

CVL Network

A G5 Notice of Intended Scope for the Transformation Programme

23rd January 2024

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2 Acronyms and Abbreviations

Acronym / Abbreviation	Meaning
ABD	The Transformation works on the section of route from Pontypridd (excluded) to Aberdare via Abercynon
AC	Alternating Current
AFC	Approved for Construction
AIW	Seilwaith Amey Cymru / Amey Infrastructure Wales Ltd
APCO	Automatic Power Change Over
ASDO	Automatic Selective Door Operation
ATFS	Auto-transformer Feeder Station
CCTV	Closed-Circuit Television
CFS	Catenary Free Section
CIS	Customer Information System
CTL	The Transformation works on the section of route from Ninian Park to Radyr Junction
CVL	The Cardiff Core Valley Lines is the geographic extent of the rail infrastructure network from Cardiff Bay, through Queen Street to Treherbert, Hirwaun, Aberdare, Merthyr Tydfil, Cwmbargoed, Rhymney, Coryton and Ninian Park (exclusive)
CVLICCC	The Core Valley Lines Integrated Control Centre, located at Taff's Well, containing signalling and electrification control equipment and operations control personnel
CVLOI	Core Valley Lines Operating Instructions
DRS	Dynamic Route Setting
ECR	Electrical Control Room
ECRO	Electrical Control Room Operator
FLIRT	Fast, Light, Intercity and Regional Train (a Stadler product) – class 756s will be used on the Rhymney Valley of the CVL Network
GSM-R	Global System for Mobile communications – Railways
IDP	Infrastructure Delivery Partner (“IDP”) means the partners selected to deliver specific works as part of the Transformation Programme
IM	Infrastructure Manager – the body accountable for safe operation and maintenance of a railway network
IRT	Indicative Running Times
MER	The Transformation works on the section of route from Abercynon (excluded) to Merthyr Tydfil
MPLS	Multi-Protocol Label Switching - A network of connected routers allowing connections to Signalling, Telecoms and SCADA to the CVLICCC and the WROC
MV	Metro Vehicle - a Stadler tram/train vehicle - class 398s will be used on the TAM side of the CVL Network
NCN	Network Change Notice
NRT	Network Rail Telecoms
OLE	Overhead Line Electrification System
ORS	Operational Requirements Specification
PAN	Project Advice Note
PES	Permanently Earthed Section of the OLE
PZT	Points Zone Telephone

Acronym / Abbreviation	Meaning
QSS	The Transformation works on the section of route from Queen Street South Junction to Llandaff
R2P	The Transformation works on the section of route from Radyr to Pontypridd
RA	Route Availability
SCADA	Supervisory Control and Data Acquisition
SFO	Station Facility Owner
SPT	Signal Post Telephone
SRT	Sectional Running Time
SSP	Signalling Scheme Plan
TAM	Treherbert, Aberdare and Merthyr - the western part of the CVL Network from Treherbert, Aberdare and Merthyr Tydfil down through Pontypridd, Radyr, Cathays and Queen Street to Cardiff Bay. Also used as the overarching name for the first major phase of the works (Stage Events 1 to 4).
TfW	Transport for Wales
TfWRL	Transport for Wales Rail Ltd
THT	The Transformation works on the section of route from Pontypridd (excluded) to Treherbert
TMS	Traffic Management System
TPR	Timetable Planning Rules
TVM	Ticket Vending Machine
TW	Signals within the depot will be controlled from a separate Taff's Well depot workstation within the CVLICC and will have the prefix "TW"
VC	All signals within the former Radyr and Abercynon control areas will be controlled from the CVLICC and will have the prefix "VC"
WROC	Network Rail's Wales Route Operating Centre located at Cardiff

3 Terms and Definitions

Access Beneficiary	A train operator who is party to a Track Access Contract with AIW
Complex Projects Procedure	The procedure set out in Condition G5 of the CVL Network Code
Consultation Period	A period for consultation with industry, as set out in the CVL Network Code, Part G, for AIW and Access Beneficiaries to consider the content of, and respond to, a Network Change Proposal
CVL Network	The CVL Network covers the railway network from: Treherbert, Aberdare, Merthyr, Cwmbargoed, Coryton and Rhymney to the CVL West Boundary and the CVL East Boundary with Network Rail
CVL Network Code	The code setting out the rules applying to all regulated access agreements for a railway Network. The CVL Network Code is available here: Core Valley Lines infrastructure manager TfW
Network Rail	Network Rail is the owner and infrastructure manager of most of the railway network in Great Britain
Rhymney Valley	The eastern part of the CVL from Cardiff Central, through Queen Street to Coryton and Rhymney
Stage Event	Also known as commissioning. This is when a new asset(s) proposed during the Network Change are bought into operation. Often, other asset(s) are removed in parallel

Station Working Group	The Station Working Group will agree the scope and plan the delivery of station facilities upgrade that are part of the overall Transformation Programme
Station Facility Owner	The meaning of Facility Owner applied to the station has the meaning defined in section 17 (6) of the Railways Act 1993
South Wales Metro Programme	The programme that the Welsh Government is investing to improve cost effective travel options on Southeast Wales
Transformation Programme	The Transformation Programme of the South Wales Metro Programme is the scope of works to upgrade the networks
Transformation Programme Team	The Transformation Programme Team is the collaboration of AIW and the IDPs to deliver the specified works of the Transformation Programme
Timetable Working Group	The Timetable Working Group is developing the new Timetable Planning Rules (“TPRs”) associated with changes to the CVL Network on behalf of AIW. The key personnel for the Timetable Working Group includes Network Rail, AIW, and Access Beneficiaries, which also applies to Network Rail network
Track Access Contract	An access agreement between an IM of a Network and a Railway Undertaking, which permits the operation of train service

4 Governance

- 4.1 This document is a Notice of Intended Scope for the Transformation Programme.
- 4.2 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.
- 4.3 Consultation Periods for all Network Change Notices will be in accordance with requirements defined by the CVL Network Code.
- 4.4 In accordance with Conditions 5.7 and 5.12 of Part G of the CVL Network Code, any variation to the G5 Complex Projects Procedure scope of the Transformation Programme. Any variation will be consulted with Access Beneficiaries.
- 4.5 AIW will continue to maintain close communication with Access Beneficiaries via the already established Timetable Working Group and other communication channels, so that all parties remain informed and able to influence the Transformation Programme.
- 4.6 Other related workstreams or forums with Access Beneficiaries are:
- Timetable Working Group (to define the effects of the line speed and other infrastructure alterations);
 - Station Working Group (to agree the scope and plan the delivery of station facilities upgrade that are part of the overall Transformation Programme);
 - Network Change consultations;
 - Station Change consultations;
 - Vehicle Change consultations;
 - Access Rights reviews;
 - Driveability reviews; and
 - Signal Sighting Committee workshops.

5 Infrastructure Changes

- 5.1 This Notice of Intended Scope covers the proposed scope of the Transformation Programme on the CVL Network currently planned to be implemented during 2024. Future Notice of Intended Scope(s) will be issued to cover the proposed scope of the Transformation Programme on the CVL Network for future works.
- 5.2 It should be noted that not all of the works included within the previous G5 notice (issued 28/11/2022 and including all works originally planned for implementation during 2023) have been completed at this time. The final G1 proposal document associated with that G5 notice was issued in June 2023 and the works described therein will be completed during the first few months of 2024. This document contains only network changes not included in previous G1 proposals.
- 5.3 A high-level summary of the proposed changes to the Sectional Appendix are presented below for the attention of the Access Beneficiaries:
- 5.4 The following Western Route Sectional Appendix changes are required for the Transformation Programme to be implemented during 2024 (see dates below), as presented in Table 1.

Table 1: Western Route Sectional Appendix Changes

Section	Sub-section	Changes
General Instructions	Rule Book Module SP – Speeds	Table to be amended to include new rolling stock types (Class 398 and Class 756) for permissible speeds and enhanced permissible speeds.
General Instructions	Other General Instructions	Changes to Other General Instructions will be required for implementation of OLE, APCO beacons and the introduction of new rolling stock.
Table A	Not applicable	Supplementary notice of electrification works to be issued for energisation – Table A to be amended to reflect.
Table A	Not applicable	Stage work changes will be reflected in the Table A in line with Entry into Service process.
Route Clearance tables	Not applicable	Route clearance tables to be amended in conjunction with the introduction of new rolling stock.
Local Instructions	GW810	No change to current instructions expected.
Local Instructions	GW820	No change to current instructions expected.
Local Instructions	GW830	No change to current instructions expected.

- 5.5 The high-level proposed major states of the Transformation Programme to be implemented during 2024 are presented below:

Transformation Programme major works to be implemented during 2024

- Commissioning of Taffs Well depot
- Energisation of new Overhead Line Electrification (OLE) from south of Heath Junction to Coryton and Lisvane & Thornhill plus the bay platform at Caerphilly station
- Energisation of new OLE on the Cardiff Bay branch along with platform changes at Cardiff Bay station

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- Reopening of Ynyswen station with a new platform to serve the new passing loop and a new accessible station footbridge
 - Entry into operational use of the platform extensions at Waun Gron Park, Fairwater and Danescourt on the City Line
 - Entry into operational use of the new second platform at Aberdare station to serve the passing loop which was commissioned in May 2023
 - Line speed changes and recovery of the engineer's siding at Pontypridd Station
- 5.6 Please refer to Appendix A for a diagram illustrating the overall Transformation programme of works, including those that are planned for implementation during 2024.
- 5.7 For completeness, Appendix B outlines the changes that will be made outside of this Network Change in accordance with the Station Change process.
- 5.8 The operational requirements to which the above changes will be delivered are set out below:
- **Structure Gauge:** The existing structure gauge of each line will be preserved. The existing "route clearance of freight containers/swap bodies" is given in table D5B of the Sectional Appendix. These clearances will be maintained. The Transformation Programme is not remitted to correct any existing non-conformances covered by the star note. However, where physical alterations are required for any other reason, all works will be carried out to current gauging standards. Current gauge for each line of route are as follows:
 - GW810 (Rhymney – Cardiff Queen Street North Junction) W6A*
 - GW820 (Cwmbargoed – Ystrad Mynach South) W6A
 - GW830 (Merthyr Tydfil – Cardiff East Jn via Cathays) W6A*
- * "Route does not conform to Group Standard W6A Lower Gauge as defined in GE/RT8073. Certain W6A vehicles are prohibited from all or part of the route; these restrictions are detailed on the Summary of Compatibility for the vehicles concerned."*
- **Level Boarding:** Continuation of the CVL-wide programme to correct platform heights and offsets to ensure level boarding compliance for future Class 398 and Class 756 rolling stock.
 - **GSM-R:** Network Rail's Project Advice Note (PAN) 61 exercise is being carried out in association with Network Rail Telecoms. All necessary GSM-R systems alterations are being progressed by Network Rail Telecoms (NRT) on behalf of the Transformation Programme.
 - **Telephony Arrangements:** As previously consulted, a review of the lineside telephony arrangements has been undertaken and it is proposed to remove the majority of the Signal Post Telephones (SPT) and Points Zone Telephones (PZT) throughout the CVL. This programme of recoveries is to continue onto the Rhymney and Coryton lines in 2024. If not already completed, Access Beneficiaries are recommended to review their operational performance risk assessments to determine whether the train crew should be provided with a public network mobile phone as a backup. Please note, GSM-R coverage has been surveyed and SPTs will be retained at any locations with inadequate signal strength.

- **Level Crossing Alterations:** A comprehensive programme of level crossing risk assessments has been undertaken. Wernddu, Ty-Isha, Gibbons and Craig Rhymney are all currently proposed to be closed and replaced with alternative means (where required). The exact timescales for these closures is subject to negotiations with applicable stakeholders but will commence in 2024.
- **Discontinuous Electrification:** The same discontinuous 25kV OLE system introduced in 2023 will be used throughout the CVL. This system includes numerous Permanently Earthed Sections (PES) and Catenary Free Sections (CFS). OLE section diagrams are included in Appendix D. In areas that are not being electrified, electric trains passing through these areas will be required to use another form of energy for propulsion. Trains transitioning between electrified and non-electrified areas and vice-versa are required to read a track-mounted beacon to enable their auto pantograph-up or pantograph-down facility and trigger a switch to the other form of energy. This is collectively referred to as the Auto-Power Change Over system (APCO). The CVL OLE system is under the control of the CVLIC Electrical Control Room Operator (ECRO).
- **Enabling Track and Civils Works:** Track and civils works to enable the construction of the OLE will be undertaken across the CVL Network. The existing structure gauge will be preserved throughout.
- **Other Changes:** Driver Training deliverables to be subject to a separate consultation.

6 Operating Procedures

- 6.1 The scope of Operational Changes described herein are limited to the novel, complex and/or unique features of the operation of the CVL Network not covered by GERM8000 Master Rule Book or by existing instructions: this includes the CVLIC, Taff's Well Depot, Canton Depot and any interface with Network Rail at WROC.
- 6.2 As part of the Transformation Programme, the existing Rule Book, Regulations and Instructions will be supplemented to encompass the novel, complex and/or unique features that are being introduced.
- 6.3 The Core Valley Lines Operating Instructions ("CVLOI") will describe some additional bespoke Operating Instructions along with (mainly terminological) deviations from the GERM8000, Master Module Issue 7 of the Rule Book. The CVLOI will be consulted as a G1 Network Change in due course.
- 6.4 The Operating Procedures will conform to the Network Rail Standards and replicate their operations. Degraded mode will be based on the Rule Book.
- 6.5 There are two unique systems – the APCO system and the OLE. This is because whilst the beacons are Network Rail approved for several functions, they have not been used for auto-power change over previously.
- 6.6 Thus, the provisions of GERM8000 Master Rule Book will be followed except where amended by the CVLOI or by company specific instructions.

7 Timetable Change

- 7.1 As described in section 4, a timetable working group has been established for the CVL and is being used to consult on and manage timetable changes in accordance with industry practice.
- 7.2 The alterations to the CVL Network described herein are not expected to result in any additional alterations to the Train Planning System during 2024 other than the recognition of the additional extents of electrification. However, changes for the May 2025 timetable will be developed, consulted on, and agreed during the first half of 2024. These changes will include updated Timetable Planning Rules for service routes between Radyr and the heads of the valleys at Treherbert, Aberdare and Merthyr.
- 7.3 It should also be noted that new SRTs are proposed for December 2024 for the Class 398 and Class 756 rolling stock being introduced by TfWRL.
- 7.4 Future changes will be discussed in a future G5 Notice of Intended Scope.

Appendix A – Scope Diagram and Commissioning Dates Diagram

The scope diagram and commissioning dates diagram for the Transformation Programme to be implemented during 2024 is listed below and is attached:

- TRAN01-KAW-ZZ-YPA-Z-MF-0000001 vP11 22-12-12.pdf

Appendix B – Station Changes

There is an established Station Change process that runs separately but cooperatively with the Network Change process. Station changes in 2024 include:

- The programme of new and refurbished toilets, waiting rooms, shelters and the installation or upgrade of help points, CCTV cameras, Ticket Vending Machines (“TVMs”), smart ticket validators, Wi-Fi and Customer Information System (“CIS”) screens will continue through 2024. These will be separately consulted through the Station Change process.
- “Level Boarding” works will also continue: The Transformation Programme will not compromise the existing structure gauge. The physical alterations are works to standardise the vertical distance from top of rail to edge of platform correcting many existing non-compliances. Horizontal clearances are less critical for level boarding as the new passenger trains will be fitted with extendable footsteps. These works will not compromise the lower structure gauge and may, in some places, improve existing non-standard clearances. Any proposed significant changes to the stepping height will be consulted by the Station Change process.

Appendix C – OLE Sectioning Diagrams

The OLE sectioning diagrams for the CAR side of the CVL are attached. This diagram should be viewed in conjunction with the drawing in appendix A to determine which works are planned for implementation in 2024:

- Section diagram CAR [TRAN01-PSP-ZZ-CVL-DDR-Y-EP-000003]