



Australian Government

CPPSSI4040 Collect spatial data using a total station

Release: 1

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Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS4040 Collect spatial data using terrestrial technologies.

Application

This unit specifies the skills and knowledge required to collect spatial data using a total station. It includes identifying control marks, equipment set-up and operation as well as data validation, correction and adjustments using industry-accepted methods to achieve required accuracy range.

This unit is suitable for entry-level technicians who use a broad range of cognitive, technical and communication skills to select and apply a range of methods, tools, materials and information to complete routine and non-routine activities and provide and transmit solutions to a variety of predictable and sometimes unpredictable problems.

Surveying and spatial information skills are applied in a range of industry contexts, including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant state/territory regulations that govern surveying work, as well as work health and safety (WHS) legislation and regulations that apply to the workplace.

Cadastral surveying must be undertaken under the supervision of a registered surveyor. Users must check with the relevant regulatory state/territory authority before delivery.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Surveying and Spatial Information Services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

- 1 Prepare for spatial data collection.
 - 1.1 Review project specifications, information and control marks and plan surveying tasks in consultation with appropriate persons.
 - 1.2 Check site conditions to identify factors that could impact on operation of equipment.
 - 1.3 Identify optimum equipment positions to improve accuracy and precision of measurements.
 - 1.4 Comply with legislative and organisational requirements for workplace safety.
- 2 Operate total station.
 - 2.1 Set up and check equipment according to manufacturer specifications.
 - 2.2 Interpret equipment software menus and configurations and collect required spatial data and related attributes.
 - 2.3 Measure identified survey components and reduce data according to job specifications.
 - 2.4 Perform surveying calculations relating to height, distances, angles, bearings and coordinates
 - 2.5 Measure and calculate basic spatial data based on control marks with known coordinates heights.
 - 2.6 Validate and record legible measurements and computations according to job specifications and data collection plan.
- 3 Finalise spatial data collection.
 - 3.1 Check and validate accuracy of spatial data by applying industry-accepted standards and procedures.
 - 3.2 Take additional measurements where required and make adjustments to data to correct errors.
 - 3.3 Download data and complete project documentation according to organisational requirements.
 - 3.4 Store and file data in accordance with organisational and legislative requirements.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS4040 Collect spatial data using terrestrial technologies.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSSI4040 Collect spatial data using a total station

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Performance Evidence

To demonstrate competency a candidate must meet the elements and performance criteria of this unit by collecting spatial data using a total station for two different tasks selected from:

- a minimum of five 3-D traverse legs
- resections to a minimum of four control points
- spot level and detail surveys over a minimum of 500 m² area
- pick up building outlines using reflectorless radiations.

Knowledge Evidence

To be competent in this unit a candidate must demonstrate knowledge of:

- methods for setting up, levelling and adjusting equipment
- types, functions and accuracies of total stations used in surveying
- methods for calculating spatial data and verifying its accuracy
- mathematical concepts relating to algebra, trigonometry and geometry and their use in calculating basic spatial measurements
- methods for downloading data collected using terrestrial technologies
- formats and documentation used for recording spatial data collected using total stations.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- total station
- job specifications and plans

- organisational policies and procedures relating to:
 - work health and safety (WHS)
 - recording and storing spatial data.

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