VikingCCS

Viking CCS Pipeline

9.75 Stage 1 Road Safety Audit for Access Points 11AA, 11AB, 12AA, and 13 AA

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Applicant: Chrysaor Production (U.K.) Limited,
a Harbour Energy Company
PINS Reference: EN070008
Planning Act 2008 (as amended)
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(q)
Date: September 2024

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Prepared by		Checked by		Verified by		Approved by
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1. Introduction

1.1 Project Details

Report Title:	Viking CCS Pipeline Stage 1 Road Safety Audit
Date:	28/08/2024
Document Reference:	60718962_RSA_2024_14_REP_001
Prepared by:	Rob Norfolk, AECOM
On behalf of:	Paul Davis, Harbour Energy

1.1.1 AECOM was commissioned by Sam Poynton (AECOM Design Team) on behalf of Paul Davis, Harbour Energy (the Overseeing Organisation) to complete a Stage 1 Road Safety Audit for the Viking CCS Pipeline project.

1.1.2 The Road Safety Audit brief was provided by Anna Szabadai from AECOM, which was issued to Harbour Energy.

1.1.3

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Role:	Team Leader
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Qualifications:	BEng (Hons)
Role:	Team Member
Organisation:	AECOM, Manchester

1.1.4 The Audit comprised of a review of the supplied drawings and documents listed in **Appendix A**, which were examined by the Audit Team during the week commencing August 5th 2024. A site visit was undertaken by all members of the Audit Team during the morning of Friday 9th August, between the hours of 11:00 and 12:30. The weather conditions during the site visit were sunny and bright, and the road surface was dry.

1.1.5 The traffic flows during the site inspection were considered typical for the location and the time of day.

1.2 Site Description

1.2.1 Harbour Energy as part of the Viking Carbon Capture Storage project intend to install a new CO2 pipeline in the Humber area. The Viking CCS pipeline is a 55km pipeline that will transport up to 10 million tonnes of carbon dioxide a year from Immingham to the former Theddlethorpe Gas Terminal. From here, it will join an existing offshore pipeline to the Viking area in the UK southern North Sea, where the carbon dioxide will be injected into depleted gas reservoirs 2.7km beneath the seabed.

1.2.2 A map of the general area in which the scheme is located is shown in Figure 1-1

Figure 1-1: Site Location

1.3 Works Summary

1.3.1 The proposed implements four new junctions to provide construction vehicle access to the proposed CO2 pipeline construction area.

1.3.2 The proposals submitted for this Stage 1 RSA include the following:

- New priority-controlled junction on A46 west of the Old Main Road junction to access site 11AA
- New priority-controlled junction on Old Main Road to access site 11AC
- New priority-controlled junction on A18 to access site 12AA
- New priority-controlled junction on A18 to access site 13AA

1.4 Special Considerations

1.4.1 The Viking CCS Pipeline junctions have been designed in accordance with the following standards:

- Design Manual for Roads and Bridges (DMRB)
- CD109 – Highway link design
- CD123 – Geometric design of at-grade priority and signal-controlled junctions
- CD169 - The design of lay-bys, maintenance hardstandings, rest areas, service areas and observation platform.

1.5 Terms of Reference

1.5.1 The Terms of Reference of this Audit are as described in DMRB GG 119: Road Safety Audit. The advice issued in the DMRB applies to trunk road and motorway improvement schemes; however, it has been used in this report to define the scope of this Audit.

1.5.2 The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in **Section 3** of this report does not imply that they have not been considered, instead the Audit Team feel they are not adversely affected by the proposed changes.

1.5.3 This Road Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure GG 119. Any safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, will be set out in separate correspondence.

1.5.4 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.

1.5.5 In accordance with GG 119, this Audit has a maximum shelf life of five years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.

1.5.6 Unless general to the scheme, all comments and recommendations are referenced to the drawings supplied in the Audit Brief, and the locations have been indicated on the plan in **Appendix B** where appropriate.

1.6 Collision Analysis

1.6.1 Collision data has been provided to the Audit Team as part of this Stage 1 Road Safety Audit. Collision Data 2018-2022 (5 years) provided by crashmap.co.uk a summary of which is below.

1.6.2 Two collisions have been reported in the information provided to the Audit Team. Both collisions where slight in severity and both resulted in one casualty.

1.6.3 The Audit team has not identified any trends in the collision analysis.

2. Items Raised at Previous Road Safety Audits

2.1.1 The Audit Team have not been made aware of any previous Road Safety Audits having been undertaken on this scheme.

3. Items Raised at Stage 1 Road Safety Audit

3.1.1 The following Problems have been identified from the documents submitted:

3.1 GENERAL:

Problem: 3.1.1

Drawing: 60718962-ACM-GEN-ZZ-DR-CH-0002 to 0006.

Location: Various

Summary : Risk of side impact and / or rear shunt type collisions due to potential impact on visibility as a result of dense vegetation.

Description:

Drawings 60718962-ACM-GEN-ZZ-DR-CH-0001 to 0005 show the proposed construction access junctions to be implemented as part of the Viking CCS Pipeline scheme with the design information provided to the Audit Team including visibility splays at each of the junctions.

The Audit Team has concerns that dense vegetation is located within the proposed visibility splays which may impact the intervisibility between vehicles exiting the proposed access junctions and vehicles on the main line carriageway.

Should visibility be impacted, there may be an increased risk of side impact and / or rear impact type collisions.

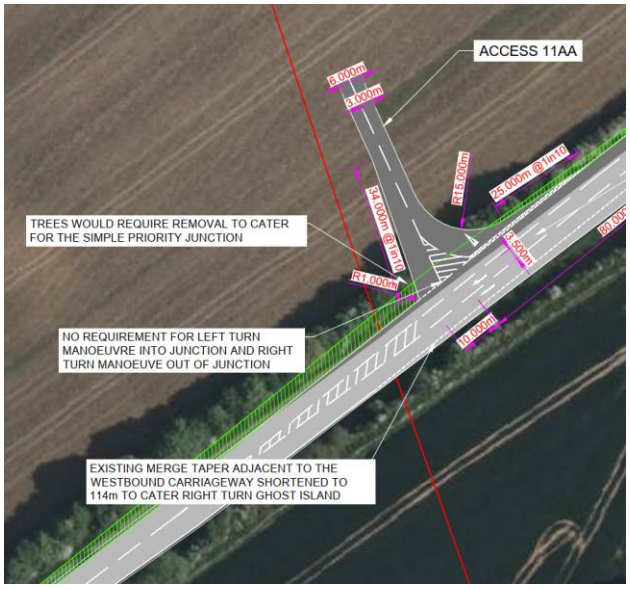

IMAGE: Extract from 60718962-ACM-GEN-ZZ-DR-CH-0002 showing dense vegetation within visibility splay at junction Access 11AA.

Recommendation:

It is recommended that vegetation within the visibility splay is cut back, and a vegetation maintenance regime is implemented until the junction is removed on completion of construction of the pipeline.

Problem: 3.1.2

Drawing: 60718962-ACM-GEN-ZZ-DR-CH-0006.

Location: A18, Access 13AA

Summary: Risk of head on collisions as a result of proposed junction geometry.

Description:

Drawing 60718962-ACM-GEN-ZZ-DR-CH-0006 shows the proposed junction design for Access 13AA off the A18. As part of the design information issued to the Audit Team, swept path analysis has also been provided.

The Audit Team has concerns that southbound vehicles entering the construction access are required to enter the northbound lane to undertake the manoeuvre. Should this occur, there may be an increased risk in head on type collisions between southbound vehicles entering Access 13AA and vehicles traveling northbound on the A18.

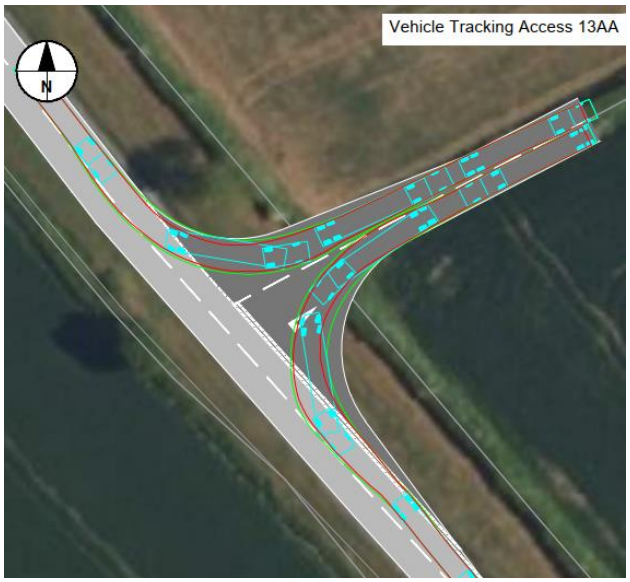

IMAGE: Extract from 60718962-ACM-GEN-ZZ-DR-CH-0005 showing swept path analysis for Access 13AA.

Recommendation:

It is recommended that the junction geometry is changed so that turning movements can be made without vehicles encroaching on the opposing carriageway lane.

3.2 ALIGNMENT:

No problems raised.

3.3 JUNCTIONS:

No problems raised.

3.4 WALKING, CYCLING AND HORSE RIDING:

No problems raised.

3.5 TRAFFIC SIGNS, CARRIAGEWAY MARKINGS, AND LIGHTING:

Problem: 3.5.1

Drawing: 60718962-ACM-GEN-ZZ-DR-CH-0002 to 0003.

Location: 11AA and 11AC

Summary : Risk of side impact and / or rear shunt type collisions due lack of road marking and signing provision at proposed junctions.

Description:

Drawings 60718962-ACM-GEN-ZZ-DR-CH-0002 to 0003 show the proposed construction access junctions to be implemented as part of the Viking CCS Pipeline scheme. The design information issued to the Audit Team includes road marking designs, but proposed traffic sign information is not provided. At the proposed access junctions certain turning movements are prohibited either from the access road or from the mainline.

The Audit Team has concerns that, without additional road markings and signing to inform users of the prohibitions in place, there may be an increased risk of vehicles undertaking the prohibited turning movements.

Should this occur, there may be an increased risk of side impact and rear shunt type collisions.

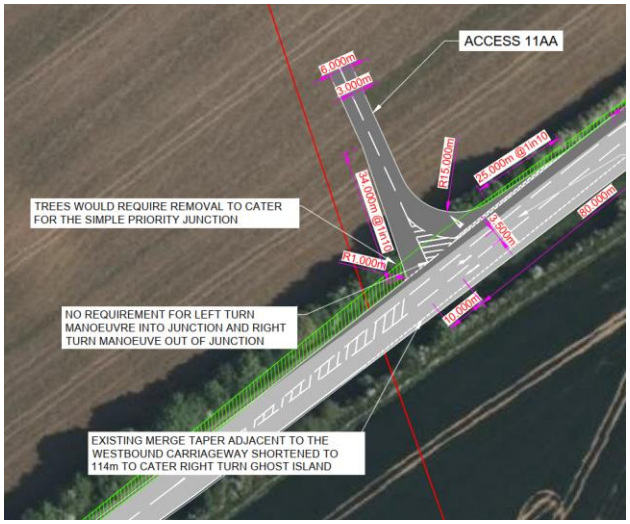

IMAGE: Extract from 60718962-ACM-GEN-ZZ-DR-CH-0002 showing prohibited left turn in and right turn out from Access 11AA.

Recommendation:

It is recommended that relevant signage and road markings are provided at each of the junctions to confirm the prohibited / permitted movements.

Problem: 3.5.2

Drawing: 60718962-ACM-GEN-ZZ-DR-CH-0002 to 0006.

Location: 11AA, 11AC, 12AA and 13AA

Summary: Risk of side impact and / or rear shunt type collisions due lack of traffic signing provision at proposed junctions.

Description:

Drawings 60718962-ACM-GEN-ZZ-DR-CH-0002 to 0006 show the proposed construction access junctions to be implemented as part of the Viking CCS Pipeline scheme. The design information issued to the Audit Team includes road marking designs, but proposed traffic sign information is not provided.

The Audit Team has concerns that, without providing warning signage to alert motorists of the proposed side roads on the main line carriageway, there may be an increased risk of rear shunt / side impact type collisions.

Recommendation:

It is recommended that ‘side road ahead’ warning signs are provided on the mainline carriageways to inform vehicles of the proposed accesses.

Audit Team Statement

We certify that this Road Safety Audit has been carried out based on the principles of DMRB GG 119: Road Safety Audit, with the following exceptions:

- The Audit Team was not approved by the Overseeing Organisation.

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OTHERS INVOLVED:

None.

Enquiries regarding this Road Safety Audit should be made to the Audit Team Leader at the above address or emai[redacted]@aecom.com

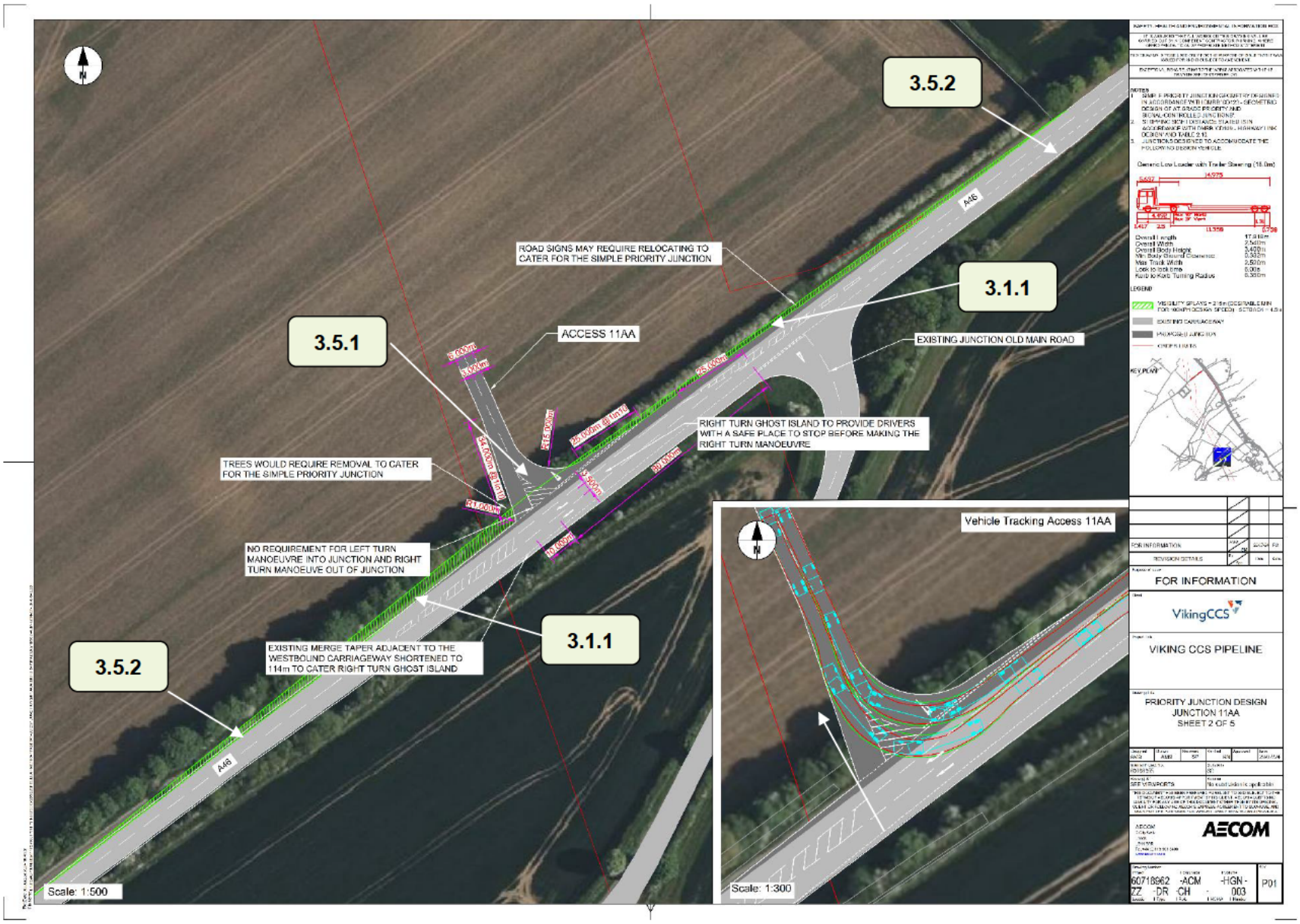
Appendix A – Documents Provided for Audit

A.1 Documents Provided for Audit

Document No.	Rev	Description	Date
60718962-ACM-GEN-ZZ-DR-CH-0002	P01	Priority Junction Design – Junction 11AA Sheet 2 of 6	29/07/2024
60718962-ACM-GEN-ZZ-DR-CH-0003	P01	Priority Junction Design – Junction 11AC Sheet 3 of 6	29/07/2024
60718962-ACM-GEN-ZZ-DR-CH-0005	P01	Priority Junction Design – Junction 12AA Sheet 5 of 6	29/07/2024
60718962-ACM-GEN-ZZ-DR-CH-0006	P01	Priority Junction Design – Junction 13AA Sheet 6 of 6	29/07/2024
60718962-ACM-HGN-XX-RP-TR-0001	1.0	RSA1 Audit Brief - Viking CCS Pipeline	02/08/2024

Appendix B – Location of Problems

B.1 Location of Problems Drawing


3.5.2
3.1.1
3.5.1
3.5.2
3.1.1
ROAD SIGNS MAY REQUIRE RELOCATING TO CATER FOR THE SIMPLE PRIORITY JUNCTION
ACCESS 11AA
EXISTING JUNCTION OLD MAIN ROAD
RIGHT TURN GHOST ISLAND TO PROVIDE DRIVERS WITH A SAFE PLACE TO STOP BEFORE MAKING THE RIGHT TURN MANOEUVRE
TREES WOULD REQUIRE REMOVAL TO CATER FOR THE SIMPLE PRIORITY JUNCTION
NO REQUIREMENT FOR LEFT TURN MANOEUVRE INTO JUNCTION AND RIGHT TURN MANOEUVE OUT OF JUNCTION
EXISTING MERGE TAPER ADJACENT TO THE WESTBOUND CARRIAGEWAY SHORTENED TO 114m TO CATER RIGHT TURN GHOST ISLAND
A46
A46
Scale: 1:500
Vehicle Tracking Access 11AA
Scale: 1:300
FOR INFORMATION
VikingCCS
VIKING CCS PIPELINE
PRIORITY JUNCTION DESIGN
JUNCTION 11AA
SHEET 2 OF 5
AECOM
60718962 -ACM -HGN- ZZ -DR -CH - 003 P01


TTRO
30
ACCESS POSSIBLE FROM LACEBY CROSS ROUNDABOUT TO THE EAST. SHARP BENDS IN THE HIGHWAYS GEOMETRY WILL MAKE IT DIFFICULT FOR LOW LOADING VEHICLES TO ACCESS THE JUNCTION FROM THE WEST
EXISTING SPEED LIMIT ALONG OLD MAIN ROAD IS 60mph, PROPOSAL IS TO REDUCE TO 30mph IN ORDER TO ACHIEVE ADEQUATE STOPPING SIGHT DISTANCE
A46
OLD MAIN ROAD
3.5.2
3.5.1
3.1.1
8.300m
ACCESS 11AC
HEDGES WOULD REQUIRE REMOVAL TO CATER FOR THE SIMPLE PRIORITY JUNCTION
NO REQUIREMENT FOR LEFT TURN MANOEUVRE OUT OF JUNCTION AND RIGHT TURN MANOEUVRE INTO JUNCTION
R15.000m
25.000m @ 1in10
NON FORMAL LAYBY
3.5.2
R3.000m
3.000m
5.000m
3.1.1
Scale: 1:400
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Vehicle Tracking Access 11AC
Scale: 1:250
FOR INFORMATION
VikingCCS
VIKING CCS PIPELINE
PRIORITY JUNCTION DESIGN
JUNCTION 11AC
SHEET 3 OF 5
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A18 SUBJECT TO 60mph SPEED LIMIT
3.5.2
3.1.1
ACCESS 12AA
A18
R130.000m
8.400m
3.200m
R15.000m
25.00m @1in10
8.000m
3.000m
R15.000m
TREES AND HEDGES WOULD REQUIRE REMOVAL TO CATER FOR THE SIMPLE PRIORITY JUNCTION
DRAIN DITCH/SWALE ADJACENT TO CARRIAGEWAY
3.1.1
3.5.2
Scale: 1:400
Vehicle Tracking Access 12AA
Scale: 1:300
FOR INFORMATION
VikingCCS
VIKING CCS PIPELINE
PRIORITY JUNCTION DESIGN
JUNCTION 12AA
SHEET 4 OF 5
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3.5.2
A18 SUBJECT TO 40mph SPEED LIMIT
3.1.1
DRAIN DITCH/SWALE ADJACENT TO CARRIAGEWAY
ACCESS 13AA
6.600m
5.300m
R15.000m
25.00m @1in10
6.000m
3.000m
HEDGES WOULD REQUIRE REMOVAL TO CATER FOR THE SIMPLE PRIORITY JUNCTION
R15.000m
25.00m @1in10
3.1.1
3.5.2
EXISTING JUNCTION
A18
Scale: 1:350
Vehicle Tracking Access 13AA
3.1.2
Scale: 1:300
FOR INFORMATION
VikingCCS
VIKING CCS PIPELINE
PRIORITY JUNCTION DESIGN
JUNCTION 13AA
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