



Australian Government

CPPSIS5058 Conduct geodetic surveys

Release: 1

CPPSIS5058 Conduct geodetic surveys

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5058A Conduct geodetic surveying.

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

Application

This unit of competency specifies the outcomes required to conduct a geodetic survey based on specifications and client requirements. The unit covers project management tasks relating to scheduling, measuring, recording and monitoring work progress and planning for risks and contingencies. The unit also covers applying reference surfaces and projection planes to geodetic components, and performing geodetic calculations. The unit requires using specialist equipment to measure, record and reduce data, including global navigation satellite system (GNSS). The unit requires the ability to perform geodetic calculations, validate the accuracy of data, and identify discrepancies between specifications and actual activities. It also requires using a range of coordinate systems, such as Map Grid of Australia (MGA) and Geocentric Datum of Australia (GDA) to manage surveying data.

The unit supports those who work under limited supervision in a surveying team.

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.

- | | |
|---------------------------------|--|
| 1. Prepare for geodetic survey. | 1.1. Project specifications are analysed to determine geodetic survey and client requirements in consultation with <i>appropriate persons</i> . |
| | 1.2. Characteristics of operating environment and special equipment or resource requirements are identified |

- according to organisational requirements.
- 1.3. Equipment is selected and checked according to manufacturer specifications to ensure correct operation and functionality according to manufacturer specifications.
 - 1.4. Risk management strategies are devised and followed to ensure project complies with legal and statutory standards and organisational requirements.
2. Plan geodetic survey.
 - 2.1. Key activities and timelines are scheduled according to available resources, and project and organisational requirements.
 - 2.2. Design is interpreted to identify required surveying data according to project requirements.
 - 2.3. Relevant reference surface and projection plane are selected for geodetic components.
 - 2.4. Existing survey control data is obtained and validated according to project and organisational requirements.
3. Carry out geodetic surveying tasks.
 - 3.1. Project management mechanisms are implemented to schedule, measure, record, monitor and report work progress according to organisational requirements.
 - 3.2. Identified surveying components are measured according to project requirements and specifications.
 - 3.3. Measured surveying data is reduced according to project requirements and specifications.
 - 3.4. Measurements are validated and recorded according to project specifications and organisational requirements.
 - 3.5. Discrepancies between specifications and actual activities are identified and resolved, and contingencies managed according to organisational requirements.
4. Finalise geodetic survey.
 - 4.1. Survey is finalised and checked for compliance with project and organisational requirements.

- 4.2. Appropriate persons are notified of survey results according to organisational requirements.
- 4.3. Survey documentation is completed and data archived according to project and 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
Planning and organising skills to:	plan and prioritise work to meet survey timeframes and resource constraints.
Numeracy skills to:	- apply geodetic formulas for point to point calculations on MGA - conduct precise measurements and calculations relating to shape and size of the earth.
Oral communication skills to:	- ask questions to clarify client requirements - inform clients and other stakeholders of project progress.
Reading skills to:	analyse graphical and technical information in project specifications.
Writing skills to:	record technical information in organisational documentation.
Technology skills to:	- calibrate instruments using GNSS software - use coordinate systems, including MGA and GDA.
Problem-solving skills to:	- apply risk control and contingency strategies to anticipated and identified problems - select appropriate validation networks to verify accuracy of data.

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:
- client
 - colleague
 - end user
 - engineer
 - manager
 - registered or qualified surveyor.

Unit Mapping Information

CPPSIS5058A Conduct geodetic surveying

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 CPPSIS5058 Conduct geodetic surveys

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5058A Conduct geodetic surveying.

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

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 conduct a geodetic survey for two different projects.

While conducting the above geodetic surveys, the person must:

- analyse standards, specifications and information, including plans and drawings to determine survey requirements
- prepare for the survey by analysing specifications and operating environment to ensure adequate equipment and resources
- carry out a precise global navigation satellite system (GNSS) traverse for survey control using two of the following pieces of equipment:
 - barometer
 - GNSS equipment
 - thermometer
- identify and apply relevant geodetic coordinate systems and reference points to survey activities
- measure and compute GNSS survey traverse components using GNSS equipment and appropriate software to aid geodetic calculations
- perform calculations in a logical progression to solve geodetic surveying problems
- use coordinate systems, including Map Grid of Australia (MGA) and Geocentric Datum of Australia (GDA) to manage surveying data
- communicate clearly with clients and stakeholders to clarify and report survey information
- comply with industry-accepted standards for validating accuracy of data and identifying errors and discrepancies
- comply with organisational and legal requirements for:
 - completing records and documentation
 - recording, storing and filing data
 - using, checking and storing surveying equipment
 - working safely and using personal protective equipment (PPE)
- plan and implement project management mechanisms to ensure the survey is completed within required timeframes and project complies with specifications and standards
- plan and implement risk management and contingency strategies.

Knowledge Evidence

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

- accuracy and precision requirements for geodetic surveying data
- common terms used in geodetic surveying calculations
- coordinate systems that are compatible with GNSS, including MGA and GDA
- data reduction techniques
- industry-accepted methods for validating data to identify errors and discrepancies
- legislative, statutory and industry requirements and standards relating to work tasks
- organisational policies and procedures relating to:
 - health and safety relating to survey activities
 - reporting and documentation
 - using and allocating resources
 - using the equipment specified in the performance evidence
- project management techniques for scheduling, measuring and monitoring work progress and planning for risks and contingencies
- reference surfaces, projection planes and coordinate systems for geodetic components
- industry-accepted techniques for survey control
- standard survey plan design and presentation conventions.

Assessment Conditions

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

- equipment:
 - as specified in the performance evidence, including PPE
- specifications:
 - organisational policies, procedures and documentation relating to work health and safety
 - survey specifications, including relevant plans and drawings
- 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.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>