

Appendix A3 – Anticipated Vehicle Types

Figure A-3-01: HGV – 4 axle rigid max GVW 32 Tonne* (rigid/tipper) (MNA_A-3-01_to_06)

Figure A-3-02: HGV – 5/6 axle articulated tanker up to GVW 44 Tonne (MNA_A-3-01_to_06)

Figure A-3-03: HGV – tractor unit, low loader step trailer up to GVW 44 Tonne (MNA_A-3-01_to_06)

Figure A-3-04: 5/6 axle articulated flatbed up to GVW 44 Tonne (MNA_A-3-01_to_06)

Figure A-3-05: Abnormal Indivisible Load Mobile Crane (MNA_A-3-01_to_06)

Figure A-3-06: Abnormal Indivisible Load Tunnel Boring Machine Components (MNA_A-3-01_to_06)

Figure A-3-01

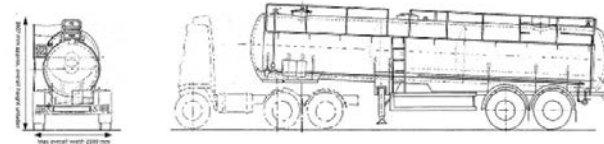
HGV - 4 axle rigid max GVW 32 Tonne* (rigid/tipper)



Overall Width: 2.49
Overall Length: 8.79
Approx. Turning Diameter: 21.5
Approximate Height: 3.1

Figure A-3-02

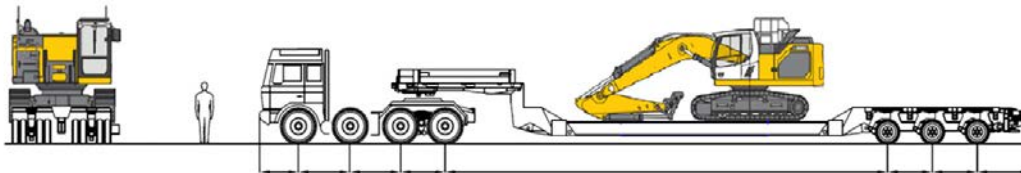
HGV – 5/6 axle articulated tanker up to GVW 44 Tonne



Overall Width: 2.55
Overall Length: 13
Approx. Turning Diameter: 16.5
Approximate Height: 3.7

Figure A-3-03

HGV - tractor unit, low loader step trailer up to GVW 44 Tonne



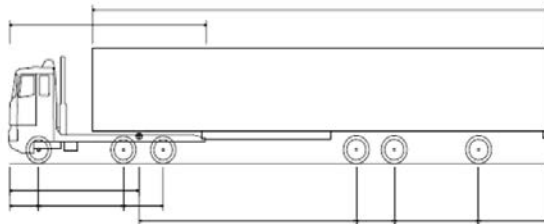
Overall Width: 3.05**
Overall Length: 21.045
Approx. Turning Diameter: 19.6
Approximate Height: 4

Note: Unloaded trailer width likely to be approx. 2.75m

** Will vary depending upon load typically 2.9m width anticipated

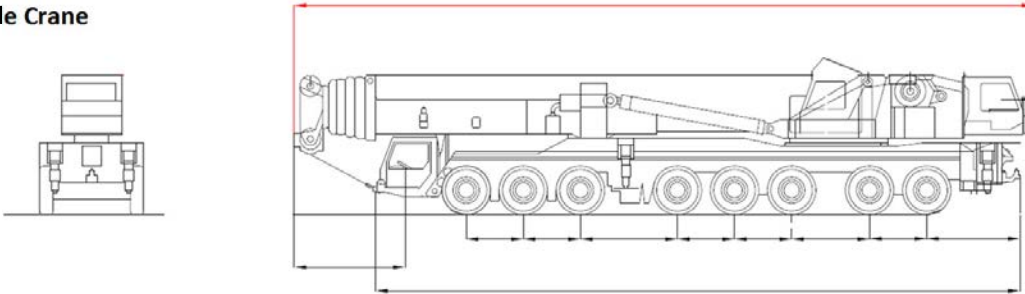
Figure A-3-04

HGV – 5/6 axle articulated flatbed up to GVW 44 Tonne



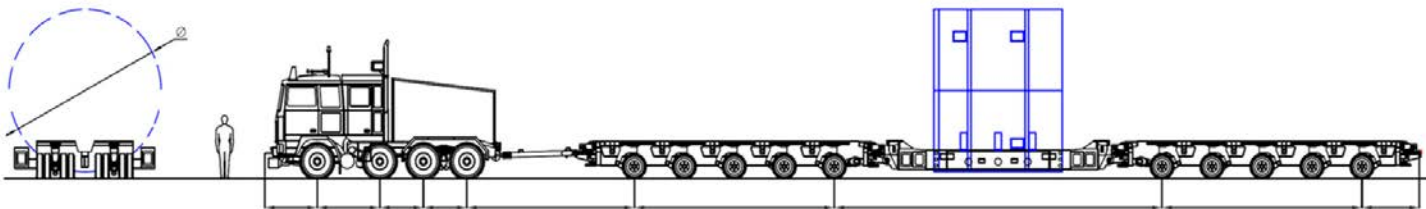
Overall Width: 2.55
Overall Length: 18.5
Approx. Turning Diameter: 17.5
Approximate Height: 3.6

Figure A-3-05
Abnormal Indivisible Load
Mobile Crane



Overall Width: 3
 Overall Length: 21.4
 Approx. Turning Diameter: 32.9
 Approximate Height: 4

Figure A-3-06
Abnormal Indivisible Load
Tunnel Boring Machine Components



Load diameter (Φ): 4.3
 Tractor & Trailer Width: 3
 Overall Length: 34.3
 Approx. Turning Diameter: 64
 Approximate Height: 4.6

Appendix B1 – Swept path results and highway modifications

Figure B-1-01: Swept paths for proposed routes - B6478 Hallgate Hill Junction to Chapel Croft (MNA_B-1-01)

Figure B-1-02: Swept paths for proposed routes - B6478 Hallgate Hill (Chapel Croft - Bonstone Access Junction) - Slaidburn Road (MNA_B-1-02)

Figure B-1-03: Swept paths for proposed routes - B6478 Slaidburn Road (Smelt Mills Clough/Bonstone Brook) (MNA_B-1-03)

Figure B-1-04: Swept paths for proposed routes - B6478 Slaidburn Road (Waddington Fell Quarry/Tittrington Brow) (MNA_B-1-04)

Figure B-1-05: Swept paths for proposed routes - B6478 Slaidburn Road / Fell Road (MNA_B-1-05)

Figure B-1-06: Swept paths for proposed routes - B6478 Slaidburn Road (Braddup Access Junction) (MNA_B-1-06)

Figure B-1-07: Swept paths for proposed routes - B6478 Slaidburn Road (North Waddington) (MNA_B-1-07)

Figure B-1-08: Swept paths for proposed routes - East of Waddington West Bradford Road (MNA_B-1-08)

Note relating to Appendix B1

The swept figures listed above are at 1:2500 scale. The image resolution limits the level of detail that can be seen.

At a number of locations the swept path analysis results along the B6478 north of Waddington appear to suggest HGVs may not be able to use the route, implying a need to widen the entirety of the stretches where the initial swept path analysis suggests there is an issue, however:

- This could create a new highway safety issue - widening the road may lead to an increase in traffic speeds and result in an increase in accident frequency and/or severity
- There would be significant environmental impact within the AONB

The existing usage by quarry HGV traffic suggest the issues may not be as extensive as the figures suggest (traffic count data suggests c.200 HGVs use it per day).

In relation to road safety

- Crashmap⁵ data indicates 3 slight and 1 serious incidents occurred over the 5 year period inclusive of 2016 to 2020
- MARIO⁶ data indicates (summary table shown): 4 slight and 1 serious collisions have occurred from 2017 to 2021.
- Existing speeds: data suggests c.30 to 55 mph depending on visibility/width of road.

Anticipated construction HGV numbers during the busiest phases will average at c.170 with peaks up to c.300.

⁵ <https://www.crashmap.co.uk/> [ACCESSED 10.12.2021]

⁶ <http://mario.lancashire.gov.uk/agsmario/default.aspx> [ACCESSED 10.12.2021]

Date	Severity	Vehicle Involved	Vehicle Types	Casualties
17/08/2019 11:10	Slight	2	Car; Pedal Cycle;	1
14/02/2019 14:40	Slight	1	Car;	2
01/07/2021 20:30	Slight	2	Car; Car;	1
03/05/2016 17:20	Slight	2	Other motor vehicle; Car;	1
31/03/2017 04:15	Serious	1	Car;	1

Table 4 Summary of Mario collision data

Given the above the approach taken has been to consider the existing mode of operation: the road broadly operates safely now, enhancement may allow it to continue to operate safely with the increase in HGVs.

The swept path will not take into account the following:

- road may be wider in places than OS mapping suggests
- in places the verges are clear of obstructions to wing mirrors
- verge overrun occurs in places
- visibility is such in places that safe informal contraflows operate at constrictions or vehicles slow so they can pass either overrunning the verge or maximising use of available hard standing)

The approach taken is that localised road widening would reduce the likelihood of verge overrun and/or facilitate further locations where informal contraflows/slow passing can occur. Additionally the following is proposed to mitigate the impact of the proposed additional HGV movements:

- Speed reductions proposed along with regular road widenings.
- Extensive driver training and public education is proposed.
- A proactive maintenance regime would be put in place to intervene before any road formation issues escalate as a consequence of any overrun.

The engineering assessment has used the initial swept paths to identify locations where such localised road widening may be appropriate.

These locations have then been reviewed: informed by site visits, google street view and further interrogation of the swept paths. Engineering judgement has then been used to identify which locations will provide a proportionate improvement to existing operation.

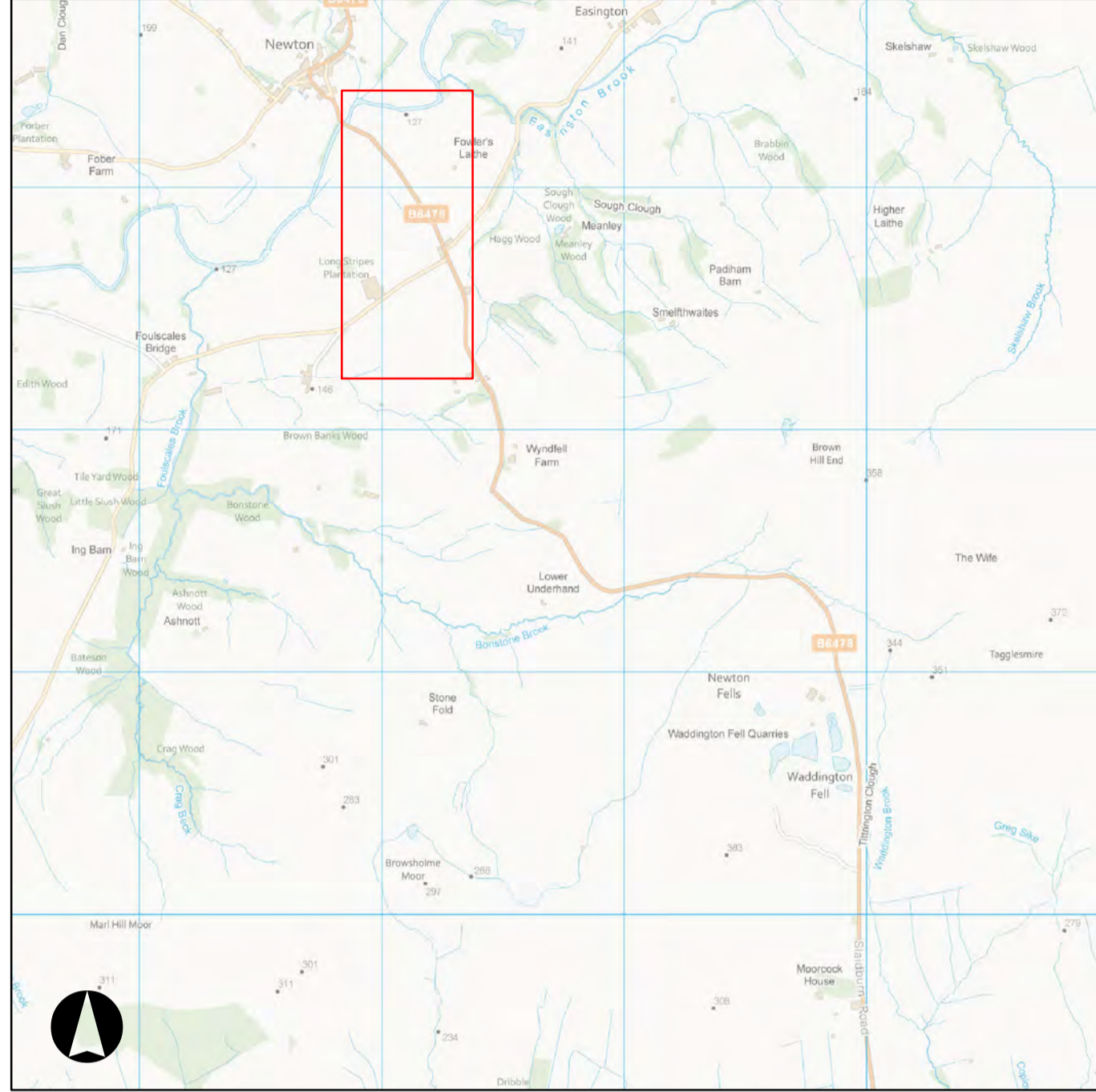
Each location has considered:

- Signs of existing over run – in most cases if present then widening to be put in place
- Proximity of potential points where HGVs can pass (if present then road modification may not be required):

- Are there physical obstructions either to wing mirrors, or that would impact wider vehicles?
- Is swept path pessimistic?
- If considering the above it is likely vehicles can pass but the margin of safety is limited are there signs of overrun?
- Sight lines and topography – forward visibility of 90m has been used as basis of assessment (design speed 60kph, 37 mph CD 109 Table 2.10) with consideration to 1 step relaxation to 70m if considered necessary and appropriate
- Other road activities/ existing road markings or signage – e.g. would farm activities prevent use of available space? Are there overtaking restrictions or move left arrows (consider impact of less frequent c.3m wide low loaders)? Are there points where traffic is likely to build up (e.g. cattle grids)?
- Is there an existing hardstanding that could be enhanced/strengthened?
- Potential significance of other impacts – Environmental impact (e.g. rare habitats, high quality trees), Land Owner Impact (e.g. buildings, walls, significant objections)

APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES
FIGURE B - 1 - 01

B6478 Hallgate Hill (TA Link Ref. 65)



WIDER AREA 0 0.3 0.6 1.2 Kilometers



IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER HALLGATE HILL (SOUTHBOUND)
AT SIGNPOSTED ROAD NARROWING



IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER HALLGATE HILL (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE

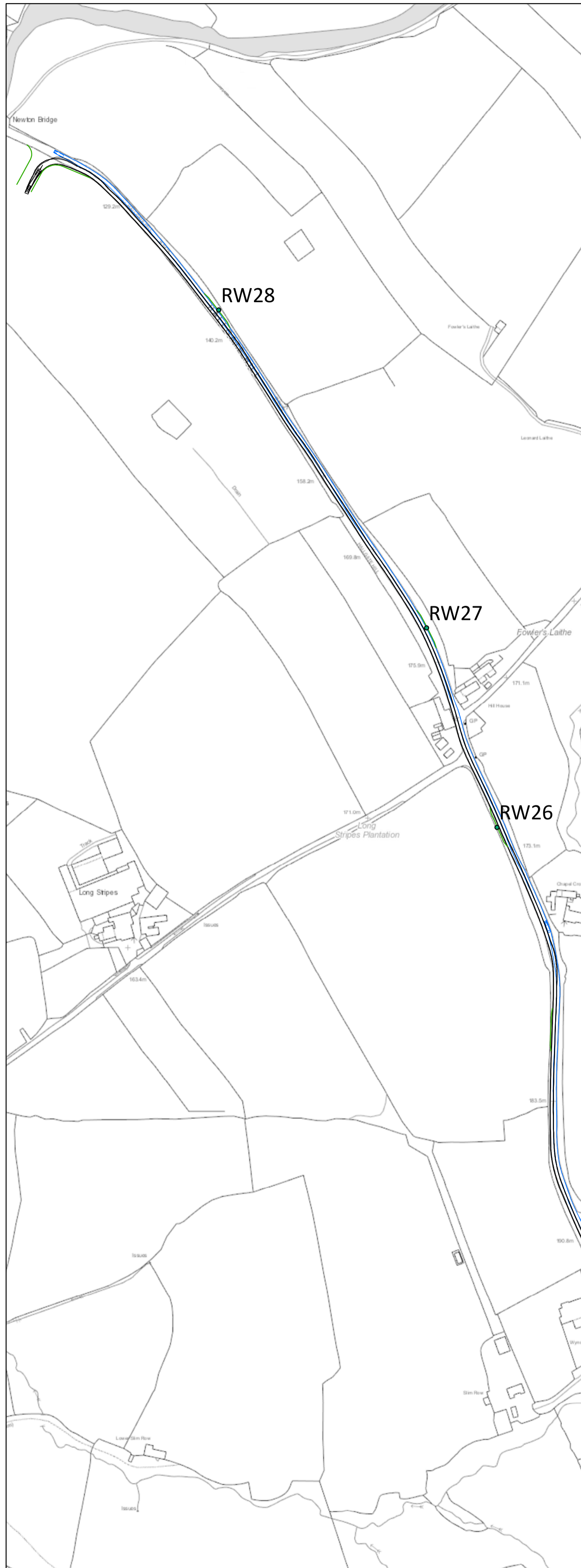
- Legend**
- Road Modification Reference
 - Proposed Road Modification



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)



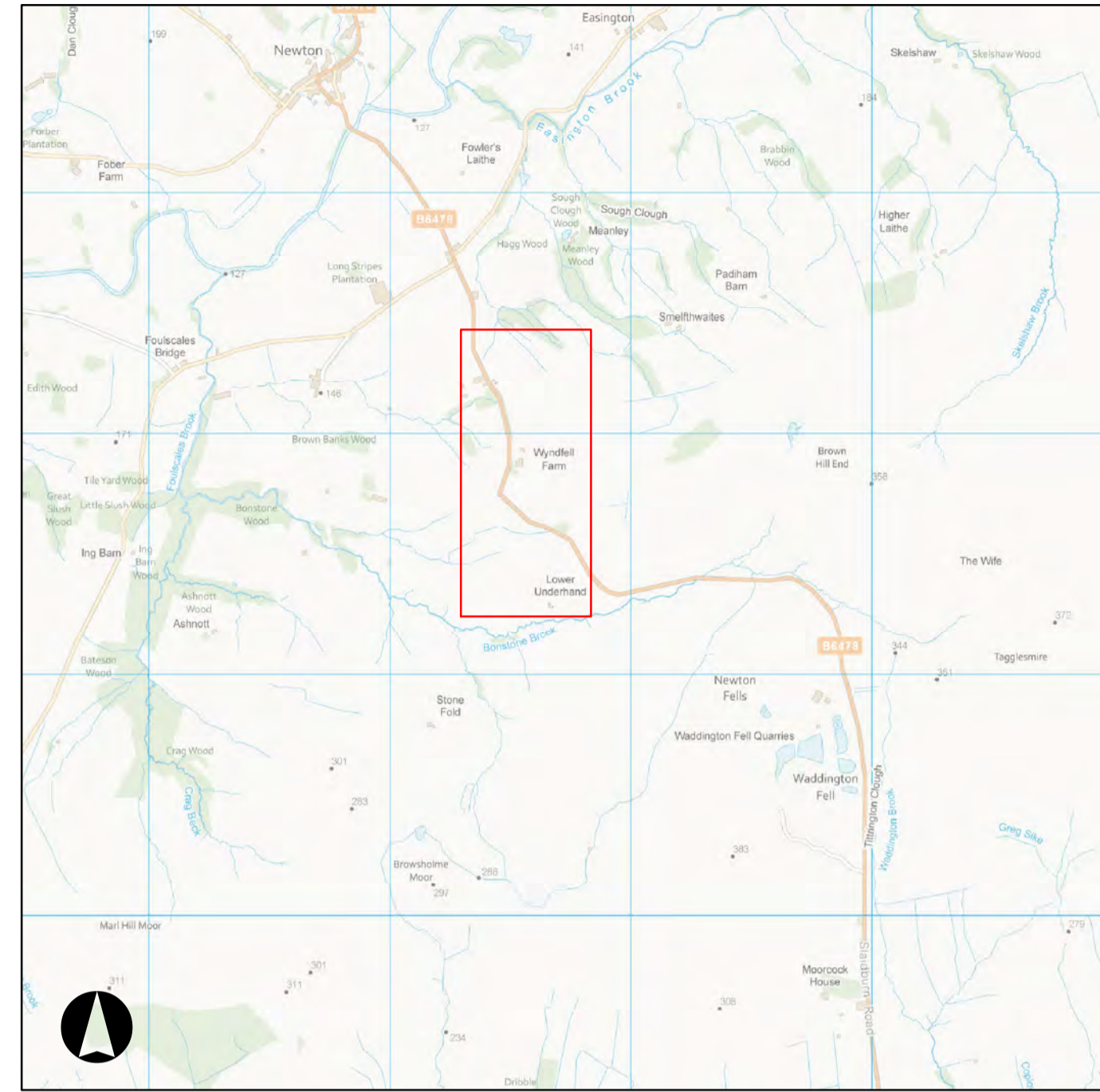
HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)

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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES

FIGURE B - 1 - 02

B6478 Hallgate Hill/Slaidburn Road (TA Link Refs. 65 + 140)



WIDER AREA 0 0.3 0.6 1.2 Kilometers



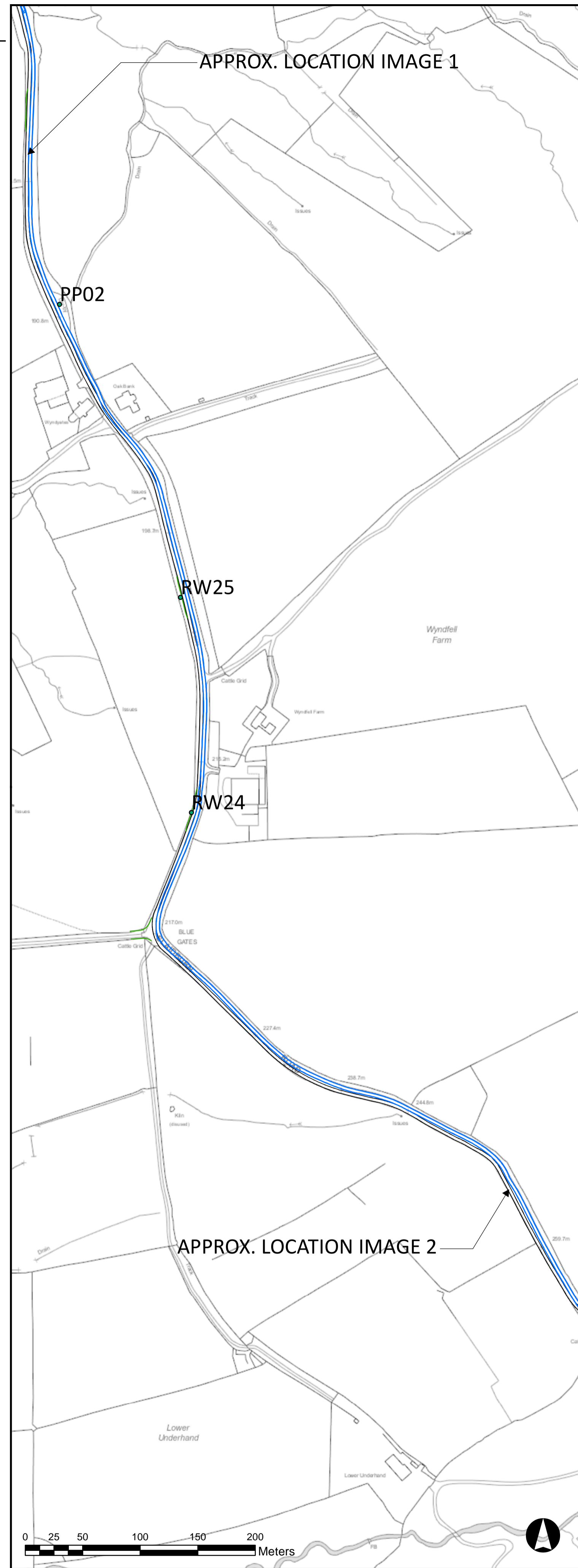
**IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER HALLGATE HILL (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE**



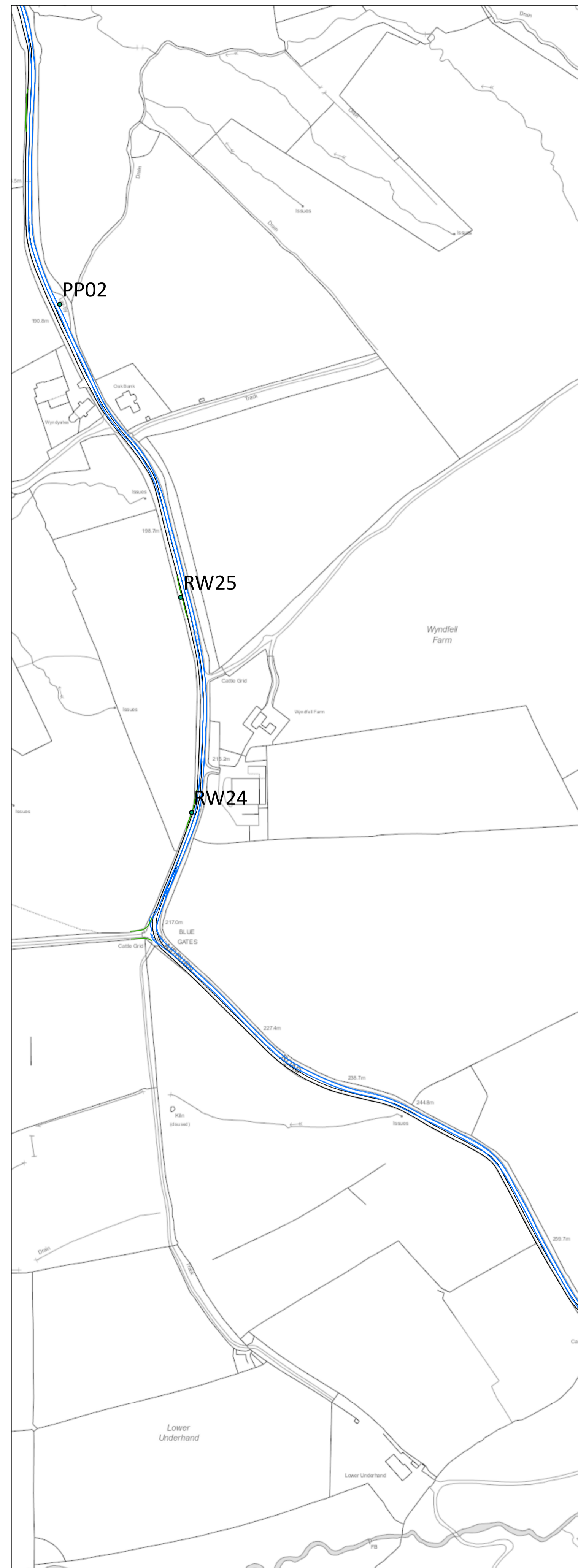
**IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN ROAD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE**

Legend

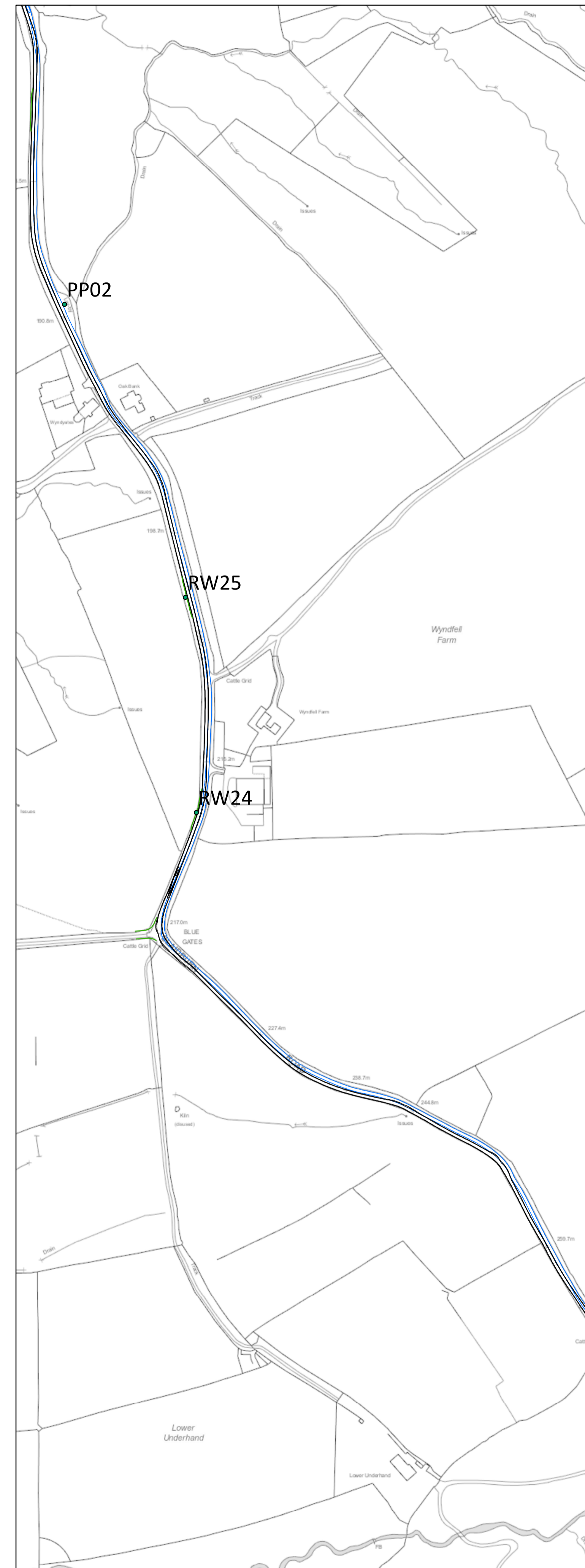
- Road Modification Reference
- Proposed Road Modification



**HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)**



**HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)**



**HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)**

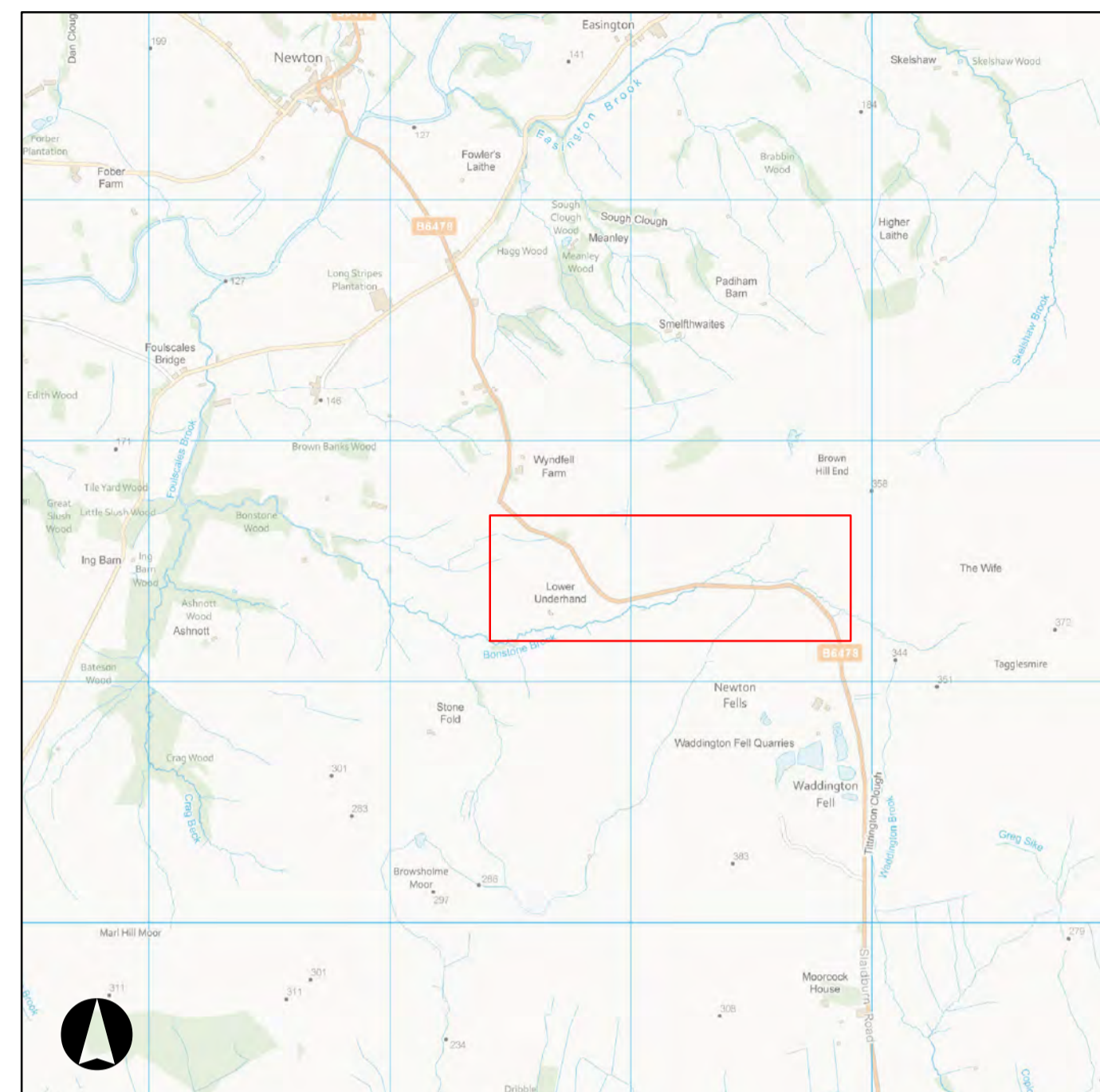
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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES

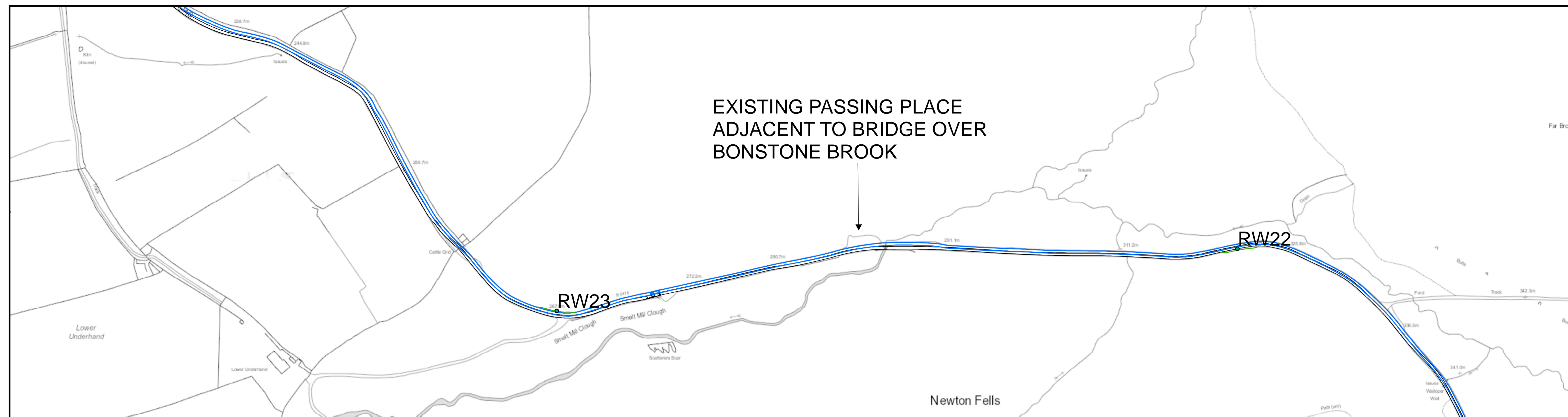
FIGURE B - 1 - 03

B6478 SLAIDBURN ROAD (SMELT MILL CLOUGH/ BONSTONE BROOK)

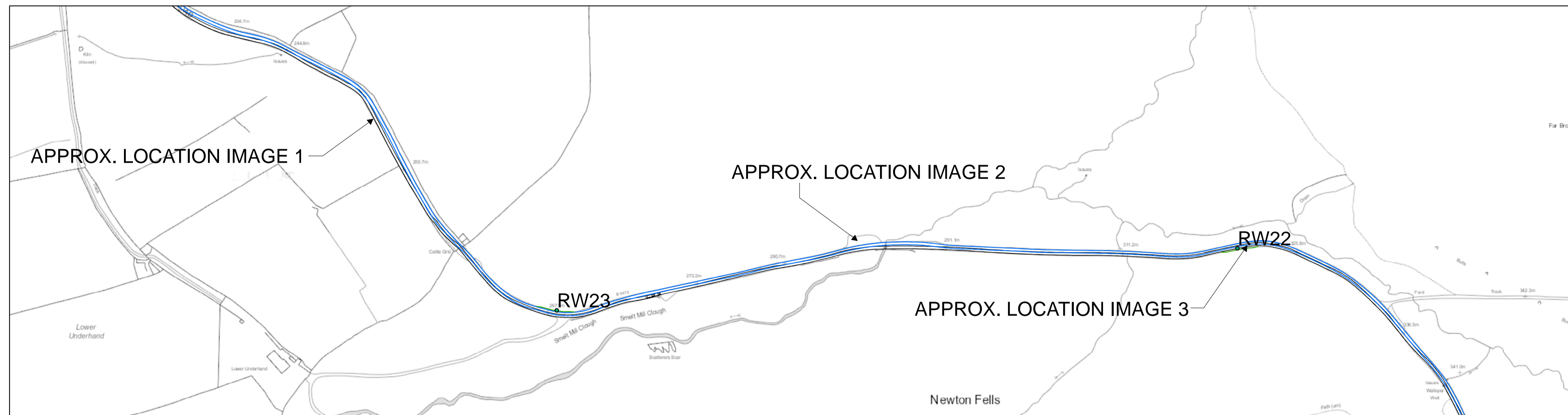
TA LINK REF. 140



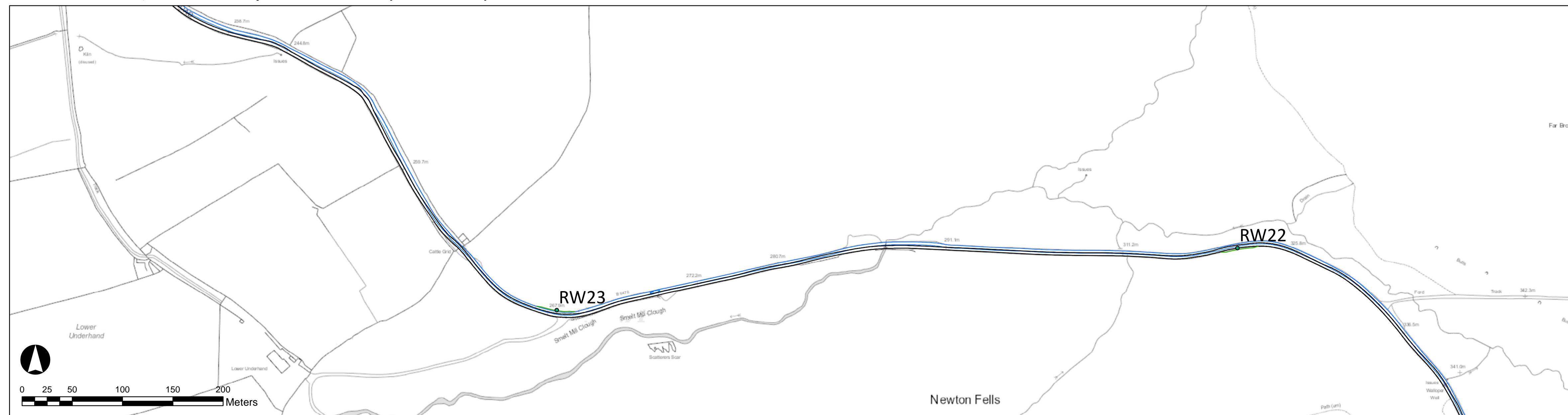
WIDER AREA 0 0.3 0.6 1.2 Kilometers



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)



HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)



IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN RD (SOUTHBOUND)
OBSERVED TYPICAL LANE DISCIPLINE



IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN RD (SOUTHBOUND)
BONSTONE BROOK PASSING PLACE



IMAGE 3: HGV TRIAL 11th NOVEMBER 2020
4AXLE RIGID TIPPER SLAIDBURN RD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE

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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES
FIGURE B - 1 - 04

B6478 Slaidburn Road (TA Link Refs. 140 + 63)

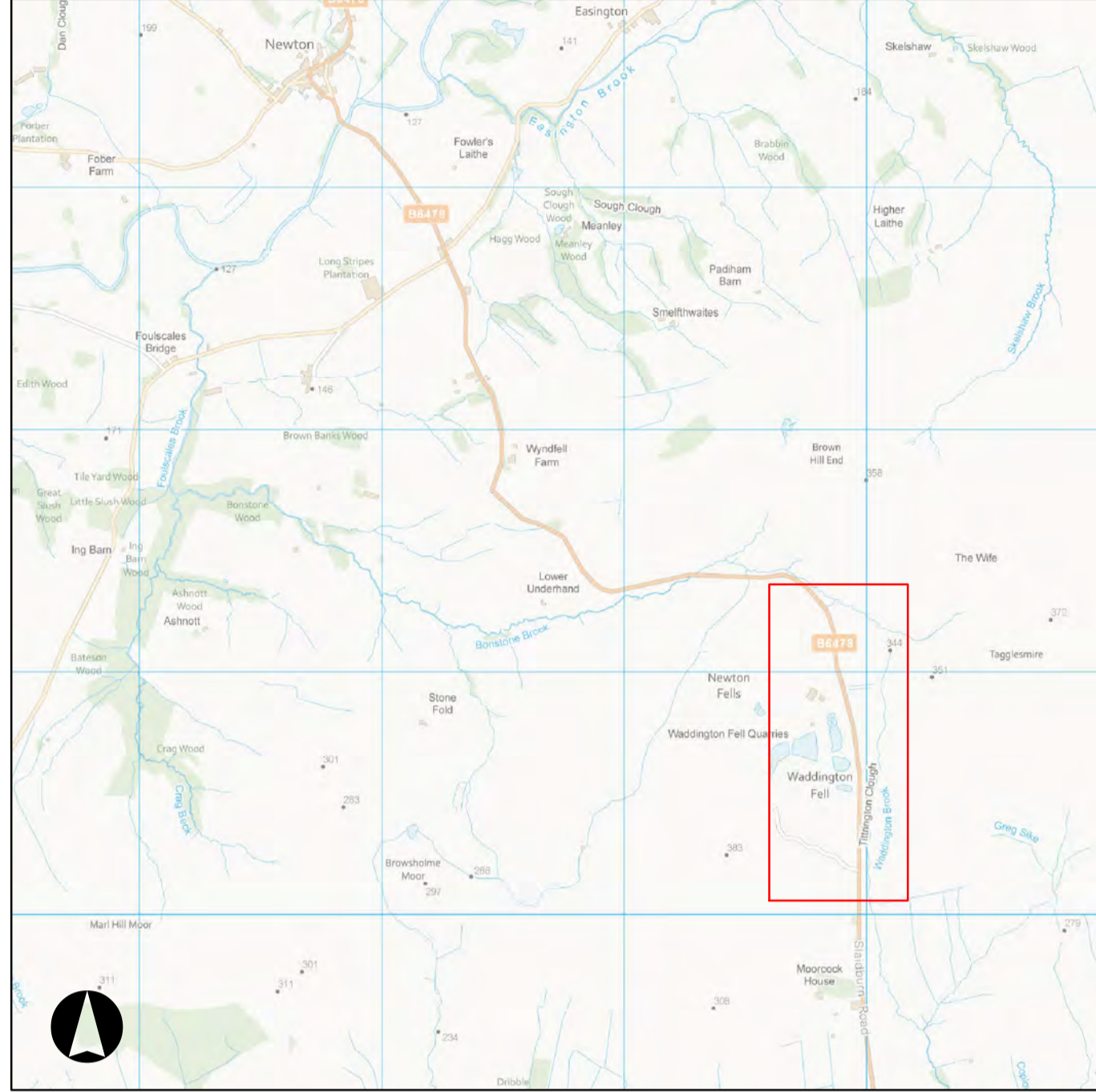
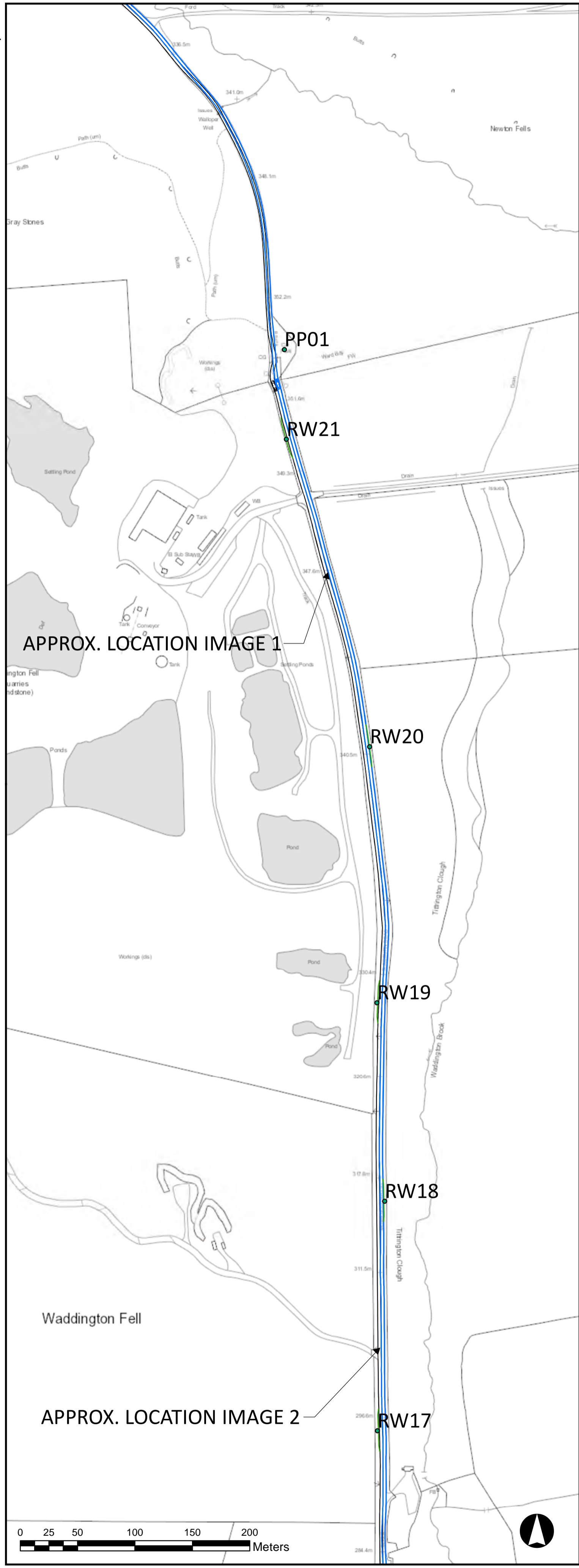


IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER HALLGATE HILL (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE

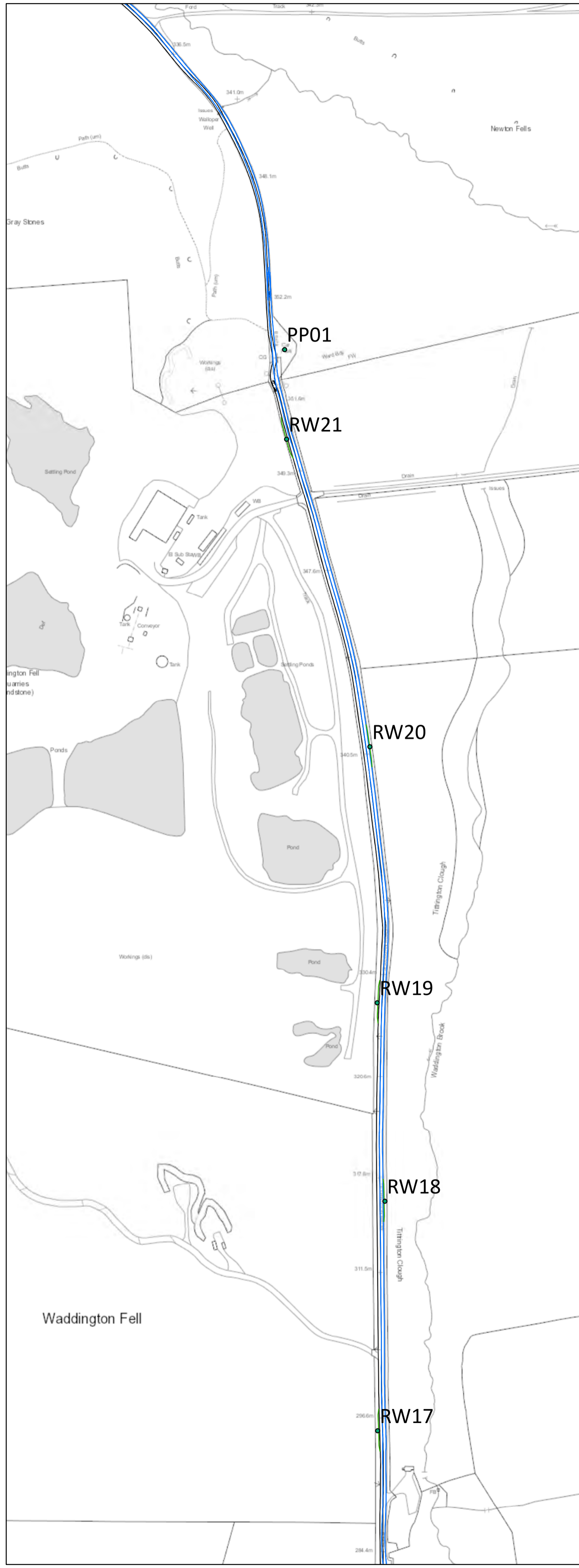


IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN ROAD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE

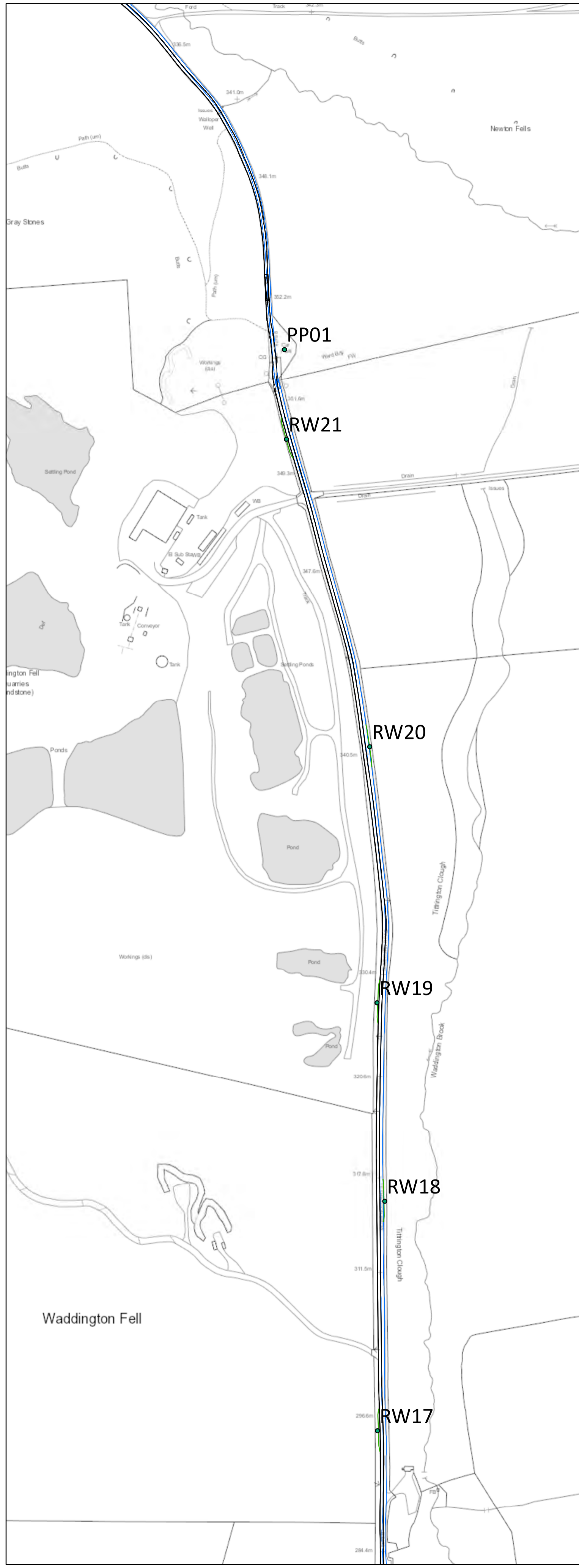
- Legend**
- Road Modification Reference
 - Proposed Road Modification



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)



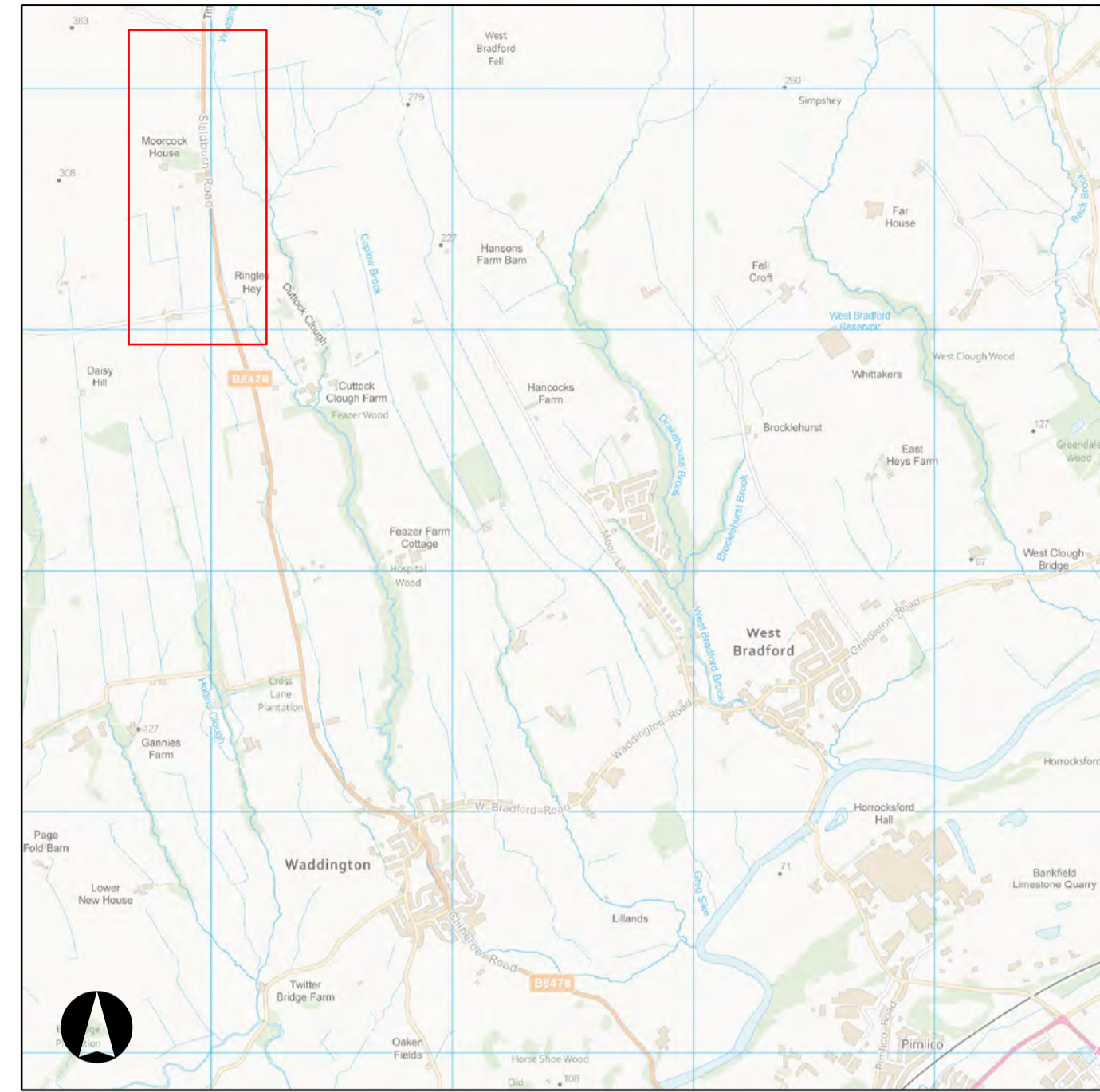
HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)

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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES

FIGURE B - 1 - 05

B6478 Slaidburn Road (TA Link Ref. 63)



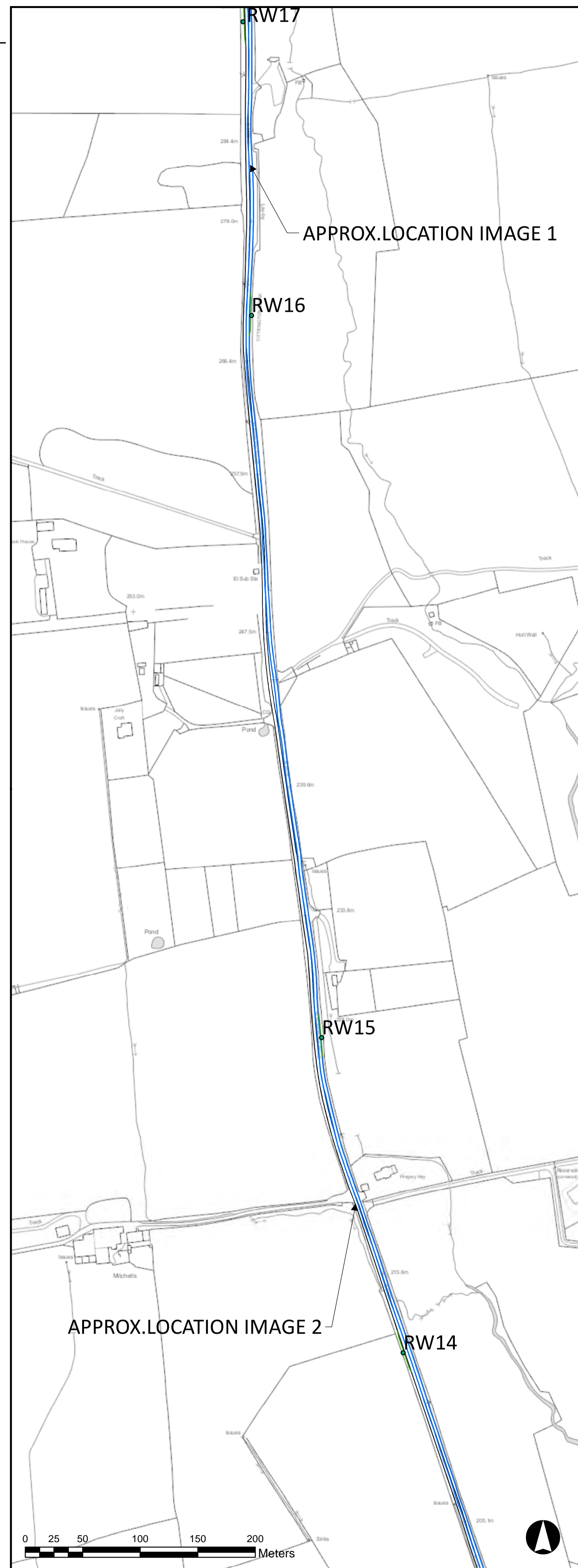
**IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN RD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE**



**IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN ROAD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE**

Legend

- Road Modification Reference
- Proposed Road Modification



**HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)**



**HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)**

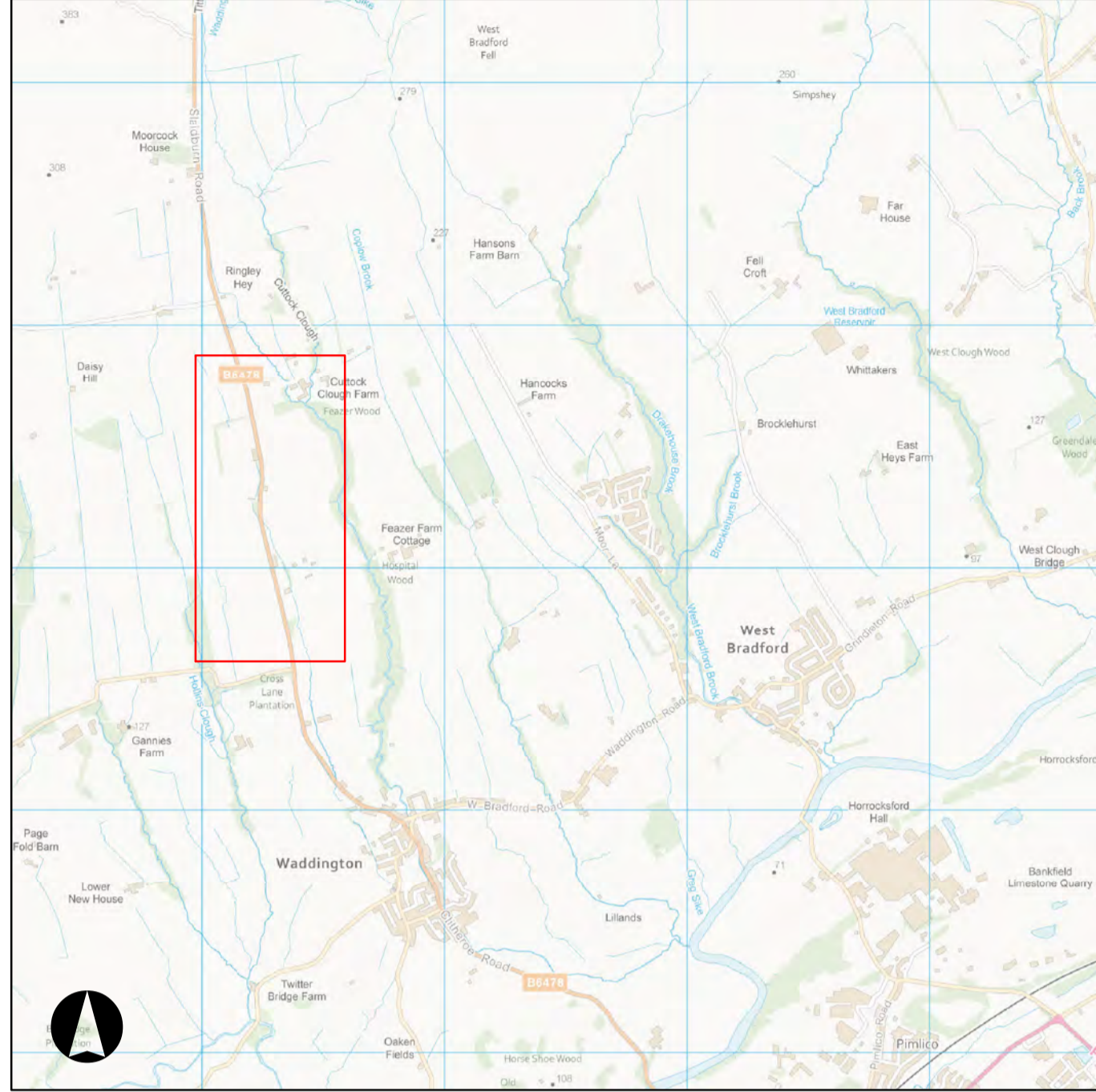


**HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)**

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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES
FIGURE B - 1 - 06

B6478 Hallgate Hill/Slaidburn Road (TA Link Refs. 65 + 140)



WIDER AREA 0 0.3 0.6 1.2 Kilometers

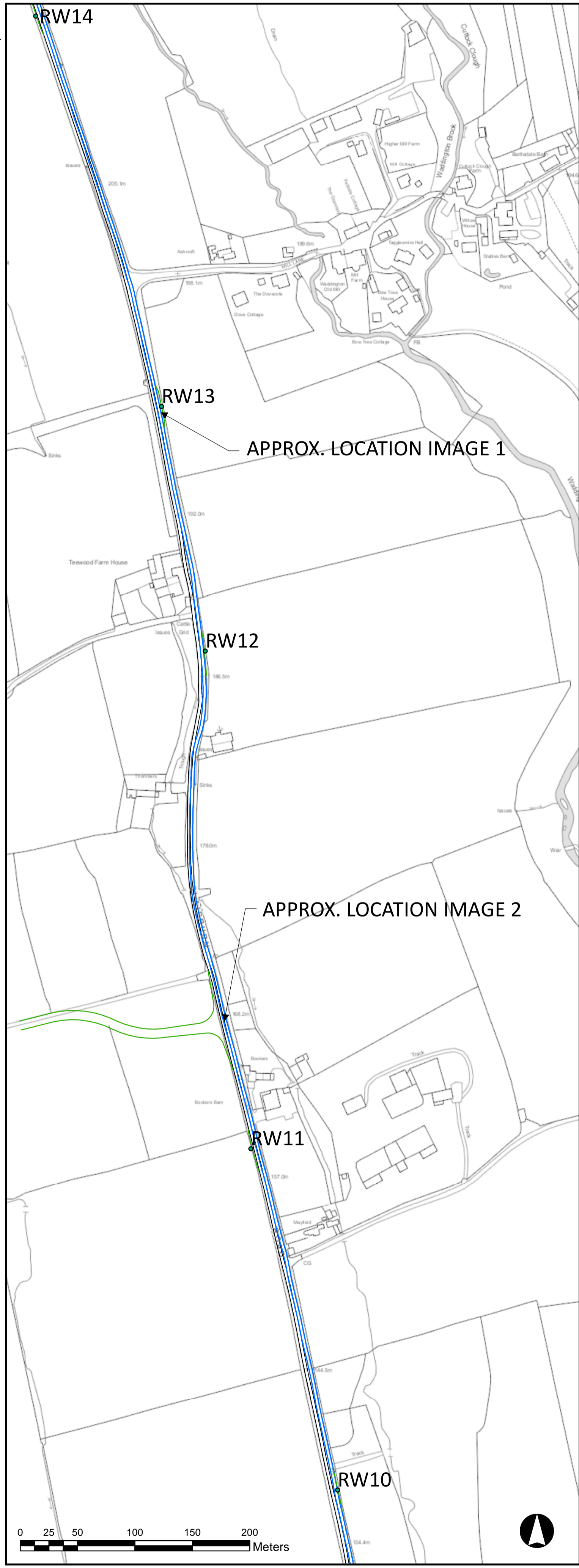


IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN RD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE

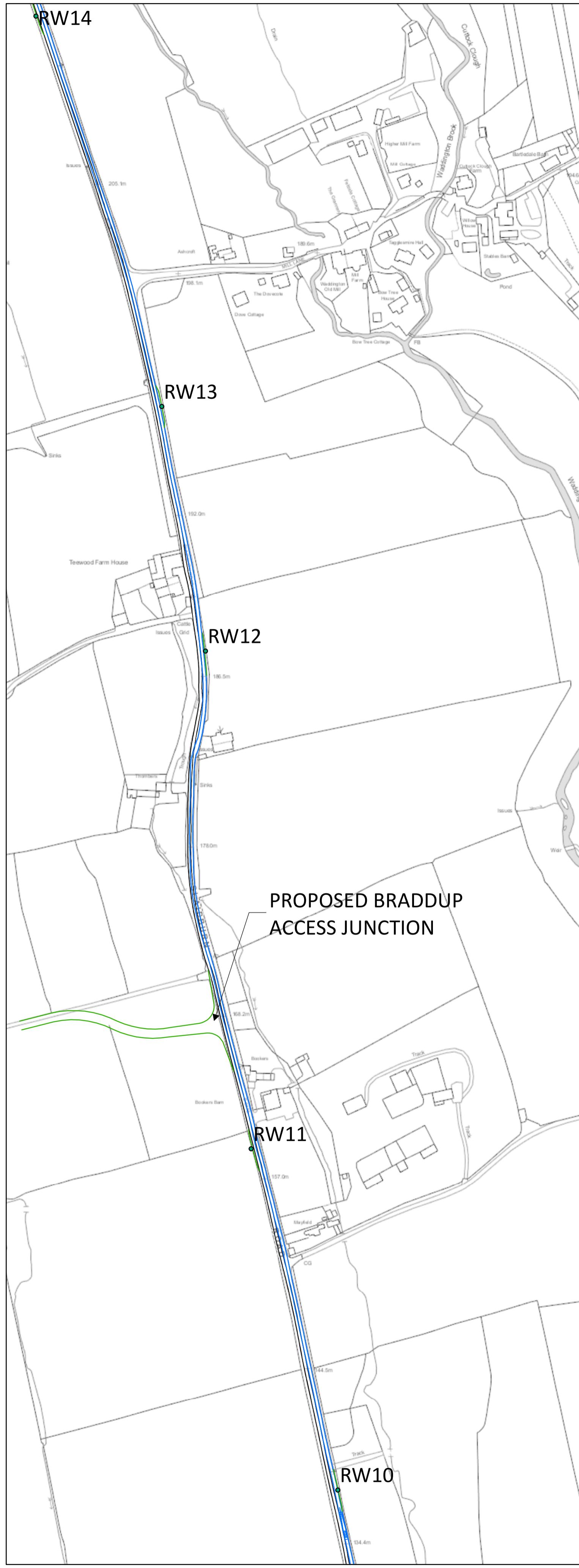


IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN ROAD (SOUTHBOUND)
LEAVES LANE TO AVOID HEDGEROW

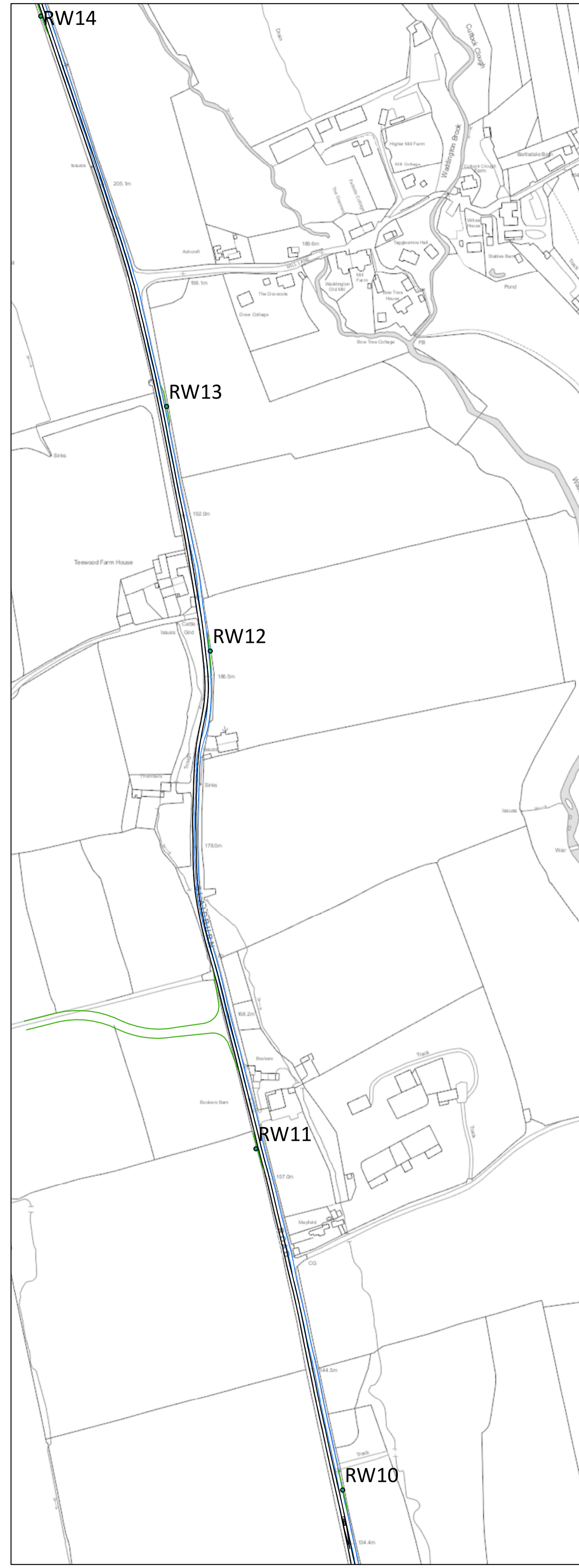
- Legend**
- Road Modification Reference
 - Proposed Road Modification



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)



HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)



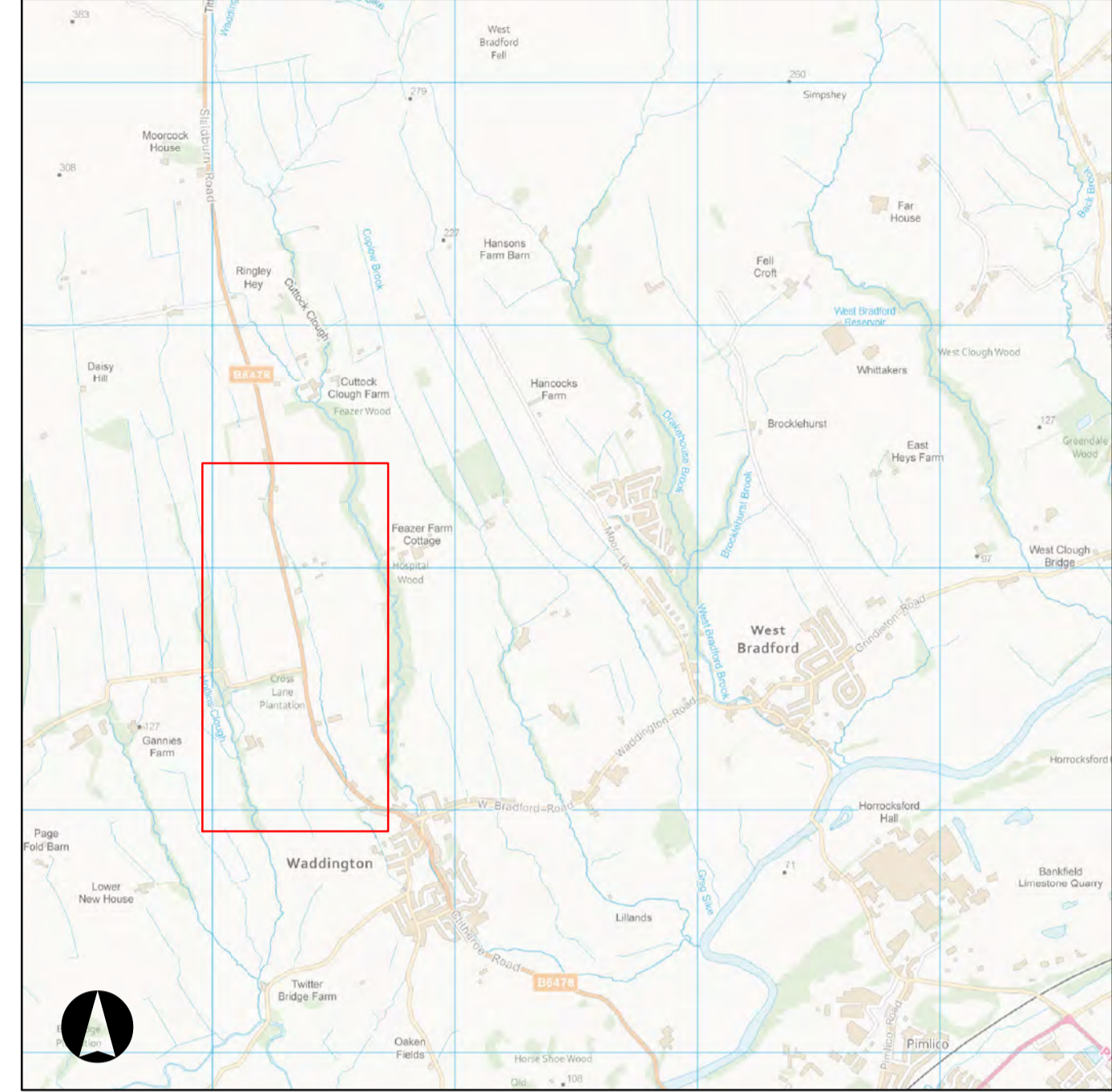
HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)

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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES

FIGURE B - 1 - 07

B6478 Slaidburn Road - The Square Waddington (TA Link Res. 61)



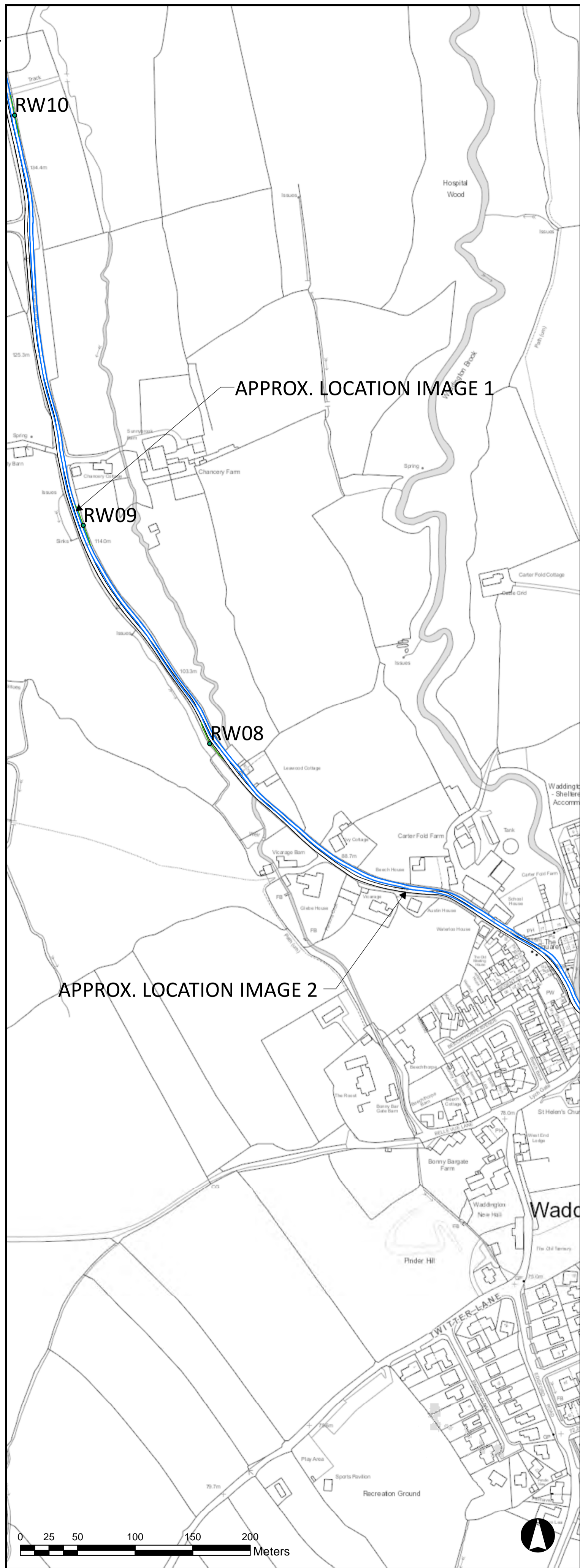
**IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER SLAIDBURN RD (SOUTHBOUND)
TYPICAL OBSERVED LANE DISCIPLINE**



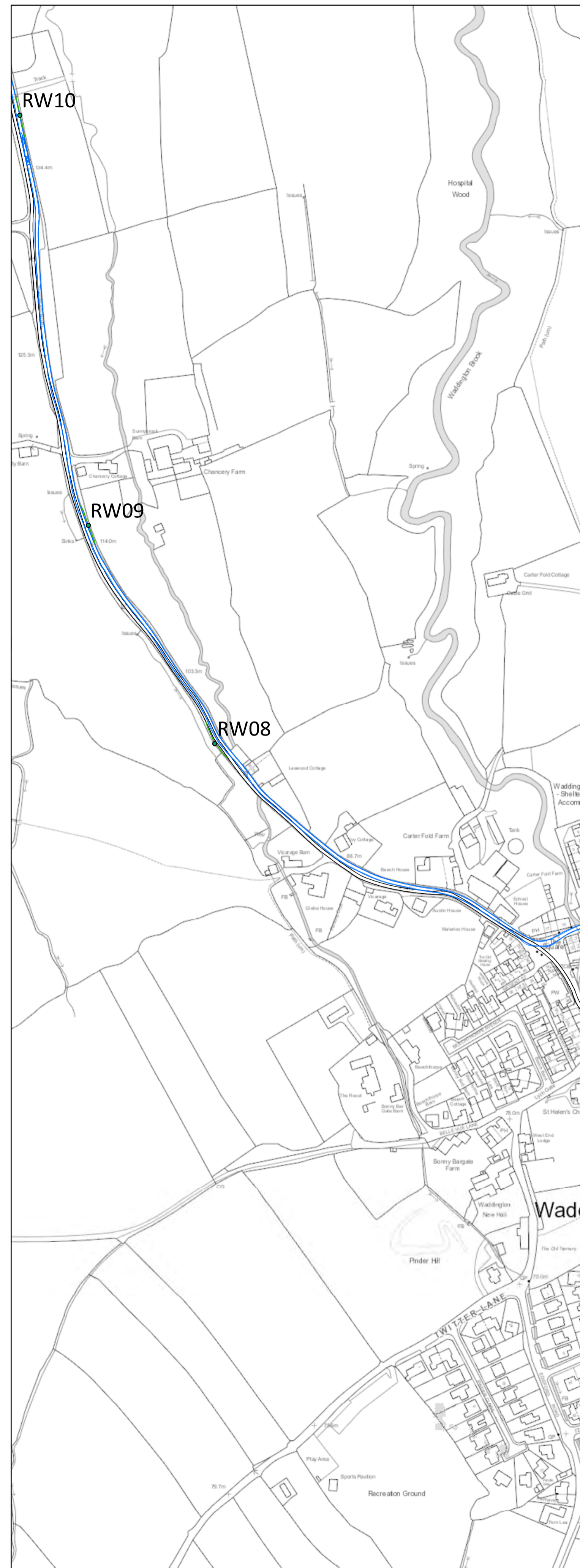
**IMAGE 2: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID TIPPER THE SQUARE WADDINGTON
(SOUTHBOUND) TURNING ONTO WEST BRADFORD RD**

Legend

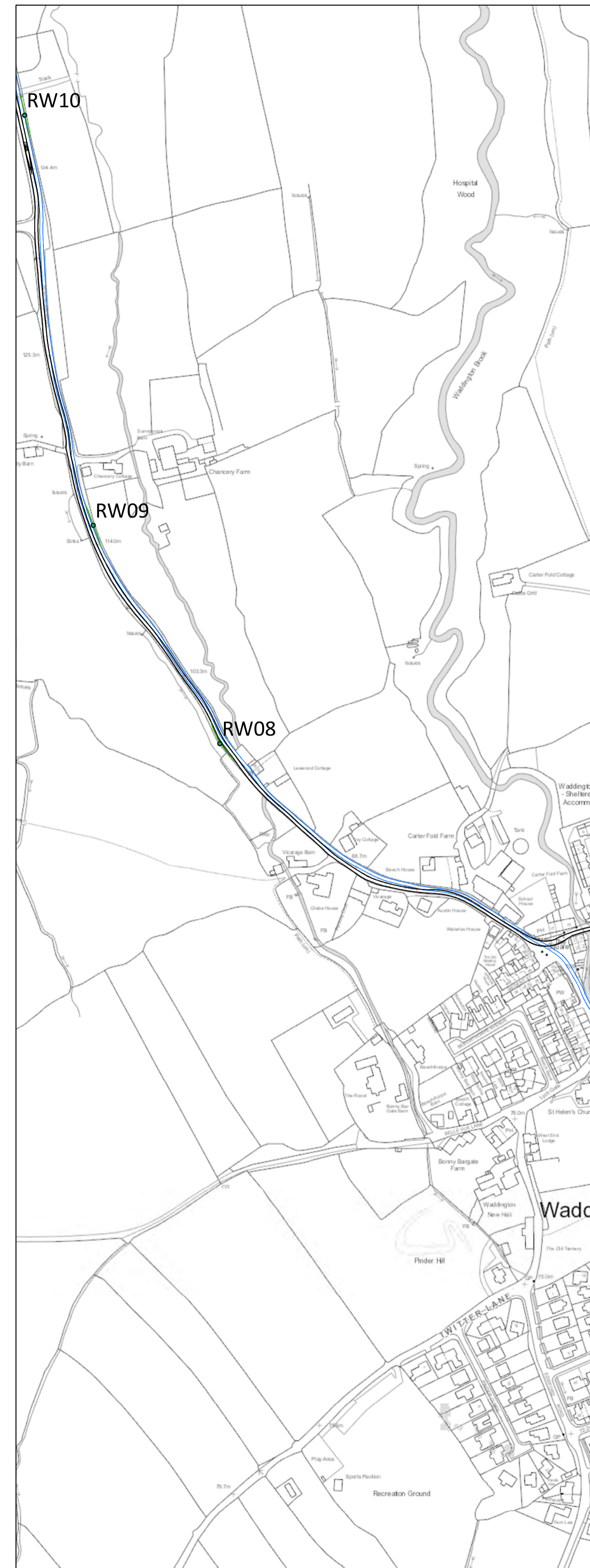
- Road Modification Reference
- Proposed Road Modification



**HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)**



**HGV - 4 axle rigid (rigid/tipper) to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)**



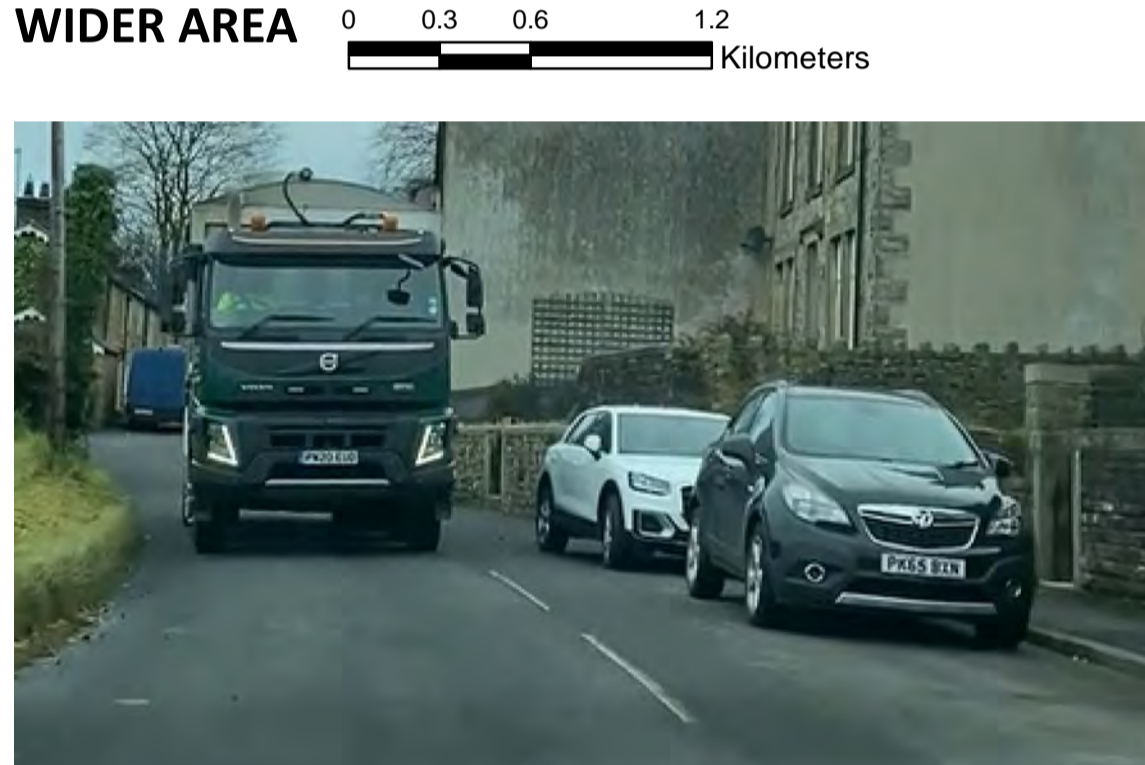
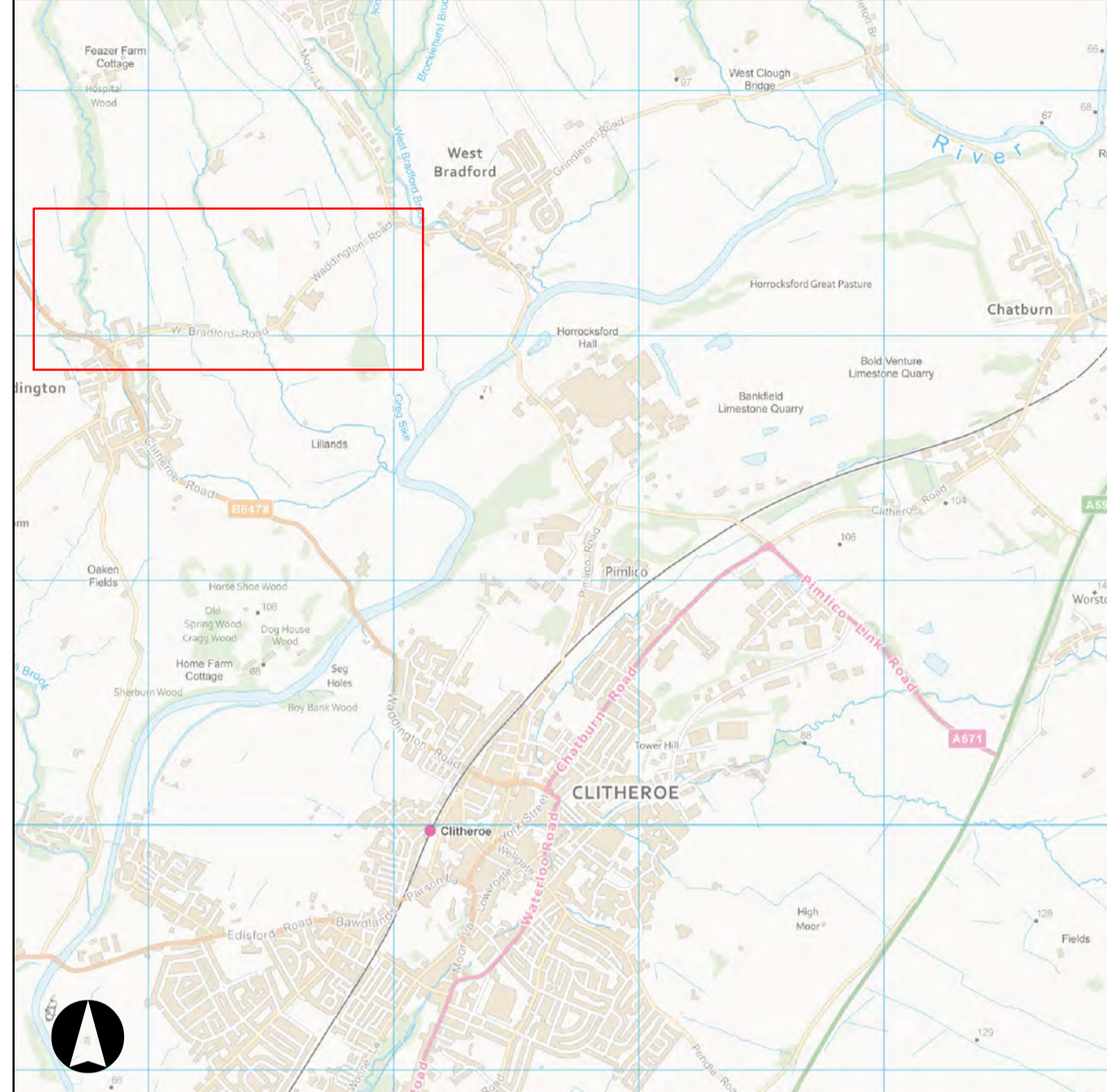
**HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - 4 axle rigid (rigid/tipper) from site (Southbound)**

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APPENDIX B1 - SWEEP PATHS FOR PROPOSED ROUTES

FIGURE B - 1 - 08

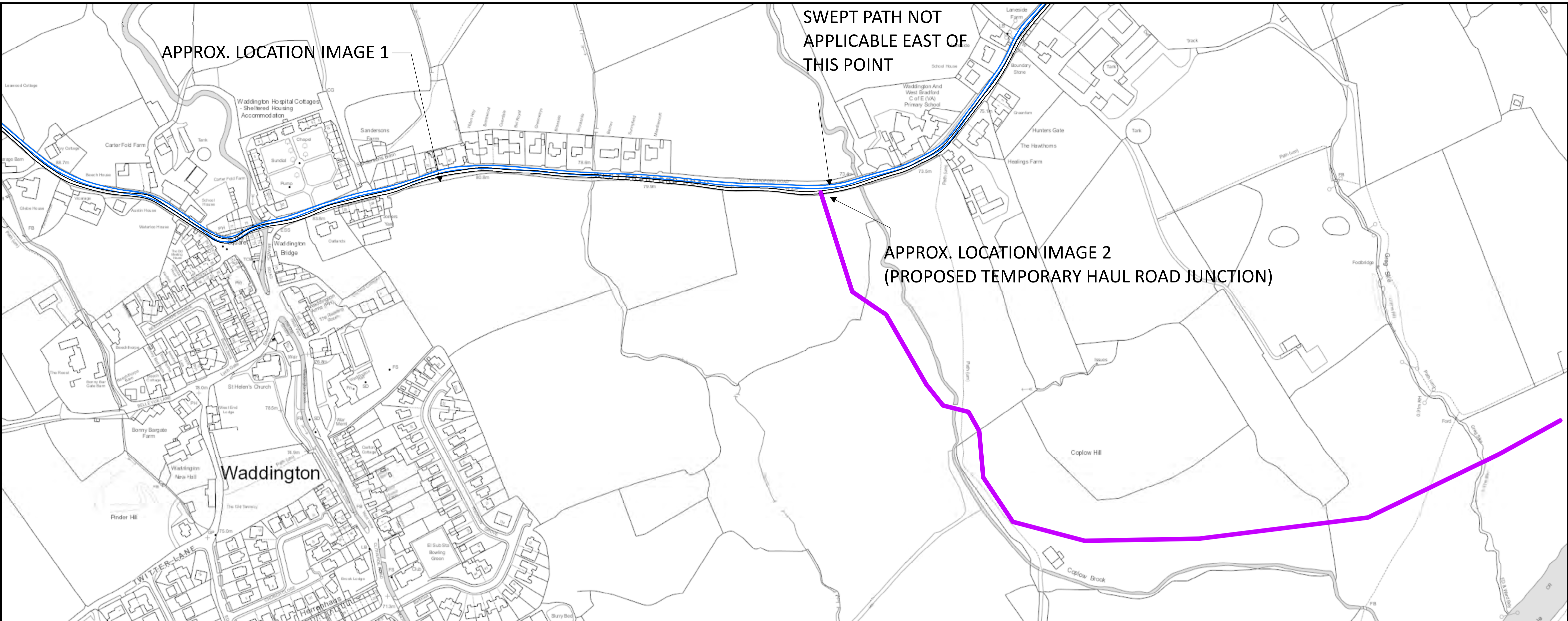
Waddington - West Bradford Road (TA Link Ref. 60)



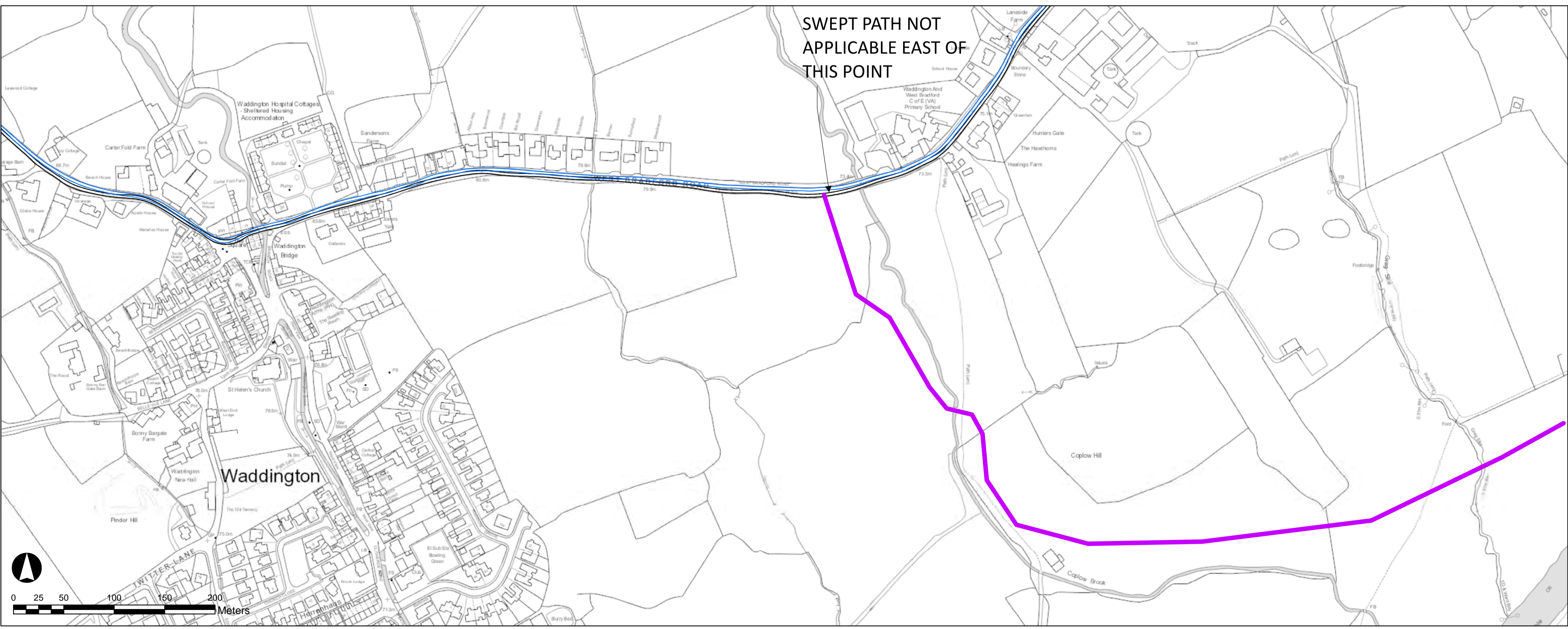
**IMAGE 1: HGV TRIAL 11th NOVEMBER 2020
4 AXLE RIGID WEST BRADFORD RD (SOUTHBOUND)
LEAVES LANE TO PASS PARKED CARS**



**IMAGE 2: PROPOSED JUNCTION LOCATION
VIEW TOWARDS
WADDINGTON & W. BRADFORD PRIMARY SCHOOL**



**HGV - tractor unit, 40' artic to site (Northbound)
HGV - tractor unit, low loader step trailer from site (Southbound)**



**HGV - tractor unit, low loader step trailer to site (Northbound)
HGV - tractor unit, 40' artic from site (Southbound)**

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