Draft 0.1
This is a draft update to CPPSIS6032 Conduct advanced GNSS control surveys: https://training.gov.au/Training/Details/CPPSIS6032.

Code changed to CPPSUR6032.

Expanded acronym GNSS in unit title.

Changed PCs to active voice.

Changed 'person' to 'candidate' in PE.

Range of Conditions added to Knowledge Evidence.

I've added mapping info.
TAG will need to reassess this as unit is redeveloped.

Unit of Competency

CPPSUR6032 Conduct advanced global navigation satellite system (GNSS) control surveys

Modification history

Release	Comments
~~1~~	~~Replaces superseded equivalent CPPSIS6032A Conduct an advanced GNSS control survey.~~ ~~This version first released with CPP Property Services Training Package Version 3.~~
	Replaces superseded equivalent CPPSIS6032 Conduct advanced GNSS control surveys

Application

This unit specifies the skills and knowledge required to conduct advanced global navigation satellite system (GNSS) control surveys using GNSS equipment and suitable software to communicate with GNSS receivers. The unit covers project managing surveying activities, including planning collection methodologies and allocating resources and work tasks in a team environment. The unit also covers analysing existing survey control data and networks to identify non-conformities and the need for additional controls and implementing a network of points for controlling horizontal and vertical positions. The unit requires the ability to program, calibrate and operate GNSS equipment, relate surveying data to a reference system, and identify and resolve discrepancies with the reference system.

The unit supports those who work in a technical management role in a surveying team.

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

Prerequisite Unit

None

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

1. Prepare for advanced GNSS control survey.	1.1 Identify and analyse survey specifications and schedule key activities and timelines according to available resources and organisational requirements. 1.2 Comply with and record organisational GNSS survey requirements. 1.3 Set up and calibrate GNSS equipment according to survey and organisational requirements. 1.4 Obtain, validate and record existing survey control data and determine need for additional controls based on identified non-conformities. 1.5 Collate, validate, manipulate and upload set-out data into the GNSS receiver. 1.6 Allocate and communicate work responsibilities to appropriate persons according to survey and organisational requirements.

2. Carry out GNSS control surveying tasks.	2.1 Program and operate GNSS equipment according to survey and organisational requirements. 2.2 Related GNSS survey to a reference system according to survey specifications. 2.3 Identify and resolve problems relating to discrepancies in the reference system or manage contingencies. 2.4 Collect GNSS data using planned methodologies according to survey and organisational requirements. 2.5 Implement network of points for controlling horizontal and vertical positions according to project specifications. 2.6 Validate and record GNSS measurements on the reference system according to specifications.
3. Finalise advanced GNSS control survey.	3.1 Use GNSS software to process data according to survey and organisational requirements. 3.2 Complete validation checks according to project specifications and organisational requirements. 3.3 Identify and address discrepancies between survey specifications and actual data according to survey and organisational requirements. 3.4 Finalise and complete survey and documentation according to organisational requirements.

Foundation Skills

Candidates require:

- learning skills to:
  - research existing horizontal and vertical control networks
- planning and organising skills to:
  - plan and prioritise work to meet contractual timeframes and resource constraints
- numeracy skills to:
  - apply accuracy tolerances to measurements and calculations
  - conduct precise measurements and computations relating to length, angle, elevation, area and volume
- oral communication skills to:
  - ask questions to clarify client requirements
- reading skills to:
  - analyse graphical and technical information in aerial photographs, maps, drawings, field records and survey plots
  - interpret technical terminology in specifications and contracts
- writing skills to:
  - use templates to record field notes
- technology skills to:
  - connect equipment to coordinate systems
- problem-solving skills to:
  - identify situations impacting on effectiveness of GNSS technologies.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS6032 Conduct advanced GNSS control surveys

Links

Companion Volume Implementation Guide:

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

Assessment Requirements for CPPSUR6032 Conduct advanced global navigation satellite system (GNSS) control surveys

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Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by:

- planning and conducting an advanced global navigation satellite system (GNSS) control survey for two different projects using the following pieces of equipment:
  - geodetic GNSS receiver
  - associated equipment capable of differential and real time modes of operations.

While conducting the above advanced GNSS control surveys, the candidate must:

- analyse survey specifications, including:
- cross-sections and plans
- technical descriptions of surveying data and their requirements
- plan and document survey methodologies and control data
- apply projection and datum parameters when using GNSS equipment and software
- collect data for GNSS positions, including differential methods
- communicate clearly with others to report work information and allocate duties
- comply with industry-accepted standards for validating accuracy of GNSS data and existing control network
- comply with organisational requirements for:
  - recording, storing and filing data
  - resource allocation
  - using and storing equipment
  - working safely, using personal protective equipment (PPE) when conducting field work
- conduct field reconnaissance to analyse existing control networks
- implement a network of horizontal and vertical control points
- identify non-conformances in control networks and the need for additional controls
- implement project management techniques to schedule, monitor and report on survey tasks and outcomes
- program and operate GNSS equipment and software to analyse and manipulate images and data.

Knowledge Evidence

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

- accuracy and precision requirements for GNSS control networks
- GNSS accuracy enhancement techniques
- GNSS availability, structures, capabilities and limitations

- GNSS control surveying techniques
- industry-accepted methods for validating set-out data to identify errors and discrepancies
- methods for accessing, manipulating, retrieving and archiving GNSS data
- organisational policies and procedures relating to:
    - health and safety relating to survey activities
    - reporting and documentation
    - using and allocating resources
    - using GNSS equipment and software
- projection and datum parameters required for GNSS equipment and processing software
- reference and coordinate systems for surveying data, including Australian Height Datum and Map Grid of Australia
- situations and factors that impact on the effectiveness of GNSS technologies
- techniques for project management, including techniques for scheduling, monitoring and reporting on survey tasks and outcomes
- types of GNSS equipment and software and their uses
- appropriate persons:
    - client
    - colleague
    - engineer
    - manager
    - registered or qualified surveyor.

Assessment Conditions

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

Assessment must be conducted in the workplace or a simulated workplace using realistic conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- equipment:
    - as specified in the performance evidence, including PPE
- specifications:
    - survey specifications, plans, maps and photographs
    - organisational policies, procedures and documentation relating to work health and safety when using GNSS equipment and conducting field work
- relationships with team members and supervisor:
    - lead role in a team.

Links

Companion Volume Implementation Guide:

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