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Ystad Ddiwydiannol Trefforest
Pontypridd
CF37 5UT

Transport for Wales
Infrastructure Hub
Treforest Industrial Estate
Pontypridd
CF37 5UT

Date: 10 March 2023
Ref.: CVLNCCP01-G1-03
Email: cvltrackaccess@amey.co.uk

DB Cargo (UK) Ltd
Freightliner Heavy Haul Ltd
Freightliner Ltd
GB Railfreight Ltd
Network Rail
Office of Rail and Road (ORR)
Rail Express Systems Ltd
Transport for Wales (TfW)
Transport for Wales Rail Ltd
Vintage Trains Ltd
Welsh Ministers

Dear colleague,

CVL Network – Network Code Condition G1 Network Change Proposal: Overhead Line Electrification System (OLE) Commissioning

This Network Change Notice is issued in accordance with Condition G1.1 of the Network Code and constitutes a formal proposal for a Network Change under that Condition. This Notice is issued to describe specific elements of the overall "CVL Transformation Programme" and is a consequence of having issued a G5 Notice of Intended Scope on 28 November 2022.

Seilwaith Amey Cymru / Amey Infrastructure Wales Limited ("AIW") wishes to implement the Network Changes described above and is required under Condition G1 to give notice of its proposal to the parties shown above. Condition G2 allows all affected train operators to consider the scheme and bring to AIW's attention any matters that concern them regarding the change. Access Beneficiaries may also assess the impact of the proposed change on their business and inform AIW what the direct costs and benefits of implementing the change are likely to be (if any).

This Network Change Notice details AIW's proposals:

Proposed Scheme Title	Proposed Scheme Detail	Appendix*
Energisation of the Overhead Line Electrification system ("OLE") from Pontypridd to Waun-gron Park and Llandaff.	The first energisation event will see all of the 25kV OLE and HV distribution assets from the limits of electrification at Llandaff and Ninian Park to the limit of electrification south of Treforest Station brought into use. This will see the entry into service of the new OLE, overhead line switches, HV cabling, and electrical substations. This will include the provision of two new high voltage electrical supply points:	Appendix A

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Proposed Scheme Title	Proposed Scheme Detail	Appendix*
	• From Network Rail's Cardiff Canton ATFS via Ninian Park Feeder Station • From the National Grid at Upper Boat via Tonteg Feeder Station **NB** Each of which can be re-configured in the event of partial failure to supply the whole CVL Network.	
Energisation of the Overhead Line Electrification system ("OLE") from Pontypridd to Aberdare.	The second energisation event will see all of the 25kV OLE and HV distribution assets from the limit of electrification at Treforest Station, through Pontypridd and Abercynon to limits of electrification at Cwmbach on the Aberdare branch and Alexandra Road overbridge on the Merthyr branch. This will see the entry into service of all new OLE, overhead line switches, HV cabling, and electrical substations between Pontypridd and Aberdare. This will include the provision of new TSS at Pontypridd and Abercynon.	Appendix B
Energisation of the Overhead Line Electrification system ("OLE") from Abercynon to Merthyr Tydfil.	The third energisation event will see all of the 25kV OLE and HV distribution assets from the limit of electrification at Alexandra Road overbridge to the limit of electrification on the approach to Merthyr Tydfil and from the limit of electrification at Cwmbach to the limit of electrification at Aberdare. This will see the entry into service of all new OLE, overhead line switches and HV cabling between Abercynon and Merthyr Tydfil. There will be no additional substations entered into service during this stage of the works.	Appendix C

* *Note*: Full details of these works as well as the detailed specification of the scheme is set out in the relevant Appendix to this notice and includes a plan showing where the work is to be done and the parts of the Network and associated railway assets likely to be affected.

In accordance with Conditions 5.7 and 5.12 of Part G of the CVL Network Code, any expansion of the scope of the Transformation Programme, including further detail to previously consulted scope, will be consulted with Access Beneficiaries. As defined by Condition G7 of the CVL Network Code, AIW will follow Condition G1 in order to consult with Access Beneficiaries and to establish changes to the CVL Network.

AIW is proposing these changes as part of the Transformation Programme to increase the capability of the Cardiff Core Valley Lines Network (the "CVL").

In accordance with Condition G1.2(d), AIW is seeking comments from you to establish whether or not you are content for the changes to be implemented. We invite you to consider the proposed scheme and forward your comments to us by **10 April 2023**. If a formal response is not received by this date, it will be deemed that you accept the proposal without compensation.

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Costs and Compensation

Condition G2 of the CVL Network Code allows all affected train operators to consider the scheme and bring to AIW's attention any matters that concern them regarding the change. Train Operators may also assess the impact of the proposed change on their business and inform AIW what the direct costs and benefits of implementing the change are likely to be (if any).

Additional Terms and Conditions

Once this G1 Network Change has become an established Network Change (as defined in Part G of the CVL Network Code), AIW may, if it wishes to make any modification to the terms or conditions (including as to the specification of the works to be done, their timing, the manner of their implementation, the costs to be incurred and their sharing, and the division of risk) on which the change was established, use the following variation procedure:

AIW shall ensure the specific variation (or variations) is formally communicated to all parties to this notice (the original consultation notice) for consideration. The parties to the consultation shall consider and respond to the variation (or variations) in accordance with the procedures set out in Conditions G1 and G2 allowing for the changes in detail that must follow as a result of the procedure applying only to the proposed variation. It shall not be necessary for AIW to re-issue the entire Network Change notice for consultation.

Please respond using the standard form (b), (c), (d) or (e) as appropriate, each of which can be located on AIW's website https://tfw.wales/projects/consultation-centre/cvl-infrastructure-manager. Please send all responses electronically to cvltrackaccess@amey.co.uk.

Respondents should clearly indicate if they consider that all or part of their response is "sensitive information" as defined in Part A of the CVL Network Code.

Please let me know if you require any further details to enable you to respond formally to this notice.

If you are no longer the appropriate person in your organisation to receive communications such as this, I would be grateful if you could let me know.

I look forward to receiving your response to enable the progression of this proposal.

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Yours faithfully,

Nick Rowe
Rheolwr Rheoleiddio a Chysylltiadau Cwsmeriaid / Regulatory & Customer Manager
E: nick.rowe@amey.co.uk M: + 44(0)7885 225692

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Appendix A – Proposed Scheme for the Energisation of the Overhead Line Electrification System ("OLE") from Pontypridd to Waun-gron Park and Llandaff

Reasons for Proposed Change

As part of the CVL Transformation programme and the requirement to support the introduction of new electric rolling stock on the CVL Network, the railway is being electrified with a 25kV overhead line contact system. The OLE is supported by 25kV substations distributing the electricity around the Network.

The initial stages of energisation described in Appendices A, B and C will bring into service the OLE from Merthyr Tydfil and Aberdare, through Abercynon, Pontypridd and Radyr to Llandaff and Ninian Park. During later stages the ECR will expand its control area to cover the electrification infrastructure to Treherbert, Cardiff Bay and Rhymney.

NB This electrification system is of a new discontinuous type. For electric traction to operate in the area the locomotive or rolling stock needs to be certified as compatible with the system. The system does not compromise the running of any type of diesel trains on the CVL Network.

Specification of Works

This initial energisation event will bring into use all 25kV OLE and HV distribution assets from the limits of electrification at Llandaff and Ninian Park, through Radyr and Taff's Well, to the limit of electrification south of Treforest Station.

This will see the Entry into Service of all new OLE, overhead line switches, HV cabling, and electrical substations as detailed on the Major Feeder Diagram ("MFD") (TRAN01-KAW-R0-TPS-DDR-E-EP-000010-S4-B03, see Appendix D).

This will include the provision of two new high voltage electrical supply points:

- From Network Rail's Cardiff Canton ATFS via Ninian Park Feeder Station
- From the National Grid at Upper Boat via Tonteg Feeder Station

NB Each of which can be re-configured in the event of partial failure to supply the whole CVL Network.

The 25kV contact system has been taken from Network Rail's UKMS100 design range. This is an interoperable statement of verification against the Energy National Technical Specification Notice ("ENE NTSN"). The system will be compliant with BS EN 50122-01. The system has a minimum energised wire height, in accordance with GL RT 1210 and Rail Industry Standards ("RIS") RIS 1853 and RIS 2715.

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The part of the electrification system brought into use at this stage contains a Catenary Free Section ("CFS") in the area Taff's Well station and Permanently Earthed Sections ("PES") at College Road, Llandaff Station, Ynysgau Overbridge, Danes Court Station and Fairwater Station. Trains will require a compatible on-board energy system to pass through these CFS and PES areas.

NB Catenary Free Sections ("CFS") have no overhead contact system at all and trains must pass through with the pantograph lowered. Permanently Earthed Sections ("PES") have a physically continuous overhead contact system but the wires are not energised. Trains can pass through PES areas with the pantograph raised.

Proposed Timeline

The current proposed timescales are shown below:

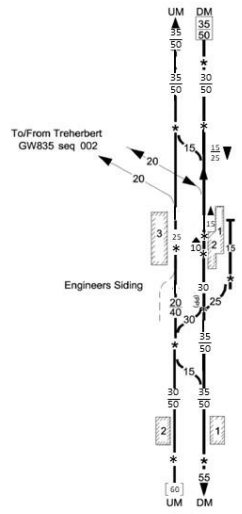
- 10 March 2023: Consultation Starts.
- 10 April 2023: Consultation Completes.
- 20 May 2023: Energisation of the OLE from Pontypridd to Waun-gron Park and Llandaff under Rules on 20 May 2023 and commissioning on 02 June 2023 (Appendix A).

Amendments to Sectional Appendix

To support the alterations described above, the following revisions will be made to the Western Route Sectional Appendix (December 2022) pages 373 – 376 and 388 – 389.

The new requirements are shown in Red font whilst requirements that are to be removed are shown in ~~Green~~ font struck through. Explanatory notes are in Blue font.

LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	004	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	20/09/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
	13 40 *		TCB RA6 (Core Valley Lines Integrated Control Centre) Axle Counter Area Non-SPT UM - Up Main DM - Down Main
	13 13 *		
	13 10 *		
	13 08 *		
Pontypridd Jn	13 04		
	12 79 *		
	12 77 *		
	12 73 *		
PONTYPRIDD	12 72		Platform 1 - 150m (164 yards) Platforms 2 and 3 - 124m (135 yards) Platforms 1 and 2 - PP - A/S
	12 65 *		
	12 59 *		
	12 52 *		
Pontypridd South Jn	12 47		
TREFFOREST	12 00		Up Platforms - 143m (156 yards) Down Platform - 84m (92 yards)
Limit of Electrification UM DM	11 72		
	11 50 *		AC CVLICC

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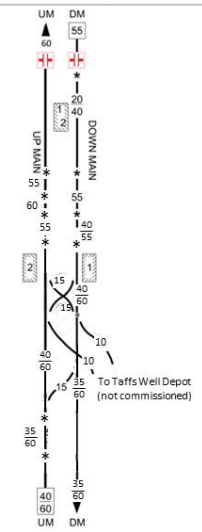
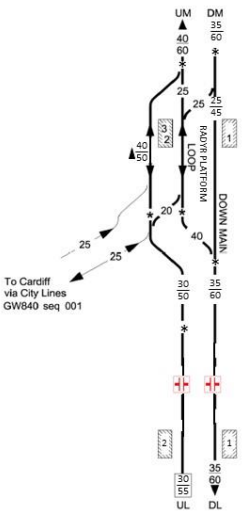
LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	005	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	05/06/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
Neutral Section	10 21		GSM-R TCB RA6 AC CVLICC Core Valley Lines Integrated Control Centre – TAM Workstation Axle Counter Area Non-SPT
	9 64 *		
TREFFOREST ESTATE	9 53		Down and Up platforms - 183m, 200yds
	9 42 *		
	9 10 *		
	8 20 *		
	7 70 *		
TAFFS WELL/ FFYNNON TAF	7 24		Platform 1 - 116m, (127yds) Platform 2 - 90m, (98yds)
	7 15 *		
	7 00 *		
	6 11 *		

LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	006	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	27/08/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
	5 52 *		GSM-R TCB RA6 AC CVLICC Core Valley Lines Integrated Control Centre – TAM Workstation Axle Counter Area UM - Up Main Non-SPT DM - Down Main
	5 45 *		
RADYR	5 32		Platforms 1 & 3 - 124m (135 yards) Platform 2 - 108m (118yards)
	5 26 *		
Radyr (Change of RA) (Change of line name)	5 14 *		RA8
	5 10 *		UL - Up Llandaff DL - Down Llandaff
Neutral Section	5 06		
LLANDAF	4 27		Down platform - 143m, (156yds) Up platform - 131m, (143yds)

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LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	007	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	27/08/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
	4 20 *	UL 30/55 * 5 * #1 UP LLANDAFF; DL 35/60 * 50 * 50 DOWN LLANDAFF	GSM-R; TCB RA8 AC CVLICC Core Valley Lines Integrated Control Centre – TAM Workstation
	4 00 *		
	3 74 * #1		Axle counter area Non-SPT
	3 35 *		Wales Rail Operating Centre (Valleys) (CF)
Limit of Electrification DL	2 70	50/70	
Limit of Electrification UL	2 55		
CATHAYS	1 61	2 1	Platforms - 124m (135 yards)
	1 58 *	* 30	
	1 34 *	* 25	
	1 29 *	25 UL DL	

#1 – Updated to correct existing error on diagram

LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW840	001	Radyr Jn to Cardiff, Radyr Branch Jn Via City Lines	RAD	Wales - TFW CVL	27/08/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
		To/From Radyr GW830 seq 006	GSM-R; TCB RA8 AC CVLICC Core Valley Lines Integrated Control Centre – TAM Workstation
Radyr Jn	5 23		Axle Counter Area Non-SPT
(Change of mileage)	4 41	25 25 UP BRANCH DOWN BRANCH To/From Llandaff GW830 seq 006	
	4 30 *	25	
Neutral Section	4 26	50 50	
	4 14 *		Wales Rail Operating Centre (Valleys) (CF)
	3 69 *	30 30	
Change of Line Name	3 31	2 1	
DANESCOURT	3 18		Platforms - 84m, 92yds
	3 12 *	30/60 30 UT DT	UT - Up Treforest DT - Down Treforest
			Location of known low rail adhesion - 2m 70ch and 2m 48ch

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LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW840	002	Radyr Jn to Cardiff, Radyr Branch Jn via City Lines	RAD	Wales - TFW CVL	27/08/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
FAIRWATER / TYLLGOED	2 60		
WAUN-GRON PARK	2 25		
Limit of Electrification UT DT	1 39		
	1 33 *		
Route Boundary Transport for Wales CVL - NR WALES	1 20	TFW CVL WALES	
Leckwith Loop South Jn	0 70	To/From Leckwith Loop North Jn GW850 seq 001	
NINIAN PARK	0 63	UP TREFOREST DN TREFOREST	Platforms - 154m, (168yds)
	0 55 *	TVR sidings Canton Depot sidings	
Penarth Curve North Jn	0 47	UP PENARTH CURVE DN PENARTH CURVE	DT – Down Treforest
Radyr Branch Jn	0 25	To/From Cardiff West Jn GW830 seq 010 To/From Penarth Curve South Jn GW860 seq 001	UT – Up Treforest

AC CVLICC
TCB RA8 Wales Rail Operating Centre SPT AREA (Valleys) (CF)
GSM-R
Axle counter area
Non-SPT
Platforms - 84m, 92yds
UT - Up Treforest
DT - Down Treforest
Platforms - 84m, 92yds

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Changes to Operating Instructions

New operating instructions include:

- Isolation Diagrams (see Annex 2 to Appendix A)
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000104-S4-B01 – TAM Isolation Diagram Sheet 5 of 20 – Pontypridd TSS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000105-S4-B01 – TAM Isolation Diagram Sheet 6 of 20 – Tonteg FS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000106-S4-B01 – TAM Isolation Diagram Sheet 7 of 20 – Taff's Well TSS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000107-S4-B01 – TAM Isolation Diagram Sheet 8 of 20 – Radyr MPTSS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000108-S4-B01 – TAM Isolation Diagram Sheet 9 of 20 – Fairwater
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000110-S4-B01 – TAM Isolation Diagram Sheet 11 of 20 – North of Llandaff
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000111-S4-B01 – TAM Isolation Diagram Sheet 12 of 20 – Llandaff Station
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000112-S4-B01 – TAM Isolation Diagram Sheet 13 of 20 – Gabalfa

- Isolation Instructions (see Appendix E)
    - TRAN01-PSP-ZZ-CVL-GSP-Y-EP-000001-S4-B01

Proposed Timescale

The energisation of the OLE from Pontypridd to Waun-gron Park and Llandaff takes place during the start of commissioning under Rules on 20 May 2023.

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Annex 1 – To be added to the Sectional Appendix General Instructions after existing sheet 82, 'Traction Changeover Signage'.

CORE VALLEY LINES TRACTION CHANGEOVER SIGNAGE

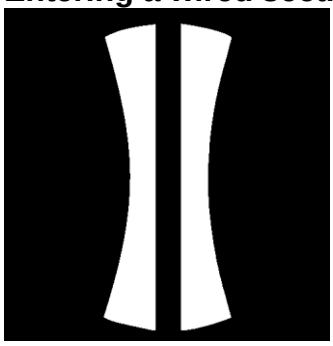
The following signage is provided for drivers of vehicles using the Core Valley Lines (CVL) discontinuous electrification system to show where they must check the status of the pantograph and the vehicle traction power source. Raising/lowering of the pantograph and changing between vehicle power modes will be triggered automatically.

These signs are provided on the following lines of route with a description of their location provided in the local instructions:

GW830 Merthyr Tydfil to Barry Island via Cardiff Queen Street
GW834 Hirwaun to Abercynon
GW840 Radyr Jn to Cardiff, Radyr Branch Jn via City Lines

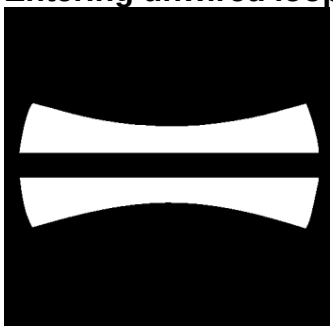
The new signs and their meaning are shown below:

Entering a wired section:



The "AJ05" sign (see RIS-0733-CCS issue 1 for sign details) instructs the driver to check their vehicle's pantograph is raised after entering a wired section.

Entering unwired loops and sidings:



The “AJ03” sign (see RIS-0733-CCS issue 1 for sign details) instructs the driver to check their vehicle’s pantograph is lowered before entering into unwired loops and stabling sidings. Note this sign is not used for other wired to unwired transitions.

Exiting a neutral section:

The “Check 25 kV” sign instructs the driver to check their vehicle has switched back to external 25 kV traction power source when leaving a neutral section.

Note the exact appearance of this sign is subject to final agreement.

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Annex 2 – Isolation Diagrams for the Energisation of the OLE from Pontypridd to Waun-gron Park and Llandaff

- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000104-S4-B01 – TAM Isolation Diagram Sheet 5 of 20 – Pontypridd TSS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000105-S4-B01 – TAM Isolation Diagram Sheet 6 of 20 – Tonteg FS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000106-S4-B01 – TAM Isolation Diagram Sheet 7 of 20 – Taff's Well TSS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000107-S4-B01 – TAM Isolation Diagram Sheet 8 of 20 – Radyr MPTSS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000108-S4-B01 – TAM Isolation Diagram Sheet 9 of 20 – Fairwater
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000110-S4-B01 – TAM Isolation Diagram Sheet 11 of 20 – North of Llandaff
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000111-S4-B01 – TAM Isolation Diagram Sheet 12 of 20 – Llandaff Station
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000112-S4-B01 – TAM Isolation Diagram Sheet 13 of 20 – Gabalfa

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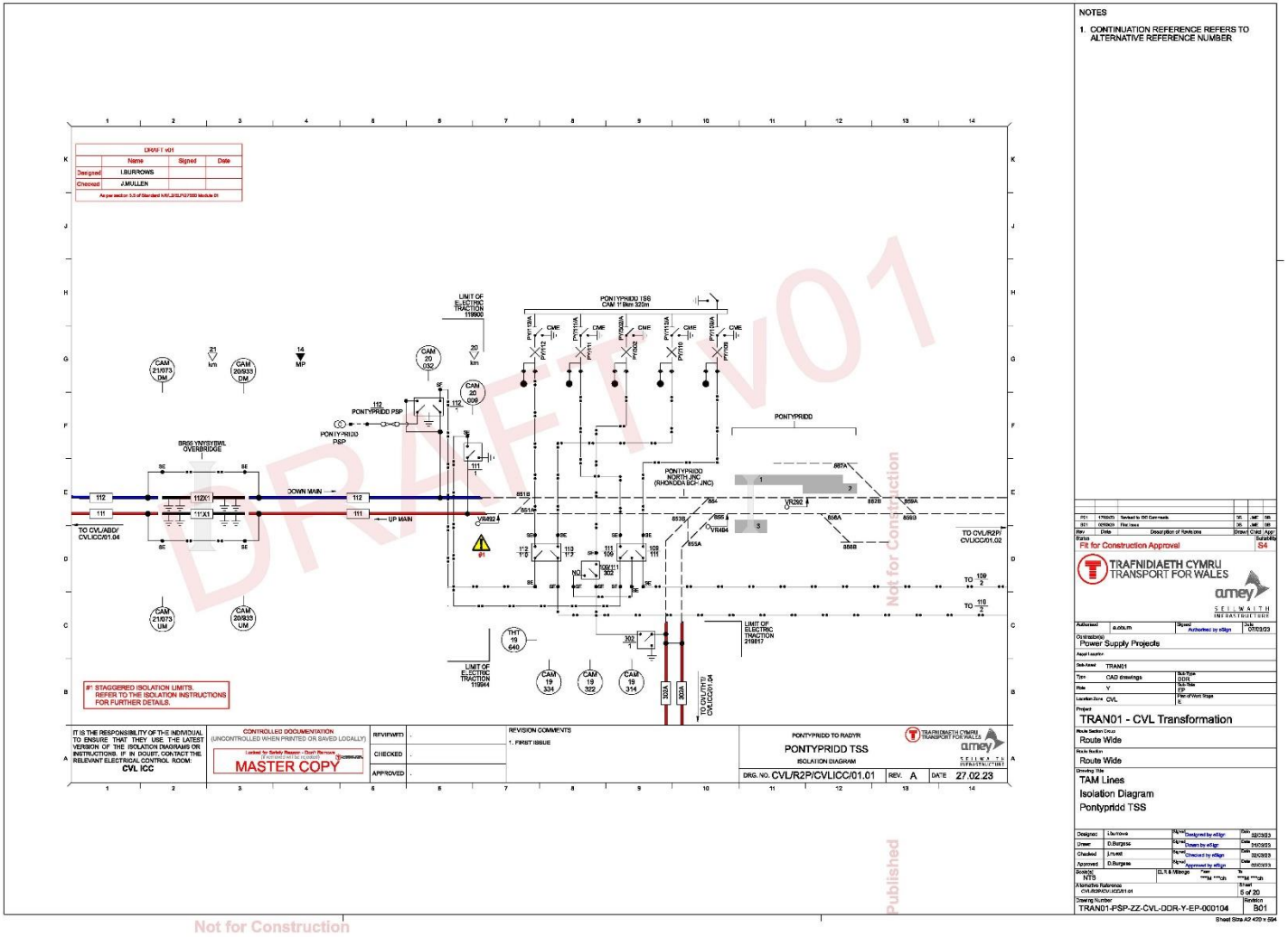
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000104-S4-B01 – TAM Isolation Diagram Sheet 5 of 20 – Pontypridd TSS



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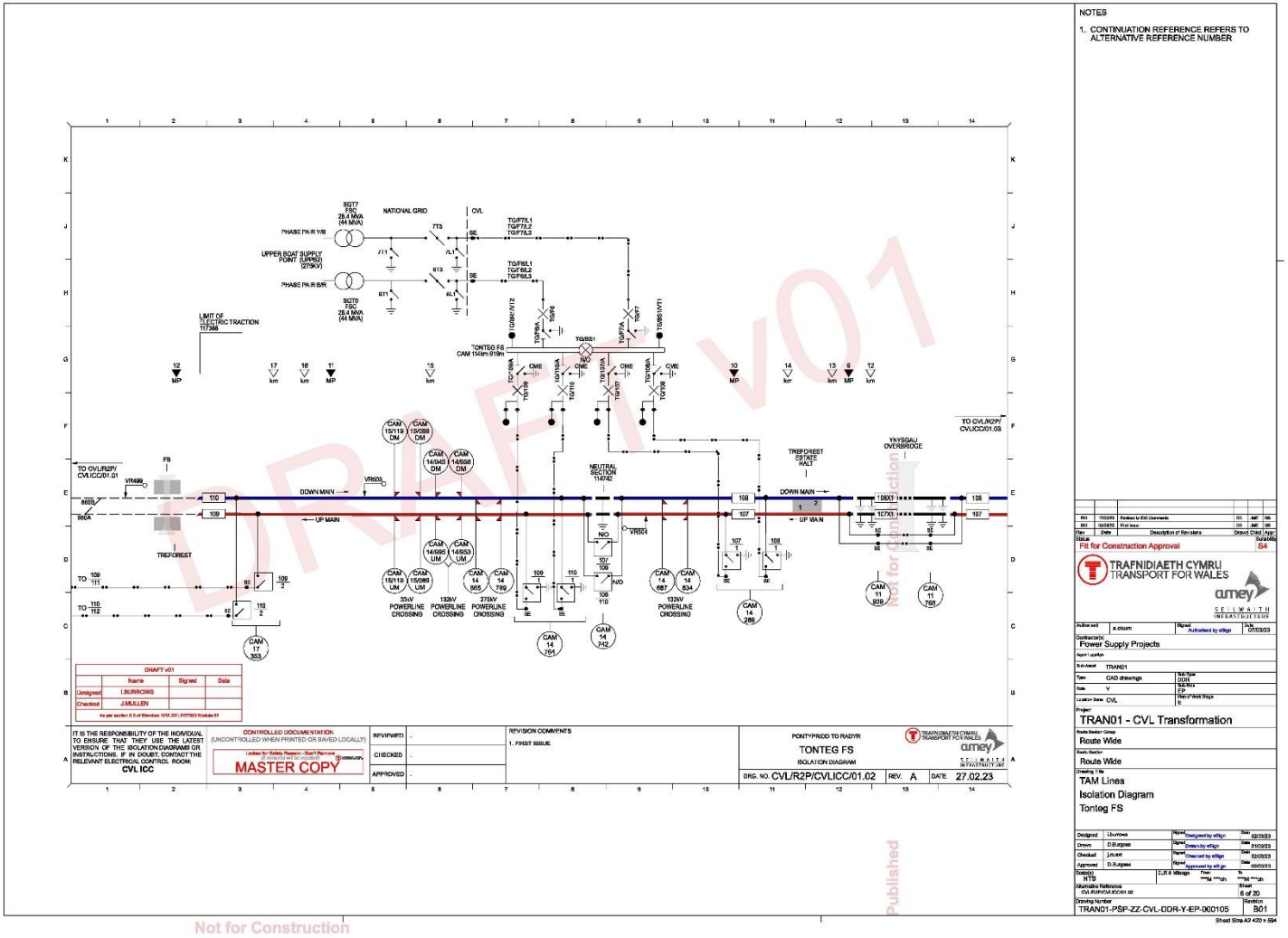
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000105-S4-B01 – TAM Isolation Diagram Sheet 6 of 20 – Tonteg FS



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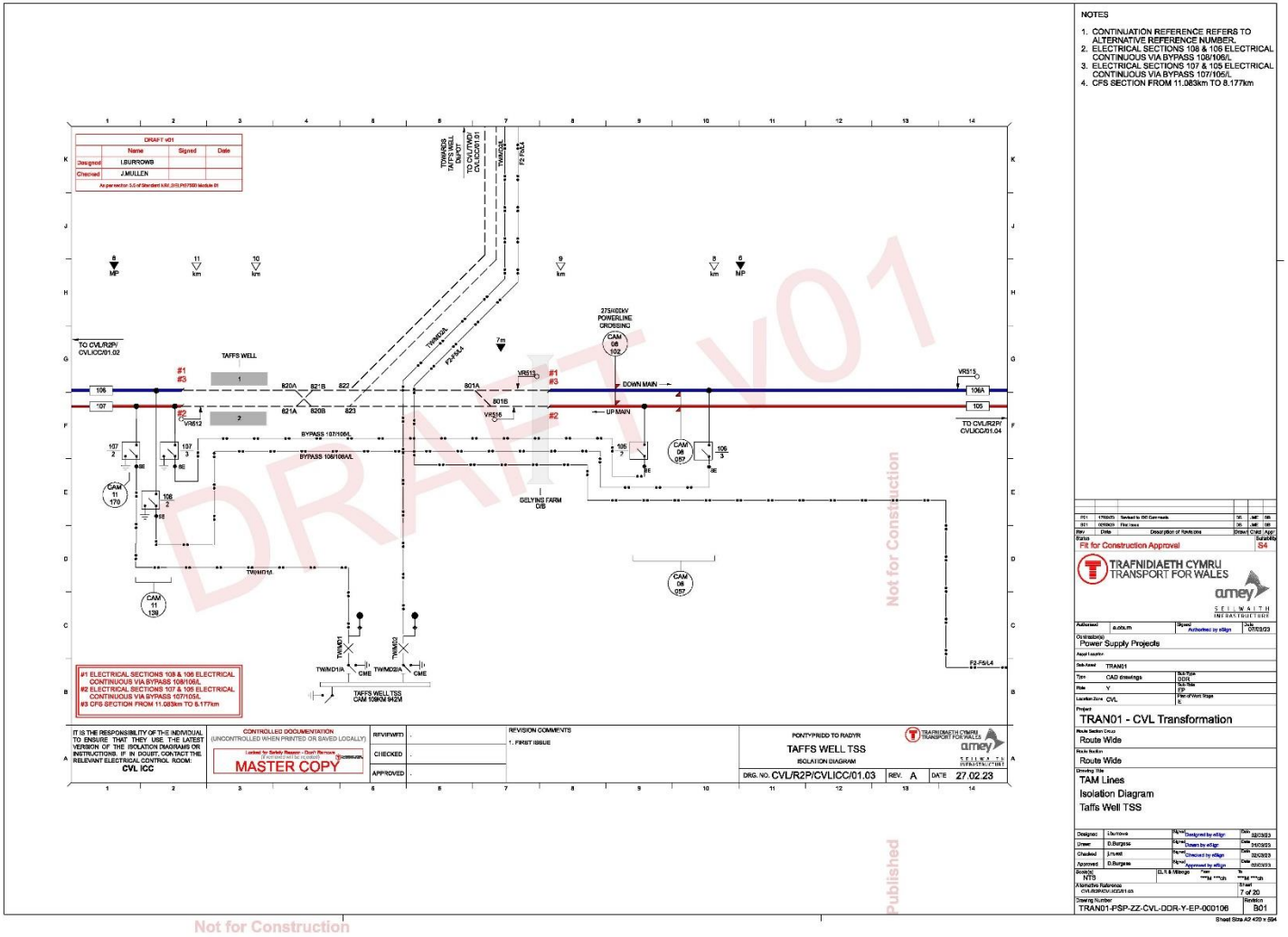
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000106-S4-B01 – TAM Isolation Diagram Sheet 7 of 20 – Taff's Well TSS



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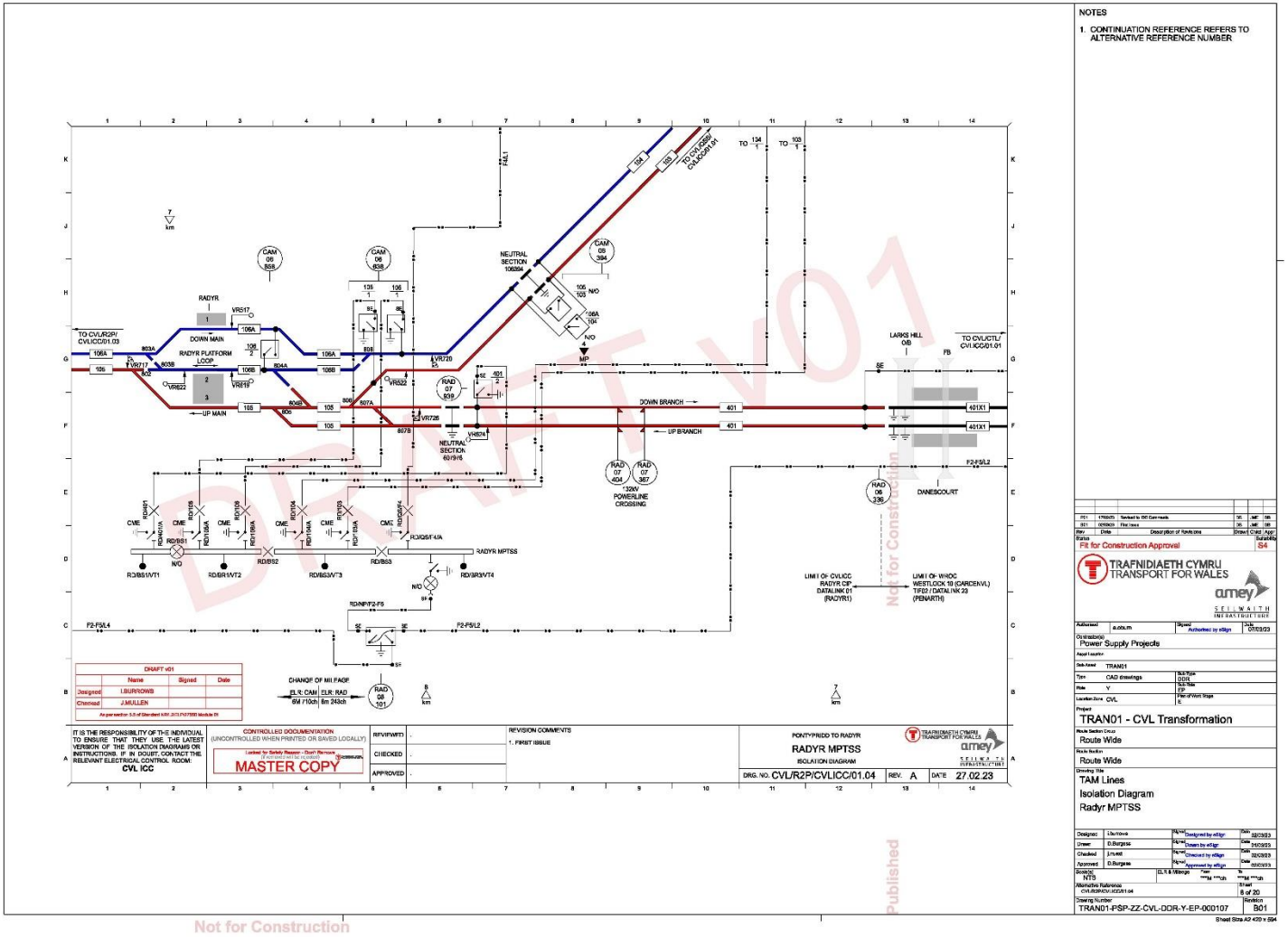
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000107-S4-B01 – TAM Isolation Diagram Sheet 8 of 20 – Radyr MPTSS



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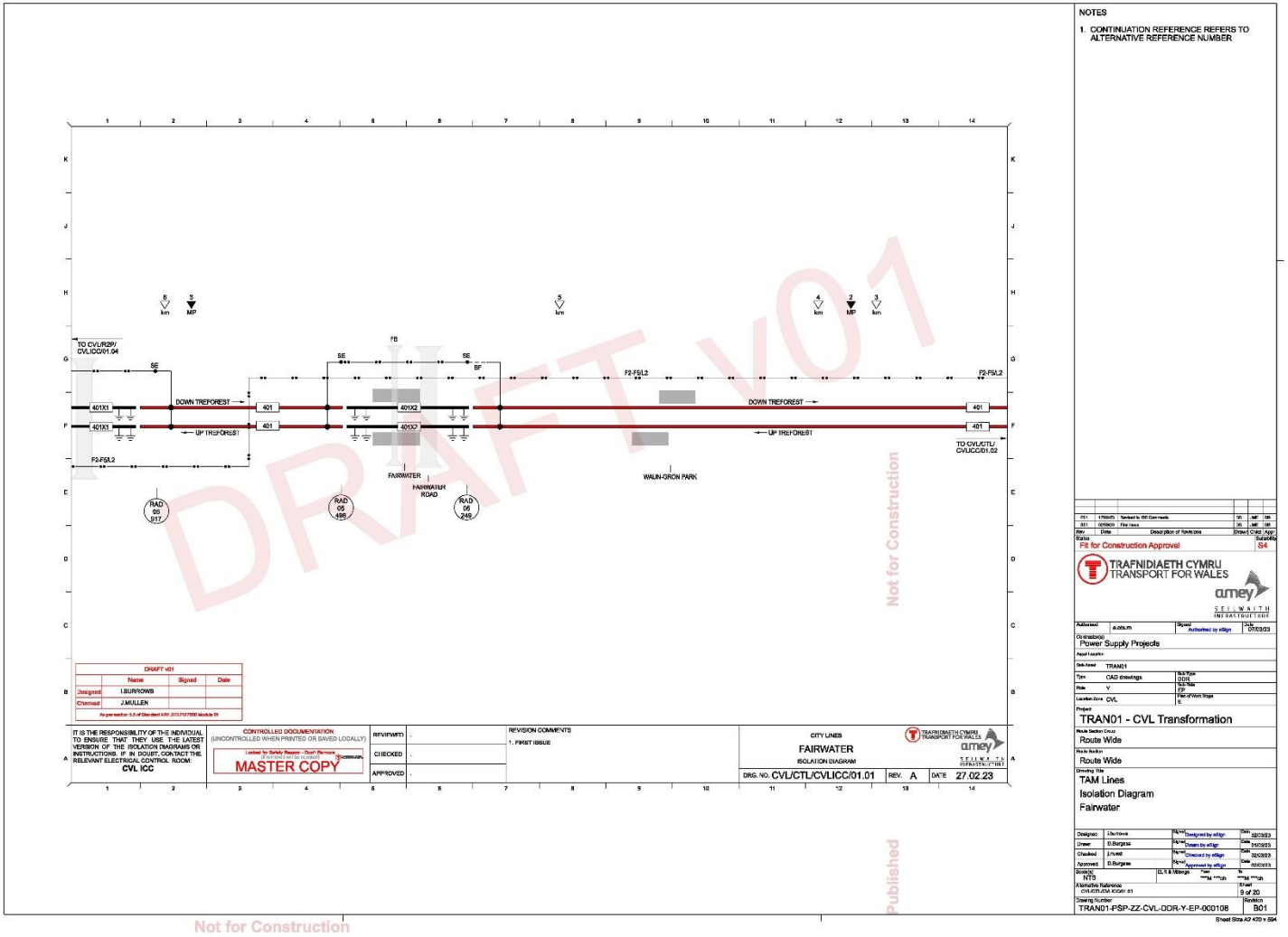
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000108-S4-B01 – TAM Isolation Diagram Sheet 9 of 20 – Fairwater



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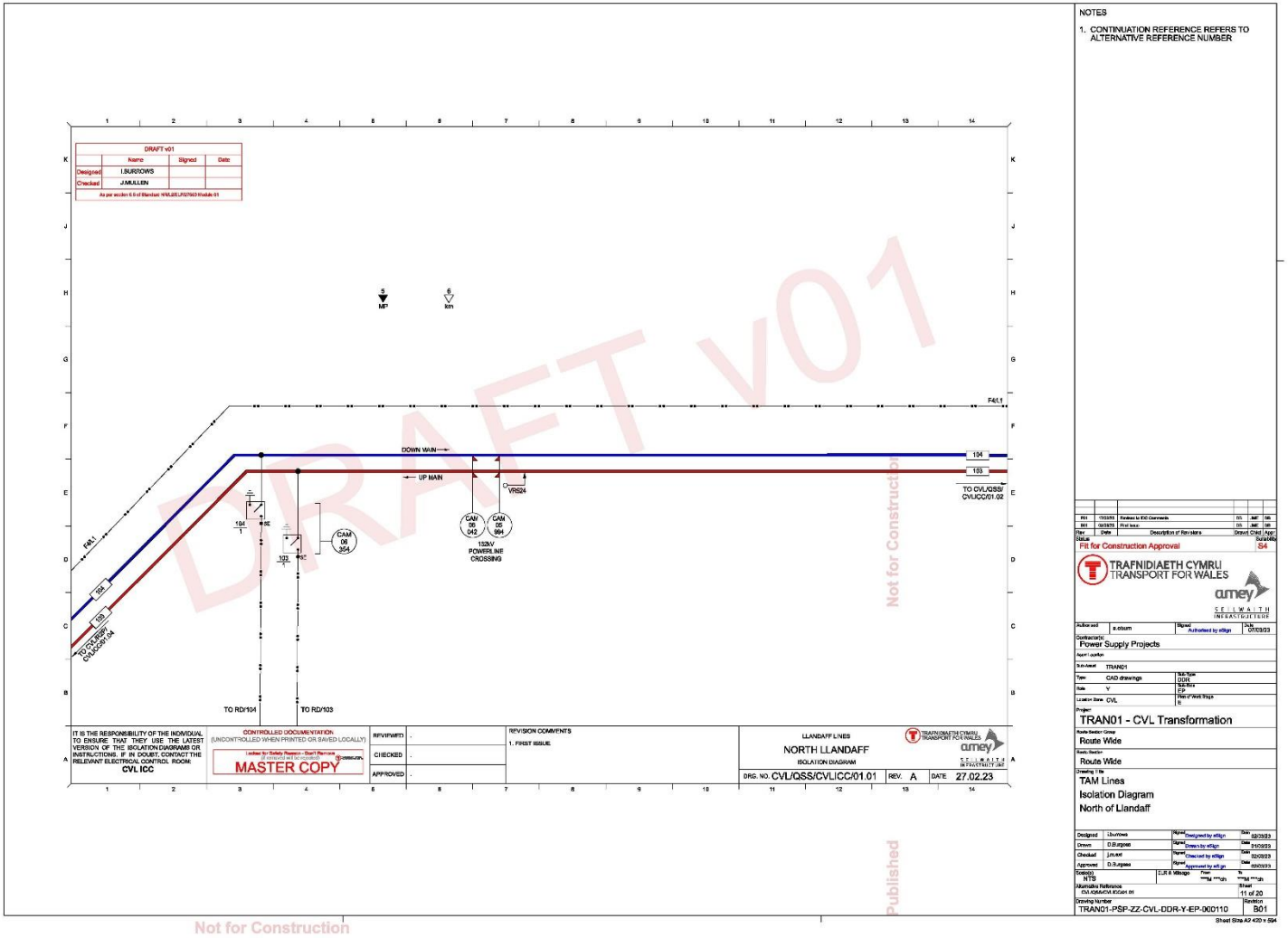
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000110-S4-B01 – TAM Isolation Diagram Sheet 11 of 20 – North of Llandaff



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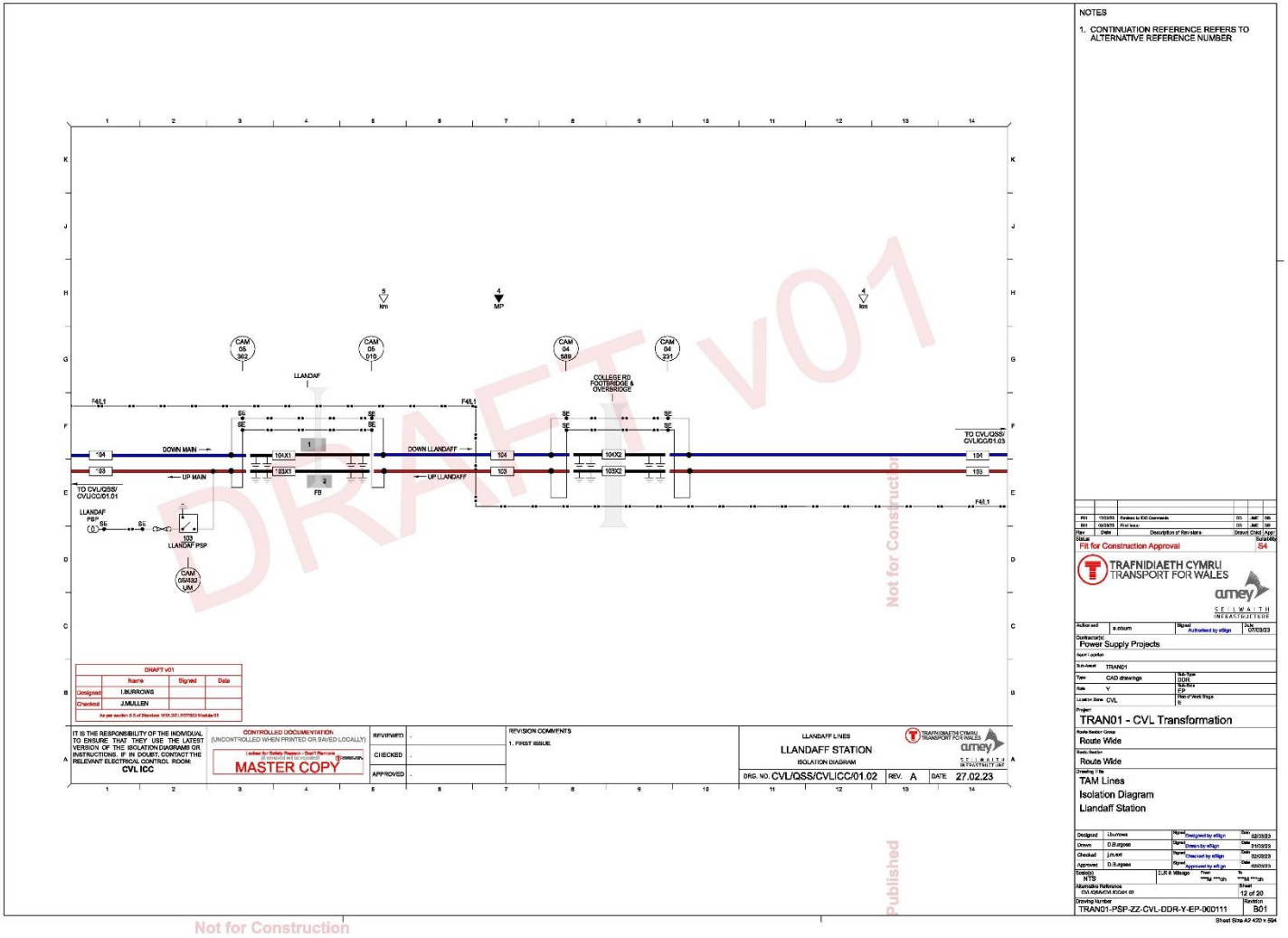
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000111-S4-B01 – TAM Isolation Diagram Sheet 12 of 20 – Llandaff Station



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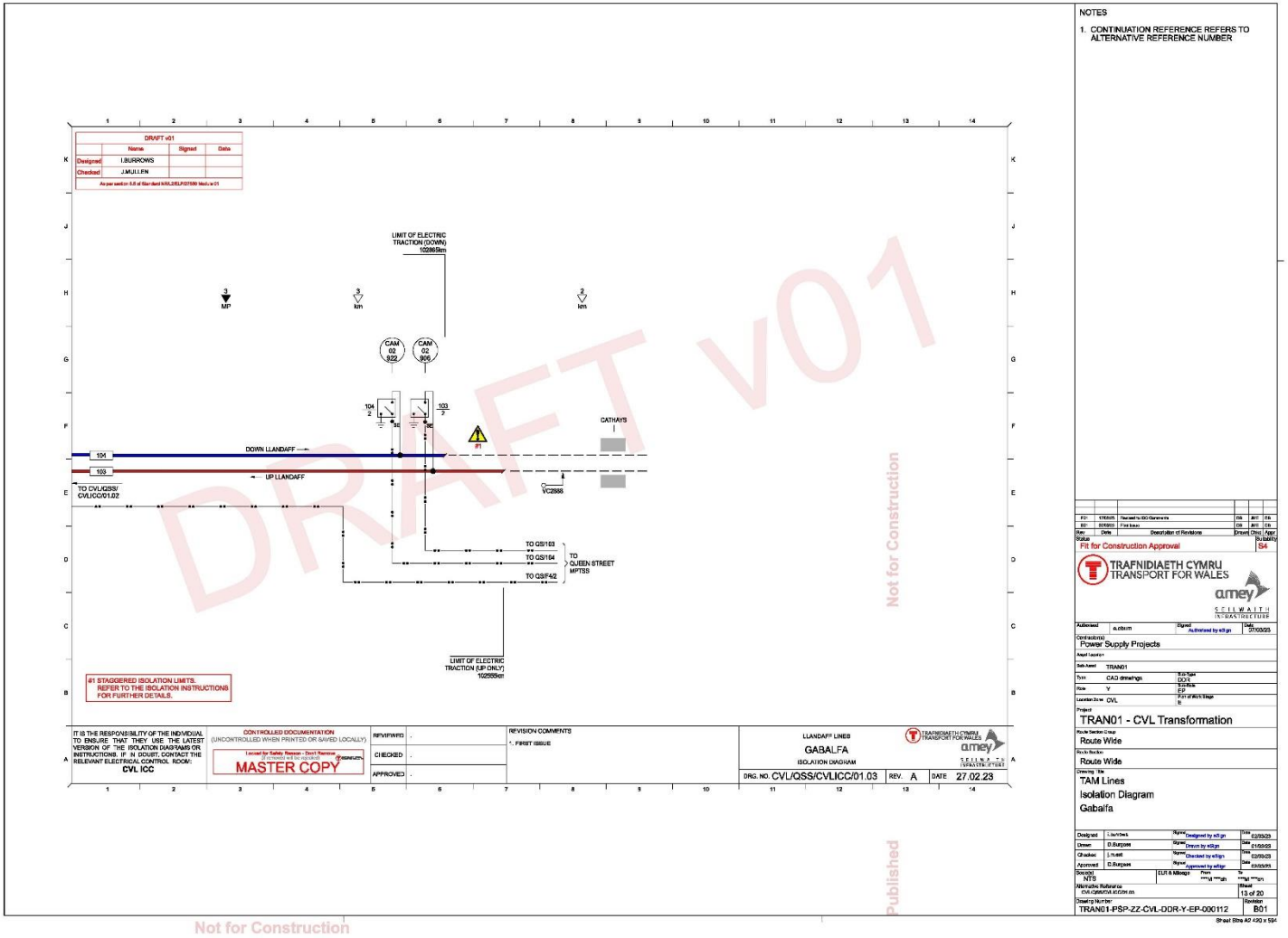
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000112-S4-B01 – TAM Isolation Diagram Sheet 13 of 20 – Gabalfa



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Appendix B – Proposed Scheme for the Energisation of the Overhead Line Electrification System ("OLE") from Pontypridd to Aberdare

Reasons for Proposed Change

As part of the CVL Transformation programme and the requirement to support the introduction of new electric rolling stock on the CVL Network, the railway is being electrified with a 25kV overhead line contact system. The OLE is supported by 25kV substations distributing the electricity around the Network.

The initial stages of energisation described in Appendices A, B and C will bring into service the OLE from Merthyr Tydfil and Aberdare, through Abercynon, Pontypridd and Radyr to Llandaff and Ninian Park. During later stages the ECR will expand its control area to cover the electrification infrastructure to Treherbert, Cardiff Bay and Rhymney.

NB This electrification system is of a new discontinuous type. For electric traction to operate in the area the locomotive or rolling stock needs to be certified as compatible with the system. The system does not compromise the running of any type of diesel trains on the CVL Network.

Specification of Works

The second energisation event will bring into use all 25kV OLE and HV distribution assets from the previous stage limit of electrification at Treforest Station, through Pontypridd and Abercynon, to new limits of electrification at Cwmbach on the Aberdare branch and Alexandra Road overbridge on the Merthyr branch.

This will see the Entry into Service of all new OLE, overhead line switches, HV cabling, and electrical substations as detailed on the Major Feeder Diagram ("MFD") (TRAN01-KAW-R0-TPS-DDR-E-EP-000010-S4-B03, see Appendix D).

This will include the commissioning of new substations at Pontypridd and Abercynon.

The 25kV contact system has been taken from Network Rail's UKMS100 design range. This is an interoperable statement of verification against the Energy National Technical Specification Notice ("ENE NTSN"). The system will be compliant with BS EN 50122-01. The system has a minimum energised wire height, in accordance with GL RT 1210 and Rail Industry Standards ("RIS") RIS 1853 and RIS 2715.

The part of the electrification system brought into use at this stage contains a Catenary Free Section ("CFS") from Treforest Station to Pontypridd (inclusive) and Permanently Earthed Sections ("PES") at Ynysybwl Overbridge, Carn Parc Bridge, Pontcynon Overbridge, Mountain Ash Station, Cwmbach Station and Alexandra Road

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Overbridge. Trains will require a compatible on board energy system to pass through these PES areas.

NB Catenary Free Sections ("CFS") have no overhead contact system at all and trains must pass through with the pantograph lowered. Permanently Earthed Sections ("PES") have a physically continuous overhead contact system but the wires are not energised. Trains can pass through PES areas with the pantograph raised.

Proposed Timeline

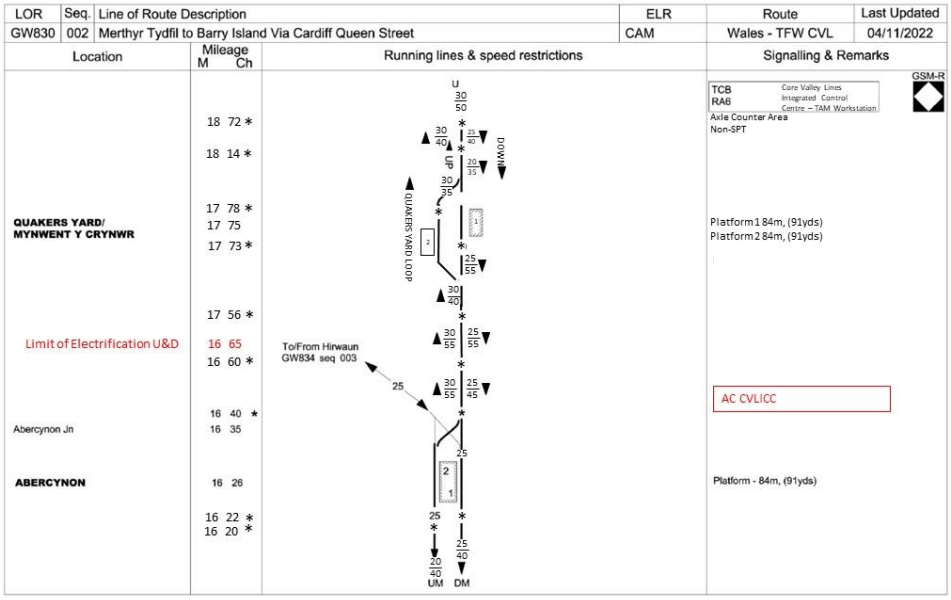
The current proposed timescales are shown below:

- 10 March 2023: Consultation Starts.
- 10 April 2023: Consultation Completes.
- 24 June 2023: Energisation of the OLE from Pontypridd to Aberdare under Rules on 24 June 2023 and commissioning on 28 June 2023 (Appendix B).

Amendments to Sectional Appendix

To support the alterations described above, the following revisions will be made to the Western Route Sectional Appendix (December 2022) pages 371 – 373 and 382 – 384.

The new requirements are shown in Red font whilst requirements that are to be removed are shown in ~~Green~~ font struck through. Explanatory notes are in Blue font.



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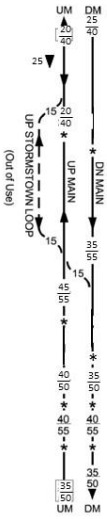
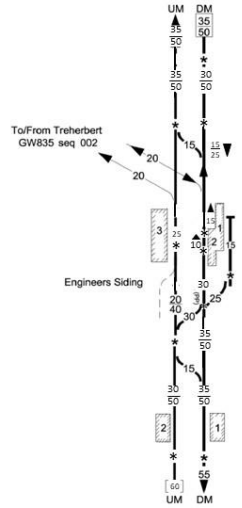
LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	003	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	31/10/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
			GSM-R TCB RA6 AC CVLICC Core Valley Lines Integrated Control Centre – TAM Workstation Axle Counter Area Non-SPT UM - Up Main DM - Down Main UM bi-directional to Stormstown Loop Abercynon Stormstown Loop Not electrified
	15 77 *		
Abercynon Stormstown	15 75 *		
Site of Stormstown Jn	15 40		
	15 22 *		
	15 20 *		
	14 67 *		
	14 10 *		

LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	004	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	20/09/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
			GSM-R TCB RA6 AC CVLICC Core Valley Lines Integrated Control Centre Axle Counter Area Non-SPT UM - Up Main DM - Down Main Platform 1 - 150m (164 yards) Platforms 2 and 3 - 124m (135 yards) Platforms 1 and 2 - PP - A/S Up Platforms - 143m (156 yards) Down Platform - 84m (92 yards)
	13 40 *		
	13 13 *		
	13 10 *		
	13 08 *		
Pontypridd Jn	13 04		
	12 79 *		
	12 77 *		
	12 73 *		
PONTYPRIDD	12 72		
	12 65 *		
	12 59 *		
	12 52 *		
Pontypridd South Jn	12 47		
TREFFOREST	12 00		
Limit of Electrification UM DM	11 72		
	11 50 *		

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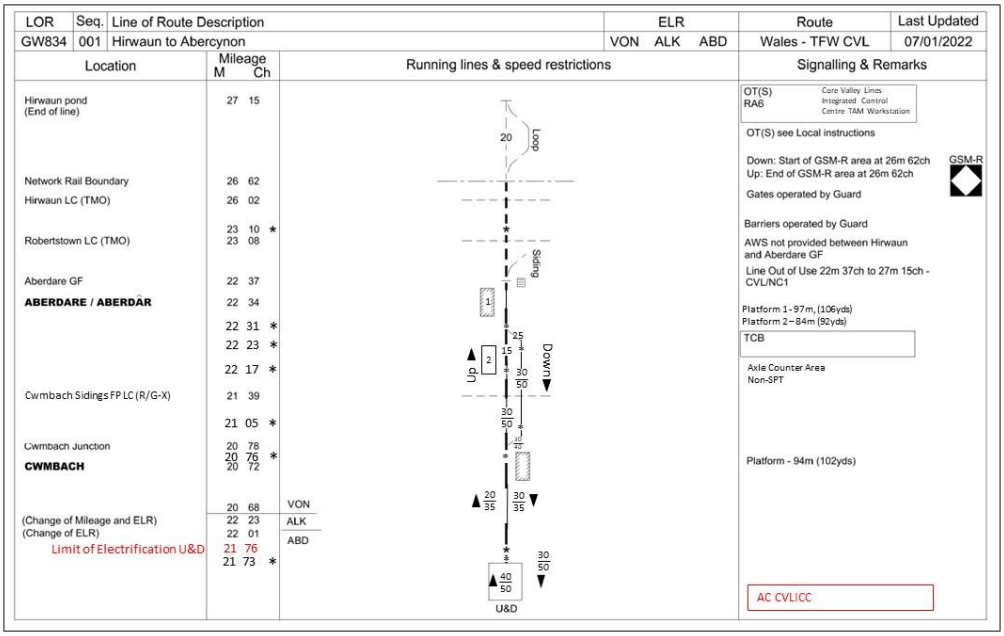

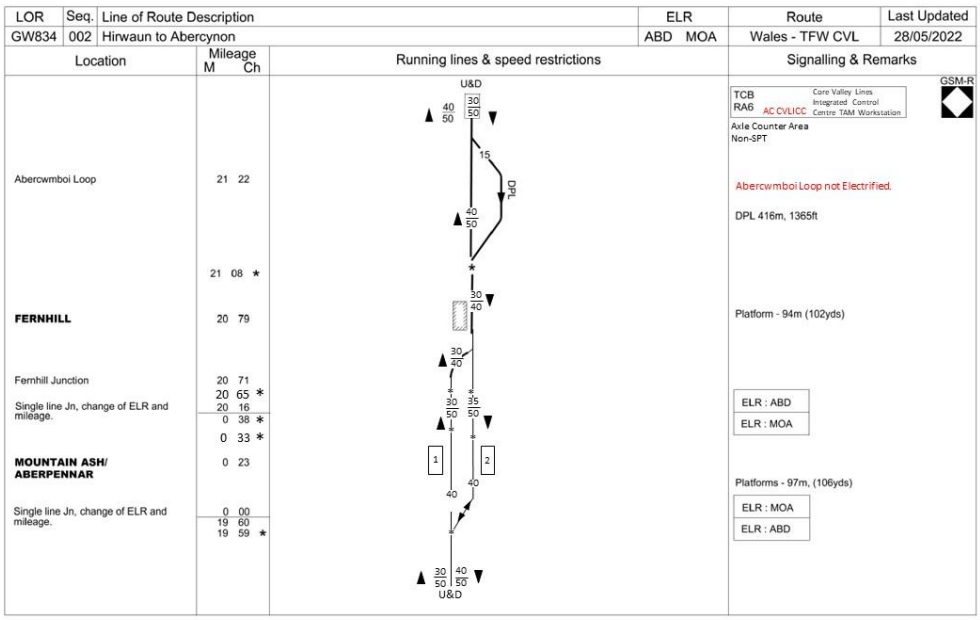

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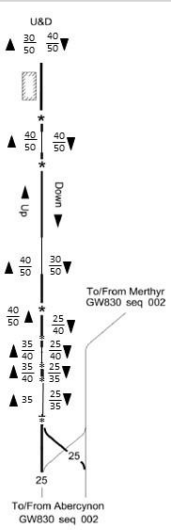
LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW834	003	Hirwaun to Abercynon	ABD	Wales - TFW CVL	30/05/2020

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
PENRHIWCEIBER	18 75		 Axle Counter Area Non-SPT Platform - 94m, 102yds
	18 28 *		
	18 19 *		
	16 66 *		
	16 58 *		
	16 49 *		
	16 46 *		
	16 40 *		
Abercynon Jn	16 35		

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Changes to Operating Instructions

New operating instructions include:

- Isolation Diagrams (see Annex 1 to Appendix B)
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000104-S4-B01 – TAM Isolation Diagram Sheet 5 of 20 – Pontypridd TSS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000103-S4-B01 – TAM Isolation Diagram Sheet 4 of 20 – Stormstown Loop South
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000102-S4-B02 – TAM Isolation Diagram Sheet 3 of 20 – Abercynon TSS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000101-S4-B01 – TAM Isolation Diagram Sheet 2 of 20 – Mountain Ash
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000100-S4-B01 – TAM Isolation Diagram Sheet 1 of 20 – Aberdare

- Isolation Instructions (see Appendix E)
    - TRAN01-PSP-ZZ-CVL-GSP-Y-EP-000001-S4-B01

Proposed Timescale

The energisation of the OLE from Pontypridd to Aberdare takes place during the start of commissioning under Rules on 24 June 2023.

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Annex 1 – Isolation Diagrams for the Energisation of the OLE from Pontypridd to Aberdare

- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000104-S4-B01 – TAM Isolation Diagram Sheet 5 of 20 – Pontypridd TSS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000103-S4-B01 – TAM Isolation Diagram Sheet 4 of 20 – Stormstown Loop South
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000102-S4-B02 – TAM Isolation Diagram Sheet 3 of 20 – Abercynon TSS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000101-S4-B01 – TAM Isolation Diagram Sheet 2 of 20 – Mountain Ash
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000100-S4-B01 – TAM Isolation Diagram Sheet 1 of 20 – Aberdare

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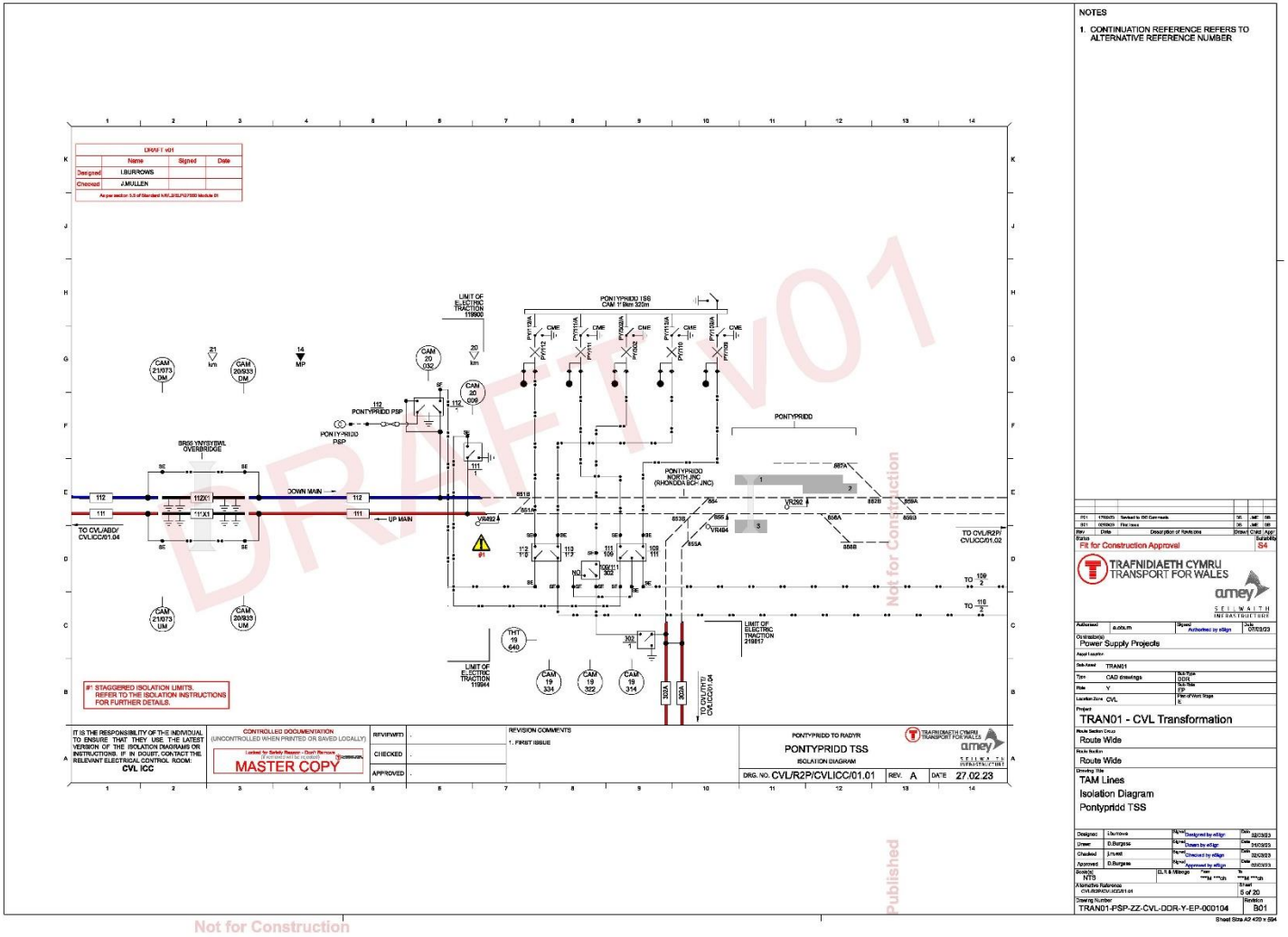
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000104-S4-B01 – TAM Isolation Diagram Sheet 5 of 20 – Pontypridd TSS



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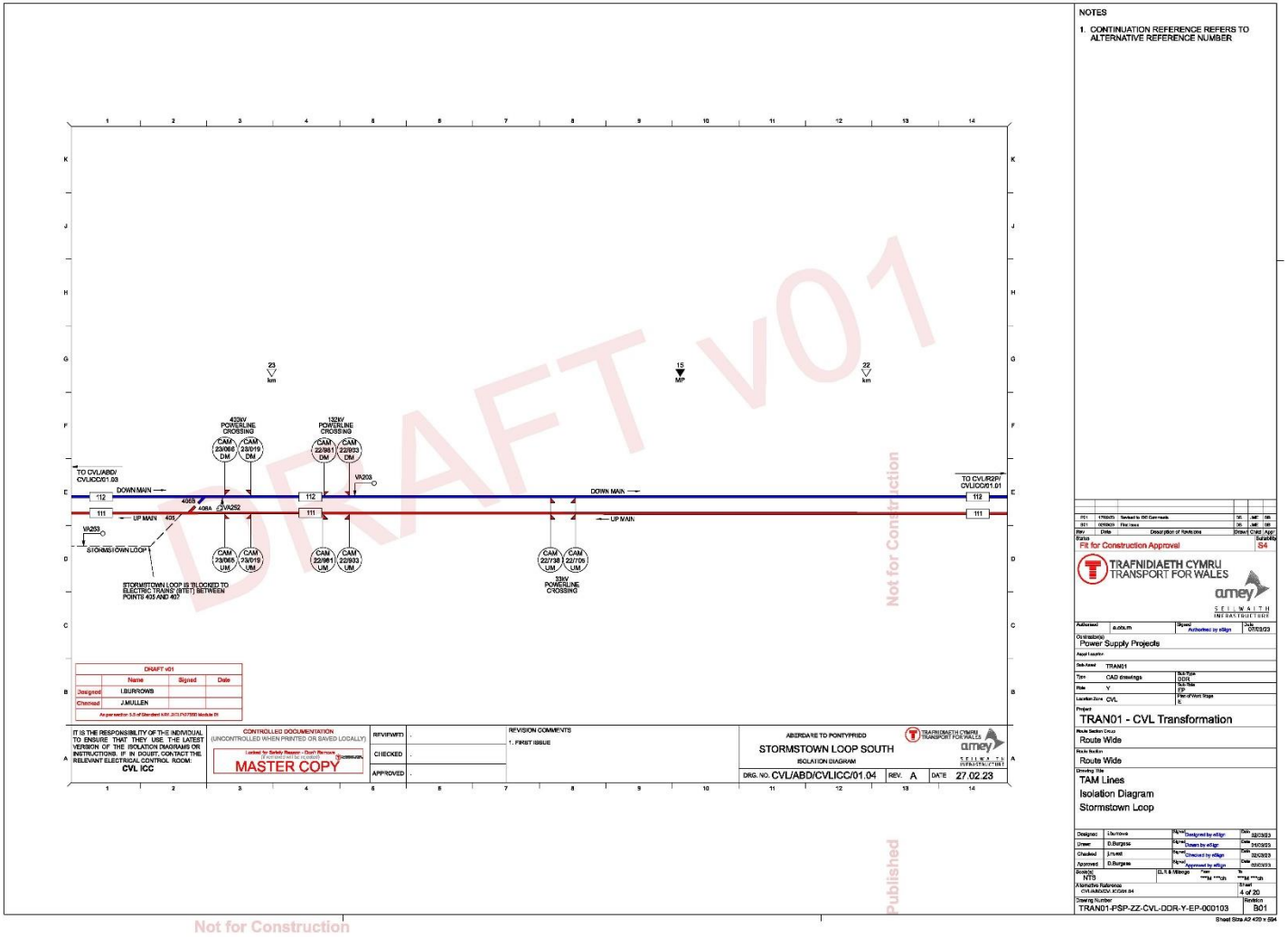
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000103-S4-B01 – TAM Isolation Diagram Sheet 4 of 20 – Stormstown Loop South



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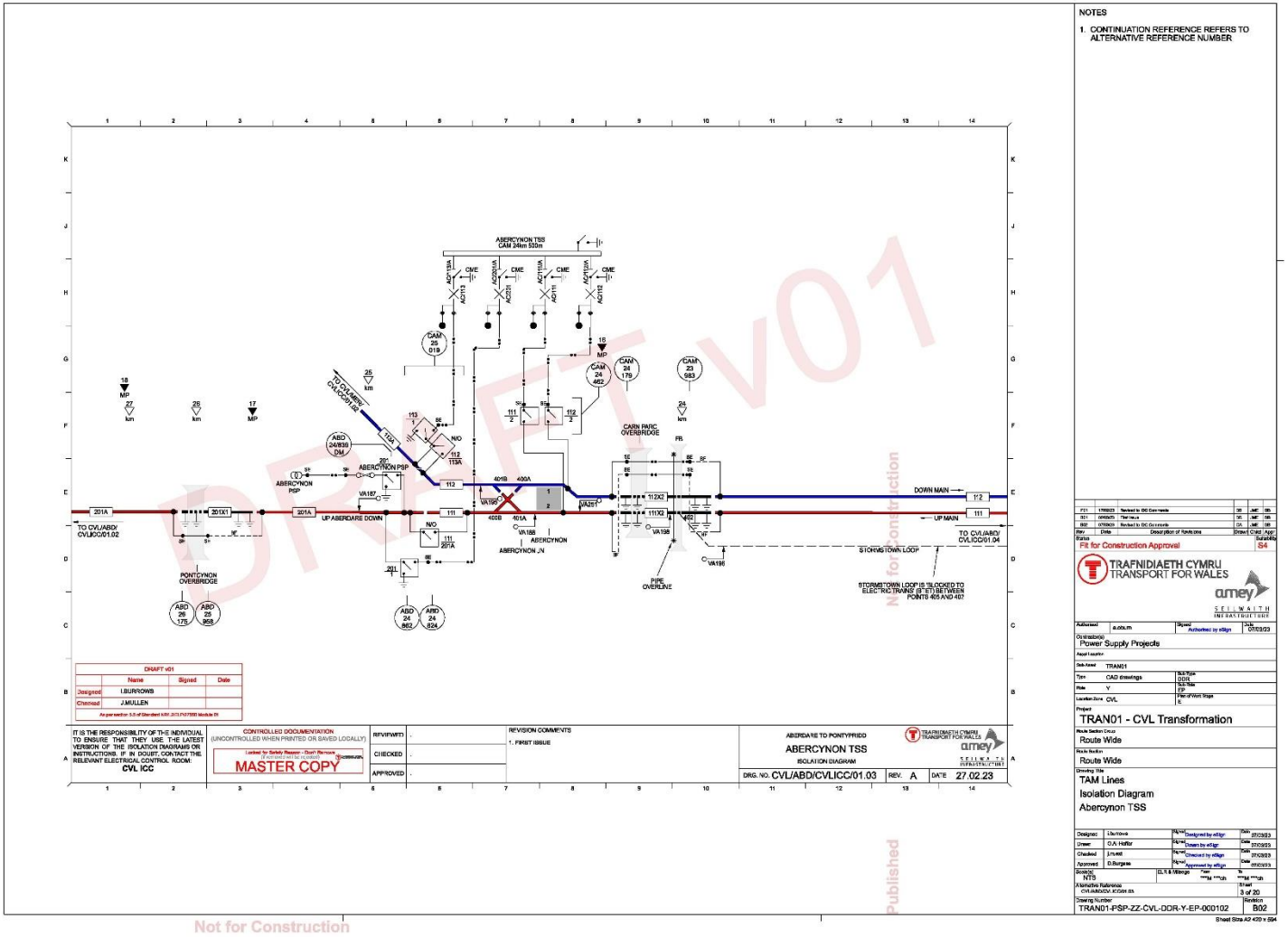
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000102-S4-B02 – TAM Isolation Diagram Sheet 3 of 20 – Abercynon TSS



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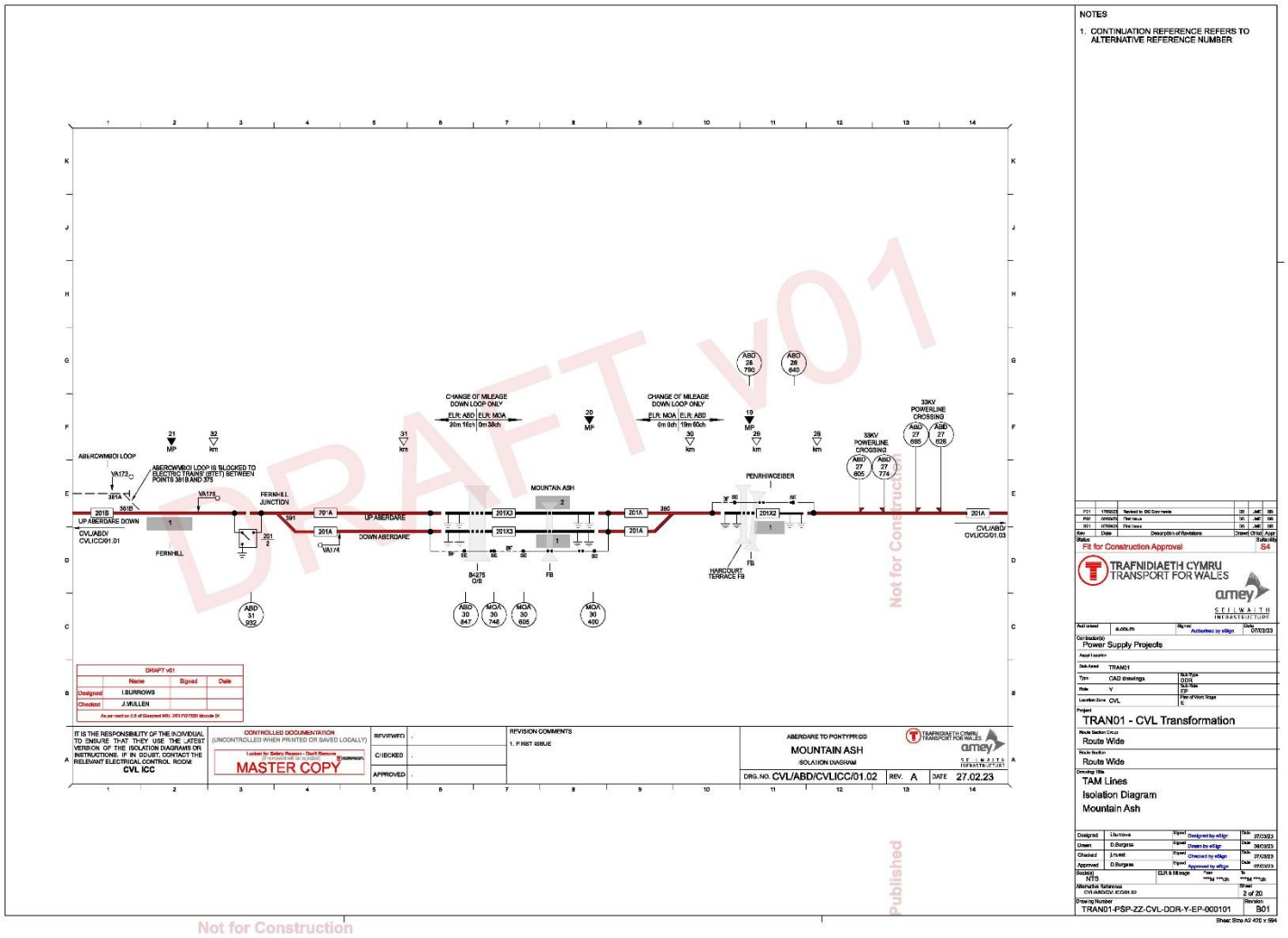
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000101-S4-B01 – TAM Isolation Diagram Sheet 2 of 20 – Mountain Ash



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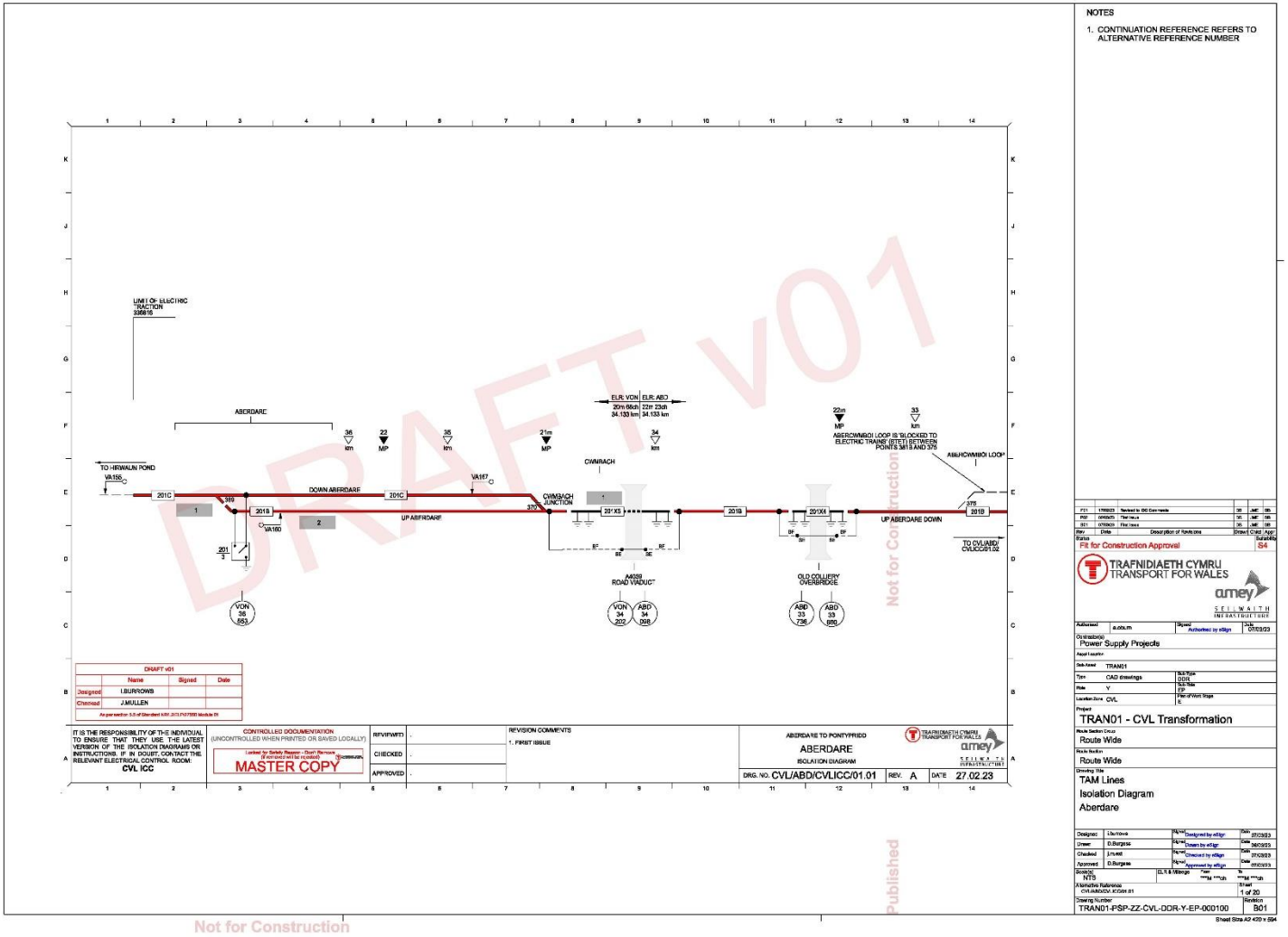
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000100-S4-B01 – TAM Isolation Diagram Sheet 1 of 20 – Aberdare



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Appendix C – Proposed Scheme for the Energisation of the Overhead Line Electrification System ("OLE") from Abercynon to Merthyr Tydfil

Reasons for Proposed Change

As part of the CVL Transformation programme and the requirement to support the introduction of new electric rolling stock on the CVL Network, the railway is being electrified with a 25kV overhead line contact system. The OLE is supported by 25kV substations distributing the electricity around the Network.

The initial stages of energisation described in Appendices A, B and C will bring into service the OLE from Merthyr Tydfil and Aberdare, through Abercynon, Pontypridd and Radyr to Llandaff and Ninian Park. During later stages the ECR will expand its control area to cover the electrification infrastructure to Treherbert, Cardiff Bay and Rhymney.

NB This electrification system is of a new discontinuous type. For electric traction to operate in the area the locomotive or rolling stock needs to be certified as compatible with the system. The system does not compromise the running of any type of diesel trains on the CVL Network.

Specification of Works

This third energisation event will bring into use all 25kV OLE and HV distribution assets from the previous limit of electrification at Alexandra Road to the new limit of electrification on the approach to Merthyr Tydfil and from the previous limit of electrification at Cwmbach to the new limit of electrification at Aberdare.

This will see the Entry into Service of all new OLE, overhead line switches, HV cabling as detailed on the Major Feeder Diagram ("MFD") (TRAN01-KAW-R0-TPS-DDR-E-EP-000010-S4-B03, see Appendix D).

The 25kV contact system has been taken from Network Rail's UKMS100 design range. This is an interoperable statement of verification against the Energy National Technical Specification Notice ("ENE NTSN"). The system will be compliant with BS EN 50122-01. The system has a minimum energised wire height, in accordance with GL RT 1210 and Rail Industry Standards ("RIS") RIS 1853 and RIS 2715.

The part of the electrification system brought into use at this stage contains a Catenary Free Section ("CFS") at Quakers Yard and Permanently Earthed Sections ("PES") at Pontygwaith overbridge and Merthyr Vale Station. Trains will require a compatible on board energy system to pass through these CFS and PES areas.

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NB Catenary Free Sections ("CFS") have no overhead contact system at all and trains must pass through with the pantograph lowered. Permanently Earthed Sections ("PES") have a physically continuous overhead contact system but the wires are not energised. Trains can pass through PES areas with the pantograph raised.

Proposed Timeline

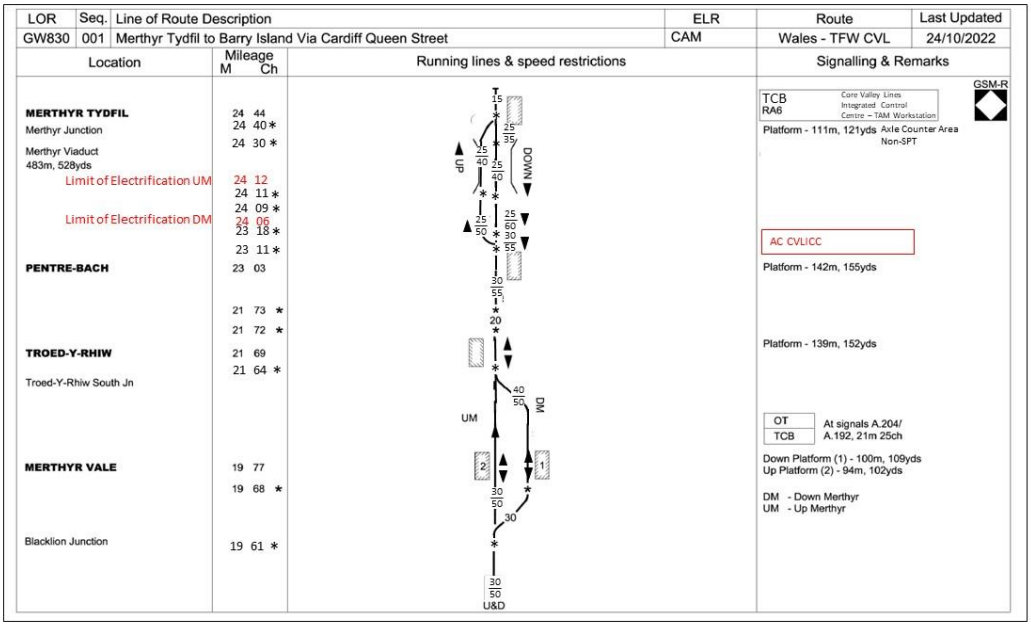
The current proposed timescales are shown below:

- 10 March 2023: Consultation Starts.
- 10 April 2023: Consultation Completes.
- 11 August 2023: Energisation of the OLE from Abercynon to Merthyr Tydfil under Rules on 11 August 2023 and commissioning on 15 August 2023 (Appendix C).

Amendments to Sectional Appendix

To support the alterations described above, the following revisions will be made to the Western Route Sectional Appendix (December 2022) pages 370 – 371 and 382.

The new requirements are shown in Red font whilst requirements that are to be removed are shown in ~~Green~~ font struck through. Explanatory notes are in Blue font.



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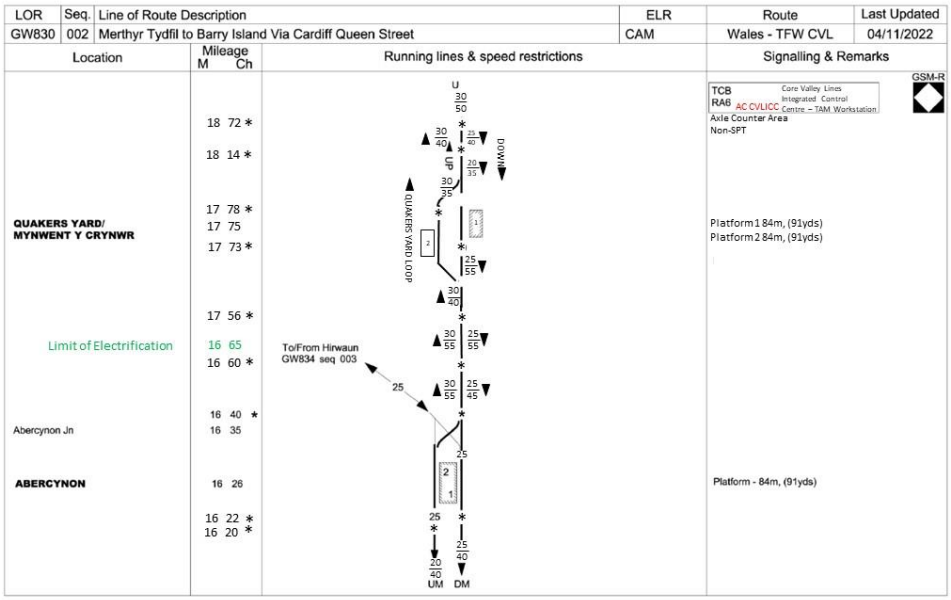
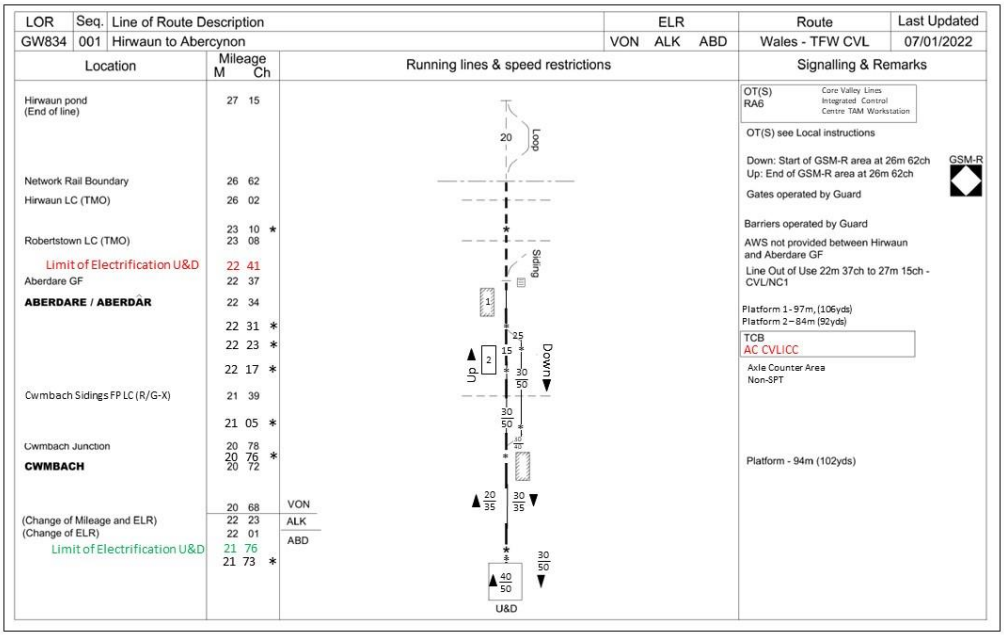


LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW830	002	Merthyr Tydfil to Barry Island Via Cardiff Queen Street	CAM	Wales - TFW CVL	04/11/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
	18 72 *		TCB RA6 AC CVLICC Core Valley Lines Integrated Control Centre – TAM Workstation; Axle Counter Area; Non-SPT
	18 14 *		
	17 78 *		
QUAKERS YARD/ MYNWENT Y CRYNWR	17 75		Platform 1 84m, (91yds)
	17 73 *		Platform 2 84m, (91yds)
	17 56 *		
Limit of Electrification	16 65	To/From Hirwaun GW834 seq 003	
	16 60 *		
	16 40 *		
Abercynon Jn	16 35		
ABERCYNON	16 26		Platform - 84m, (91yds)
	16 22 *		
	16 20 *		



LOR	Seq.	Line of Route Description	ELR	Route	Last Updated
GW834	001	Hirwaun to Abercynon	VON ALK ABD	Wales - TFW CVL	07/01/2022

Location	Mileage M Ch	Running lines & speed restrictions	Signalling & Remarks
Hirwaun pond (End of line)	27 15		OT(S) RA6 Core Valley Lines Integrated Control Centre TAM Workstation; OT(S) see Local instructions
			Down: Start of GSM-R area at 26m 62ch; Up: End of GSM-R area at 26m 62ch
Network Rail Boundary	26 62		
Hirwaun LC (TMO)	26 02		Gates operated by Guard
	23 10 *		Barriers operated by Guard
Robertstown LC (TMO)	23 08		AWS not provided between Hirwaun and Aberdare GF
Limit of Electrification U&D	22 41		Line Out of Use 22m 37ch to 27m 15ch - CVL/NC1
Aberdare GF	22 37		
ABERDARE / ABERDÂR	22 34		Platform 1 - 97m, (106yds); Platform 2 – 84m (92yds)
	22 31 *		
	22 23 *		TCB AC CVLICC
	22 17 *		Axle Counter Area; Non-SPT
Cwmbach Sidings FP LC (R/G-X)	21 39		
	21 05 *		
Cwmbach Junction	20 78		
	20 76 *		
CWMBACH	20 72		Platform - 94m (102yds)
	20 68	VON	
(Change of Mileage and ELR)	22 23	ALK	
(Change of ELR)	22 01	ABD	
Limit of Electrification U&D	21 76		
	21 73 *		

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Changes to Operating Instructions

New operating instructions include:

- Isolation Diagrams (see Annex 1 to Appendix C)
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000102-S4-B02 – TAM Isolation Diagram Sheet 3 of 20 – Abercynon TSS
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000114-S4-B01 – TAM Isolation Diagram Sheet 15 of 20 – Quakers Yard
    - TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000113-S4-B01 – TAM Isolation Diagram Sheet 14 of 20 – Merthyr Tydfil Station

- Isolation Instructions (see Appendix E)
    - TRAN01-PSP-ZZ-CVL-GSP-Y-EP-000001-S4-B01

Proposed Timescale

The energisation of the OLE from Abercynon to Merthyr Tydfil takes place during the start of commissioning under Rules on 11 August 2023.

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Annex 1 – Isolation Diagrams for the Energisation of the OLE from Abercynon to Merthyr Tydfil

- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000102-S4-B02 – TAM Isolation Diagram Sheet 3 of 20 – Abercynon TSS
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000114-S4-B01 – TAM Isolation Diagram Sheet 15 of 20 – Quakers Yard
- TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000113-S4-B01 – TAM Isolation Diagram Sheet 14 of 20 – Merthyr Tydfil Station

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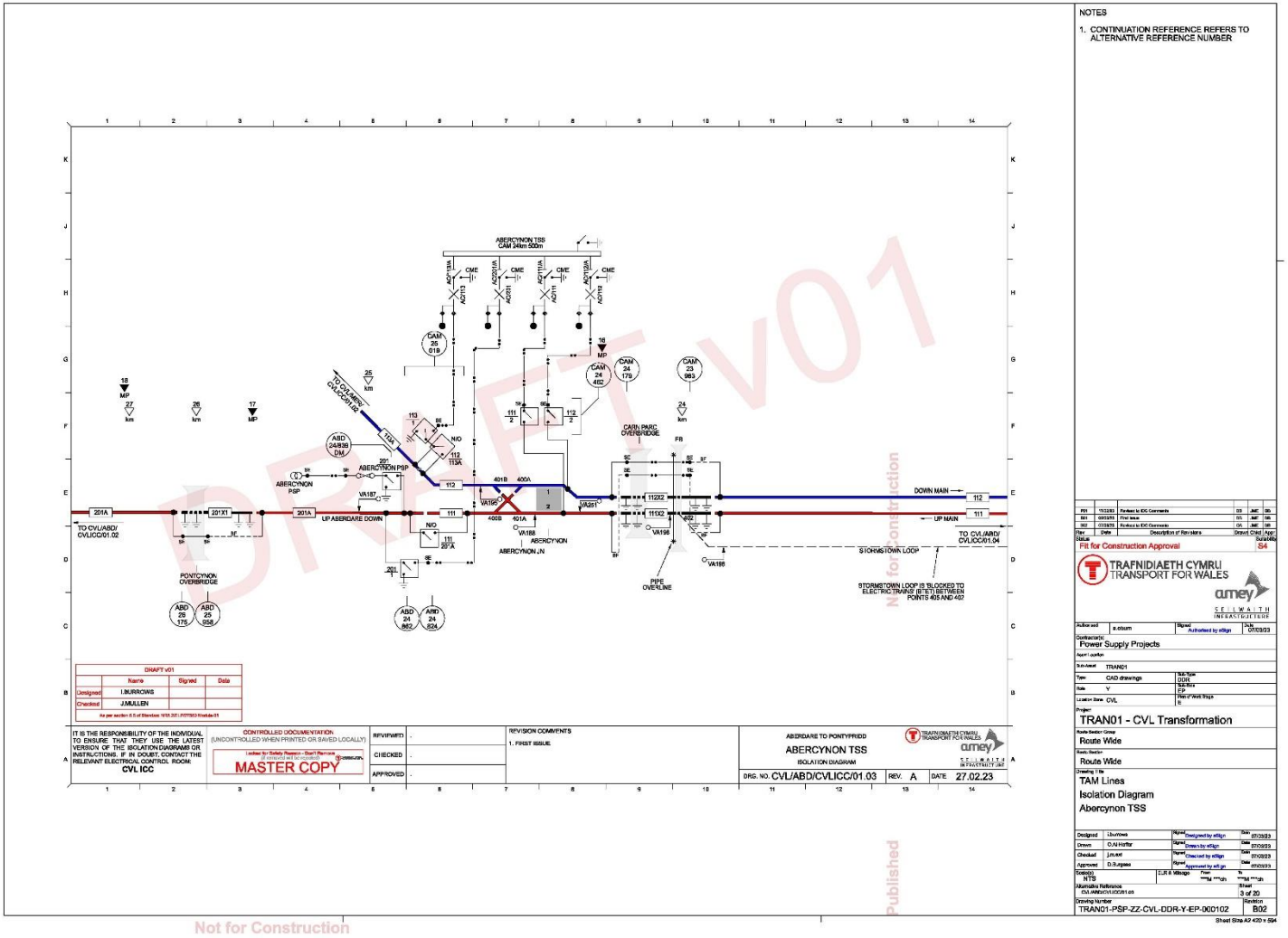
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000102-S4-B02 – TAM Isolation Diagram Sheet 3 of 20 – Abercynon TSS



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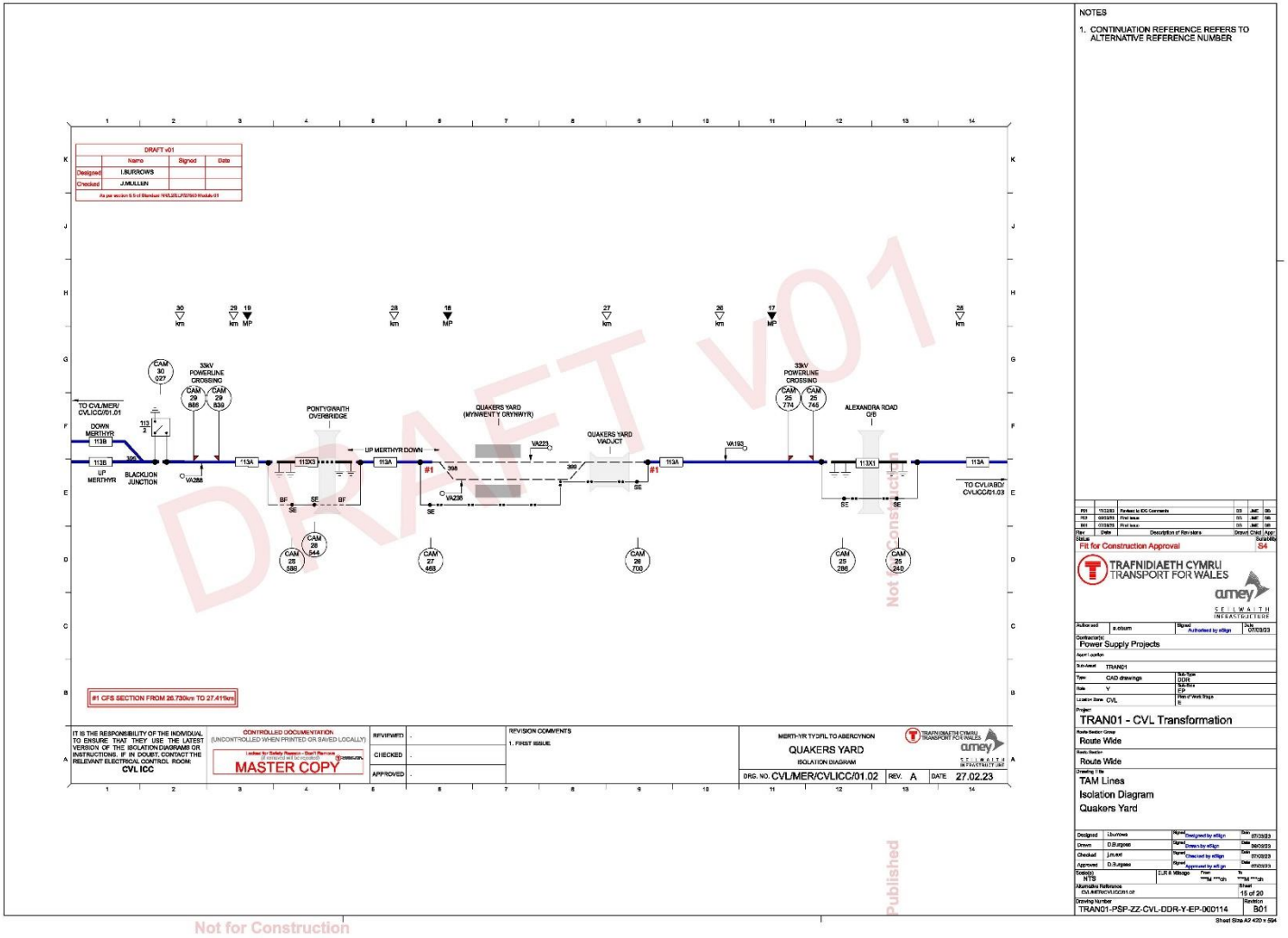

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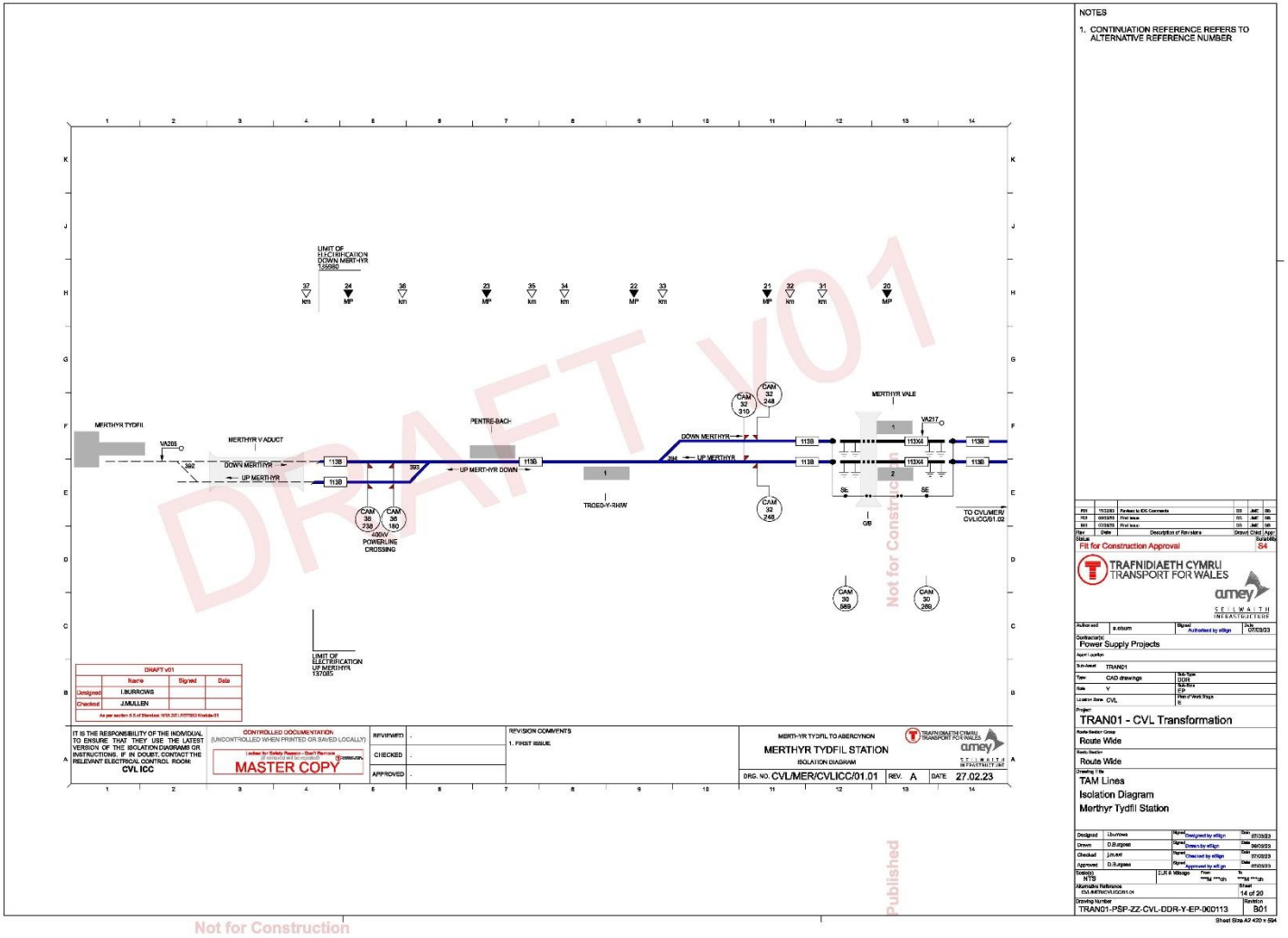
TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000113-S4-B01 – TAM Isolation Diagram Sheet 14 of 20 – Merthyr Tydfil Station



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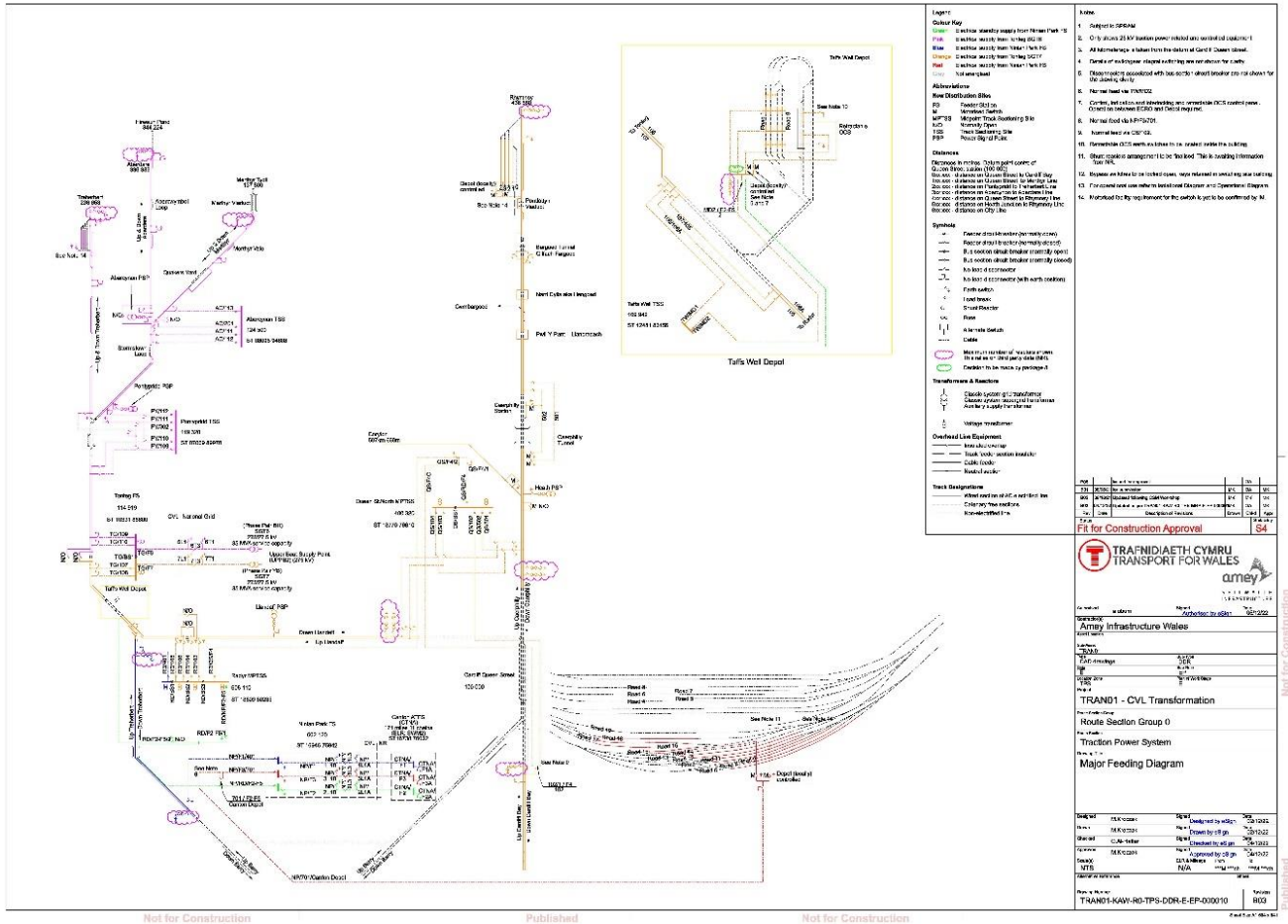
Appendix D – Major Feeder Diagram (MFD)

TRAN01-KAW-R0-TPS-DDR-E-EP-000010-S4-B03



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Appendix E – Isolation Instructions

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Form AE with:- CVL ICC

Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
103 (Complete – including PES 103X1 and 103X2)	Up LLandaff	Up LLandaff CAM/02/555 (Limit of Electrification)	Up LLandaff CAM/06/359	RD/103R D/103/A QS/103 QS/103/A		RD/103/A QS/103/A	This isolation includes and associated PES. Ensure LLandaff PSP is on DNO supply. For this isolation switch No. 105 MUST be in the normal position. 103 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends.** **NOTE: Electrification limits are staggered at this location; DOWN Main limit located at CAM/02/865** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.04 CVL/QSS/CVLICC/01.01 CVL/QSS/CVLICC/01.02 CVL/QSS/CVLICC/01.03

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
104 (Complete – including PES 104X1 and 104X2)	Down Llandaff	Down LLandaff CAM/06/359	Down LLandaff CAM/02/865 (Limit of Electrification)	RD/104 RD/104/A QS/104 QS/104/A		RD/104/A QS/104/A	This isolation includes and associated PES. For this isolation switch No. 106A MUST be in the normal position 104 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends.** **NOTE: Electrification limits are staggered at this location; UP Main limit located at CAM/02/555** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.04 CVL/QSS/CVLICC/01.01 CVL/QSS/CVLICC/01.02 CVL/QSS/CVLICC/01.03

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
105 (complete)	Up Main (including Up Branch and Down Branch)	Up Main CAM/06/434 Up Branch, Down Branch (City Lines) RAD/08/013	Taffs Well CFS (South) CAM/08/177 (CFS Limit)	TG/107 RD/105RD/ 105/A	105 2	105 2 RD/105/A	This isolation includes and associated PES. For this isolation switch No. 105 MUST be in the normal position. 103 Reclose TG/107 to energise section 108 after opening 105 2 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** **NOTE: Switch 105/2 is located on the same OLE structure as switch 106/3** Refer to Isolation Drawing(s):CVL/R2P/CVLICC/01.03 CVL/R2P/CVLICC/01.04

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
105 &107 (complete – including CFS & PES 107X1)	Up Main (including Up Branch and Down Branch)	Up Main CAM/06/434 Up Branch, Down Branch (City Lines) RAD/08/013	Up Main CAM/14/687	TG/107 TG/107/A RD/105 RD/105/A		TG107/A RD/105/A	This isolation includes and associated PES. For this isolation switch No. 105 MUST be in the normal position. 103 **NOTE: CFS Section from 8.177km to 11.083km also requires cable "BYPASS 108/106A/L" to be Isolated** **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.03 CVL/R2P/CVLICC/01.04

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
106 (complete, 106A and 106B)	Down Main, Raydr Platform Loop	Taffs Well CFS (South) CAM/08/177 (CFS Limit)	Down Main CAM/06/434	TG/108 RD/106 RD/106/A	106 3	106 3 RD/106/A	This isolation includes and associated PES. For this isolation switch No. 106A MUST be in the normal position 104 For this isolation switch No. 106 MUST be in the normal position 2 Reclose TG/108 to energise section 108 after opening 106 3 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** **NOTE: Switch 106/3 is located on the same OLE structure as switch 105/2** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.03 CVL/R2P/CVLICC/01.04

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
106B	Radyr Platform Loop	Radyr Platform Loop (No limits)	Radyr Platform Loop (No limits)	TG/106 RD/106	106 2	106 2	For this isolation switch No. 106 2 MUST be in the normal position. Reclose TG/108 to energise section 108 after opening 106 3 Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.04

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
106 and 108 (complete, 106A and 106B – including CFS)	Down Main, Raydr Platform Loop	Down Main CAM/14/687	Down Main CAM/06/434	TG/108 TG/108/A RD/106 RD/106/A		TG/108/A RD/106/A	This isolation includes and associated PES. For this isolation switch No. 106A MUST be in the normal position 104 For this isolation switch No. 106 MUST be in the normal position 2 **NOTE: CFS Section from 8.177km to 11.083km also requires cable "BYPASS 107/105/L" to be Isolated.** **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.03 CVL/R2P/CVLICC/01.04

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
107 (Complete - including PES 107X1)	Up Main	Taffs Well CFS (North) CAM/11/083 (CFS Limit)	Up Main CAM/14/687	TG/107 TG/107/A RD/105 TW/MD1 TW/MD1/A	107 3	TG/107/A 107 3 TW/MD1/A	This isolation includes and associated PES. This isolation **also isolates Taffs Well Depot** unless switch RD/F2-F5 is operated. 2 For this isolation switch No. 107 MUST be in the normal position. 109 Reclose RD/105 to energise section 105 after opening 107 3 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** **NOTE: Switch 107/3 is located on the same OLE structure as switch 108/2** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.02 CVL/R2P/CVLICC/01.03

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
108 (complete – including PES 108X1)	Down Main	Down Main CAM/14/687	Taffs Well CFS (North) CAM/11/083 (CFS Limit)	TG/108 TG/108/A RD/106	 108/2	TG/108/A 108/2	This isolation includes and associated PES. For this isolation switch No. 108 MUST be in the normal position 110 Reclose RD/106 to energise section 106 after opening 108/2 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** **NOTE: Switch 108/2 is located on the same OLE structure as switch 107/3** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.02 CVL/R2P/CVLICC/01.03

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
109 (complete)	Up Main	Up Main CAM/17/388 (Limit of Electrification)	Up Main CAM/14/764	PY/109 PY/109/A TG/109 TG/109/A		PY/109/A TG/109/A	This isolation **also isolates section 112/111/201 and 302** if section 110 is also under isolation For this isolation switch No. 107 MUST be in the normal position. 109 For this isolation switch No. 109 MUST be in the normal position. 111 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.02

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
110 (complete)	Down Main	Down Main CAM/17/388 (Limit of Electrification)	Down Main CAM/14/764	PY/110 PY/110/A TG/110 TG/110/A		PY/110/A TG/110/A	This isolation **also isolates section 112/111/201 and 302** if section 109 is also under isolation. For this isolation switch No. 108 MUST be in the normal position 110 For this isolation switch No. 110 MUST be in the normal position 112 **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.01

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Form AE with:- CVL ICC

Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
111 (complete - including PES 111X1 and 111X2)	Up Aberdare Down	Pontypridd North Junction CAM/19/944 (Limit of Electrification)	Abercynon Junction CAM/24/811	AC/111 AC/111/A PY/111 PY/111/A		AC111/A PY/111/A	This isolation **also isolates sections 201 and 113** if section 112 is also under isolation, as well as associated PES. **NOTE: Electrification limits are staggered at this location; DOWN Main limit located at CAM/19/900** **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** For this isolation switch No. 111 MUST be in the normal position 109 Refer to Isolation Drawing(s): CVL/ABD/CVLICC/01.03 CVL/ABD/CVLICC/01.04 CVL/R2P/CVLICC/01.01

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Form AE with:- CVL ICC

Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
112 (Complete - including PES 112X1 and 112X2)	Up Merthyr Down	Abercynon Junction CAM/24/936	Pontypridd North Junction CAM/19/900 (Limit of Electrification)	AC/112 AC/112/A PY/112 PY/112/A		AC/112/A PY/112/A	This isolation **also isolates sections 113 and 201** if section 111 is also under isolation, as well as associated PES. Ensure Pontypridd PSP is on DNO supply. **NOTE: Electrification limits are staggered at this location; UP Main limit located at CAM/19/944** **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** For this isolation switch No 112 MUST be in the normal position. 110 Refer to Isolation Drawing(s): CVL/ABD/CVLICC/01.03 CVL/ABD/CVLICC/01.04 CVL/R2P/CVLICC/01.01

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
113 (complete - 113A and 113B – including PES 113X1-113X4)	Up Merthyr Down	Abercynon Junction CAM/25/060	Merthyr Viaduct CAM/36/980 (DN) CAM/37/085 (UP) (Limit of Electrification)	AC/113 AC/113/A		AC/113/A	This isolation also isolates sub-sections 113A, 113B, and associated PES. For this isolation, switch No. 112 MUST be in the NORMAL position 113A **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/ABD/CVLICC/01.03 CVL/MER/CVLICC/01.01 CVL/MER/CVLICC/01.02
113B (including PES 113X4)	Up Merthyr Down	Blacklion Junction CAM/30/065	Merthyr Viaduct CAM/36/980 (DN) CAM/37/085 (UP) (Limit of Electrification)	AC/113	113 2	113 2	This isolation includes and associated PES. Refer to Isolation Drawing(s): CVL/MER/CVLICC/01.01 CVL/MER/CVLICC/01.02

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TRAFNIDIAETH CYMRU TRANSPORT FOR WALES

A.C. Electrified Lines
Overhead Line Equipment
Electrical Isolation Instructions

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Isolation Diagram Set Name: WALES/CVL/TW/0001

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Form AE with:- CVL ICC

Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
201 (complete) (201A, 201B, and 201C - including PES 201X1-201X5)	Up Aberdare Down	Abercynon Junction ABD/24/836	Aberdare Station ABD/36/816 (Limit of Electrification)	AC/201 AC/201/A	201 1	AC/201/A	This isolation also isolates sub-sections 201B, 201C and associated PES. For this isolation, switch No. 111 MUST be in the normal position 201A Ensure Abercynon PSP is on DNO supply **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): WALES/CVL/TW/0001/01 WALES/CVL/TW/0001/02 CVL/ABD/CVLICC/01.03
201B (and 201C - including PES 201X4 and 201X5)	Up Aberdare Down and Up Aberdare	Fernhill Junction ABD/31/961	Aberdare Station VON/36/816 (Limit of Electrification)	AC/201	201 2	201 2	This isolation also isolates sub-section 201C and associated PES. **Reclose AC/201 to energise section 201A** Refer to Isolation Drawing(s): CVL/ABD/CVLICC/01.01 CVL/ABD/CVLICC/01.02 CVL/ABD/CVLICC/01.03

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Form AE with:- CVL ICC

Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
201C	Down Aberdare	Aberdare Station VON/36/816 (Limit of Electrification)	Cwmbach Junction (DN) ABD/34/627 Aberdare Station (UP) VON/36/576	AC/201	201 3	201 3	**Reclose AC/201 to energise sections 201A and 201B** Refer to Isolation Drawing(s): CVL/ABD/CVLICC/01.01

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Form AE with:- CVL ICC

Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
302 (complete) (302A, 302B, 302C, and 302D – including PES 302X1-302X6)	Up Treherbert Down, Up Treherbert, Down Treherbert	Pontypridd North Junction THT/19/617 (Limit of Electrification)	Treherbert Buffer Stop THT/36/644 (Limit of Electrification) Treherbert Sidings Buffer Stops THT/36/126	PY/302 PY302/A		PY302/A	For this isolation switch No. 109/111 MUST be in the normal position 302 This isolation also isolates sub-sections 302B, 302C, and 302D, as well as associated PES. **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.01 CVL/THT/CVLICC/01.01 CVL/THT/CVLICC/01.02 CVL/THT/CVLICC/01.03 CVL/THT/CVLICC/01.04
302B (including PES 302X5 and 302X6)	Up Treherbert Down Treherbert	Up Treherbert Down THT/32/892	Treherbert Buffer Stop THT/36/644 (Limit of Electrification)	PY/302	302 2	302 2	This isolation also isolates sub-sections 302C and 302D, as well associated PES. **Reclose PY/302 to energise section 302A** Refer to Isolation Drawing(s): CVL/THT/CVLICC/01.01

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
302C	Treherbert Sidings	Treherbert Sidings Buffer Stops THT/36/099	Treherbert Sidings Buffer Stops THT/36/300	PY/302	302 3	302 3	This isolation affects Sidings 1-4 **Reclose PY/302 to energise sections 302A and 302B, as well as associated PES** Refer to Isolation Drawing(s): CVL/THT/CVLICC/01.01
302D	Up and Down Treherbert	Treherbert Buffer Stop THT/36/644 (Limit of Electrification)	Treherbert Headshunt THT/36/641	PY/302	302 4	302 4	**Reclose PY/302 to energise sections 302A, 302B and 302C as well as associated PES** Refer to Isolation Drawing(s): CVL/THT/CVLICC/01.01

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Electrical Section or Sub-Section	Lines Isolated	Limits of Isolation		Circuit Breaker / Disconnector (Switch)			Remarks
		From	To	Open Remotely	Open Manually	Point of Isolation	
401 (complete – including PES 401X1 and 401X2)	Up Branch, Down Branch, Up Treforest, Down Treforest	Up Branch, Down Branch, RAD/07/939	Down Treforest RAD/03/396 (Limit of Electrification) Up Treforest RAD/03/396 (Limit of Electrification)	RD/401 RD/401/A NP/401 NP/401/A		RD/401/A NP/401/A	This isolation includes and associated PES. **NOTE: HV Cable to be isolated and Circuit State Certificate required to be issued when working adjacent HV Cable sealing Ends** Refer to Isolation Drawing(s): CVL/R2P/CVLICC/01.04 CVL/CTL/CVLICC/01.01 CVL/CTL/CVLICC/01.02

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STAGGERED ISOLATION LIMITS

Document Number	Location	Staggered Sections	Mitigation Actions
CVL/QSS/CVLICC/01.01	Gabalfa	104 and 103	 The potential residual electrical hazard created should be eliminated from the safe working area by either switching out the Electrical Sections or amending the safe work limits to align the sections. If this is not reasonably practicable and the residual electrical hazard remains the 'Nominated Person' should add the details to the 'Form C' and brief the recipients accordingly.
CVL/R2P/CVLICC/01.01	Pontypridd North Junction	112 and 111	