



Field Audit & Quality

Allowable Construction Tolerance Guideline

Underground Projects

Document ID: JEQA4UJ443MT-1122254945-31

Purpose This document provides guidance and instructions for the process of seeking approval for construction variations that are identified by comparison of the approved construction plan (PCA40) with the completed work.

The guideline is intended for use by Powercor Responsible Officers, Option 1 and 2 Electrical Project Managers, TR&DS, Recognised Electrical Constructors, VEDN Approved Civil Constructors, VEDN Approved Auditors and the Powercor Field Audit and Quality Group.

Background The approved construction plan (PCA40) is used to determine the location of all electrical assets installed on underground projects. Due to construction complexities the exact final locations of these assets may differ from the construction plan by the limits set out in this document without requiring formal approval from the Powercor Responsible Officer.

Application This guideline applies to Powercor underground electrical distribution system projects up to 22kV in the following categories:

- Any projects following the Option 2 process
- All URD, rural and business subdivision projects in the Powercor area

Responsibilities Ensuring compliance with this document shall be the responsibility of the nominated electrical Project Manager.

The Powercor Responsible Officer and the Powercor Field Auditor may also review individual construction variances from design, at their discretion, to check compliance with this document.

Issue Number and Date The Issue Number of this Guideline is: 4
The Issue Date of this Guideline is: July 2021

Date Last Reviewed The Guideline was last reviewed by the Business Process Owner on the following date: June 2021

Field Audit & Quality Allowable Construction Variations Guideline

Document Owners

The document has the following Business Process Owner (BPO) and Business Process Analyst (BPA):

- Business Process Owner (BPO) title: Field Audit and Quality Manager
 - Business Process Analyst (BPA) title: Quality Assurance Officer
-

Definitions and Acronyms

Definitions, acronyms and abbreviations used in this document:

- BOK - Back of Kerb
 - Cable - Insulated conductor
 - CP - Powercor Australia Ltd
 - Civil Constructor - A VEDN authorised Civil Constructor
 - Electrical Constructor - An electrical constructor approved by Powercor via the Recognised Contractor List
 - EOC - End of Conduit
 - EOS - Edge of Seal
 - HV- High Voltage
 - IE - Insulated End
 - LV - Low Voltage
 - Must - is to be interpreted as mandatory
 - Option 1/2 - A customer selection indicating if a project is to be constructed by Powercor resources (Option 1) or a recognised external service provider (Option 2). Only applicable to projects deemed contestable.
 - PCA40 - Approved construction plan
 - PCA41 - Approved detail as built plan
 - PLC - Public Light Column
 - SE - Sealed End
 - Shall - is to be interpreted as mandatory
 - Should - is to be interpreted as advisory
 - TR&DS - Technical Records & Drafting Systems data base
 - VEDN - Victorian Electricity Distribution Network. Panel with representatives from all Victorian electricity distribution companies whose purpose is to regulate civil contractor accreditation and auditor endorsement for electrical infrastructure works. Sub-committee of VESI. Refer: www.vesi.com.au
 - VEDN Auditor - A VEDN endorsed and approved auditor
-

Measurements

All chainage and offset measurements specified in this guideline relate to the centre line of each asset described.

All clearance measurements relate to face to face asset clearances.

PLC offset measurements relate to the distance from the BOK or EOS to the column centre line.

Related Documents

This Guideline supports the following documents:

- Field Audit and Quality - Audit Policy JEQA4UJ443MT-150-336
- Field Audit and Quality - Audit Procedure JEQA4UJ443MT-197-59
- Field Audit and Quality - Open Trench Audit Inspection Guideline JEQA4UJ443MT-160-95
- Field Audit and Quality - Open Trench Audit Inspection Work Instruction JEQA4UJ443MT-160-95
- Field Audit and Quality - CIAW Option 1 and Option 2 URD Final Audits Work Instruction JEQA4UJ443MT-150-347
- Field Audit and Quality - CIAW Option 1 and Option 2 URD Final Audits Guideline JEQA4UJ443MT-160-93
- Close Out Work Procedure JEQA4UJ443MT-68996575-81

This Guideline is supported by the following documents:

- Recognised Contractor List
- Powercor Technical Standards
- The Powercor Approved Permitted Materials List
- The Road Management Act 2004
- The Public Lighting Code Victoria December 2015, Version 2
- AS/NZS 1158 Lighting for roads and public spaces
- AS/NZS 1158 Road Lighting - Vehicular Traffic
- AS1798 Lighting poles and brackets arms
- AS2979 Traffic signal mast arms
- Air Navigation Regulations (plus amendments to date)
- Individual Council Documentation for public light column positions

This Guideline is supported by the following Websites

- VESI
 - CitiPower / Powercor
-

**Allowable
Construction
Tolerances
Compliance
Parameters**

Scope

The Allowable Construction Tolerances for assets shown in this document shall be applied to projects within the following compliance parameters. Any construction deviation that exceeds these parameters or is not detailed in this document must have written variation approval from the Responsible Powercor Officer via the normal variation process.

Tolerance Compliance Parameters

- All deviations shall be accurately recorded and correctly shown on the approved detail (PCA41) plans
- All codes and standards of other authorities must be complied with
- The construction deviation shall not breach any Powercor Technical Standard
- All codes of practice must be complied with
- All minimum clearance requirements must be met to any above or below ground asset
- Conduit ends must not be located under any type of hard surface either temporary or permanent in nature
- No electrical joint, IE or SE shall be located under any type of hard surface either temporary or permanent in nature
- The movement of any electrical joint, IE, SE or conduit end shall not breach any tree clearance zone
- The integrity of the electrical circuit must not be affected in any way
- All Powercor tie-in requirements must be met
- Under no circumstances can a Powercor asset be located outside the stage boundary
- In all situations a minimum clearance of 0.3m shall be maintained between the closest electrical cable, joint, conduit or public light column to a property building line
- All materials used shall be compliant with the Powercor approved material list including (but not limited to) public light column types / lantern types and the specified public light column / lantern manufacturers
- Public lighting design must not be altered or compromised in any way by column movement or lantern wattage changes. The column, lantern or bracket type shall not change.
- Relevant legislation such as the Public Lighting Code, the Road Management Act and all applicable Australian Standards must be complied with
- All public light column chainage or offset movements must be approved by or be within the tolerance of the requirements of the authority responsible for the column. Example Council or Vic Roads

Allowable Construction Tolerances

1A. Cable Offset and Route Deviations	Under this guideline cables and conduits shall be laid at the nominated offset specified in the approved design plus or minus 0.3m.
1B. Service and PL Cable / Conduit Route Deviations	Service cable and service cable conduits configurations in the in the main cable trench are typically drawn for clarity. Service cables and service cable conduit positions may be transposed in the main cable trench for construction practicality. In all situations the technical standards separation and design requirements must be met and when applicable crossing points must be detailed.
2A. Service Tee Joint Locations	Service tee joints shall be located as per the approved design chainage plus or minus 1.5m.
2B. LV Mains Tee Joint Locations	LV mains tee joints shall be located as per the approved design chainage plus or minus 1.5m.
3A. 32mm Conduit Route	The 32mm conduit shall be installed as per the approved design chainage plus or minus 1m. Where the conduit route deviates directly between the supply pit and the column the allowable deviation shall not exceed 2m as long as the conduit is installed using right angle methods and the route is clearly detailed.
3B. 63mm Conduit Route	The 63mm conduit shall be installed as per the approved design chainage plus or minus 0.5m.
3C. LV Mains Cable Conduit and HV Conduit Route	These conduits shall be installed as per the approved design chainage plus or minus 0.3m.
4. 32 and 63mm Road Crossing Transpositions	Design positions may be reversed.
5A. 32mm Conduit EOC Location	The conduit EOC position shall be installed as per the approved design chainage plus or minus 1m.
5B. 63mm Conduit EOC Location	The conduit EOC position shall be installed as per the approved design chainage plus or minus 1m.
5C. 100mm Conduit EOC Location	The conduit EOC position shall be installed as per the approved design chainage plus or minus 1m.
5D. 150mm Conduit EOC Location	The conduit EOC position shall be installed as per the approved design chainage plus or minus 1m.
6. 32mm Conduit Installation Depth	The maximum installation (bottom of conduit) depth shall not exceed 2.5m and the EOC depth shall not exceed 1.5m.
7. Public Light Column Chainage	The columns shall be positioned as shown on the approved design plan plus or minus 0.5m.

8. Public Light Column Offset

The column shall be positioned as per the approved design location plus 0.4m minus 0.1m.

9. Public Light Column Manufacturer /Lantern Manufacturer

The Column / Bracket / Lantern manufacturer may be changed from the approved plan provided the lighting design is not affected.

10. LV Pillar

The Pillar shall be located as per the approved design plus or minus 1m.

11. Asset Depths at Intersecting Locations

Electrical undercrossing of other authorities' assets may be installed at depths shallower than the design depth where it is possible to install the electrical asset above the other authority's asset. This tolerance does not apply to cross sections in easements, road crossings or to meet special depth requirements.

All minimum standard depths, separations and specified mechanical protection requirements must be met.

12. LV Insulated End Position

The LV insulated end chainage position may differ from the approved plan by up to 1.0m provided that it is no closer than 1.0m to any PLC, pillar, driveway or crossover. The minimum cable overlap requirements must always be met.

13. Service Pit as Dedicated Supply to a Single Lot

For service pits designed to supply a single lot the building line chainage position of the pit may differ from the approved plan by up to 1.0m provided that the pit is no closer than 1.5m to any driveway or lot boundary. The pit offset from the building line shall not exceed 0.3m.

14. Mechanical Protection of Service Cables and Public Light Cables

Service and public lighting cables should be laid and installed under cover slabs or in conduits as shown on the approved construction plan. When the specified mechanical protection is cover slabbing, this may be substituted for HDPVC conduit.
