Work Category Specification WCS72.1

Third Party Underground Communications Cable Installations

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1. SCOPE

This Work Category Specification 72.1 (*WCS* 72.1) outlines the *Service* requirements for the installation and maintenance of third party owned *Underground Cable Installations* on or within *Ergon Energy* and *Energex Underground Facilities* and substations.

1.1 General

This Work Category Specification must be read in conjunction with the principal Work Category Specification 72.

1.2 Application

(a) The application of *Services* includes, but is not limited to the following functions:

(i) Third Party Communications Cables Installations on or within *Ergon Energy* and *Energex* Underground Facilities such as (but not limited to), Conduits, Pipes, Pits and Substation.

2. AMENDMENT RECORD

Versions 1-3 were previously available through an Energex legacy repository, which ECM has replaced. This updated version will be released as version 1.

Version	Date	Author
1	19 April 2022	Shea Barnes
Amendment Overview		
Updated to reflect dual branding across both networks, formatting network terminology		

3. AIMS / OBJECTIVES

The aim of this Work Category Specification is to ensure:

(i) Services are provided in a safe manner on or near to the *Ergon Energy* and *Energex* distribution network asset infrastructure.

(ii) Reliability of electricity supply and security of the network is maintained

(iii) Minimal impact to *Ergon Energy* and *Energex* operations and underground assets by the installation and maintenance of third-party Communications Cables Installations on or within *Ergon Energy* and *Energex* Network Assets.

4. COMPETENCIES, TRAINING AND QUALIFICATIONS

Competencies, training, and qualifications requirements for undertaking Services for this WCS must be in accordance with Work Category Specification 72, section 4.

5. VEHICLES AND PLANT

Vehicle and plant requirements for undertaking *Services* for this WCS must be in accordance with Work Category Specification 72, section 5.

6. MATERIALS, TOOLS AND EQUIPMENT

Materials, tools, and equipment requirements for undertaking Services for this WCS must be in accordance with Work Category Specification 72, section 6.

7. SAFETY

Safety requirements and identified hazards for undertaking Services for this WCS must be in accordance with Work Category Specification 72, section 7.

8. ENVIRONMENT

Environmental requirements and potential environmental risks for undertaking Services for this WCS must be in accordance with Work Category Specification 72, section 8.

9. EXTENT OF WORK

9.1 General

Services must be provided in accordance with (but not limited to):

(i) Work Category Specification 72 - Third Party Communications Cables

(ii) Work Category Specification 72.1 - Third Party Underground Communications Cable.

(iii) Energex WP9841 – Security Systems in Substations; and

(iv) Ergon Energy SP0502 – Safe Entry to High Voltage Enclosures,

(v) Ergon Energy P53R03 & Energex 00376 QLD Electricity Entity Standard for Safe Access to High Voltage Electrical Apparatus

(vi) EQL Fire Protection Systems at EQL Sites.

(vii) Ergon Energy - STNW3369 Standard for Distribution Line Design Underground

(viii) Energex – Manual 00305 Underground Distribution Construction Manual

(ix) Ergon Energy – Underground Construction Manual

9.2 Removing and Re-installing Pit Access Covers

(a) The appropriate *Pit* access cover lifting devices and processes must be used for *Pit* entry, based upon the type of *Pit* (such as double access cover *Formed Concrete Pits* or small single cover polymeric *Pits* (typically a Type 4) communication *Pits*)) to be accessed and how the access cover is supported during the *Pit* access cover(s) removal and installation process. *Operators* must consider the available access cover sliding and/or pulling directions including the available footpath space (such as proximity to adjacent buildings and kerb lines) to safely place access covers after removal and the shape of the *Pit* access cover lifting holes (such as the old City Electric Light company shape or the more modern *Ergon Energy* and *Energex* keyhole pattern) for inserting lifting devices.

(b) Two-person lifting, and re-installation of each Formed Concrete Pit access cover must occur, with each person lifting via adjacent (where present) Formed Concrete Pit access cover holes, must be employed for maximum Pit access cover control.

(c) Pit access cover surrounds or rebates must be cleared of debris before re-installing the Pit access cover to ensure that the Pit access cover sits flush in relation to its surrounding surface (such as footpath level).

(d) Damaged Pits discovered by the Service Provider must be reported to the relevant network either *Ergon Energy* or *Energex*.

9.3 Access to Pits

(b) Prior to any entry to a Formed Concrete Pit, inspect the chamber from above ground to identify hazards that may prevent safe entry to a Formed Concrete Pit.

(c) Operators entering Formed Concrete Pits must avoid touching electrical Underground Cables and associated components with any non-insulated body areas (such as their shoulders or torso) whilst entering and undertaking any work inside the Formed Concrete Pit chamber.

(d) Prior to undertaking any work in the chamber of a Formed Concrete Pit, visually inspect electrical Underground Cables for signs of deterioration of sheath or any damage to electrical Underground Cables. All suspect electrical Underground Cables, and all exposed metallic electrical Underground Cable sheaths and joint enclosures must be covered with approved insulating mats before undertaking any work.

(e) Operators entering or exiting Formed Concrete Pits must not step or climb on electrical Underground Cables and associated components under any circumstance; only use the step rungs.

(f) *Service Provider* must ensure that Class 0 (HV) insulating gloves are worn if there is a risk of contact with any part of an exposed HV electrical Underground Cable or associated components by hand.

(g) *Ergon Energy* or *Energex* must be contacted and advised of all instances where an existing Cable Installation or other infrastructure owned by any other Third Party prevents Pit access and/or underground Communications Cables works being undertaken by the Service Provider and where instances of poor workmanship by any party are discovered. Such instances would include rolls of unterminated underground Communications Cables and debris left within Pits and underground Communications Cables strung across Pit openings preventing unrestricted personnel access.

9.4 Selection of Conduits for Underground Communications Cable Installation

(a) *Ergon Energy* and *Energex* requires clear Conduit runs to install its electricity distribution associated cabling.

(b) Unused Conduits must not be used:

(i) unless the process in (9.4 (d)) below has been exhausted; and

(ii) where specifically requested use in writing by the Service Provider to *Ergon Energy* or *Energex* occurred; and

(iii) authorised use by *Ergon Energy* or *Energex* in writing prior to any underground Communications Cables Installation occurred.

(c) The *Service Provider* will not contact *Ergon Energy* or *Energex* to request *Ergon Energy* or E*nergex* assistance or for *Ergon Energy* or *Energex* personnel to attend Worksites to determine the Conduits to be used by the *Service Provider* for underground Communications Cables Installation, until the following Conduit selection process is undertaken by the *Service Provider*.

(d) Conduit selection process in priority order (to be applied at every individual Conduit run between each Pit).

(i) Target Conduits which contain existing Underground Cable (s) systems, such as street lighting, pilot, supervisory control Cables, and / or other third-party Cable Installations, in the following order (where they exist).

1. Top roadside Conduits.

2. Any top row Conduits.
3. Any middle row Conduits.
4. Any bottom row Conduits.

(ii) If all the above listed Conduits are:

- full of existing Cables; or
- do not exist; and / or
- the use of an empty Conduit is the only apparent option,

then, *Ergon Energy* or *Energex* must be contacted to determine what course of action is to be followed, including IF and what empty Conduit may be used for each proposed underground Communications Cables installation along each Pit-to-Pit Conduit route.

(iii) Additional underground Communications Cables installations must not be installed within Conduits that are found to already contain any third-party Underground Cable Installations, including those of the *Service Provider's* third-party client, that have not met the above Conduit selection criteria for use. (E.g.: Such as the bottom previously unused Conduits used for underground Communications Cables Installation when top side Conduits are still available)

(iv) Where possible, every opportunity is to be taken to rectify any incorrect previous use of Conduits by the third party; including the removal and re-installation of the Service Provider's third party's underground Communications Cables to the correctly selected Conduits.

9.5 Proving of Selected Conduits

(a) Once the relevant *Conduit* runs between each *Pit* are determined using the above process, the selected *Conduit* must then be proven to be free from blockages and obstructions prior to underground *Communications Cables* installation, by the careful use of flexible non–conductive *Conduit* canes or *Ergon Energy* and *Energex* - approved equivalent being passed through the *Conduit* runs.

(b) Where a selected Conduit run is found to be blocked or damaged and prevents the installation of underground Communications Cables, the Service Provider must:

(i) attempt to carefully unblock (excluding by mechanical excavation unless otherwise agreed by *Ergon Energy* or *Energex* in writing) those *Conduit(s)* by utilising an *Ergon Energy* or *Energex* approved method, without damaging or unnecessary interference to any *Ergon Energy* or *Energex* and third party's *Communications Cables* installed within the selected or adjacent *Conduits;* and

(ii) report any damaged *Conduit(s)* to *Ergon Energy* or *Energex*.

(c) Where the Conduit blockage cannot be rectified by the *Service Provider*, or may require mechanical excavation to rectify the blockage, the *Service Provider* must report the issue to *Ergon Energy* or *Energex* for *Ergon Energy* or *Energex* investigation and for *Ergon Energy* or Energex determination of:

(i) an agreed alternative solution to rectify or bypass the blockage; or

(ii) the use of an alternative Conduit / Conduit route.

(d) Where other Conduits in a Conduit bank which are not required to be used by the *Service Provider*, are also found by the *Service Provider* to be damaged, the *Service Provider* shall contact *Ergon Energy* or *Energex* so that coordinated repairs by *Ergon Energy* or *Energex* may be carried out on the remaining blocked or damaged Conduits and not just on the Conduit(s) chosen by the *Service Provider* to install the underground

communications Cables.

(e) Any civil / excavation works required to be undertaken to rectify any such Conduit blockages must only be undertaken by *Ergon Energy* or *Energex* or an *Ergon Energy* or *Energex* Accredited Service Provider.

9.6 Underground Communications Cable Installations within Conduits

(a) Typically, non–conductive underground Communications Cables draw rope must be attached to Conduit canes or the existing third party owned underground Communications Cables to be replaced, and carefully pulled through the Conduit route.
(b) Underground Communications Cables may then be attached to the draw rope or existing underground Communications Cables and pulled back through the Conduit route.
(c) Whatever method is used to haul the underground Communications Cables, it is important that the maximum pulling tension allowable for that particular type and size of Underground Cable is not exceeded to ensure the underground Communications Cables does not fail within the Conduit run.
(d) No underground Communications Cables joint, splice, or sub-ducting Conduit is permitted within any Conduit.

9.7 Underground Communications Cable Installations within Pits

(a) All underground *Communications Cables* must be installed within *Pits* in a neat manner and a high standard of workmanship, so *Pit* access and the working environment within *Pits* is not impeded or interfered with.
(b) Underground *Communications Cables* must not be strung across the underside of the *Pit* cover (lid) of the polymeric *Pit* enclosure or under side of the *Formed Concrete Pit* access cover(s), in a position which obstructs access to or work within the polymeric *Pit* enclosure or through the opening of *Formed Concrete Pit,* after access covers are removed.
(c) Where underground *Communications Cables* are installed through and/or within any *Formed Concrete Pit*, the underground *Communications Cables* must:
    (i) be affixed to the sidewall of the *Formed Concrete Pit* at a nominal 200mm below the underside of the *Formed Concrete Pit* roof
    (ii) away from the Pit access area (roof opening) and Pit step rungs, using non-corrosive saddles, or other fixing methods approved in writing by *Ergon Energy* or *Energex* prior to installation,
    (iii) at a suitable spacing to ensure that the underground Communications Cables remains horizontal to the Formed Concrete Pit floor.
(d) No spare, excess or unused underground *Communications Cables* coils or lengths will be permitted within any *Pit*, either on a temporary or permanent basis, regardless of whether the underground *Communications Cables* is a continuous length passing through the *Pit* or the underground *Communications Cables* is disconnected at one or both ends.
(e) No underground *Communications Cables* joints or sub-ducting *Conduits* are permitted within any *Pit*. All underground *Communications Cables* joints and splices must be installed within a separate adjacent non – *Ergon Energy* or *Energex* pit.

9.8 Additional Pit or Conduit Installation

(a) Written prior permission must be obtained from *Ergon Energy* or *Energex* before the installation of any non- *Ergon Energy* or *Energex* break out conduit into any Pit or from any Conduit.
(b) No existing Conduits shall be penetrated; for the cut-in and installation of a Third Party's Pit/s without prior written *Ergon Energy* or *Energex* agreement. *Ergon Energy* or *Energex* may also require Worksite attendance of an Ergon Energy or Energex representative at

the Service Provider's cost to undertake assessment of any proposed changes to Conduits for installation of a Third Party's pit/s.

(c) In-situ Conduits must be safely accessed utilising methodologies of establishing an inspection window to determine the Conduit's internal contents **(which may include energised electrical Underground Cables)** in the first instance, before any additional civil or construction work commences, including but not limited to the removal of any section of the in-situ Conduit(s).

(d) All cutting devices used to cut an aperture in the wall of a Conduit must be fitted with a depth control device to regulate the depth of any cut or penetration; in order to prevent the cutting tool or blade from penetrating into the bore (internal space within the Conduit) of the Conduit. (Only cut aperture (window) edges to a sufficient depth to allow final removal of the Conduit aperture (window) by lightly tapping out.)

(e) Any civil construction / modifications to Formed Concrete Pits including core boring of Pit walls, Conduit cut ins and break outs must only be undertaken by Service Providers accredited and authorised by *Ergon Energy* or *Energex* to undertake these works.

(f) *Ergon Energy* or *Energex* may require Worksite attendance of an *Ergon Energy* or *Energex* representative at the Service Provider's cost to undertake assessment of any proposed changes to Conduits or Pits.

9.9 Underground Communications Cable Installations to, though, and within Substations

(a) Prior written permission from *Ergon Energy* or *Energex* is required before underground Communications Cables or any associated equipment or enclosures may be installed to, within, or through any substation, including via any cabling Conduits, tray-ways, or ladders.

(b) Where such substation access is agreed by *Ergon Energy* or *Energex*, only non-conductive underground Communications Cables (such as Fibre Optic Cables) may be installed to, within, or through substations.

(c) Underground Communications Cables installed from a Pit into a substation must be installed within the specific, in-situ building entry Conduit (and Cable tray where present) which has been agreed in writing by *Ergon Energy* or *Energex* and which contains existing Fibre Optic and *Ergon Energy* or *Energex* supervisory / control Cables or *Ergon Energy* or *Energex* electricity distribution Cable(s) when Fibre Optic and supervisory Cables do not exist).

(d) Subducting is not permitted to be used within any substation, substation entry Conduits, or on Cable trays.

(e) *Ergon Energy* or *Energex*, at its discretion, on a case-by-case basis, may permit non–conductive underground Communications Cables joints and termination panels within nominated substations.

(f) Underground Communications Cables must be installed in accordance with *Ergon Energy* or *Energex* requirements, and either:

  (i) run directly through the substation to the desired third party's underground Communications Cables termination points, or

  (ii) terminated (if permitted by *Ergon Energy* or *Energex*) within each substation in an appropriate lockable underground / Fibre Optic Cable termination panel or splice enclosure, installed on the substation wall in a position agreed by *Ergon Energy* or *Energex*.

(g) In-building Cables may then be run from the termination panel or splice enclosure within the substation to the third party's communications room.

9.10 Substation Access

9.10.1 Restricted Access

(a) An authorised Exclusion Zone Officer for bulk substations competent with the requirements of WCS 110 – Transmission Substation Exclusion Zone Officer and /or Safety Observer must be engaged by Service Provider / Operators who are not authorised to enter a secure substation. The Exclusion Zone Officer or Safety Observer must remain on Site while any access to or work within a substation is occurring.

9.10.2 Access Notification

(a) *Ergon Energy* Operations Centre (telephone number 13 74 66) or *Energex*'s Network Operations Centre (telephone number 1300 748 343) must be contacted immediately prior to any access (entering) by any Operator to any *Ergon Energy* or *Energex* facilities including substations and ground mounted substation plant such as pad-mount transformers and again immediately prior to leaving and securing such *Ergon Energy* or *Energex* Network Assets.

(b) Where provided, the 'Substation Entry Logbook' must be used to record the Operators' attendance, and purpose of attendance, at the substation.

9.10.3 System Key Records

The *Service Provider* must maintain records detailing:

(a) the date of issue and return of each System Key / proximity card, to the relevant *Ergon Energy* or *Energex* Officer (System Key issuing); and

(b) the identity of each authorised Operator who is provided with any *Ergon Energy* or *Energex* System Key / proximity card, together with the date of issue and recovery from each authorised System Key / proximity card recipient (Operator).

9.10.4 System Key Responsibilities - Operator

The *Operator* must ensure *System Key* / proximity card:

(a) used for substation access and exit must always remain with the authorised registered card or key recipient when working on Site.

(b) is not lent / given to any other person who is not authorised and registered with *Ergon Energy* or *Energex*; and

(c) issued from *Ergon Energy* or *Energex* to the authorised card or key recipient (Operator) must not be duplicated in any manner.

9.11 Substation Security

(a) When working on and around energised electrical substation equipment it is important to consider the security of the Site. Make sure all access points are closed and securely locked (pull test each door or lock) after entering and prior to leaving the electricity substation Site or enclosure.

(b) System Keys must NOT be left in lock mechanisms. System Keys must be removed immediately after operation of the substation lock mechanism.

(c) Where a substation Site or enclosure is found to be unsafe to leave unattended, the Operator must, if practical, apply (minor) repairs to Site security doors (excluding lock mechanisms unless an *Ergon Energy* or *Energex* employee) or gates to render the Site safe. Where repairs are impractical to render the Site or enclosure safe, the Operator must immediately contact the *Ergon Energy* or *Energex* Officer and stay on Site at a safe distance and prohibit unauthorised persons from entering the substation enclosure until relieved.

(d) Faulty *Ergon Energy* or *Energex* locks may only be repaired by either an *Ergon Energy* or *Energex* employee or a licensed locksmith. (Security Providers Regulations 2008)

(e) An *Ergon Energy* or *Energex* Officer may, at *Ergon Energy* or *Energex*'s discretion, be appointed to oversee some or all the Service Provider's work(s) within the substation.

9.12 Underground Cable Labelling

(a) Underground Communications Cables labelling must be provided in accordance with the requirements of Work Category Specification 72 and within each Pit and substation, each underground Communications Cables must be clearly and indelibly labelled with the third party's identification, using a non-metallic tag.

10. RECORDS MANAGEMENT

Records management requirements for undertaking *Services* for this WCS must be in accordance with Work Category Specification 72, section 10.

11. WORK VERIFICATION

For work verification, refer to the principle Work Category Specification 72, section 11.

12. DEFINITIONS

For definitions of words, acronyms and abbreviations used throughout this WCS 72.1, refer to the principle Work Category Specification 72, section 12.

13. REFERENCES

13.1 Available Documents

The following documents / forms must always be available to infield *Operators* for verifying *Service* requirements:

- *Service Providers* own safe system of work
- All relevant associated Work Practices for tasks to be undertaken
- All necessary certificates, licences, consents, permits, approvals, and requirements for the *Services* being performed
- Current plans detailing existing underground services infrastructure in the immediate area and surrounding the *Worksite*
- *Ergon Energy* or *Energex* 'As Constructed' Drawing Standard
- Equipment manufacturers operation and maintenance manual,
- MSDS and label for all chemicals used at *Worksite* such as hydraulic oil or soaps
- Risk Assessment / Incident / Customer Complaint Recording Forms
- Work Practice WP9841 – Security Systems in Substations; and
- Work Practice WP9509 – Isolating Fire Suppression Systems in Substations.

13.2 Recommended Documents

For recommended documents, refer to the principle Work Category Specification 72, section 13.

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