

# Spatial, surveying and mapping services

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## About the focus area

The spatial, surveying and mapping services focus area broadly covers occupations that require specialised knowledge and skills to:

- plan, direct and conduct survey work to determine and delineate boundaries and features of tracts of land, marine floors and underground works
- prepare and revise maps, charts and other geographic products
- analyse, present and maintain geographical information about locations in space and time.



## Summary of consultation outcomes

### Spatial, surveying and mapping services

Stakeholders collectively expressed concerns regarding the existing representation of geospatial and surveying occupations within ANZSCO, underscoring its inadequacy in capturing the contemporary growth and diversity within this field. They voiced a strong desire to differentiate between surveying and spatial science occupations.

In their submissions, stakeholders were keen to highlight the extensive and diverse range of geospatial occupations present in today's workforce. However, accurately reflecting these specialised job titles within the classification poses challenges due to the dispersion of geospatial skill sets across various other professional fields.

A specific request was made to include a specialisation, 'Indigenous Heritage Surveyor,' for Occupation 232212 Surveyor. After careful consideration, it was determined that the tasks performed by Indigenous Heritage Surveyors align more appropriately with the proposed Occupation 272415 Heritage Consultant. Consequently, a new specialisation, 'Aboriginal and Torres Strait Islander Heritage Surveyor,' has been suggested under the Heritage Consultant occupation.

Given the rapid evolution of the geospatial industry, it is anticipated that future reviews of the classification will be essential to ensure its continual alignment with the labour market and the changing dynamics of the field.



## Proposed updates from 232212 Surveyor

### Recommended updates

#### 232212 Surveyor (existing)

1. Retire occupation and replace with proposed occupations – 232215 Engineering Surveyor; 232216 Land Surveyor, 232217 Mine Surveyor and 232299 Surveyors and Spatial Scientists nec

#### 232215 Engineering Surveyor (proposed)

2. Create occupation from 232212 Surveyor
3. Add principal title – Engineering Surveyor
4. Add lead statement
5. Assign skill level 1
6. Add specialisation

#### 232216 Land Surveyor (proposed)

7. Create occupation from 232212 Surveyor
8. Add principal title – Land Surveyor
9. Add lead statement
10. Assign skill level 1
11. Add specialisation

#### 232217 Mine Surveyor (proposed)

12. Create occupation from 232212 Surveyor
13. Add principal title – Mine Surveyor
14. Add lead statement
15. Assign skill level 1

#### 232299 Surveyors and Spatial Scientists nec (proposed)

16. Create occupation from 232212 Surveyor
17. Add principal title – Surveyors and Spatial Scientists nec
18. Add lead statement
19. Assign skill level 1
20. Assign listed occupations

All occupations include adding tasks.



| Existing   | Proposed  |  |   |  |   |
|--|---|--|---|--|---|
| <p>232212 Surveyor</p> <p>Plans, directs and conducts survey work to determine, plan and precisely position tracts of land, natural and constructed features, coastlines, marine floors and underground works, and manage related information systems. Registration or licensing may be required.</p> <p>Skill Level: 1</p> <p>Specialisations :</p> <ul style="list-style-type: none"> <li>• Cadastral Survey or</li> <li>• Engineering Survey or</li> <li>• Geodetic Survey or</li> </ul>  | <table border="1"> <tr> <td data-bbox="300 376 598 2119"> <p>232215 Engineering Surveyor</p> <p>Inspects, evaluates, measures, sets out and monitors infrastructure and construction works to ensure structures are built to plan. Registration or licensing may be required.</p> <p>Skill Level: 1</p> <p>Main Tasks:</p> <ul style="list-style-type: none"> <li>• measures, sets-out and monitors construction projects including high rise buildings, roads, tunnels, airports and other forms of infrastructure to ensure they are built in accordance with design specifications</li> <li>• performs surveys, fieldwork, calculations, data reduction and manipulation on construction sites using</li> </ul> </td> <td data-bbox="598 376 896 2119"> <p>232216 Land Surveyor</p> <p>Locates and defines public and private land boundaries by using precise measuring equipment. Registration or licensing may be required.</p> <p>Skill Level: 1</p> <p>Main Tasks:</p> <ul style="list-style-type: none"> <li>• uses specialised technical equipment such as theodolites, GPS, lasers and aerial and terrestrial scanners to take, record and collate measurements and locations in relation to land boundaries</li> <li>• establishes site horizontal and vertical height data</li> <li>• determines the position of boundaries of public or private land and prepares plans and</li> </ul> </td> <td data-bbox="896 376 1197 2119"> <p>232217 Mine Surveyor</p> <p>Designs and measures mines, tunnels and other underground works, maps out mineral deposits and determines the commercial viability of open cut and underground mines. Registration or licensing may be required.</p> <p>Skill Level: 1</p> <p>Main Tasks:</p> <ul style="list-style-type: none"> <li>• identifies limits for excavation purposes and marks drill patterns for blasting in open cut mines</li> <li>• determines, controls and maps the location and direction of tunnels in underground mines</li> <li>• establishes site horizontal and vertical height data</li> <li>• calculates the volume of materials</li> </ul> </td> <td data-bbox="1197 376 1503 2119"> <p>232299 Surveyors and Spatial Scientists nec</p> <p>This occupation group covers surveyors and spatial scientists not elsewhere classified. Registration or licensing may be required.</p> <p>Skill Level: 1</p> <p>Occupations in this group include:</p> <ul style="list-style-type: none"> <li>• Geodetic Surveyor</li> <li>• Hydrographic Surveyor</li> </ul> </td> </tr> </table> | <p>232215 Engineering Surveyor</p> <p>Inspects, evaluates, measures, sets out and monitors infrastructure and construction works to ensure structures are built to plan. 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## Existing

## Proposed

|   |  |   |   |  |
|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>• Hydrographic Survey or</li> <li>• Mine Survey or</li> <li>• Photogrammetric Survey or</li> </ul> | <ul style="list-style-type: none"> <li>• specialised software and technical equipment such as theodolites, GPS, lasers and aerial and terrestrial scanners</li> <li>• completes as-constructed survey reports and plans to confirm a construction project conforms to the intended design and specifications</li> <li>• prepares data models for set-out and machine guidance to assist in planning, executing, monitoring and evaluating surveying work</li> <li>• works with construction professionals, Architects, property owners and Civil Engineers to provide accurate survey information</li> </ul> | <ul style="list-style-type: none"> <li>• associated documents</li> <li>• develops and establishes reference systems for geographic and land information</li> <li>• consults with other professionals such as Architects and engineers to ensure land development projects are completed to plan</li> <li>• works with government officials and other stakeholders to ensure that land development projects are completed in compliance with regulations and local laws</li> <li>• sets-out land and building developments</li> <li>• may map out positions of boundaries where land is subdivided, bought or</li> </ul> | <ul style="list-style-type: none"> <li>• moved or minerals mined</li> <li>• uses geographic information systems (GIS) to create site maps, including mine structures and deposit layers</li> <li>• identifies potential risks and environmental effects of mining activities</li> </ul> |  |
|---|--|---|---|--|



**Existing**

**Proposed**

|  |  |  |  |  |
|--|--|--|--|--|
|  | <p>for project planning and design phases</p> <p>Specialisation:</p> <ul style="list-style-type: none"> <li>• Construction Surveyor</li> </ul> | <p>sold and plan and provide critical professional advice for project developments in land and buildings</p> <p>Specialisation:</p> <ul style="list-style-type: none"> <li>• Registered or Licensed Land Surveyor</li> </ul> |  |  |
|--|--|--|--|--|





## Proposed updates from 232214 Other Spatial Scientist

### Recommended updates

#### 232214 Other Spatial Scientist (existing)

1. Retain occupation
2. Update principal title from Other Spatial Scientist to Geospatial Specialist
3. Update specialisations

All occupations include adding tasks.





## Existing

### 232214 Other Spatial Scientist

Acquires, integrates, analyses, interprets, presents, manages and distributes information about locations in time and space, and develops related equipment, software and services.

Skill Level: 1

Specialisations:

- Geographic Information Systems Manager
- Geospatial Analyst

## Proposed

### 232214 Geospatial Specialist

Acquires, integrates, analyses, interprets, presents, manages and distributes information about locations in time and space, and develops related equipment, software and services.

Skill Level: 1

Main Tasks:

- gathers geospatial data through satellite imagery, aerial photography, Global Positioning Systems (GPS), surveys and other sources
- cleans, organises and formats geospatial data for analysis
- uses geospatial technology such as Geographic Information Systems (GIS) to analyse spatial data to describe and infer trends and patterns, solve problems and answer spatial data-related queries
- communicates findings and insights from geospatial data using reports, dashboards and interactive maps to technical and non-technical stakeholders
- develops and maintains databases and information systems for geospatial data management

Specialisations:

- Geospatial Analyst
- GIS Consultant
- GIS Manager



## Proposed updates from 312116 Surveying or Spatial Science Technician

### Recommended updates

#### 312116 Surveying or Spatial Science Technician (existing)

1. Retire occupation and replace with proposed occupations – 312123 Geospatial Technician and 312124 Survey Technician

#### 312123 Geospatial Technician (proposed)

2. Create occupation from 312116 Surveying or Spatial Science Technician
3. Add principal title
4. Add alternative title
5. Add lead statement
6. Assign skill level 2

#### 312124 Surveying Technician (proposed)

7. Create occupation from 312116 Surveying or Spatial Science Technician
8. Add principal title – Surveying Technician
9. Add lead statement
10. Assign skill level 2
11. Add specialisation

All occupations include adding tasks.





| Existing  | Proposed  | Proposed   |
|---|---|--|
| <p>312116 Surveying and Spatial Science Technician</p> <p>Alternative Title:</p> <ul style="list-style-type: none"> <li>GIS Technician</li> </ul> <p>Collects, records and evaluates spatial information and prepares databases, maps, charts and plans in support of Surveyors, Cartographers or Other Spatial Scientists. Registration or licensing may be required.</p> <p>Skill Level: 2</p> <p>Specialisations:</p> <ul style="list-style-type: none"> <li>Aerial Survey Technician</li> <li>Photogrammetrist</li> </ul> | <p>312123 Geospatial Technician</p> <p>Analyses and manipulates geospatial data from multiple technologies, formats and projects to form integrated datasets.</p> <p>Alternative Title:</p> <ul style="list-style-type: none"> <li>Geographical Information Systems (GIS) Officer</li> </ul> <p>Skill Level: 2</p> <p>Main Tasks:</p> <ul style="list-style-type: none"> <li>assists with the development and maintenance of Geographical Information Systems (GIS)</li> <li>creates, maintains, displays and updates GIS databases</li> <li>works with geospatial technology to assist with data gathering, compilation, mapping and data analysis</li> <li>produces accurate maps and other representations of data for use in activities such as fieldwork</li> <li>conducts fieldwork to resolve conflicting information and ensure the accuracy of data</li> <li>records and documents details of map updates, additions and/or deletions</li> </ul> | <p>312124 Surveying Technician</p> <p>Collects and records survey data using surveying instruments such as total stations, GPS equipment, levels and laser scanners. Analyses survey data to develop plans and reports in support of surveyors.</p> <p>Skill Level: 2</p> <p>Main Tasks:</p> <ul style="list-style-type: none"> <li>prepares sketches used to place physical markers on land to define the accurate position of features such as existing property boundaries, proposed building layouts, utilities and road margins on building, construction and mine sites</li> <li>processes data and makes calculations recorded from fieldwork and surveys to prepare detail and feature plans, maps and technical reports</li> <li>maintains and calibrates surveying equipment to ensure accuracy</li> <li>analyses, interprets and manipulates survey data to create CAD and other information models</li> </ul> <p>Specialisation:</p> <ul style="list-style-type: none"> <li>Survey Draftsperson</li> </ul> |



## Proposed updates from 821915 Surveyor's Assistant

### Recommended updates

#### 821915 Surveyor's Assistant (existing)

1. Retire occupation and replace with proposed occupation – 821916 Surveyor's Assistant

#### 821916 Surveyor's Assistant (proposed)

2. Create occupation from 821915 Surveyor's Assistant
3. Add principal title – Surveyor's Assistant
4. Add alternative title
5. Add lead statement
6. Assign skill level 4

All occupations include adding tasks.





## Existing

### 821915 Surveyor's Assistant

Performs routine tasks to assist Surveyors and Geologists by transporting, assembling, maintaining and laying out prospecting and surveying equipment, and collecting and labelling samples.

Skill Level: 5

Specialisations:

- Geological Survey Field Assistant
- Seismic Survey Assistant

## Proposed

### 821916 Surveyor's Assistant

Alternative Title:

- Surveying Assistant

Transports, assembles, maintains and lays out surveying equipment in support of surveyors.

Geology field assistants are excluded from this occupation. Geology field assistants are included in Occupation 311412 Earth Science Technician.

Skill Level: 4

Main Tasks:

- transports surveying equipment to and from work sites and assembles, operates and disassembles surveying equipment as required
- maintains and calibrates surveying equipment to ensure accuracy
- operates and maintains vehicles and equipment used in surveying activities
- assists in the marking and setting out of survey marks
- records and maintains accurate data and measurements for surveyors
- assists in the interpretation of surveying data and the preparation of surveying reports and maps