



SURVEYORS BOARD
QUEENSLAND

Surveying Associate Competency Assessment

SACA

Surveyors Act 2003 s39

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The SACA Assessment

The SACA (Surveying Associate Competency Assessment) includes a range of core activities, which form the Surveying Associate Competency Framework (SBQ-CF-0101) which must be achieved in order to seek registration as a Surveying Associate.

The applicant is required to enter into this assessment with a Registered Surveyor and satisfactorily complete the framework units. The applicant and the Surveyor should refer to the elements and descriptors of the units to gain an understanding of the standard that is required.

The professional assessment for competency of a surveying associate applicant is a role not to be undertaken lightly. The Registered Surveyor will be a mentor to the applicant and is responsible for encouraging the professional development of the applicant. The Registered Surveyor is to ensure that the applicant achieves the level of competency and professional development required by the Board as outlined in this competency assessment. **The Registered Surveyor may be required to provide the evidence they relied upon to satisfy themselves that the applicant had a particular competency.**

An essential part of the assessment agreement is monitoring the applicant's performance, to enable comprehensive assessment to be carried out on a continual basis. It is the Registered Surveyor who provides to the Board the final assessment of the applicant's competence and this places clear obligations on the Registered Surveyor, not just toward the applicant, but equally to the profession.

The Registered Surveyor shall endorse each competency within the units and on completion of this competence assessment, will endorse the section below, finalising the applicant's competence assessment for registration as a surveying associate.

SACA Assessment Process

The applicant is required to gather a portfolio of evidence to demonstrate competency in each of the descriptors of the Surveying Associate Competency Framework. The applicant will record the company job reference and supporting documentation references collected in the Competence Assessment Summary. The portfolio of evidence may include Copies of plans, sketches, photos, printouts, field notes, QA forms etc. No report from the applicant is required, but may be included if it is deemed necessary or helpful.

The assessor (Registered Surveyor) is required to assess the applicant with reference to the descriptors of the Framework based on the evidence provided. This assessment can be completed progressively or on completion of the portfolio. It is this portfolio that may be requested by the Board.

SACA Application Process

The applicant is required to submit an application for Registration as a Surveying Associate (using Form 01A) within 12 months of completing this assessment. The supporting evidence (portfolio) is not required to be submitted with the application but may be requested by the Board for assessment purposes. The application is to be accompanied by:

- Two recent references to reputation and character (dated within the last 12 months);
- Application fee and registration fee;
- Current copy of your resume;
- This Form.

UNIT 1: PERSONAL QUALITIES

Elements / Descriptors	Job Description	Supporting Documents	Date Assessed	Assessors Comments
<p>SA 1.1 Are professional in their dealings with the public <i>An absence of contrary evidence will be sufficient evidence for this element. Applicants are obliged to reveal any matter related to their character, honesty and integrity which would affect their application.</i></p> <p>Applicants will need to demonstrate that they:</p> <p>i. Have not conducted themselves in a manner that erodes the public confidence in the profession.</p>	<p>-LS0041</p>	<p>-Notes on the importance of manners promoting the public confidence as the surveying profession.</p>	<p>06/01/20</p>	<p>the applicant, is a punctual and well-presented staff member at He has worked for the company for 1.5 years. He has the respect of his peers and our clients. has the desired to undertake further studies in Surveying, and is wishing to start his studies at USQ, this year. will be of value to the surveying profession. Competency demonstrated</p>
<p>ii. Have not been unfair or unethical in their dealings with the public.</p>		<p>-The importance of understanding the ethics, principles and values.</p>	<p>06/01/20</p>	<p>is honest and respected. I have entrusted to perform tasks, which has proven him in the aspect. Competency demonstrated</p>
<p>SA 1.2 Know and comply with published ethical codes Code of Practice for Surveyors http://sbq.com.au/member/board-publications/code-of-practice/</p> <p>Applicants will need to demonstrate that they:</p> <p>i. Understand and can explain the Surveyors Board of Queensland's Code of Practice for Surveyors</p>	<p>-LS0041</p>	<p>-Notes on the understanding of the surveyor's role and the code of practice in the Surveyors Act 2003.</p>	<p>06/01/20</p>	<p>Competency demonstrated</p>

<p>SA 1.3 Keep their knowledge and skills current Applicants will need to demonstrate that they have made themselves aware of changes in surveying practice through activities such as: i. Attending continuing professional development events</p>	<p>-LS0041</p>	<p>-Email received by BrisBIM for attending the seminar.</p>	<p>06/01/20</p>	<p>has joined myself to attended industry events. He has noted the BRISBIM event. Both he and I gain great knowledge from these events. Competency demonstrated</p>
<p>ii. Reading literature relevant to surveying practice</p>	<p>-LS0041</p>	<p>-Notes on the name of the book I have recently read.</p>	<p>06/01/20</p>	<p>has read and become familiar in QUU AS-BUILT requirements, ADAC proforma and red-pen as-built standards. He is continuing to learn when new challenges arise. Competency demonstrated</p>
<p>iii. Undertaking further formal education</p>	<p>-LS0041</p>	<p>-Planning to take Surveying courses at USQ.</p>	<p>06/01/20</p>	<p>is applying to begin a degree in Surveying at USQ.</p>
<p>SA 1.4 Know what limitations apply to their work Applicants will need to demonstrate that they: i. Can describe the regulation of surveying in Queensland. See <i>Surveyors Act 2003</i></p>	<p>-LS0041 -LS0072</p>	<p>-Notes on understanding what limitations apply to work.</p>	<p>06/01/20</p>	<p>is working as a survey technician, under the supervision of myself, Competency demonstrated</p>
<p>ii. Have not undertaken work beyond limits of personal skills and expertise <i>An absence of contrary evidence will be sufficient evidence for descriptor (ii). Applicants are obliged to reveal any matter related to their character, honesty and integrity which would affect their application.</i></p>	<p>-LS0072</p>	<p>-Notes on the absence of any contrary evidence of undertaking work beyond the limits of personal skills.</p>	<p>06/01/20</p>	<p>has not been exposed to cadastral surveys, so direct reference to the Surveyors Act does not apply. He is aware that we do not place survey marks for boundaries – as this is done by a registered person. Competency demonstrated</p>

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UNIT 2: COLLECTION OF DATA AND MEASUREMENT

Elements / Descriptors	Job Description	Supporting Documents	Date Assessed	Assessors Comments
<p>SA 2.1 Collect data by measurement Applicants will need to demonstrate that they:</p> <p>i. Use adequate redundant measurements to validate data</p>	<p>Job LS0041</p>	<p>-QA reports -Traverse dc file - a reduced level run -two peg test</p>	<p>20/12/19</p>	<p>continues to improve his measurement technique, as well as the pit falls of the method of measurement and how to check his equipment to ensure it is in adjustment. Competency demonstrated</p>
<p>ii. Can explain the need for legal traceability</p>	<p>Job LS0073 Caboolture (EDME)</p>	<p>-Notes on need for calibration</p>	<p>20/12/19</p>	<p>Competency demonstrated</p>
<p>iii. Can use the various measuring techniques available <i>Evidence of use of a variety of measurement methods in a variety of circumstances will be sufficient evidence for descriptor (iii)</i></p>	<p>Job LS0041 -Close Traverse (control) - As-built survey using SX10 robotic total station</p>	<p>-Notes on the various measuring techniques *Traverse *SX10 scanning -Traverse report</p>	<p>20/12/19</p>	<p>under supervision, undertook the yearly equipment calibrations booking of distances, at the Caboolture Calibration range. The documents are being reduced at current. Competency demonstrated</p>
<p>SA 2.2 Search and acquire existing data Applicants will need to demonstrate that they are able to:</p>	<p>Job LS0041 Detail Survey for underground services Pothole (water)</p>	<p>-Notes on how to acquire existing information -Screenshots</p>	<p>29/11/19</p>	<p>has used QLD Globe, third party suppliers (eg GlobalIX) and DBYD online tools. Competency demonstrated</p>

<p>i. Extract required information from relevant geographic and land information records, survey data bases, and general information depositories under direction of a supervisor.</p>	<p>-Assist Senior surveyor in search for Cadastral plans, PSM and DBYD</p>			
<p><u>SA 2.3 Can use and maintain GNSS surveying instruments</u> Applicants will need to demonstrate that they are able to:</p> <p>i. Define coordinates systems likely to be encountered by GNSS users and calculate GNSS coordinates</p>	<p>Job LS0041</p>	<p>-Note on GNSS coordinate system MGA, GDA and WGS84</p>	<p>20/12/19</p>	<p>Competency demonstrated</p>
<p>ii. Discuss the principles of GNSS observations</p>		<p>-Notes on principles of GNSS observations</p>	<p>20/12/19</p>	<p>Competency demonstrated</p>
<p>iii. Make observations using a GNSS receiver</p>	<p>Job LS0041 -As built survey (Underground ITS conduits)</p>	<p>-Sketch of volume survey</p>	<p>20/12/19</p>	<p>Competency demonstrated by field work.</p>
<p>iv. Explain GNSS observations techniques, and calculate and evaluate levels of accuracy associated with GNSS observations</p>	<p>Job LS0041 End of Month Stockpile volume survey</p>	<p>-Notes on observations techniques</p>	<p>20/12/19</p>	<p>Competency demonstrated with ongoing development.</p>
<p>v. Identify error sources in GNSS observations, and explain the uses and critical factors of differential GNSS techniques</p>		<p>-Notes on error sources in GNSS observations</p>	<p>20/12/19</p>	<p>Competency demonstrated with ongoing development.</p>

<p>vi. Output GNSS observations in existing local co-ordinate systems including ground based systems</p>		<p>-Note on site calibration</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>
<p>SA 2.4 Apply quality assurance principles Applicants will need to demonstrate that they are able to: i. Comply with an accepted quality assurance program</p>	<p>-LS0041 Reports on QA survey -LS0041 Gas pipe monitoring</p>	<p>-Note on Quality assurance principles and the government standards (tolerances) -Monitoring Reports -QA Reports</p>	<p>07/11/19</p>	<p>Competency demonstrated.</p>
<p>ii. Rectify non-compliance with quality standards</p>	<p>-LS0041 Setout Kerb (checked depth of profile)</p>	<p>-Screenshot of an email sent</p>	<p>07/11/19</p>	<p>Competency demonstrated.</p>
<p>SA 2.5 Process data to create information Applicants will need to demonstrate that they are able to: i. Solve problems using trigonometry</p>	<p>-Assist a registered surveyor traversing control points. LS0032 -Total Station (Trigonometry levelling)</p>	<p>-Notes on problem solving using trigonometry</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>

UNIT 3: DEVELOPMENT SURVEYS

Elements / Descriptors	Job Description	Supporting Documents	Date Assessed	Assessors Comments
<p>SA 3.1 Setout minor works Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Read, interpret and understand design and construction plans 	<p>-LS0041</p>	<p>-Notes on importance on understanding construction plans before commencing a field survey</p>	<p>10/12/19</p>	<p>Competency demonstrated.</p>
<ul style="list-style-type: none"> ii. Set out works 	<p>-LS0041</p>	<p>-Photos</p>	<p>10/12/19</p>	<p>Competency demonstrated.</p>
<ul style="list-style-type: none"> iii. Communicate results to client, construction staff and other consultants 	<p>Setout Finish Surface level for a drainage pit wall</p>	<p>-Notes on set out works</p>	<p>10/12/19</p>	<p>Competency demonstrated.</p>
<ul style="list-style-type: none"> iv. Use adequate redundant measurements to validate data 		<p>-Notes (communication results to client)</p>	<p>10/12/19</p>	<p>Competency demonstrated.</p>
<p>SA 3.2 Perform topographic surveys Applicants will need to demonstrate that, under direction of a supervisor, they have:</p> <ul style="list-style-type: none"> i. Completed a variety of topographic surveys that were fit for purpose using terrestrial and GNSS instruments. 	<p>-LS0041 Detail survey for bush area</p>	<p>-Notes on survey equipment selection when performing topographic survey</p>	<p>18/10/19</p>	<p>Competency demonstrated.</p>

<p>Descriptor (i) requires evidence that the applicant has completed detail surveys that:</p> <ul style="list-style-type: none"> Involve surveys of irregular surface levels and breaklines; and locating a range of artificial and natural features; Require creation of a digital terrain model and contours; Generate output formats (e.g. digital files, PDF) to suit the project brief. 	<p>-LS0041-0172A Detail survey of existing pits and traffic signal posts</p>	<p>-Final detail plans</p>	
<p>ii. Use adequate redundant measurements to validate data</p>	<p>-LS0041 Detail survey for bush area</p>	<p>-Notes on redundant measurements</p>	<p>18/10/19 Competency demonstrated.</p>
<p>iii. Accurately described the origin of datums and other explanatory notes</p>	<p>-LS0041</p>	<p>-Notes on the vertical datum of the site</p>	<p>18/10/19 Competency demonstrated.</p>
<p>SA 3.3 Survey and calculate volumes and quantities Applicants will need to demonstrate that under direction of a supervisor, they:</p> <p>i. Collect topographic data at appropriate accuracy and density for volume purpose</p>	<p>-LS0041 End of Month Stockpile volume survey</p>	<p>-Notes on collecting topographic data in the field -Notes on creating a volume report -Sketches</p>	<p>28/06/19 Competency demonstrated.</p>
<p>ii. Calculate and report volumes to an accuracy justified by the measurement method</p>	<p>-Job LS0041 -Job LS0072</p>	<p>-Volume Report</p>	<p>28/06/19 Competency demonstrated – gaining knowledge of why and how you measure element to get the desired outcomes.</p>
<p>SA 3.4 Know and apply occupational health and safety requirements See Coal Mining Safety and Health Act 1999</p>	<p>-Job LS0041 -Job LS0072</p>	<p>-Notes on applying occupational health and safety requirements in a workplace</p>	<p>06/01/20 Competency demonstrated.</p>

<p><i>Mining and Quarrying Safety and Health Act 1999</i> <i>Work Health and Safety Act 2011.</i></p> <p>Applicants will need to demonstrate that they:</p> <p>i. Can describe the requirements of occupational health and safety legislation in Queensland that is pertinent to their work environment</p> <p>ii. Use occupational health and safety procedures that comply with the relevant legislation</p>	<p>-Job LS0041</p> <p>-Job LS0072</p>	<p>-Notes on applying occupational health and safety requirements in a workplace</p>	<p>06/01/20</p>	<p>Competency demonstrated – working for a contractor on their Workplace Health and Safety System – BIELBY – MCILWAIN system – pre-start risk assessment</p>
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UNIT 4: PROCESS FIELD MEASUREMENTS

Elements / Descriptors	Job Description	Supporting Documents	Date Assessed	Assessors Comments
<p><u>SA 4.1 Can detect errors in existing data and field observations.</u> Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Identify errors in data that is supplied by other parties ii. Use quality assurance processes to ensure that errors are detected and eliminated 	<p>LS0041 (Generate accurate output formats) -BW02N</p>	<p>-Screenshots -Notes on error in given electronic data</p>	<p>06/01/20</p>	<p>Competency demonstrated – working towards more complex data checking and validation.</p>
<p>ii. Use quality assurance processes to ensure that errors are detected and eliminated</p>	<p>LS0041 -Create alignments report showing the design coordinates & elevations</p>	<p>-Alignment report -Screenshots of paper plan</p>	<p>06/01/20</p>	<p>Competency demonstrated – go beyond the obvious. Check against other possible elements to be contrasted in the area to see if they will clash. Foresight is as beneficial as hindsight.</p>
<p><u>SA 4.2 Understands the accuracy of existing data and creates new data with appropriate accuracy.</u> Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Determine the accuracy and reliability of data 	<p>LS0041 (Generate accurate output formats) -BW02N</p>	<p>-Notes on accuracy and reliability of data -Notes on pothole and locator level data capture</p>	<p>06/01/20</p>	<p>Competency demonstrated.</p>
<p><u>SA 4.3 Can combine existing data with new survey data</u> Applicants will need to demonstrate that, under direction of a supervisor, they:</p>	<p>LS0041 Organise field survey data depending as per its purpose</p>	<p>-Notes on effective ways to combine existing data with new survey data</p>	<p>06/01/20</p>	<p>Competency demonstrated.</p>

<p>i. Are able to deduce or estimate the accuracy limitations of existing data sets</p>	<p>-As-built -> All services, pavement files</p>	<p>-Notes on not using data sources of insufficient accuracy in survey products.</p>		
<p>ii. Do not use data sources of insufficient accuracy in survey products</p>	<p>-Existing → Detail file</p>	<p>20/12/19</p>	<p>06/01/20</p>	<p>Competency demonstrated.</p>
<p>SA 4.4 Can produce plans that are accurate, legible and useful Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <p>i. Use a computer aided drafting package to produce paper plans</p>	<p>LS0041 (Prepare and produce electronic plan) LS0109 (BRS Fernvale Rising Sewer Main ADAC Redpen)</p>	<p>-QA Plan -Design plan (Clash detection) -Layout & Cross Section plans -ADAC (Redpen)</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>
<p>ii. Produce sketches that are fit for purpose <i>Descriptor (ii) requires evidence that the applicant produces plans for set out operations that accurately and unambiguously identify the marks placed and their relation to works to be constructed.</i></p>			<p>20/12/19</p>	<p>Competency demonstrated.</p>
<p>SA 4.5 Can produce electronic models and plans Applicants will need to demonstrate that they are able to:</p> <p>i. Use a computer aided drafting package to produce electronic plans</p>	<p>LS0041 (BR09 & BR10 – Extracted data from an IFC file and imported to Terramodel)</p>	<p>-DXF -DTM (TTM) -CSV</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>

<p>Descriptor (i) requires evidence that the applicant produces plans where the plan information is accurately and unambiguously ordered to prevent misinterpretation by other parties.</p>	<p>-Create TTM for PAM6 area LS0041 (Prepare and produce electronic plan)</p>			
<p>ii. Create digital models of physical surfaces</p>	<p>LS0041 Create DTM</p>	<p>-DTM (TTM) -Notes on how to create digital models</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>

UNIT 5: COMMUNICATION

Elements / Descriptors	Job Description	Supporting Documents	Date Assessed	Assessors Comments
<p>SA 5.1 Communicate effectively Applicants will need to demonstrate that they are able to:</p> <ul style="list-style-type: none"> i. Communicate effectively, orally and in writing 	<p>LS0041</p>	<p>-Notes on effective communication</p>	<p>19/12/19</p>	<p>Competency demonstrated.</p>
<ul style="list-style-type: none"> ii. Give clear, accurate reports to supervisors 		<p>-QA Reports (kerb, drainage, and subgrade)</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>
<ul style="list-style-type: none"> iii. Successfully use electronic communications technologies 		<p>-Screenshots of an email sent</p>	<p>20/12/19</p>	<p>Competency demonstrated.</p>
<p>SA 5.2 Prepare reports Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Prepare documents on measurement and data 	<p>LS0041 -Prepare QA reports</p>	<p>-QA Reports (kerb, drainage, and subgrade)</p>	<p>19/12/19</p>	<p>Competency demonstrated.</p>
<p>SA 5.3 Certify data Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <ul style="list-style-type: none"> i. Apply effective validation procedures for certification by another 	<p>LS0041 -W20N (ADAC Redpen)</p>	<p>-ADAC Plan including registered surveyor's certification</p>	<p>06/01/20</p>	<p>Competency demonstrated.</p>

ii. Effectively identify and manage risk associated with certification		Note on risk associated with certification	06/01/20	Competency demonstrated Signed by "name" for "the company"
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UNIT 6: SURVEY CONTROL

Elements / Descriptors	Job Description	Supporting Documents	Date Assessed	Assessors Comments
<p>SA 6.1 Use geodetic reference systems Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <p>i. Use appropriate geodetic datums and map projections</p>	<p>LS0041 ADAC preparation (Using geodetic reference system)</p> <p>LS109 (BRS Fernvale Rising Sewer Main ADAC)</p>	<p>Definition of geodetic reference systems and vertical datum used for project</p> <p>Notes on the process of converting local coordinates to MGA</p>	06/01/20	Competency demonstrated.
<p>SA 6.2 Integrate survey control Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <p>i. Describe and comply with the regulation of surveying and mapping infrastructure in Queensland See <i>Survey and Mapping Infrastructure Act 2003</i></p>	<p>LS0041 -Assist a registered surveyor with boundary corner set out</p>	<p>-Notes on finding evidence of previous surveys</p>	23/09/19	Competency demonstrated.
ii. Find and recognise evidence of previous surveys			23/09/19	Competency demonstrated.

<p>SA 6.3 Establish and measure horizontal survey control Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <p>i. Establish project control networks using GNSS and terrestrial measurements</p>	<p>LS0041 -Closed Traverse</p>	<p>-Traverse Report -Notes on difference between ellipsoidal distance and terrain distance</p>	<p>23/09/19</p>	<p>Competency demonstrated.</p>
<p>ii. Use adequate redundant measurements to validate data</p>		<p>-Notes on traverse (redundant measurements)</p>	<p>23/09/19</p>	<p>Competency demonstrated.</p>
<p>SA 6.4 Establish and measure vertical survey control Applicants will need to demonstrate that, under direction of a supervisor, they are able to:</p> <p>i. Perform precise level measurements</p>	<p>LS0041 -Sprit level run</p>	<p>-Level Run Reports</p>	<p>17/06/19</p>	<p>Competency demonstrated.</p>
<p>ii. Identify the effects of curvature and refraction on levelling and apply this knowledge to trigonometrical levelling</p>		<p>-Definition of curvature and retraction -Notes on the methods to eliminate the effects of curvature and refraction on levelling</p>	<p>17/06/19</p>	<p>Competency demonstrated.</p>

Recommendation

This assessment is for the applicant: _____
(PRINT NAME AND SIGN)

The above named applicant has successfully demonstrated competency in all descriptors of the Surveying Associate Competency Framework. The summary above describes the evidence relied upon to complete the assessment. I recommend the applicant for registration as an Associate Surveyor.

The assessment was performed by
Registered Surveyor: _____
(PRINT NAME AND SIGN)
31/01/2020

and was concluded on