/44 tonne triple-axle bogie has been made with the abnormal vehicles' trailers/bogies. It has been concluded that the load effects of the abnormal loads would be no more onerous than a triple-axle 40/44 tonne vehicle. Therefore, the masonry arch has been assessed to have adequate capacity to support the abnormal loads.

2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS

The abutments, foundation, spandrel walls and wingwalls were assessed qualitatively as discussed in the documents listed in Section 1.1. There were no signs of tilting or settlement observed during the Inspection for Assessment dated 21st June 2018. The abutments, foundation, spandrel walls and wingwalls were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

2.3. PARAPETS

The parapets were not assessed as part of this assessment, nor part of the previous assessment.

3. DUNFORD RAILWAY BRIDGE NO. 71A ABNORMAL LOAD ASSESSMENT RESULTS

3.1. CONCRETE ENCASED STEEL GIRDER

The bridge was assessed for the abnormal loads using the methods described in the Approval in Principal for Assessment (document reference 70023097-005-AIP-71A-002).

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

The lowest reserve factor was found to be 1.31 and the results are summarised in Table 1 below.

Load Case	Member	Load Effect	Assessment Resistance	DL Assessment Effects	Superimposed DL Asessment Effects	Capacity for Live Load	Live Load Assessment Effect	Reserve Factor
			R_A*	S_D*		R_A*-S_D*	S_L*	(R_A*-S_D*)/S_L*
Abnormal Load PB-PDE-CD01	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	218.61	3.28
		Shear (kN)	930.10	72.76	484.58	372.76	37.68	9.89
Abnormal Load PB-PDE-CD01	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	561.71	1.31
		Shear (kN)	930.10	67.52	476.00	386.58	148.26	2.61
Abnormal Load PB-PDE-CD01	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	697.80	1.91
		Shear (kN)	930.10	62.21	288.30	579.59	221.48	2.62
Abnormal Load PB-PDE-CD02	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	210.61	3.40
		Shear (kN)	930.10	72.76	484.58	372.76	39.80	9.37
Abnormal Load PB-PDE-CD02	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	541.17	1.36
		Shear (kN)	930.10	67.52	476.00	386.58	156.60	2.47
Abnormal Load PB-PDE-CD02	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	672.28	1.99
		Shear (kN)	930.10	62.21	288.30	579.59	233.93	2.48

Table 1. Summary of abnormal load assessment results

3.2. JACK ARCHES

In the previous assessment, the reinforced concrete jack arches were assessed following the advice in the Network Rail Standard NR/GN/CIV/025, a qualitative analysis using Bridgeguard 3 Current Information Sheet 22. It is assumed that the service bays at both edges of the bridge deck are providing alternative lateral restraint. The qualitative analysis using Bridgeguard 3 Current Information Sheet 22 determined the reinforced concrete jack arches to be adequate for 40 tonnes vehicle configuration requirements.

The Assessment for 40 tonnes vehicle configuration can be compared to the abnormal loads vehicle configuration specified. BD21/01 Clause D3, with regards to assessing vehicle configuration for 40 tonnes, states *'The wheel loads should be applied at 1.8m transverse spacing on the axle over a 0.3 x 0.3m square contact area.'* The heaviest axle load for an Annex D vehicle is 11.5 tonnes, and due to the geometry of the jack arches, the most onerous load location would be for half of this load to be applied to the jack arch.

The abnormal load vehicle, PB-PDE-CD01, has the heaviest axle weight of 12.5 tonnes. There are eight wheels per axle and due to the geometry of the jack arches and the wheel configuration the most onerous load location would result in a quarter of the axle load applied to one side of the jack arch. A quarter of 12.5 tonnes, 3.125 tonnes, is less than a half of 11.5 tonnes, 5.75 tonnes, and it can be concluded that the jack arches would experience less onerous loading under the axle configurations of the abnormal loads. Therefore the jack arches are assessed to have adequate capacity for the abnormal loads.

3.3. ABUTMENTS AND FOUNDATIONS

The abutments and foundations have been assessed qualitatively. The vertical crack in each abutment is thought to be due to settlement of the foundations. WSP agree with the following statement in the Assessment Inspection Report 2005 (included in the Appendix to the WSP Assessment report 70023097-005-RPT-71A-002): "*The mineral report states that there are no records of any coal mining activities to have affected the stability of the structures. This is mainly borne out by the inspection however the vertical cracking in both abutments adjacent beam 3 is evidence of past movement. This movement is old and the cracking in both Abutments was first noted in the inspection of 1959, it was noted at the inspection dated 1972 no further movement and this is still true as there are no signs of recent movement. The bridge is constructed in a cutting, the cutting sides can be seen on site to be solid sandstone therefore it is reasonable to assume that the structure is founded on competent strata*." The abutments and foundations were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

4. CONCLUSIONS

4.1. DUNFORD RAILWAY BRIDGE NO 71

The Dunford Railway Bridge No. 71 has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The masonry arch as assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment, refer to the Dunford railway Bridge No. 71 Assessment Report no. 70023097-005-RPT-71-002.

4.2. DUNFORD RAILWAY BRIDGE NO 71A

The Dunford Railway Bridge No. 71A has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The bridge deck, excluding the footways, was assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. As in the previous assessment the footway slab has not been assessed due to insufficient information. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment and recommendations or assessing the footway, refer to the Dunford railway Bridge No. 71A Assessment Report no. 70023097-005-RPT-71A-002.

Appendix A

ABNORMAL LOAD VEHICLES

Muir Wood, Alex

Subject: FW: National Grid Peak District AIL query

From: Andy Pearce [mailto:andy.pearce@wynnslimited.com]
Sent: 06 March 2019 13:06
To: Muir Wood, Alex <Alex.Muir-Wood@wsp.com>
Cc: Raveendran, Ravi <Ravi.Raveendran@wsp.com>; Nunn, Clive <Clive.Nunn@wsp.com>; Peter Wynn <peter.wynn@wynnslimited.com>
Subject: RE: National Grid Peak District AIL query

Good Afternoon Alex,

Thank you for your email and apologise for any confusion. The drawings are indicative and can vary depending on the exact tractor units and trailers utilised for movement, but I see where the uncertainty arises. We needed to make some assumptions and generally use the worst case basis. The load can be positioned toward the front or toward the rear of the trailer since the load is not very long. On that basis we can assume that say 16 tonnes of the load and trailer weight is transferred through the hydraulic neck and into the tractor 5th wheel. The self-weight of the tractor shown is 14 tonnes so the tractor is supporting 30 tonnes all up. I show below how this can be referenced in the 2 drawings.

PB-PDE-CD01
The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 4 axles, so each will be approximately 12.5 tonnes each.

PB-PDE-CD02
The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 5 axles, so each will be approximately 10 tonnes each.

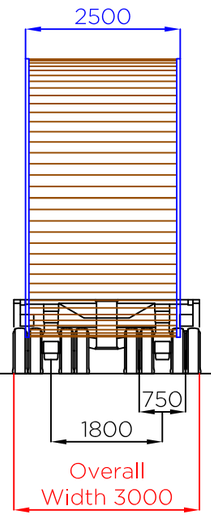
The loads suitability will of course depend on your structural assessment findings which will be affected by the nature of the bridge, span, skew etc. These axle loads are in fact quite low but if necessary additional axles could be added to further reduce axle loads although this would increase gross loads and trailer length.

Unfortunately, due to staff holidays and existing commitments we are not at present able to update the drawings for you within the next 2 weeks but we could do so later in the month if needed.

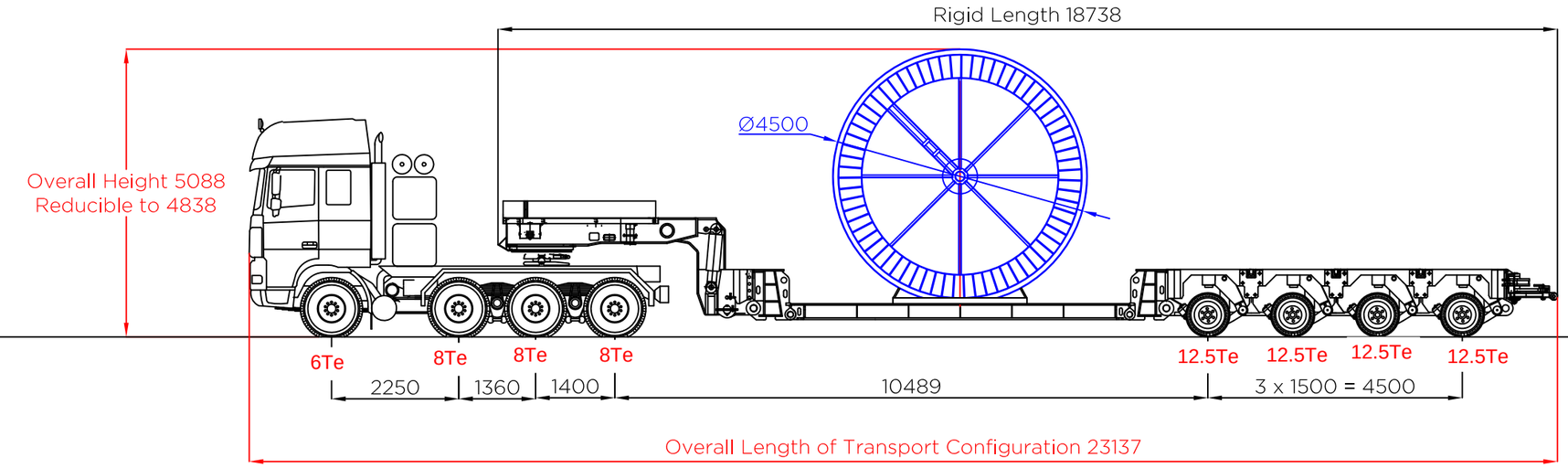
I trust that this is of some assistance.

Kind Regards

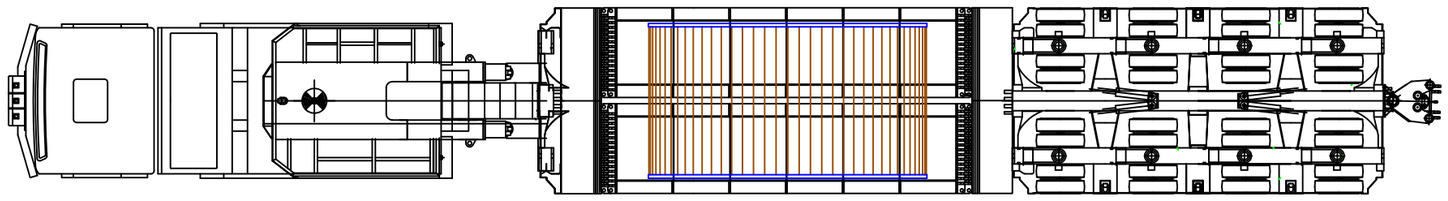
Andy Pearce



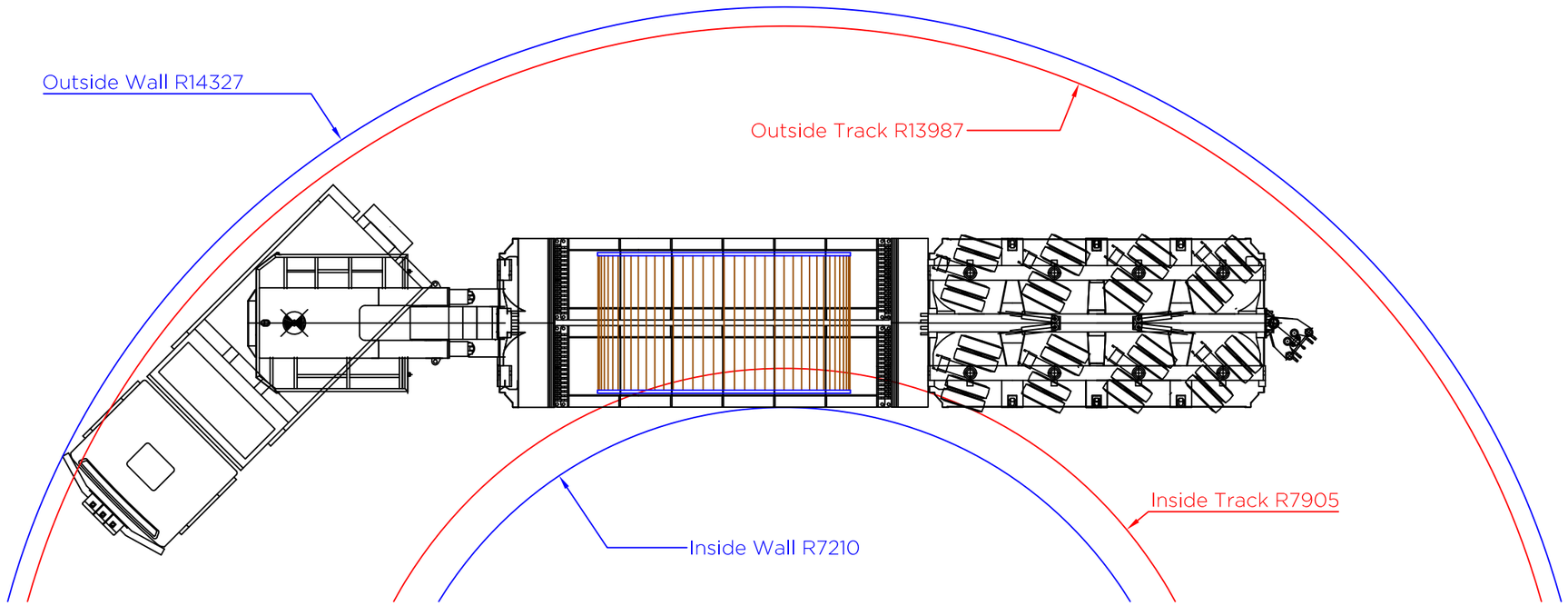
End Elevation



Side Elevation - Indicative 4 Axle Low Bed Trailer



Plan View - Indicative 4 Axle Low Bed Trailer



Minimum Turning Radii

Load Table	
4 Axle Goose Neck Low Bed Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	11.00 Te
Load Per Wheel	1.38 Te
Overall Ground Bearing Pressure	3.26 Te/m²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar
Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	9.17 Te
Rear Axle	9.17 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

Rev.	Date	Ammendments
A		
0	12.07.16	Issued for comment
		Revisions

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Independent Transportation Engineers

Client:

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
4 Axle Goose Neck Low Bed Trailer
Showing Minimum Turning Radii

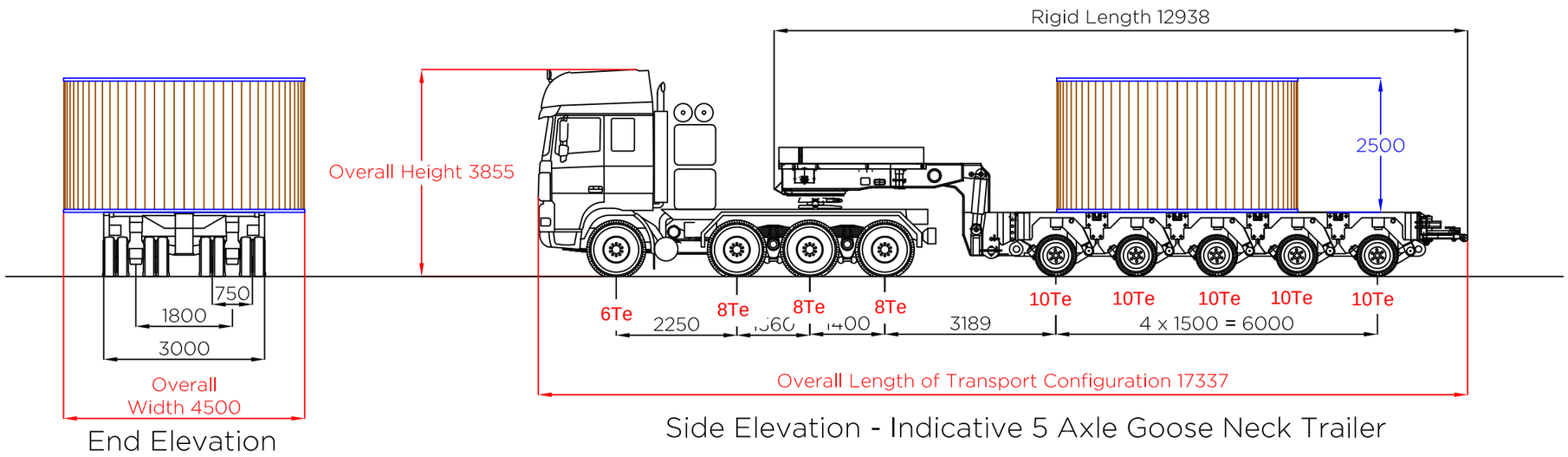
Drawing Status:

Final Report

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1:100	DJT	PAGW
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PB-PDE-CD01	1 of 1	0

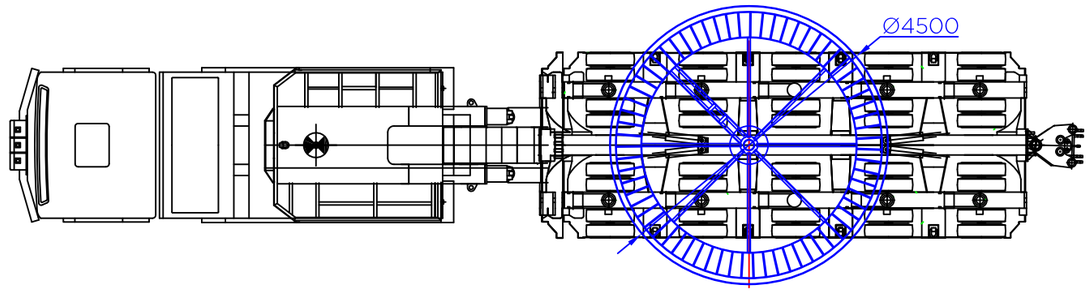
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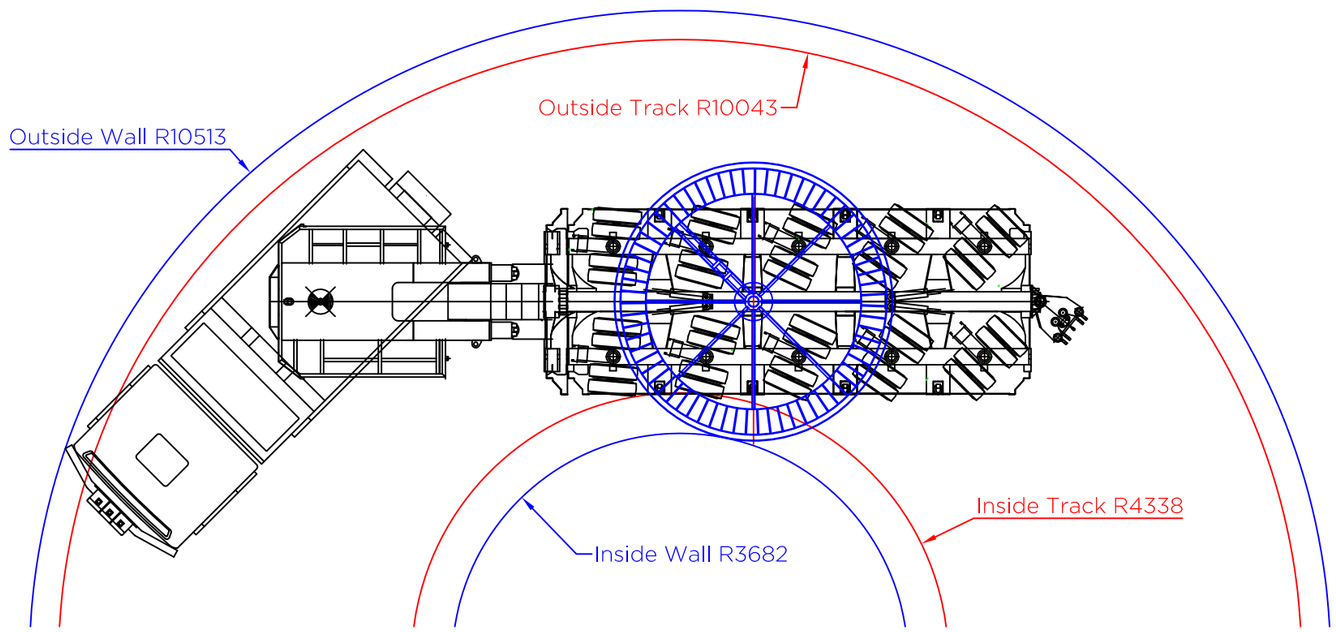


End Elevation

Side Elevation - Indicative 5 Axle Goose Neck Trailer



Plan View - Indicative 5 Axle Goose Neck Trailer



Minimum Turning Radii

Load Table	
5 Axle Goose Neck Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	9.43 Te
Load Per Wheel	1.18 Te
Overall Ground Bearing Pressure	2.62 Te/m²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar
Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	7.86 Te
Rear Axle	7.86 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

Rev.	Date	Ammendments
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		Revisions

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Client: WSP | PARSONS BRINCKERHOFF

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
5 Axle Goose Neck Trailer
Showing Minimum Turning Radii

Drawing Status:

Final Report

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Appendix E – Abnormal Indivisible Load (AIL) Study

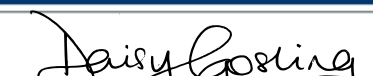
Abnormal Indivisible Load Access Study - Desktop Review of Transportation of Cable Drums to Car Park at Dunford Bridge

Prepared for WSP



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Contents

Executive Summary ii
1. Introduction 3
2. Legislative Requirements 3
2.1. Definition of Abnormal Indivisible Load (AIL) 3
2.2. Legislation 3
3. Abnormal Indivisible Load Movements - Highways Act 1980 4
3.1. Recovery of Excessive Maintenance Costs - Section 59 Agreements 4
3.2. The Removal and Replacement of Street Furniture 4
4. Transport Configurations 5
5. Structural Route Information 6
6. Route Negotiability Information 7
6.1. Route 1 7
7. Summary and Conclusions 20
Appendix 1 21
Maps 21
Appendix 2 22
Drawings 22
Appendix 3 23
Selected Correspondence 23
Appendix 4 24
WSP Assessment Report 24

Executive Summary

The contents of this report include an updated desktop review of transport feasibility investigations into achieving access for cable drums to the proposed laydown area in the Trans Pennine Walk car park, Dunford Bridge that was initially investigated and reported on during 2016. These are required for the undergrounding of an existing overhead power line in the Peak District National Park, in order to reduce visual impact. It is not known the number or frequency of deliveries, but these are expected to be between late 2020 and April 2021.

Due to the overall transport weight of the loads being considered (plus carrying trailer) being between 80te and 150te gross weight, the load will be moved under Special Types General Order (STGO) Category 2 or 3 legislation and will not require a Special Order from Highways England.

Two trailer configurations were initially considered for the delivery of the 41te cable drums. A 4 axle low bed trailer, allowing conventional loading of the cable drums with the largest dimension cable drum dimension being vertically carried, and a 5 axle flat top trailer allowing a width of 4.5m with the drum loaded with a reduced height due to rotation of the drum. This was proposed in the event that there were any overhead restrictions identified. It is recommended that the 4 axle low bed is used for delivery as there are no height restrictions on the route. This is discussed in further detail in section 4 of this report.

These STGO Category 3 loads are expected to be delivered by road from the UK port of delivery or manufacturing facility and this report therefore focuses on the potential routes from the M1 to the site.

Route 1 is considered negotiable and has been structurally cleared by all structural authorities on 4 axle goose neck low bed and 5 axle goose neck flat top trailers, except for Highways England Area 12 who not provided written confirmation that the route is acceptable have to date. No problems are however anticipated and Wynns will seek confirmation of this and advise accordingly.

As part of the desktop review; Wynns were asked to review the Assessment Report carried out by WSP for two National Grid owned bridges; 'Dunford Railway Bridges No. 71 and No 71a' on Windle Edge. In summary both bridges are acceptable for the proposed loads subject to full cautions such as ensuring the AIL is the only vehicle on the structure and limiting speed to <10mph whilst crossing.

As part of the latest desktop review, updated swept path assessments have been carried out to confirm access in and out of the revised car park layout. It is still the case that there is insufficient space for the delivery vehicles to turn around once the cable drums have been offloaded at the laydown area, and therefore access from Windle Edge into the car park will require the delivery vehicle to continue past the car park entrance and reverse into the car park. This is illustrated in drawing no. '19-970-SPA01 (sheet 1 and 2 of 2)', in appendix 2 of this report.

The exact requirements for any street furniture removal will depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements prior to delivery. The cost for this is expected to be minimal and no major issues with respect to street furniture are anticipated.

This report is intended to be a summary of the Abnormal Indivisible Load (AIL) route access at the current time and is not a guarantee that the route will be cleared in the future.

1. Introduction

1.1. The contents of this report include a desktop review of Wynns 2016's land transport feasibility investigations into achieving access for cable drum components to the proposed laydown area in the Trans Pennine Car Park at Dunford Bridge as part of a future development scheme. This is required to reconfirm the status of the route in respect to structural clearance based on current 2019 information.

1.2. This document reconfirms the preferred route but does not constitute a formal agreement for movement. Any future movement for the cable drums within Special Types General Order (STGO) Regulations will require the appointed haulage contractor to notify the relevant statutory authorities in the statutory manner. The legislative requirements for movement of the cable drums are discussed in detail within Section 2.

1.3. No specific consideration has been given to an onsite cable carrying vehicle that is often deployed during onsite movement of cables from storage to installation point. Wynns are aware from other similar projects that on occasions the site installation vehicles will also need to be road routed to the site as it is not built up on site. This vehicle could, based on previous experience, also be an AIL due to its excessive width (>3.0m).

1.4. This investigation is intended to be a summary of the AIL route access at the current time and is not a guarantee that the route will be cleared in the future. Specific movements will need to be assessed at the time on an individual basis.

2. Legislative Requirements

2.1. *Definition of Abnormal Indivisible Load (AIL)*

2.1.1. The Department for Transport, of which Highways England (HE), formally the Highways Agency (HA), is a government-owned company with responsibility for managing the core road network in England, state that the strict definition of an AIL refers to a load which cannot, without undue expense or risk of damage, be divided into two or more loads for the purpose of carriage on roads and which, owing to its dimensions or weight, cannot be carried on a vehicle which complies in all respects with the 'standard vehicle regulations' these are:

- The Road Vehicles (Construction and Use) Regulations 1986 (as amended)
- The Road Vehicles (Authorised Weight) Regulations 1998 (as amended)
- The Road Vehicles Lighting Regulations 1989 (as amended).

2.1.2. All equipment should be stripped of their ancillaries before they are transported. HE will only accept that further dismantling is not required where it cannot be economically achieved due to the requirement for its construction within specific factory environments or where extremely high tolerances have to be maintained.

2.2. *Legislation*

2.2.1. Conventional heavy goods vehicles have an operating weight limit of 44 tonnes. The category known as abnormal indivisible loads (AIL) covers those vehicles where the gross weight exceeds 44 tonnes. An Abnormal Load is defined as that which cannot be carried under Construction and Use (C&U) Regulations. Items which, when loaded on the load carrying vehicle exceed the weights encompassed by the C&U Regulations, but do not

exceed Special Order Permission Limits, are governed by Special Types General Order (STGO) categories 1 to 3 depending on size. Where dimensions exceed 6.1m in width, 30m in rigid length or 150 tonnes gross weight, Special Order from Highways England (HE) is required.

2.2.2. STGO loads orders grant consent for loads that satisfy the following criteria:

- Category 1 weight 44 – 50 tonnes and 11.5te axle weights
- Category 2 weight 50 – 80 tonnes and 12.5te axle weights
- Category 3 weight 80 – 150 tonnes and 16.5te axle weights
- 3.0m – 5m width
- 5.0m – 6.1m width (VR1 Required)
- 18.65m – 30.0m length

2.2.3. The cable drums considered within these investigations are expected to be transported at STGO Category 2 or 3. The indicative loads presented are 80te gross weight which is the limit of STGO Category 2. Category 3 loads are required to provide two clear working weekdays notice to be given to the Police forces on the proposed route and are required to provide 5 clear working weekdays notice together with an indemnity to the highway and bridge authorities on the route.

2.2.4. These loads, although still AIL's, are not in need of Special Order permissions and therefore are not directed by the HE to be delivered via the nearest port of delivery. These loads are expected to be delivered by road from the UK port of delivery or manufacturing facility.

3. Abnormal Indivisible Load Movements - Highways Act 1980

3.1. *Recovery of Excessive Maintenance Costs - Section 59 Agreements*

3.1.1. Section 59 of the Highways Act 1980 allows the highways authority to raise a charge against a user of the highway to cover repair works necessitated by excessively heavy or unusual loads being carried on the road by that user. This provision is typically used where the passage of heavy lorries to and from industrial premises or building sites causes excessive damage to the road, requiring expensive remedial works by the Council. Under Section 59, the Council may charge on such costs to the organisation responsible for the damage, the amount payable being calculated as the excess cost of repair compared to normal maintenance costs for the road. Rather than wait to be charged such excessive repair costs, the Council and the third party may enter into an agreement under Section 59 whereby the third party accepts liability and makes payment of an agreed sum to the Council to cover the excessive repair costs.

3.2. *The Removal and Replacement of Street Furniture*

3.2.1. Where the removal and replacement of street furniture is required for the mobilisation of out of gauge vehicles into existing sites then these are generally managed under TTRO and Street Works Legislation. These are normally, but not necessarily, organised by the haulage contractor. These requirements are generally to ensure that the supervisors and operatives are competent and that the works will be carried out to a prescribe standard with the appropriate traffic management in place. In some circumstance the Highway Authority or LA will insist that their preferred contractors will carry out such work.

4. Transport Configurations

4.1. The dimensions of the cable drum component expected to require delivery to the site as advised by WSP which has been considered in these investigations is detailed below:

Diameter	4.5m
Weight	41te

4.2. Due to the size of the components it is not possible to transport them under the regulations governing Construction and Use (C&U) vehicles (44 tonne gross, 18.65m long and 2.9m wide). It is therefore necessary to transport within the Special Types General Order (STGO) regulations as previously discussed.

4.3. There are numerous haulage contractors with equipment able to carry the cable drums within STGO Category 3 (between 80te – 150te gross) and these have been used to inform and produce the conceptual transport drawings considered within this report. As various haulage contractors are available, competitive tendering for the transport of cable drums is viable. For the general purposes of this investigative work we have produced transport arrangements considerate of a maximum 41te nett cable drums.

4.4. It is assumed that road transport configuration would utilise a bed trailer or low bed type configuration. The conceptual transport dimensions for the cable drums are discussed below:

- Drawing Number 19-970.TC01 – 4 axle goose neck low bed trailer at 80te gross (4.8m reduced height)
- Drawing Number 19-970.TC02 – 5 axle goose neck trailer at 80te gross (4.5m wide)

4.5. Drawing Number 19-970.TC01 shows a 4 axle goose neck low bed trailer with the cable drum carried in its conventional position with the height of 5.1m making a reducible height when loaded on the trailer of 4.8m. The rigid length of this trailer is 23.1m.

4.6. Drawing Number 19-970.TC02 shows a 5 axle goose neck trailer with the cable drum carried in its alternative position, with the drum carried at 4.5m width rather than height due to rotation of the drum. This reduces the length of the trailer and the load height considerably. The rigid length of this trailer is 17.3m which would assist with negotiability if required. However, the increased width of 4.5m means that the overall width of the load becomes more significant and caution is required. It would only be proposed to deliver on this shorter vehicle, with a wider width, in the event that a more conventional low bed trailer arrangement encountered difficulties.

4.7. As no negotiability issues were identified on the route inspection in 2016 for the conventional carriage of the cable drums on the 4 axle low bed trailer, it is not anticipated that the 5 axle flat top configuration at the wider transport width will need to be considered for access.

4.8. The physical negotiability of these vehicles is discussed in further detail in Section 6.

4.9. The trailer arrangements provided to the structural authorities for consideration in this investigation have been produced to be considerate and representative of those available in the UK heavy haulage market in terms of their suitability on the potential access route from the M1 motorway to site. The responses to these investigations are discussed in Section 5.

5. Structural Route Information

5.1. As the loads are not restricted to Special Order requirements, the cable drums could arrive via any UK port and travel to the M1 by way of the motorway and trunk road network. It is assumed that this will be feasible without difficulty for the proposed loads. The final approach to the site from junction 36 is now discussed in terms of structural clearance.

5.2. The following route from the M1 to the proposed laydown area has been included in 2019 structural enquiry;

<u>Proposed Route 1</u>
Exit M1 at Junction 36
Exit Tankersley Roundabout to A61 Westwood New Road
Turn right A616
Continue A616 to Hazlehead
Turn left A628
Turn right Goddard Lane
Continue Windle Edge
Turn right to site at Dunford Bridge into car park at OS Grid Ref. SE1577 0241

5.3. The route has been structurally cleared by the following structural authorities.

- Highways England Historical Railways Estate
- Network Rail
- Canal & Rivers Trust
- Barnsley Metropolitan Borough Council (BMBC)

5.4. Unfortunately, as part of this updated desktop review a written response from HE Area 12 has not been provided to date. However, no significant issues are expected as the route was approved in 2016, and it is assumed that the route is acceptable as far as they are concerned in the absence of any information to the contrary. Wynns are continuing to seek written confirmation on this matter and will advise accordingly.

5.5. Barnsley Metropolitan Borough Council own B5.017 Dunford River Bridge, just to the North of the car park on Windle Edge. Swept path assessment has confirmed that when carrying out a reverse manoeuvre in order to enter the car park, it is necessary to drive past the entrance and further north on Windle Edge before reversing into site. The delivery vehicle comes in to contact with B5.017 Dunford Bridge. BMBC have advised (email 11.04.19) that the structure is acceptable for the proposed loads.

5.6. Separate to the structural enquiry carried out by Wynns, WSP also asked for a review of a structural assessment report carried out for two National Grid owned bridges, attached in appendix 4. Review of the following report finds that both Dunford Railway Bridge No. 71 and Dunford Railway Bridge No. 71A were both assessed and found to be structurally acceptable for the proposed loads subject to the following cautions;

- The vehicles are prevented from being on the footway
- No other traffic on the bridge whilst crossing
- Travelling speed of no more than 10mph
- The vehicles are limited to the loadings outlined in Appendix A of their report. (Wynns have since updated these drawings for this desktop investigation).

5.6.1. It was also a recommendation of the assessment report that whilst the abnormal load vehicles are using the bridge then the abutments and wing walls are monitored, however it is noted for each structure that the loading of the abnormal loads would be no more onerous than the current levels of loading. It was also recommended that pre and post condition surveys are carried out before and after the abnormal load movement to ensure there is no change to the condition of the structure.

6. Route Negotiability Information

6.1. *Route 1*

6.1.1. The following notes and photographs are a duplicate of the 2016 report, albeit with all reference to route 2 removed, and taken from a route survey carried out by Wynns in August 2016. Wynns have not carried out any route surveys since this time and therefore caution must be given regarding the possible changes to any section of the route.

6.1.2. The UK motorway and trunk road network from the potential delivery ports on the east coast of Hull, Immingham, Goole and other UK ports is negotiable for the proposed loads. There are no significant negotiability limitations to egress from these ports. All are regularly used by AILs delivered into the UK at STGO and also Special Order category. This includes for loads of significantly larger dimensions than the cabled rums considered within this report such as at heavy transformers. Goole and Immingham are also regularly used for export of heavy engineering components from manufacturing facilities in Sheffield and geometry is not a concern for the proposed cable drum vehicles.

6.1.3. In addition, as the loads are within STGO Category 2 and 3, they are not restricted to the nearest available port by the Department for Transports Water Preferred Policy. Therefore, it is possible that components could also be delivered to alternative UK ports such as Liverpool on the west coast or Southampton on the south coast for onward road transportation to the general study area.

6.1.4. As has been previously highlighted, South Yorkshire Police have indicated that they would require that wherever the loads originate in terms of a UK port of delivery they would expect the loads to approach the site from the east and the M1 motorway. This is due to concerns as to the suitability of the A628 Woodhead Pass when approaching from the west and the A57/M67 from the M60 Greater Manchester. At STGO there are no legislative restrictions on the route used and the loads will be able to route via the UK motorway and trunk road network to M1 Junction 36. The main negotiability section of this report therefore details the routes from the M1, junction 36.

6.1.5. Table 1 below shows a selection of UK ports that could potentially be used for delivery into the UK and the onward road routes to M1 Junction 36. This is not an exhaustive list of options but does highlight there are various possibilities, and none are considered to have significant negotiability restrictions for the proposed loads.

Table 1. Potential Ports of Delivery and Routes to M1 Junction 36

Port	Potential route to M1 Junction 36	Additional Notes
Hull	Exit Hull Docks via A1033 Continue A1033 Continue A63 (Use slip roads at Daltry junction) Continue M62 to Junction 29 Turn left M1 Exit M1 Junction 36 and continue on common route.	There are structural restrictions on the M1 for heavy loads between the M1 junction 36 and the M62. Although these are not expected to be restrictive for cable drums, if they are problematic an alternative to approach from the south would be feasible as shown below. Continue M62 to Junction 35 Turn left M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.
Immingham	Exit Immingham Docks onto A160 Humber Road Merge A180 Merge M180 Turn left M18 southbound Turn left M62 westbound Turn left M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.	Some heavy loads routing into Sheffield are not able to use the M18/M1 northbound slip roads. If necessary, this can be overcome by traveling south the M1 Junction 31 and circumnavigating the roundabout before returning north on the M1.
Goole	Exit Goole A161 Turn left A614 Rawcliffe Road Turn left M62 Turn left M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.	
Liverpool	Exit Liverpool Docks onto A565 and join A5036 Turn right M57 Turn left M62 and continue to Junction 29 Turn right M1 Exit M1 Junction 36 and continue on common route.	There are structural restrictions on the M1 for heavy loads between the M1 junction 36 and the M62. Although these are not expected to be restrictive for cable drums, if they are problematic an alternative to approach from the south would be feasible as shown below. Turn right M18 Bear right M1 north Exit M1 Junction 36 and continue on common route.

Port	Potential route to M1 Junction 36	Additional Notes
Avonmouth	Leave Avonmouth Docks via West Gate and Victoria Road Merge with West Town Road Turn left A4 Portway Continue A4 Bristow Broadway to St Brendans roundabout Join M5 Northbound Slip Road Continue M5 Bear right M42 Turn left M1 Exit M1 Junction 36 and continue on common route.	
Southampton	Exit Southampton Docks via First Avenue Turn left A35 Redbridge Road Continue M271 north Turn right M27 Turn left M3 north Turn right M25	Gade Valley viaduct is restricted on M25 between Junctions 20 and 21 hence the suggested route via M25 anticlockwise. It may also be avoided by local diversion shown below. Take junction 19 of the M25 At roundabout take second exit, continue on A41/N Western Ave Take exit slip for A405 and then keep right (at the fork in the road) for the A405 At the roundabout take the 2nd exit, continue on A405 North Orbital Road Continue on A405 Turn left M1 north
Tilbury	Exit Tilbury Docks Turn left A126 St Andrews Rd/A1089 Dock Approach Road Turn left A13 At M25 Junction 30 turn right and continue M25 anticlockwise to junction 21 Take slip road for M1 north Exit M1 Junction 36 and continue on common route	

6.1.6. The route survey was undertaken on the 28.07.16 and as per the latest work instruction; no more recent surveys have been carried out. The below should therefore be treated with caution.

6.1.7. A summary of the main negotiability issues from 2016's survey is provided in the notes and photographs below in relation to each route and also illustrated on Map 1 (sheets 1 – 2 of 2), which can be found in appendix 1 of this report.

6.1.8. The exact requirements for any street furniture removal necessary will still need to be confirmed by the appointed haulage contractor prior to movements. No costs have been acquired at this stage, but they are expected to be minimal. It should be highlighted within procurement of transport that haulage contractors should allow for street furniture removal to be included in their proposals. Based on the information visible during the 2016 route survey; no major street furniture is expected to be necessary for the proposed loads, however, as stated above, and because of the time since the last survey; this will need to be confirmed by the contractor.



Photograph 1
A61/A616 roundabout off the M1, Junction 36. Vehicle moves away from camera, travelling straight over roundabout, exiting A616. Negotiable.



Photograph 2
Approach to A616/A628 roundabout.
Vehicle moves away from camera.



Photograph 3
Approach to A616/A628 roundabout.
Vehicle moves away from camera and turns left joining A628. Negotiable.



Photograph 4
A616/A628 roundabout.
Vehicle moves away from camera and turns left joining A628.



Photograph 5
West on A628. Layby for possible AIL parking subject to approval from highway authority.
Vehicle moves away from camera.



Photograph 6
West on A628. Vehicle moves away from camera.



Photograph 7
West on A628. Vehicle moves away from camera.



Photograph 8
West on A628. Vehicle moves away from camera.



Photograph 9
West on A628. Vehicle moves away from camera.

6.1.9. Photographs 10 – 13 below illustrate the right turn from the A628 onto Goddard Lane. A swept path analysis was carried out as part of the 2016 investigations, which confirmed negotiability and that the vehicle track stays on the road surface. This is detailed in 2016 swept path assessment (drawing no. PB-PDE-SP02, found in appendix 2), which is still relevant in this 2019 review as it has been based on the worst case combination of both transport configurations Wynns recently updated; drawing no. 19-970.TC01 and 19-970.TC02.



Photograph 10
West on A628. Vehicle moves away from camera and turns right onto Goddard Lane.
Drawing Number PB-PDE-SP02 refers.



Photograph 11
Right turn onto Goddard Lane. Vehicle enters photograph from right, turns right and exits centre photo onto Goddard Lane.



Photograph 12
Right turn onto Goddard Lane. Vehicle enters photograph from top left, turns right and exits bottom left of photograph onto Goddard Lane.



Photograph 13
Reverse angle of turn onto Goddard Lane. Vehicle enters photograph from top left, turns right and exits bottom right of photograph onto Goddard Lane.

6.1.10. Goddard Lane and Windle Edge, is illustrated through Photographs 14 – 19 below, and full occupation of the highway will be necessary in parts. The vehicle itself will negotiate the route and no new passing places are necessary.

6.1.11. In 2016 investigations; South Yorkshire Police advised that they would permit the loads to travel on Windle Edge under self/private escort. They would not expect a police escort to be required and would not require a Temporary Traffic Regulation Order (TTRO). The exact escort requirements would be formally advised at the time of notification by the appointed haulage contractor, but the police do not see this as a major issue on this route. No reference has been made to this by South Yorkshire police as part of these 2019 investigations.

6.1.12. As no major negotiability issues were identified on the route inspection for the conventional carriage of the cable drums on the 4 axle low bed trailer, with the cable drum carried vertically, it is not anticipated that the 5 axle flat top configuration at the wider transport width will need to be considered for access, thus improving the negotiability of the final approach to site via Windle Edge. Without carrying out a more up to date route survey it is assumed this situation remains the same.

6.1.13. Windle Edge is around 6-7m wide between the A628/Goddard Lane junction and the access to the car park and the 4 axle low bed trailer configuration would be 3m width, assuming a vertical drum position. Windle Edge would be suitable for two-way traffic movement whilst the AIL negotiates this section, although as stated previously, a self/private escort would be required by South Yorkshire Police to warn other road uses of the presence of the AIL.

6.1.14. The steep gradient of Windle Edge does not prevent the drum from being transported vertically. It may however be prudent for the haulage contractor to allow for an additional tractor unit in the event that there are poor weather conditions at the time of movement.



Photograph 14
North on Goddard Lane. Vehicle moves away from camera.



Photograph 15
North East on Goddard Lane. Vehicle moves away from camera.



Photograph 16
North East on Windle Edge. Vehicle moves away from camera.



Photograph 17
North East on Windle Edge. Vehicle moves away from camera.
Full occupation of highway necessary under private escort.

6.1.15. It should be noticed that there are 11kv wires at this location, however as the load and vehicles are within standard UK motorway and trunk road running, it is not anticipated this will be a problem.



Photograph 18
North East on Windle Edge. Vehicle moves away from camera. Full occupation of highway necessary under private escort.



Photograph 19
North on Windle Edge. Vehicle moves away from camera, on approach to the laydown area. As detailed in section 5, there are no structural issues anticipated with the proposed loads on this route.

6.1.16. Photographs 20 – 23 illustrate the turn into the car park area which is the site access location. An updated drawing has been supplied of the car park area following revisions to the design by National Grid and a review of access arrangements can be found in appendix 2 of this report (drawing no. 19-970.SP01 sheets 1 & 2 of 2). These drawings illustrate the proposed division of the car park for general public use and the proposed site access area during the project delivery and construction period.

6.1.17. Upon 2019 desktop checks and updated swept path assessments carried out for the turn in to the car park; it has been identified that there would be insufficient space for the delivery vehicles to turn around once the cable drums have been delivered, and therefore the delivery vehicles would need to continue past the entrance and reverse into the laydown area. This will enable the vehicles to exit the site in a forward direction.

6.1.18. It can be seen in drawing no. 19-970. SP01 (Sheet 2 of 2) that in order to carry out this reverse manoeuvre the vehicle would come in to contact with Barnsley Metropolitan Borough Council's (BMBC) 'B5.017 Dunford River Bridge' over the River Don as also stated

in section 5 of this report. This has been specifically highlighted to BMBC and they have confirmed the bridge is structurally acceptable for the proposed loads.



Photograph 20
North on Windle Edge. Vehicle moves away from camera, continues past the car park entrance and reverses into the site to the right of the photograph.



Photograph 21
North on Windle Edge. Vehicle moves away from camera continues past car park entrance and reverses into the site.



Photograph 22
Right turn into car park laydown area. Vehicle enters photograph from the right, exits to the left then reverses into the site.

6.1.19. Negotiability of the turn into the laydown area has been confirmed from a swept path analysis (drawing no. 19-970.SPA01 and 19-970.SPA02) and can be found in appendix 2 of this report.

6.1.20. Photographs 23 – 25 illustrate the car park as it was seen in the 2016 route survey.



Photograph 23
View from back of car park towards the road.



Photograph 24
View of car park.

6.1.21. Photograph 24 above shows the access through the car park to the site, as illustrated in the updated swept path assessments (drawing no. 19-970.SP01, sheets 1 & 2 of 2), found in appendix 2 of this report. The left of photograph illustrates where the car park is expected to be separated in order for it to be still used by the general public, and the right of the photograph illustrates the proposed laydown area for the cable drums.

6.1.22. It is noted that for the vehicle to access the storage compound through the proposed new gateway that is to be instructed, it will be necessary for the new gate to be removed and be made demountable.



Photograph 25
Entrance from car park, to National Grid Woodhead Tunnels.

7. Summary and Conclusions

7.1. As the loads will be moved under STGO Category 2 or 3 legislation (depending on the actual transport configuration procured for transport) it is assumed that the road route to the M1 Junction 36 will be accessible from a suitable UK port of delivery.

7.2. It is recommended that the 4 axle low bed trailer is used for delivery as there are no height restrictions on the route.

7.3. Route 1 via the A628 is the only route considered and is deemed negotiable.

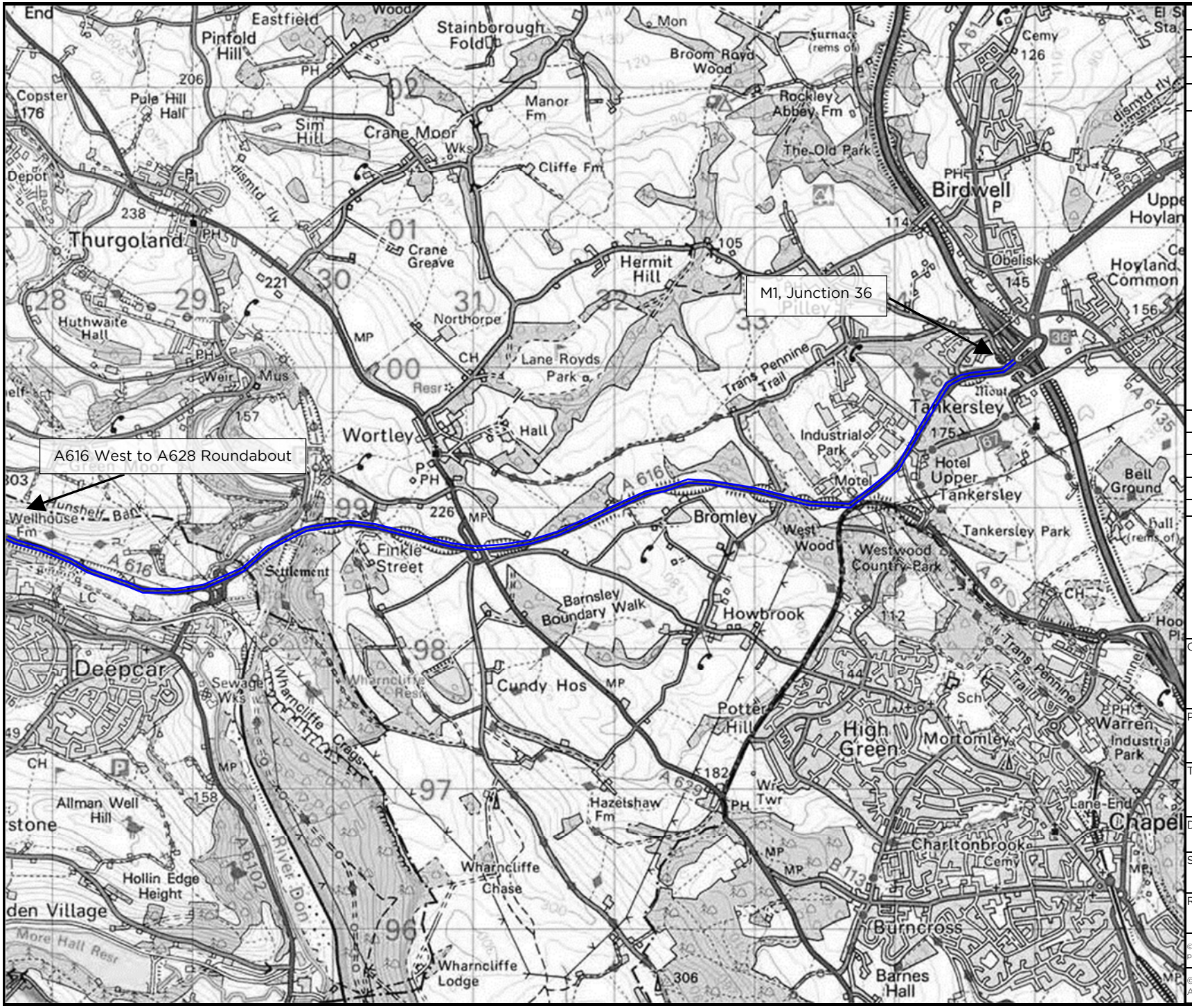
7.4. Route 1 has also been structurally cleared by all structural authorities on 4 axle goose neck low bed and 5 axle goose neck flat top trailers except for Highways England Area 12 from whom written confirmation that the route is acceptable remains outstanding. Several attempts have been made to contact Highways Area 12 and confirmation is still being sought. Although no problems are anticipated Wynns are seeking written conformation on this and will advise when this has been provided.

7.5. There is insufficient space for the delivery vehicles to turn around in the updated site access area to enable egress from the site to be carried out in a forward direction and therefore, access from Windle Edge into the car park will require the delivery vehicles to continue past the car park entrance and reverse into the car park. A confirmatory swept path has been carried out (drawing no. 19-970.SPA01 and 19-970.SPA02) for the approach from route 1, which confirms that this manoeuvre is negotiable. This drawing can be found in appendix 2 of this report.

7.6. The exact requirements for any street furniture removal will depend on the trailer selected for movement and it will be necessary for the appointed haulage contractor to confirm street furniture removal requirements prior to delivery.

Appendix 1

Maps



Key

Route 1	
Point of Interest	
Proposed Laydown Area	

Rev	Date	Amendments:
B		
A		
0	01.05.19	First Issue

Revisions

Wynns Ltd.
Independent Transportation Engineers

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Client:

WSP
2 London Square
Cross Lanes
Guildford, Surrey
GU1 1UN

Project:

Peak District East Cable Drums

Title:

Map 1 – Route to Proposed Laydown Area

Drawing Status:

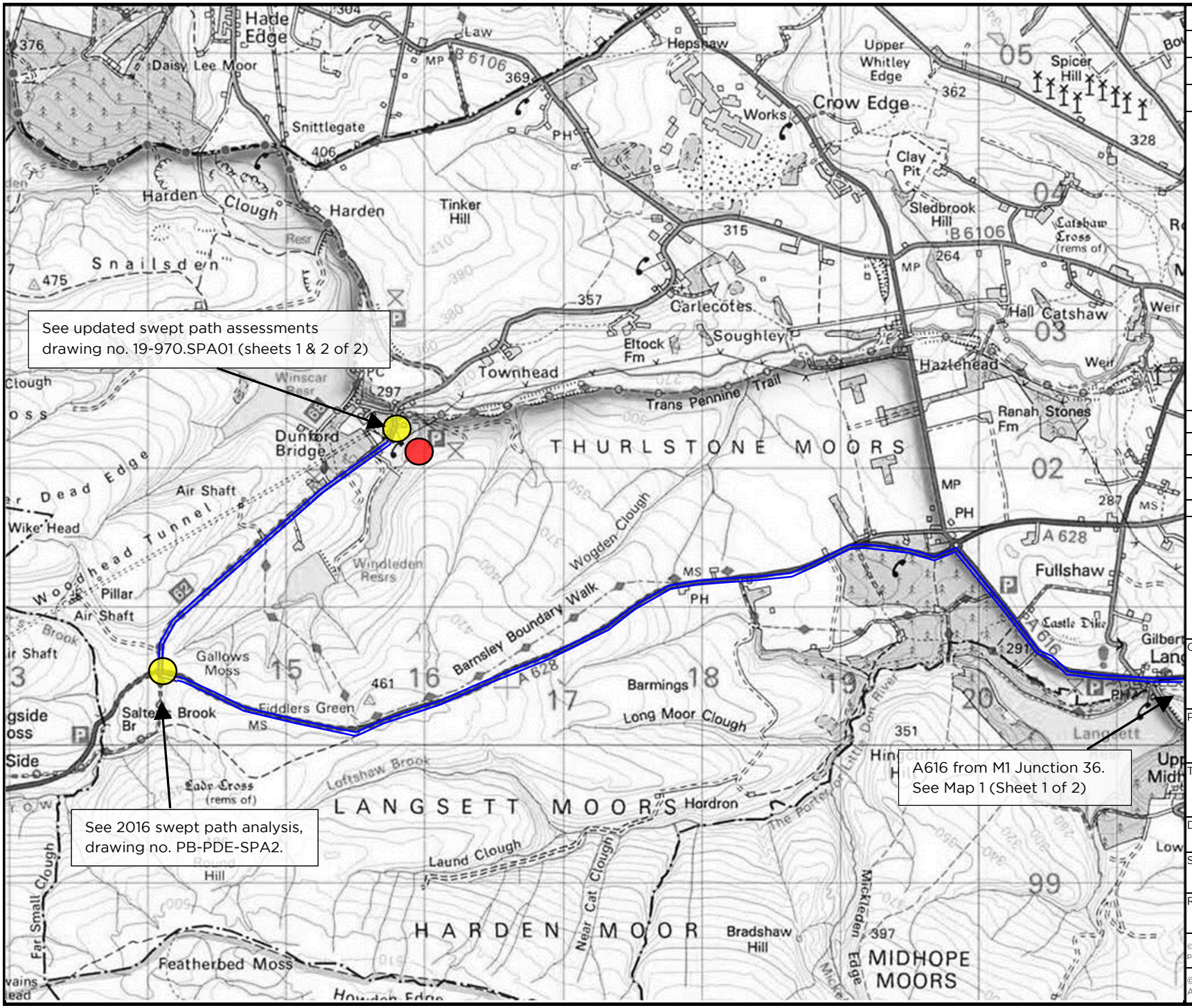
Final Report

Scale (A4):	Drawn by:	Checked by:
NTS	DMG	ARP

Ref No.:	Sheet:	Rev.:
19-970.Map1	1 of 2	0

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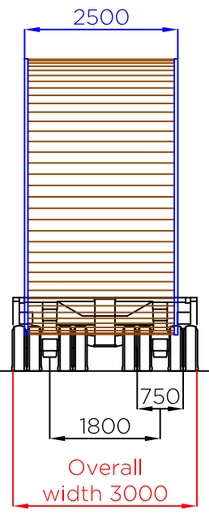
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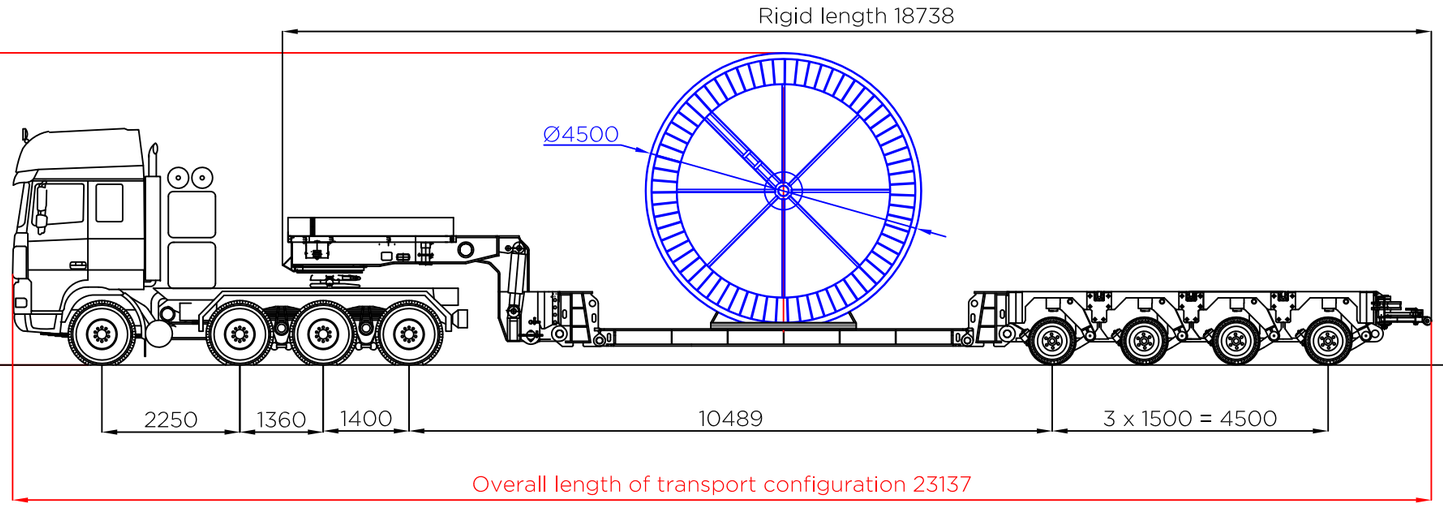
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Appendix 2

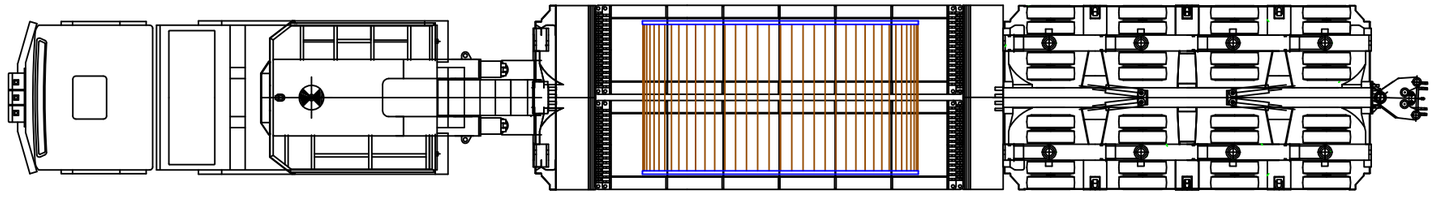
Drawings



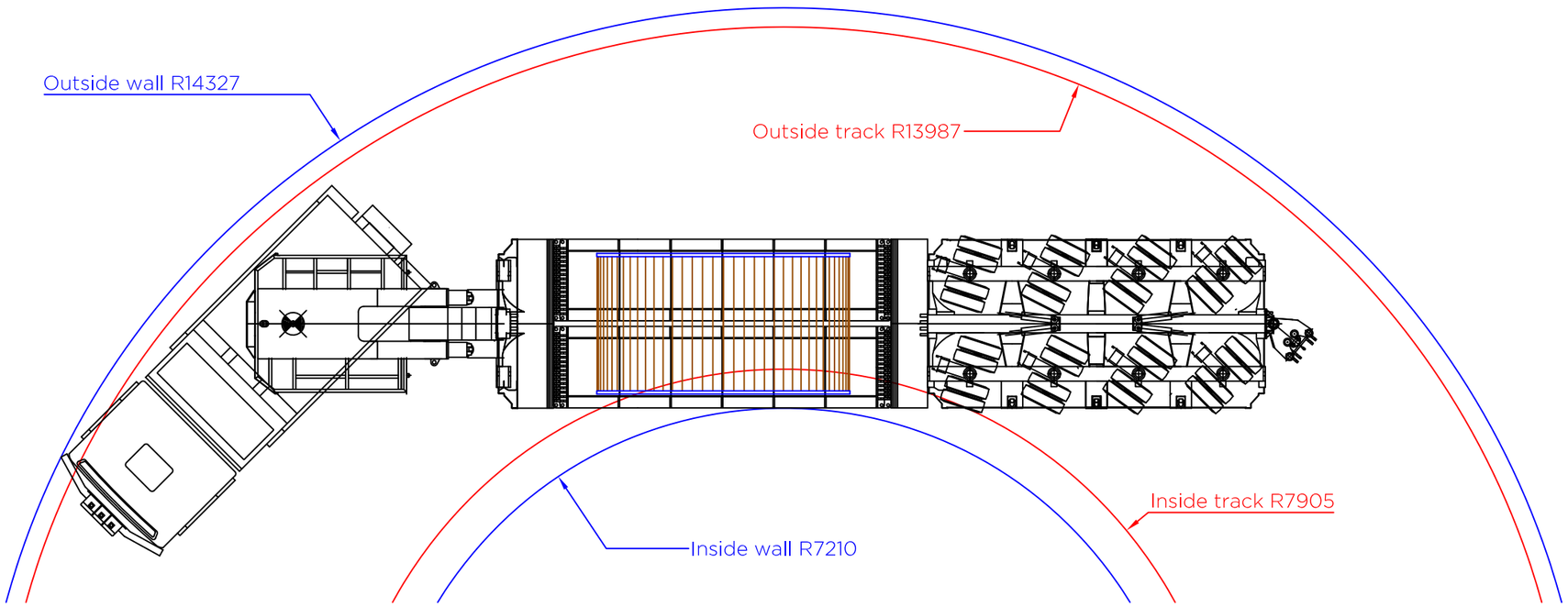
End elevation



Side elevation - indicative 4 axle low bed trailer



Plan view - indicative 4 axle low bed trailer



Minimum turning radii

Load Table	
4 axle goose neck low bed trailer	
Self weight of load	41.0 te
Self weight of trailer	Say 24.0 te
Self weight of tractor(s)	14.0 te
Self weight of aux. steelwork	Say 1.0 te
Total combined weight	80.0 te
Load per axle line	12.5 te
Load per axle	6.25 te
Load per wheel	1.56 te
Overall ground bearing pressure	3.70 te/m²
Tractor (14 te)	
Front axle	6.0 te
Second steer	8.0 te
Rear axle	8.0 te
Rear axle	8.0 te

Notes:-

[1] The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

[2] Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

[3] All linear measures in millimetres unless stated otherwise.

[4] Indicative cable drum drawing shown only.

Rev.	Date	Amendments
1		
0	02.04.19	Issued for comment

Revisions

Prepared by:

Shaftesbury House, 2 High Street,
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Tel: (01785) 850411

Independent Transportation Engineers

Client:

Project:

Peak District East

Title:

Indicative transport configuration
4.5 m dia cable drum carried upon
4 axle goose neck low bed trailer
showing minimum turning radii

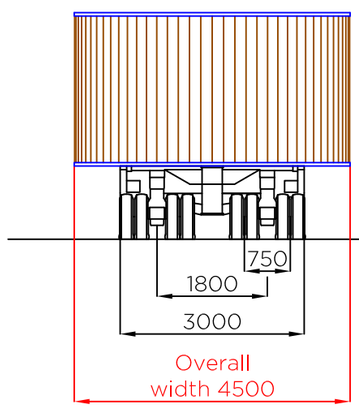
Drawing status:

Final report

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DWG. no:	Sheet:	Rev:
19-970.TC01	1 of 1	0

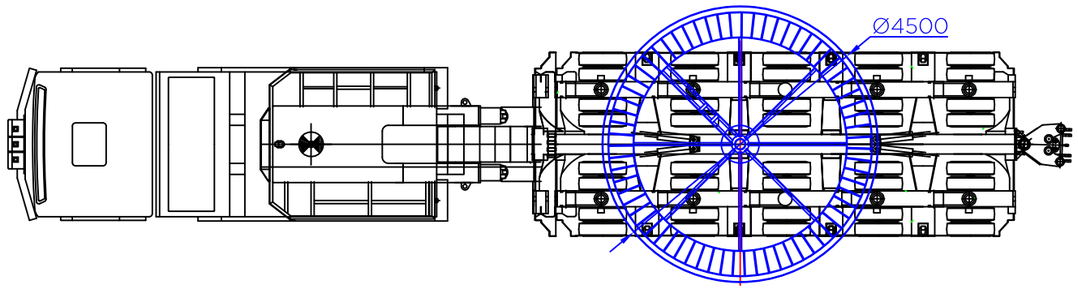
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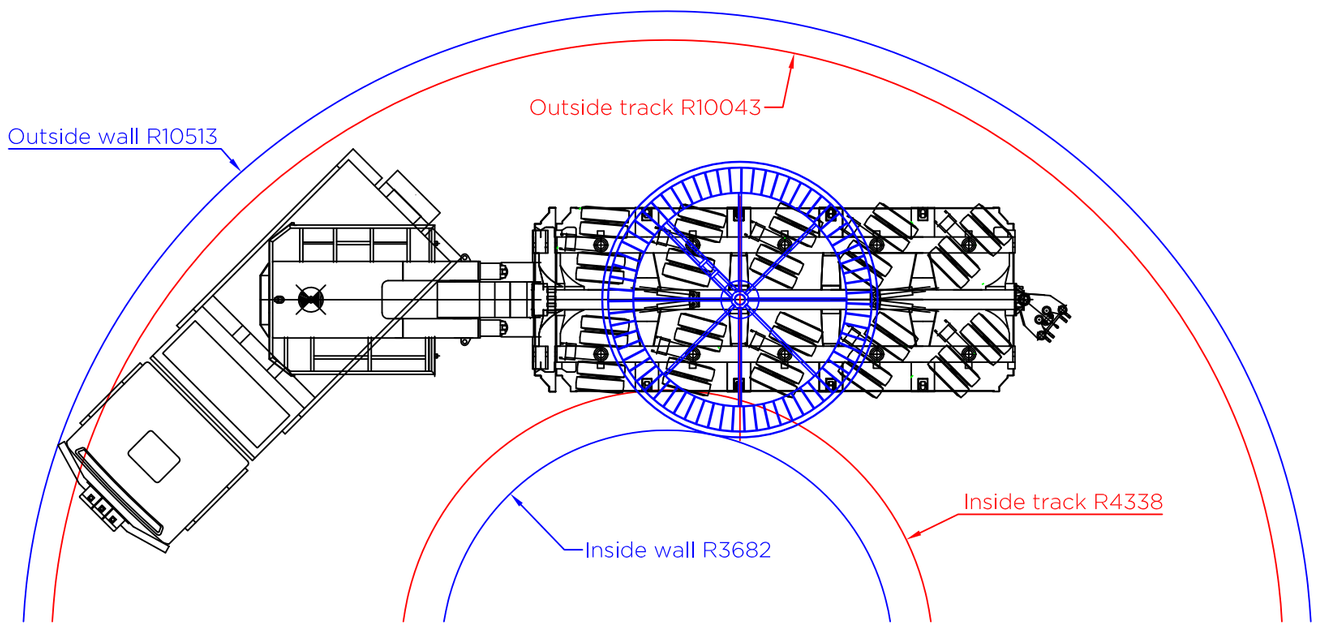


End wlevation

Side elevation - indicative 5 axle goose neck trailer



Plan view - indicative 5 axle goose neck trailer



Minimum turning radii

Load Table	
5 axle goose neck trailer	
Self weight of load	41.0 te
Self weight of trailer	Say 24.0 te
Self weight of tractor(s)	14.0 te
Self weight of aux. steelwork	Say 1.0 te
Total combined weight	80.0 te
Load per axle line	10.0 te
Load per axle	5.0 te
Load per wheel	1.25 te
Overall ground bearing pressure	2.78 te/m²
Tractor (14 te)	
Front axle	6.0 te
Second steer	8.0 te
Rear axle	8.0 te
Rear axle	8.0 te

Notes:-

[1] The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

[2] Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

[3] All linear measures in millimetres unless stated otherwise.

[4] Indicative cable drum drawing shown only.

Rev.	Date	Amendments
1		
0	02.04.19	Issued for comment

Revisions

Prepared By:

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Tel: (01785) 850411

Independent Transportation Engineers

Client: WSP

Project: **Peak District East**

Title: Indicative transport configuration
4.5 m dia cable drum carried upon
5 axle goose neck trailer
showing minimum turning radii

Drawing status: Final report

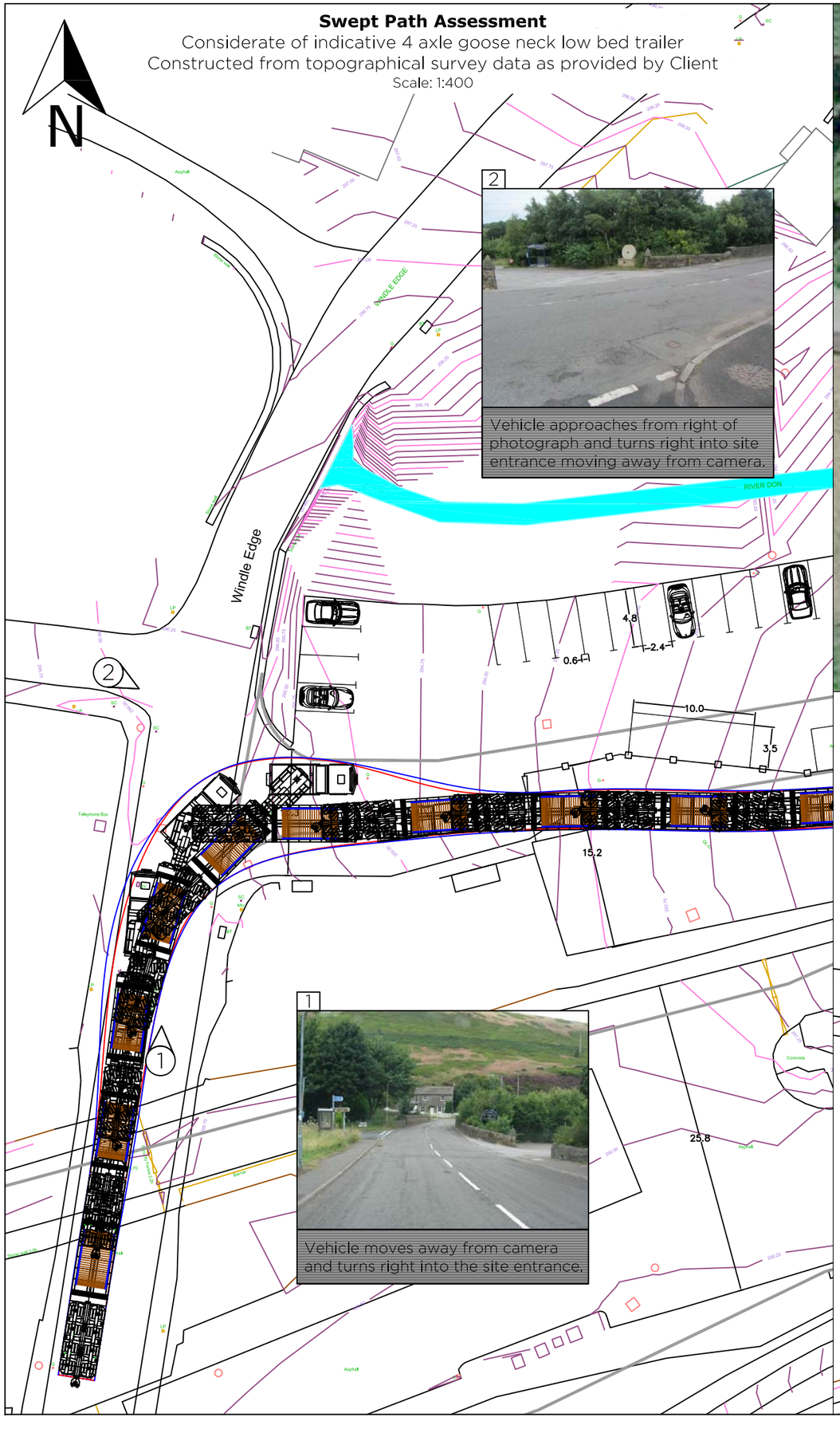
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DWG. no:	Sheet:	Rev:
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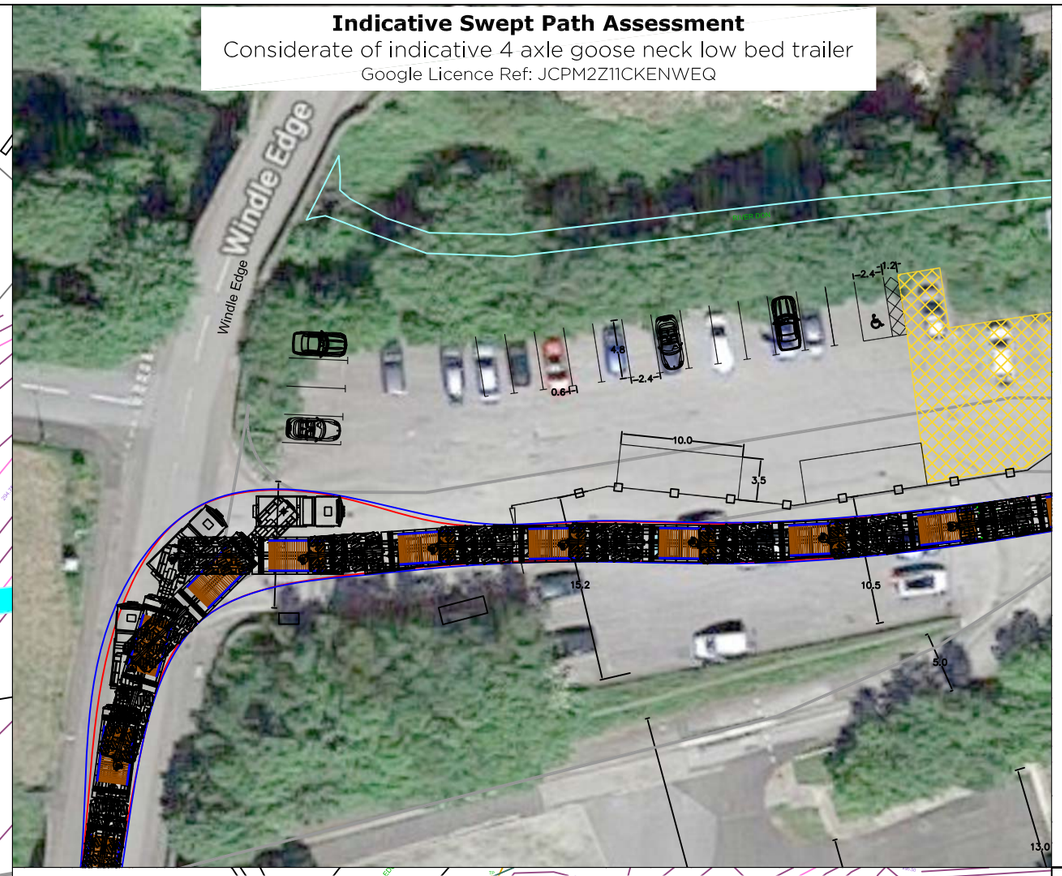
Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Constructed from topographical survey data as provided by Client
Scale: 1:400



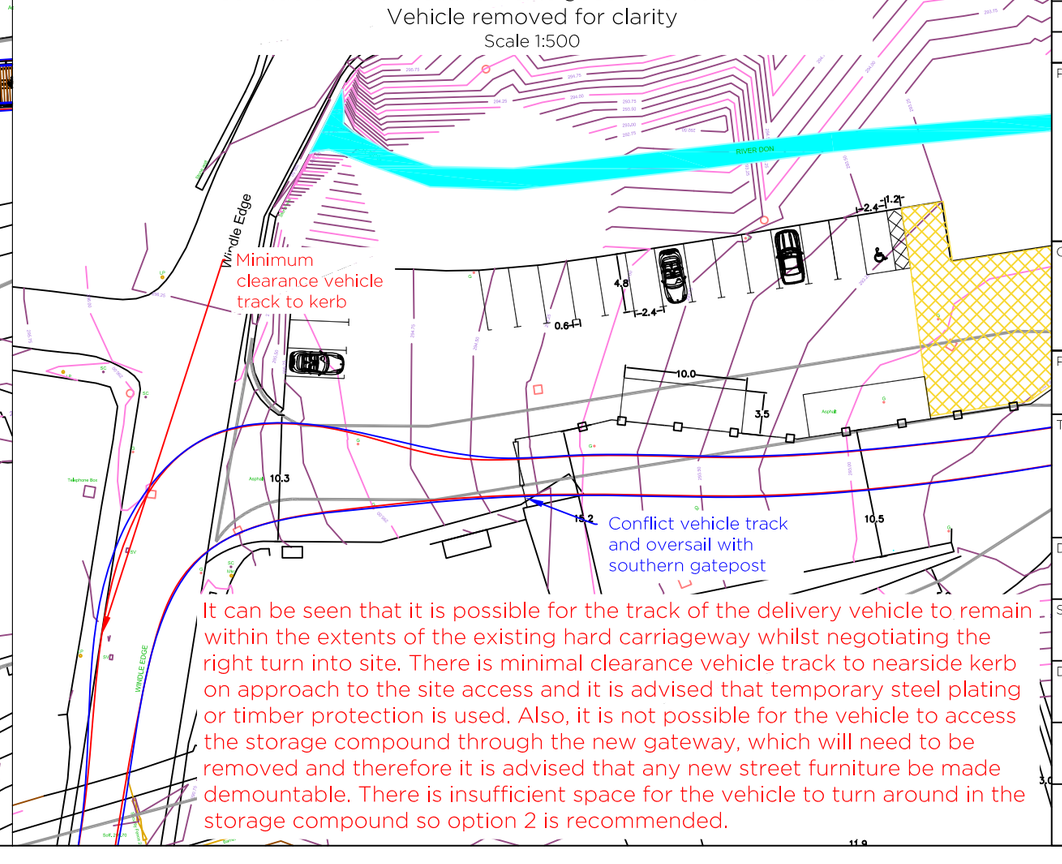
Indicative Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Google Licence Ref: JCPM2Z11CKENWEQ



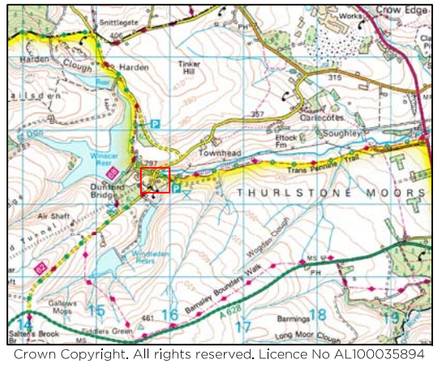
Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Vehicle removed for clarity
Scale 1:500



It can be seen that it is possible for the track of the delivery vehicle to remain within the extents of the existing hard carriageway whilst negotiating the right turn into site. There is minimal clearance vehicle track to nearside kerb on approach to the site access and it is advised that temporary steel plating or timber protection is used. Also, it is not possible for the vehicle to access the storage compound through the new gateway, which will need to be removed and therefore it is advised that any new street furniture be made demountable. There is insufficient space for the vehicle to turn around in the storage compound so option 2 is recommended.

Location Plan



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Legend:

- 4 axle goose neck low bed trailer minimum turning arrangements
- Extent of vehicle track
- Extent of oversail

Rev.	Date	Amendments
1	18.04.19	Vehicle track amended
0	11.04.19	Issued for comment

Revisions

Prepared by:
Wynns Limited
Shaftesbury House, 2 High Street, Eccleshall, Stafford, ST21 6BZ
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Independent Transportation Engineers

Client: wsp

Project: **Peak District East**

Title: **Swept Path Assessment**
Option 1 - negotiability of right turn into site entrance from Windle Edge northbound considerate of Indicative 4.5 m dia 41.0 te cable drum transported within 4 axle goose neck low bed trailer
Approximate OS Grid Reference: SE 1577 0239

Drawing status: Final report

Scale (A3):	Drawn by:	Checked by:
As shown	SJW	ARP

DWG. no:	Sheet:	Rev:
19-970.SPA01	1 of 2	1

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P:\Clients\Existing Clients\WSP (ex Parsons Brinckernoff)\19-970 Peak District Cable Drums\19-970.SPA01 Peak District cable drums Trans Pennine Trail car park R1.dwg

Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Constructed from topographical survey data as provided by Client
Scale: 1:400

Note - Dunford River Bridge has been confirmed as suitable to support transport configuration by Barnsley Council



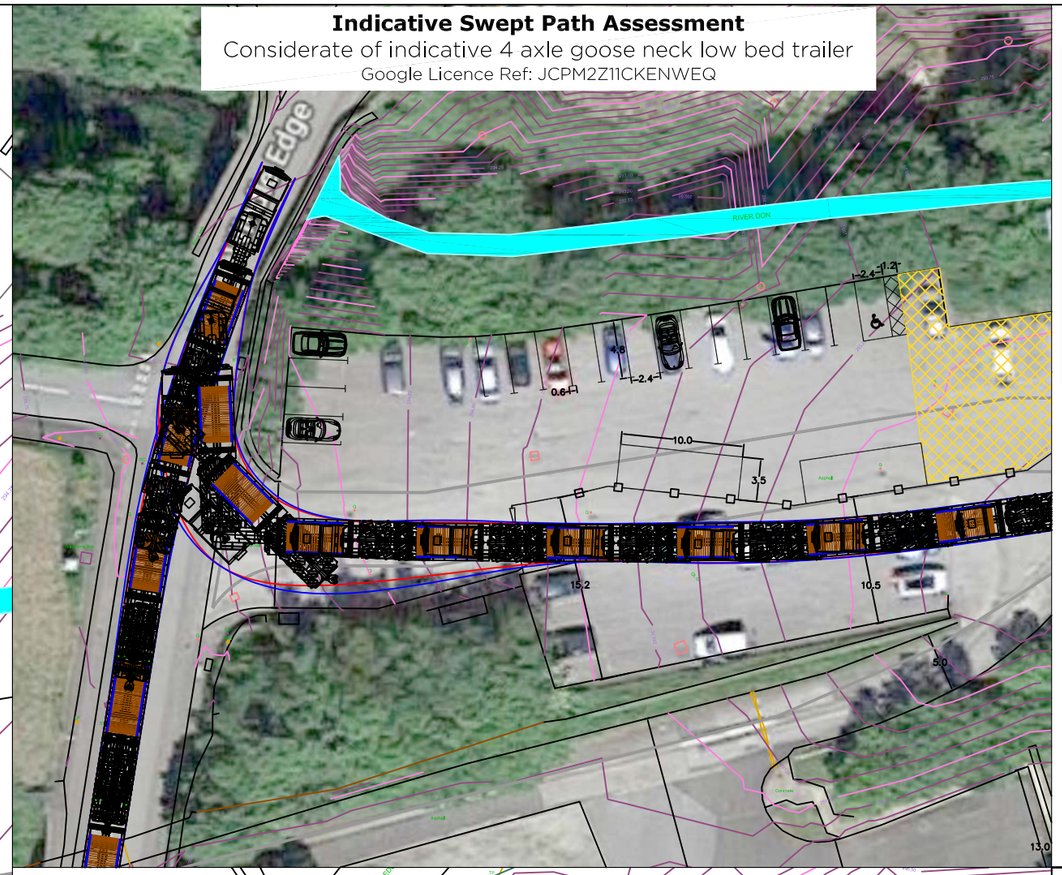
Vehicle approaches from right of photograph, drives beyond site entrance, then reverses into site moving away from camera.



Vehicle moves away from camera and beyond site entrance, then turns into site entrance right of photograph in reverse.

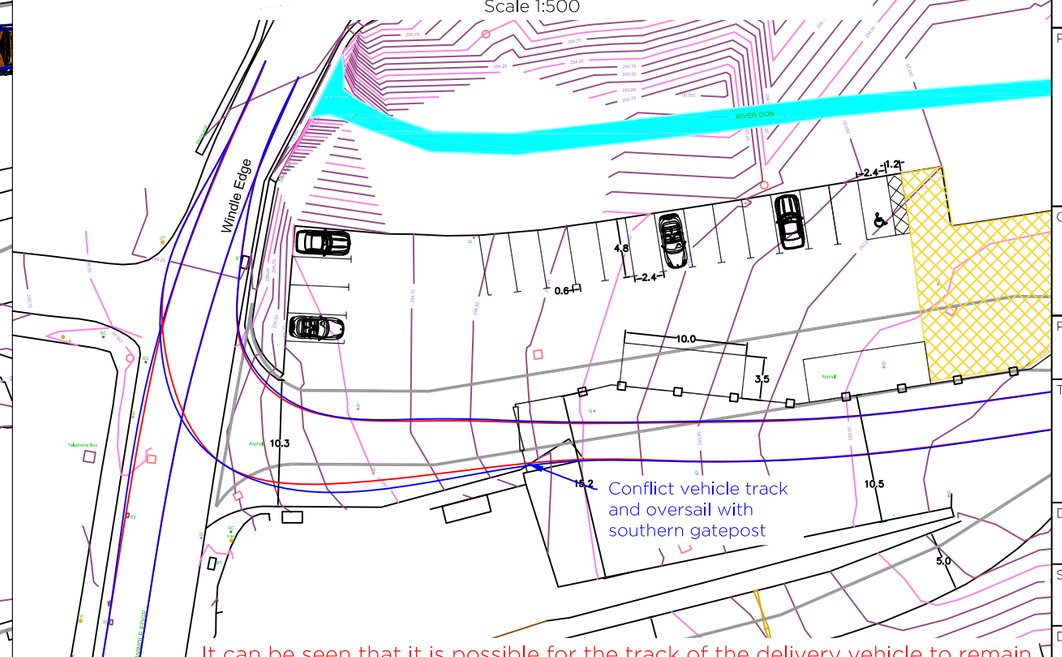
Indicative Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Google Licence Ref: JCPM2Z11CKENWEQ



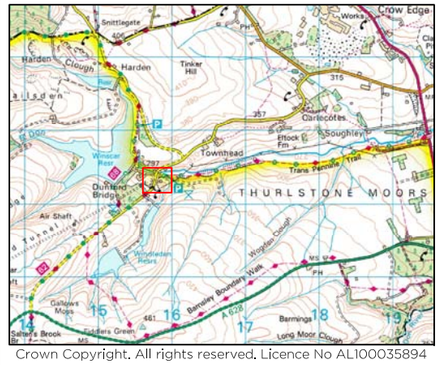
Swept Path Assessment

Considerate of indicative 4 axle goose neck low bed trailer
Vehicle removed for clarity
Scale 1:500



It can be seen that it is possible for the track of the delivery vehicle to remain within the extents of the existing hard carriageway whilst carrying out the reverse manoeuvre into site. However, it is not possible for the vehicle to access the storage compound through the new gateway, which will need to be removed and therefore it is advised that any new street furniture be made demountable.

Location Plan



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Legend:

- 4 axle goose neck low bed trailer minimum turning arrangements
- Extent of vehicle track
- Extent of oversail

Rev.	Date	Amendments
1	18.04.19	Vehicle track amended
0	11.04.19	Issued for comment

Revisions

Prepared by:
Wynns Engineers
Shaftesbury House, 2 High Street, Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411
Independent Transportation Engineers

Client: WSP

Project: **Peak District East**

Title: **Swept Path Assessment**
Option 2 - negotiability of shunt manoeuvre into site entrance from Windle Edge northbound considerate of Indicative 4.5 m dia 41.0 te cable drum transported within 4 axle goose neck low bed trailer
Approximate OS Grid Reference: SE 1577 0239

Drawing status: Final report

Scale (A3):	Drawn by:	Checked by:
As shown	SJW	ARP

DWG. no:	Sheet:	Rev:
19-970.SPA01	2 of 2	1

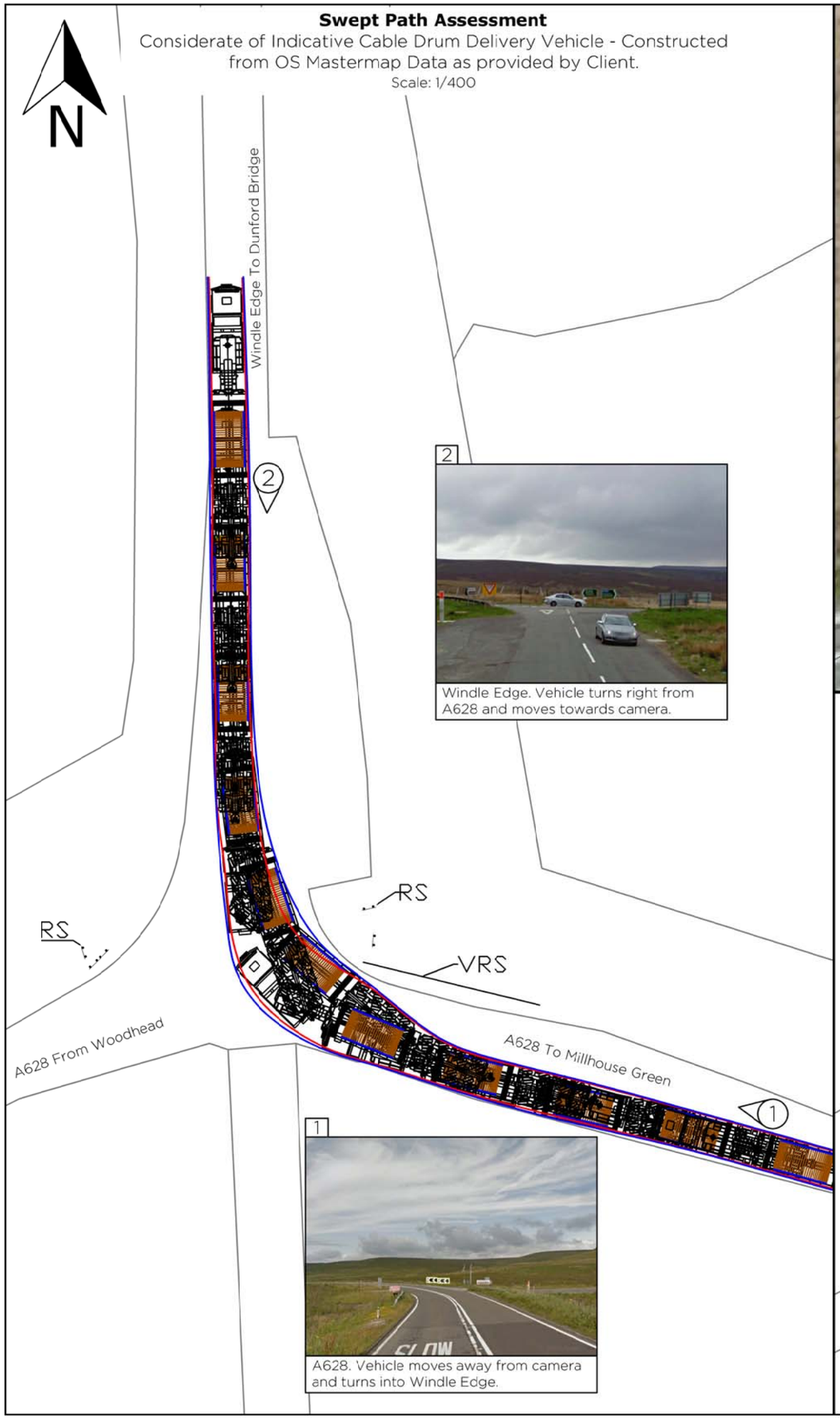
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P:\Clients\Existing Clients\WSP (ex Parsons Brinckernoff)\19-970 Peak District Cable Drums\19-970.SPA01 Peak District cable drums Trans Pennine Trail car park R1.dwg

Swept Path Assessment

Considerate of Indicative Cable Drum Delivery Vehicle - Constructed from OS Mastermap Data as provided by Client.

Scale: 1/400



2

Windle Edge. Vehicle turns right from A628 and moves towards camera.

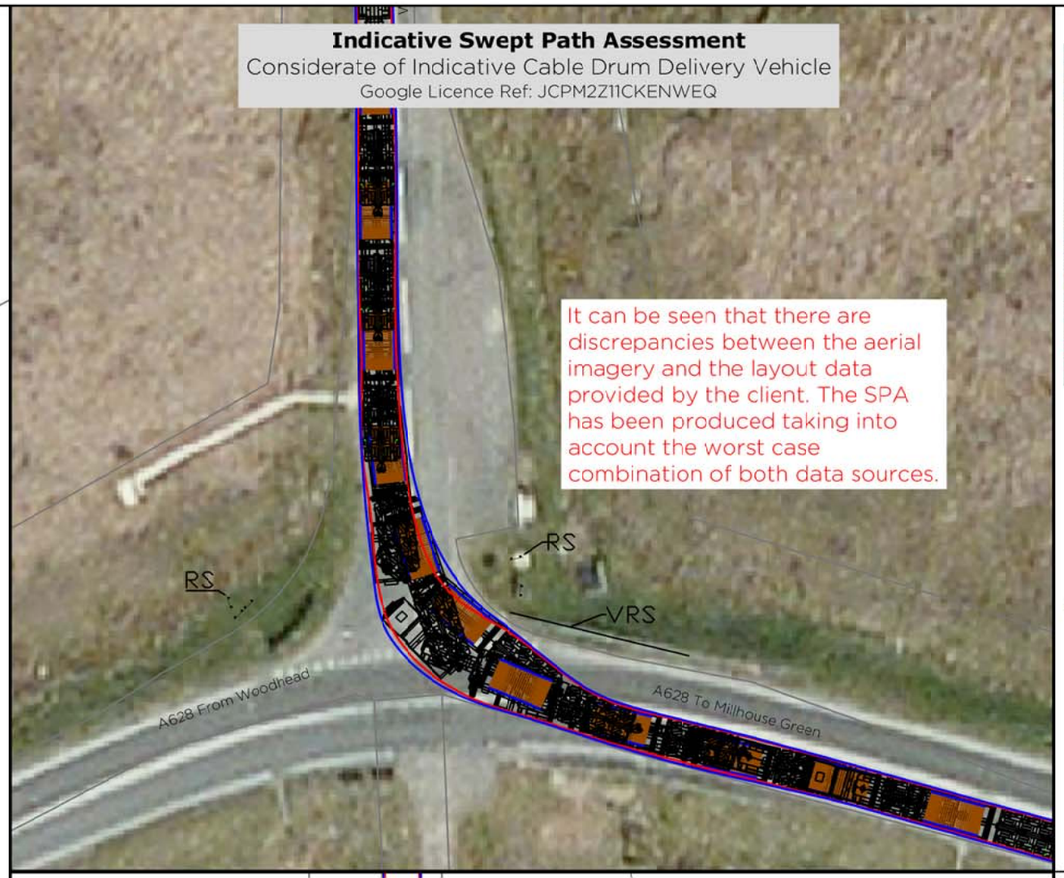
1

A628. Vehicle moves away from camera and turns into Windle Edge.

Indicative Swept Path Assessment

Considerate of Indicative Cable Drum Delivery Vehicle

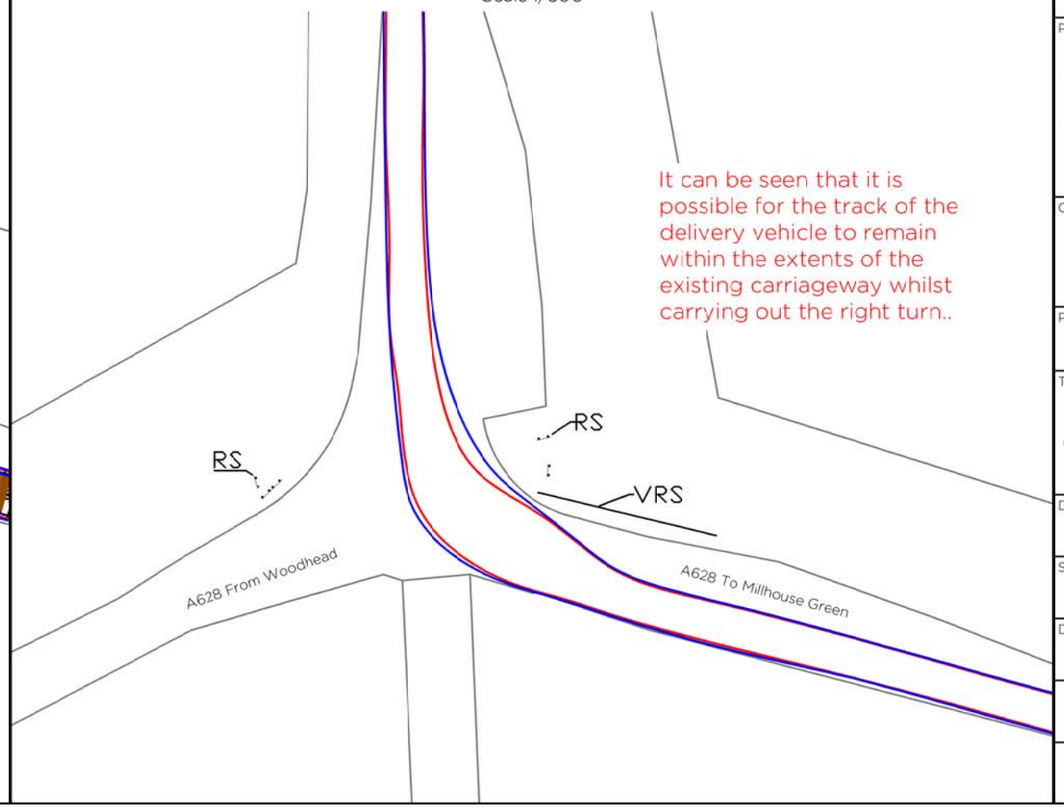
Google Licence Ref: JCPM2Z11CKENWEQ



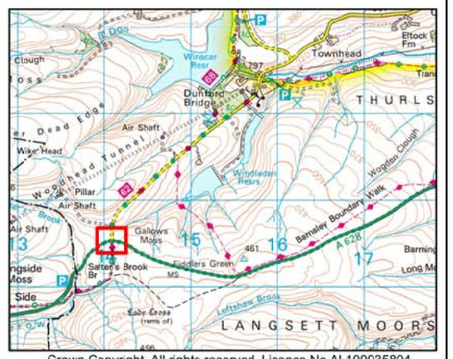
Swept Path Assessment

Considerate of Indicative Cable Drum Delivery Vehicle - Vehicle removed for clarity.

Scale 1/500

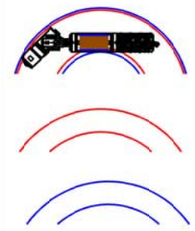


Location Plan



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Legend:



Cable Drum Transport Configuration Minimum turning arrangements. See Drawing Ref. PB-PDE-CD01

Extent of Vehicle Track

Extent of Over-sail

Rev.	Date	Ammendments
A		
0	27.09.16	Issued for comment
		Revisions

Prepared By:

Shaftesbury House, 2 High Street, Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client: WSP | PARSONS BRINCKERHOFF

Project: **Peak District East**

Title: **Swept Path Assessment**
Right turn from A628 onto Windle Edge.
Considerate of Indicative Cable Drum Delivery Vehicle
Approximate OS Grid Reference: SE 1409 0054.

Drawing Status: Final Report

Scale (A3):	Drawn By:	Checked By:
1/400 & 1/500	DJT	PAGW
DWG. No:	Sheet:	Rev:
PB-PDE-SP02	1 of 1	0

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P:\Clients\Existing Clients\Parsons Brinckerhoff\16-878 Peak District East\SP02.dwg

Appendix 3

Selected Correspondence

Daisy Gosling

From: Abnormal Loads <AbnormalLoads@barnsley.gov.uk>
Sent: 12 April 2019 09:05
To: Daisy Gosling
Subject: AIL Access Study - Peak District East Cable Drums - Barnsley MBC

Importance: High

Morning Daisy,

Please see below email from my colleague Babak Ahmadian regarding the structure on your route (my ref: B5.017 Dunford Bridge). Please do not hesitate to contact me if you require any further information.

Kind regards,

Bev Stott
Abnormal Loads Officer
Environment and Transport
Barnsley Metropolitan Borough Council
Tel. 01226 772123
Fax. 01226 772125
Email: beverleystott@barnsley.gov.uk
Mail: Westgate Plaza One, P O Box 601, Barnsley, S70 9FA.

From: Ahmadian , Babak
Sent: 11 April 2019 16:37
To: Abnormal Loads
Subject: RE: AIL Access Study - Peak District East Cable Drums - Barnsley MBC
Importance: High

Bev,

I checked it. No objection as a structural point of view.

Please feel free to contact me if you have any questions or concerns.

Kind Regards

Babak Ahmadian
Bridge Engineer
Highways & Engineering
Environment & Transport
Place Directorate
Barnsley Metropolitan Borough Council
Telephone: (01226) 772037
Fax: (01226) 772222
E-mail: babakahmadian@Barnsley.gov.uk
Address: West Gate Plaza, 1 West St, Barnsley S70 2DR

Please consider the environment before printing.
Don't forget, to report a problem on our highway network, click **here**.

From: Abnormal Loads
Sent: 10 April 2019 09:27
To: Ahmadian , Babak
Subject: AIL Access Study - Peak District East Cable Drums - Barnsley MBC

Babak,
Please see below reply from Daisy, and comments regarding bridge number B5.017 Dunford River Bridge. I would be very grateful if you could review this structure and email me your comments.

Thank you.
Bev

From: Daisy Gosling [mailto:daisy.gosling@wynnslimited.com]
Sent: 09 April 2019 15:09
To: Abnormal Loads
Subject: RE: AIL Access Study - Peak District East Cable Drums - Reply Barnsley MBC

Hi Bev,

Thank you for getting back to me and passing on this information.

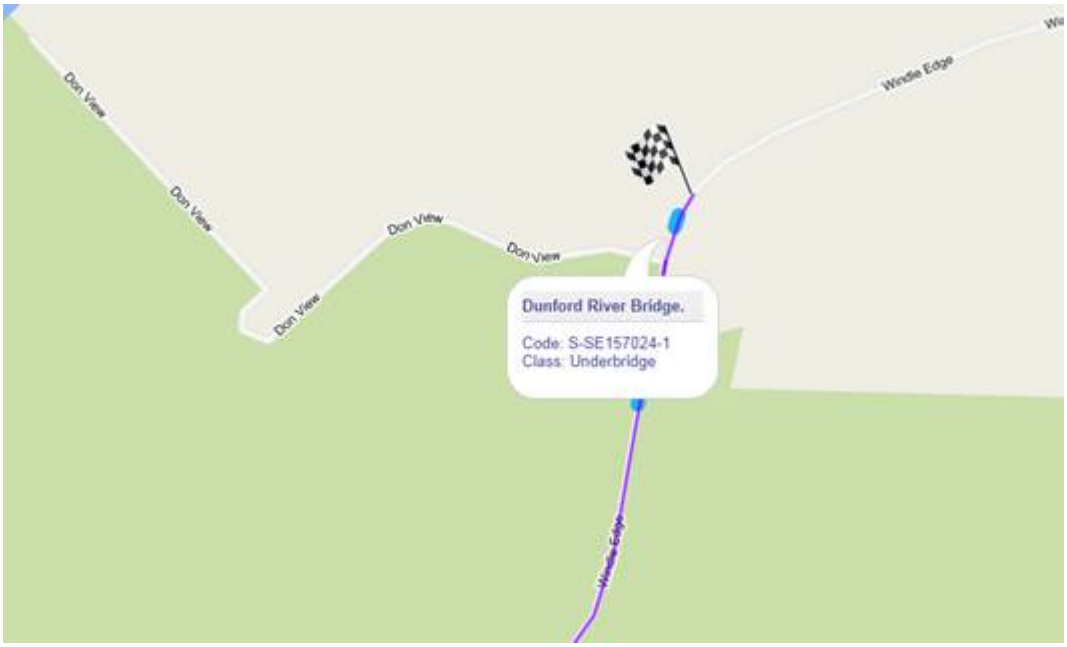
Yes, as stated in our enquiry we are only looking at route 1 as an option, based on the outcome of last time.

Thank you for your colleagues comments; can you please advise that both proposed configurations have a gross weight of 80te, and the axle line loads are detailed in the load table of each drawing.

We noticed on ESDAL that Barnsley do have a structure on Windle Edge (see screenshot below), and if the load has to reverse in to the car park, it may be that this structure is crossed, and therefore we would appreciate Barnsley's comments under this eventuality.

If you could get back to me regarding the suitability of Route 1 as far as Barnsley is concerned, we would most appreciate it.

Best regards,
Daisy



From: Abnormal Loads <AbnormalLoads@barnsley.gov.uk>
Sent: 09 April 2019 09:52
To: Daisy Gosling <daisy.gosling@wynnslimited.com>
Subject: AIL Access Study - Peak District East Cable Drums - Reply Barnsley MBC

Good morning Daisy,
Thank you for your email, please see below.

I would like to confirm that Barnsley MBC would prefer the use of Route 1 as previously stated. Please see below comments highlighted in red made by my colleague Babak Ahmadian, Bridge Engineer for Highways and Engineering for your information.

As discussed earlier, I have no objection as long as the GVW is under 44 tonnes, otherwise I need to see the loads distribution by each axles.

Kind regards,

Bev Stott
Abnormal Loads Officer
Environment and Transport
Barnsley Metropolitan Borough Council
Tel. 01226 772123
Fax. 01226 772125
Email: beverleystott@barnsley.gov.uk
Mail: Westgate Plaza One, P O Box 601, Barnsley, S70 9FA.

From: Daisy Gosling [mailto:daisy.gosling@wynnslimited.com]
Sent: 04 April 2019 17:17
To: 'Abnormal Loads Officer (abnormalLoadsContact@NetworkRail.co.uk)'; 'Lisa Wheelwright-Brown (Lisa.Wheelwright-Brown@canalrivertrust.org.uk)'; RSGBRB@jacobs.com; Abnormal Loads; Sally Waterfall (Area 12) (area12@abloads.com); 'sally@cascadesoft.co.uk'; Mick Robinson (abnormal.loads@southyorks.pnn.police.uk); 'Richard Aelberry (abloads@derbyshire.pnn.police.uk) (abloads@derbyshire.pnn.police.uk)'
Cc: Andy Pearce
Subject: AIL Access Study - Peak District East Cable Drums

Dear All,

Daisy Gosling

From: Ashton Daniel <Daniel.Ashton@networkrail.co.uk> on behalf of Network Rail Abnormal Loads <NetworkRailAbnormalLoads@networkrail.co.uk>
Sent: 05 April 2019 09:36
To: Daisy Gosling
Subject: Q-725 RE: AIL Access Study - Peak District East Cable Drums
Attachments: AIL Access Study - Peak District East Cable Drums

Follow Up Flag: Flag for follow up
Flag Status: Completed

Good Morning,
Below is our response to the Proposed Route 1 attached;

Your proposed movement does not affect any Network Rail owned road over rail bridges or tunnels therefore we have no objection to your proposed route.

Please note we only check the load carrying capacity of Network Rail owned road over rail bridges affected. We do not check anything else including:

* Load carrying capacity of level crossings

* Clearance to bridge parapets

* Clearance under a rail bridge

* Clearance to overhead wires at level crossings

Many Thanks

Daniel Ashton
Abnormal Loads Clerk
Abnormal Loads Help Desk: 01908 783 140

NetworkRail
Route Services

Abnormal Loads | National Records Group | Route Services
The Quadrant | Elder Gate | Milton Keynes | MK9 1EN
W http://www.networkrail.co.uk/abnormal-indivisible-road-loads/

Daisy Gosling

From: Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>
Sent: 08 April 2019 10:12
To: Daisy Gosling
Subject: RE: AIL Access Study - Peak District East Cable Drums

Follow Up Flag: Flag for follow up
Flag Status: Completed

Good Morning Daisy

Hope you are well?

The proposed route - Peak District East Cable Drums does not affect any of the Canal & River Trust's infrastructure.

Kind Regards

Lisa Wheelwright-Brown
Technical Administrator
T 0113 2005759
E lisa.wheelwright-brown@canalrivertrust.org.uk

Canal & River Trust
Fearns Wharf, Neptune Street, Leeds, LS9 8PB

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Canal & River Trust
Making life better by water

From: Daisy Gosling <daisy.gosling@wynnslimited.com>
Sent: 04 April 2019 17:17
To: 'Abnormal Loads Officer (abnormalLoadsContact@NetworkRail.co.uk)' <abnormalLoadsContact@NetworkRail.co.uk>; Lisa Wheelwright-Brown <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; RSGBRB@jacobs.com; Beverley Stott (abnormalloads@barnsley.gov.uk) <abnormalloads@barnsley.gov.uk>; Sally Waterfall (Area 12) (area12@abloads.com) <area12@abloads.com>; 'sally@cascadesoft.co.uk' <sally@cascadesoft.co.uk>; Mick Robinson (abnormal.loads@southyorks.pnn.police.uk) <abnormal.loads@southyorks.pnn.police.uk>; 'Richard Aelberry (abloads@derbyshire.pnn.police.uk) (abloads@derbyshire.pnn.police.uk)' <abloads@derbyshire.pnn.police.uk>
Cc: Andy Pearce <andy.pearce@wynnslimited.com>
Subject: AIL Access Study - Peak District East Cable Drums

Daisy Gosling

From: Howell, Tania <Tania.Howell@jacobs.com>
Sent: 05 April 2019 08:25
To: Daisy Gosling
Subject: RE: AIL Access Study - Peak District East Cable Drums

Follow Up Flag: Follow up
Flag Status: Completed

Hi Daisy,

I must be getting old……I don't remember the original enquiry in 2016…… ☹
Still, it doesn't matter, because I've looked at the route this morning, and there's nothing of mine "in the way".
Thanks for checking, though!

Cheers for now
Tania

Tania Howell
Abnormal Loads Officer (on behalf of **Highways England Historical Railways Estate**)
Jacobs
DDI: 0118 946 8911

If your mail concerns abnormal load movements, please reply to RSGBRB@jacobs.com

---

From: Daisy Gosling <daisy.gosling@wynnslimited.com>
Sent: 04 April 2019 17:18
To: 'Abnormal Loads Officer (abnormalLoadsContact@NetworkRail.co.uk)' <abnormalLoadsContact@NetworkRail.co.uk>; 'Lisa Wheelwright-Brown (Lisa.Wheelwright-Brown@canalrivertrust.org.uk)' <Lisa.Wheelwright-Brown@canalrivertrust.org.uk>; RSGBRB@jacobs.com; Beverley Stott (abnormalloads@barnsley.gov.uk) <abnormalloads@barnsley.gov.uk>; Sally Waterfall (Area 12) (area12@abloads.com) <area12@abloads.com>; 'sally@cascadesoft.co.uk' <sally@cascadesoft.co.uk>; Mick Robinson (abnormal.loads@southyorks.pnn.police.uk) <abnormal.loads@southyorks.pnn.police.uk>; 'Richard Aelberry (abloads@derbyshire.pnn.police.uk) (abloads@derbyshire.pnn.police.uk)' <abloads@derbyshire.pnn.police.uk>
Cc: Andy Pearce <andy.pearce@wynnslimited.com>
Subject: [EXTERNAL] AIL Access Study - Peak District East Cable Drums

Dear All,

I'm writing with regard to a route enquiry for the delivery of cable drums to a site in the Peak District National Park.

As you may remember, we cleared this route back in 2016 for the same loads. This is a review of that same work, for the next stage of the project.

If you could please look at the document attached and get back to me with regard to the suitability of the route as far as your area of responsibility is concerned, I would be most grateful.

Appendix 4

WSP Assessment Report

Dunford River Bridge No. 71 and Dunford River Bridge 71a.

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report



70023097-005-RPT-71A-003
MARCH 2019

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

PROJECT NO. 70023097-005

DOC REF. NO. 70023097-005-RPT-71A-003

DATE: MARCH 2019

NATIONAL GRID VISUAL IMPACT PROVISION SCHEME

ABNORMAL LOADS ASSESSMENT - DUNFORD RAILWAY BRIDGES NO. 71 AND NO. 71A

Assessment Report

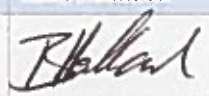
WSP

2 London Square
Cross Lanes
Guildford, Surrey
GU1 1UN

Phone: +44 148 352 8400

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For Approval			
Date	March 2019			
Prepared by	Alex Muir Wood			
Signature				
Checked by	Ben Holland			
Signature				
Authorised by	Clive Nunn			
Signature				
Project number	70023097-005			
Document reference	70023097-005-RPT-71A-003			
File reference				

CONTENTS

1. INTRODUCTION 4

1.1. REFERENCES 4

1.2. ABNORMAL LOADS 4

2. DUNFORD RAILWAY BRIDGE NO. 71 ABNORMAL LOAD ASSESSMENT RESULTS 5

2.1. MASONRY ARCH 5

2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS 5

2.3. PARAPETS 5

3. DUNFORD RAILWAY BRIDGE NO. 71A ABNORMAL LOAD ASSESSMENT RESULTS 6

3.1. CONCRETE ENCASED STEEL GIRDER 6

3.2. JACK ARCHES 6

3.3. ABUTMENTS AND FOUNDATIONS 7

4. CONCLUSIONS 8

4.1. DUNFORD RAILWAY BRIDGE NO 71 8

4.2. DUNFORD RAILWAY BRIDGE NO 71A 8

APPENDICES

APPENDIX A ABNORMAL LOADS

EXECUTIVE SUMMARY

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of a package of bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A. The assessment reports concluded that the structures had adequate capacity for 40/44 tonne Assessment Live Loading in accordance with BD21/01 'The assessment of highway bridges and structures', with some limitations. These limitations were: the footway was not assessed on Dunford Railway Bridge 71A due to lack of information and the parapets for both bridges were not assessed.

WSP has been commissioned to assess Dunford Railway Bridge No. 71 and Dunford Railway Bridge No. 71A for two abnormal vehicle loads.

This report records the results arising from the assessment of these abnormal vehicles loads. The assessment results are summarised as follows:

Dunford Railway Bridge No. 71

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
  - wheels are prevented from being on the footway,
  - the vehicle is the only vehicle on the bridge,
  - it is limited to the loading in Appendix A and
  - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

Dunford Railway Bridge No. 71A

- The structure was assessed to have adequate capacity for the two abnormal vehicles providing:
  - wheels are prevented from being on the footway,
  - the vehicle is the only vehicle on the bridge,
  - it is limited to the loading in Appendix A and
  - it is moving slower than 10 mph.
- As in the previous assessment the footway and parapets were not assessed.
- The abutments and wing walls and foundations were assessed qualitatively.
- It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

1. INTRODUCTION

Under the National Grid Visual Impact Provision Scheme, WSP was commissioned by National Grid to carry out the inspection and assessment of three bridge structures: Dunford Railway Bridge No. 71, Dunford Railway Bridge No. 71A and Clough Beck Culvert. Subsequently, WSP has been commissioned to assess bridges 71 and 71A for two abnormal load vehicles.

1.1. REFERENCES

For the description of the structures, structural condition and analysis methods used in assessment, please refer to the following documents:

Dunford Railway Bridge No.71

Inspection for assessment report, document reference 70023097-005-RPT-71-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71

Approval in Principal Addendum no. 1, document reference 70023097-005-AIP-71-002

Assessment report, document reference 70023097-005-RPT-71-002

Dunford Railway Bridge No.71A

Inspection for assessment report, document reference 70023097-005-RPT-71A-001

Approval In Principle for Assessment, document reference 70023097-005-AIP-71A-002

Assessment report, document reference 70023097-005-RPT-71A-002

1.2. ABNORMAL LOADS

The abnormal loads are provided in the Wynns report ‘Abnormal Indivisible Load Access Study – Transportation of Cable Drums to Proposed Laydown Area in Car Park at Dunford Bridge’ revision 2, issued on 14/12/2016. The vehicles are shown on drawing numbers PB-PDE-CD01 (Rev 0) and PB-PDE-CD02 (Rev 0), shown in Appendix A. The axle loads were clarified by Anthony Pearce from Wynns in an email, also included in Appendix A.

2. DUNFORD RAILWAY BRIDGE NO. 71 ABNORMAL LOAD ASSESSMENT RESULTS

2.1. MASONRY ARCH

The masonry arch was assessed for the abnormal loads described in Section 1.2 using the MEXE method as described in the Dunford Railway Bridge No. 71 Approval in Principal and Addendum No. 1, October 2018. The permissible axle loads as a result of the MEXE analysis are compared against the axle load scenario for the abnormal vehicles.

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

BA 16/97 states that the MEXE method should be used with caution for heavier vehicles than the 40/44 tonne category. The permissible axle loadings given for the following bogie (defined as 2 or 3 closely spaced axles) arrangements are as follows:

Single-axle bogie: 42.2 tonnes per axle

Double-axle bogie: 27.2 tonnes per axle

Triple-axle bogie: 24.5 tonnes per axle

The abnormal loads could be described to have a 4 axle (PB-PDE-CD01) or 5 axle (PB-PDE-CD02) bogie. BA16/97 does not give an axle factor for a 4 or 5 axle bogie. For this arch geometry, a comparison for the critical position and load spread of a 40/44 tonne triple-axle bogie has been made with the abnormal vehicles' trailers/bogies. It has been concluded that the load effects of the abnormal loads would be no more onerous than a triple-axle 40/44 tonne vehicle. Therefore, the masonry arch has been assessed to have adequate capacity to support the abnormal loads.

2.2. ABUTMENTS, FOUNDATIONS, SPANDREL WALL AND WING WALLS

The abutments, foundation, spandrel walls and wingwalls were assessed qualitatively as discussed in the documents listed in Section 1.1. There were no signs of tilting or settlement observed during the Inspection for Assessment dated 21st June 2018. The abutments, foundation, spandrel walls and wingwalls were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

2.3. PARAPETS

The parapets were not assessed as part of this assessment, nor part of the previous assessment.

3. DUNFORD RAILWAY BRIDGE NO. 71A ABNORMAL LOAD ASSESSMENT RESULTS

3.1. CONCRETE ENCASED STEEL GIRDER

The bridge was assessed for the abnormal loads using the methods described in the Approval in Principal for Assessment (document reference 70023097-005-AIP-71A-002).

No factors for dynamic amplification or overload have been applied and therefore the vehicle is assumed to be travelling at low speed, slower than 10mph, and be limited to the loading shown in Appendix A.

The lowest reserve factor was found to be 1.31 and the results are summarised in Table 1 below.

Load Case	Member	Load Effect	Assessment Resistance	DL Assessment Effects	Superimposed DL Asessment Effects	Capacity for Live Load	Live Load Assessment Effect	Reserve Factor
			R_A*	S_D*		R_A*-S_D*	S_L*	(R_A*-S_D*)/S_L*
Abnormal Load PB-PDE-CD01	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	218.61	3.28
		Shear (kN)	930.10	72.76	484.58	372.76	37.68	9.89
Abnormal Load PB-PDE-CD01	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	561.71	1.31
		Shear (kN)	930.10	67.52	476.00	386.58	148.26	2.61
Abnormal Load PB-PDE-CD01	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	697.80	1.91
		Shear (kN)	930.10	62.21	288.30	579.59	221.48	2.62
Abnormal Load PB-PDE-CD02	Edge Girder - Assuming vehicle not on footway	Flexure (kN.m)	2513.55	244.76	1552.00	716.79	210.61	3.40
		Shear (kN)	930.10	72.76	484.58	372.76	39.80	9.37
Abnormal Load PB-PDE-CD02	First internal Girder	Flexure (kN.m)	2513.55	227.18	1552.00	734.37	541.17	1.36
		Shear (kN)	930.10	67.52	476.00	386.58	156.60	2.47
Abnormal Load PB-PDE-CD02	Internal Girders 2-5	Flexure (kN.m)	2513.55	209.29	969.70	1334.56	672.28	1.99
		Shear (kN)	930.10	62.21	288.30	579.59	233.93	2.48

Table 1. Summary of abnormal load assessment results

3.2. JACK ARCHES

In the previous assessment, the reinforced concrete jack arches were assessed following the advice in the Network Rail Standard NR/GN/CIV/025, a qualitative analysis using Bridgeguard 3 Current Information Sheet 22. It is assumed that the service bays at both edges of the bridge deck are providing alternative lateral restraint. The qualitative analysis using Bridgeguard 3 Current Information Sheet 22 determined the reinforced concrete jack arches to be adequate for 40 tonnes vehicle configuration requirements.

The Assessment for 40 tonnes vehicle configuration can be compared to the abnormal loads vehicle configuration specified. BD21/01 Clause D3, with regards to assessing vehicle configuration for 40 tonnes, states *'The wheel loads should be applied at 1.8m transverse spacing on the axle over a 0.3 x 0.3m square contact area.'* The heaviest axle load for an Annex D vehicle is 11.5 tonnes, and due to the geometry of the jack arches, the most onerous load location would be for half of this load to be applied to the jack arch.

The abnormal load vehicle, PB-PDE-CD01, has the heaviest axle weight of 12.5 tonnes. There are eight wheels per axle and due to the geometry of the jack arches and the wheel configuration the most onerous load location would result in a quarter of the axle load applied to one side of the jack arch. A quarter of 12.5 tonnes, 3.125 tonnes, is less than a half of 11.5 tonnes, 5.75 tonnes, and it can be concluded that the jack arches would experience less onerous loading under the axle configurations of the abnormal loads. Therefore the jack arches are assessed to have adequate capacity for the abnormal loads.

3.3. ABUTMENTS AND FOUNDATIONS

The abutments and foundations have been assessed qualitatively. The vertical crack in each abutment is thought to be due to settlement of the foundations. WSP agree with the following statement in the Assessment Inspection Report 2005 (included in the Appendix to the WSP Assessment report 70023097-005-RPT-71A-002): "*The mineral report states that there are no records of any coal mining activities to have affected the stability of the structures. This is mainly borne out by the inspection however the vertical cracking in both abutments adjacent beam 3 is evidence of past movement. This movement is old and the cracking in both Abutments was first noted in the inspection of 1959, it was noted at the inspection dated 1972 no further movement and this is still true as there are no signs of recent movement. The bridge is constructed in a cutting, the cutting sides can be seen on site to be solid sandstone therefore it is reasonable to assume that the structure is founded on competent strata*." The abutments and foundations were found to be adequate to carry the current levels of loading.

The abutments, wing walls and foundations have been assessed qualitatively for the abnormal loads and found that the loading would be no more onerous than the current levels of loading.

4. CONCLUSIONS

4.1. DUNFORD RAILWAY BRIDGE NO 71

The Dunford Railway Bridge No. 71 has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The masonry arch as assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment, refer to the Dunford railway Bridge No. 71 Assessment Report no. 70023097-005-RPT-71-002.

4.2. DUNFORD RAILWAY BRIDGE NO 71A

The Dunford Railway Bridge No. 71A has been assessed for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A.

The vehicle is assumed to be the only vehicle on the bridge and not to be accompanied by any other live loading. The vehicle is assumed to remain on the carriageway at all times and wheels are prevented from being on the footways. The vehicle is assumed to be travelling at low speed, slower than 10mph and to be limited to the loading shown in Appendix A.

The bridge deck, excluding the footways, was assessed to have adequate capacity for the abnormal load vehicles as shown on Drawing PB-PDE-CD01 and PB-PDE-CD02 in Appendix A. As in the previous assessment the footway slab has not been assessed due to insufficient information. The parapets have not been assessed as part of this assessment.

The abutments, wing walls and foundations have been assessed qualitatively and found that the loading would be no more onerous than the current levels of loading.

It is recommended that it would be prudent to carry out monitoring of the abutments and wing walls whilst the abnormal load vehicles are using the bridge. A pre-condition survey and post-condition survey are recommended.

For recommendations for works to the bridge to address the defects found during the inspection for assessment and recommendations or assessing the footway, refer to the Dunford railway Bridge No. 71A Assessment Report no. 70023097-005-RPT-71A-002.

Appendix A

ABNORMAL LOAD VEHICLES

Muir Wood, Alex

Subject: FW: National Grid Peak District AIL query

From: Andy Pearce [mailto:andy.pearce@wynnslimited.com]
Sent: 06 March 2019 13:06
To: Muir Wood, Alex <Alex.Muir-Wood@wsp.com>
Cc: Raveendran, Ravi <Ravi.Raveendran@wsp.com>; Nunn, Clive <Clive.Nunn@wsp.com>; Peter Wynn <peter.wynn@wynnslimited.com>
Subject: RE: National Grid Peak District AIL query

Good Afternoon Alex,

Thank you for your email and apologise for any confusion. The drawings are indicative and can vary depending on the exact tractor units and trailers utilised for movement, but I see where the uncertainty arises. We needed to make some assumptions and generally use the worst case basis. The load can be positioned toward the front or toward the rear of the trailer since the load is not very long. On that basis we can assume that say 16 tonnes of the load and trailer weight is transferred through the hydraulic neck and into the tractor 5th wheel. The self-weight of the tractor shown is 14 tonnes so the tractor is supporting 30 tonnes all up. I show below how this can be referenced in the 2 drawings.

PB-PDE-CD01
The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 4 axles, so each will be approximately 12.5 tonnes each.

PB-PDE-CD02
The front axle will be light, say 6 tonnes, and the remaining three axles will therefore be 8 tonnes each. We are left with 50 tonnes of load and trailer weight supported by the rear 5 axles, so each will be approximately 10 tonnes each.

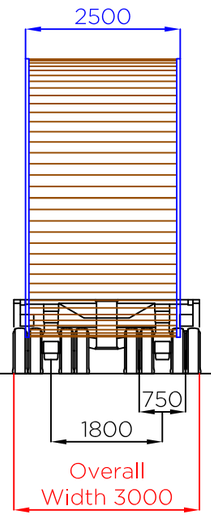
The loads suitability will of course depend on your structural assessment findings which will be affected by the nature of the bridge, span, skew etc. These axle loads are in fact quite low but if necessary additional axles could be added to further reduce axle loads although this would increase gross loads and trailer length.

Unfortunately, due to staff holidays and existing commitments we are not at present able to update the drawings for you within the next 2 weeks but we could do so later in the month if needed.

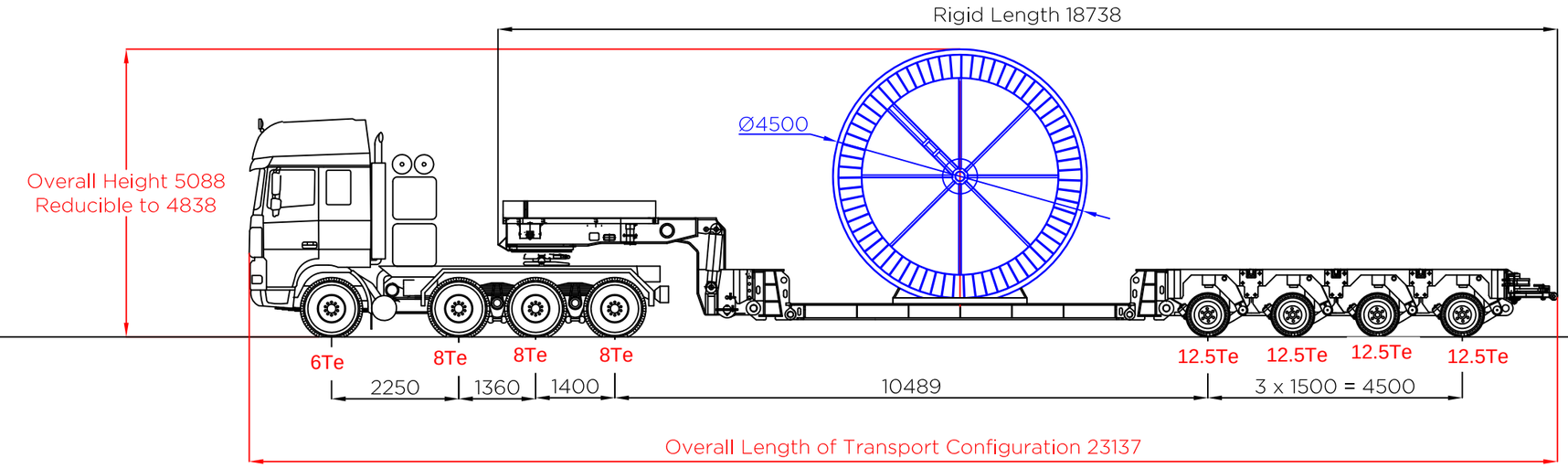
I trust that this is of some assistance.

Kind Regards

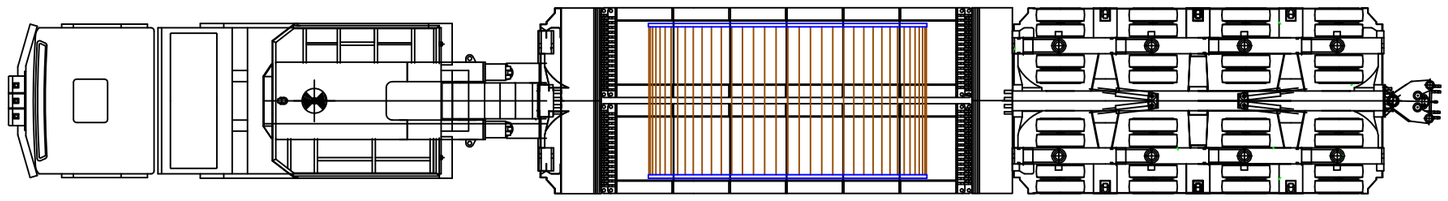
Andy Pearce



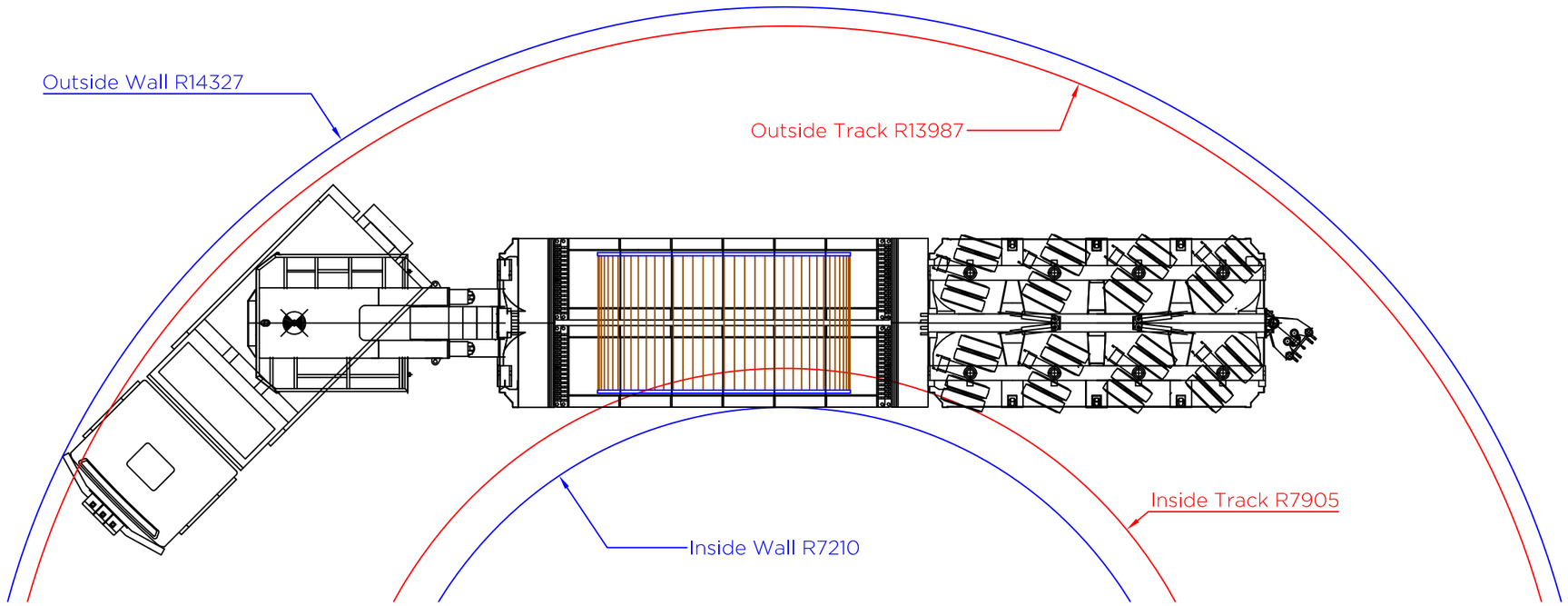
End Elevation



Side Elevation - Indicative 4 Axle Low Bed Trailer



Plan View - Indicative 4 Axle Low Bed Trailer



Minimum Turning Radii

Load Table	
4 Axle Goose Neck Low Bed Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	11.00 Te
Load Per Wheel	1.38 Te
Overall Ground Bearing Pressure	3.26 Te/m²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar
Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	9.17 Te
Rear Axle	9.17 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

Rev.	Date	Ammendments
A		
0	12.07.16	Issued for comment
		Revisions

Prepared By:

Shaftesbury House, 2 High Street,
Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client:

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
4 Axle Goose Neck Low Bed Trailer
Showing Minimum Turning Radii

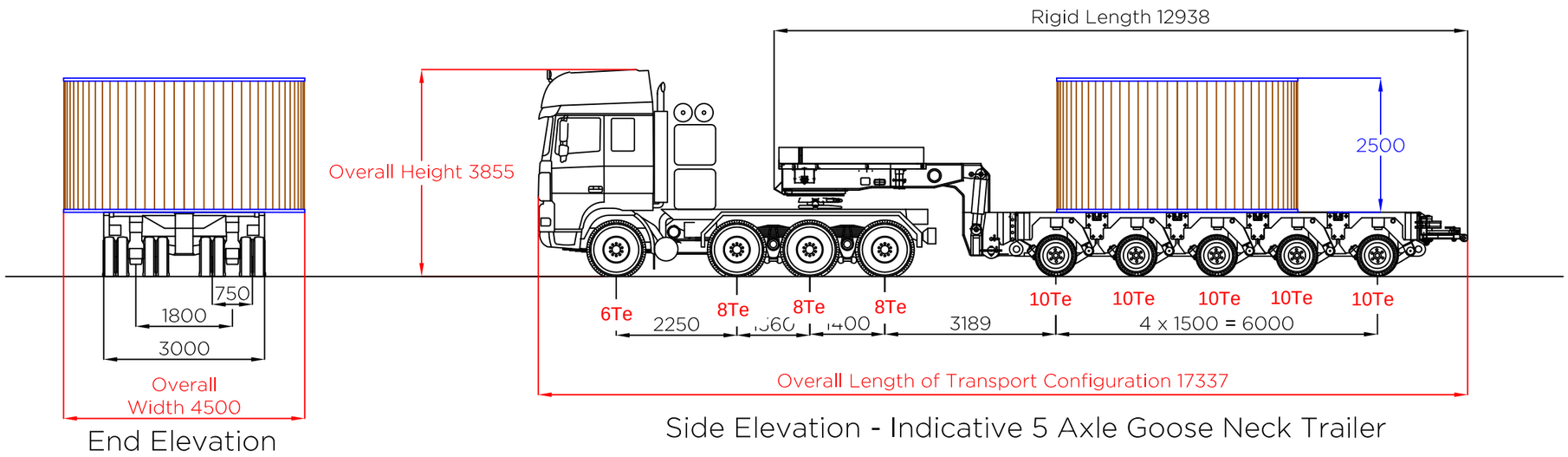
Drawing Status:

Final Report

Scale (A3):	Drawn By:	Checked By:
1:100	DJT	PAGW
DWG. No:	Sheet:	Rev:
PB-PDE-CD01	1 of 1	0

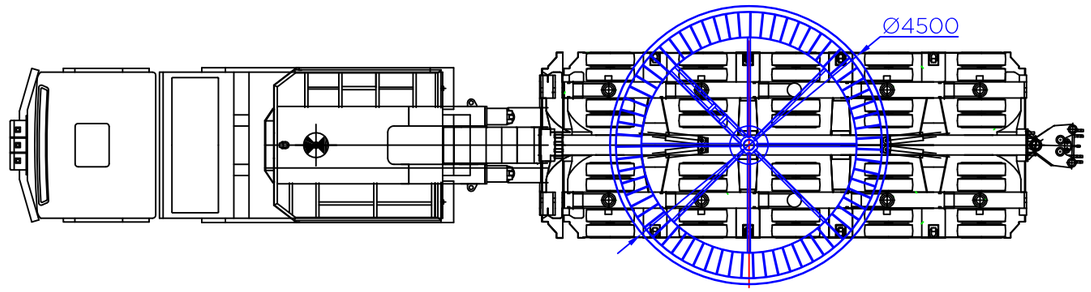
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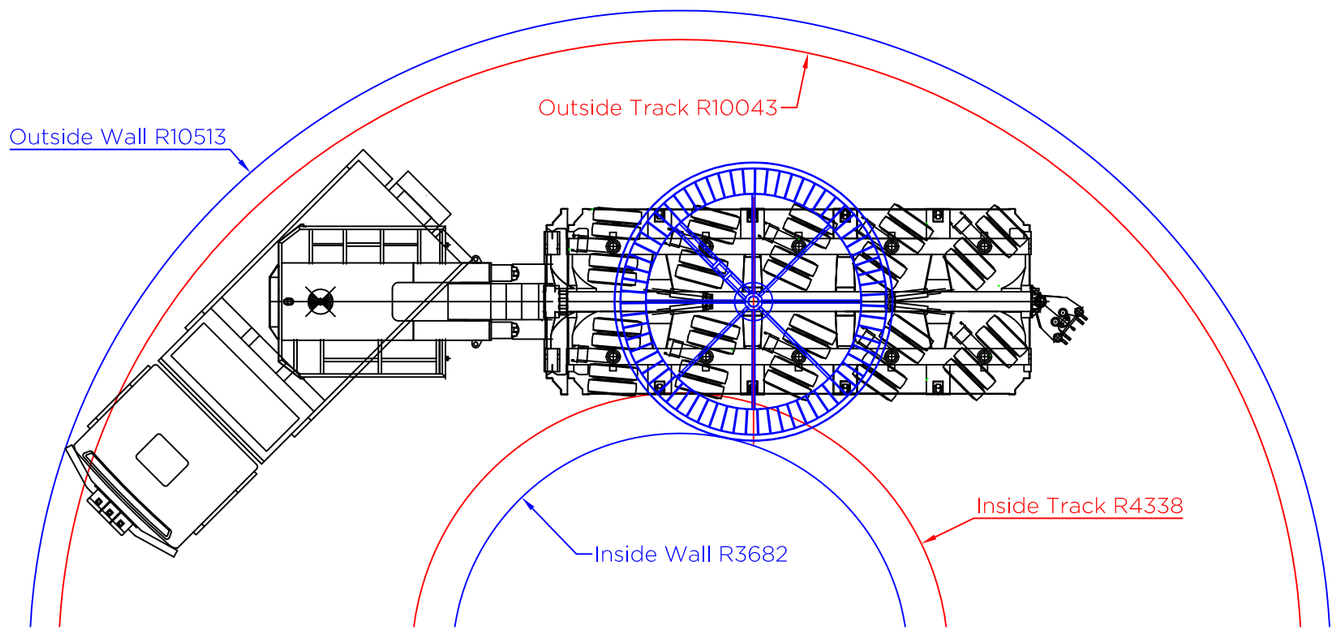


End Elevation

Side Elevation - Indicative 5 Axle Goose Neck Trailer



Plan View - Indicative 5 Axle Goose Neck Trailer



Minimum Turning Radii

Load Table	
5 Axle Goose Neck Trailer	
Self Weight of Load	41.0 Te
Self Weight of Trailer	Say 24.0 Te
Self Weight of Tractor(s)	14.0 Te
Self Weight of Aux. Steelwork	Say 1.0 Te
Total Combined Weight	80.0 Te
Load Per Axle Line	9.43 Te
Load Per Wheel	1.18 Te
Overall Ground Bearing Pressure	2.62 Te/m²
Tyre Contact Patch (say)	300mm x 180mm
Tyre Pressure	140psi / 9bar
Tractor (14Te)	
Front Axle	6.0 Te
Second Steer	8.0 Te
Rear Axle	7.86 Te
Rear Axle	7.86 Te

The figures shown above are representative of the transport configuration portrayed. However as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.

Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.

All linear measures in millimetres unless stated otherwise.

Indicative Cable Drum drawing shown only.

Rev.	Date	Ammendments
A		
0	12.07.16	Issued for comment
		Revisions

Prepared By:

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Eccleshall, Stafford, ST21 6BZ
Tel: (01785) 850411

Independent Transportation Engineers

Client: WSP | PARSONS BRINCKERHOFF

Project:

Peak District East

Title:

Indicative Transport Configuration
4.5m dia Cable Drum carried upon
5 Axle Goose Neck Trailer
Showing Minimum Turning Radii

Drawing Status:

Final Report

Scale (A3):	Drawn By:	Checked By:
1:100	DJT	PAGW

DWG. No:	Sheet:	Rev:
PB-PDE-CD02	1 of 1	0

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