



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MSL976001A Classify building sites**

**Revision Number: 1**

## MSL976001A Classify building sites

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit of competency covers the ability to classify building sites, including residential, light industrial, commercial and institutional structures for the purpose of providing guidance for the design of footing systems.
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit of competency is applicable to senior technical officers working in the construction materials testing industry sector. Site classification is applicable to single dwelling houses, townhouses and commercial, institutional or light industrial buildings. The classification depends on reactivity of the foundation soils and other potential problems, such as mine subsidence, groundwater conditions and slope. These influence the design of footings, so as to minimise damage due to foundation movement during the life of the building. Operations are performed in accordance with laboratory and/or enterprise procedures, and appropriate legislative requirements. This competency is typically performed by paraprofessionals who often guide the work of experienced testers.</p> <p>Industry representatives have provided case studies to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. These can be found at the end of this unit of competency under the section 'This competency in practice'.</p>
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## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

Prerequisite units		
	<i>MSL975007A</i>	<i>Supervise sampling, inspections and testing at construction sites</i>
		<b>OR</b>
	<i>MSL975023A</i>	<i>Supervise geotechnical site investigations</i>
		<b>AND</b>
	<i>MSL974002A</i>	<i>Conduct geotechnical site investigations</i>
	<i>MSL973012A</i>	<i>Assist with geotechnical site investigations</i>

## Employability Skills Information

Employability skills	
	This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for on-site operations	1.1. Identify the job, consult with the client and obtain relevant information, drawn from such sources as maps, drawings, specifications and codes of practice 1.2. Select equipment and materials required for the job 1.3. Identify personal protective equipment and safety procedures specified for the job and organise site induction, as required 1.4. Record description of the job to be undertaken, compare with specification and resolve any variations 1.5. Select suitable transport for site access 1.6. Brief support personnel on job requirements
2. Conduct on-site investigations	2.1. Identify the location of the proposed structure 2.2. Observe and record physical characteristics of the site, including topography, vegetation, recent activity and the presence of underground services 2.3. Conduct subsurface investigations, obtain samples and record strata details, including groundwater conditions, while minimising disturbance and potential contamination of site 2.4. Perform relevant in situ testing 2.5. Clean up on completion, backfilling or sealing the excavation or ensuring that it is left in a safe and uncontaminated condition
3. Conduct laboratory testing	3.1. Perform relevant laboratory tests to determine foundation materials properties 3.2. Report test results in accordance with enterprise practices
4. Assign a classification to the site	4.1. Analyse field data, test results and observations, checking for accuracy and validity 4.2. Ascertain whether fill is present on-site, its extent, and whether controlled or uncontrolled 4.3. Determine the classification of the site in accordance with approved procedures or as documented in the relevant code 4.4. Report results to client in accordance with enterprise procedures
5. Maintain records	5.1. Record and store observations, data and results in accordance with enterprise procedures

ELEMENT	PERFORMANCE CRITERIA
	5.2. Maintain confidentiality and security of client and enterprise information

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

Required skills include:

- conducting site and laboratory operations, and analysing test results and observations to assign a site classification
- reading and interpreting maps, drawings, specifications and codes of practice
- conducting subsurface explorations and log strata
- conducting insitu testing for site classification purposes
- conducting disturbed and undisturbed sampling
- recording project details in writing, by sketching and photography
- conducting laboratory testing for site classification purposes
- observing, interpreting and reporting atypical situations
- communicating problems to appropriate personnel
- reporting results to clients using enterprise procedures

#### Required knowledge

Required knowledge includes:

- engineering properties of soil and rock materials
- insitu and laboratory test methods applicable to site classification
- methods of assigning a site classification
- mathematical principles and processes used in site classification
- provisions and requirements of relevant codes
- relevant health, safety and environment requirements

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Assessors should ensure that candidates can:</p> <ul style="list-style-type: none"> <li>• conduct site and laboratory operations, and analyse test results and observations to assign a site classification</li> <li>• read and interpret maps, drawings, specifications and codes of practice</li> <li>• conduct subsurface explorations and log strata</li> <li>• conduct insitu testing for site classification purposes</li> <li>• conduct disturbed and undisturbed sampling</li> <li>• record project details in writing, by sketching and photography</li> <li>• conduct laboratory testing for site classification purposes</li> <li>• observe, interpret and report atypical situations</li> <li>• communicate problems to appropriate personnel</li> <li>• report results to clients using enterprise procedures.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>This unit of competency is to be assessed in the workplace or simulated workplace environment.</p> <p>This unit of competency may be assessed with:</p> <ul style="list-style-type: none"> <li>• <i>MSL915001A Provide information to customers</i></li> <li>• <i>MSL916003A Supervise laboratory operations in work/functional area.</i></li> </ul> <p>Resources may include:</p> <ul style="list-style-type: none"> <li>• access to building sites, site tools, equipment and materials</li> <li>• standard construction materials testing laboratory, samples, equipment, materials, test methods and enterprise procedures</li> <li>• access to more than one workplace or simulated learning environment if the primary workplace or learning environment is unable to provide a suitable range of equipment.</li> </ul>
<b>Method of assessment</b>	It is strongly recommended that assessment is conducted

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	<p>through observation over time. The timeframe must allow for adequate assessment of operation under all normal and a range of abnormal conditions. Where this is not practical, additional assessment techniques must be used.</p> <p>The following assessment methods are suggested:</p> <ul style="list-style-type: none"> <li>• review of site classifications and other enterprise documentation prepared by the candidate</li> <li>• analysis of work completed over a period of time to ensure accurate and consistent work is obtained within required timelines</li> <li>• feedback from peers and supervisors</li> <li>• use of suitable simulation and/or a range of case studies/scenarios.</li> </ul> <p>In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly.</p> <p>Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.</p> <p>Access must be provided to appropriate learning and/or assessment support when required.</p> <p>The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work like environment.</p>
<b>This competency in practice</b>	<p>Industry representatives have provided the case study below to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting.</p> <p><b>Construction materials testing</b></p> <p>A geotechnical consultancy company has been contracted to perform a site investigation for the purpose of determining the classification of a building site. The client is a structural engineer who will use the information to design a block of townhouses for the site. The company manager assigns a senior technician to the project along with an experienced tester to perform the site work. A second tester will perform the laboratory</p>

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testing. The senior technician is a signatory for all tests for which the organisation is NATA accredited. They obtain a map of the area and establish that there is no local information available on conditions in the immediate vicinity. There are no buried services to be damaged during the investigation. They brief the field tester on the project, specifying the number and suggested locations of boreholes as well as the sampling and testing requirements. The field tester performs the site investigation by drilling power auger holes, logging and sampling the strata and performing dynamic cone penetrometer (DCP) tests. They push tubes to obtain undisturbed samples of material that they classify as high plasticity clay. They note the presence of uncontrolled fill in one corner of the site, and take several photographs with a digital camera.

When the site investigation is completed, the senior technician inspects the field logs, notes and photographs and then specifies an appropriate testing program, including shrink-swell tests on the high plasticity clay. Using the shrink-swell test result, they calculate the characteristic surface movement and after reviewing all the data assign a P classification in accordance with AS2870: Residential slabs and footings - Construction. They then prepare a report to the client, including a description of the site, the extent and nature of the investigation, test results and bore logs and the site classification. Finally, all documentation relating to the project is filed and stored as a complete record in accordance with NATA, quality assurance and liability requirements. After review by the company manager, the results of the investigation are communicated to the client.



## Range Statement

<b>RANGE STATEMENT</b>	
<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<b>Codes of practice</b>	Where reference is made to industry codes of practice, and/or Australian/international standards, it is expected the latest version will be used
<b>Standards, codes, procedures and/or enterprise requirements</b>	<p>Standards, codes, procedures and/or enterprise requirements may include:</p> <ul style="list-style-type: none"> <li>• Australian and international standards, such as: <ul style="list-style-type: none"> <li>• AS ISO 1000-1998 The international system of units (SI) and its application</li> <li>• AS ISO 17025-2005 General requirements for the competence of testing and calibration laboratories</li> <li>• AS/NZS ISO 14000 Set:2005 Environmental management standards set</li> <li>• AS/NZS ISO 9000 Set:2008 Quality management systems set</li> </ul> </li> <li>• calibration and maintenance schedules</li> <li>• enterprise recording and reporting procedures</li> <li>• environmental legislation and regulations</li> <li>• equipment manuals</li> <li>• equipment startup, operation and shutdown procedures</li> <li>• industry codes of practice</li> <li>• material, production and product specifications</li> <li>• National Association of Testing Authorities (NATA) documents regarding construction materials testing</li> <li>• occupational health and safety (OHS) national standards and codes of practice</li> <li>• production and laboratory schedules</li> <li>• quality manuals</li> <li>• standard operating procedures (SOPs)</li> </ul>
<b>Tools and equipment</b>	Tools and equipment used may include:

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• hand and power augers</li> <li>• hand tools, including shovels, scoops, spanners, wrenches and tape measures</li> <li>• consumables, including sample bags, labels and thin-walled sampling tubes</li> <li>• documentation, including maps, plans and worksheets</li> <li>• field test equipment, including pocket penetrometer, dynamic cone penetrometers and sand penetrometer</li> <li>• laboratory equipment, including balances, ovens, liquid limit apparatus, linear shrinkage troughs, vernier calipers, core swell testing cell, and psychrometer</li> <li>• camera and global positioning system (GPS) receiver</li> <li>• safety clothing and equipment, including helmet, boots, earmuffs and glasses</li> </ul>
<b>Typical problems</b>	<p>Typical problems may include:</p> <ul style="list-style-type: none"> <li>• delays in obtaining test results</li> <li>• damage to services</li> <li>• displaced, missing and inaccurate survey markers</li> <li>• misidentification of samples and sampling locations</li> <li>• equipment breakdown and breakage</li> <li>• environmental problems and issues, including site access, inclement weather, traffic, wildlife, vegetation, construction activities and contamination of stormwater</li> </ul>
<b>Occupational health and safety (OHS) and environmental management requirements</b>	<p>OHS and environmental management requirements:</p> <ul style="list-style-type: none"> <li>• all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these requirements must not be compromised at any time</li> <li>• all operations assume the potentially hazardous nature of samples and require standard precautions to be applied</li> <li>• where relevant, users should access and apply</li> </ul>

**RANGE STATEMENT**

	current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health
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**Unit Sector(s)**

<b>Unit sector</b>	Testing
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**Competency field**

<b>Competency field</b>	
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**Co-requisite units**

<b>Co-requisite units</b>		