



Australian Government

CPPSSI5046 Set out roads and stormwater systems

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 not equivalent to CPPSIS5046 Set out stormwater systems.

Application

This unit specifies the skills and knowledge required to set out roads, stormwater systems and associated engineering structures using surveying methods and equipment. It includes interpreting plans, maps and specifications to conduct measurements and calculations so that roads, stormwater components and related engineering structures are in the correct position and at the correct reduced level. The unit also includes using horizontal and vertical control techniques to set out marks and lines to define the position and level of design points on site. It includes measuring, calculating and reducing surveying data, including fall of land and volume relating to contours, spot heights and cross-sections. It also includes checking and validating measurements against specifications and completing set-out documentation.

This unit is suitable for skilled surveying technicians who use a broad range of cognitive, technical and communication skills to select and apply methods and technologies to analyse information and provide solutions to sometimes complex surveying/spatial information 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.

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|---|--|
| 1 Prepare for road and stormwater system set-out. | <ul style="list-style-type: none">1.1 Identify and interpret project requirements for road and stormwater system and plan activities in consultation with appropriate persons.1.2 Access and analyse plans, drawings, maps, road and stormwater specifications and control marks to plan work tasks.1.3 Select and prepare equipment according to manufacturer specifications and organisational requirements.1.4 Use primary and secondary controls to check set-up of horizontal and vertical control to ensure achievement of precision according to project brief.1.5 Identify hazards and safe work requirements, including the use of personal protective equipment (PPE) for the project. |
| 2 Perform a set-out survey. | <ul style="list-style-type: none">2.1 Locate horizontal control points throughout the work area and set out coordinates according to plans and specifications.2.2 Set out design points from base lines by offsetting, and check positions to ensure correct tolerances according to specifications.2.3 Use set-out pegs or markers to indicate base lines and offsets relative to the work area.2.4 Establish vertical control points to ensure design points are positioned at correct levels according to plans and specifications.2.5 Place offsets to define the main lines of road and stormwater works.2.6 Calculate gradients and volumes required for set-out survey according to industry-accepted standards. |
| 3 Finalise road and | <ul style="list-style-type: none">3.1 Check measurements against plans and specifications for |

stormwater system set-out.	accuracy, correct plan position and reduced level of set-out.
3.2	Identify, report and address discrepancies between specifications and final set-out in accordance with organisational procedures.
3.3	Record field notes clearly and accurately.
3.4	Complete documentation and data storage according to organisational 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 not equivalent to CPPSIS5046 Set out stormwater systems.

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 CPPSSI5046 Set out roads and stormwater systems

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Performance Evidence

To demonstrate competency a candidate must meet the elements and performance criteria of this unit by setting out two different projects:

- one project that sets out a stormwater system and associated engineering structures
- one project that includes road set-out.

For each project, the candidate must set out marks and lines to define the position and level of design points on site using two of the following pieces of equipment:

- total station
- global navigation satellite system (GNSS)
- level
- hand-held laser measuring device.

Knowledge Evidence

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

- types of stormwater systems and their purposes
- types and features of roads
- graphical information in plans, drawings and contour maps
- reference and coordinate systems for surveying data, including Australian Height Datum and Map Grid of Australia.
- types of pegs and markers used during set-out and methods for optimal placement on site
- mathematical concepts relating to algebra, trigonometry and geometry relevant to calculating spatial measurements for roads and stormwater systems
- methods for calculating surveying data and verifying its accuracy using primary and secondary controls
- methods for calculating fall of land and volume
- purpose of primary and secondary controls for set-out
- methods for establishing a control network that meets specified tolerances

- methods for setting up, levelling and checking calibration of equipment used to set out road and stormwater systems
- methods for recording spatial data relating to set-out
- industry-accepted tolerances for accuracy relevant to roads and stormwater systems.

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:

- personal protective equipment (PPE)
- task specifications, drawings, maps and plans
- surveying equipment.

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