Wayleave Requirements

ASSET BUSINESS PROCEDURE AZN.NA.PRO.04.6150.063

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Preface

This document was produced by Network Asset Management (Aurizon Network Pty Ltd) for application in the Central Queensland Coal Network.

It is important that readers ensure that they have the latest version of this document before undertaking any related works.

Authorisation

Approved by: Manager Assets Management Business

Authorised by: Head of Network Asset Management

Revision History

Version	Issued	Details	Author	Approved
1.0	17/12/2018	First publication	Garrie Napier	Drew Hellyer

Contents

1 Purpose

A wayleave is required for a third party to conduct works on Aurizon Network land and/or under or over Aurizon Network infrastructure. The purpose of this document is to outline the requirements for wayleave applications and assessment.

2 Scope

This document applies any third party request to conduct works on Aurizon Network land and/or under or over Aurizon Network infrastructure.

3 Responsibility and Authority

Manager Network Asset Management Business

The Manager Network Asset Management Business is responsible for approving this document and ensuring any changes to this document are implemented.

4 Definitions

Wayleave	A wayleave is required for a third party to conduct works on Aurizon Network land and/or under or over Aurizon Network infrastructure.

5 Associated Documents

Document No.	Title	Type	Location
SAF/STD/0114/INF/NET	Authority to Travel (ATT) and Train Route Acceptance (TRA) Requirements	Standard	NAM Technical Standards & Publications (SharePoint)
SAF/STD/0145/INF/NET	Interface Standards	Standard	NAM Technical Standards & Publications (SharePoint)
SAF/STD/0071/SWK/NET	Operational Route Manual	Standard	NAM Technical Standards & Publications (SharePoint)

6 Requirements

6.1 Applying for a Wayleave

Where an application for a wayleave has been submitted for approval to Aurizon Network for assessment, each submission must include:

- this form completed and signed;
- a purchase order for the initial deposit amount of $5,500 (incl. GST);
- an aerial map marked up to identify proposed access points and the worksite area;
- RPEQ certified design including issued for construction technical drawings (plan and section mandatory — must show all existing services);
- catan profile (applicable to overhead electrical wayleaves) — calculated at maximum temperature (temperature must be clearly specified);
- full list of vehicles, plant and equipment to be used (must include height, width, length and weight specifications and details on how it will be used);
- safe work method statement(s) (must be site specific — refer Appendix 1 Rail Infrastructure Safety Considerations); and
- a construction environmental management plan.

6.2 Design Requirements

6.2.1 Application

All application for consideration for a utility to be installed, maintained or removed must be referred to Aurizon Network.

The application must be in sufficient detail to identify the location and spatial relationship to Aurizon Network's infrastructure and operating envelope, for technical assessment.

For major developments where sufficient details are not known, preliminary information may be required to enable Aurizon Network to approve the development in principle prior to the detailed application being made.

6.2.2 Processing

The executive manager on receipt of the application will seek legal, technical, operational, safety and local information from representative stakeholders.

Current and future usage by Aurizon Network and others must be considered.

6.2.3 Response

A response must be given to the applicant in a timely manner when all stakeholder inputs have been received.

6.2.4 Agreement

All approved applications, together with terms and conditions required by the representative stakeholders, must be agreed to in writing between Aurizon Network and the applicant.

This is required to minimise Aurizon Network's risk if in the future, damage occurs due to non-compliance with any terms and conditions, or if Aurizon Network carries out modifications to its infrastructure, operating envelope and/or mode of operation.

All such agreements are to be signed under Power of Attorney either by the executive manager or Legal Services.

6.3 Wayleave Conditions

6.3.1 Notification of Commencement

The applicant must be required to notify those Aurizon Network representatives nominated in the Agreement of the intent to commence work and seeking a preliminary meeting with Aurizon Network.

6.3.2 Train Operations and Other Constraints

The preliminary meeting with Aurizon Network must include:

- discussions about the methods of work;
- the likely impact on train operations and Aurizon Network infrastructure;
- a programme of any trackside safety and where applicable electrification safety requirements; and
- the setting of a date for the commencement of work noting that no work must commence on site until possession has been granted by Aurizon Network.

6.4 Wayleave Requirements for Underground Crossings (Under Track)

Type of Crossing/ Installation method	Minimum Depth below ground level/ formation level (m)	Maximum bore diameter	Maximum pipe diameter	Pipe (Conduit) type/ material	Future Excavation/protection	Electrical Protection	Installation Condition	Criteria of Utility Crossing below existing Aurizon tracks	Other Requirements	Application type of Installations
Directional drilling	Top of pipe minimum 3m below formation and ground level inside the corridor.	350mm or change by derogation agreement.	Usual HDPE pipe (conduit) sizes outside diameter; 63mm, 110mm, 125mm, 140mm. Maximum pipe size up to 250mm or by agreement.	Design loading of the pipe to be 300LA Railway loading (as per AS5100), including the type of pipeline (Non-Flammable or Flammable). [White for telecommunications. Orange for power].	The pipe is the mechanical protection for the cable and cement grout around pipe. Increased depth of service to decrease risk from interference during future rail works. For non metallic cables (optical fibres) a detectible marker tape or locating transponders installed.	Requirements of AS/NZS 3000 and AS/CAS009 to be satisfied with regard to electrical cable protection.	1. Geo. Investigation 2. Settlement calculation 3. Track monitoring 4. Entry/ Exit pits to be outside Aurizon corridor. 5. Cementous grout injected in the annulus between carrier pipe and enveloper.	1. Angle of crossing must be a straight line 90degrees +/- 5deg. 2. Min. clearance from existing underground service or between services must be 2.0m horizontally. No services must be installed vertically parallel to each other. 3. Min. clearance from existing structure/foundation must be 5.0m horizontally, unless assessed with existing geotech. conditions. 4. Min. depth requirement shown in the table must be maintained along full width of Aurizon corridor. Permanent Markers must be installed. 5. Pipe must be grouped together in a bore. If there are multiple bores required, they must not be closer than 2m. Geotechnical assessment must be undertaken on bores greater than 150mm. 6. No pits, manholes and valves must be in rail corridor, unless otherwise approved by Aurizon. 7. A qualified surveyor must be used to monitor each track crossed by the service to ensure there is no track movement. 8. In Yard situation, lesser cover depth may be allowed with a derogation subject to location including other U/G service, geotechnical investigation and track occupancy.	1. High risk services such as pipeline carrying flammable/combustible liquids must satisfy the minimum cover requirement and include Geotech inv./ results for final approval. 2. Derogation must be submitted if min. depth requirement cannot be achieved with appropriate justification. Geotech. investigation will be required as part of the process. 3. All metallic material used for underground crossing to include Protection against Electrolysis, Corrosion and Induced current. Test points to be installed outside Aurizon corridor. Refer to AS4799 for conditions. 4. For a carrier pipe carrying Combustible liquid or Flammable liquid, it may be designed and installed without an encasing pipe, providing sufficient mechanical and cathodic protection. Where a carrier pipe is enclosed in an enveloper pipe, venting is required. Refer to AS4799 for conditions. 5. Lifting pad to be certified by RPEQ engineer as required.	External Service Owners: High voltage cables, low voltage electrical cables, telecommunications cables, water incl. private pipeline crossing, sewerage, fuel and gas pipelines. Cost for installation of underground pipeline for Private landowner to be confirmed.
Pipe Jacking	Top of pipe minimum 3m below formation and ground level	By agreement	By agreement		The pipe offers mechanical protection for the cable. Cementous grout injected between the space between the outside of the enveloping pipe and the bored hole. Increased depth of service to decrease risk from interference during future rail works. For non metallic cables (optical fibres) a detectible marker tape or locating transponders installed.					
Trenching	n/a across railway track	-	-	-	Inclusion on Protection Slab with Electrical Warning tapes as per Standard.	-	-	-	-	-

6.5 Wayleave Requirements for Underground/At-Grade Crossings and Installations (Within Rail Corridor)

Application Type/ Type of Crossing/ Installation method	Minimum Depth below ground level/ formation level (m)	Maximum bore diameter	Maximum pipe diameter	Pipe (Conduit) type/ material	Future Excavation/protection	Electrical Protection	Installation Condition	Criteria of Underground Utility within Aurizon Corridor	Other Requirements	Application type of Installations
Directional drilling	Top of pipe minimum 3m below formation and ground level inside the corridor.	350mm or change by derogation agreement.	Usual HDPE pipe (conduit) sizes outside diameter; 63mm, 110mm, 125mm, 140mm. Maximum pipe size up to 250mm or by agreement.	Design loading of the pipe to be 300LA Railway loading or Road vehicle loading as required (as per AS5100), including the type of pipeline (Non-Flammable or Flammable). [White for telecommunications. Orange for power].	The pipe is the mechanical protection for the cable and cement grout around pipe. Increased depth of service to decrease risk from interference during future rail works. For non metallic cables (optical fibres) a detectible marker tape or locating transponders installed.	Requirements of AS/NZS 3000 and AS/CAS009 to be satisfied with regard to electrical cable protection.	1. Geo. Investigation 2. Settlement calculation 3. Track monitoring 4. Entry/ Exit pits to be outside Aurizon corridor. 5. Fill the annulus between carrier pipe and enveloper.	1. Min. clearance from existing underground service or between services must be 2.0m horizontally. No services must be installed vertically parallel to each other. 2. Min. clearance from existing structure/foundation must be 5.0m horizontally, unless assessed with existing geotech. conditions. 3. Min. depth requirement shown in the table must be maintained along full length of Service. Permanent Markers must be installed. 4. Pipe must be grouped together in a bore. If there are multiple bores required, they must not be closer than 2m. Geotechnical assessment must be undertaken for bore holes greater than 150mm. 5. No pits or manholes must be in rail corridor, unless otherwise approved by Aurizon. 6. In Yard situation, lesser cover depth may be allowed with a derogation subject to location including other U/G service, geotechnical investigation and track occupancy.	1. High risk services such as pipepline carrying flammable/combustible liquids must satisfy the minimum cover requirement and include Geotech inv./ results for final approval. 2.Derogation to be submitted if min. depth requirement cannot be achieved with appropriate justification. Geotech. investigation will be required as part of the process. 3. All metallic material used for underground crossing to include Protection against Electrolysis, Corrosion and Induced current. Test points to be installed outside Aurizon corridor. Refer to AS4799 for conditions. 4. Lifting pad to be certified by RPEQ engineer as required.	External Service Owners: High voltage cables, low voltage electrical cables and telecommunications cables, water, sewerage, fuel and gas pipelines.
Pipe Jacking	Top of pipe minimum 3m below formation and ground level	By agreement	By agreement							

Application Type/ Type of Crossing/ Installation method	Minimum Depth below ground level/ formation level (m)	Maximum bore diameter	Maximum pipe diameter	Pipe (Conduit) type/ material	Future Excavation/protection	Electrical Protection	Installation Condition	Criteria of Underground Utility within Aurizon Corridor	Other Requirements	Application type of Installations
Trenching	N/A (incl. water pipeline application for Private properties through culvert structures) except for Tower Application. Top of warning system protection (enveloping pipe) must be no less than 2m below ground level.	N/A	Usual uPVC HD/ HDPE pipes (conduit) sizes; 50mm, 63mm, 80mm, 100mm, 125mm, 150mm or by agreement.	Design loading of the pipe to be 300LA Railway loading or Road vehicle loading as required (as per AS5100), including the type of pipeline (Non-Flammable or Flammable). [White for telecommunications. Orange for power]. Direct bury to be reviewed in case-by-case basis.	The pipe offers the mechanical protection for the cable. Protection slab; 150mm thick, reinforced, extending 300mm either side of the pipes, no less than 300mm from the top of pipes. Warning tape at 300mm below ground and 50% depth of cover. Where multiple services are co-located in a trench, extent of Warning tape must cover the whole width of excavation/ trench with multiple tapes. Flowable grout around groups of conduits. Increased depth of service to decrease risk from interference during future rail works. An enveloping pipe is required (by agreement) if the minimum depth cannot be achieved. For non metallic cables (optical fibres) a detectible marker tape or locating transponders installed.	Requirements of AS/NZS 3000 and AS/CAS009 to be satisfied with regard to electrical cable protection.	-	1. If acceptance to run longitudinally within the rail corridor then the install must be as near as practical to the rail boundary (typically 1 metre) and must not be located within 6m from the toe of a bank / cutting / structure or within 10m from the nearest rail. 2. Min. clearance from existing underground service or between services must be 2.0m horizontally. No services must be installed vertically parallel to each other unless installed in a same trench. 3. Min. clearance from existing structure/foundation must be 5.0m horizontally, unless assessed with existing geotech. conditions. 4. Min. depth requirement shown in the table must be maintained along full length of Service. Permanent Markers to be installed at Aurizon boundaries to AS4799. As-Constructed plan and section drawings showing vertical and horizontal alignment. 5. The excavation area adjacent the rail must be continuously monitored to note any changes in track geometry. 6. No pits, manholes and valves must be in rail corridor/ railway structures, unless otherwise approved by Aurizon. Valves must be provided at each ends so as to be able to disconnect and reconnect during any maintenance works as required. 7. Connection of the service to Aurizon structure is not accepted. Supporting document must be submitted if the connection to Aurizon structure deemed required. The location of service must be easily visible and protected from any damage.	1. Derogation to be submitted if min. depth requirement cannot be achieved with appropriate justification. 2. All metallic material used for underground crossing to include Protection against Electrolysis, Corrosion and Induced current. Test points to be installed outside Aurizon corridor. Refer to AS4799 for conditions.	External Service Owners: High voltage cables, low voltage electrical cables and telecommunications cables, water pipeline for private property. No flammable and combustible services allowed.

Application Type/ Type of Crossing/ Installation method	Minimum Depth below ground level/ formation level (m)	Maximum bore diameter	Maximum pipe diameter	Pipe (Conduit) type/ material	Future Excavation/protection	Electrical Protection	Installation Condition	Criteria of Underground Utility within Aurizon Corridor	Other Requirements	Application type of Installations
Stormwater Management	-	-	-	-	-	-	-	1. Stormwater run-off and drainage are directed to a lawful point of discharge in accordance with section 1.4 of the Road drainage manual, Department of Transport and Main Roads, 2015 and Section 3 of Queensland urban drainage manual, Department of Energy and Water Supply, 2013 and must avoid adverse impacts on the existing Aurizon corridor/ drainage structures. 2. Aurizon recommend that 2D analysis (Tuflow or similar) is undertaken as a suitable approach to undertake impact assessment and submitted to Aurizon for acceptance/approval.	-	Development application around Aurizon corridor.
Advertising Signs	-	-	-	-	-	-	-	1. Wind loading AS1170.0 and AS1170.2 - design life 25yrs; Importance level=2; SLS = 1 in 25yrs 2. Structural design - AS3600 and AS4100 including fatigue assessment (AASHTO) 3. Demonstration - Impact Assessment on Train drivers sight distance, Structural clearance from track, Aurizon Access and surrounding drainage 4. Site Assessment for Vehicular Impact and Collision Protection - "Slip-base" design in clear zone area or protected by Crash Barrier. 5. Bonding requirement of Signage structure within 3m of OHLE equipment. 6. Electrical and Lighting design (Red, Amber, Green lights not to be used) 7. Orientation of Signage to be facing away from Aurizon corridor 8. Reflective paints not to be used (Class 2 Std. Traffic sign preferred) 9. TMR/ Local Council guidelines to be followed for Signage requirements on Highway/ Motorway/ Roadway as appropriate.	1. RPEQ Certified design including Lifting pad as required with Risk Assessment. 2. "AS-CONSTRUCTED" certification post installation and connection. 3. Avoid sign in the rail corridor where possible.	Billboard Signs
Transfer Facility	-	-	-	-	-	-	-	1. Clearance to Structure Gauge (Dwg AUR-S-0690-0100 and 0101)	1. Modification to existing structure to be be certified by RPEQ Structural/Civil Engineer.	-

Application Type/ Type of Crossing/ Installation method	Minimum Depth below ground level/ formation level (m)	Maximum bore diameter	Maximum pipe diameter	Pipe (Conduit) type/ material	Future Excavation/protection	Electrical Protection	Installation Condition	Criteria of Underground Utility within Aurizon Corridor	Other Requirements	Application type of Installations
Weighbridge	-	-	-	-	-	-	-	1. Design approval on case-by-case basis.	1. Drilling holes in the rails must comply with Aurizon Asset NoticeTC027 2. AEI readers to be outside structure gauge and must be removable.	-
Dragline Crossing	-	-	-	-	-	-	-	1. Clearance to Structure Gauge (Dwg AUR-S-0690-0100 and 0101) 2. Geotechnical Investigation and settlement calculation certified by RPEQ Engineer (Geotech.) 3. Temporary Independent structure - certified by RPEQ Engineer (Civil/Structural)	-	-
Temporary Access (to Corridor or Level Crossing)	-	-	-	-	-	-	-	1. Nature of work/ usage 2. Types of vehicle and no. of vehicles used per day (axle load distribution if not std vehicle) 3. Duration of access requirement	1. Include Risk assessment in consideration with Aurizon using the access road. 2. Compliance with Access Protocol/ Agreement	-
Blasting works	-	-	-	-	-	-	-	1. Asset Protection Plan (APP) to include all railway infrastructure affected within the blasting area and determine impact from staged construction.	1. APP to be signed by RPEQ engineer (Mining)	-

6.6 Wayleave Requirements for Overhead Electric Lines

Type of Electricity Entity / Applicant Overhead Electric Line	Minimum Clearance Above Aurizon Ground (m)	Minimum Clearance in Aurizon Non-Electrified Areas Above Rail Level (m)	Minimum Clearance in Electrified Areas Above Aurizon OH Traction Wiring (m)	Crossing Span Above Aurizon Tracks	Crossing Span Supports
Stay wire and Control Cable	5.5	6.7	3.0	1. Angle of crossing between stay wire/electric line and Aurizon track must be 90 degrees +/- 45 degrees. 2. Splices must not be used in conductors crossing Aurizon tracks. 3. Electrical Bridges connecting a span across Aurizon tracks to adjacent spans must not be clamped directly to the conductors of the crossing span where these conductors are in tension. 4. The length of the span crossing Aurizon tracks must be kept to the minimum reasonably required to satisfy the conditions specified in this schedule.	1. Supports must be located so that in the event of failure, they cannot fall within four (4) metres of Aurizon track. 2. Insulators supporting the span crossing Aurizon tracks must be designed to secure such span without slippage through the clamp, except that attachments are designed to provide a controlled slip eg. Four Bolt Strain Clamp, Helical Dead End. 3. Pin insulators must not be used on any conductors in tension crossing Aurizon tracks. 4. Coach screws must not be used on any conductors crossing Aurizon tracks.
LV Conductors Up to 1000V	5.5	7.6	Underground		
HV Conductors Over 1000V Up to 33kV	6.7	7.6	3.0		
HV Conductors Over 33kV Up to 66kV	6.7	8.5	3.0		
HV Conductors Over 66kV Up to 132kV	6.7	8.5	4.6		
HV Conductors Over 132kV Up to 275kV	7.5	9.4	5.5		
HV Conductors Over 275kV	By Agreement	By Agreement	By Agreement		

6.7 Wayleave Requirements for Overhead Structures

Type of Overhead Structure	Minimum Clearance Above Aurizon Rail Level (m)	Minimum Horizontal Clearance from Aurizon track centreline to Overhead Structure pier/ abutment/stairs (m)	Protection Screening requirement	Traction bonding requirement	Electrical separation requirement	Structural Requirements	Other Requirements
Road Bridge/ Structure < 40m along track	7.9	No access road: 3.5 + Drain Width With access road: 7.5 + Drain Width	Electrification screens are required over electrified track and must extend at least 3 metres horizontally either side of conductors and 1.8 metres vertically above the highest foothold. Electrification screens are also required on retaining walls, wing walls and other significant embankments within 3metres horizontally of OH wires.	Refer to Aurizon Manager Network Electrical Asset Management and Engineering for advice	If any metallic electrification screen is bonded to traction earth and is connected or separated by a distance less than 2.5 metres to a metal fence, a non-conductive panel at least 2.5 metres wide or a suitable insulating barrier must be provided	Refer to Aurizon document EM.S.1055 Protection Screens and EM.S.1056 for Collision protection of Supporting Elements adjacent to Railways.	Drainage along the Overhead Crossing, outlet to be outside Aurizon corridor. Drip protector over the OHLE wire if there is a risk of water overflow to tracks.
Road Bridge/ Structure ≥ 40m along track	9.0	No access road: 4.5 + Drain Width With access road: 8.5 + Drain Width	Electrification screens are required over electrified track and must extend at least 3metres horizontally either side of conductors and 1.8metres vertically above the highest foothold. Electrification screens are also required on retaining walls, wing walls and other significant embankments within 3metres horizontally of OH wires.	Refer to Aurizon Manager Network Electrical Asset Management and Engineering for advice	If any metallic electrification screen is bonded to traction earth and is connected or separated by a distance less than 2.5 metres to a metal fence, a non-conductive panel at least 2.5 metres wide or a suitable insulating barrier must be provided		
Footbridge	7.9	No access road: 3.5 + Drain Width With access road: 7.5 + Drain Width	Electrification screens are required over electrified track and must extend at least 3 metres horizontally either side of conductors and 1.8 metres vertically above the highest foothold. Electrification screens are also required on stairs and ramps within 3 metres horizontally of overhead wires.	Refer to Aurizon Manager Network Electrical Asset Management and Engineering for advice	If any metallic electrification screen is bonded to traction earth and is connected or separated by a distance less than 2.5 metres to a metal fence, a non-conductive panel at least 2.5 metres wide or a suitable insulating barrier must be provided		
Conveyor	7.9	No access road: 3.5 + Drain Width With access road: 7.5 + Drain Width	Solid screens under the conveyor, vertical protection screens on both edges and wind hoop (cover) are required for full extent of the rail corridor or extend 3 metres either side of Overhead wires if Aurizon does not own the land.	Refer to Aurizon Manager Network Electrical Asset Management and Engineering for advice	If any metallic electrification screen is bonded to traction earth a non-conductive panel at least 2.5 metres wide must be inserted in the metallic screen as near as practical to the Aurizon boundary.		
Overhead Gantry/ Pipeline crossings	7.9	No access road: 3.5 + Drain Width With access road: 7.5 + Drain Width	Protection screens are required on or near Aurizon corridor boundary	Refer to Aurizon Manager Network Electrical Asset Management and Engineering for advice	For pipeline crossing, if the pipe is metallic and is bonded to traction earth, a minimum of 2.5 metres of non-conductive piping must be inserted in the metallic piping as near as practical to the Aurizon boundary.		