

Company Profile





Introduction

From its humble beginnings in Kew in 1974, Landair Surveys has since grown to become one of Australia's leading surveying companies specialising in land, engineering and aerial surveying. We have decades of experience, cutting edge technology and a team of skilled professionals to provide world-class surveying services to private, corporate and government clients across Australia.

We value the safety and well being of all our staff and clients, as well as delivering results of the highest quality and accuracy. Landair Surveys has comprehensive Occupational Health and Safety systems in place as well as an independently certified ISO 9001 Quality Management System.

On behalf of the team at Landair Surveys, I sincerely look forward to working with you in the future on your next surveying project.

Kind regards,

Erik Birzulis

Managing Director

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Our Solutions

Over the last thirty years we have been mastering different surveying methodologies and technologies to offer our clients the best surveying solutions for:

- Architects
- · Infrastructure projects
- Landfills
- · Property consultants
- Property developers
- Quarries.

To achieve the best results for our clients we implemented a Quality Management System in accordance with the International Organisation for Standardization standard ISO 9001.

No matter what the problem, at Landair Surveys we have the right technology to provide a suitable solution. Depending on the scope and the scale of a particular project, we would apply one or a combination of the services that we offer.



Our Services

Landair Surveys is renowned for delivering the very best results through a range of different surveying techniques that we have perfected over time. We offer the following services:

- · 3D Laser Scanning
- Lease Area Surveys
- Aerial Photography
- Near-Infrared Imagery
- Bathymetric Surveys
- Orthophotos
- Construction Setout
- Photogrammetry
- · Drone Data Processing
- Site Analysis Surveys
- Drone (UAV) Surveys
- Spatial Data Management
- Due Diligence Surveys
- Subdivisions
- Engineering Surveys
- Title Surveys
- Existing Conditions Surveys
- · Underground Service Locating
- Identification Surveys
- · Volumetric Surveys.

The changes to the features of a landscape tell a story that anyone can see; however, telling that story accurately requires experience and knowledge.

At Landair Surveys we have been telling this story for over 30 years. Our surveying skills are a vital part of any large or small scale project that we have been involved in.



3D Laser Scanning

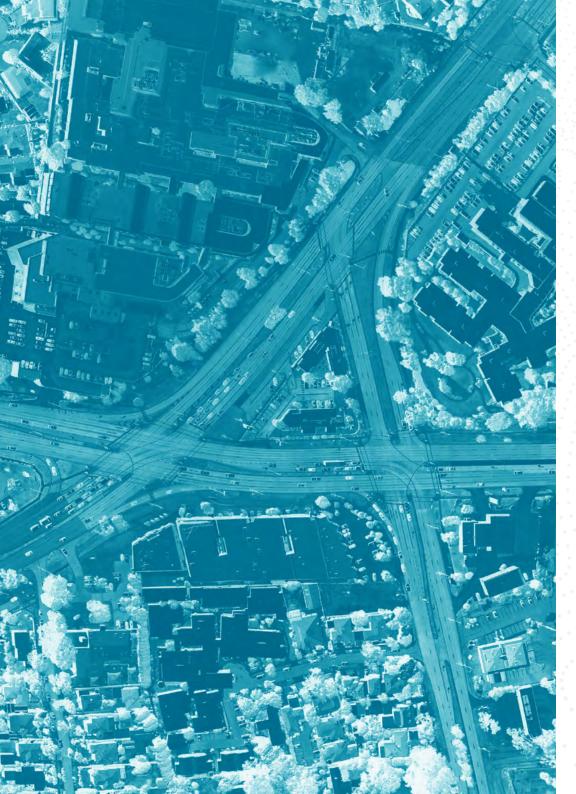
At Landair Surveys we offer advanced 3D laser scanning service, providing your designers and engineers with a fully workable 3D model of your entire site, in the most appropriate format (e.g.: 3D PDF, AutoCad, Revit, 12D). You can then view and measure every possible data point at your site, from every angle and reference point.

Why Use a Laser Scanner

- · Rapid data collection means minimal site disruption;
- Save money. All visible features measured first time, call backs almost eliminated;
- · Minimise your risk;
- · Design with confidence and
- Get a complete photographic record as bonus!

A laser scanning survey generates a point cloud. This is a dataset containing millions of points all with accurate three dimensional coordinates representing the scanned face of an object such as a building. Often the point clouds are also in colour or in greyscale allowing for easy interpretation.

Some of our clients prefer us to supply the point cloud, however others ask for 2D AutoCAD plans, elevations and sections, 3D AutoCAD models, 3D Revit models. We can supply AutoCAD and Revit models to your specifications.



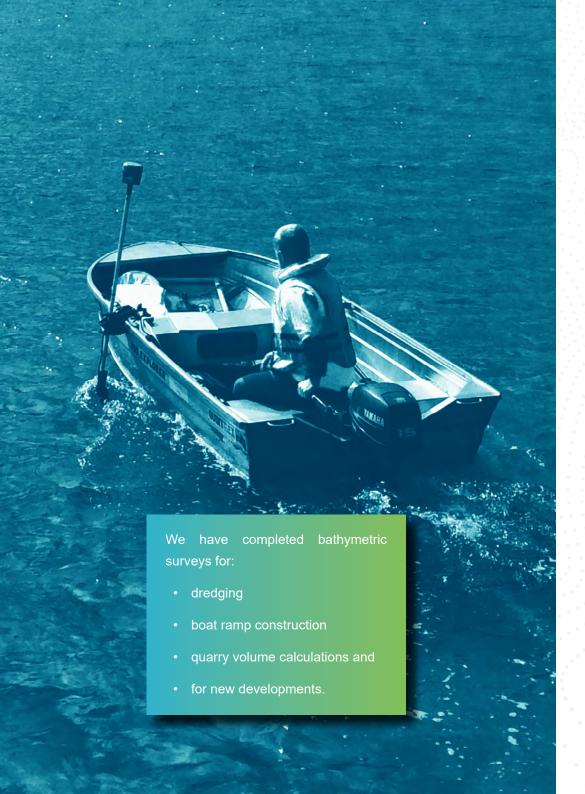
Aerial Photography

At Landair Surveys we capture aerial photography from a twin engine aeroplane making it possible to take photographs of any location in Australia. Our photos can be taken looking straight down over a target site (vertical photography) or looking from the side at a site (oblique photography). For vertical photos we use a Leica RCD30 80-megapixel medium format specialised aerial camera.

Aerial photos can be used for planning, 3D mapping, volumetric surveys, vegetation asset management and promotional activities.

Managing new works projects effectively means lower costs, more efficient time management and keeping plant or site shutdowns to an absolute minimum.

- · Save money
- · Stay up-to-date
- Get enough detail with no fuss
- · Get the big picture
- · Calculate volumes
- · Use in complex environments



Bathymetric Surveys

Bathymetric surveys involve measuring the terrain of lake, dam or ocean floors to determine the bed profile.

We can prepare a model of the bed using a single beam echo sounder in conjunction with a total station or survey accurate GPS.

Whilst we have been performing bathymetric surveys for years in Brisbane, Sydney and Melbourne; in June 2018 we purchased a brand new dual frequency CEE-LINE Hydrographic Survey Echo Sounder. This enables us to not only measure the contours of the lake bed but also to measure the depth of sediment in lakes.



Construction Setout

At Landair Surveys we can assist in setting out your construction project, from house extensions to industrial and commercial properties and multi storey buildings. We can also assist you with your engineering projects such as pipelines, new roads, earthworks, landfills and quarries.

All our surveyors have construction induction cards (red cards) and we have comprehensive Safe Work Method Statements ensuring safe work is undertaken at all times.



Drone Data Processing

As well as using our own CASA certified pilots to carry out drone (UAV or RPAS) surveys we also process drone data collected by our clients.

Some of our clients capture their own drone imagery but don't have the time or in house expertise to undertake more than basic image processing and basic volume calculations.

Data Processing

To get UAV data into engineering, mining and quarry planning software further semi-automatic and manual processing is generally required. This further processing involves extracting 2D and 3D lines and strings from the **Digital Terrain Model** (DTM). The lines and strings model ground relief features such as tops and toes of batters, benches, tracks, roads, water bodies and surface drainage lines. Detail features such as fences and buildings are also extracted from the DTM.

Volume Calculations from Drone Data

Cloud based automatic volume determinations are good for approximate stockpile volumes but are generally inaccurate when stockpiles are complicated by for example sitting over benches, having uneven bases, having conveyors above or below the stockpile, where stockpiles abut each other or where stockpile extents are difficult to define. Our clients can upload their drone data to our secure site where we can process to the required outputs.

Examples of drone surveys include: Thermal mapping Stockpile volumes Roof top inspections Landfill cell flyovers Construction site monitoring, and Utility inspections.

Drone (UAV) Surveys

Landair Surveys is a CASA-certified supplier of Remotely Piloted Aircraft (RPA) services for surveying and photogrammetry applications.

Under the supervision of our chief remote pilot, Unmanned Aerial Vehicles (UAVs, commonly referred to as drones) are launched to capture accurate, high resolution, low-altitude aerial images for a variety of uses across the Quarry, Landfill, Architectural & Commercial Sectors.

We use our thirty-plus years of aerial mapping experience to maintain the quality of our UAV imagery and take the necessary steps to achieve the high levels of mapping accuracy required by our clients. We are professionals in our field with special emphasis given to support the aerial mapping industry through quality-checked deliverables.

We use both the fixed-wing & multi-rotor UAV platforms allowing greater flexibility to accurately measure diverse, and sometimes challenging, environments. Our pilots are CASA-approved and undertake their work with a keen eye for public safety and ongoing risk management.

Landair Surveys is fully insured for UAV applications.



Due Diligence Surveys

We are registered and licensed surveyors and have years of experience delivering identification and re-establishment surveys on properties. We measure the site involved to determine the location of buildings on, or adjacent to the land and any fences present. We check for the existence of easements (for drainage, etc.), covenants and restrictions on land use, and whether or not the subject land complies with the terms of these conditions.

At Landair Surveys we pay special attention to any encroachments by or upon the land or upon any easements. We will report on the distances of the walls from the side boundary of the land and can help check that your boundaries and land area (measured in square metres) are correct. We will also ensure that the dimensions correctly relate to your certificate of title, and that no buildings or structures cross any land boundaries onto neighbouring properties (and vice versa).

A part of this due diligence process may be to request a registered and licensed surveyor to undertake a lease area survey of the building.

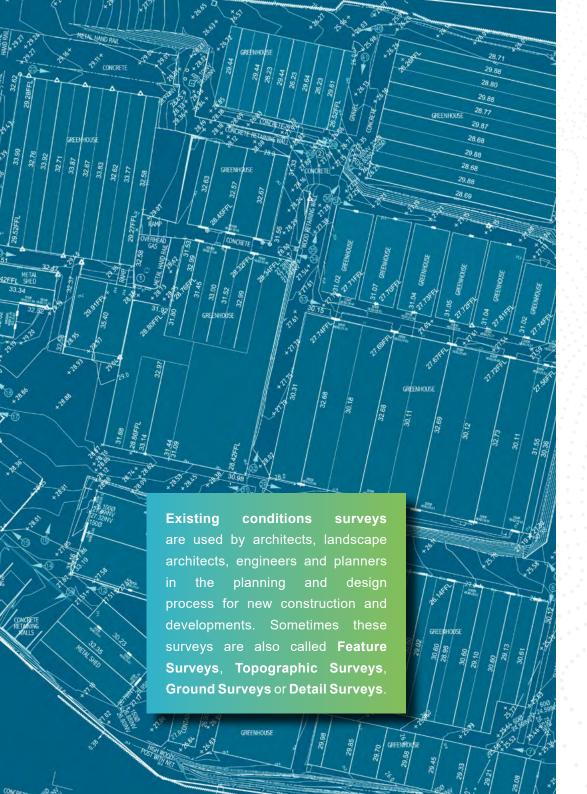


Engineering Surveys

We help architects and building construction teams ensure that the projects progress according to their designs, structures are built within given tolerances and comply with the quality standards and building regulations.

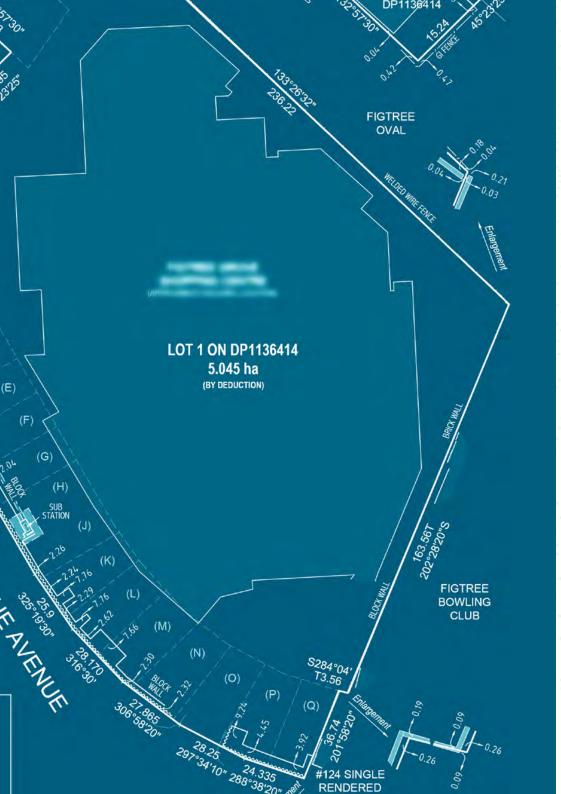
The type of work we deliver for our clients includes:

- Topographic surveys for the collection of spatial data to allow for design;
- · Preparation of plans for use in engineering design;
- Design and provision of horizontal and vertical control survey networks;
- Setting-out line, grade and other layout points for construction purposes;
- Quality control measurements of spatial relationships and tolerances during construction;
- Monitoring of structure and ground stability and settlement;
- As-built surveys to document completed construction works and any departures from design.



Existing Conditions Surveys

Depending on the brief, Landair Surveys can undertake surveys that range from small scale residential developments to large areas that require the use of aerial photogrammetry. We are able to provide data for different applications and in a number of formats.



Identification Surveys

Depending on what State your site is located, **identification surveys** or **property surveys** may differ as they have to comply with different legislation.

New South Wales

We conduct Identification Surveys (also called Idents and Property Surveys) throughout Sydney.

This is a survey that identifies existing buildings and improvements on a property. This may be required for a number of reasons, for example, to check whether there are any boundary issues prior to purchasing a property or to settle a boundary fencing dispute with a neighbour.

During the survey we determine the location of buildings on or adjacent to the land and any fences present. We will check for the existence of any Easements, Covenants and Restrictions on land use, and whether or not the subject land complies with the terms of these conditions. We report on any encroachments by or upon the land or upon any Easements. In the instance of a residence the Surveyor will report on the distances of the walls or eaves and gutters from the side boundary of the land.

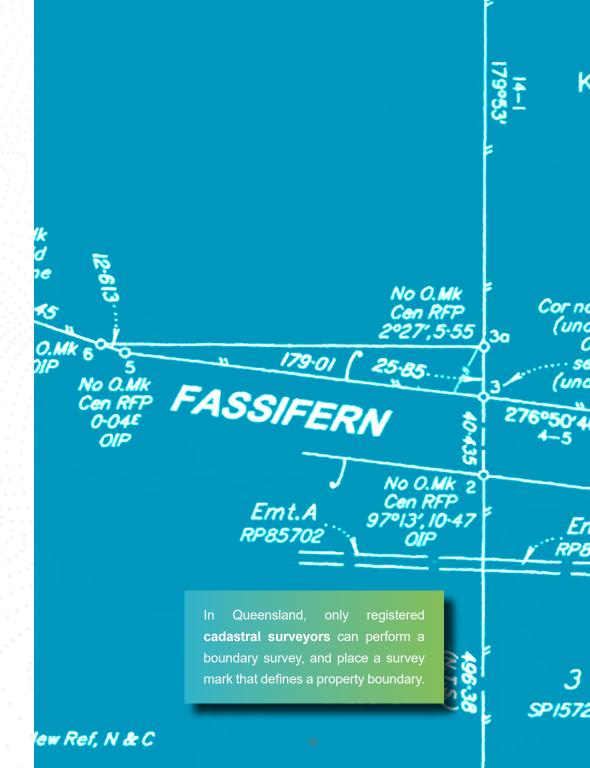
Queensland

From Landair Surveys office in East Brisbane we conduct Identification Surveys (also called Idents and Property Surveys) throughout South East Queensland.

This is a survey that identifies and marks existing property boundaries. This may be required for a number of reasons, for example, to build a fence, build a house or garage near a boundary or to settle a boundary fencing dispute with a neighbour.

During the survey we determine the location of the land boundary and mark the boundary corners on the ground.

Afterwards, as required by law, we lodge an Identification Survey plan at the Department of Natural Resources and Mines (DNRM).



FIRE STAIRS **CAFE CAFE STORAGE** 265.2m² 29.7m² "B" CUB 576.4m² 445.8m² **CUB CAGE AREA** 17.4m² "B" **FOYER LIFTS** ENTRANCE **TOILETS LIFTS** 668.2m²

Lease Area Surveys

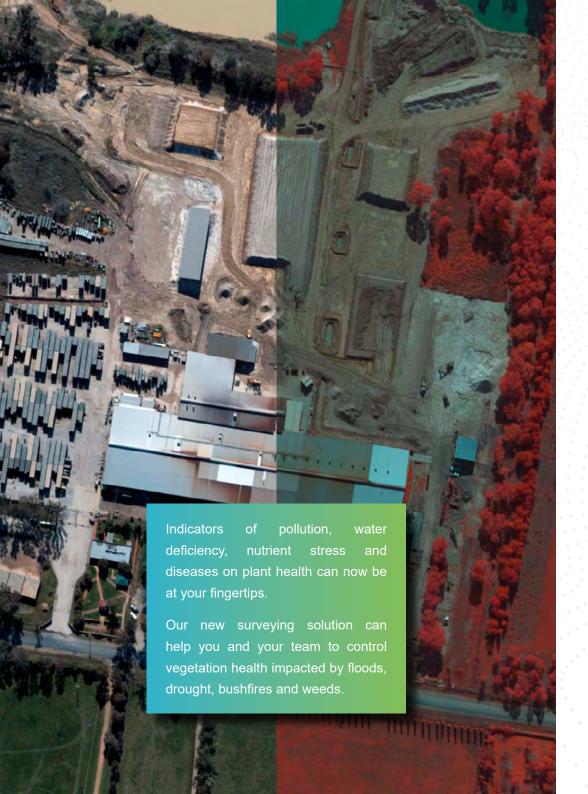
We deliver the three types of Lease Area Surveys:

- Net Lettable Area (NLA) is used in office buildings and office and business parks.
- Gross Lettable Area Retail (GLAR) is used for measuring floor area of retail tenancies in shopping centres, commercial buildings and strip and free standing shops.
- Gross Lettable Area (GLA) is used for tenancy areas in warehouses, industrial buildings, free standing supermarkets and showrooms.

Lease Area Surveys are needed when entering into, renewing or negotiating a lease of a property for your business. At Landair Surveys we have helped buyers, investors, property owners, property managers, tenants and agents all complete Lease Area Surveys to enter into lease agreements with professionalism and ease.

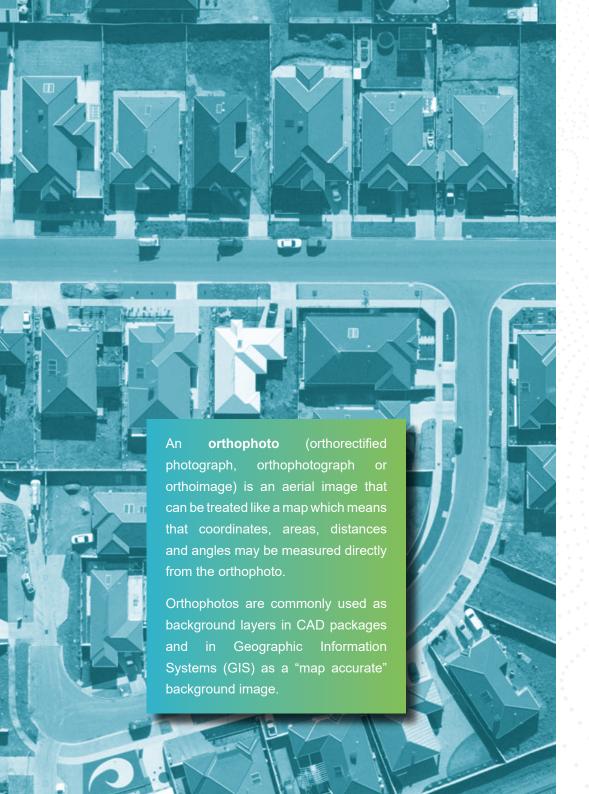
At Landair Surveys we use the PCA's Method of Measurement for Lettable Area as a basis for all measurements.

We comply with the requirements of the Property Council of Australia when completing Lease Area Surveys, which helps to avoid owner-tenancy disputes and provides forward thinking business planning in regards to the costs and uses of the area.



Near-Infrared Imagery

Our state-of-the-art Leica equipment allows us to collect the near infrared band at the same time as the normal colour imagery. This data allows land managers and consultants to improve vegetation asset management by measuring environmental stresses.

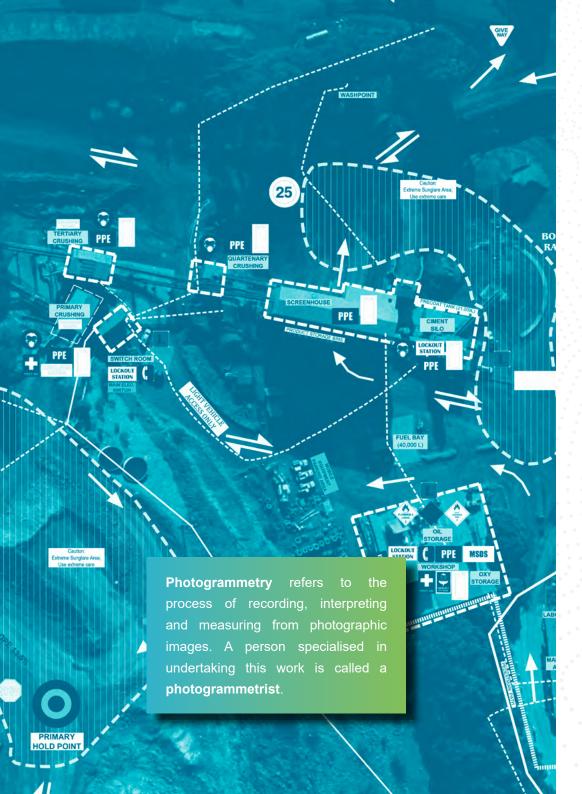


Orthophotos

All photographs have distortions in them. **Orthorectification** is the process of removing the effects of image distortion induced by the sensor (camera), viewing perspective, and relief (ground surface) to create an image that is planimetrically correct. The resulting orthorectified photograph, or orthophoto has a constant scale meaning that features are represented in their true positions in relation to their ground position.

An **orthomosaic** is a detailed, accurate photo representation of an area, created out of many photos that have been stitched together and orthorectified.

At Landair Surveys we create orthophotos for small sites such as development sites, quarries, mines, landfills as well as entire towns and water catchment areas. We can also overlay other data onto orthophotos such as contours, geographic information, traffic management information, underground and overhead services and title boundaries.



Photogrammetry

At Landair Surveys we use aerial photogrammetry to prepare three dimensional plans and maps. The maps are used in planning and design of infrastructure such as highways, dams, wind farms, mines, quarries, landfills and for development projects. Photogrammetry is a great tool for measuring volumes.

The advantages of aerial photogrammetry over traditional ground surveying are:

- it is the cheapest and quickest way of mapping a large area,
- · there are no site access issues,
- the photogrammetric map is a record of features and levels at an instant in time,
- especially useful in rapidly changing sites such as mines, quarries and landfills.

Site Analysis Surveys are also called ResCode Surveys, Site Descriptions, and Site Context Plans.

Site Analysis Surveys

Site Analysis Surveys are often required as part of the subdivision or property development process.

At Landair Surveys we produce site analysis surveys for architects and building designers, who use these surveys to design developments on land and to support planning permit applications with councils.

These plans show existing features and levels on the subject and adjoining land including windows, roof ridges and eaves, floor levels, trees, buildings, fences, retaining walls, contours, street frontage features, paths and driveways.



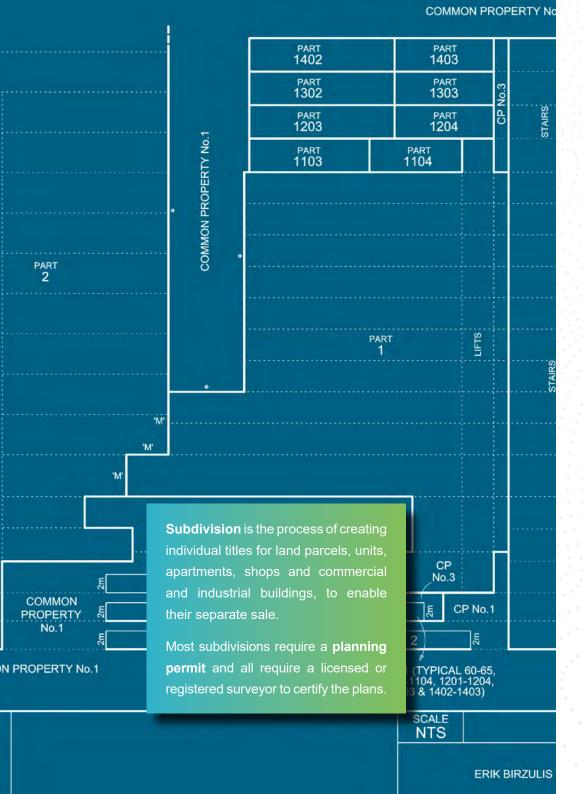
Spatial Data Management

Effective data management has become increasingly important in the modern world. We can create a dynamic, single point-of-reference file that aligns all the spatial data for a given project or site. Various data hosting options are available.

Having a dynamic, single point-of-reference file for a project's spatial data is an important tool allowing site managers and relevant stakeholders to make informed decisions based on all the information available.

At Landair Surveys we offer our clients the service of consolidating all their spatial data into an easily accessible reference file. All data is aligned to a single coordinate system and assigned to various CAD layers for ease of viewing and interrogation.

Clients that have benefited from this service include landfill operators, architects, construction firms and quarry managers.



Subdivisions

At Landair Surveys we can provide you with surveys to design your proposed subdivision, such as:

- · Existing conditions surveys or Detail surveys
- Site analysis surveys or ResCode surveys.

We are willing to liaise with the relevant authorities during the subdivision process and help you with the design of your proposal.

We have been undertaking subdivisions for clients throughout Victoria, New South Wales and Queensland since 1974. We can assist with:

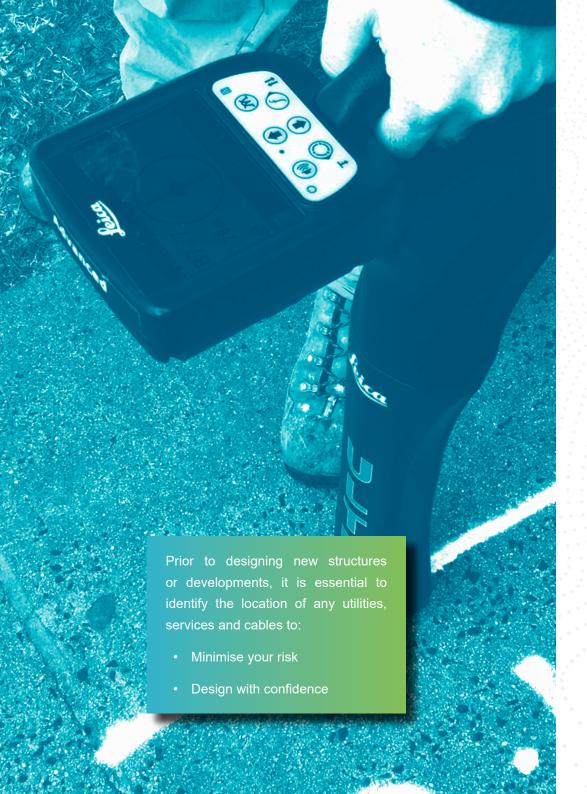
- Land subdivisions from two lots through to multi stage industrial and residential developments in urban and rural areas
- · Building subdivisions of existing and new developments
- Stratum subdivisions
- Subdivisions for land acquisition by authorities.



Title Surveys

At Landair Surveys we can perform title surveys, so you could:

- · Know where the boundaries of your property are
- Build on or near your boundaries
- Claim title to land under adverse possession
- · Subdivide your property
- · Consolidate multiple titles
- · Create or remove an easement over your property
- Establish a building strata development.



Underground Service Locating

At Landair Surveys our NULCA trained locators can pin point the location of:

- · Power cables
- · Communication cables
- Sewer
- Water
- Stormwater
- Gas

Once the service or utility is located, our surveyors measure the location and add this information to our existing condition plans.



Volumetric Surveys

At Landair Surveys we carry out surveys to determine the volume of material stockpiles, amount of material removed from excavations and quarries, the capacity of dams and the amount of airspace remaining in landfills.

There are three methods that we use to determine volumes: ground survey, UAV survey and aerial survey. The advantages and disadvantages of two of these methods are discussed below.

Ground Survey

Surveyors use special GPS receivers to measure the location and levels of the tops and toes of stockpiles and any other changes in grades. This data is recorded electronically to an accuracy of +/-20 millimetres and downloaded directly into survey software at the office. A 3D model of the stockpile is then prepared using the software and a volume is determined.

Ground surveying is possible in any weather conditions and at short notice and is more accurate than aerial surveying. Generally results are also available sooner. If there are many stockpiles to measure or the area is very large then the ground survey can be time consuming.

UAU Survey

Using unmanned aerial vehicles (UAVs)—more commonly known as drones—multiple overlapping images are taken approximately 100m above ground surface level. These images are then

processed into a 3D surface model and accompanying orthophoto representing existing conditions at the time of survey. The generated 3D mesh is further edited to represent bare earth topography from which accurate volumes can then be determined. UAV surveys are most beneficial and cost-efficient for medium-scale site mapping under 1km²

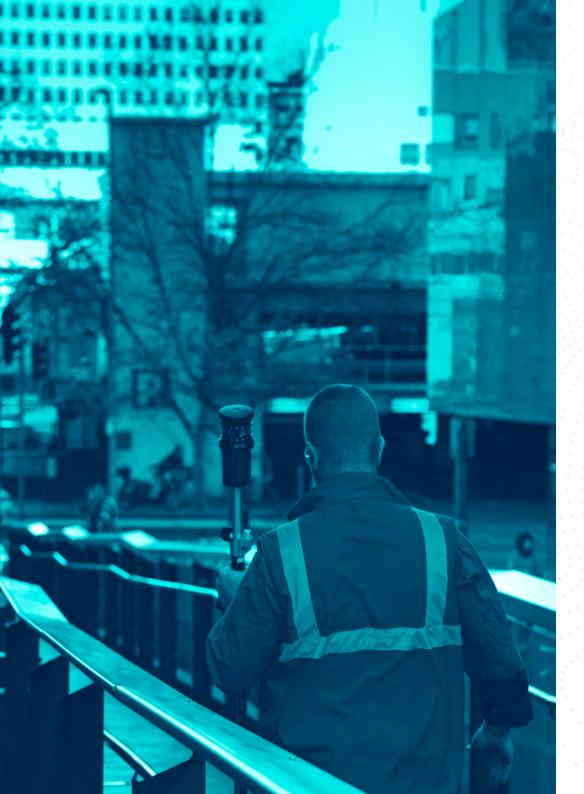
Aerial Survey

Using an aeroplane, Landair Surveys takes stereo imagery of the subject site. This imagery is then brought into photogrammetric software to produce a 3D model of the area where the volumes are to be determined.

We can calculate stockpile volumes as well as quarry extraction volumes and landfill capacity volumes.

Aerial surveying allows a snapshot of the ground situation at a single instant and is an efficient method for measurement when the site to be measured is large, there are many stockpiles or there is a large area to measure.





Health and Safety

At Landair Surveys our staff and director have a tremendously strong commitment to health and safety. Our policies and procedures are designed to ensure the safety of our staff, other contractors and the general public at all times.

Our OH&S system comprises:

- · Occupational Health and Safety Policy
- · Comprehensive induction for all new employees
- Detailed Occupational Health and Safety Procedures
- · Accident and Incident Reporting and Monitoring
- Safety Inspections
- Monthly staff meetings
- Quarterly Quality Management meetings where safety performance is analysed
- Safe Work Method Statements (SWMS) for fieldwork
- Online induction programme for all new employees with yearly refreshers.

All of our team members have first aid training and all field staff have a Construction Induction Card.





Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that: Landair Surveys

1/87-91 Heatherdale Road Ringwood VIC 3134

Holds Certificate Number: FS 520418

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

For the provision of land and aerial surveys, including laser scanning, photogrammetry and aerial photography.

For and on behalf of BSI:

Marc Barnes, Managing Director, BSI Group ANZ

Original Registration Date: 1999-10-28 Latest Revision Date: 2018-09-04





Effective Date: 2018-09-04 Expiry Date: 2020-10-28

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...making excellence a habit."

This certificate was issued electronically and remains the property of BSI Group ANZ Pty Limited, ACN 078 659 211 and is bound by the conditions of contract. This certificate can be verified at www.bs-laboba.com/clientdirectory. Printed copies can be validated at <a href="https://www.bs-laboba.com/clientdirectory, or www.jas-anz.org/register or telephone + 61 2 9925 2700. Further clarifications regarding the scope of this certificate and the application of the score of the

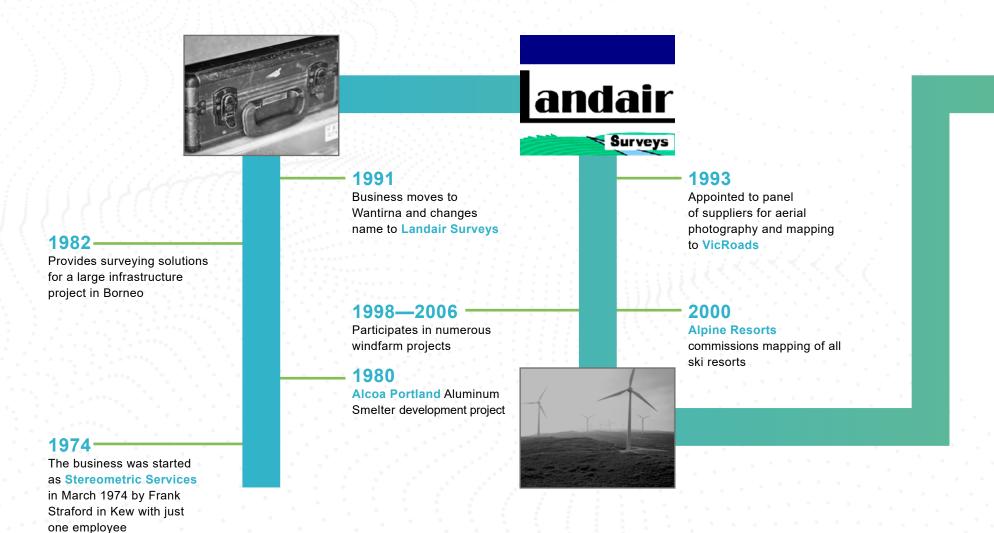
Quality Management System

At Landair Surveys we utilise a Quality Management System in accordance with the International Organisation for Standardization standard ISO 9001. This means that we have systems in place to control our processes and to achieve consistent quality and to continually improve our services.

We strive to maintain the firm's reputation throughout the industry for quality service and the provision of a high quality product with client satisfaction being of paramount importance.

Our quality management system is independently audited every year by BSI. All of our team members play a part in developing our systems and undertake internal audits. Team members also undertake training and continual professional development to ensure we provide exceptional service.

Our History





2005-2010

Provides surveying solutions to the EastLink project in Melbourne

2007 -

Produces mapping for NSW catchments

2009 -

Appointed to panel of preferred suppliers for land and engineering surveying to VicRoads

2015

Tests and introduces drone (UAV) surveying

2010 -

Provides aerial photography for flood and disaster relief program

2018

Moves to a new head office in Ringwood, Victoria

2017

Introduces Near-Infrared Imagery (NIR) service

2012

Introduces 3D laser scanning technology to Australian market





Environment

Moving into the future, Landair Surveys supports the view that every business should take responsibility for any impact they may have on the environment. That is why we have joined the Victorian Employers Chamber of Commerce and Industry's "*Grow Me The Money Program*".

This is an initiative developed in partnership with EPA Victoria to help small business become more sustainable, and save money on resource usage by following a twelve step program. It's an introductory environmental management system focussed on monitoring, reporting and reducing resource consumption.

We feel that it is important to be proactive in the industries that we service and to carry on our business in an environmentally conscious way.

Our Clients











ARCHITECTS & HERITAGE CONSULTANTS









































Our Team

Managing director Erik Birzulis and directors Trent Webb and Ray Cox lead a team of professionals with a wide range of experience and qualifications allowing us to provide, personal, responsive, professional and cost efficient services to our clients. Our team includes:

- Photogrammetrists
- Licensed and registered cadastral surveyors
- Engineering and construction surveyors
- Survey assistants
- CAD operators
- Underground service locators
- CASA licensed UAV operators
- Admin staff.















Industry Associations

Over the years we have built a network of professional bodies that we are actively involved with:

- · Waste Management Association of Australia (WMAA)
- · Institute of Quarrying Australia (IQA)
- Construction Materials Processors Association (CMPA)
- · Victorian Chamber of Commerce and Industry
- Association of Consulting Surveyors Victoria (ACSV)
- · Institution of Surveyors Victoria (ISV)
- Surveying and Spatial Sciences Institute (SSSI)
- Property Council of Australia
- Institution of Surveyors NSW.

Landair Surveys recognises the importance of being a part of these associations and organisations in order to stay up to date with industry news, trends and research. We value their contribution to the Australian society and we are proud to work alongside these professional bodies.



Company Details

Legal

Legal Name: Landsur Pty Ltd as trustee for

Landair Surveys Trust

Trading Name: Landair Surveys

ABN: 31 313 157 757

ACN: 078 606 185

Insurance

Professional Indemnity: \$10 million

Public Liability: \$20 million



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Our Directors

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Managing Director erik@landair.com.au

Trent Webb

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Ray Cox

OH&S, UAV Operations ray@landair.com.au



Land, Engineering and Aerial Surveying Services