



Australian Government

MSS025005 Produce site maps

Release: 2

MSS025005 Produce site maps

Modification History

Release 1. Supersedes and is equivalent to MSS025005A Produce site maps.

Release 2. Prerequisite code updated. Equivalent outcome.

Application

This unit of competency covers the ability to map the environmental features of a site using sketch maps, computer rendered graphics or geographic information systems (GIS) software. Personnel are required to identify sources of existing environmental data and assess its availability/suitability; collect field data as necessary; assess data quality; and format, present data and incorporate it onto maps. Producing maps to display environmental data requires knowledge of environmental management processes, relevant legislative and regulatory requirements, mapping principles and the use of mapping software and hardware. Personnel will require additional units of competency to manage spatial data sets or undertake complex modelling, data manipulation and analysis using GIS.

This unit of competency is applicable to environmental technicians working in a range of industry sectors, such as environmental monitoring, sampling and field testing (e.g. air, odour, water, soil and noise); groundwater and clean water (e.g. catchments, supply and environmental flows); water treatment, storm and wastewater management; solid and hazardous waste management; management of contaminated sites; site remediation or rehabilitation; geotechnical services; occupational hygiene monitoring (e.g. air, noise and radiation); natural resource management; resource efficiency (e.g. energy, water and waste auditing).

While no specific licensing or certification requirements apply to this unit at the time of publication, environmental monitoring and management activities are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

MSS024017 Collect spatial and discrete environmental data

Competency Field

Data

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Source and assess existing site information and data	1.1	Confirm the client's information needs, timeframe and site map specifications.
		1.2	Locate and obtain existing workplace site information and review its relevance and accuracy.
		1.3	Locate external sources of relevant data sets and assess their availability, value and limitations.
		1.4	Confirm ownership, access arrangements and price of required data sets.
		1.5	Obtain selected data sets in accordance with workplace procedures.
		1.6	Build a detailed description of the site using existing information and data and identify any gaps.
2	Collect field data about the site	2.1	Establish information needs and identify appropriate field techniques.
		2.2	Confirm details of field work, site permits/access restrictions and legislative/regulatory requirements with supervisor, as necessary.
		2.3	Confirm data format and quality requirements.
		2.4	Assemble required field equipment and supplies and check that all items are fit for purpose.
		2.5	Ensure that all required equipment and supplies are transported safely to and from the site.
		2.6	Take sufficient and accurate measurements of the site and its features to ensure data reliability.
3	Prepare data and supporting information	3.1	Assess the integrity of all data to ensure its suitability.
		3.2	Recognise and resolve any disparities between data sets.
		3.3	Identify compatible formats for data.

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| | | 3.4 | Select data to meet client needs. |
| | | 3.5 | Assemble relevant data elements. |
| | | 3.6 | Ensure data format meets client needs. |
| | | 3.7 | Prepare supporting information using media and format that meet client needs. |
| 4 | Produce maps to meet information needs | 4.1 | Transfer data accurately from data sources into GIS or similar systems. |
| | | 4.2 | Prepare sketch and/or computer generated maps to the required quality standard and within the expected timeframe. |
| | | 4.3 | Ensure that all required site features and standard map elements are included in accordance with standard cartographic design principles. |
| | | 4.4 | Compare map against site features to ‘ground-truth’ information, as necessary. |
| | | 4.5 | Seek feedback from users regarding the utility of maps/data and resolve any problems. |
| | | 4.6 | Analyse feedback to identify opportunities to improve the quality of maps. |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

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

Range of Conditions

This field allows for different 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.

Legislation,

- federal legislation, such as Environment Protection and

regulations, standards, codes, workplace procedures and/or requirements include the latest version of one or more of:

Biodiversity Conservation Act, Australian Heritage Council Act, Native Title Act and National Environmental Protection Measures

- state/territory government legislation and regulations and local government by-laws, policies, and plans dealing with land use, acquisition, planning and protection; environmental protection; cultural/heritage sites; vegetation management; nature conservation, wildlife/plant protection; water and water management; soil conservation; pollution and contaminated sites; fisheries, forestry and mining operations
- legislation, standards and codes of practice for work health and safety (WHS)
- Australian and international standards covering environmental management such as: AS/NZS ISO 14000 Basic Set:2007 Environmental Management Basic Set, and AS ISO 14050 Environmental management – Vocabulary
- environmental management plans for sites and projects, site-specific requirements and specific environmental standards
- sampling and in-field testing methods, procedures, guidelines provided by workplace or regulator
- workplace documents, such as standard operating procedures (SOPs); work schedules; quality manual; recording and reporting procedures; equipment manuals; supplier catalogues; handbooks; safety data sheets (SDS) and safety procedures; waste minimisation, containment, processing and safe disposal procedures.

Maps include one or more of:

- topographic
- land use and land title maps
- vegetation, soils and regional ecosystem maps
- air photos
- satellite imagery
- thematic maps produced using GIS software, such as Mapinfo and Arcview.

Environmental features of sites include one or more of:

- hills, mountains, plains and cliffs
- waterways, dams, lakes, oceans, estuaries and deltas
- vegetation and fauna
- soil and rock types
- buildings, such as houses, schools, police stations, hospitals, churches, factories and industrial plants
- roads, railways, tracks, jetties, piers and other infrastructure
- utility services

- property boundaries, shire boundaries and electoral boundaries
- mining leases, local catchment areas and nature reserves
- population and demographics.

Workplace site information includes one or more of:

- site or project history
- client history
- records of consultations with stakeholders
- site access protocols and permits
- site utilities/services (e.g. water, sewer, electricity and gas)
- maps (e.g. road, topographical and survey marks)
- existing data sets (e.g. vegetation, topography, soils and regional ecosystem maps)
- hazards and safety risks.

External sources of data include one or more of:

- government departments and agencies (e.g. environment, climate change, agriculture and mining)
- utility authorities/companies (e.g. water, gas and electricity)
- land title office and Valuer General
- local government records
- Geoscience Australia
- Australian Social Science Data Archive
- companies providing environmental services.

Data sets include one or more of:

- textual, graphical, spatial and temporal in hard/soft copy
- satellite imagery and remote sensing data
- geophysical, geochemical, geological, hydrological and meteorological data
- ecological data, such as distribution of vegetation, fauna and pests
- social science data, such as demographic and census information
- land use data, zoning and property classifications
- historical records and photographs.

Field techniques include one or more of:

- on site surveying
- hand mapping
- comparing site features with existing site information
- collection of samples and field measurements.

Field equipment and

- global positioning system (GPS)

supplies include one or more of:

- tapes and pegs
- compass
- clinometer
- portable computer, palm pilot or data logger
- communication equipment.

Standard map elements include one or more of:

- latitude and longitude
- grid reference systems (old and new and their relation to one another)
- north point, elevation, scale and legend.

Integrity of data includes one or more of:

- accuracy, currency and completeness
- scale and resolution
- confidence limits for data
- quality (e.g. age/condition of hard copy documents).

Disparities between data sets include one or more of:

- datum and projection
- currency.

Supporting information includes one or more of:

- graphs, tables, equations and parameters
- explanatory notes.

WHS and environmental management requirements include:

- compliance with relevant federal/state/territory WHS legislation at all times
- assuming that samples are potentially hazardous and applying standard precautions
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and state/territory Departments of Health, where relevant.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS025005A Produce site maps

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS025005 Produce site maps

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Performance Evidence

- Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:
 - using available data to produce at least two (2) different site maps that meet the client's specifications and timeframe
 - locating, interpreting and assessing the quality of existing maps, data sets and environmental information
 - planning and preparing for field work
 - collecting and recording reliable spatial and environmental data at the site
 - scaling information and plotting data
 - preparing hand drawn or computer rendered maps
 - using computers and software to manipulate and present data in graphs, tables, diagrams and maps
 - seeking advice when issues/problems are beyond scope of competence/responsibility
- communicating effectively with suppliers of data and map users working safely.

Knowledge Evidence

- Must provide evidence that demonstrates knowledge of:
 - environmental terms, concepts and principles relevant to data sets and maps
 - types and functions of maps, charts, aerial photos and their advantages/disadvantages
 - map conventions, symbols and representation of topographical features on maps and plans
 - mapping principles, including layout, legend, scale, media, printing and presentation styles
 - use of software and hardware, such as printers and plotters
 - functional components of a compass/global positioning system (GPS) and factors affecting compass/GPS accuracy
 - techniques for estimating distance and taking bearings
 - relevant legislation, regulations, licences and permit requirements for site
 - workplace environmental management framework of policy, procedures and management plans for site

relevant site hazards, health and safety requirements, and workplace safe work procedures.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace, or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process such as workbooks, written assessments or interviews (provided a record is kept in each case).
- Holistic assessment methods include:
 - review of at least **two (2)** site maps produced by the candidate
 - feedback from supervisors and/or clients about the candidate's ability to source, assess and use existing data sets to produce site maps that meet their needs
 - oral and/or written questions to assess the candidate's knowledge of mapping terminology and principles, interpretation of data sets and maps.
- Access is required to all instruments, equipment, materials, workplace documentation, procedures, and specifications associated with this unit including, but not limited to:
 - site/project history, maps and aerial photos
 - guidelines, codes, regulations, and workplace procedures governing data collection
 - relevant field equipment, GPS receivers and related GPS software
 - relevant computer software (e.g. GIS) and hardware.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing environmental monitoring, management or technology related services about performing the competency being assessed within the last twelve months.

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