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1. SCOPE

This Work Category Specification (WCS) documents the *Service* requirements for mechanical civil works associated with construction and maintenance of the underground electricity distribution infrastructure by hired excavation plant (and attachments) complete with *Operator*-Driver(s).

1.1 GENERAL

(a) As part of and in conjunction with this WCS, read WCS133 for the general standards and conditions that are relevant to, and are incorporated into this category of work.

(b) For the avoidance of doubt, a breach of a general standard or condition contained in WCS133 is a breach of WCS36.

1.2 APPLICATION

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

(i) The excavation and reinstatement of trenches and other open cut excavations.

(ii) Surface reinstatement.

(iii) Associated materials-handling activities, for example loading of *Spoil* into trucks and the removal of *Spoil* from *Site*.

(b) The *Services* will be required to be provided on public roads, footpaths, private property and other nominated areas.

(c) *Operators* may from time to time be requested to assist Energex civil *Work Group* at *Worksite* with other civil construction tasks.

2. AMENDMENT RECORD

Version	Change
6	▪ Removal of general standard and conditions clauses now published in WCS133. ▪ Removal of Appendix A – Work Process Assessment ▪ Removal of Appendix B – Sampling Plan ▪ Removal of Appendix C - Final Product Assessment. ▪ Reference to WCS133 added.

3. AIMS / OBJECTIVES

The aim of this WCS is to ensure:

(a) The overall aims and objectives detailed in WCS133, Section 3 - Aims and Objectives, are met by the application of procedures herein.

(b) The additional category of work specific aims and objectives below are met:

(i) Mechanical excavation plant with *Operator* is available to provide civil support for Energex *Work Groups* undertaking core business activities.

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4. COMPETENCIES, TRAINING AND QUALIFICATIONS

(a) *Service Providers* / *Operators* / subcontractors performing *Services* are suitable licensed and trained in accordance with WCS133, Section 4 - Competencies, Training and Qualifications.

(b) For competencies, training and qualification requirements specific to this category of work refer to the below included references and clauses.

4.1 ENERGEX COMPETENCIES

Table 1 specifies the Energex Competencies / *Authorisations* (or combincation thereof) that are Energex requirements to be held by *Operators*.

Table 1 – Operator Competencies

CAMS Code	Competency Description	Operator Requirements
Operators hold the following competencies.		
A OILS	Oil Spill Management (Note 1)	R
A SOIL	Sediment Control Awareness (Note 1)	R
A VIRO	Gen. Environment Awareness (Note 1)	R
A WEED	Declared Plants Management Awareness (Note 1)	R
U GCI	Generic Contractor Induction	R
U OHAW	Overhead Safety Awareness	R
U UGAW	Underground Awareness	R
	Authorised Person (as defined in Electricity Safety Regulation 2013)	R
	Excavation Plant (Excavator, Front End Loader, Backhoe) (Note 2)	R
	Read and Interpret Plans and Specifications (Note 3).	R
Operators hold the following competencies when the relevant work activity is being undertaken.		
U EO	Electricity Officer	R
U SSAW	Substation Safety Awareness	R

Legend:

R Required.

AR As required.

MO A minimum of one person on *Worksite* holds this competency.

Note 1: *Service Providers* with their own environmental training system equivalent as a minimum to the Energex environmental training system; may train and assess their own *Operators* as competent.

Note 2: *Operators* are to be trained and assessed as competent by a Registered Training Organisation (RTO) with appropriate scope for the plant being operated, and hold a current 'Statement of Attainment' or 'Nationally Recognised Qualification'. Provide *Energex Officer* with a copy of current 'Statement of Attainment' or 'Nationally Recognised Qualification' for all *Operators* of excavation plant.

Note3: *Operators* are to be trained and assessed as competent by a Registered Training Organisation (RTO) with appropriate scope for civil construction training, and hold a current 'Statement of Attainment' or 'Nationally Recognised Qualification'. Provide *Energex Officer* with a copy of current 'Statement of Attainment' or 'Nationally Recognised Qualification' for all *Operators* of this competency.

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5. VEHICLES AND PLANT

For vehicles and plant requirements, refer to WCS133, Section 5 – Vehicles and Plant.

6. MATERIALS, TOOLS AND EQUIPMENT

(a) For materials, tools, equipment requirements, refer to WCS133, Section 6 – Materials Tools and Equipment.

(b) For materials, tools, equipment requirements specific to this category of work refer to the below included references and clauses.

6.1 NOMINATED TOOLS AND EQUIPMENT

Table 2 specifies the nominated materials, tools and equipment required when providing *Services* for this category of work.

6.2 CONSUMABLES

(a) The *Operator* is to have all consumable materials appropriate for the *Services* being provided.

(b) The *Service Provider* is to provide all consumables, including but not limited to motor fuels, lubricants, hacksaw blades, solvents, abrasives and paint.

6.3 WINCHING AND LIFTING

Winching and lifting equipment compliant with the *Laws*, relevant Australian Standards and associated test / certification certificates are to be available

Table 2 – Materials, Tools and Equipment

Description	Supplier
Plant and equipment to be sourced and made available on Energex projects group works as and when required.	
Excavator capacity range of 1.5 t, 3.5 t, 5.5 t and 14 t.	*Service Provider*
Excavator buckets of widths ranging from 200 mm – 1000 mm	*Service Provider*
Excavator batter buckets of widths ranging from 600 mm – 1600 mm	*Service Provider*
Plate compactor attachment for excavators.	*Service Provider*
Flowable fill breaker attachment for excavators.	*Service Provider*
Rock breaker attachments to suit excavators.	*Service Provider*
Cable cater-puller operating from excavator hydraulic system and controls.	*Service Provider*
10 t tipper to transport and dispose of excess *Spoil.*	*Service Provider*
1550 mm wide bobcat with forks and road sweeper attachments.	*Service Provider*

7. SAFETY

(a) For safety requirements, refer to WCS133, Section 7 – Safety.

(b) For safety requirements specific to this category of work refer to the below included references and clauses.

(c) Implement control measures to eliminate and / or reduce the following (but not limited to) risk exposures:

(i) Surfaces near edges of excavations with insufficient compaction of backfilling could be unsuitable for operation of heavy plant (e.g. backhoes).

8. ENVIRONMENT

(a) For environmental requirements, refer to WCS133, Section 8 - Environment.

(b) For environmental requirements specific to this category of work refer to the below included references and clauses.

8.1 ENVIRONMENTAL PRECAUTIONS

Take all precautions necessary to minimise or eliminate the effects of noise, exhaust gases, hydraulic fluids, lubricants, fuel, dust and other environmental pollutants emitted by plant and equipment during civil construction operations.

9. EXTENT OF WORK

9.1 GENERAL

(a) For the general extent of work requirements, refer to WCS133, Section 9 – Extent of Work.

(b) For extent of work requirements specific to this category of work refer to the below included references and clauses.

(c) Provide *Services* in accordance with (but not limited to):

- (i) Work Category Specification WCS36 – Excavation Plant.
- (ii) Work Category Specification WCS133 – General Standards and Conditions.
- (iii) Energex Manual 00305 – Underground Distribution Construction Manual.
- (iv) Form 2121 - safedig For Improved Power Supply We Upgrade Underground Installations.
- (v) Energex approved *Work Plan,* construction drawings and associated drawings and instructions. (*Worksite* specific and current amendment may be provided as part of the *Work Order*).
- (vi) Current plans detailing existing underground essential services infrastructure in the immediate area and surrounding the *Worksite*.
- (vii) *Service Provider*'s safe system of work.

9.2 SERVICE PROVIDER RESPONSIBILITIES

(a) Vehicles being used to enter a *Worksite*, or to travel from one *Worksite* to another, are to have the approved Energex signs attached to the vehicle in a prominent position.

(b) Vehicles engaged in the fieldwork; prominently display the *Service Provider*'s company identification logo while providing *Services*.

9.3 OPERATOR RESPONSIBILITIES

(a) *Operators* are to be clothed in a neat and tidy manner.

9.4 ISSUE AND COMPLETION OF WORK

(a) The *Service Provider* will be required to carry out Energex initiated requested work requiring the utilisation of excavation plant. This work will be issued to the Service Provider in the form of a computer generated *Work Order*.

(b) The *Service Provider* will arrange to complete the necessary work by the "Task Planned Finish Date".

(c) Return the completed *Work Order* to Energex within 2 *Business Days* of the "Planned Task Finish Date" on the *Work Order.*

9.5 CUSTOMER NOTIFICATION

(a) *Operator* identity cards are to be available at the *Worksite*.

(b) Where work requires access to private property, visit the owner / occupier, discuss proposed works and obtain agreement and approval to enter property to carry out work by:

(i) Request permission to excavate on or near private property as required. Obtain agreement for work on private property.

(ii) Where approval or agreement is unable to be obtained, advise the *Energex Officer*.

(iii) Resolving all objections received prior to work proceeding.

(c) Inform local residents of proposed *Services* in their neighbourhood at least 5 *Business Days* before scheduled work commences and not more than 20 *Business Days* before work commences ("letter drop" using Energex Form 2121) and the wider community advised by notification in the local press.

(d) When approached by members of public, briefly explain the nature of work being undertaken.

9.6 EXCAVATION AND WORKING AROUND ENERGEX ASSETS

(a) Treat all electrical cables as energised (live), unless proved de-energised (dead).

(b) Use no machinery around energised underground electrical cables unless first exposed and suitable barriers are installed to protect the cables. If ground conditions prohibit effective hand excavation to expose cables, then the cables being excavated near using machinery are to be de-energised.

(c) During excavation when a direct layed cable has been exposed / identified, immediately mark that cable with orange paint to improve visibility of that cable.

9.7 PHOTOGRAPH OF WORK SITE

The use of photographic records of *Site* conditions prior to excavation is recommended. In this way the *Work Group* may defend themselves against unfounded accusations of causing damage.

9.8 CIVIL WORKS

9.8.1 Locating Existing Underground Services

(a) Prior to commencement of any excavation works, for example ground penetration and / or mechanical excavation, the *Service Provider* is to ensure all underground services have been carefully located and positively identified at the *Worksite*. Dial Before You Dig (DBYD) can be utilised for obtaining below ground essential service locations.

(b) In Bulk, Zone and Commercial and Industrial (C & I) substation, there will normally be a higher concentration of underground electrical cables and other electrical infrastructure for example, earth grids in a confined area.

(c) In some instances careful excavation of trial holes is necessary to determine in advance the alignment and depth of existing underground cables, services and infrastructure to facilitate the installation of protective materials prior to excavating with machinery.

9.8.2 Excavation

Undertake all excavation for the provision of *Services* in accordance with requirements set out below:

(a) Break bitumen, asphalt, concrete, paved or tiled surfaces (cut cleanly / neatly so edges not jagged) of footpaths and roadways in accordance with *Authority*'s requirements.

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(b) Take into account the proposed changes to existing finished surface levels when deciding depth of excavations to ensure correct depth of cover and finished surface level over underground component of infrastructure is maintained after completion of surface reinstatement.

(c) Dispose of surplus *Spoil* on the same day as excavation occurs. Where disposal of *Spoil* is required; the *Service Provider* complies with the directions from *Authorities* on the location and manner of transport to an approved disposal site.

(d) *Spoil* removed from *Site*; only disposed of at an approved facility or *Site* accepting the class of material being removed.

(e) Keep disturbance of existing Energex cables and joints to a minimum.

(f) Place suitable mechanical protection around Energex cables to prevent damage during excavation.

(g) Limit the use of excavation by mechanical plant, for example backhoe in open excavations when there is evidence of debris and rubble in the ground near existing underground Energex cables and underground essential services.

9.8.3 De-Watering

(a) In saturated ground, keep the water level below the construction level within the excavation.

(b) Maintain excavations clear of water while work is in progress through the use of a submersible sump pump or similar.

(c) Use pumps as the first choice to drain large volumes of water or mud from open excavation. When utilising the 'sump hole' technique and the bucket of the backhoe to drain out water, ensure the size of the 'sump hole' is significantly larger than the size of the bucket.

9.9 TRENCH AND EXCAVATION BACKFILL

(a) The *Service Provider* is to backfill all trenches and excavations in accordance with the *Authority* or owner specifications and the underlying soil structure is able to perform its original function.

(b) Carry out the backfilling of trenches and excavations as soon as practicable after infrastructure installation, location recording is complete but not before installed infrastructure to be covered has been accepted by *Energex Officer*.

(c) Screen the installed *Conduit*s, cables and *Pipe*s with approved bedding material, for example sand, loam or flowable fill, and protected with polymeric cable protection cover strip and / or marker tape as required prior to backfilling the remainder of the trench.

(d) Depending on the location, backfill the remainder of the trench with excavated native soil, flowable fill or substitute material as agreed by *Authority* or owner.

(e) Additionally it may be necessary to install drainage material that is plumbed into local *Authority* storm water drains.

(f) Ensure that no damage is caused to other existing underground essential services while using mechanical rammers in locations where existing underground essential services are adjacent to or within the areas to be backfilled.

(g) Compact backfill during reinstatement to ensure ground subsidence will be negligible and the compaction complies with requirements of *Authority* / Instrumentality or owner. Consolidate each layer as it is installed.

(h) Periodically, backfill in road crossing excavations will be nominated for soil testing to ensure the dry field density of backfill material is obtained.

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9.9.1 Undisturbed Survey Marks

Exercise care so that no survey pegs or Permanent Survey Marks (PSMs) are disrupted during the course of providing *Services*. Should survey pegs or PSMs be disrupted, the *Service Provider* is responsible for reinstatement. The reinstatement of survey pegs or PSMs is only to be performed by a Registered Surveyor.

9.10 REINSTATEMENT

Reinstatement is not to be left until after completion of all other *Services*. Reinstatement is to be completed progressively and promptly, immediately after initial backfilling of open cut excavations(s) subject to *Site* and weather conditions and other project works being constructed.

10. RECORDS

(a) For records requirements, refer to WCS133, Section 10 - Records.

(b) For additional record requirements specific to this category of work refer to the below included references and clauses

10.1 AS CONSTRUCTED DRAWINGS

For minor remedial works, provide alternative "As Constructed" applicable *Worksite* and *Service* data in a manner as directed by the *Energex Officer*.

11. WORK VERIFICATION

For work verification requirements, refer to WCS133, Section 11 – Work Verification.

12. GLOSSARY

(a) For standard definition of words, acronyms and abbreviations used in this WCS, refer to WCS133, Section 12 - Glossary.

(b) For addition definition of words, acronyms and abbreviations specific to this category of work, refer below.

Term	Definition
Spoil	All excess excavated soil (including tree roots) and material not required for reinstatement of *Site* and any surface finishes (e.g. concrete or bitumen) that are broken up and removed for excavation.

13. REFERENCES

(a) For reference requirements, refer to WCS133, Section 13 - References.

(b) For additional reference requirements specific to this category of work refer to Section 13 references and clauses below.

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13.1 AVAILABLE DOCUMENTS

Make available (at all times) to Infield *Operators*, the relevant documents / forms listed in Table 3 below for verifying *Service* requirements.

Table 3 – Available Documents

Document Reference	Detail / Description
Work Category Specification WCS36	Excavation Plant.
Work Category Specification WCS133	General Standards and Conditions.
Energex Manual 00305	Underground Distribution Construction Manual.
Energex Form 2121	Safedig for Improved Power Supply We Upgrade Underground Installations (or *Service Provider* equivalent).
	Work Orders detailing the *Services* to be performed.
	Energex approved *Work Plan*, construction drawings and associated drawings and instructions. (*Worksite* specific and current amendment may be provided as part of the *Work Order)*.
	Current plans detailing existing underground essential services infrastructure in the immediate area and surrounding the *Worksite*.
	Service Provider's safe system of work.

13.2 RECOMMENDED DOCUMENTS

Refer below for the additional recommended documents that are of relevance.

13.2.1 Energex Documents

Table 4 – Energex Document

Document Reference	Detail / Description
Work Category Specification WCS36A	Assessment – Excavation Plant.

13.2.2 Queensland Acts and Regulations

For Queensland Acts and Regulation requirements, refer to WCS133, Section 13.2.2 – Queensland Acts and Regulations.

13.2.3 Australian Standards and Other Documents

- Other relevant Australian Standards.

14. APPENDICES

There are no appendicies included with this WCS providing additional instruction.

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