



Australian Government

CPPSIS4040 Collect spatial data using terrestrial technologies

Release: 1

CPPSIS4040 Collect spatial data using terrestrial technologies

Modification History

Release 1.

Replaces superseded non-equivalent CPPSIS4029A Collect and set out basic surveying data.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to collect spatial data using terrestrial technologies, including total station. The unit covers planning work tasks to identify control marks, as well as equipment set-up and operation. The unit includes validating data to identify errors, and making corrections and adjustments using industry-accepted methods to achieve required accuracy range.

The unit supports those who work in support positions in a surveying and spatial information services team in areas such as surveying, town planning, cartography, mapping and geographic information systems (GIS).

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

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

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|---|---|
| 1. Prepare for spatial data collection. | 1.1. Project specifications, information and control marks are reviewed, and surveying tasks planned in consultation with <i>appropriate persons</i> . |
| | 1.2. Terrestrial technologies are selected according to project requirements. |
| | 1.3. Site conditions are checked to identify factors that could impact on operation of terrestrial technologies and |

accuracy of data.

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|--------------------------------------|---|
| 2. Operate terrestrial technologies. | 2.1. Equipment is set up according to manufacturer specifications. |
| | 2.2. Equipment is operated to collect data and attributes according to job specifications. |
| | 2.3. Identified survey components are measured and data is reduced according to job specifications. |
| | 2.4. Measurements are validated and recorded according to job specifications and data collection plan. |
| 3. Finalise spatial data collection. | 3.1. Data is checked and adjustments are made to identify and correct errors, and where required additional measurements are taken. |
| | 3.2. Data is downloaded and project documentation completed according to organisational requirements. |

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Numeracy skills to:	- perform surveying calculations relating to height, distances, angles and coordinates - set required datums.
Oral communication skills to:	ask questions to clarify task requirements.
Reading skills to:	interpret equipment software menus and configurations.
Writing skills to:	record legible measurements and computations by hand.

Technology skills to: • format data using equipment software.

Problem-solving skills to: • identify optimum equipment positions to improve accuracy of measurements.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

Appropriate persons must include at least one of the following: • experienced colleague
• qualified surveyor
• supervisor or line manager.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS4040 Collect spatial data using terrestrial technologies

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also collect spatial data using terrestrial technologies for two different projects in consultation with colleagues.

While collecting the above spatial data, the person must:

- plan work tasks by checking control marks and ensuring site conditions are appropriate for surveying tasks
- use a total station to collect the spatial data and related attributes
- measure and calculate basic spatial data based on control marks and set coordinates
- communicate clearly with others to clarify and report project information
- comply with organisational and legislative requirements for:
 - identifying hazards and working safely
 - recording, storing and filing data
- comply with manufacturer specifications when using above equipment
- use industry-accepted standards and procedures for checking accuracy of spatial data.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- accuracy ranges that can be achieved using terrestrial technologies
- formats and documentation used for recording spatial data collected using terrestrial technologies
- mathematical concepts relating to algebra, trigonometry and geometry and their use in calculating basic spatial measurements
- methods for calculating spatial data and verifying its accuracy using terrestrial technologies
- methods for downloading data collected using terrestrial technologies
- methods for setting up, levelling and calibrating equipment.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - total station
- specifications:
 - job specifications and plans
 - organisational policies and procedures relating to:
 - work health and safety
 - recording and storing spatial data
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by project requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

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