University of Southern Queensland
Faculty of Engineering and Surveying

Proposal to Incorporate Volumetric (Three Dimensional) Subdivisions in Victoria

A dissertation submitted by

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In fulfilment of the requirements of

Courses ENG4111 and 4112 Research Project

Towards the degree of

Bachelor of Spatial Science (Surveying)

Submitted: October, 2009

Candidates Certification

I certify that the ideas, designs and experimental work, results, analysis and conclusions set out in this dissertation are entirely my own efforts, except where otherwise indicated and acknowledged.

I further certify that the work is original and has not been previously submitted for assessment in any other course or institution, except where specifically stated.

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Abstract

This project researched the development of three dimensional subdivisions in Victoria and analysed the current limitations by comparing it with legislation from other states. It then determined how current best practice from other states could be incorporated into the current Victorian system.

Case studies of a similar nature were identified from both Victoria and Queensland to make comparisons on how the subdivisions were performed and their respective plans drawn.

Research has shown that currently, there is very little written with respect to three dimensional subdivisions outside of legislation in Victoria. There are only two sections within the legislation that refer to three dimensional subdivisions. The first refers to how buildings defined by boundaries can be defined and how they are to be shown, and the second specifies that an elevation, section or diagram must be used when lots lay in stratum. Lots can take any shape as legislation does not define any limitations, provided they can be mathematically defined, if not defined by structure.

Queensland and Western Australia were the only states that had legislation specifically written for three dimensional subdivisions outside of a standard building subdivision. Western Australia's legislation was found to have more flexibility than Queensland.

It has been found that Victoria lacks examples of plan presentation types for three dimensional subdivisions in the *Survey Practice Handbook 1997*. Because no examples exist, most surveyors are not aware of the options available to them, and continue to draw lots in plan and section format only, rather than an isometric view or another method that may be suitable.

Acknowledgements

This research was carried out under the principal supervision of Mr Glenn Campbell, Lecturer at the University of Southern Queensland.

Appreciation is also due to Mr Greg Williams, Licensed Surveyor, Bosco Jonson Pty. Ltd., Melbourne, and Mr Peter Swan, Principal Advisor, Spatial Policy, Spatial Information Group, Department of Environment and Resource Management.

I would also like to offer my sincere thanks and gratitude to my family during the time spent on this project and away from them. Their patience and support has been amazing.

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Nomenclature and Acronyms

The following abbreviations have been used throughout the text and bibliography:-

ACSV	Association of Consulting Surveyors of Victoria
USQ	University of Southern Queensland
USL	Unallocated State Land
CBD	Central Business District
AHD	Australian Height Datum
MGA	Map Grid of Australia

Chapter 1

Introduction

> *And the city lieth foursquare, and the length thereof is as great as the breadth: and he measured the city with the reed, twelve thousand furlongs: the length and the breadth and the height thereof are equal.*
>
> (Revelation 21:16)

1.1 Background.

A traditional subdivision deals with dividing a piece of land into two or more pieces in the horizontal plane. That means there are no limitations in height and depth of the land. The mediaeval lawyer's definition of the height limitation of land was simple and uncomplicated. He said that the land "extended to and included" everything *usque ad coelum et ad inferos* meaning "everything from heaven to hell"

In *Bernstein of Leigh (Baron) v. Skyviews* & *General Ltd* [1978] Q.B 479 the Court of Queen's Bench, the court ruled that the rights of an owner of land to the airspace above his land extended only to such height as was necessary for the ordinary use and enjoyment of the land and any structures on it.

Commonwealth statues such as the *Air Navigation Act 1920-1986* also allow aircraft to fly over land despite any common law rights that exist over that land.

So while there are no direct references to height or depth limitations on the traditional subdivision of land, there are limitations defined by common law and Acts of Parliament.

Volumetric (three dimensional) subdivisions deal with both horizontal and vertical planes when dividing up land into two or more pieces. That means a lot can be limited in height or depth or both, as well as the existing horizontal limitations.

1.2 The Problem.

From many discussions with surveyors from Queensland, it seemed apparent that there was far more scope to subdivide land in three dimensions than in Victoria. The aim of this project is to investigate whether developers face restrictions in creating an innovative environment that the end user demands because of the current limitations within the Victorian cadastral system with respect to three dimensional subdivisions.

The project will then investigate how volumetric subdivision legislation within other Australian states and territories and New Zealand can be incorporated into the Victorian system.

1.3 Research.

The initial research for this project investigates the history of three dimensional subdivisions in Victoria, from their origins to the present day, to help develop an understanding of why surveyors perform subdivisions the way they currently do, and the current limitations within Victorian cadastral system.

The second section of research investigates current three dimensional subdivision legislation and best practices in other Australian states and New Zealand.

Case studies will be used to show how the same types of subdivisions are performed in Victoria and Queensland to determine differences between each system. Comparisons will also be made with other states legislation.

1.4 Conclusion: Chapter 1.

Due to the different survey legislation from state to state, which has developed over many decades, surveyors have generally kept their knowledge isolated to their own state. This project intends to investigate one specific part of legislation, (three dimensional subdivisions) from all jurisdictions, and make recommendations of change to the Victorian system, utilising the methods identified from other jurisdictions that work well.

Instead of believing that *'our way is the best way'*, it is hoped that this project will show that a mixture of current best practices from across the country can create an ideal model for three dimensional subdivisions. If this theory can be carried through to other aspects of legislation, it could lead to more uniform legislation across the country.

Chapter 2

Literature Review

2.1 Introduction.

A large amount of the published literature sourced for this project has come from Australian state government departments. This includes the relevant survey regulations and guidelines written specifically for practising surveyors. Other sources of literature are from professional bodies such as the Association of Consulting Surveyors Victoria (ACSV) that regularly hold professional seminars covering all aspects of the surveying profession.

Very little literature has been found outside of these government and professional bodies and may explain why surveyors are not fully aware of what they are able do when creating a three dimensional subdivision.

2.2 A Victorian Perspective

In the 1940's, shareholders bought into a company and "occupied" part of a building, rather than owning a separate disposable title. The shareholders interest in the land was registered vide a caveat against the title, but no plan was created.

From the early 1950's, stratum subdivisions commenced, and these were the first method of possessing a title to part of a building (Coupar and Willis 2007). This was the first definition of a three dimensional subdivision in Victoria.

A stratum subdivision defined the horizontal boundaries in meets and bounds (bearings and distances), and were not allowed to show buildings as boundaries. It also defined the upper and lower boundaries by reduced level to a specified datum.

There were approximately 1600 registered stratum subdivisions in Victoria, some of which are still registered and have not been converted (Coupar and Willis 2007).

Strata Plans were introduced in 1967 and used until 1988. Strata plans allowed boundaries to be defined by buildings. They did however not show cross sections and defined upper and lower boundaries with text on the plan.

In 1988 the whole survey legislation system was overhauled, and the Victorian *Subdivision Act 1988* was introduced. Subsequently, the *Subdivision (Procedures) Regulations 2000* were also released.

The *Subdivision Act 1988* does not have a specific section with respect to three dimensional subdivisions, but Regulation 10 of the *Subdivision (Procedures) Regulations 2000* state that when lots, roads, reserves or common property are located above or below each other on the same plan, or above or below lots, roads, reserves or common property not in the plan, then a cross section or plan of elevation or diagram must be shown on the plan.

2.3 Queensland Building and Volumetric Subdivisions

Titles created under the *Real Property Act 1861* were limited to two dimensions with no height restrictions. These titles can have leases, easements, licences or mortgages, but cannot obtain freehold title over parts limited in height.

The *Building Units Titles Act 1965* allowed creation of ‘Strata Title’ lots which were limited in height and depth, and were freehold Titles. These lots were part of a building, and were defined by walls, floors and ceilings. If the building was demolished, then the tiles were extinguished. (Susilawti, 2007).

The *Mixed Use Development Act 1993* allowed for developments to consist of two or more uses, such as residential, commercial and retail elements. An example of this is a multi-storey building, which has residential apartments on the upper floors and retail shops on the lower floors.

The *Land Title Act 1994* allowed for the first volumetric title to be created for a large development in Surfers Paradise, containing a mix of commercial and residential lots. The volumetric lots were used to initially separate areas from each other, such

as the retail and residential. This was the prominent use for volumetric lots in subdivisions, but many more uses have developed over time.

2.4 Other Jurisdictions.

2.4.1 South Australia.

South Australia's *Real Property Act 1886* and *Development Act 1993* do not have any legislative requirements with respect to three dimensional subdivisions. Three dimensional lots are only shown on a stratum plan and can only be shown in plan and cross section format as prescribed in the *Plan Presentation Guidelines, Version 3, 2009*. There is no allowance for lots to be shown in any other format.

2.4.2 Western Australia.

The Western Australian government department 'Landgate' has produced the *Survey and Plan Practice Manual for Western Australia- Edition 6.0 January 2009*. Section 12 is dedicated purely to three dimensional subdivisions (building subdivisions are in a separate section). Similar to Queensland, lots can be shown in an isometric view to help clarify the lot layout, but this is not compulsory like Queensland. Lots must be fully dimensioned with angles, distances and reduced levels to AHD (Australian Height Datum).

2.4.3 New South Wales.

New South Wales does not have specific legislation for three dimensional subdivisions other than a building subdivision. The *Strata Schemes (Freehold Development) Regulations 2007, Part 2, Clause 5, Section 2c*, states ' in relation to the boundaries of the proposed stratum parcel, such elevations, sections, levels and planes as in the Registrar-General's opinion are necessary'. There is no allowance for isometric diagrams, similar to South Australia.

2.4.4 Tasmania.

In Tasmania, the guidelines for Strata subdivisions state that boundaries can be defined by buildings or by other methods. *Circular Memorandum No 5/1998*, released by the Department of Primary Industries, Parks, Water and Environment, offer six plan examples, but state that these are examples only and not to be construed as definitive of strata development types or styles.

At present, Strata Plans (for building subdivisions) are the only three dimensional subdivisions in Tasmania. No other acts support three dimensional subdivisions. In the last few years some firms have enquired about three dimensional subdivisions, (not strata subdivisions) and the Land Titles Office has said that at present it is not possible, however this may be amended in the future.

2.4.5 Northern Territory.

The Northern Territory does not have any specific legislation, survey directions or plan drawing standards covering volumetric surveys. The volumetric concept is relatively new to the Northern Territory, but some plans have been approved. They have been treated as a regular freehold subdivision under the *Land Title Act 2000*, but the plan format has been left up to the Surveyor - Generals own discretion. The Surveyor – General's office has worked closely with each local surveyor who has lodged these forms of surveys and a presentation standard is being developed which will be included in the next version of the Survey Practice Directions and Plan Drawing Standards. (Garry West, Surveyor General, 2009)

2.4.6 New Zealand.

New Zealand is currently reviewing the rules governing subdivision and it is intended to be released by the end of 2009, however it was not available at the time of writing this paper. Investigations of the existing legislation indicate that three dimensional subdivisions for buildings are shown in plan and elevation format only and there a no provisions for three dimensional subdivisions beyond building subdivisions.

2.5 Conclusions: Chapter 2

This overview of the existing legislation across Australia and New Zealand has highlighted that there is great variation from state to state. It has identified that Queensland and Western Australia are the only states that have any formal three dimensional subdivision legislation or directions that go beyond a standard building subdivision.

Detailed analysis will be undertaken of the history of Victorian three dimensional subdivisions and determine how the path to current uses of three dimensional subdivisions has evolved.

There is also a need to fully identify current legislation requirements and best practices from both Queensland and Western Australian legislation, to determine how they could be incorporated into the current Victorian legislation.

Chapter 3

Research and Methodology

3.1 Introduction.

In order to develop recommendations of change to the Victorian cadastral system, specific research needs to be undertaken of current legislation and the use of case examples to draw comparisons between states.

3.2 Research Objectives

3.2.1 Research Objective 1 - History of Victorian Three Dimensional Subdivisions.

Three dimensional subdivisions have existed in Victoria for over 60 years in some form. This objective aims to research three dimensional subdivisions from their beginnings to how they have changed and developed to the present day, including examples of each stage, and what limitations applied to each stage. This will help to understand why subdivisions are performed the way they are today.

3.2.2 Research Objective 2 - Three Dimensional Subdivision legislation in Queensland and Western Australia.

A study of three dimensional subdivisions legislation from Queensland and Western Australia will be undertaken to determine current legislation and best practice. The focus will be to identify the requirements and limitations of the current legislation. Other states will not be investigated as the Literature Review identified that those states do not currently have written legislation or directions for three dimensional subdivisions beyond building subdivisions.

3.2.3 Research Objective 3 – Case Studies.

It was intended to initially identify developments that may have either been hindered or even prevented from going ahead due to current legislation within Victoria. Initial research has found that there are no real limitations within the legislation in Victoria. As a result, similar styles of three dimensional subdivisions from Victoria and Queensland will be investigated and compared to each other.

3.3 Case Studies.

3.3.1 Case Study 1 – Inner City Bypass, Brisbane, Queensland and Eastlink Tunnels, Mitcham, Victoria

These projects are suburban road tunnels, where subdivision was required to remove the areas of the tunnels from the lots above.

Case Study 2 – Riparian Plaza, Brisbane, Queensland and Pacific Apartments, Melbourne, Victoria

Both these projects are building subdivisions. These types of subdivisions were the foundation of three dimensional subdivisions, and will be investigated to see how similar the practices are in each state.

Case Study 3 – The Chalk Hotel, Woolloongabba, Queensland and The Flinders Station Hotel, Melbourne, Victoria.

Both these cases are inner city hotels that have built a balcony over the adjoining footpath and require a partial road closure in stratum.

Case Study 4 – Maintenance of Views.

Cases exist in Queensland where a lot or lots are subdivided in order to maintain a view of adjoining lots. No cases were found in Victoria that uses subdivisions to achieve this. Victorian cases identified so far use covenants to protect views.

3.4 Analysis of Case Studies.

Each of the case studies needs to be analysed and evaluated, so that comparisons can be made, and recommendations developed for changes to three dimensional subdivisions and plan presentations in the Victorian cadastral system.

The subdivision process (regulations) for three dimensional subdivisions must be investigated for each state. These regulations determine what process must be followed in order to achieve the desired subdivision. While each case study deals with three dimensional subdivisions, they are different in nature and purpose, and therefore may have slightly different requirements under their respective regulations.

After investigation of the Queensland subdivision process, using both the *Registrar of Titles Directions for the Preparation of Plans 2008* and the *Integrated Planning Act 1997*, a short guide of the requirements will be made for each of the Queensland cases.

The same process needs to be undertaken for the Victorian subdivision process, using the *Subdivision Act 1988*, the *Survey Practice Directives 2007*, the *Subdivision Procedures Regulations 2000* and the *Survey Practice Handbook 1997*. From these pieces of legislation and guides, a guide will be developed for each case.

Short guides will not be created for other states of Australia, as there is little or no scope for three dimensional subdivisions within their respective legislation.

Using these subdivision guides, it is intended to investigate the subdivision process to identify the steps and efficiency of each process, and whether or not there is a significant difference between each state for each case. If there is, what is the cause of the difference, and what can be done to improve it? The result of improving efficiency would be to reduce the time of the subdivision process, and ultimately it will reduce the cost to the developer. Also, reducing the time involved for the surveyor creates more time for other work, resulting in greater productivity and therefore greater profits.

Another aspect of the investigation is any limitations that may exist within the current legislation in Victoria. Limitations could include restrictions to lot definition, lot size, and lot type and lot numbers. With these limitations identified, changes can be recommended to allow for more scope and variation in the design of subdivisions than is currently allowed. This can be beneficial to developers, as it may create a more desirable outcome, which people prefer to live in, making the subdivision easier to sell to the public.

The other states then need to be investigated to determine if there is any aspect that exists within their legislation that may further enhance the subdivision process.

As well as the guides for the subdivision process, plan content and presentation requirements need to be investigated. Comparisons of the plans for each case can be made using various methods of evaluation.

The first aspect of investigation is plan types required for each state. It needs to be determined what type of plan is required under the regulations for each case. Once this is determined, a list can be created of the requirements so that a comparison can be made of the differences between each state. Possible differences may result in substantial differences in plan requirements, resulting in much larger plan sets, even though the end outcome is the same. This will affect both the cost of the subdivision and time taken to produce the plans. Any improvements in the efficiency of plan production will be financially beneficial to both client and surveyor.

The second point of investigation is dependent on the end users expertise, but is plan clarity and simplicity. It is preferable to have the subdivision plan as clear as possible in indicating the proposed subdivision as the end user could be any person from the public with an interest in the subdivision. Comparisons of plan clarity and simplicity will be made, along with the differences in what is required for each plan.

3.5 Conclusion: Chapter 2

By researching legislation from all states, it can be identified what legislation and best practices may be useful to improve the three dimensional subdivision process in Victoria. To aid this research, the case studies can further highlight how these improvements could be beneficial.

Chapter 4

Victorian Three Dimensional Subdivision History

4.1 Introduction.

In order to gain an understanding of why subdivisions are undertaken the way they currently are in Victoria, it is important to understand the history of three dimensional subdivisions, to see how this has influenced current practices.

4.2 1940's – Company Shares.

The 1940's saw the first step towards three dimensional subdivisions in Victoria. As the demand for "Own Your Own" flats developed, Company Share schemes evolved to enable a defacto ownership of apartments. With many low rise buildings around the state, many occupiers wanted more than just being a tenant, but could not afford to own the whole building, or had no interest in owning the whole building.

To resolve this problem, the owner of the building set up a company, in which the occupiers paid money to become shareholders. It also set out the rights and responsibilities with respect to common areas. The Title remained in the name of the original owner or developer, and the shareholders interest in the property were registered vide a caveat against the Title.

No plans were drawn to show the areas of interest (lots) the occupiers had in the building. Problems arose with this scheme, as there was no standard method and the cost of buying and selling Company Share apartments increased. Furthermore, lenders could not obtain a Mortgage over a Property Title as Security for a loan. Many financiers became unwilling to provide finance for the purchase of Company Title Property (Coupar and Willis 2007).

If these properties were to be subdivided today, so that the occupiers could become actual owners, a standard building subdivision can be performed under the current legislation in Victoria, the *Subdivision Act 1988*.

4.3 1960 to 1967 – Stratum Subdivisions.

The *Transfer of Land (Stratum Estates) Act 1960* was the first act that provided a framework for the separate ownership of Titles within units and flats. It enabled Titles to be issued for areas within buildings and created a Title for common areas owned by a service company. There was no legislation defining how a service company should be set up or how it is to be operated.

There were over 2000 plans lodged under this act, of which 1600 were registered. Appendix B shows a current Stratum Plan that is still registered today (Coupar and Willis 2007).

There are three sheets in this plan. The first sheet defines Lot 6 which is the residual land, also called the balance land, which is the land left over once the lots for the units have been created. All the boundaries were defined by bearings and distances, irrespective of where they sat relative to the existing building. Boundaries were not allowed to be shown on the plan as defined by a wall or structure.

Also shown on sheet 1 is a table of shares, which showed how many shares each lot owned in the service company that managed the common areas. This determined their percentage of the fees to the service company. In the case of this subdivision, all lots had an equal share in the company, and thus contributed the same amount of money towards the maintenance of the common areas and any other costs associated with the service company.

The table at the bottom defines the height limitations of Lot 6 to the specified datum, which for this plan is the Melbourne and Metropolitan Board of Works datum. As these plans were originally prepared in colour but are only available as black and white reprints, colours where labelled on the plan such as BL for blue, R for red and

Y for yellow. The red and yellow areas identify the parts of the site that are excluded from Lot 6, between the specified heights shown in the table.

Sheet 2 defines lots 1 to 5 for each of the units. As the lots are defined by bearing and distance, and not structure, they are in essence airspace titles. Their height and depth limitations are defined in the table on the bottom of the sheet.

Sheet 3 shows an elevation of the site, to help diagrammatically show the height limitations of the lots. Whilst it can be determined that it is a south elevation, there is no heading on the plan to easily identify that this is the case. There are also no lot numbers on the plan, adding to the uncertainty of the elevation.

This subdivision and other stratum subdivisions were lodged over 40 years ago. If the building were to sink or laterally move on a multi level subdivision, it is possible that a unit may actually own a part of an adjoining unit, as the boundaries are defined by levels, and bearing and distance, rather than structure. Problems also arose when trying to identify the precise location and dimensions of owners Titles as all Lot Boundaries were defined by dimension and not structure.

Many terms from the Stratum Act apply to today, but with different names, as can be seen in the table below.

Stratum Act Terms	**Subdivision Act Terms**
Residual Land	Common Property
Service Company	Owners Corporation (Body Corporate)
Service Company shares	Entitlement/Liability
Service Agreement	Owners Corporation Rules
Charges	Owners Corporation Fees

Table 4.3.1 – Stratum Act Terms

4.4 1967 to 1988 – Strata Subdivisions.

The introduction of the *Strata Titles Act 1967* saw some significant changes to building subdivisions. It revolutionised the apartment market by dramatically

simplifying Titles for the ownership of apartments. This scheme created separate Titles including an undivided share of common property. It also provided for a Body Corporate, avoiding the need to create a separate service Company. Each lot owner automatically became a member of the Body Corporate with the primary responsibility of managing the common property. The Strata Title scheme made mortgage financing easier and reduced the complexity and cost of conveyancing.

The legislation dictated that all plans must have a body corporate and common property, regardless of whether or not it was required.

Unlike the previous strata plans, the body corporate managing the common property had standard rules and legislation. There were 37,500 plans registered under this act. Appendix C shows a currently registered Strata Plan. The first sheet of the plan shows the external boundaries of the site, and all buildings on the site, regardless of whether or not they define boundaries. It also includes the table of entitlement and liability of each lot for the body corporate.

Sheet 2 shows the lots created in the subdivision. This plan only creates 2 lots and common property. Unlike the previous stratum regulations, boundaries are allowed to be defined by buildings on the plan. Boundaries that are defined by buildings are the median of the subject structure, unless otherwise specified in the legend. These boundaries are shown as thick continuous lines, and are not dimensioned on the plan. If an internal lot boundary is not defined by a building, then it is shown fully dimensioned as a thick broken or dashed line.

Common property must be created on all strata plans, but is not needed at ground level in the example provided; the common property is created above and below the buildings. The text statement within the legend at the top of the page specifies the vertical extent of the lot boundaries, and not as a cross section. No cross sections were allowed for these plans except with prior approval.

It was also not possible to create part lots under this act, so surveyors got around this by creating a tunnel to connect lots, usually half a metre to a metre in depth. It was also not possible to create easements on strata plans. The way around this was to

have implied easements that allowed servicing to all lots through any part of the entire property.

4.5 1988 to Present –*Subdivision Act (1988).*

The *Strata Titles Act 1967* offered many advantages, but it was often quite inflexible. Each subdivision must have a common property and therefore a Body Corporate always came into existence automatically. The *Subdivisions Act 1988* permitted the Subdivision of land, buildings or air space with or without common property and therefore with a body corporate if common property existed, or none if there was no common property. It streamlined the prior Legislation and offered a more manageable, cost effective scheme. This was the Legislation applicable to all multiple ownership properties up until 2006 when the *Owners Corporation Act 2006* became effective.

In each building subdivision, the owner purchases a separate portion of land, or air space within the building. The lots are defined by three-dimensional boundaries within building, and the boundaries usually extend to the mid-line or interior face of all external walls, floors, and ceilings. This space purchased by the owner is known as "the lot." Common property comprises all land, building or air space not included in the lots sold to owners. Owners automatically become members of a legal entity to control this common property. This entity is now known as the Owners Corporation, formally known as Body Corporate.

Ownership of common property passes automatically with the lots and cannot be dealt with separately. Maintenance and responsibility for common property is the domain of the Owners Corporation. In accordance with the *Owners Corporation Act 2006* owners and developers have the responsibility in relation to affecting the insurance for the buildings on the lots and public risk on the common property.

The Subdivision Act 1988 was an overwhelming change to how three dimensional parcels were dealt with, but they still did not clearly define what could and could not be done outside of a standard building subdivision. The *Subdivision (Procedures) Regulations 1989* provided procedures for obtaining certification and registration of

plans under the *Subdivision Act 1988* and information to be included in any plans, statements and other documents prepared or given for the purposes of that *Subdivision Act 1988.* The *Subdivision (Procedures) Regulations 1989* were revoked and replaced by the *Subdivision (Procedures) Regulations 2000.*

When the *Subdivision Act 1988* came into operation on 30 October 1989, the objectives were to create a uniform process for subdivision approvals which are part of the planning system, allow for a uniform style of title for property in Victoria, and have a system that is sufficiently flexible to allow for changes to be implemented from time to time. It also aimed to have a system which has the municipal council as the central body responsible for the co-ordination of planning, building, traffic and drainage control and a simplified Act which can be more readily understood by interested users.

A review of the *Subdivision Act 1988* found that there was no section that specifies lot requirements with respect to size or shape. There are also no requirements within this act with regard to plan layout. Only two sections in the *Subdivision (Procedures) Regulations 2000* have requirements with respect to three dimensional subdivisions.

Part 2, Section 10 of the *Subdivision (Procedures) Regulations 2000* is titled '**Use of cross sections and plans of elevation**'. This section is written as follows;

10 Use of cross sections and plans of elevation

(1). When lots, roads, reserves or common property are located above or below each other or above or below lots, roads, reserves or common property not in the plan then a cross section, plan of elevation or diagram must be shown on the plan.

(2). The information in subregulation (1) need not include dimensions and may be only approximately to scale.

Section 10 is a very important piece of legislation, because of a single word. Point 10.1 stipulates that if lots are above or below each other, then a cross section or plan of elevation must be drawn. This is consistent with past practices of previous

legislation and the examples provided in the Survey Practice Handbook. However it also states that a diagram can be drawn, and that leaves the type of diagram open to whatever the surveyors feels is necessary to clearly display the lots.

Part 2, Section 11 of the *Subdivision (Procedures) Regulations 2000* is titled 'Use of buildings to define boundaries'. This section is written as follows;

11 Use of buildings to define boundaries

(1). Boundaries may be shown on the plan by reference to a building.

(2). Where a boundary on a plan is defined by reference to a building or part of a building, the plan must specify whether the boundary is—

(a) the interior face of the walls, ceilings and floors of the relevant part of the building; or

(b) the exterior face of the relevant part of the building; or

(c) in some other location.

This section stipulates what is generally well followed currently when performing a subdivision of a building, or using walls as boundaries. It is important to note that whilst it is normal to place a boundary on the internal or external face, or the median of the relevant part of the building, the allowance is there to place the boundary 'in some other location'. That means there is no limitation on where the boundary is placed within the structure, as long as it is clearly labelled on the plan.

Part 2, Section 12 Subsection 7 of the *Subdivision (Procedures) Regulations 2000* is titled 'Method of showing boundaries on a plan'. This section is written as follows;

12 Use of buildings to define boundaries

(7). Except in the case of a boundary defined by reference to a natural feature, a boundary defined in an earlier registered plan by reference to a building or a boundary defined by reference to a projection in a cross section, dimensions must be shown for—

(a) all the boundaries of the land the subject of the plan; and

(b) each other boundary or part of another boundary not defined by a wall or part of a building.

This part of the regulations state that a boundary defined by a wall or part of a building do not need to be dimensioned.

The Surveyor's Registration Board of Victoria has also released the Survey Practice Handbook, which comes in three parts as follows;

Part 1 – Drawing Practice.
Part 2 – Survey Procedures.
Part 3 – Land Surveying Law and Administration.

Each of these parts offers advice in the subdivision process. Only Part 1 has any information directly relating to three dimensional subdivisions, and that is example 15, which can be found in appendix D. This example is for a building subdivision, and the lots have been shown in plan and section format, which is acceptable as the lots are very simple in shape.

4.6 Conclusions: Chapter 4

The investigation of the Victorian legislation has shown some unexpected results regarding the expected limitations of subdivisions. It was initially anticipated that there was a restriction to three dimensional lot shapes in Victoria, and presentation of these lots on plans, but investigation of the legislation shows that there is no limitations at all to the shape of a lot.

Three dimensional lots have existed for a long time in Victoria, primarily as building lots, and discussions with many licensed surveyors have identified that these lots have always been shown in plan and elevation format up to the present day. The surveyors were not aware that there was no restriction on how the lots could be

presented. Because there is such a small amount written in the legislation regarding three dimensional subdivisions, and the only drafting example provided is a simple building subdivision, showing the lot in plan and section format, surveyors have continued to present all three dimensional lots this way.

It is clear that the legislation is not restricting the development of complex three dimensional lots, but rather a lack of knowledge and drafting examples that are the cause of the problem.

Chapter 5

Legislation from other Jurisdictions

5.1 Introduction.

Investigation of legislation from other states is required in order to determine if they have any practices or procedures that could be incorporated into the Victorian cadastral system. As previously discussed in the Literature Review in Chapter 2, it was found that few states have legislation written specifically for three dimensional subdivisions beyond a standard building subdivision. Only Queensland and Western Australia will be investigated, based on the findings of the literature review, as they are the only states with specific documentation of three dimensional subdivisions outside of building subdivisions.

5.2 Queensland.

5.2.1 Overview.

Prior to 1994, it was not possible to perform a three dimensional subdivision that was not a building subdivision in Queensland. The introduction of the *Land Title Act 1994* allowed for these types of subdivisions to commence. A subdivision now falls under one of three categories. The *Land Title Act 1994* defines the three types of subdivision formats in Part 4, Registration of Land, Division 3, Plans of Subdivision, Section 49. The three types are a standard, building and volumetric format plan of subdivision.

A standard format plan of subdivision deals with lots in the horizontal plane only and therefore need not be investigated further. Building and Volumetric format subdivisions are investigated in detail below.

5.2.2 Building Format Lots.

The *Land Titles Act 1994* defines building format lots in Part 4, Division 2A, Section 48C as follows;

48C Building format plan

(1). A ***building format*** plan of survey defines land using the structural elements of a building, including, for example, floors, walls and ceilings.

(2). For subsection (1)—

structural elements, of a building, includes projections of, and references to, structural elements of the building.

Example for subsection (2)—

Projections might be used to define a lot that includes a balcony, courtyard, roof garden or other area not bounded, or completely bounded, by a floor, walls and a ceiling.

This section advises that while boundaries are defined by actual structure, they can also be defined by the projection of a structure, to incorporate areas such as balcony's, which do not have full height walls around them.

The *Land Titles Act 1994* also defines building format plans of subdivision in Part 4, Division 3, Section 49C as follows;

49C Building format plan of subdivision

(1). This section applies to a building format plan of subdivision.

(2). Common property for a community titles scheme must be created under the plan unless the plan divides a lot, or amalgamates 2 or more lots, on an existing registered building format plan of subdivision.

(3). Two or more lots must be created under the plan unless—

(a) the plan amalgamates 2 or more lots on an existing registered building format plan of subdivision; or

(b) common property for a community titles scheme is created under the plan, and the common property created is additional to

common property already existing under the community titles scheme.

(4). Except to the extent permitted under a direction given by the Registrar under section 10(1) (b), the boundary of a lot created under the plan, and separated from another lot or common property by a floor, wall or ceiling, must be located at the centre of the floor, wall or ceiling.

Most of this section refers to common property and community title schemes, which is outside the scope of this project. Point 4 does highlight that a boundary must be located at the centre of the floor, wall or ceiling, unless permitted under a direction given by the Registrar. This is the major difference to Victoria, as Victorian legislation allows the boundary to be place on the exterior, interior or median of the wall, or some other place. Under Victorian legislation, there is no restriction on the location of the boundary, as long as it is noted on the plan.

To accompany this written legislation, the *Registrar of Titles Directions for the Preparation of Plans 2008* has been written. These directions offer a wide range of information to help surveyors prepare plans that conform to the Registrar's requirements.

There are many sections that cover items such as sheet types, plan orientation, scales and north points. Section 7 is titled Plan Formats, and gives a brief outline of each of three formats as follows;

Standard Format Plans *create parcels that are of two dimensions at ground level and are unlimited in height and depth. Parcels are defined by surveyed dimensions and marks placed on the ground.*

Building Format Plans *create parcels within structures. Parcels are defined and limited by floors, walls and ceilings, other than in special cases as noted in Direction 9.*

Volumetric Format Plans *create parcels that are fully enclosed by bounding surfaces. Parcels may be above, below, or partly above and partly below ground surface and are defined by surveyed dimensions and levels.*

Explanatory Format Plans *(see Direction 20)*

Explanatory Format Plans provide additional flexibility and methodology to define a secondary interest in land, such as a lease, an easement, a covenant or a profit à prendre. These types of plans will not be investigated as part of this project.

Following Section 7 of the *Registrar of Titles Directions for the Preparation of Plans 2008* is Section 8 which covers Standard Format Lots, and Section 9, which covers Building Format Lots. Direction 9.1 gives a list of definitions used for building format plans, and a description of each term. It also advises that if other terms are used to describe an area on a plan, approval must be obtained from the Registrar.

Direction 9.2 specifies what can be subdivided to create building format lots, and also identifies what is not allowed. It also states that all of the base parcel must be dealt with and that no undescribed balance or remainder shall be left, with the exception identified in Direction 4.16 and 4.17. Direction 4.17 allows for an undescribed balance on a plan, provided it has prior approval from the Registrar.

Direction 9.3.1 identifies the lots that must be created on a building format subdivision. The plan must create at least two lots and common property, unless it is a re-subdivision of an existing lot, an amalgamation of less than all lots on an existing building format plan, creates additional common property for an existing Community Titles Scheme, or is a re-subdivision of an existing lot in a Community Titles Scheme that creates only one lot and additional common property. Direction 9.3.2 shows how a standard format lot can be created on a building format plan.

Lot numbering is defined in Direction 9.4, and is based on building or tower number, floor number and lot number. An example is a lot in building 4, on level 7, and is the 11th lot on that floor, so the lot number is 4711. Lot numbers for buildings, levels and lots on each level must be sequential and start from 1.

Part lots are allowed on a building format plan, and are described in Direction 9.5. Each part must show an area, with the largest part showing a total area of the lot.

Boundary definitions form a very important part of a building subdivision, and Direction 9.6 covers these definitions. Acceptable structure to define a boundary include the centre of floors and ceilings, the centre of walls that are both full height and not full height, the centre of doors and windows, the outer face of balustrades and railings, the outer edge of a floor or concrete slab that is not abutting a wall and corners within a building or structure defined by the centre of posts which are structural supports of the building. Any other structural elements similar in nature can be used with the approval of the Registrar.

Direction 9.6.2 and 9.6.3 specify what boundaries must be dimensioned, and what boundaries do not need to be dimensioned. Direction 9.6.4 identifies what boundaries need to be marked when part of a lot lies outside the structure such as a private courtyard.

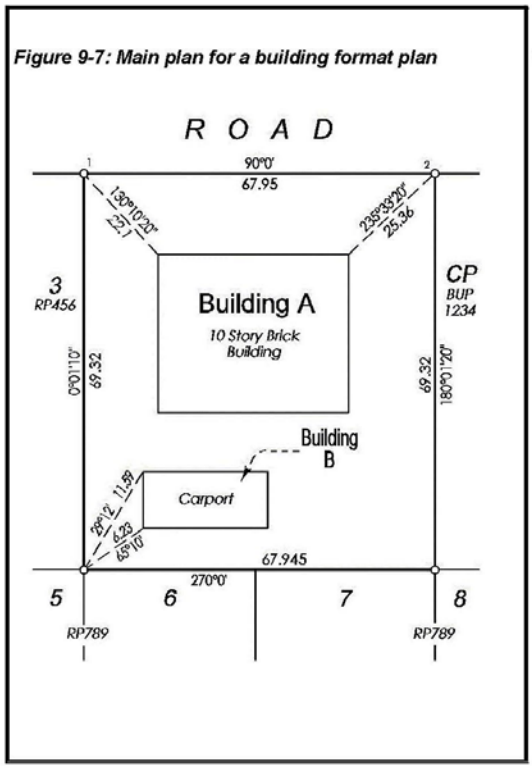


Figure 5.2.2.1 – Building Format Plan Example

The external boundaries of the land under survey must be marked in accordance with the current regulations and an area of the parcel shown as a note on the face plan. Direction 9.7 also states that the external boundary must be shown as a full line in all

cases, and also provides an example which can be found above in Figure 5.2.2.1, and the full set of examples can be found in Appendix E.

Direction 9.8 specifies how a building or buildings are to be shown on the first sheet of the plans and provides the same example as above. Direction 9.9 states that where possible all the information in 9.6 and 9.6 must been shown on the face plan.

The numbering required for multiple buildings and levels within the buildings must start from A and be sequential at the completion of the development as designated in Direction 9.10 and 9.11.

A diagram of every level in each building is required to be shown as directed in Directions 9.12 and 9.13. Examples can be found in Appendix E and are labeled as Figure 9-8 and Figure 9-9. Direction 9.14 states that if a step in the floor level of a lot is greater than 1 metre, then a lateral aspect view is required.

Direction 9.15 is written for buildings with multiple towers, and covers requirements such as building footprints, level designations and lateral aspect diagrams.

If a development contains a standard lot and a volumetric lot in the base parcel, Direction 9.16 applies to the plans, provided that it has met the requirements of Direction 9.20.5 or has approval from the Registrar. The requirements under this direction include lateral aspect diagrams, level diagrams and boundary definition between standard and volumetric lots.

Private yards are covered by Direction 9.17 and specify that they cannot adjoin any part of another lot unless it is also a private yard or courtyard. They are also unlimited in height and depth. There are six examples provided for private yards, and can be found in Appendix E and are labeled as 9-10 to 9-15.

Direction 9.18 states that diagrams are permitted when it is necessary to clearly illustrate detail, but they must be shown with the same orientation as the plan.

The requirements for easements both outside and inside the structure are covered by Direction 9.19.

Direction 9.20 details the various methods on how to deal with encroachments of the building onto adjoining lots, which is dependant on the nature of the encroachment and the type and land it is encroaching on. This can be an adjoining lot, state land or a road. Encroachments can be from parts of the building including footings, foundations and other projections.

Direction 9.21 covers plans of amalgamation or subdivision of lots where a new plan deals with lots within an existing building format plan. Lots being dealt with must be shown in their entirety and sufficient detail is to be shown so that the lot can be located accurately. Numbering is at the discretion of the surveyor provided it follows the general numbering scheme adopted for the original building format plan.

Where lots are part of a Community Title Schemes Direction 9.22 states that Direction 4.20 must be satisfied.

If a plan has a registered volumetric or restricted secondary interest, the building format plan must show a lateral aspect diagram of that interest and the building format lots.

5.2.3 Volumetric Format Lots.

The *Land Titles Act 1994* defines volumetric format lots in Part 4, Division 2A, Section 48D as follows;

48D Volumetric format plan

> A ***volumetric format*** plan of survey defines land using 3 dimensionally located points to identify the position, shape and dimensions of each bounding surface.

Unlike a building format lot, volumetric lots are not defined by structure but are in fact lots in airspace, defined by three dimensional co-ordinates.

The *Land Titles Act 1994* also defines volumetric format plans of subdivision in Part 4, Division 3, Section 49D as follows;

49D Volumetric format plan of subdivision

(1). This section applies to a volumetric format plan of subdivision.

(2). Common property for a community titles scheme may be created under the plan, but only if—
(a) the plan also creates 2 or more lots; or
(b) the common property created is additional to common property already existing under the community titles scheme.

(3). The plan may divide a lot on a standard, building or volumetric format plan of subdivision.

As with building format plans, the *Registrar of Titles Directions for the Preparation of Plans 2008* covers volumetric format lots. The directions can be found in section 10.

Direction 10.1 allows subdivision of existing lots and/or common property on a standard, building and volumetric format lots plan. The whole of the base parcel must be dealt with and no undescribed balance or remainder shall be left.

Several general items are covered in Direction 10.2. Volumetric lots are created by reference to levels to a fixed datum such as the Australian Height Datum (AHD), as opposed to boundaries defined by structure as in building format lots. A volumetric lot must be bounded in all dimensions, but easements with restrictions in height or depth only will be accepted. Volumetric lots are fully enclosed by bounding surfaces, which do not have to be horizontal or vertical. If the surfaces are not horizontal or vertical, they must be capable of precise mathematical definition. A lot can be above, below or partly above and below the surface of the ground.

Lots currently described as ‘In Strata’ and are only restricted in one direction, that is they do not have a height or depth limitation are not volumetric lots. They must be referred to as ‘Restricted’ and any plan dealing with these lots must be on a Standard Format Plan.

When a standard format lot is subdivided into one or more volumetric lots, the whole of the parcel must be dealt with. The remainder lot that contains all the land not in the volumetric lots is considered to be a standard lot and a note on the face of the main plan states that lot ‘lot number’ is a standard format lot.

Direction 10.3 defines the requirements for lot numbers. They must be numeric and numbered sequentially with no omissions. In a staged subdivision other numbers can be used provided that at the completion of the development, all lots numbers are sequential. Volumetric lot numbers are shown in broken format, while standard lots are shown in solid format.

Part lots are permitted on Volumetric Format Plans as directed in Direction 10.4 and shall be used where a volumetric lot consists of several different levels each of differing horizontal dimensions and where each part shall comprise each of the different levels of the lot. Parts of a lot shall be lettered sequentially starting at A. This direction can also be used for easements, leases and common property.

A volumetric parcel must meet particular requirements based on Direction 10.5. Firstly it states that a lot must be fully defined by surfaces that may or may not be vertical and horizontal. New boundaries cannot be defined as ‘above or below a depth from the surface’ as it cannot be defined by a mathematical definition. The surface can be shown, but is incidental only.

The area of the footprint of a volumetric parcel is to be shown. If the parcel is in multiple parts, each part is to show the area of the footprint, and a total noted on the face of the main page of the plan. The same applies to the volume of each parcel. If multiple parts exist, a volume of each parcel is shown with a total on the face page.

Sections 10.6 and 10.7 deal with volumetric easements and leases respectively. Section 10.9 details the marking of boundaries. It is required where possible, but in most cases is not practical, and therefore references to corners or structures, or marks placed should be undertaken.

In defining a volumetric lot, all intersections of the bounding surfaces of a parcel, and the vertices thereof, shall be defined by both polar dimensions and levels to the AHD, or in the interests of clarity, polar dimensions and rectangular co-ordinates and levels to the AHD. The permanent marks used for the vertical datum are to be noted on the plan along with their published heights.

If a parcel is bounded by vertical planes, it is sufficient for the vertical location of the vertices to be defined by AHD, and the horizontal dimensions of the lot shown by dimensions on the footprint. A change of grade in a bounding surface is considered a bounding edge and must be fully dimensioned. A note must be made on each sheet of the plan stating that the lot is bounded by vertical planes.

If AHD is not practically available, another general datum in use in the area may be used, provided that prior approval of the examining authority for the area has been obtained, full details of the adopted datum are noted on the plan and reduced levels of two permanent marks outside the confines of the survey are shown on the plan along with a one additional permanent mark within the confines of the survey.

Polar dimensions shown on the plan must have the bearing of the vertical plane that contains the bounding edge, and the distance shown is the true slope distance along the bounding edge. If rectangular co-ordinates have been used, the origin of and the co-ordinate system used must be clearly shown on the face of the main plan. The co-ordinates of each parcel corner must be shown on the face plan or in tabulation form. If the co-ordinate system used is the Map Grid of Australia (MGA), co-ordinates of at least one permanent mark adjacent to the survey and the other permanent marks use to determine the datum must be shown on the face of the main plan. Co-ordinates can be truncated, but if so the truncation must be prominently shown on the main plan. If the co-ordinate system is other than MGA, the two permanent marks outside the confines of the survey, and an additional permanent mark within the confines of

the survey are to be shown on the plan. All the permanent marks shown on the plan are to be given levels on the datum used in the survey.

Direction 10.11 advises that care should be taken when giving reference to walls and floors, so that it cannot be inferred that these structural elements are defining a bounding surface.

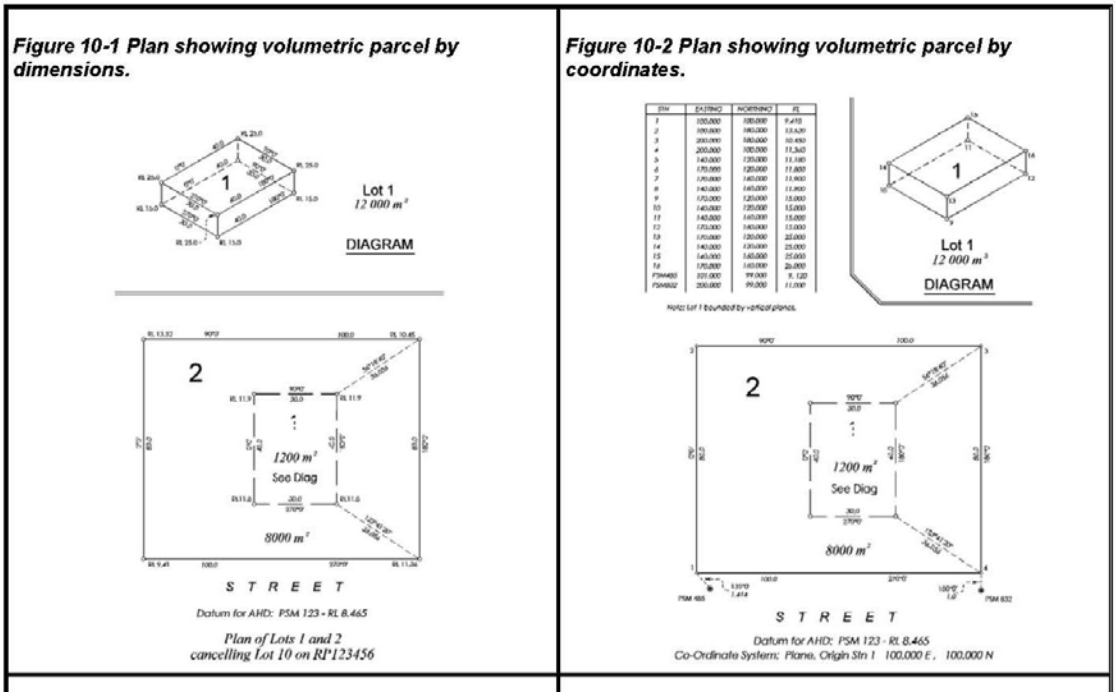


Figure 5.2.3.1 – Volumetric Format Plan Examples

Figure 5.2.3.1 above provides two examples a volumetric format lots. Direction 10.12 provides requirements of plans of volumetric format plans. All volumetric format plans must contain a three dimensional isometric view of the lot or lots in the subject plan. On the plan of the footprint of each parcel, an arrow must be drawn and appropriately labelled showing the direction of the isometric view. If the scale of the plan is too small to show the information clearly, then diagrams may be used.

If a diagram is to be used, the orientation of any such diagram is to be the same as the plan. If it is necessary to show a diagram with a different orientation, the diagram should be clearly noted to that effect. If necessary to overcome ambiguity, several diagrams of a lot from different viewports can be drawn a noted. Diagrams can be drawn ‘not to scale’, but where possible, diagrams should be kept as close to scale as practical.

In the case of a plan of a volumetric parcel which includes co-ordinates, the dimensions of the base lot shall be shown both in polar dimensions and co-ordinates.

If a volumetric parcel is created above or below the surface of a ground lot, the footprint shall be shown in broken lines, fully dimensioned. If the lot is defined by polar dimensions only, then connections from at least two corners of the footprint to at least one corner of the base parcel must be made. If the volumetric parcel is defined by rectangular co-ordinates, then the base parcel must also be defined by co-ordinates. If a volumetric parcel is created in several parts at different levels, then a connection by polar dimensions as stated above or co-ordinates of each corner must be shown for each part. If the outer boundaries of a volumetric parcel coincide with the base parcel, then a note shall be made on the face of the plan.

When the volumetric parcel intersects the surface of a ground lot, the boundaries on surface at the intersection of the lots shall be shown on the plan in broken lines, and marked as required by the provisions of the current legislation, survey standards and survey guidelines. The boundaries must also be fully dimensioned. If the lot is defined by polar dimensions only, then connections from at least two corners of the footprint to at least one corner of the base parcel must be made. If the volumetric parcel is defined by rectangular co-ordinates, then the base parcel must also be defined by co-ordinates.

Along with the dimensions stated above, levels of the existing ground surface at the corners of the footprint are to be shown on the face of the plan or in a table. If the original ground surface has been lost, an estimation of the original level or reference to adjacent road or footpath levels shall be sufficient.

If lots on the plan are to part of a community title scheme, Direction 10.13 advises that Direction 4.20 must be satisfied. If the plan identifies secondary interests only in a lot or common property within a community titles scheme it is not necessary to complete item 3 or to comply with Direction 4.20.

Additional examples from the *Registrar of Titles Directions for the Preparation of Plans 2008* for volumetric format plans can be found in Appendix F.

5.3 Western Australia.

5.3.1 Overview.

Western Australia is the only other state that has legislation or regulations written specifically for three dimensional lots. A brief overview of the Strata legislation will be undertaken, along with a thorough investigation of the three dimensional legislation and guidelines.

5.3.2 Strata Subdivisions.

The *Strata Titles Act 1985* is the legislation that defines how a strata subdivision or a survey-strata subdivision. Section 3 (2) (a) defines boundaries as the inner face of walls, floors and ceilings, Section 3AB defines boundaries as external face or median of wall where abutting lots share a party wall. Both these cases fall under a strata subdivision, which defines the boundaries by structure. Boundaries can also be defined by dimensions in a survey-strata subdivision.

Western Australia's strata subdivisions are either single tier or multiple tiers and have different regulations for each for defining boundaries. For single tier subdivisions Section 3AB of the *Strata Titles Act 1985* applies and the external face of the building defines the boundary. For multi tier buildings, Section 3 (2) (a) applies and the internal face of walls floors and ceilings define the boundaries, leaving the structure as part of the common property.

It is apparent from the research that the strata subdivision regulations in Western Australia are quite complex and difficult to follow, and the *Strata Titles Act 1985* has had significant amendments in 1996 and 1997.

The Western Australian Land Information Authority, known as 'Landgate', a division of the Government of Western Australia has produced the Strata Titles Practice Manual for Western Australia Version 6.1. It was released in January 2009.

This is a guide aimed at simplifying the process of strata subdivisions, but still remains a complex document.

5.3.3 Three Dimensional Subdivisions.

Landgate has also released the Survey and Plan Practice Manual for Western Australia, Edition 6.0 and was released in January 2009. This practice manual is released under the authority of the Registrar of Titles under Regulation 5 of the *Licensed Surveyors (Transfer of Land Act 1893) Regulations 1961*.

The Manual is designed to be an easily understood guide to correct practices for surveyors and draftspersons for the preparation of Plans. It is supplementary to existing Survey Regulations under the *Transfer of Land Act 1893*, *Land Administration Act 1997* and the *Licensed Surveyors Act 1909*.

This manual is a dynamic document and is open to suggestions for improvement from the industry.

Chapter 12 presents guidelines when preparing three dimensional surveys and plans. Chapter 12.1 is titled the cubic parcel. A cubic parcel is a lot limited in height or depth or both, but not by the traditional Crown Grant depth limit or plans under the *Strata Titles Act 1985.*

It is recommended to use vertical planes where possible to define the boundary surfaces, except where structure defines the intended boundary. Where possible, definition of the lot by horizontal and vertical planes is preferred for simplicity. Curved surfaces are discouraged, but if required, single or compound curves can be used, but spiral or other transition curves are unacceptable.

When an upper or lower boundary is defined by reduced level, the boundary surfaces must be a series of planes, and not a twisted surface, as an infinite number of twisted planes can all pass through the same four non-planar points. Break lines need to be created at changes of planes, and shown as broken lines on the plans.

If the corners of lots are not closely marked, particularly in inner urban and city areas, the survey method and accuracy of the survey should be equivalent to or better than those specified for Special Survey Areas under General Regulation 26A, with nearby connection to the geodetic network in three dimensions. General Regulation 26A from the *Licensed Surveyors (Guidance of Surveyors) Regulations 1961* can be found below;

26A. Special surveys

(1). The Surveyor General may authorise a survey to be conducted by a method other than in accordance with these regulations.

(2). The Board may authorise the conduct of types of surveys by methods other than those set forth in these regulations.

(3). The Surveyor General or the Board, as the case requires, may issue directions or guidelines applying to a survey or type of survey conducted in accordance with an authorisation under subregulation (1) or (2).

(4). The Surveyor General may declare an area to be a special survey area within which special conditions apply.

(5). The conditions referred to in subregulation (4) are to be specified in guidelines under these regulations.

[Regulation 26A inserted in Gazette 5 Sep 2000 p. 5057.]

This regulation allows for variations to the methods of surveys as directed by the Surveyor General or Board. The density of marks and connection to physical structures must correlate with the critical nature of the boundaries and the value of the land. It is not acceptable to reduce the marking because it is physically impossible to mark all of the corners. Alternatives must be used, which may be unique to each case. Levels are to be to the Australian Height Datum, and the source is to be recorded in the fieldbook.

All three dimensional boundary corners should be marked if practicable. If it is not then a mark should be placed on a vertical edge, or the production of a vertical edge, on a sloping or horizontal edge, or as a minimum as an offset mark, related three dimensionally to the parcel corner. It is accepted that not all corners will be able to

be marked or referenced if they are high in air or deep within material. In these cases, alternatives should be found.
Location of any structure as a connection to a parcel corner makes that structure a monument, and as monuments have precedence over measurement when re-establishing a boundary, the recording of the position of the structure in relation to the boundary must be performed by the surveyor prudently to benefit future surveyors performing a re-establishment survey.

Connections to horizontal surfaces of structure could be useful in the re-establishment of a horizontal boundary surface that has been defined by AHD from a long levelling traverse.

In the case of below ground structure, in order to allow the relationship of the boundaries to the structure to be proven, it is recommended that sufficient connections be made to the structure and recorded in the field book. This will reduce the risk of a mistake, and provide an audit trail.

Chapter 12.5 specifies that additional requirements for a plan with a cubic parcel. The plan must show all of the dimensions of each lot, and other tenure such as roads and the surround of the plan. These dimensions include the heights of the cubic parcels. The plan must also show the abuttals in all three dimensions and the horizontal abuttals are to show all of the tenure at differing heights where applicable. A plan view and at least one other view should be used to help clearly define each lot.

Chapter 12.6 is an important and would be better suited at the start of Chapter 12. It states that these guidelines are not intended to be a standard or restrict. The intention is to help surveyors and to reduce delays in survey time and processing to plan production. The priority is to make the plan clear and complete, and this can be done by whatever means the surveyor can devise.

The plan view is the primary view and must be on the plan. It is recommended to show as much as possible on the plan view to define the lots, without the plan becoming to cluttered. This should include all horizontal angles and distances at the

surface of the ground, lot numbers and abuttals. Enlargements may be required, still in plan view.
It is preferred that the primary plan view also show the position of below ground and above ground parcel boundaries, and probably without dimensions to improve clarity. An alternative line type should be used and it is suggested to show it as 0.35mm dots spaced at 3mm. This will differentiate it from other boundaries on the primary plan.

It is also suggested that a separate plan view be created for each lot that is below ground or ‘at height’ above the ground. The height dimensions may be shown on these plans if simple and not ambiguous.

It may be impossible to find the space to show all the lot numbers on the already crowded main plan view. If so, then it may be necessary to only show the lot numbers of the parcels that are not limited in height.

Various options are provided for defining vertical limits of three dimensional lots. A simple stand alone statement quoting reduced levels can be shown, when the lots are simply flat and horizontal surfaces. These levels can be shown within the lots on the plan or in a table as shown below;

Polygon Key Shown on Plan	Tenure	Upper and Lower Limit of the Tenure
57	Murray Street Lot 1152 Lot 1026 Lot 1152 Murray Street	Above RL 31 Between RL 31 and RL 22.5 Between RL 22.5 and RL 17 Between RL 17 and RL 7 Below RL 7
52, 55 and 58	Murray Street Lot 1152 Murray Street	Above RL 31 Between RL 31 and RL 7 Below RL 7
54 and 56	Murray Street Lot 978 Lot 1152 Murray Street	Above RL 31 Between RL 31 and RL 15 Between RL 16 and RL 7 Below RL 7

Table 5.3.3.1 – Table of levels defining lot limits

Another method is to attribute point numbers on the plan to a table showing the point number and its associated level. This method can be used for sloping planes, but needs additional clarification when a point has multiple upper or lower limits, commonly at a step in the surface.

A vertical elevation or section can be drawn to show steps in lots clearly. An example can be found in appendix G and is labelled Example 38 on the diagram. If the lots are complex, an isometric view can be drawn. It is preferable to show only one lot per isometric view. It is acceptable to show the projections not to scale if that helps reduce confusion in the event of co-incidental points and lines. Where several three dimensional lots abut or interlock, a vertically exploded isometric diagram is acceptable. This then shows each lot clearly, and their relationship to each other. Five examples of three dimensional plans can be found in Appendix G.

Whether separate enlargements or elevations, or combined enlargements and elevations are used is at the discretion of the surveyor, provided clarity of the los is achieved.

The upper and lower limits of a lot should always be defined using reduced levels to the Australian Height Datum, and recorded on the plan to the nearest centimetre. In an elevation or isometric view, the preferred practice is to show a reduced level along a horizontal line. A tradition depth limitation carried forward from a Crown Grant such as ‘limited in depth to 12.19 metres’, can be misleading on a three dimensional plan. It is recommended to place the full wording of the limitation from the Title on the plan such as ‘....12.19 metres below the natural surface of the ground’.

During the development, extensive ground surface disturbance may occur, and as such the natural surface that is visible at the time of survey be recorded for future reference, and possibly shown on elevation drawings for information purposes

Isometric diagrams that have distances along sloping edges should be slope distances, and annotated ‘slope’. Any angles shown on an isometric diagram are the angles between the respective vertical planes, and not the angle between the sloping edges. Curved surfaces will be presumed cylindrical with vertical axis unless noted otherwise. In the interest of clarity, it is acceptable to remove the front face of an isometric projection so as to view the internal surfaces pictorially. It is preferable to construct an isometric view looking from the same direction as the plan view, as the viewer tries to relate the isometric view to the plan view.

Areas should be shown for each lot. As three dimensional lots shapes can vary greatly, there are several methods available in determining its area. The first priority is to record the area of a lot at ground level. If this is misleading, the area of the bulk of the lot can be recorded. If the lot is predominantly above or below ground level, then the area should be shown as below or above ground. A lot may have large differences of area at different heights, and as such it will be useful to record different areas at different heights, and recorded as such. The height of each lots area at which it was calculated should be noted on the plan, unless it is obvious.

Previously, lots that were fully enclosed were shown with a volume. It is now considered an added complication with little benefit, so it is recommended not to show volumes in the future.

It is not required to show total areas of the subject land on the plan, except for Crown surveys.

Easements that are limited vertically should be treated the same as lot boundaries in this chapter with the exception that they do not need to be marked out. Where multiple three dimensional easements exist, it is recommended to draw individual diagrams for each easement if the drawing would be to complex.

5.4 Conclusion: Chapter 5

The review of Queensland legislation and regulations show that a comprehensive set of rules is in place when dealing with both building subdivisions and volumetric subdivisions. The directions for the preparation of plans offers detailed processes required to meet a standard for registration of plans. This amount of detail indeed makes the job of a surveyor clear, with examples of plan presentation helping to hasten the drafting process. These regulations are quite stringent and appear to have little flexibility. Having to draw an isometric diagram for all volumetric parcels appears to be unnecessary if the parcel is of a very simple shape, and can be easily defined in plan view only. In addition, volumetric lots must be fully enclosed, and cannot be just limited in height or depth only. There are likely cases where lots need only be limited in one direction, but need to limited in both to be classified a volumetric lot under the legislation.

Western Australia's regulations and guidelines also offer an in depth guide to survey requirements and plan requirements when dealing with three dimensional lots. Unlike Queensland though, it is made quite clear that these are offered as a guide only, and not intended to restrict or standardise. The intent is to help surveyors and reduce delays in processing and plan preparation.

Both of these states are in stark contrast to Victoria, where there is little or no restriction with three dimensional subdivisions, but similarly there is minimal information guiding surveyors to help them with survey techniques and plan preparation.

Chapter 6

Case Studies

6.1 Introduction.

In order to gain an understanding of any inadequacies of the Victorian cadastral system with respect to three dimensional subdivisions, it is prudent to make comparisons of similar styled projects between Victoria and Queensland. Ideally, comparisons should be made with other states including Western Australia, but time constraints have prohibited this, but would be useful for further research. As discussed in Chapter 3, various aspects of each case will be assessed.

6.2 Subdivision Guides.

Three dimensional subdivisions are used for various different applications, are the most common of these have been building subdivision, but newer uses include road tunnels, and structure over roads. An emerging use is the preservation of views. A case study has been identified for each of these uses.

A brief guide of the subdivision requirements needs to be created, in order to access each case study. Comparisons will also be drawn on plan content and presentation.

6.2.1 Victorian Subdivision Guide.

As found in the review of the Victorian legislation, there is in fact very little written with respect to either building subdivisions or three dimensional subdivisions.

- Lot Shape – No restrictions.
- Lot Numbers – No restrictions (Any omitted lot numbers to be noted on face sheet).
- Lot Size – No restrictions.

- Lot definition (Building) – Interior, exterior, median or some other location of walls, floors and ceilings.
- Lot definition (Three dimensional) – No restriction. Areas to be shown
- Lot dimensions – Not required when defined by buildings, all other boundaries are to be fully dimensioned.

6.2.2 Queensland Subdivision Guide.

The investigation of Queensland's legislation and regulations showed distinct separate directions from building subdivisions to volumetric subdivisions.

- Lot Shape – No restrictions.
- Lot Numbers (Building format) – Numbering is determined by tower number (if applicable), floor number and lot number of that floor. Numbering must be consecutive and commence from 1 for each section of the number.
- Lot Numbers (Volumetric format) – Numbering must be sequential.
- Lot Size – No restrictions.
- Lot definition (Building format) – The centre of walls, floors and ceilings, the centre of full and not full height walls, the centre of doorways and windows and the outer face of balustrades and railings. These can be varied, but require prior approval of the Registrar.
- Lot definition (Volumetric format) – Lots defined by three dimensionally located points in space. Lots must be fully bounded in all dimensions. Lots must be fully mathematically definable. The whole parcel must be dealt with, and any remainder is considered a new standard lot and noted as such. Part lots permitted. Both area and volume of lots to be shown on the plan.
- Lot dimensions (Building format) – Not required when defined by buildings, all other boundaries are to be fully dimensioned with at least two connections from structure to external boundary.
- Lot dimensions (Volumetric format) – All intersections of bounding surfaces to be defined by polar dimensions (slope distances) and levels to AHD. Rectangular co-ordinates can be used to help clarify lot definition.

6.3 Case Study 1.

The first case study looks at a road tunnel. Three dimensional lots need to be created in which the tunnel sits, and theses lots will sit below the surface of existing lots at ground level.

6.3.1 Inner City Bypass, Brisbane, Queensland.

Figure 6.3.1.1 – Northern entry to Inner City Bypass Tunnel
(Source www.maps.google.com.au)

The Inner City Bypass is a 4.5 kilometre bypass north of the city centre of Brisbane. It connects Brisbane's Pacific Motorway at Hale Street to Kingsford Smith Drive and Lutwyche Road following the Exhibition railway line for the majority of its length. The bypass tunnel is located approximately 2 kilometres north of the city centre. The tunnel passes under O'Connell Terrace, Bowen Bridge Road and the carpark of the Exhibition Grounds railway station.

The lot created for tunnel is a sweeping curve (in small straight segments), that changes in level. This creates many bounding edges on the parcel. The volumetric lot is bounded by vertical planes, meaning that the top and the bottom of the lot have the same footprint. Appendix H contains the survey plans that create the volumetric lot for the tunnel.

With such a large number of bounding surfaces, enlargements have been drawn of Lot 1 to be able to fully dimension them. Sheet 6 shows the lot in an isometric diagram, with a table of levels at each reference point, with enlargements on the following sheets to clearly show each reference point.

Sheet 1 shows the required information including the origin of the level datum, that lot 2 and 3 are standard format lots and the footprint of lot 1 shown by dashed lines. The plan also shows the relevant survey information such as permanent marks, traverses and reference marks.

6.3.2 Eastlink Tunnels, Donvale, Victoria.

Figure 6.3.2.1 – Western entry to Eastlink Tunnel
(Source www.maps.google.com.au)

Eastlink is a new 39 kilometre tollway built through the eastern suburbs of Melbourne connecting the Mornington Peninsula Freeway at Frankston to the Eastern Freeway in Donvale. Travel times have generally been cut from 60 minutes to 30 minutes from Frankston to Donvale. Tunnels were required at the Donvale end of the project to pass under the environmentally sensitive Mullum Mullum valley and existing residential allotments.

The lot for the tunnel was created with a Plan of Subdivision under Section 35 of the *Subdivision Act 1988*. A plan under this section is an amendment to an existing plan instead of creating a new plan.

The face sheet shows that the land is to be acquired by compulsory process, and list all the Titles affected by the acquisition. It shows the lots being created, which for this plan is a reserve for the Roads Corporation.

Prior to searching for this plan, the intention was to use the tunnels in Melbourne's Citylink project. It was found that the Citylink project created crown leases for the tunnels, and the plans showed the leases in plan format only with reduced levels noted on the plan defining the height limitations. As can be seen from the plans for the tunnel in Appendix I, it actually has a three dimensional view of the volumetric lot in order to defines the reduced levels of the lot, along with the ground level vertically above each point.

The three dimensional views are labelled as 'Diagram X', which accords with the requirements of Part 2, Section 10 of the *Subdivision (Procedures) Regulations 2000,* which states that a section plan of elevation or diagram can be used. These diagrams are also labelled as a three dimensional view which is correct, but are incorrectly labelled as a cross section.

This is the only known Plan of Subdivision that currently contains three dimensional views of lots, and the company that prepared this plan spend many hours in meetings 'in house' and with the Land Registry Office, to determine the best method of showing the lots as clearly as possible.

6.3.3 Analysis of Cases.

These two projects are very similar in nature and it has been shown that while there is a far more stringent process in producing volumetric lots in Queensland, the end result in this case is in fact quite similar. It is clear however that the process in getting to this end result is quite different.

The Inner City Bypass plan has been created by following the procedures in place from the *Registrar of Titles Directions for the Preparation of Plans 2008* and the *Integrated Planning Act 1994*. These directions provide a clear path when preparing a plan under the volumetric format.

The Subdivision Plan of the Eastlink tunnels is quite a simple to plan to prepare, as the original Subdivision Plans creating the lots at ground level with no height limitations had been previously prepared. The problems arose because to show the new Reserve lot being created could not be easily defined in plan and sections as has been done in the past. Many surveyors in Victoria are unaware that the option of preparing a diagram was available to them. They had just continued to prepare plans with plan views and sections, which was the only option under older legislation.

The surveyors from the Geomet Group had many meetings to try and determine an easier way to show the new volumetric lot, and subsequently contacted Land Registry for their advice. A meeting with Land Registry highlighted the options of diagrams of any nature were acceptable on plans, provided they met the approval of examiners from Land Registry. More meetings were held to develop a plan with diagrams that were acceptable, with the result being the plans presented here.

6.3.4 Case 1 Results.

It is clear from this particular case that the significant cost difference is in plan preparation, which has arisen from a lack of knowledge on behalf of the surveyors working on the project, with respect to what is allowed on plans and a lack of direction in publications from the Surveyor General. As the *Survey Practice Handbook* contains no examples of three dimensional subdivisions (excluding building subdivisions), it is extremely difficult for surveyors to be efficient in the production of their work in relatively new or unfamiliar areas.

6.4 Case Study 2.

Case study 2 is investigating building subdivisions. This falls under Building Format in Queensland, and the standard subdivision legislation in Victoria. Building

subdivisions have been around for a long time, and were the first three dimensional subdivisions.

6.4.1 Riparian Plaza, Brisbane, Queensland.

Figure 6.4.1.1 – Riparian Plaza, Brisbane
(Source www.ourbrisbane.com)

Riparian Plaza is located in the heart of Brisbane. It is a mixed use development comprising office space, retail space and apartments. It also has a multi level car park.

This building subdivision subdivides volumetric lot 4 on SP 140665. A selection of sheets from the building survey plan SP 140666 can be found in Appendix I. Sheet 1 shows the abuttals to the subdivision, and a connection to two old permanent marks. It also shows the base parcel in a thick continuous line. Sheet 3 shows the dimensions of the external boundary, and sheet 4 has a schematic lateral view of the

building. The lateral view highlights that different parts of the building are in different plans. The office floors are not part of this plan and the service floors are also part of another plan. The apartments, apartments car park and apartment visitor carpark are included as part of this plan.

The remaining sheets show various levels of the building including Level E which is a visitor car park level, Level K which is a car park owned by occupants of the building, and Level BD which is an apartment level.

As per the directions, the boundaries are generally defined by the centre of the walls. The apartment visitor car park is the exception, and the external walls are defined by the internal face. Approval would have required for this.

As per direction 9.6.2 of the *Registrar of Titles Directions for the Preparation of Plans 2008* boundaries defined by structure in direction 9.6.1 are not dimensioned, and all other boundaries are dimensioned. A diagram of each level is shown on the plans, some of which are provided in Appendix I.

6.4.2 Pacific Apartments, Melbourne, Victoria.

Figure 6.4.2.1 – Pacific Apartments, Melbourne

Pacific Apartments is a multi use building providing retail outlets, a restaurant at ground level, and apartments on the upper levels. Located in Little Bourke Street, adjacent to MYER, these apartments are in the centre of Melbourne's CBD.

The face sheet of the Subdivision Plan PS 421454L includes all the standard detail required for subdivision. Information additional to the standard information included lot numbers omitted from the plan, and boundary definitions. The lot numbers excluded are in order to allow a structured numbering of lots based on floor numbers. This is a typical method used in numbering lots in a multi level building.

As per the *Subdivision (Procedures) Regulations 2000* the boundaries defined by buildings are shown as a thick continuous line, and are marked 'M' if the boundary is in the median of the wall, or the interior face for all other boundaries defined by buildings.

Many cross sections are shown to help define the configuration of the lots. It can be seen on the cross sections, that as the interior face defines most of the boundaries, the structural elements of the building are part of the common property, and not part of the lots. This is the common method in this style of building, so that all structural maintenance falls under the responsibility of the Owners Corporation, rather than individual lot owners.

6.4.3 Analysis of Cases.

This case study was used to investigate the differences in a building subdivision, as they are still fundamentally a three dimensional subdivision. There are many aspects to a building subdivision which have not been investigated as part of this project. The most notable area of these would be the Owners Corporation and Common Property in Victoria and the Body Corporate and Common Property in Queensland.

These cases have been investigated purely on how a building can be subdivided, and how it is shown on the plans. To take investigation further on how building subdivisions are set up with multiple common properties and volumetric parcels has scope to be its own project in itself, and is definitely an area of further research.

It is clear that generally, building subdivisions are very similar in nature, taking out the setup of community title schemes. Boundaries are generally defined by structure; however this definition is quite restrictive in Queensland, and very open in Victoria.

Lot numbering is also restricted in Queensland compared to Victoria, but generally, the numbering used in Victoria follows the rules of Queensland, that is that lots are numbered with respect to floor number then lots on each floor. In rare cases, building numbers also influence lot numbers where there are multiple buildings.

6.4.4 Benefits of Cases.

It is clear that generally, there is little difference in a building subdivision between states at a basic level. It is clear that there is a distinct benefit in having the ability to define the boundary of lot defined by structure in any position, as the case is in Victoria, to accommodate having structure as part of the common property if that is desired. If this were to be required in Queensland, approval would need to be sought from the Registrar.

A proper analysis of building subdivisions would need to include the set up of community title schemes in Queensland, common property allocation and membership of multiple body corporate, and the use of volumetric lots to separate different parts of buildings.

6.5 Case Study 3.

This case study investigates the creation of a volumetric lot over a road. The first case looks at the Chalk Hotel in Brisbane, which has built a verandah above footpath below, and the second case is similar, at the Flinders Station Hotel in Melbourne.

6.5.1 The Chalk Hotel, Brisbane, Queensland.

Figure 6.5.1.1 – Chalk Hotel, Brisbane (Source www.google.com.au)

The Chalk Hotel is just south of the Brisbane CBD, and currently occupies three adjoining Titles. A balcony has been built at the first level extending from the front of the building over the adjacent footpath in the road reserve.

The volumetric lot created for this lot is a little complex in nature, as the lot boundaries are approximately 0.10 metres outside the face of the structure. The balcony also has several support columns, which are included in the lot. This plan cancels part of unallocated state land (USL) being the road adjacent to the site, to create the new volumetric lot.

6.5.2 Flinders Station Hotel, Melbourne, Victoria.

Figure 6.5.2.1 – Flinders Station Hotel, Melbourne (Source www.google.com.au)

The Flinders Station Hotel has an awning that extends over the adjacent footpath. This awning proved structurally sound enough to have a balcony built on top of it. As this was within the existing road reserve, the area of the new balcony needed to be removed. Over an existing road, a new crown allotment is created with height limitations. In the case of The Flinders Station Hotel, the lot created is a rectangle with a level top and bottom. These vertical limits are defined by reduced levels to the Australian Height Datum. In more complex shapes additional diagrams and sections are included on the plan. This crown allotment is then leased, and as such the plan created is a Plan of Stratum Lease.

6.5.3 Analysis of Cases.

When dealing with a projection over a road, the methods differ greatly between states on how this is performed. In Queensland, a new Title is created for the volumetric lot that was once part of the road reserve, and the user of the lot becomes the actual owner of it.

In Victoria, there are currently two options available when a part road closure is required. Both of these options currently fall under the *Land Act 1958*. Section 134A deals with the leasing of a stratum of Crown land and was inserted into the Act by way of the *Land (Further Amendment) Act 1993*. Whilst its application to a situation involving a road does not appear to formally close the road, it nevertheless has an important effect on the same. As it applies to roads, subject to certain criteria the section allows for the leasing of a stratum of Crown land. This was the option taken in this case study. The plan can be found in Appendix J.

The second option is Section 339A of the *Land Act 1958.* Section 339A deals with the sale or alienation of Crown land in strata and was also inserted into the Act by way of the *Land (Further Amendment) Act* 1993. Unlike section 134A, the application of this section to a situation involving a road does formally close the road within the alienated stratum. This is a much less used option, but offers the opportunity of actual ownership of the parcel. Both of these options are not subdivisions, but closures of roads under the *Land Act 1958.*

6.5.4 Benefits of Cases.

It is hard to draw comparisons here due to the different methods used in each state, with ultimately the same end result. The only significant difference found is again in plan presentation. As with the *Subdivision Act 1988* the lots on a plan prepared under *Land Act 1958* can be shown in plan and section format, or a diagram. This allows for an isometric view or other types of diagrams to help clearly show the lots.

6.6 Case Study 4.

In early discussions for this project, one of the more interesting points raised was how volumetric lots are used to protect views. This was the starting point of this project, as I was not aware of any such types of subdivisions that existed in Victoria. The case study found for Queensland is in Prince Edward Parade, Scarborough. No case was found in Victoria that uses subdivision to protect views.

6.6.1 Maintenance of Views, Queensland.

Figure 6.6.1.1 – Scarborough, Queensland
(Source www.google.com.au)

In this case study, the developer erected the block of units seen in the figure 6.6.1.1 above, and planned to subdivide the remaining land in front of the apartments. In order to protect the views of the upper apartments, these lots were created as volumetric lots limiting any structure beyond a set height.

6.6.2 Maintenance of Views, Victoria.

This situation is dealt with in a different manner in Victoria. Rather than creating lots, a restriction or caveat is placed on a Title that limits the height of buildings on a lot. This is a far cheaper option than performing a subdivision, but does have its limitations. There is no absolute ownership of the airspace taken for protection of views and the restriction definition is very simple, normally just setting a plane at a specific level.

6.6.3 Analysis of Cases.

If the aim is to simply protect an existing view, and a simple height limitation is sufficient, then a restriction of height registered against Title is sufficient. Caveats against privately owned land are not allowed in Queensland however, so this is not an option. To achieve protection of views, a volumetric lot must be created in order to limit the height of buildings on that lot. The cost will be very different between creating a caveat against an existing title, as opposed to creating a new volumetric subdivision.

6.7 Conclusions: Chapter 6.

At the outset of this project, it was anticipated that there were restrictions in place when performing three dimensional subdivisions in Victoria. A study of the legislation actually showed that there are literally no legislative restrictions in Victoria. Just two parts of the *Subdivision (Procedures) Regulations 2000* guide the requirements of three dimensional subdivisions, one being the definition of walls in buildings as boundaries, and the allowance to produce sections or diagrams to help show lots created in strata.

What the case studies have identified is that whilst there is great freedom in the definition of a three dimensional lot in Victoria, there is very little help within the legislation and practice handbooks for three dimensional subdivisions. There is only one example, and that is of a building subdivision. The Eastlink case study had a

very surprising find as it contained a three dimensional view of the reserve created for tunnels of Eastlink.

Chapter 7

Conclusions, Discussion and Implications

7.1 Introduction.

The ultimate aim of this project was to identify limitations within the current Victorian cadastral system with respect to three dimensional subdivisions, and to incorporate legislation from other states to improve it. What this project identified was not a problem with the current legislation, but more a lack of information and professional awareness as the problem.

7.2 Discussion.

It became clear through the course of this project that while other states have different methods for performing subdivisions, the ultimate goal is generally the same. Queensland was found to have a comprehensive set of directions, for both building subdivisions and volumetric subdivisions. These directions instructed surveyors on exactly what was required for all types of subdivisions, being a standard format, building format and volumetric format.

At the opposite end of the spectrum is Victoria. Whilst the study of the legislation found that there are fact very few limitations in defining a three dimensional subdivision, there is also very limited information available to the surveyor on how to perform a three dimensional subdivision, particularly if it is not a building subdivision.

Western Australia fell in between in that it had a fairly comprehensive set of guidelines, but they just recommendations in order to assist the surveyor, and help the process of the subdivision t o move more quickly. The guide for a building subdivision was aimed to simplify what is a difficult piece of legislation when dealing with a building or strata subdivision. The guide for three dimensional

subdivisions outside of a building subdivision is not very large, but at least offer's a basic guide and examples of past plans.

The unlimited shapes of lots, and the ability to have any type of diagram to best present a lot clearly is generally unknown amongst the survey community in Victoria, and this can be attributed to the lack of information available to guide surveyors.

It is clear that the legislation is not the problem, it is a lack of knowledge, which comes from having a lack of information and examples of what can be done. The *Survey Practice Handbook 1997*, first published in 1984, then updated in 1989 and revised in 1997 by the Surveyor General of Victoria has a great deal of information in it regarding drawing practices, survey procedures and land surveying law and administration. It includes information on the many variations of a subdivision under the *Subdivision Act 1988* that pertain to things such as a standard subdivision of a lot, removal of easements, and the removal of a council reserve, alter a subdivision by adding lots and compulsory acquisition of land.

The *Survey Practice Handbook 1997* offers examples of each of the variations above, which are generally very simple examples. It has only one example of a building subdivision, which shows the lots in plan and section format only. There are no examples of any other form of three dimensional subdivisions. Without any examples to guide and inform surveyors, and such a small amount of legislation, it is clear why most surveyors are unaware of the options available to them.

7.3 Implications and Recommendations.

It is probable that when designing lot configurations for three dimensional subdivisions, surveyors have tried to keep the lot shapes as simple as possible, in order to simplify the drafting of the lots on a plan. Clearly with the Eastlink Tunnel project, cross sections were not going to be sufficient, and this led to discussions with Land Registry that resulted in the only three dimensional diagram to date on a subdivision plan.

On future subdivisions, if the surveyor is aware of the possibilities available to them in preparing a subdivision, the surveyor will offer much more flexibility to the client when designing a lot, in the knowledge those complex three dimensional lots can be more easily and clearly defined on a plan.

The registered Eastlink plan certainly has it deficiencies when compared to a plan from Queensland and some direction and examples would have been very beneficial. The face plan certainly needs to show the direction of the perspective view. The Eastlink plan has it labelled it as a three dimensional view as well as a section. The section note on the plan view does indicate the direction of the three dimensional view, but as this is not actually a section of the tunnel, it should not be labelled as such.

There is no need to amend any of the legislation in Victoria, as it is very flexible and has no real limitations when defining a three dimensional lot. There is however a great need to update the *Survey Practice Handbook 1997*. As three dimensional subdivisions outside of a building subdivision become more and more frequent, and the demand for more complex lot shapes increase, having examples in the handbook with specific points that Land Registry want to see on a plan will greatly enhance all surveyors ability to fulfil these needs.

One major difference noted on all the plans when comparisons were made between Victoria and Queensland was the additional information appearing on the Queensland plans. All the Queensland plans included the field information from the survey conducted to produce the plan. In Victoria, a separate set of fieldnotes is always prepared for a subdivision. What this allows for is much clearer plan that shows the new lots. The engineer, town planner and general layman who are buying the lot do not need this survey information, and invariably will find it all very confusing and irrelevant. The lots and its dimensions are all they are interested in. Plan clarity is therefore much clearer in Victoria

7.4 Further research.

Further research could certainly focus on the building subdivision aspect of development and all the details involved in setting up the common properties and

management and membership of the common areas. The methods used on the body corporate setup in multi use buildings vary greatly from state to state.

Additional research for this topic could also include driving a suitable plan format for three dimensional subdivisions in Victoria. As only one registered example exists, and this has flaws, a set of mock examples need to be developed, along with a basic guide that can be included in the *Survey Practice Handbook 1997*.

7.5 Summary of Chapter 7.

The research for this project certainly took a different path to what was anticipated at the beginning of the project. Even after discussions with surveyors from both Queensland and Victoria at the beginning of the development of the topic, I remained unaware of the freedom of the Victorian legislation in place when dealing with both building and three dimensional subdivisions. We all still believed that there were restrictions when dealing with three dimensional lots.

The project has certainly enlightened many of the licensed surveyors I work with regarding what they can do when dealing with three dimensional lots of both simple and complex nature. The fact that they can draw a diagram of any nature to help clearly define the lot instead of the good old plan and section format, which has been done for the last 40 or 50 years.

A lack of knowledge and a lack of examples in the publication used to guide surveyors in Victoria proved to be the problem, not the legislation as initially anticipated.

If the handbook is updated with examples of what Land Registry will accept when dealing with these types of lots, and some recommended guides as to what they prefer in the definition of a lot, and a professional seminar to actually show the industry will greatly increase the use and diversity of three dimensional subdivisions in Victoria

REFERENCES

Land Title Act 1994 (Queensland Government)

Licensed Surveyors Act 1909 (Western Australia)

Licensed Surveyors (Transfer of Land Act 1893) Regulations 1961 (Western Australia)

Subdivision Act 1988 (Victoria)

Subdivision (Procedures) Regulations 2000 (Victoria)

Surveying Act 2004 (Victoria)

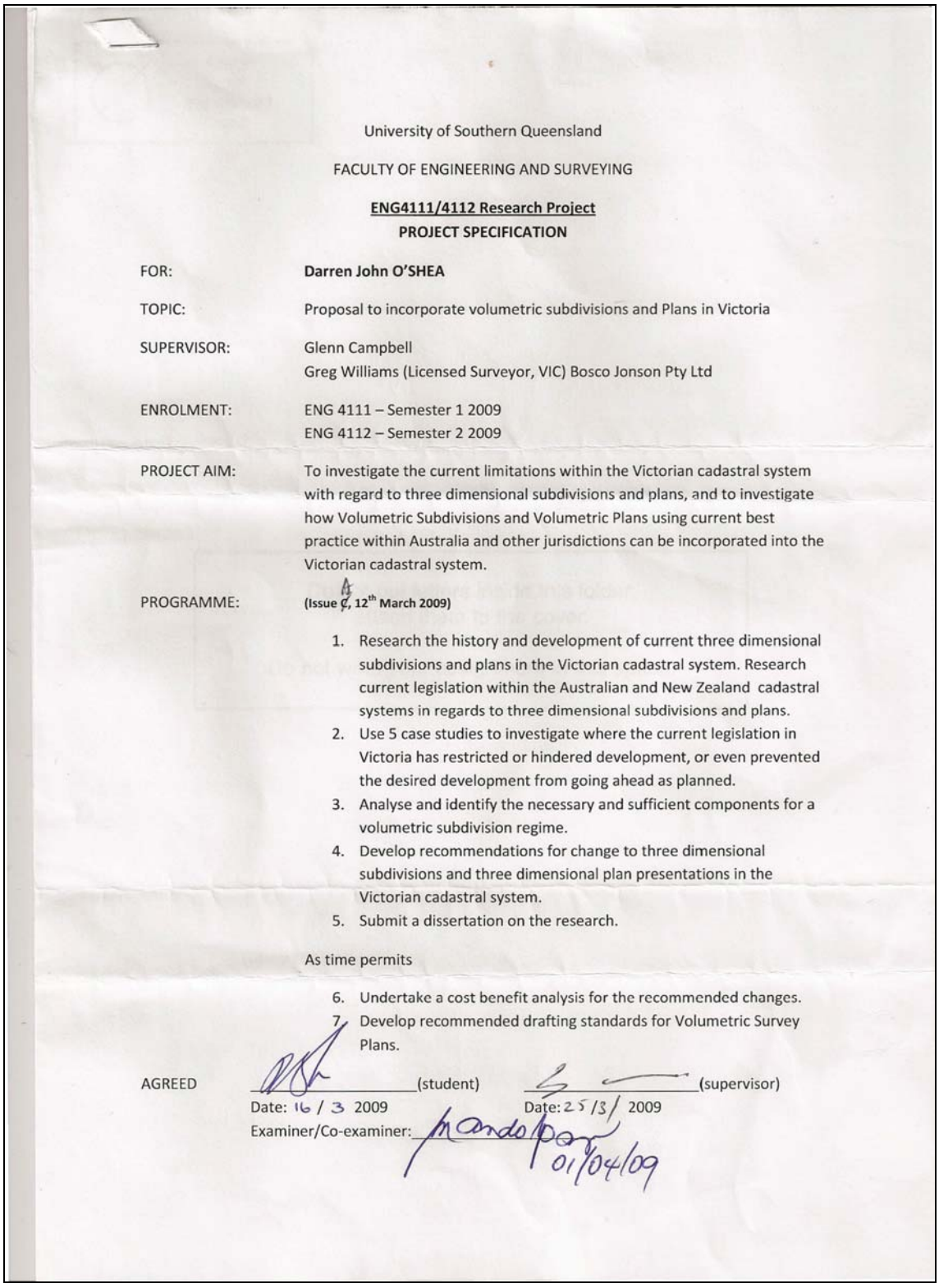
Surveying (Cadastral Surveys) Regulations 2005 (Victoria)

Surveyors Registration Board of Victoria 1997, *Survey Practice Handbook*, Victorian State Government

Susilawati, Connie (2007) Volumetric Title Valuation on Air space Railway Station Development.

Western Australian Land Information Authority (Landgate) 2009, *Survey and Plan Practice Manual*, Government of Western Australia

Appendix A - Project Specification



University of Southern Queensland

FACULTY OF ENGINEERING AND SURVEYING

ENG4111/4112 Research Project
PROJECT SPECIFICATION

FOR:	**Darren John O'SHEA**
TOPIC:	Proposal to incorporate volumetric subdivisions and Plans in Victoria
SUPERVISOR:	Glenn Campbell Greg Williams (Licensed Surveyor, VIC) Bosco Jonson Pty Ltd
ENROLMENT:	ENG 4111 – Semester 1 2009 ENG 4112 – Semester 2 2009
PROJECT AIM:	To investigate the current limitations within the Victorian cadastral system with regard to three dimensional subdivisions and plans, and to investigate how Volumetric Subdivisions and Volumetric Plans using current best practice within Australia and other jurisdictions can be incorporated into the Victorian cadastral system.
PROGRAMME:	**(Issue A, 12th March 2009)**

1. Research the history and development of current three dimensional subdivisions and plans in the Victorian cadastral system. Research current legislation within the Australian and New Zealand cadastral systems in regards to three dimensional subdivisions and plans.
2. Use 5 case studies to investigate where the current legislation in Victoria has restricted or hindered development, or even prevented the desired development from going ahead as planned.
3. Analyse and identify the necessary and sufficient components for a volumetric subdivision regime.
4. Develop recommendations for change to three dimensional subdivisions and three dimensional plan presentations in the Victorian cadastral system.
5. Submit a dissertation on the research.

As time permits

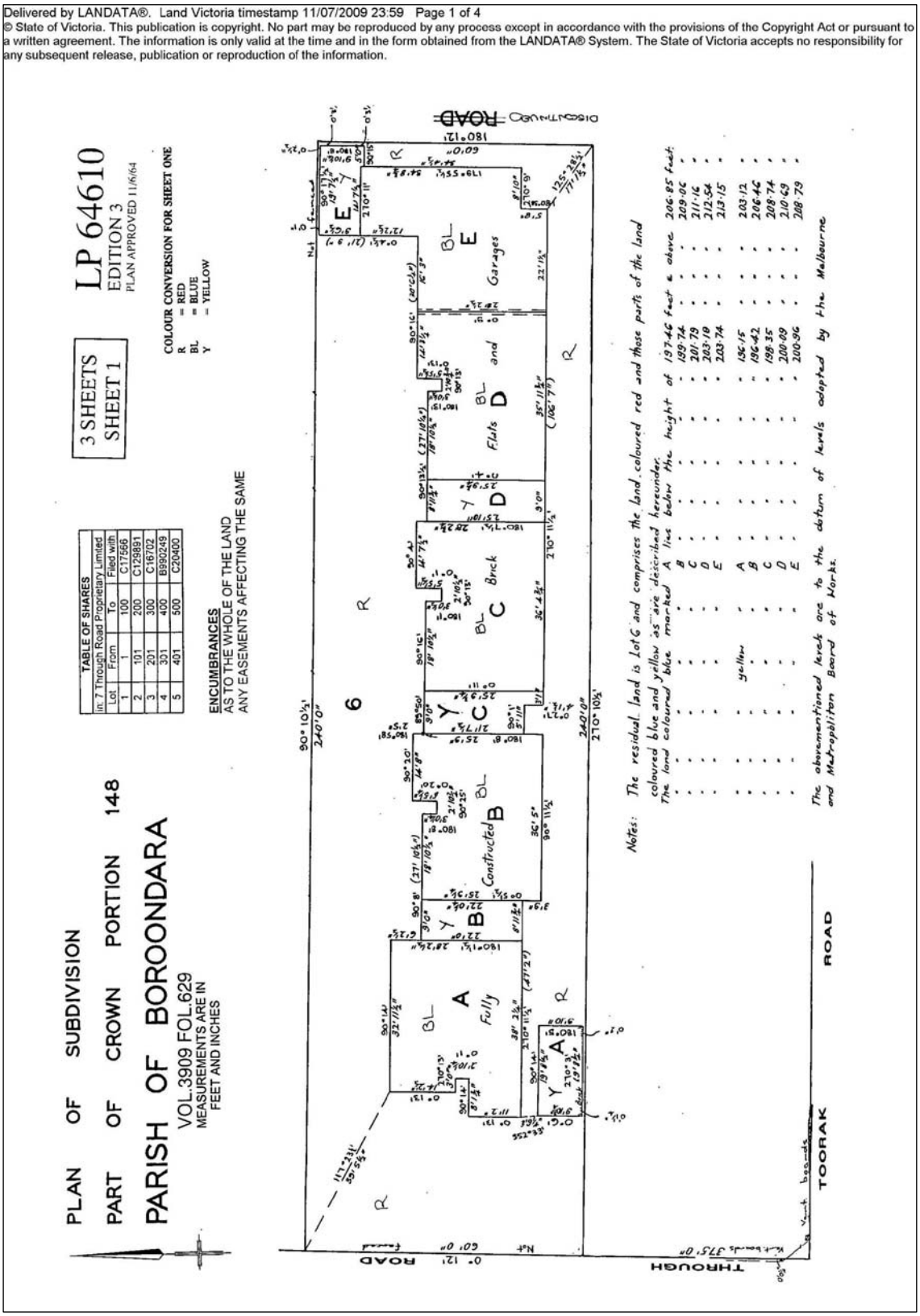
6. Undertake a cost benefit analysis for the recommended changes.
7. Develop recommended drafting standards for Volumetric Survey Plans.

AGREED _____(student) _____(supervisor)

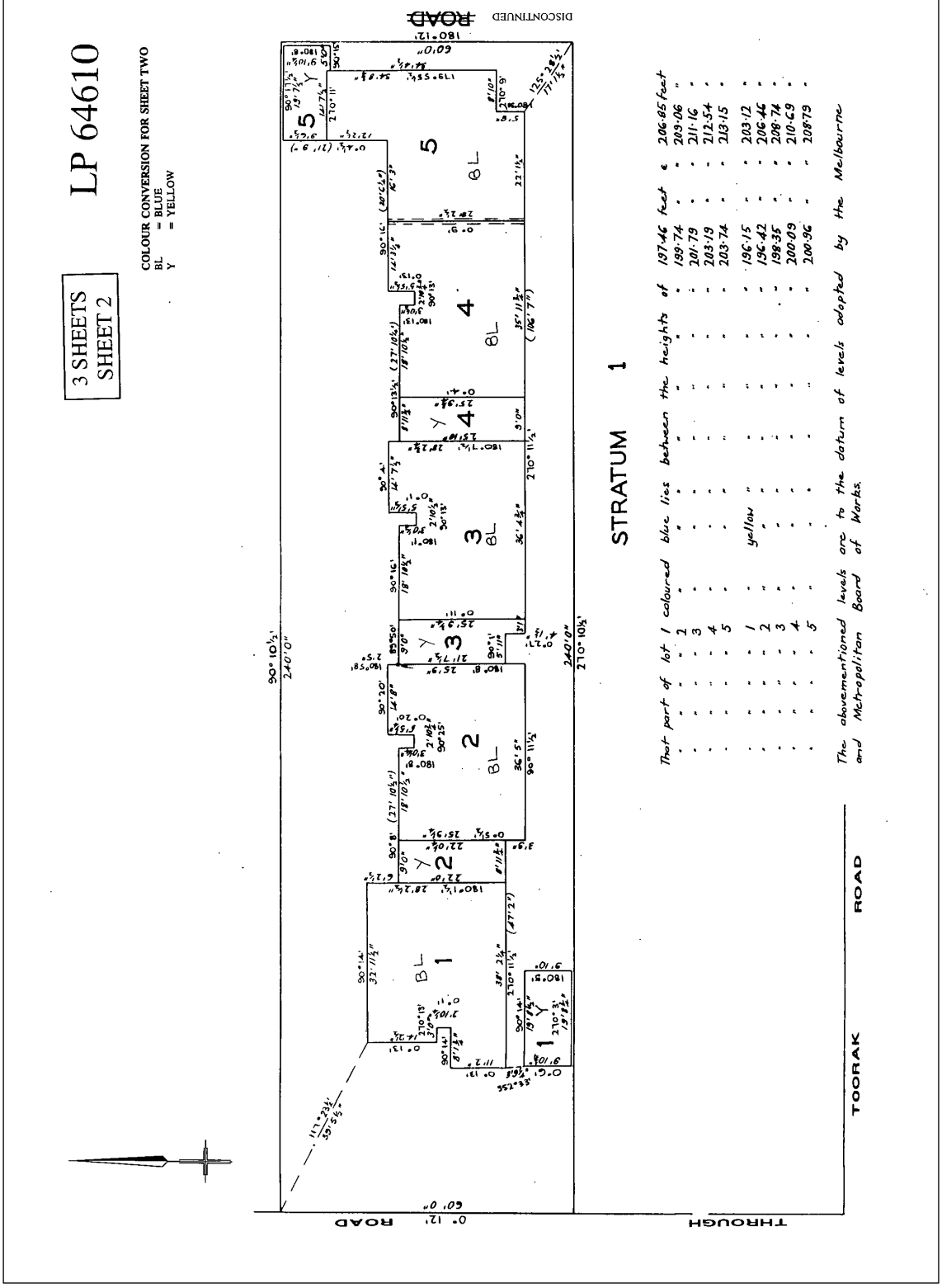
Date: 16 / 3 2009 Date: 25 /3/ 2009

Examiner/Co-examiner: 01/04/09

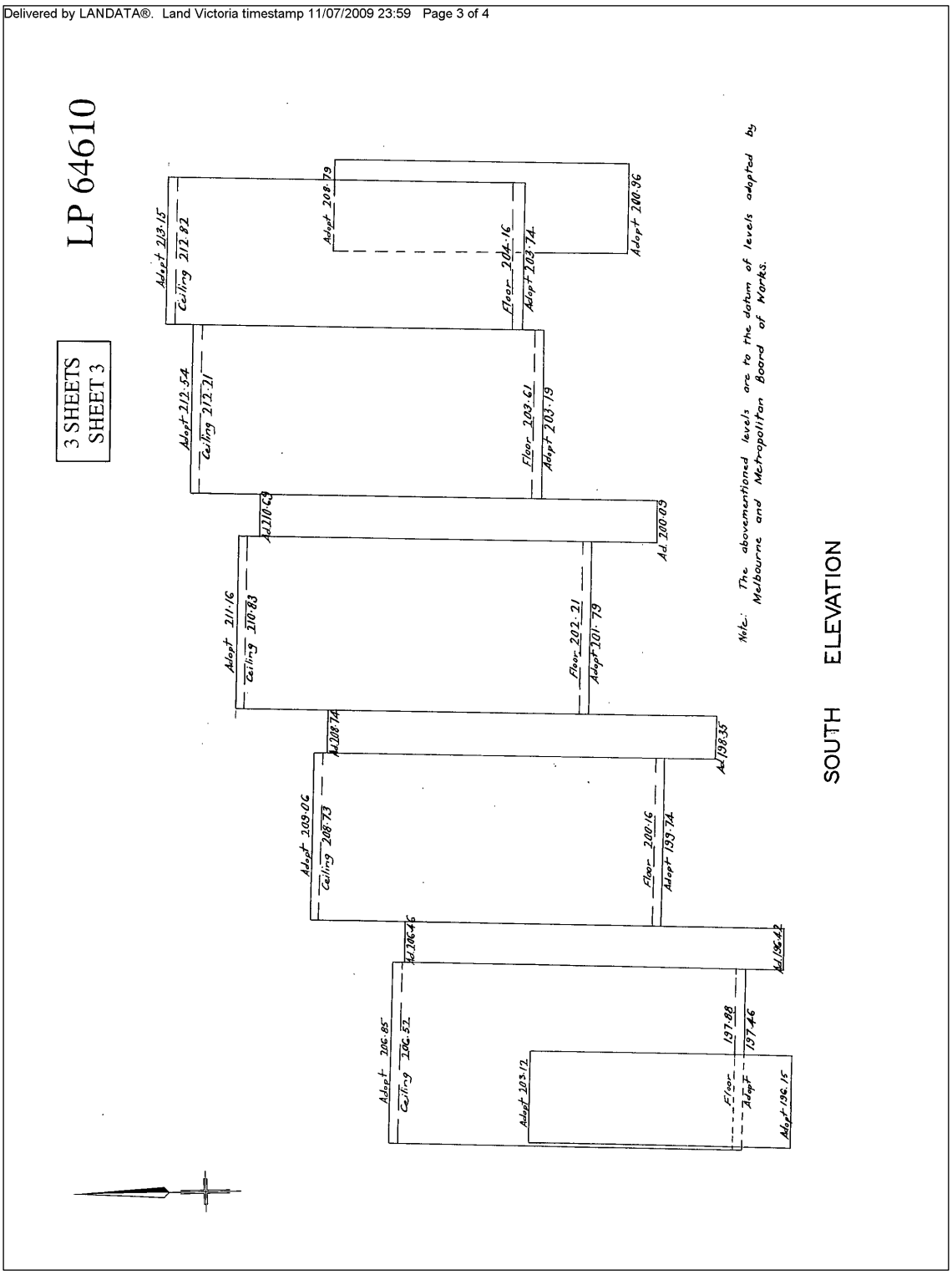
Appendix B – Stratum Plan Example



LP 64610 - Sheet 1 (Source www.acsv.com.au)



LP 64610 - Sheet 2 (Source www.acsv.com.au)



LP 64610 - Sheet 3 (Source www.acsv.com.au)

Appendix C – Strata Plan Example

D778341

PLAN OF STRATA SUBDIVISION RP2033

THE PARCEL The whole of the land described in Certificate of Title Volume 6241 Folio 015 being Part of Dendy's Crown Special Survey Parish of Moorabbin, County of Bourke.

POSTAL ADDRESS OF THE BUILDING: No. 47 & 47A Black Street, Brighton. 3186

FOR CURRENT ADDRESS FOR SERVICE OF NOTICE
SEE BODY CORPORATE SEARCH REPORT

REGISTERED

TIME 9·25 A.M.

DATE 22 JUL 1970

OFFICE OF TITLES H.W.D. VICTORIA

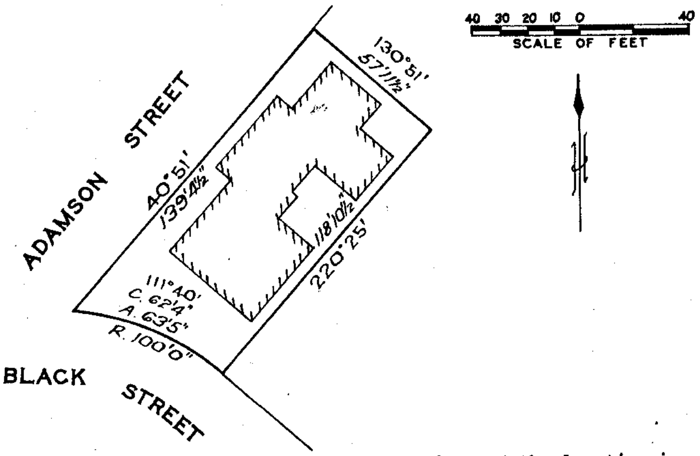


Diagram showing the external boundaries of the site and the location in relation thereto at ground level of all buildings in the parcel.

SURVEYOR'S CERTIFICATE

I, EDWARD LINNEY SIM, of 414 Bourke Street, Melbourne a Surveyor licensed under the Land Surveyors Act 1958, certify that this plan and any measurements on which it is based have been made by me or under my personal direction and supervision; that the standard of accuracy of any measurements made to determine the external boundaries of the site complies with that required by the Land Surveyors Regulations Part 2; that the plan accurately represents as at the 18th day of May 1970 in the manner required by the Strata Titles Act 1967, and the Land Surveyors (Strata Titles) Regulations 1967 and within the limitations of the scale used and the standard of accuracy required, the boundaries of the units and the location at ground level of all buildings in the parcel in relation to the external boundaries of the site and that all units are within the parcel.

21/5/70 [signature]

SEAL OF MUNICIPALITY AND ENDORSEMENT

CITY OF BRIGHTON
... 22nd ... JUNE ... 1970 ...
E. B. Jewell [signature]

SCHEDULE OF UNIT ENTITLEMENT AND UNIT LIABILITY

FOR CURRENT BODY CORPORATE DETAILS
SEE BODY CORPORATE SEARCH REPORT

[signature] SHEET 1 OF 2 SHEETS

CULLIVER & SIM, SURVEYORS,
414 BOURKE STREET, MELBOURNE
TEL: 67.8255 REF: 7074

RP 2033 - Sheet 1 (Source www.acsv.com.au)

D778341

RP2033

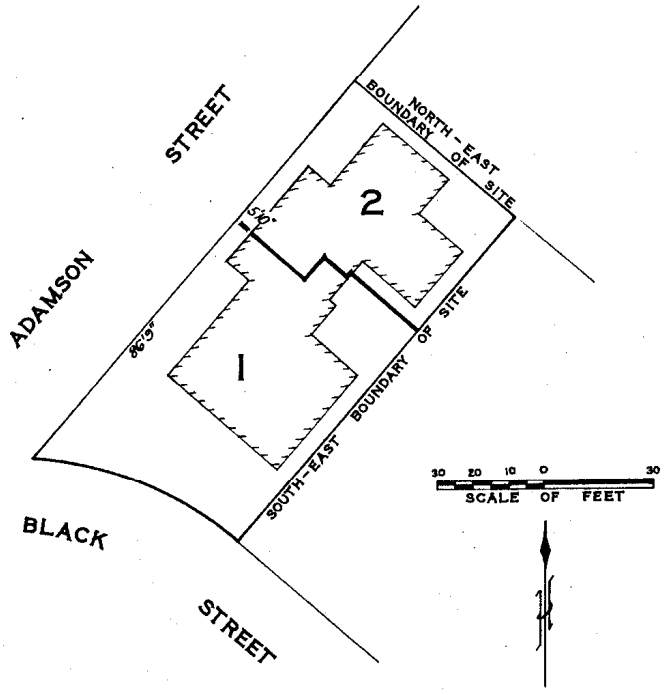
LEGEND

The building in the parcel, a part of which is contained in each of units 1 and 2, is a single - storey building.

The upper boundary of each of Units 1 and 2 is twenty-five feet above that part of the site which is within the vertical or near vertical boundaries of the relevant unit as shown on the diagram below; the lower boundary of each of these Units is four feet below that part of the site.

No unit is an accessory unit.

The common property is all the land in the parcel except the land in Units 1 and 2.



SHEET 2 OF 2 SHEETS

CULLIVER & SIM, SURVEYORS,
414 BOURKE STREET, MELBOURNE.

RP 2033 - Sheet 2 (Source www.acsv.com.au)

Appendix D – Example 15 Survey Practice Handbook

Example 14 (4 Sheets)
Plan of Subdivision in Strata with Body Corporate
Regulation 11, 13 & 19 Subdivision (Procedures) Regulations 1989

Note: The Special Rules should not form part of the plan for certification but should accompany the plan when lodged at the Land Titles Office.

	PLAN OF SUBDIVISION	Stage No.	LTO use only	Plan Number
		/	EDITION	PS 300001A

Location of Land

Parish: Alberton East

Township: Alberton

Section: 14

Crown Allotment: 5 (Part)

Crown Portion: ———

LTO base record: Litho Sheet 3 - 5005

Title References: Vol. 9910 Fol. 007

Last Plan Reference: ———

Postal Address: 25 William Road
(at time of subdivision) Alberton 3971

AMG Co.-ordinates: E 334 400 Zone 55
(of approx centre of plan) N 5 807 250

Vesting of Roads or Reserves

Identifier	Council/Body/Person
Nil	Nil

Council Certification and Endorsement

Council Name Wellington Shire Council Ref 168

1 This plan is certified under section 6 of the Subdivision Act 1988

2 ~~This Plan is certified under section 11(7) of the Subdivision Act 1988~~
~~Date of Original Certification under section 6 ——— / ——— /~~

3 This is a statement of compliance issued under section 21 of the Subdivision Act 1988

Open Space
(i) A requirement for public open space under section 18 of the Subdivision Act 1988 has / has not been made

(ii) The requirement has been satisfied

(iii) ~~The requirement is to be satisfied in Stage ———~~

Council delegate
Council seal
Date / /

Re-certified under section 11(7)
of the Subdivision Act 1988

Council delegate
Council seal
Date / /

Notations

Depth Limitation Does not apply

Staging This ~~is~~ / is not a staged subdivision
~~Planning permit no.~~

The common property is all the land in the plan except lots 1 to 10

Boundaries shown by thick continuous lines are defined by buildings
Location of boundaries defined by buildings

Median: Boundary of garages marked M
Exterior face: All other boundaries of garages
Interior face: All other boundaries

Survey This plan is / ~~is not~~ based on survey

This survey has been connected to permanent marks no(s) 26 & 51
In Proclaimed Survey Area no 66

Easement Information

Legend: E - Encumbering Easement, Condition in Crown Grant in the Nature of an Easement or Other Encumbrance
A - Appurtenant Easement R - Encumbering Easement (Road)

Subject Land	Purpose	Width (Metres)	Origin	Land Benefited/In Favour of

LTO use only

Statement of Compliance/ Exemption Statement

Received ☐

Date / /

LTO use only

PLAN REGISTERED
TIME
DATE / /

Assistant Registrar of Titles

Sheet 1 of 4 Sheets

LICENSED SURVEYOR (PRINT) . . . . .

SIGNATURE . . . . . DATE / /

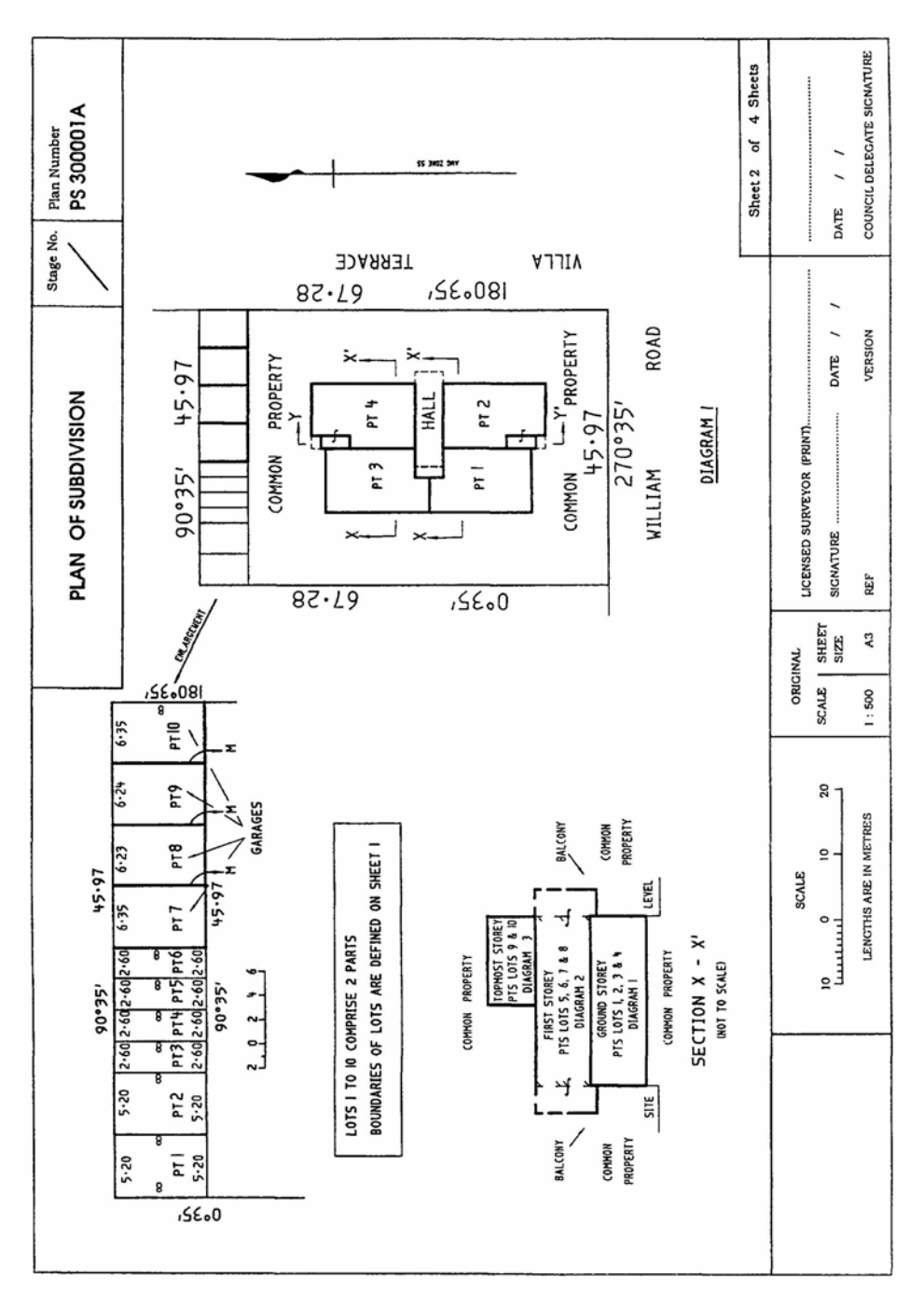
REF VERSION

. . ..

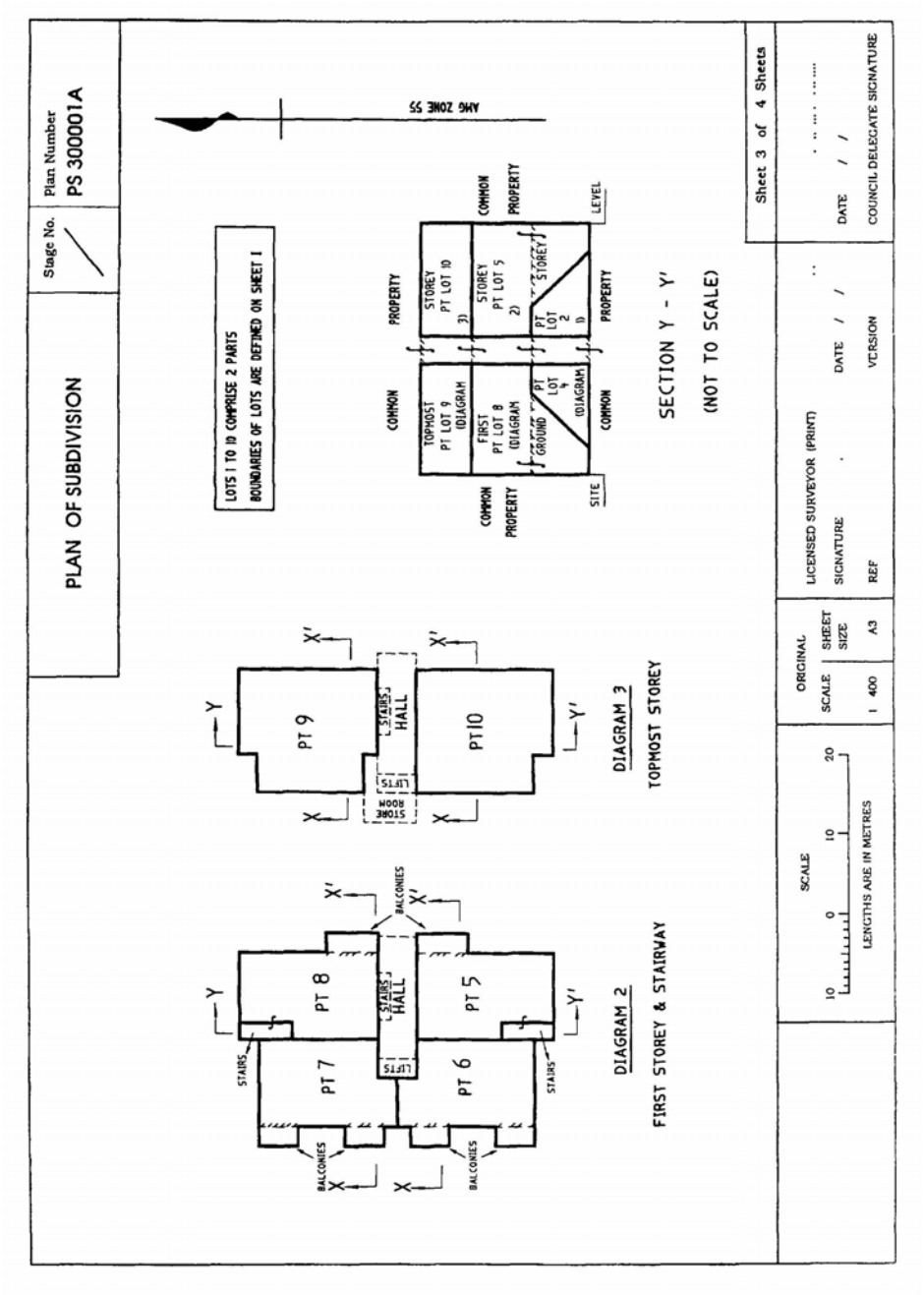
DATE / /
COUNCIL DELEGATE SIGNATURE

Original Sheet size A3

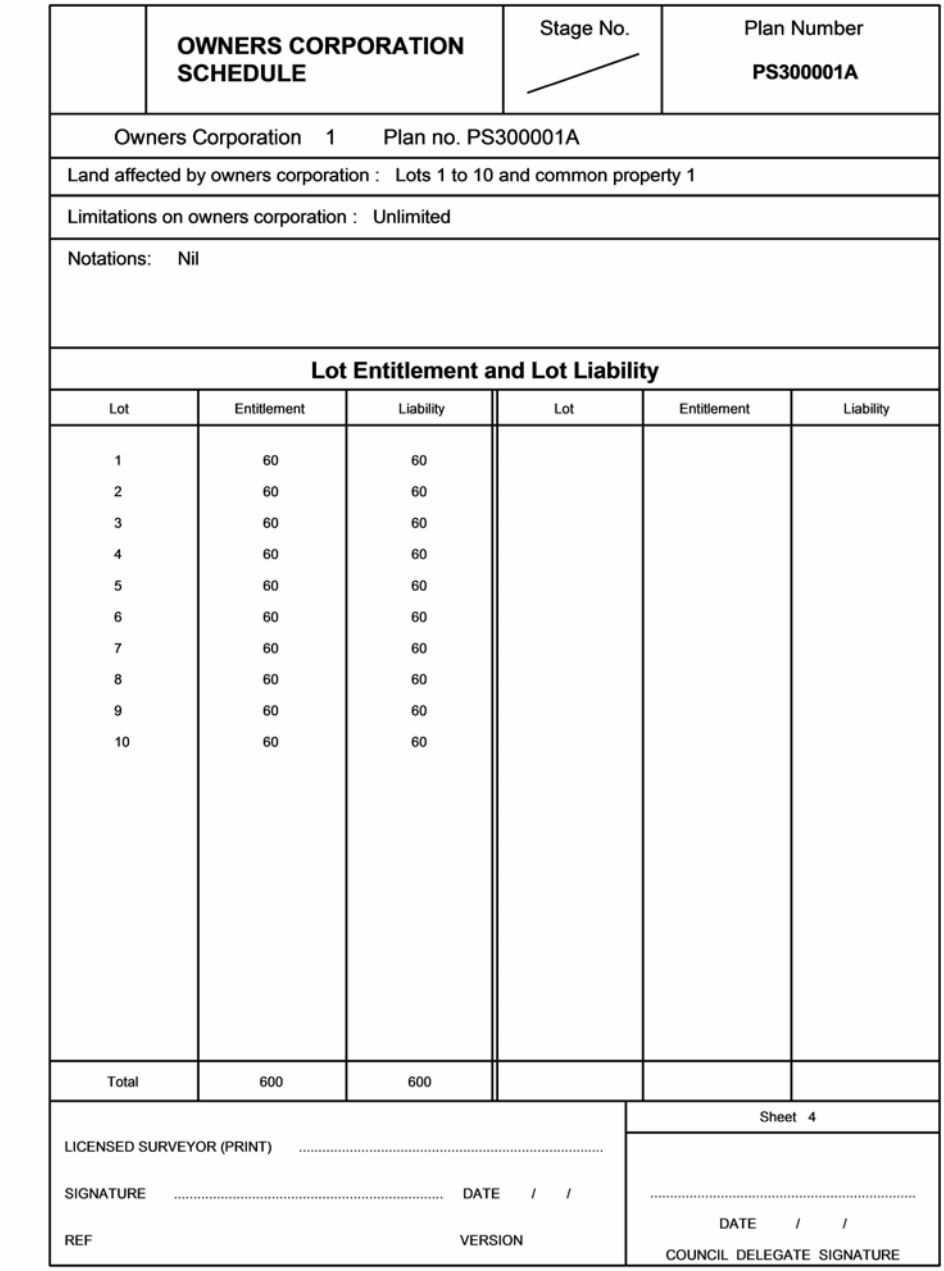
Example 15 Survey Practice Handbook - Sheet 1 (Source www.surveyorsboard.vic.gov.au)



Example 15 Survey Practice Handbook - Sheet 2 (Source www.surveyorsboard.vic.gov.au)



Example 15 Survey Practice Handbook - Sheet 3 (Source www.surveyorsboard.vic.gov.au)



	OWNERS CORPORATION SCHEDULE	Stage No. /	Plan Number PS300001A

Owners Corporation 1 Plan no. PS300001A

Land affected by owners corporation : Lots 1 to 10 and common property 1

Limitations on owners corporation : Unlimited

Notations: Nil

Lot Entitlement and Lot Liability

Lot	Entitlement	Liability	Lot	Entitlement	Liability
1	60	60			
2	60	60			
3	60	60			
4	60	60			
5	60	60			
6	60	60			
7	60	60			
8	60	60			
9	60	60			
10	60	60			
Total	600	600			

Sheet 4

LICENSED SURVEYOR (PRINT) .....

SIGNATURE ..... DATE / /

REF VERSION

..... DATE / /

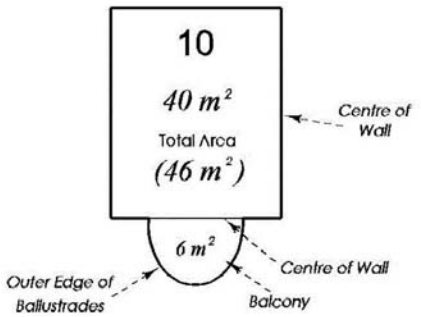
COUNCIL DELEGATE SIGNATURE

Example 15 Survey Practice Handbook - Sheet 4 (Source www.surveyorsboard.vic.gov.au)

Appendix E – Building Format Plan Examples

9.24 Examples for building format plans:

Figure 9-1: Part Lot, Balcony



Note: Descriptions of the bounding features are for the purposes of this diagram only.

Figure 9-2: Part Lots, Carports

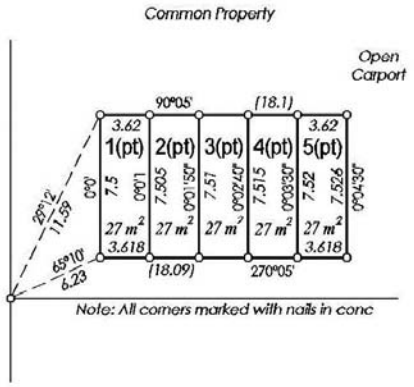


Figure 9-3: Part Lot, Courtyard

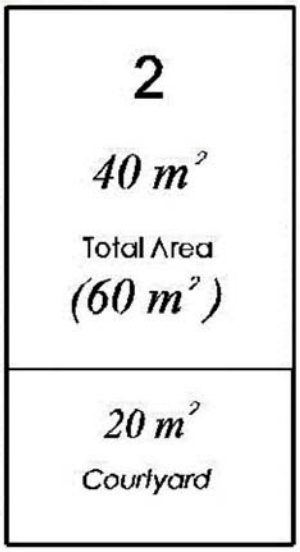
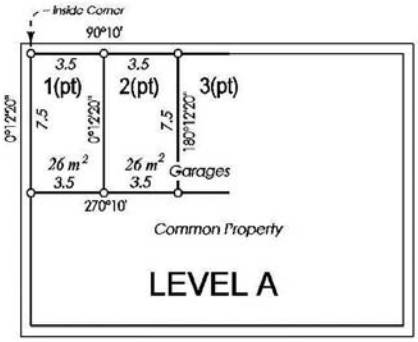


Figure 9-4: Part Lots, Garages

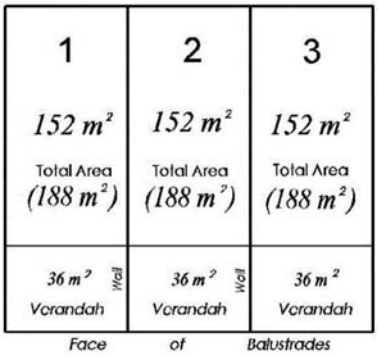


Note: Unless otherwise noted, all corners are ramset nails in concrete.

Note: Wall shown for illustrative purposes only. It is not required on an actual plan.

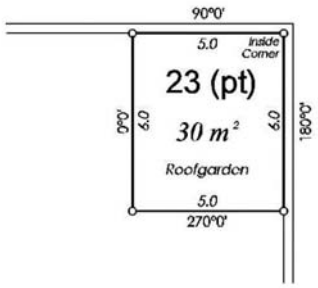
Building Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

Figure 9-5: Part Lots, Verandahs.



Note: "Face of Balustrades" is for the purposes of this diagram only.

Figure 9-6: Part Lots, Roof garden



Note: Unless otherwise noted, all corner are nails in concrete.

Note: Wall shown for illustrative purposes only. It is not required on an actual plan.

Figure 9-7: Main plan for a building format plan

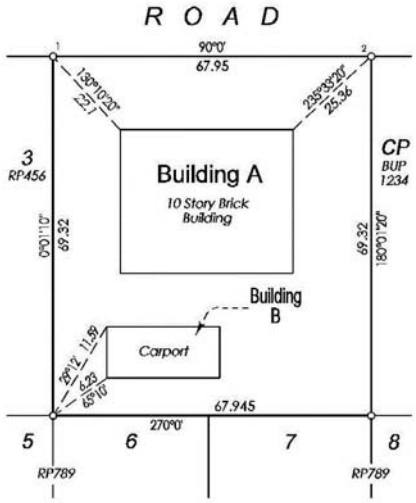
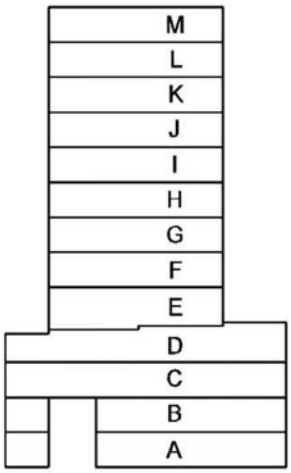
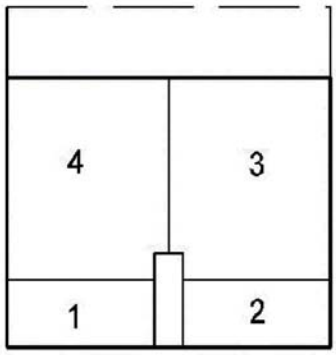


Figure 9-8: Lateral aspect view



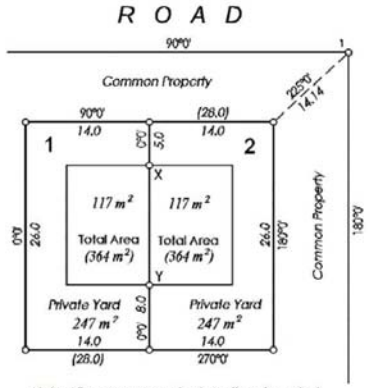
Building Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

Figure 9-9: Level D illustrating the location of the level below



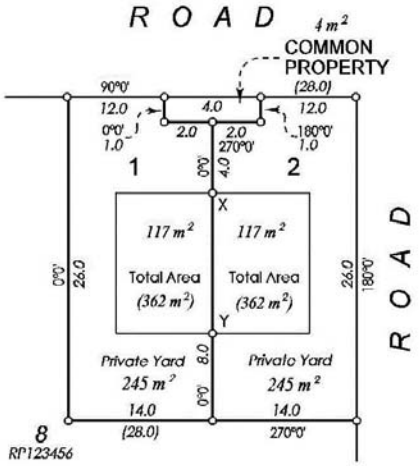
Level D

Figure 9-10: Private Yards within a larger community titles scheme



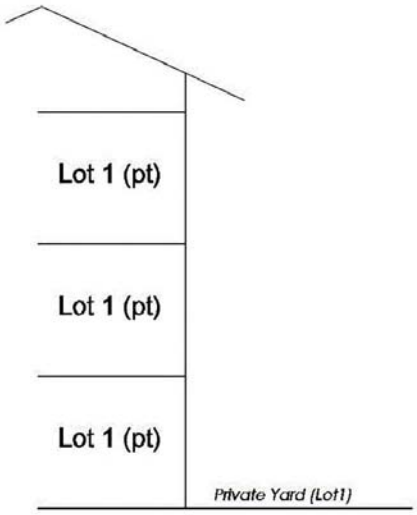
Note: All corners pegged unless otherwise noted.
(X - Y is centre of wall.)

Figure 9-11: Private Yards taking up the whole of a community titles scheme



Note: All corners pegged unless otherwise noted.
(X - Y is centre of wall.)

Figure 9-12: Private Yards - acceptable



Building Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

Figure 9-13: Private Yard – acceptable. Balcony is shown on Level B diagram in broken line only and is not given an area on the level diagram.

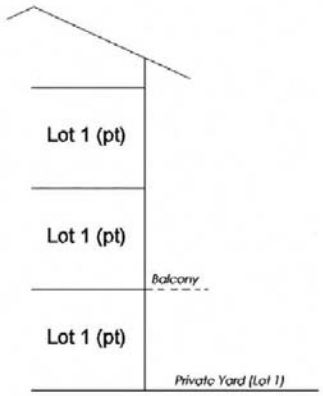


Figure 9-14: Private Yard unacceptable as balconies of lots 2-5 are within the private yard. A private yard that was less than the projection of the balconies would be acceptable.

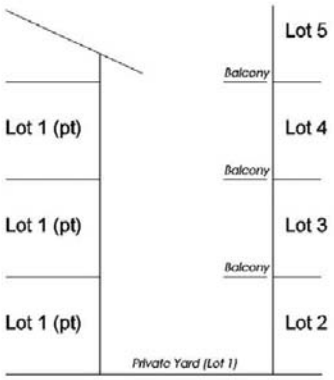


Figure 9-15: Private Yard unacceptable. Lots in building do not satisfy a low rise building.

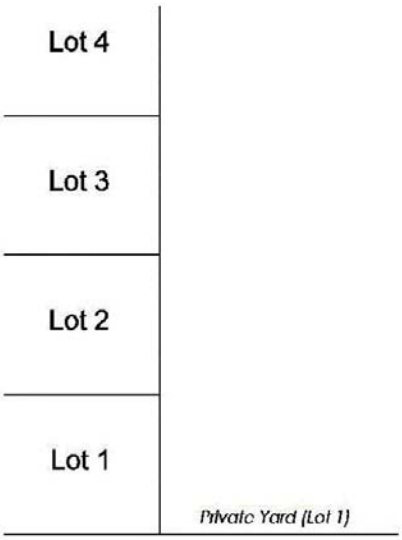
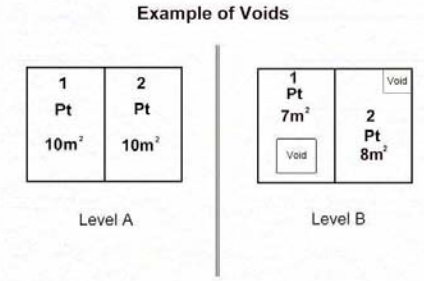


Figure 9-16: Voids



Building Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

Figure 9-17: Private Yard – unacceptable to adjoin any part of another lot, except courtyard or private yard.

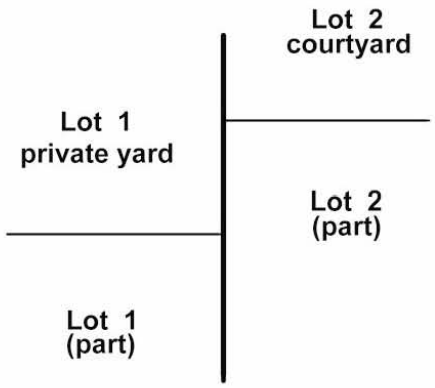
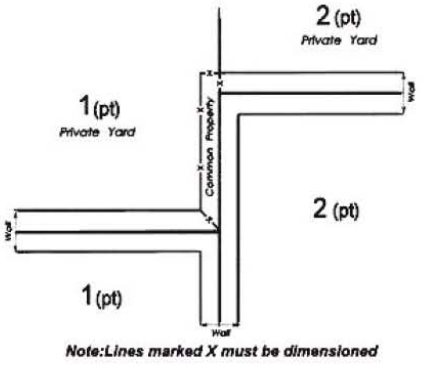


Figure 9-18:- Private Yard – acceptable – does not adjoin main part of adjoining lot.



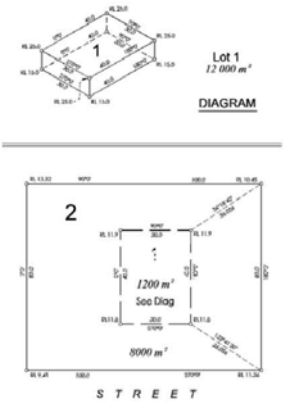
Note:Lines marked X must be dimensioned

Building Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

Appendix F – Volumetric Format Plan Examples

10.14 Examples for volumetric format plans:

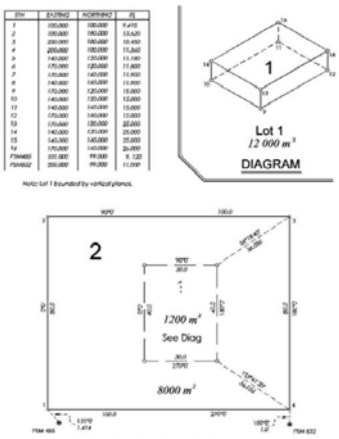
Figure 10-1 Plan showing volumetric parcel by dimensions.



Datum for AHD: PSM 123 - RL 8.465

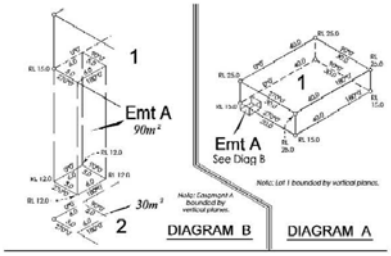
Plan of Lots 1 and 2 cancelling Lot 10 on RP123456

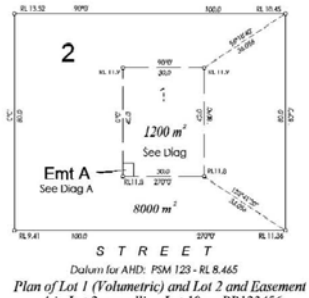
Figure 10-2 Plan showing volumetric parcel by coordinates.



Datum for AHD: PSM 123 - RL 8.465
Co-Ordinate System: Plane, Origin Stn 1 100.000 E, 100.000 N

Figure 10-3 Plan showing an easement.

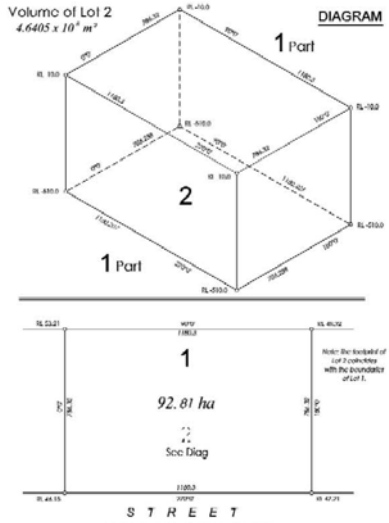




Datum for AHD: PSM 123 - RL 8.465

Plan of Lot 1 (Volumetric) and Lot 2 and Easement A in Lot 2 cancelling Lot 10 on RP123456

Figure 10-4 Plan of a volumetric lot with the same outer dimensions as the base parcel.

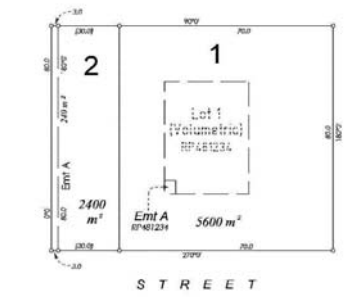


Datum for AHD: PSM 4824 - RL 38.36

Plan of Lots 1 and 2 cancelling Lot 1 on RP384321

Volumetric Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

Figure 10-5 Subdivision of a remainder lot.

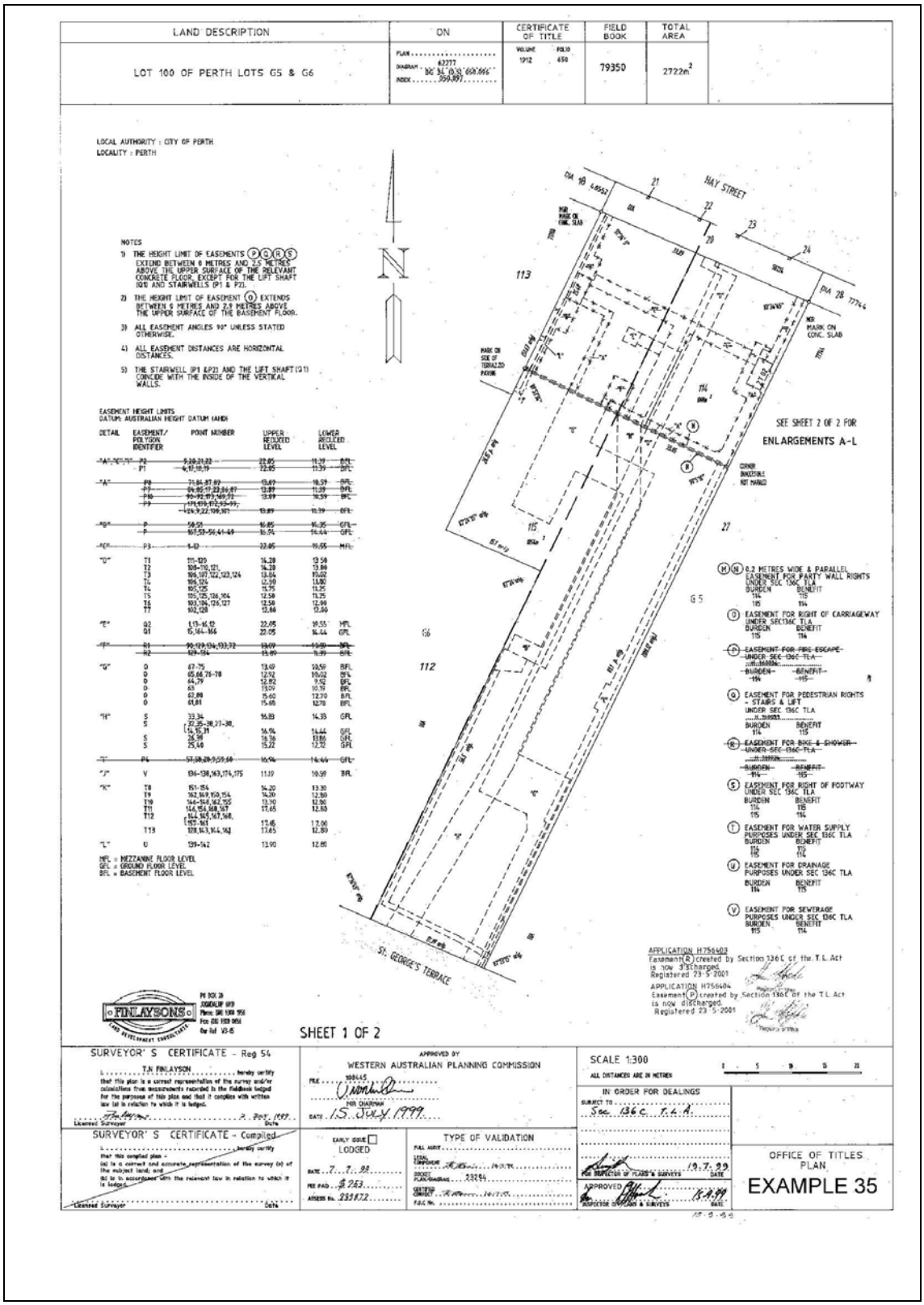


Datum for AHD: PSM 123 - RL 8.465

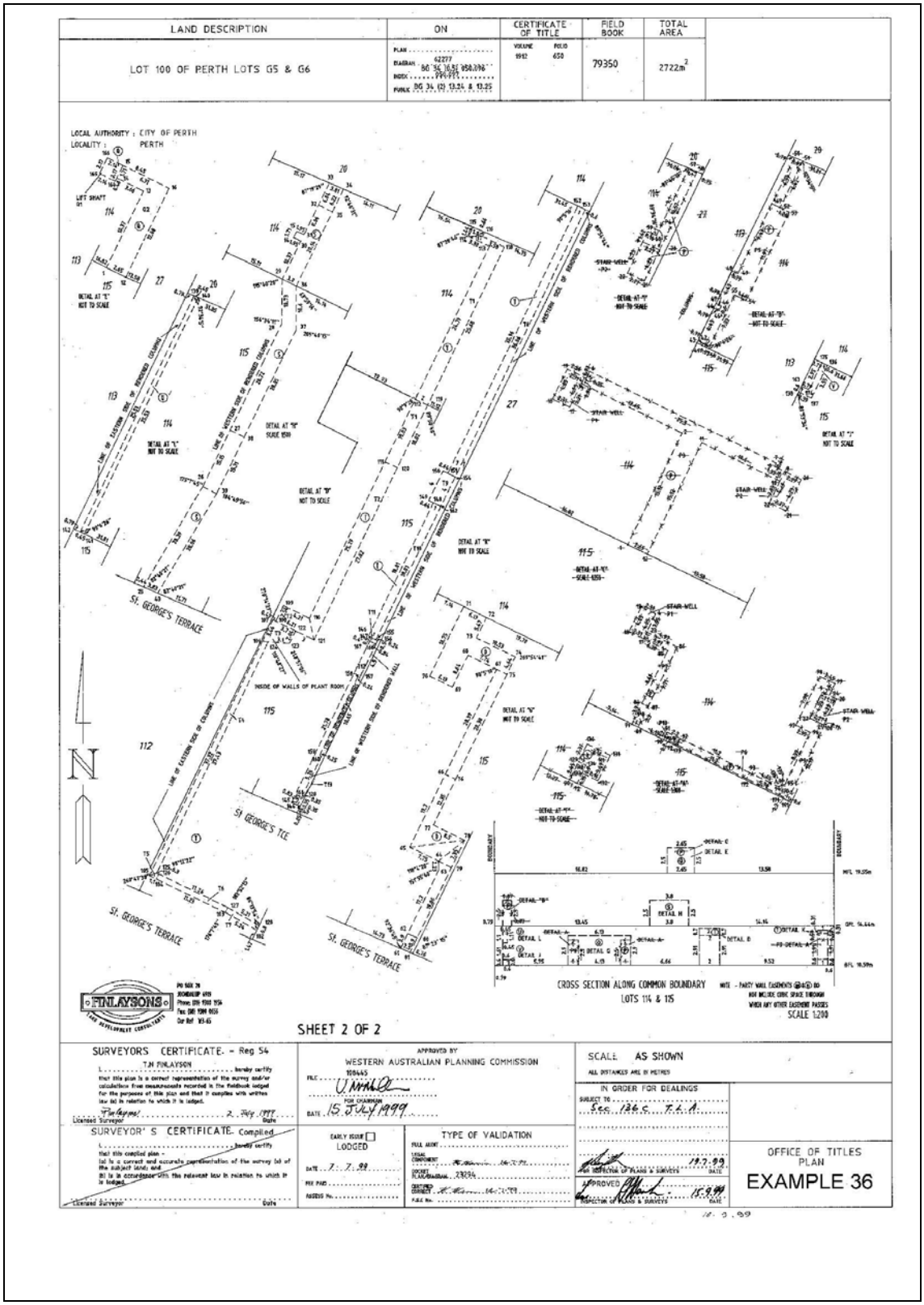
Plan of Lot 1 and Lot 2 and Easement A (Restricted) in Lot 2 cancelling Lot 2 on RP481234

Volumetric Format Plan Examples – Registrar of Titles Directions for the Preparation of Plans

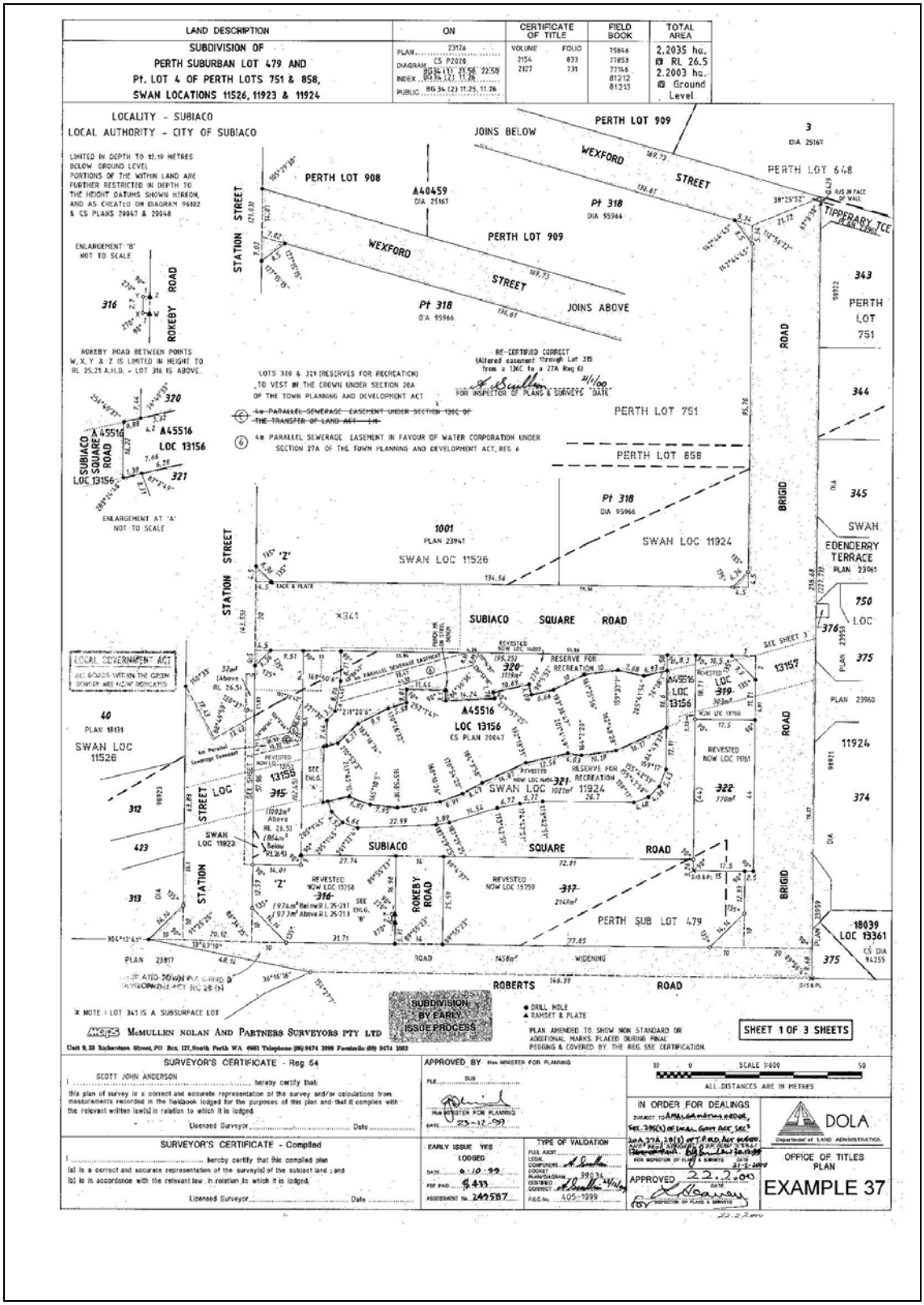
Appendix G – Cubic Lot Examples



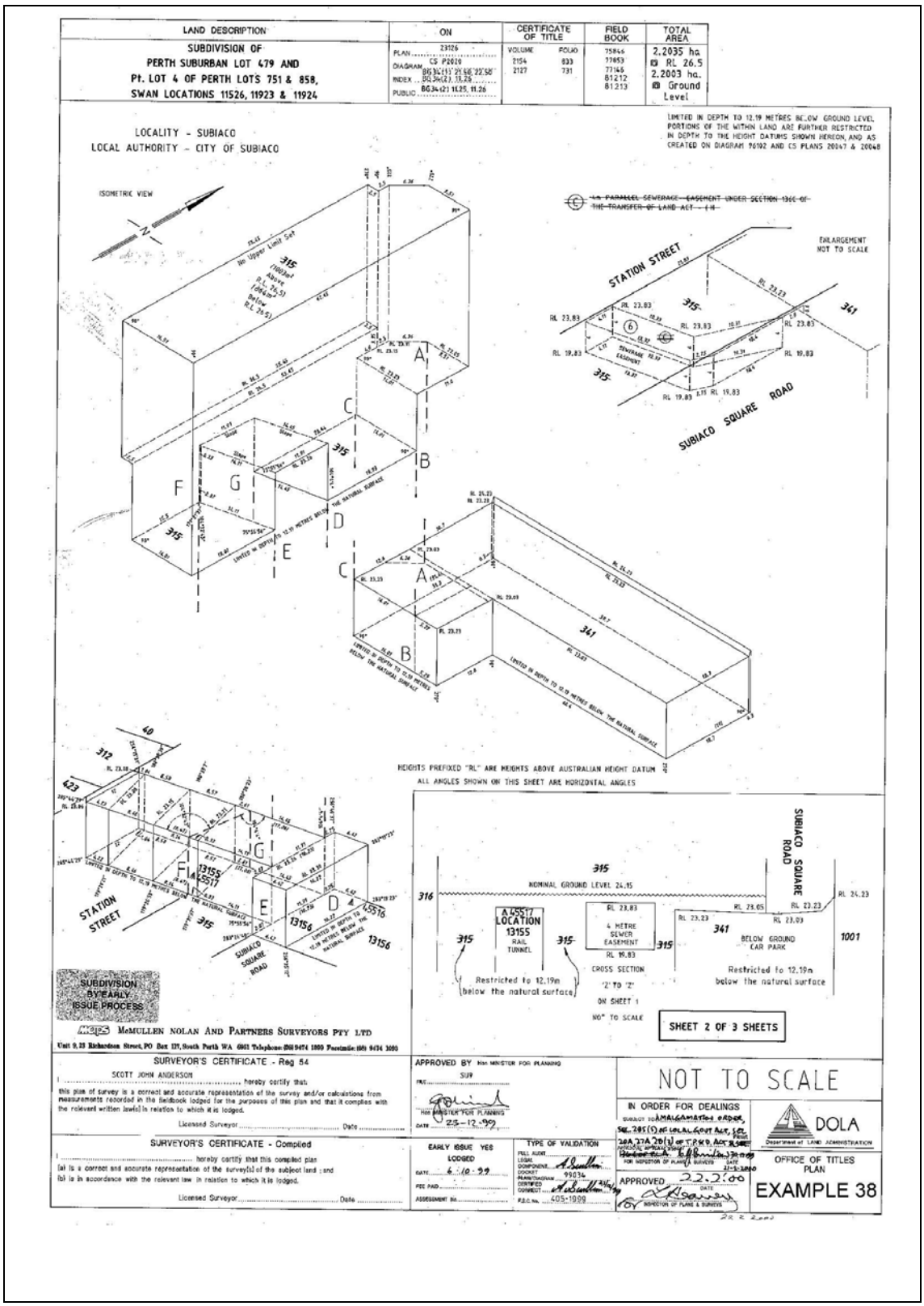
Three Dimensional Plan Examples – Survey and Plan Practice Manual for Western Australia



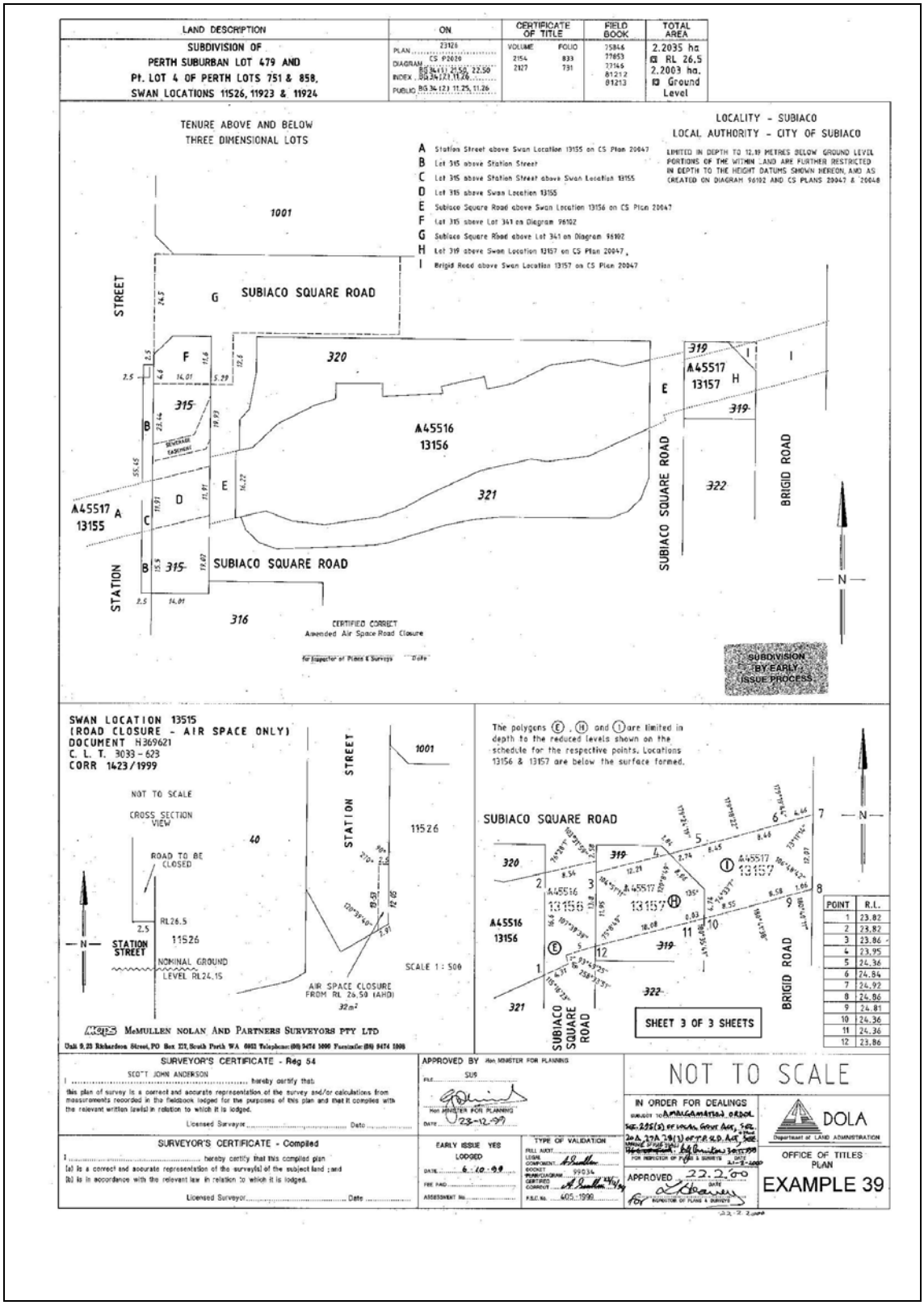
Three Dimensional Plan Examples – Survey and Plan Practice Manual for Western Australia



Three Dimensional Plan Examples – Survey and Plan Practice Manual for Western Australia

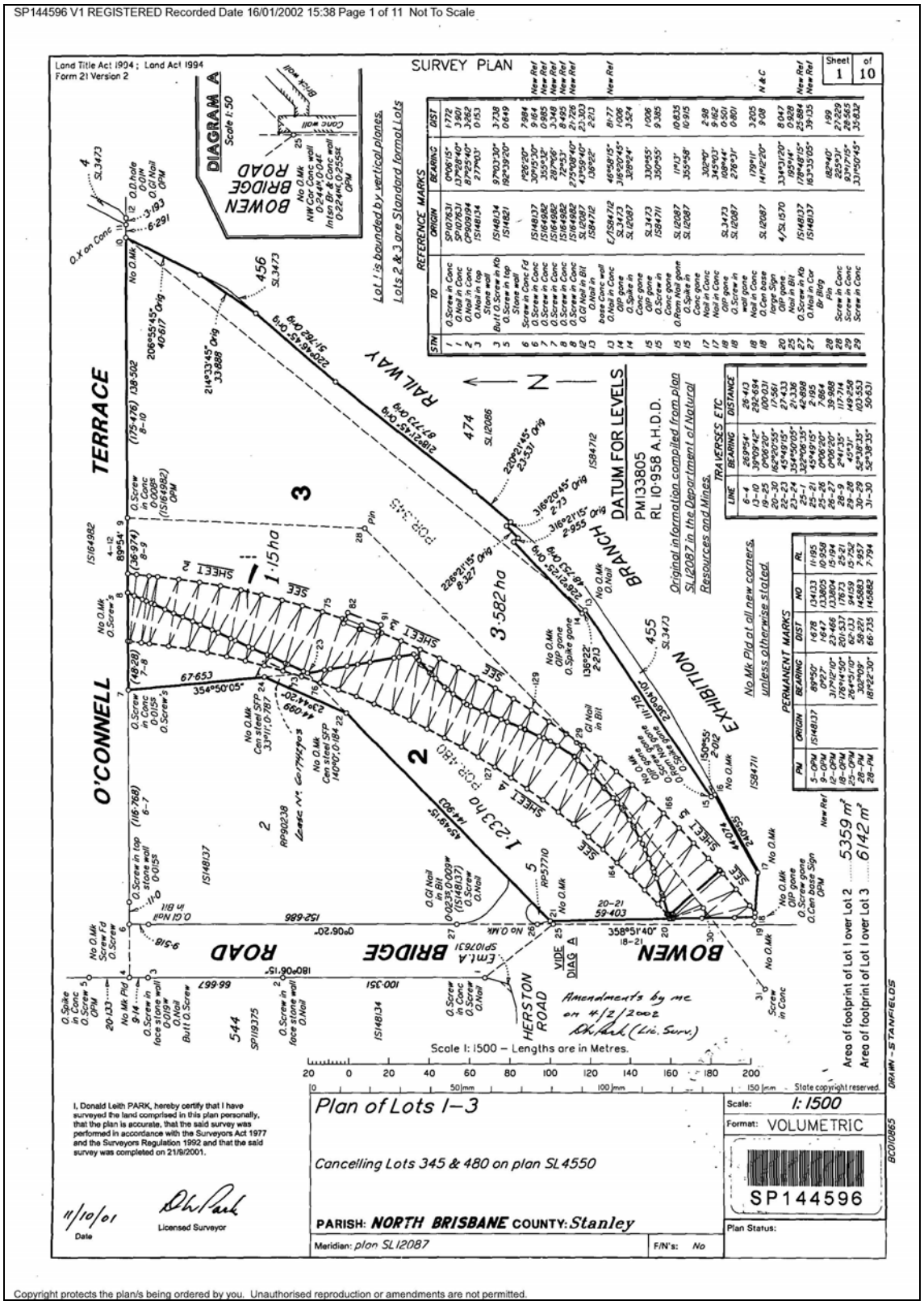


Three Dimensional Plan Examples – Survey and Plan Practice Manual for Western Australia

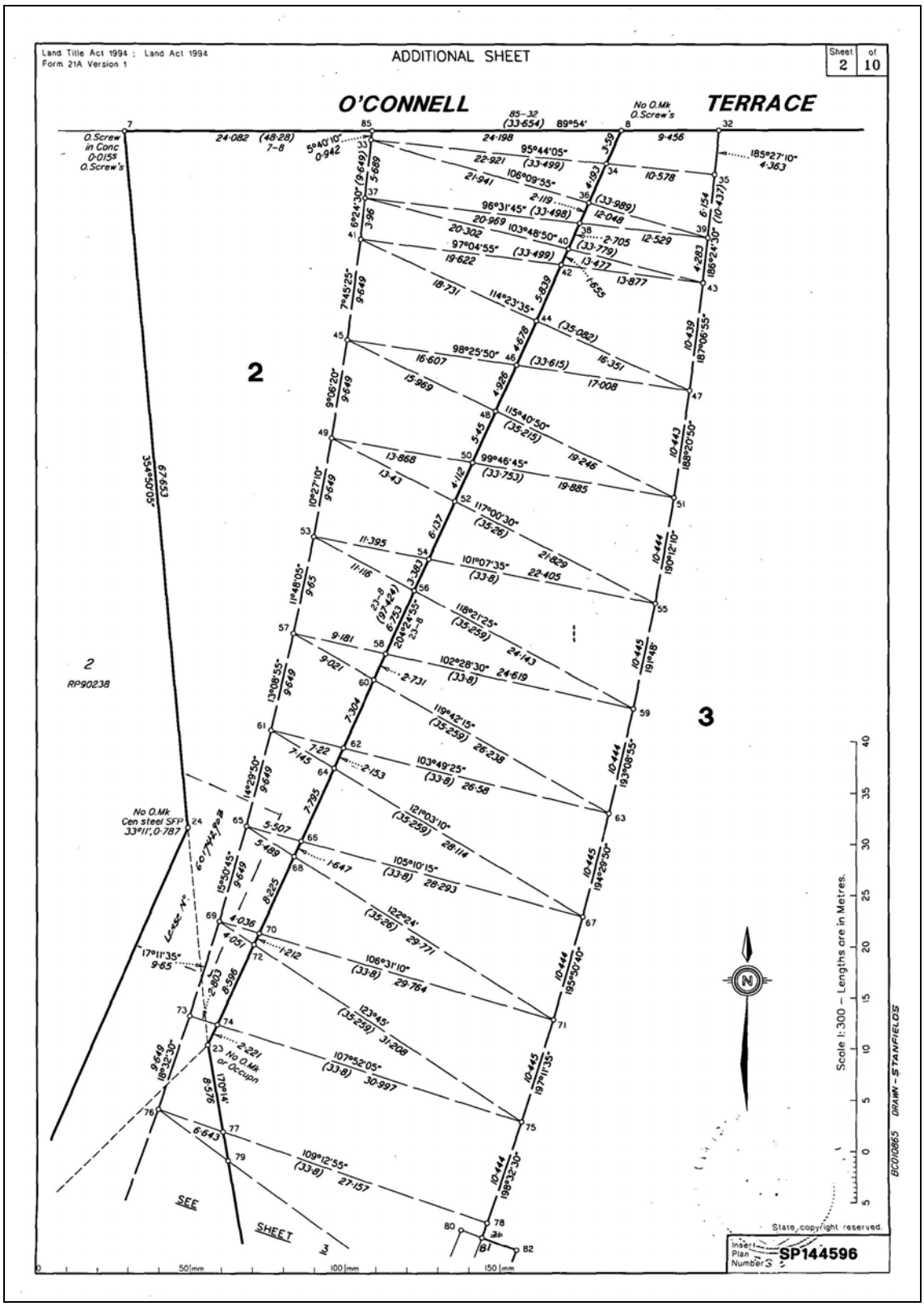


Three Dimensional Plan Examples – Survey and Plan Practice Manual for Western Australia

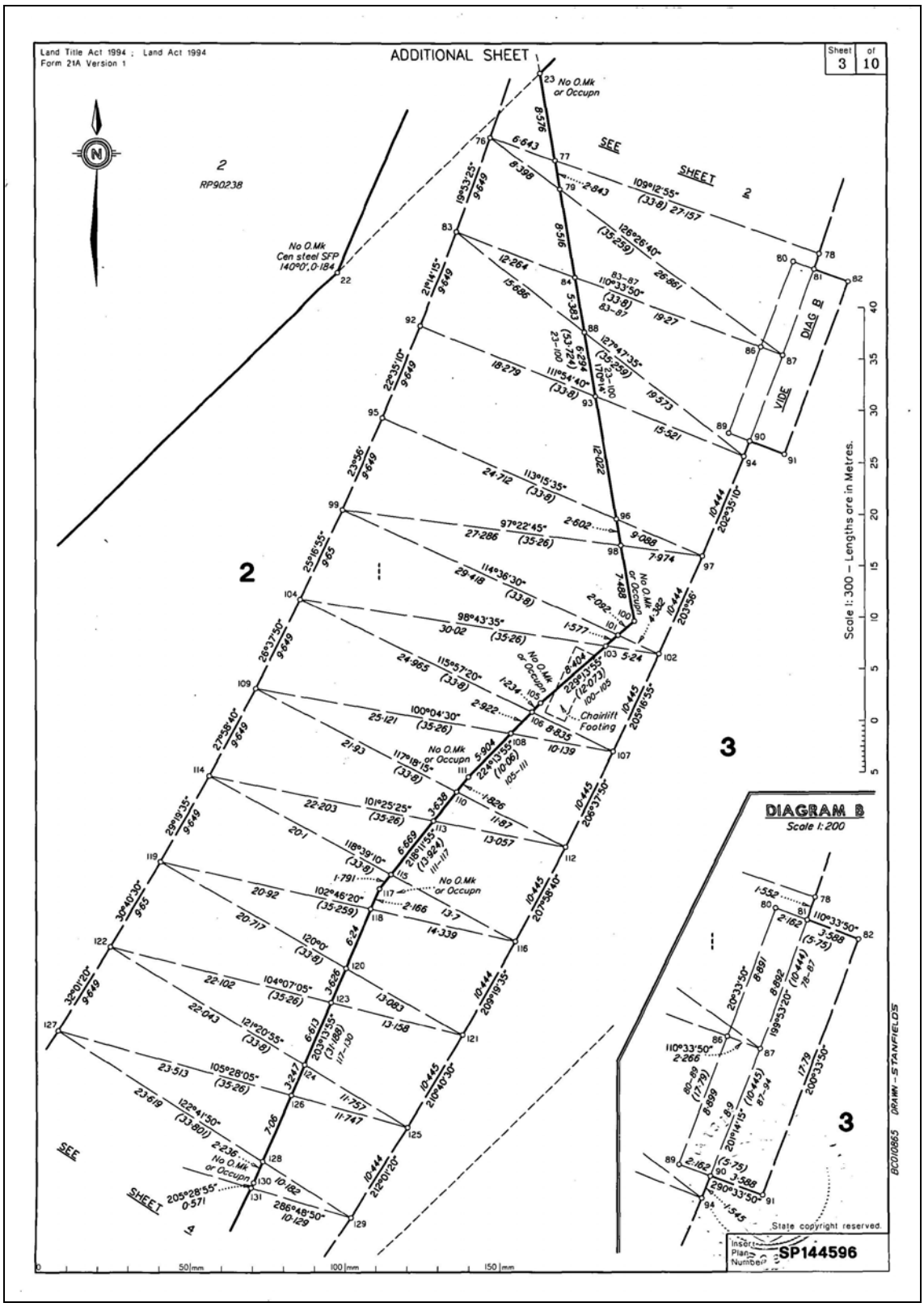
Appendix H – Case Study 1



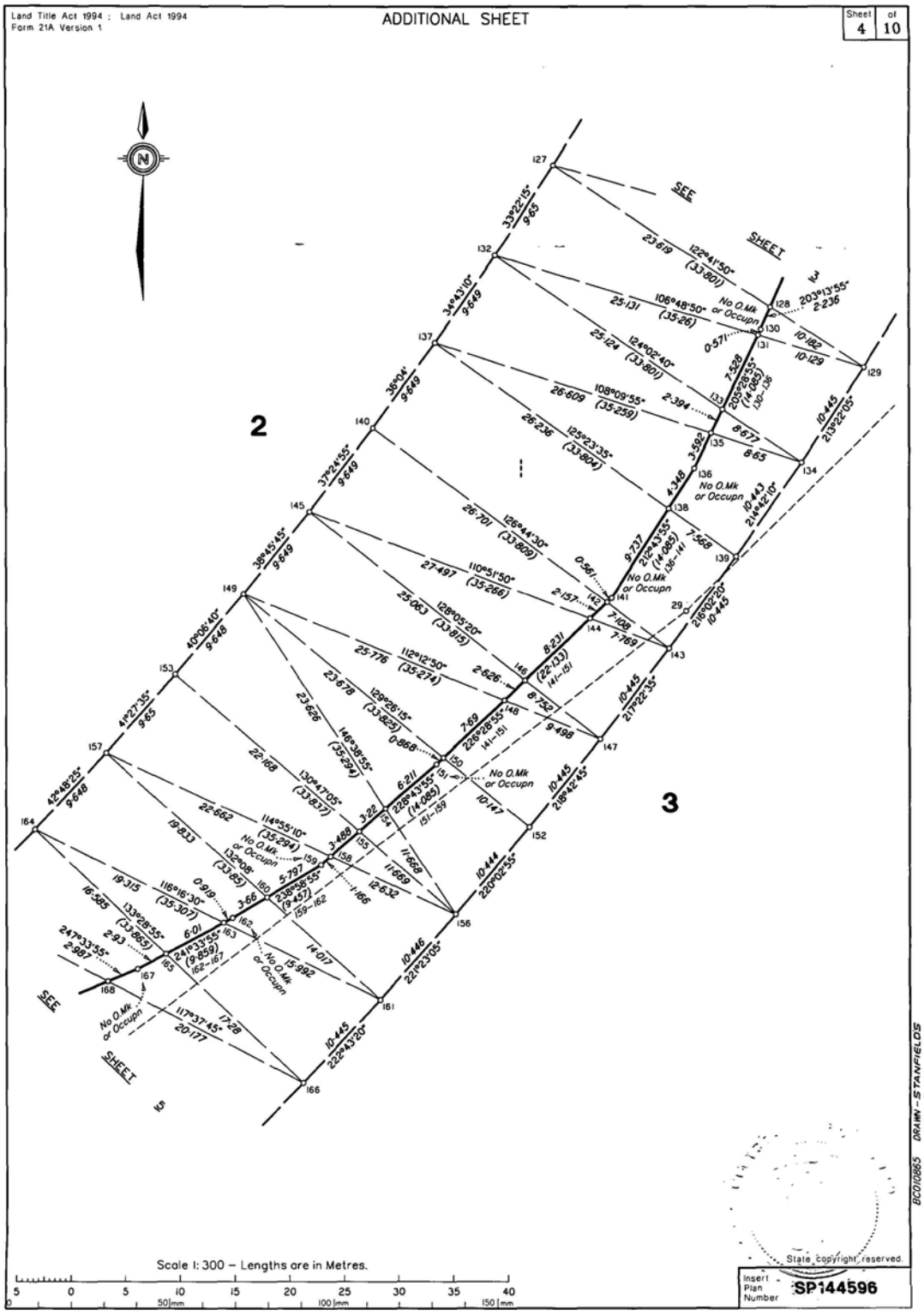
SP 144596 – Sheet 1 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



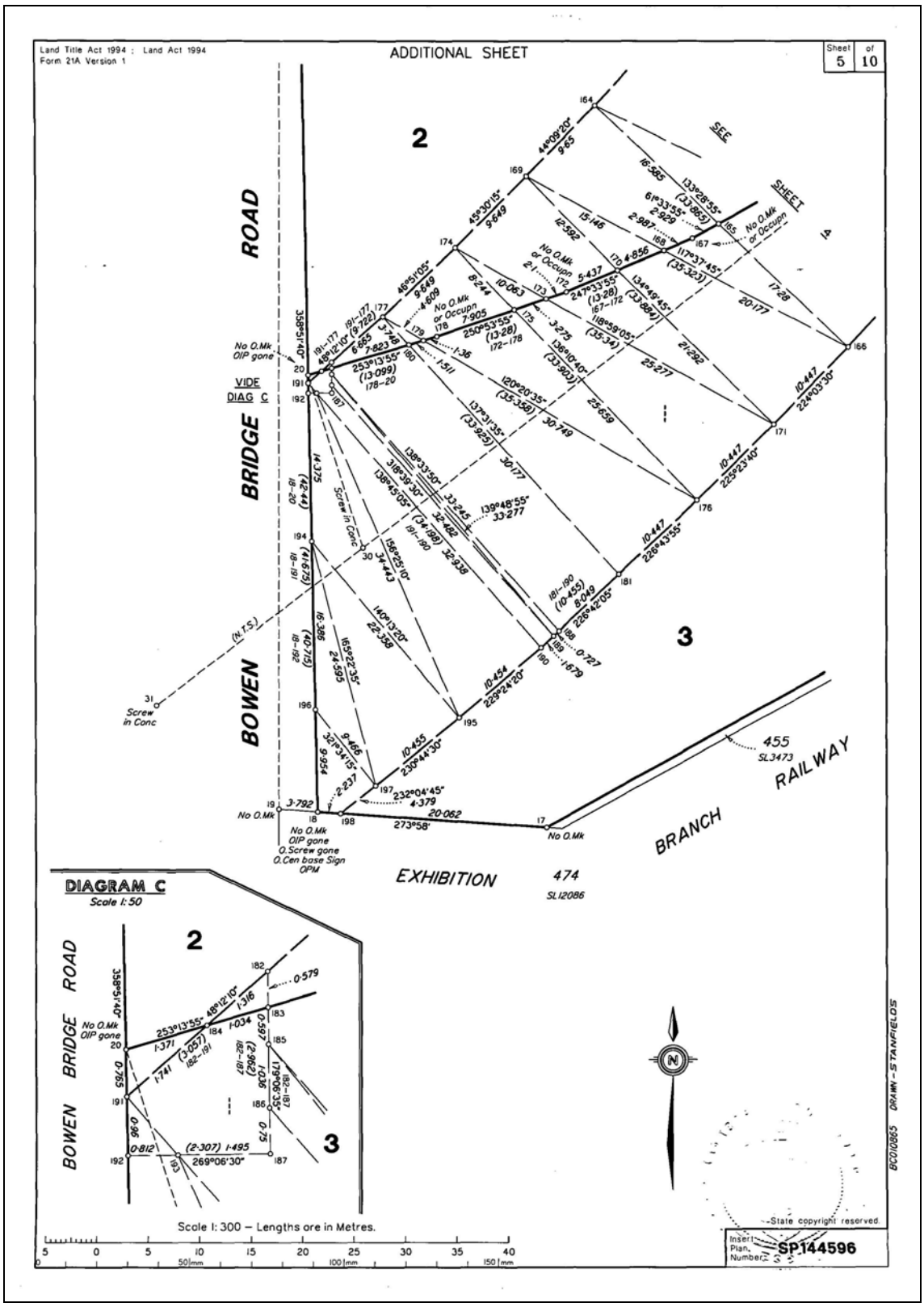
SP 144596 – Sheet 2 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



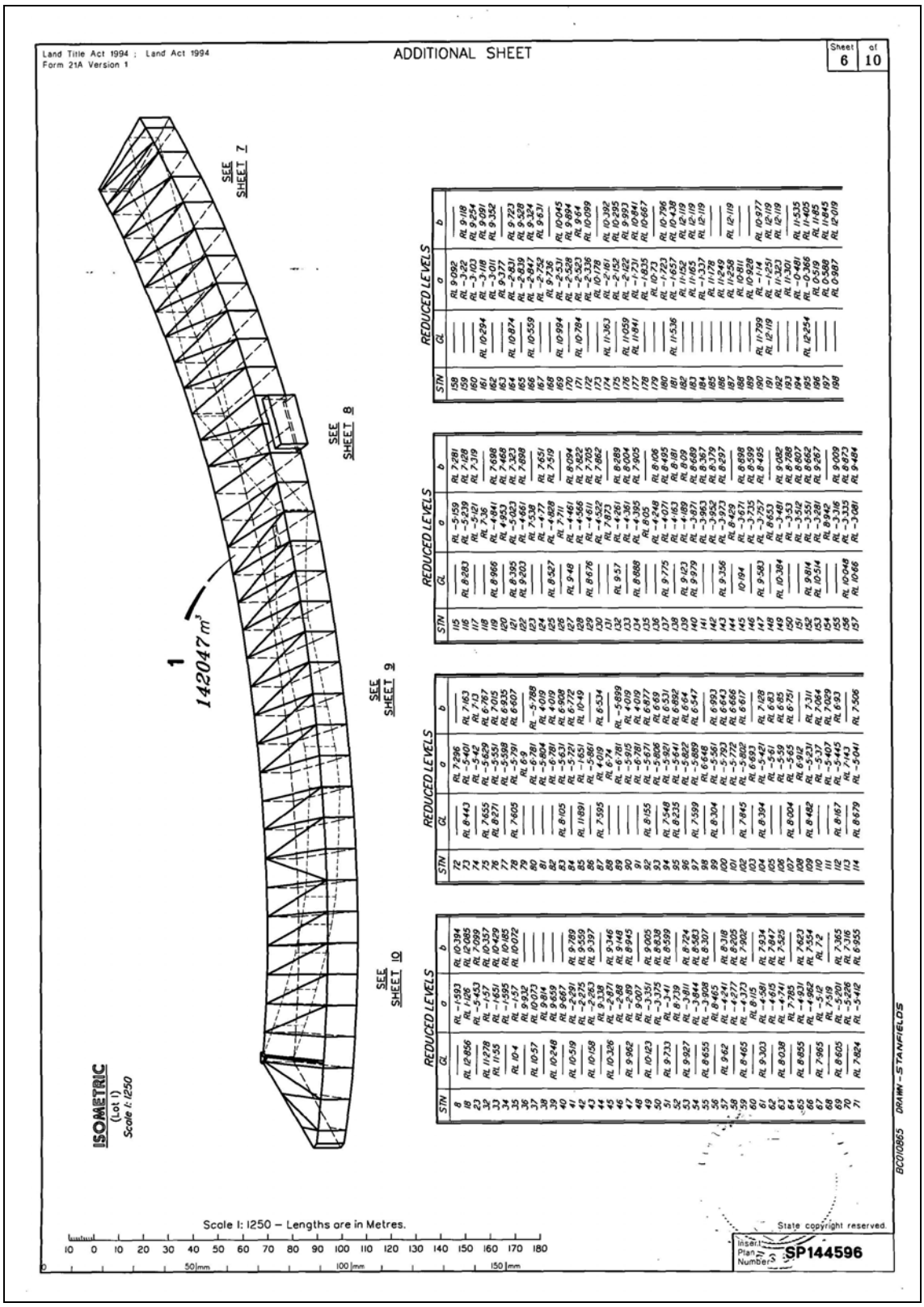
SP 144596 – Sheet 3 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



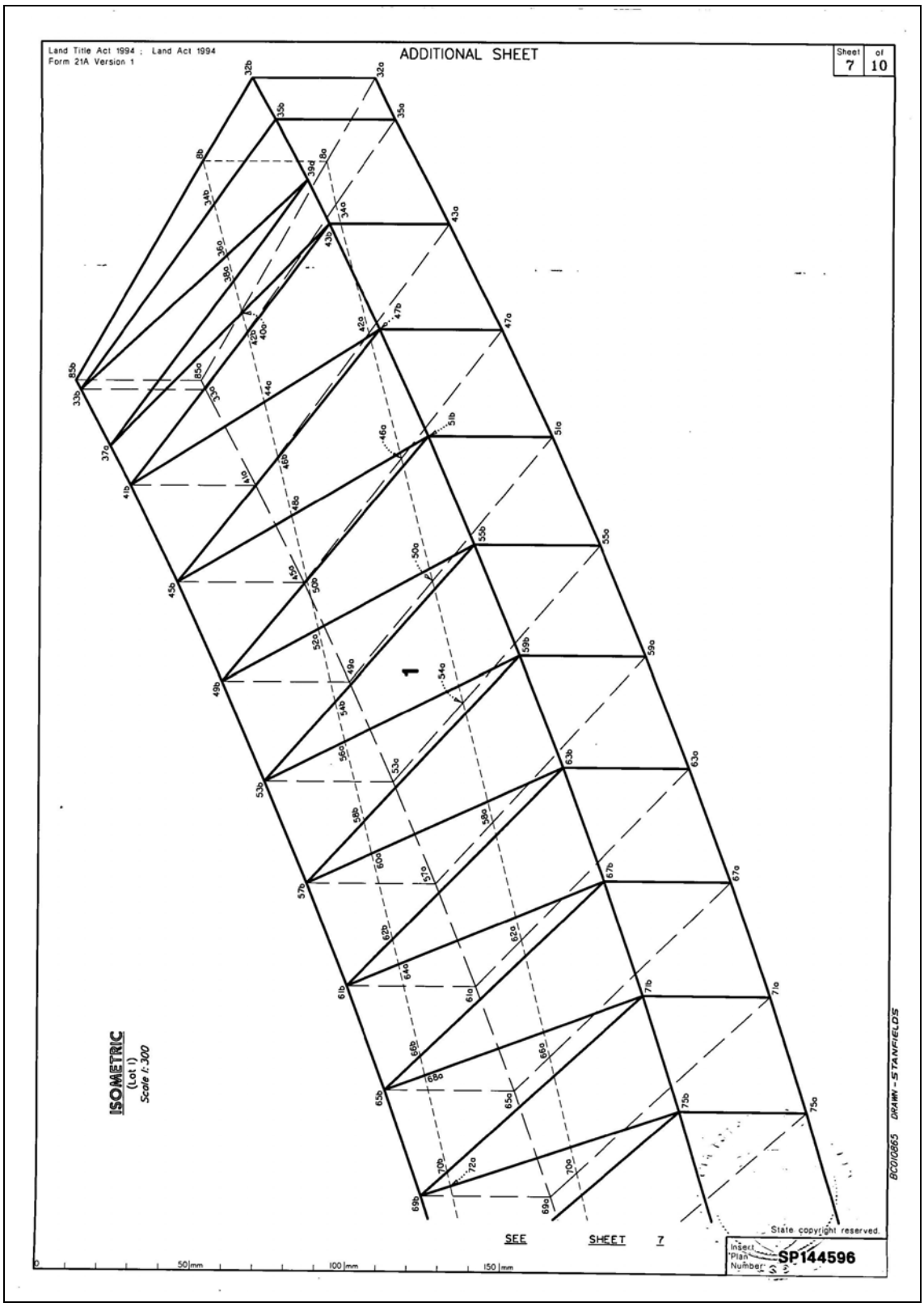
SP 144596 – Sheet 4 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



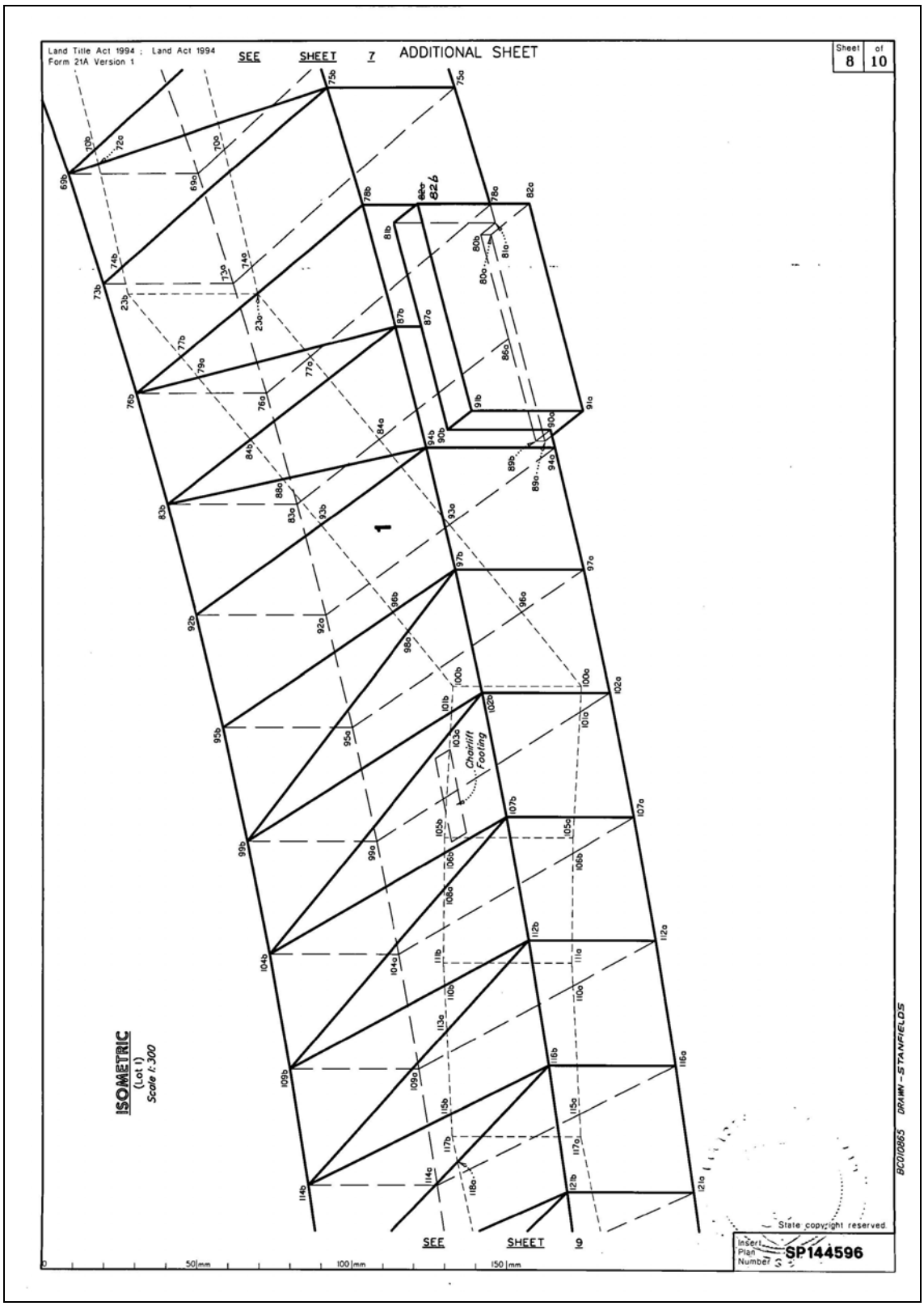
SP 144596 – Sheet 5 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



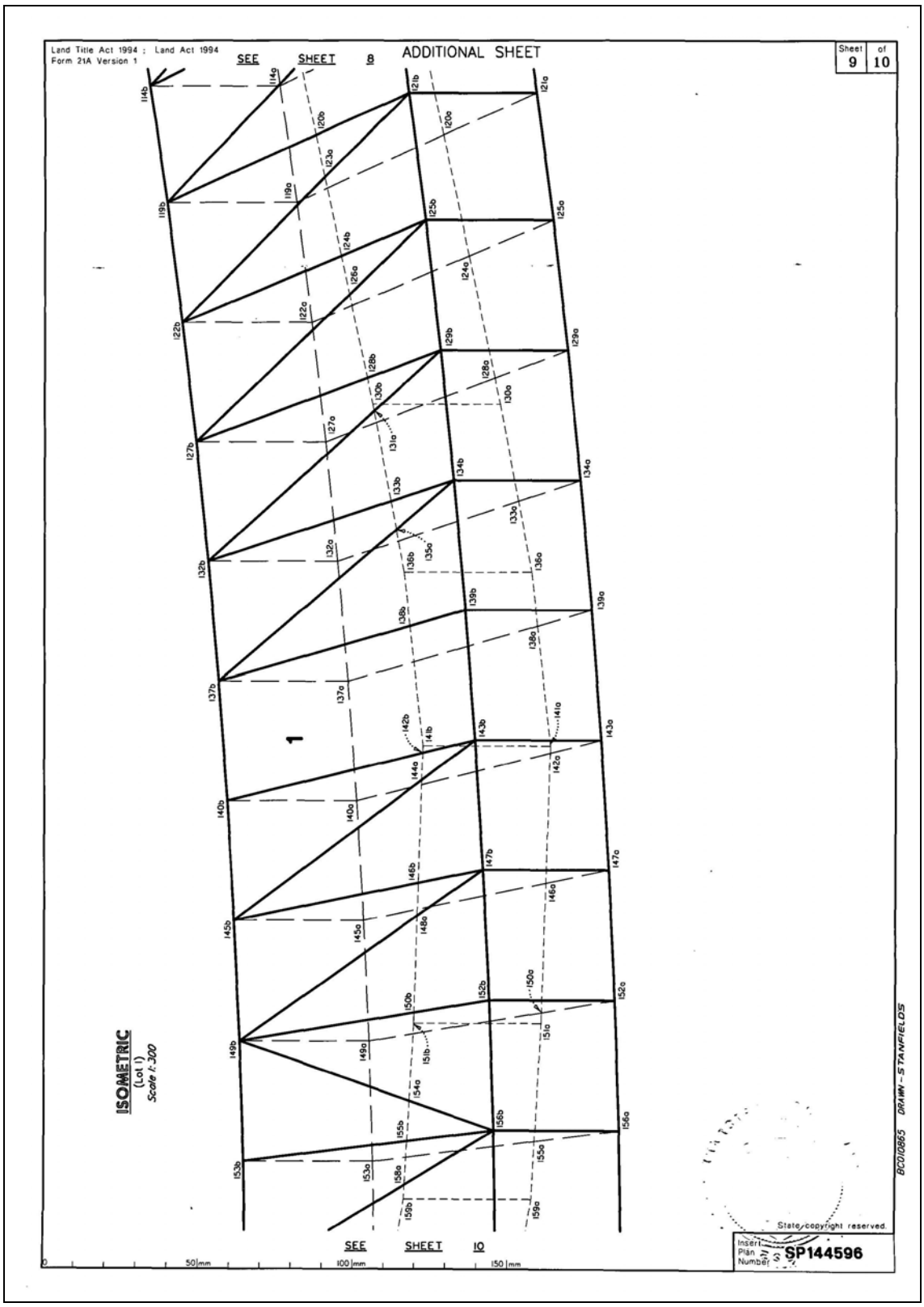
SP 144596 – Sheet 6 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



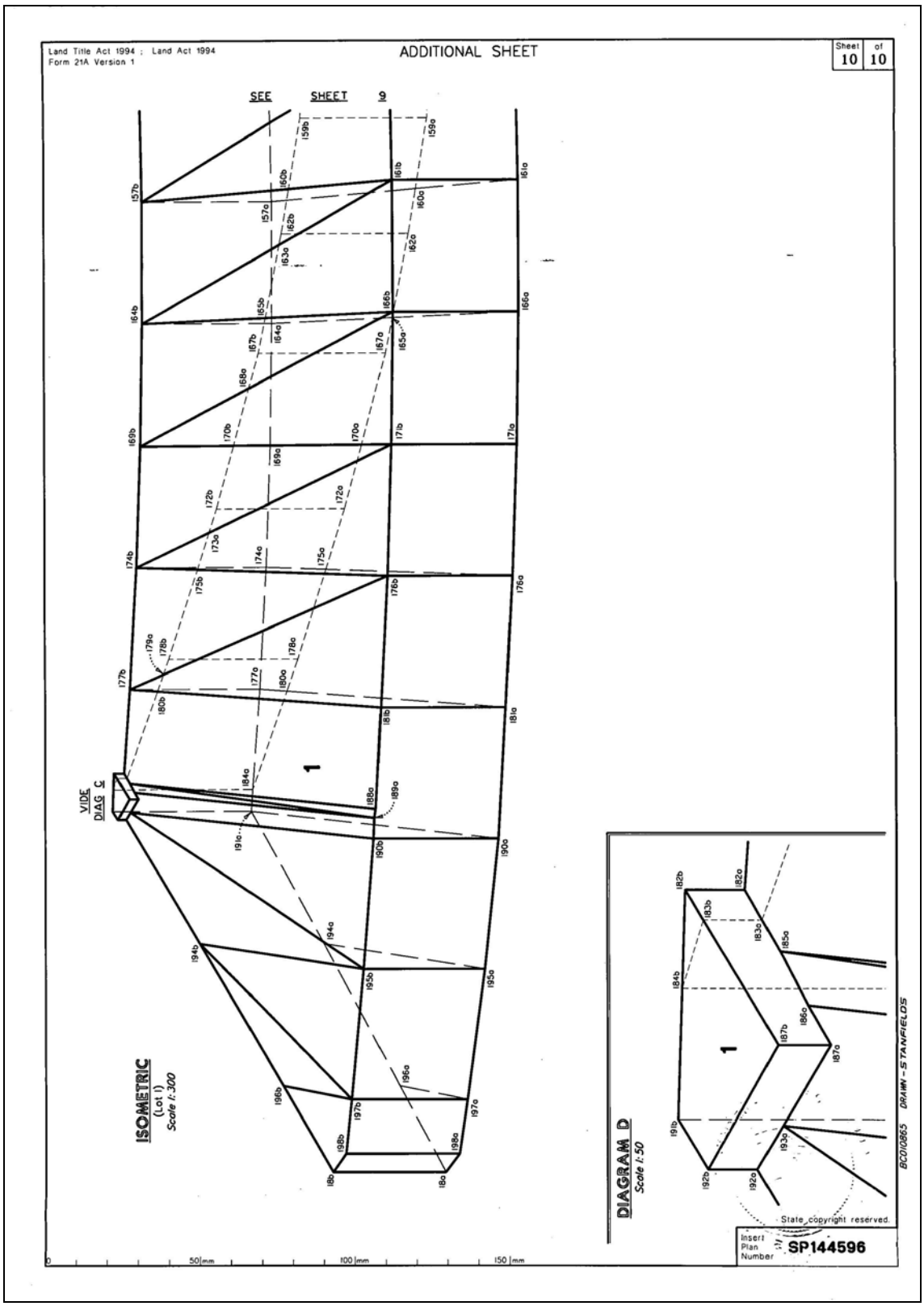
SP 144596 – Sheet 7 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



SP 144596 – Sheet 8 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



SP 144596 – Sheet 9 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)



SP 144596 – Sheet 10 of 10 – Inner City Bypass, Brisbane (Source www.derm.qld.gov.au)

PLAN OF SUBDIVISION

Under Section 35 of the Subdivision Act 1988

STAGE NO. --------

LTO use only. EDITION 1.

Plan Number PS 511017 J

Location of Land

Parish: WARRANDYTE
Township: --------
Section: ---------
Crown Allotment: 26 (Part)
Crown Portion: ---------
LTO Base Record: D.C.M.B.

Title Reference: Vol. 8505 Fol. 461 Vol. 8784 Fol. 163
Vol. 8784 Fol. 164 Vol. 8784 Fol. 165 Vol. 8886 Fol. 182
Vol. 8886 Fol. 183 Vol. 8924 Fol. 854 Vol. 8924 Fol. 832
Vol. 8924 Fol. 840 Vol. 8924 Fol. 841 Vol. 8924 Fol. 842
Vol. 8924 Fol. 843 Vol. 8924 Fol. 844 Vol. 8924 Fol. 845
Vol. 8924 Fol. 850 Vol. 8924 Fol. 846 Vol. 8924 Fol. 836
Vol. 8924 Fol. 837 Vol. 9755 Fol. 652 Vol. 8924 Fol. 838
Vol. 8924 Fol. 839

Last Plan Reference: LP 11412, LP 84962, LP 88130, LP 89375 & LP 90516

Postal Address: Craig Road & Chaim Court DONVALE, 3111.

AMG Co-ordinates E 342 200 N 5 814 000 Zone: 55

Council Certificate and Endorsement

Council Name: Manningham City Council Ref. 4714

A. This is a plan under Section 35 of the Subdivision Act 1988 which does not create any additional lots.

B. This plan is exempt from Part 3 of the Subdivision Act 1988.

C. ~~This is a plan under Section 35 of the Subdivision Act 1988 which creates (an) additional lot(s).~~

D. It is certified under section 6 of the Subdivision Act 1988.

E. ~~It is certified under section 11(7) of the Subdivision Act 1988.~~

F. ~~Date of original certification under section 6 / /~~

G. This is a statement of compliance under Section 21 of the Subdivision Act 1988.

Council delegate
~~Council seal~~

Date 28 / 10 / 02

Vesting of Roads and/ or Reserve

Roads and reserves vest in the council/body/person named when the appropriate vesting date is recorded or transfer registered. Only roads and reserves marked thus (%) vest upon registration of this plan.

Identifier	Council / Body / Person
Reserve No.1	Roads Corporation
Reserve No.2	Manningham City Council

Amendments:
V1 16/07/02
V2 31/07/02 Easements added to Reserve No.1 - AGT

Reserve No.1 consolidates the acquired land when the appriprate vesting date is recorded.

All the land is to be acquired free from all encumbrances other than any easements specified on this plan.

All parcel boundaries are shown by continuous lines.

Levels shown on 3 Dimensional plans are to the Australian Height Datum.

Notations

Staging This is not a staged subdivision.
Planning Permit No. --------

Depth Limitation Does not apply

Land to be acquired by agreement: NIL

Land to be acquired by compulsory process: That part of Reserve No.1 contained in Vol. 8924 Fol. 836
Vol. 8924 Fol. 850 Vol. 8924 Fol. 854 Vol. 8886 Fol. 182
Vol. 8924 Fol. 837 Vol. 9755 Fol. 652 Vol. 8924 Fol. 832
Vol. 8924 Fol. 839 Vol. 8924 Fol. 838 Vol. 8924 Fol. 842

Reserve No.2 & part of Reserve No.1 formerly contained in C/T V.8924 F. 850 is also Reserve No.1 on LP. 90516.

Survey This plan is based on survey and is compiled from Roads Corporation SP 20029A, 20030A & 20031A

This survey has been connected to permanent mark No(s) -----
In Proclaimed Survey Area No. -----

Easement Information

Easement marked (–) are existing easements.
Easement marked (+) are created upon registration of this plan.
Easement marked (×) are created when the appropriate vesting date is recorded or transfer registered.
Easement marked (E) are removed when the appropriate vesting date is recorded or transfer registered.

Legend: A - Appurtenant Easement E - Encumbering Easement R - Encumbering Easement (Road)

Symbol	Subject Land	Purpose	Width (Metres)	Origin	Land Benefited/In Favour Of
-	E-1	Drainage & Sewerage	3.05	LP 84962	Lots on LP 84962
-	E-2	Drainage & Sewerage	2.44	LP 88130	Lots on LP 88130
-	E-3	Drainage & Sewerage	2.44	LP 90516	Lots on LP 90516
-	E-4	Drainage & Sewerage	2.44	LP 90516	Lots on LP 90516
		Unspecified		Vol. 7789 Fol. 019	Unspecified
-	E-5	Drainage & Sewerage	3.05	LP 84962	Lots on LP 84962
		Drainage & Sewerage		LP 89375	Lots on LP 89375
-	E-6	Drainage & Sewerage	3.05	LP 89375	Lots on LP 89375

LTO use only
Statement of Compliance/ Exemption Statement
Received ☑
Date 31/ 1 /03

LTO use only
PLAN REGISTERED
TIME 3·27pm
DATE 9/7/03
Assistant Registrar of Titles

Sheet 1 of 9

PREPARED FOR VICROADS BY
THE GEOMET GROUP
GEOMET PTY. LTD. A.C.N 065 755 788 BURWOOD EAST OFFICE
303 BURWOOD HIGHWAY, BURWOOD EAST, 3151.
TEL. 9803 8033 FAX. 9887 8921
OUR REF. 9043 VERSION 2 31/07/02 AGT

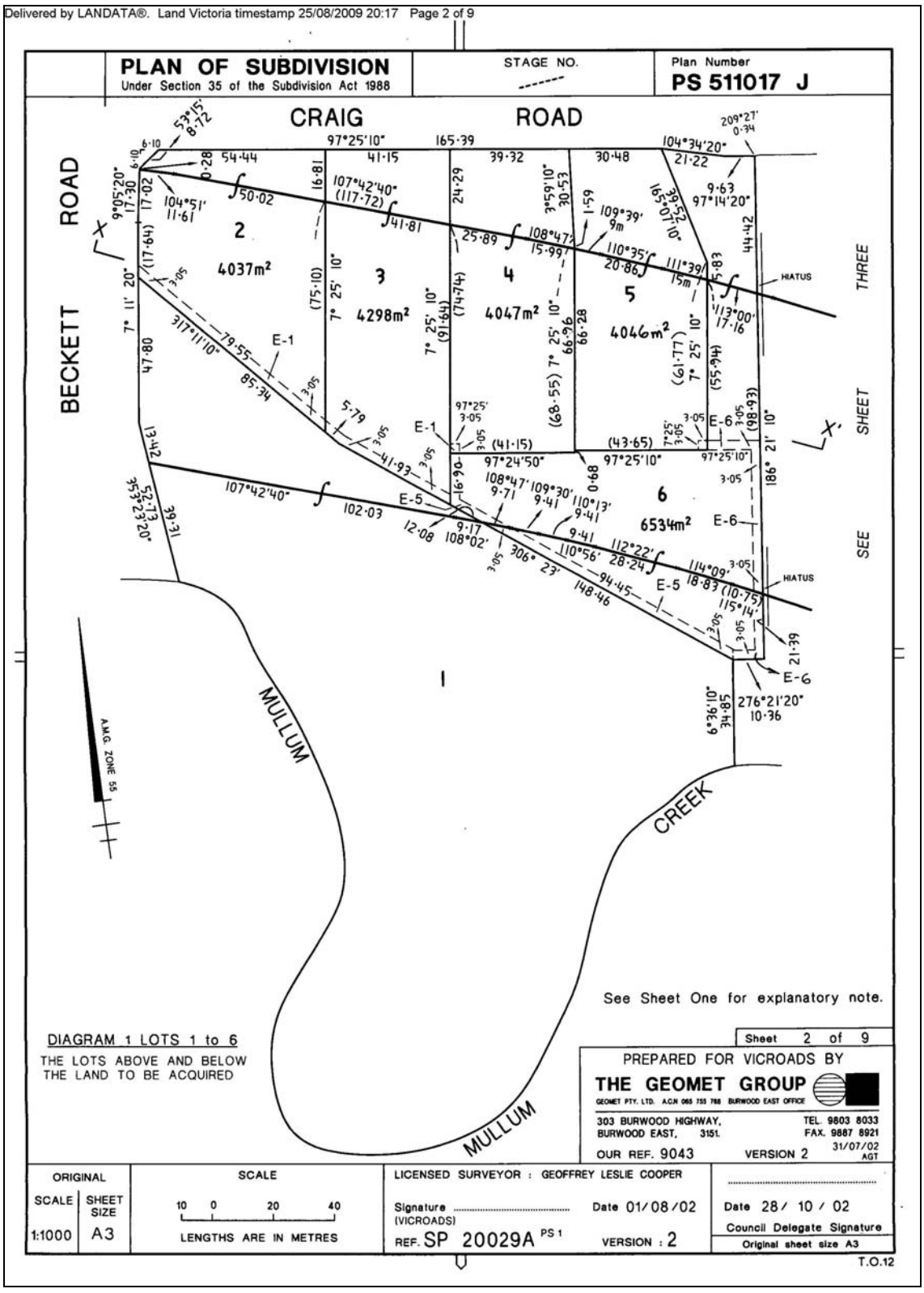
LICENSED SURVEYOR : GEOFFREY LESLIE COOPER
Signature ..... Date 01 / 08 / 02
(VICROADS)
REF. SP 20029A PS 1 VERSION : 2

Date 28 / 10 / 02
Council Delegate Signature
Original sheet size A3

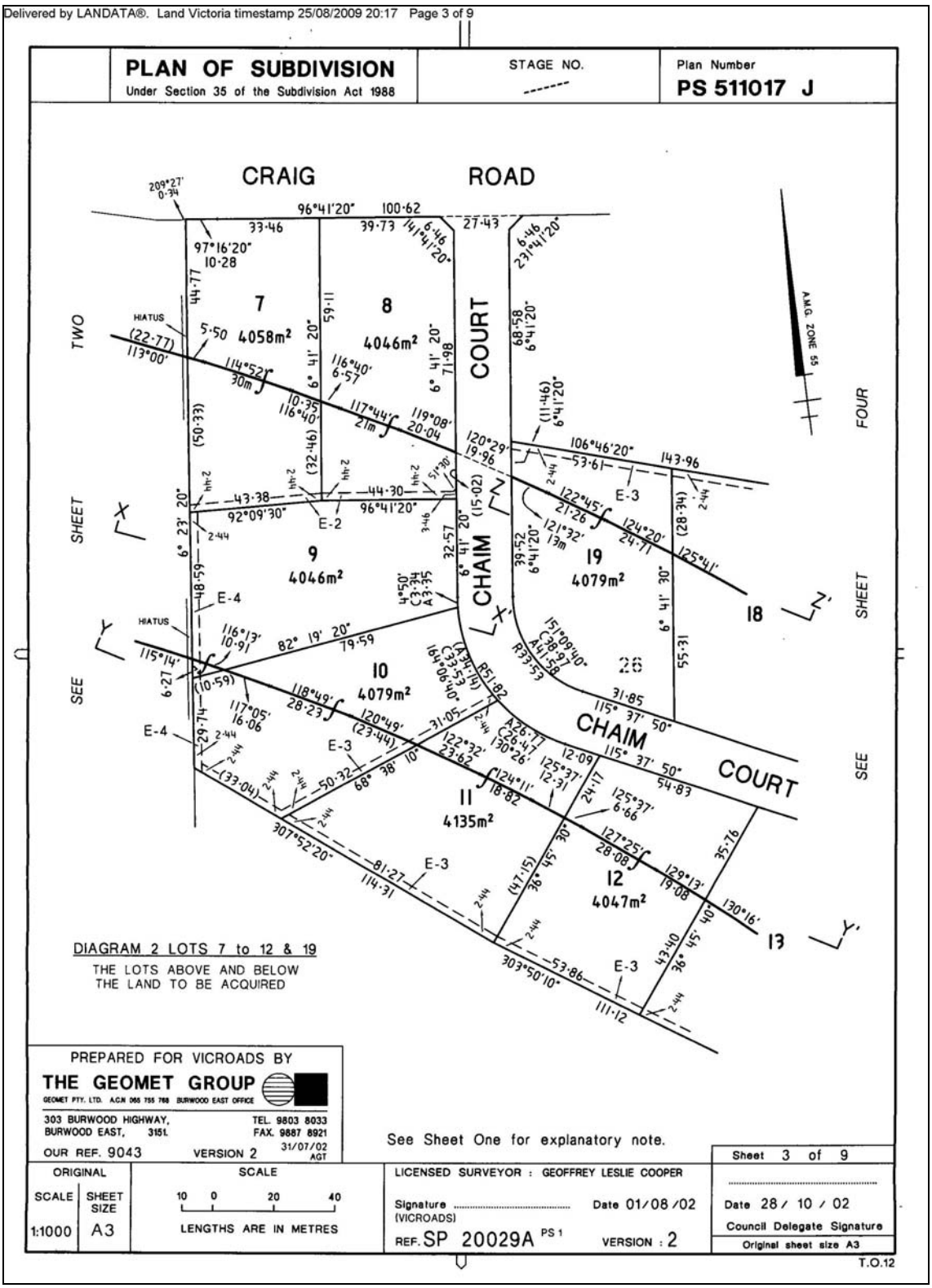
FILE:

T.O.13

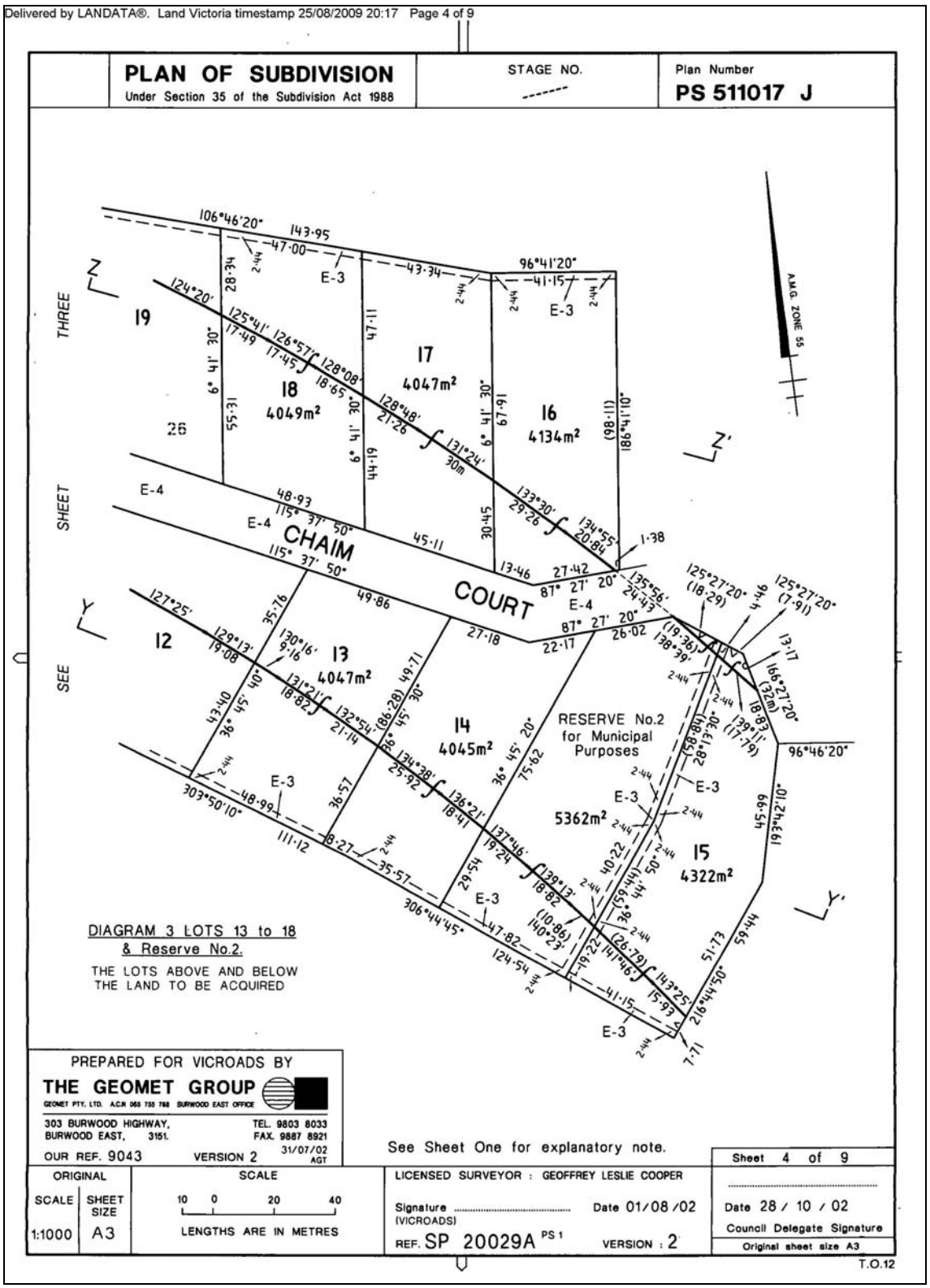
PS 511017J – Sheet 1 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



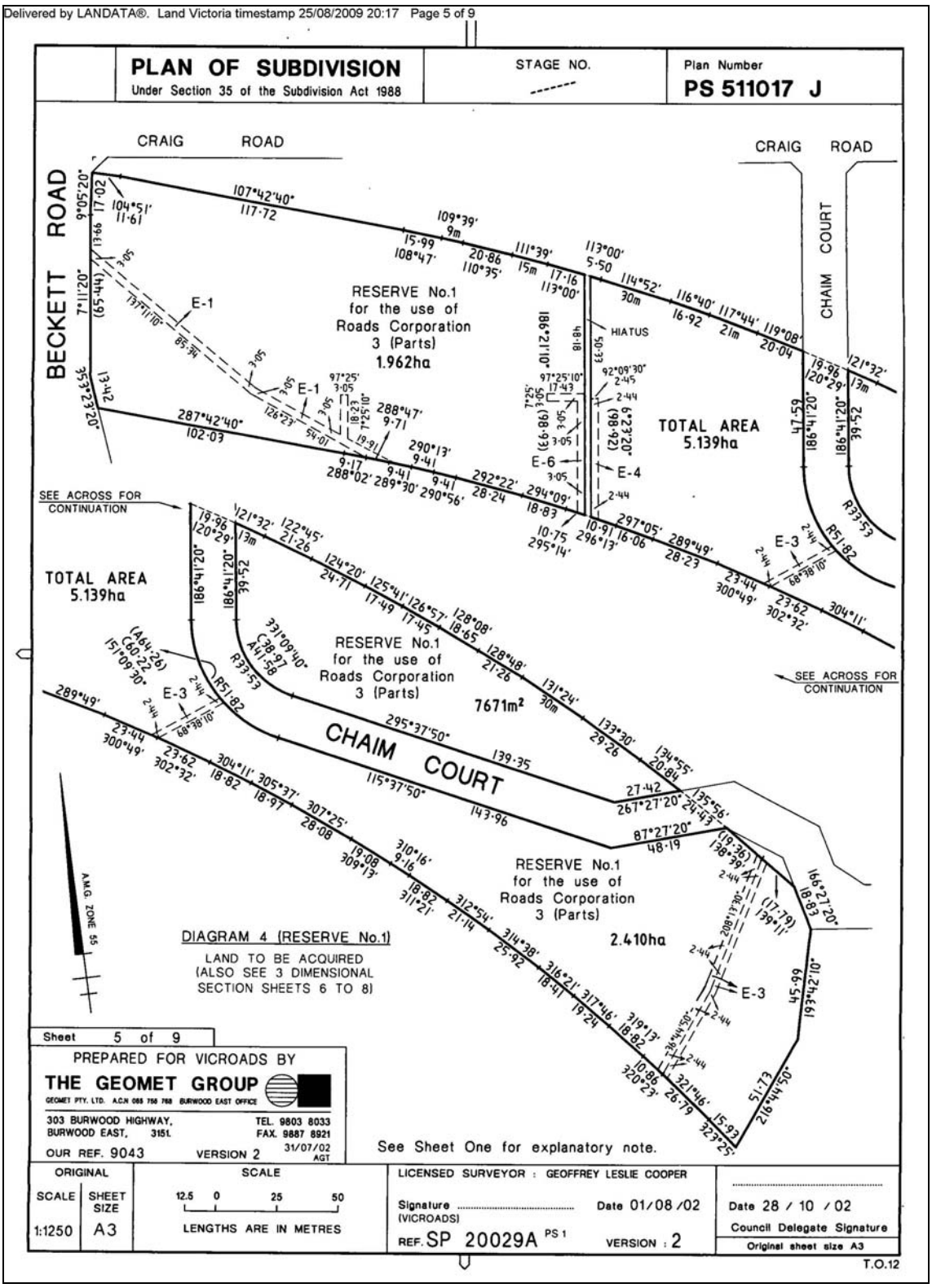
PS 511017J – Sheet 2 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



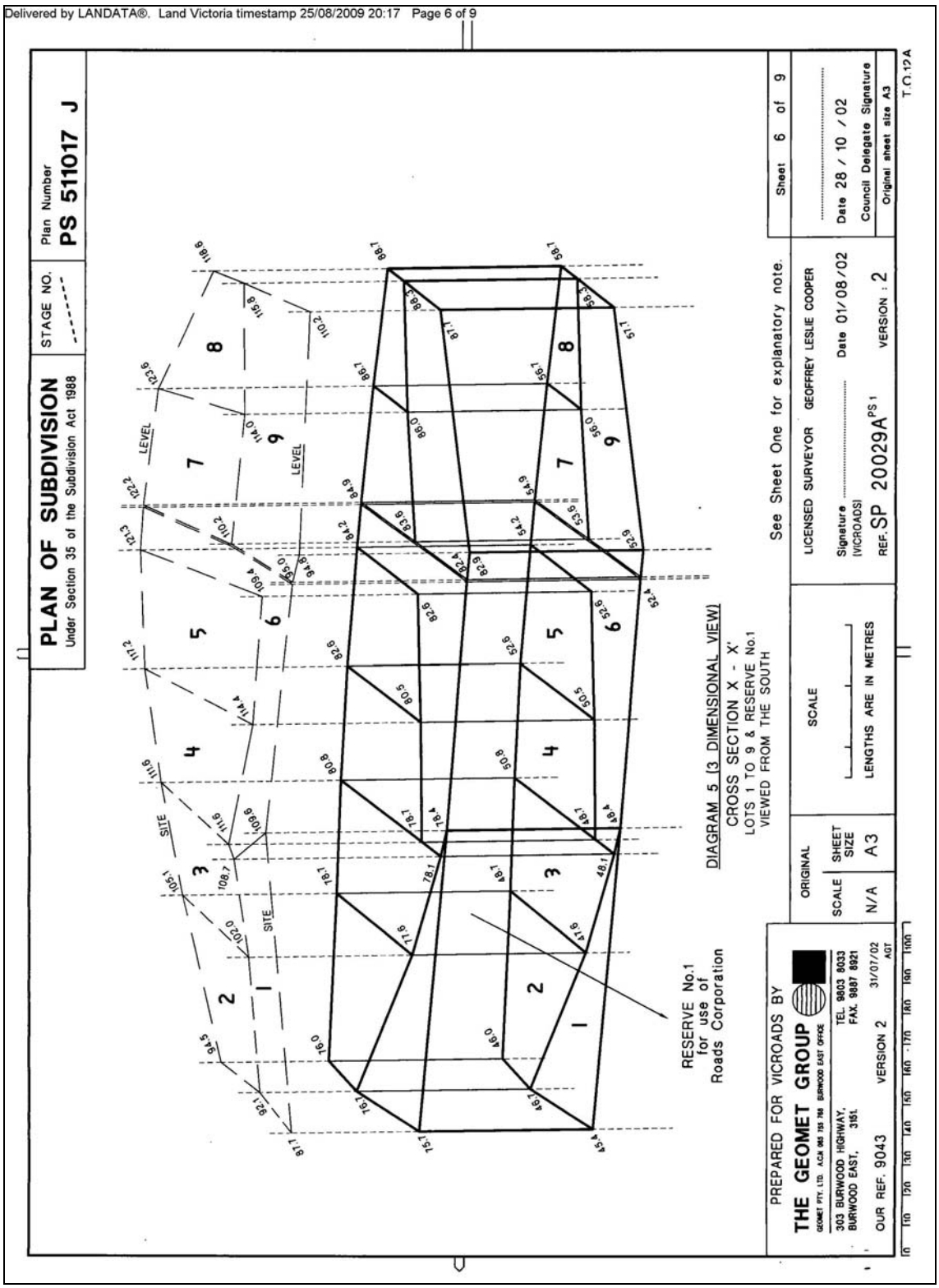
PS 511017J – Sheet 3 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



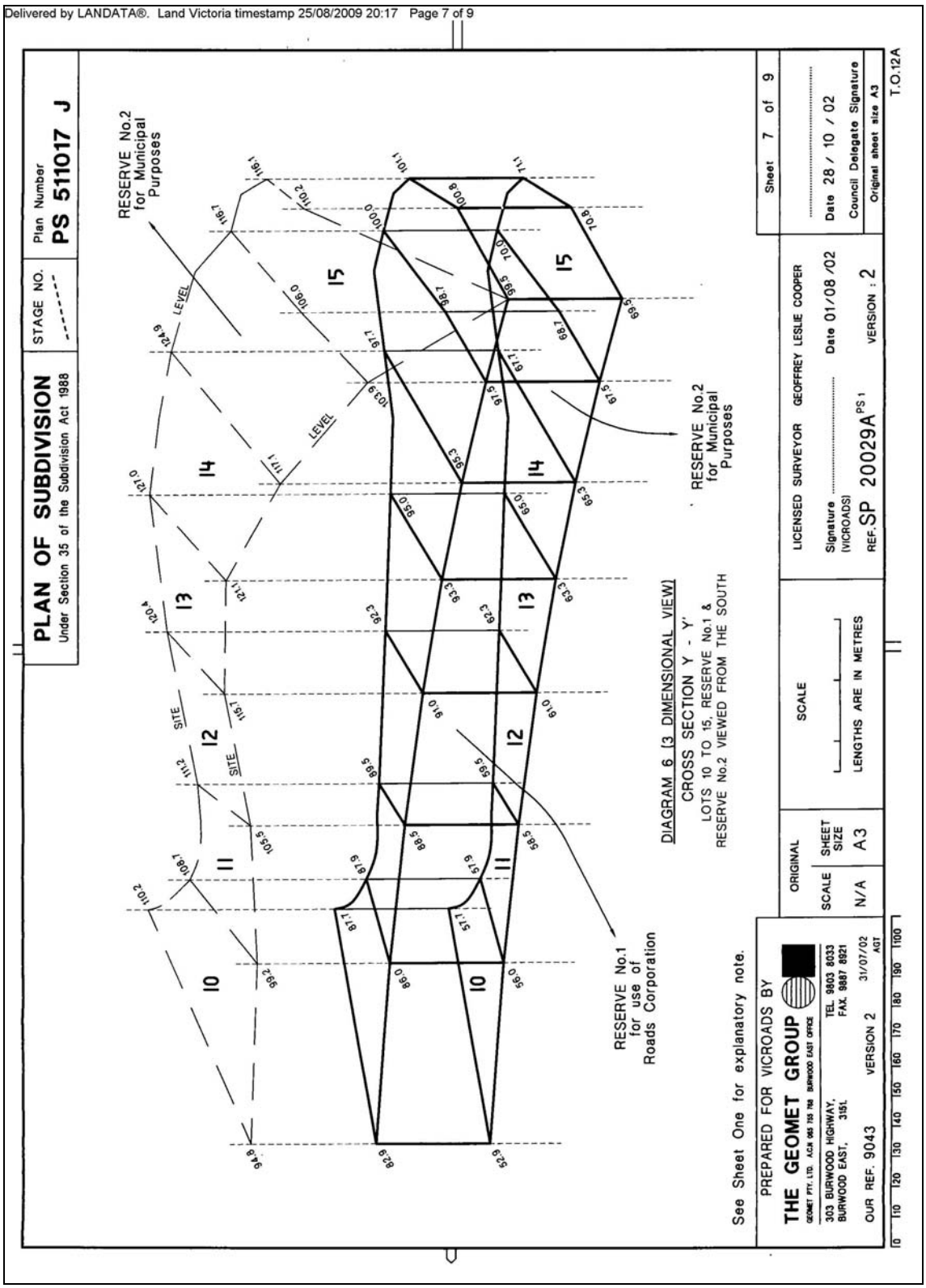
PS 511017J – Sheet 4 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



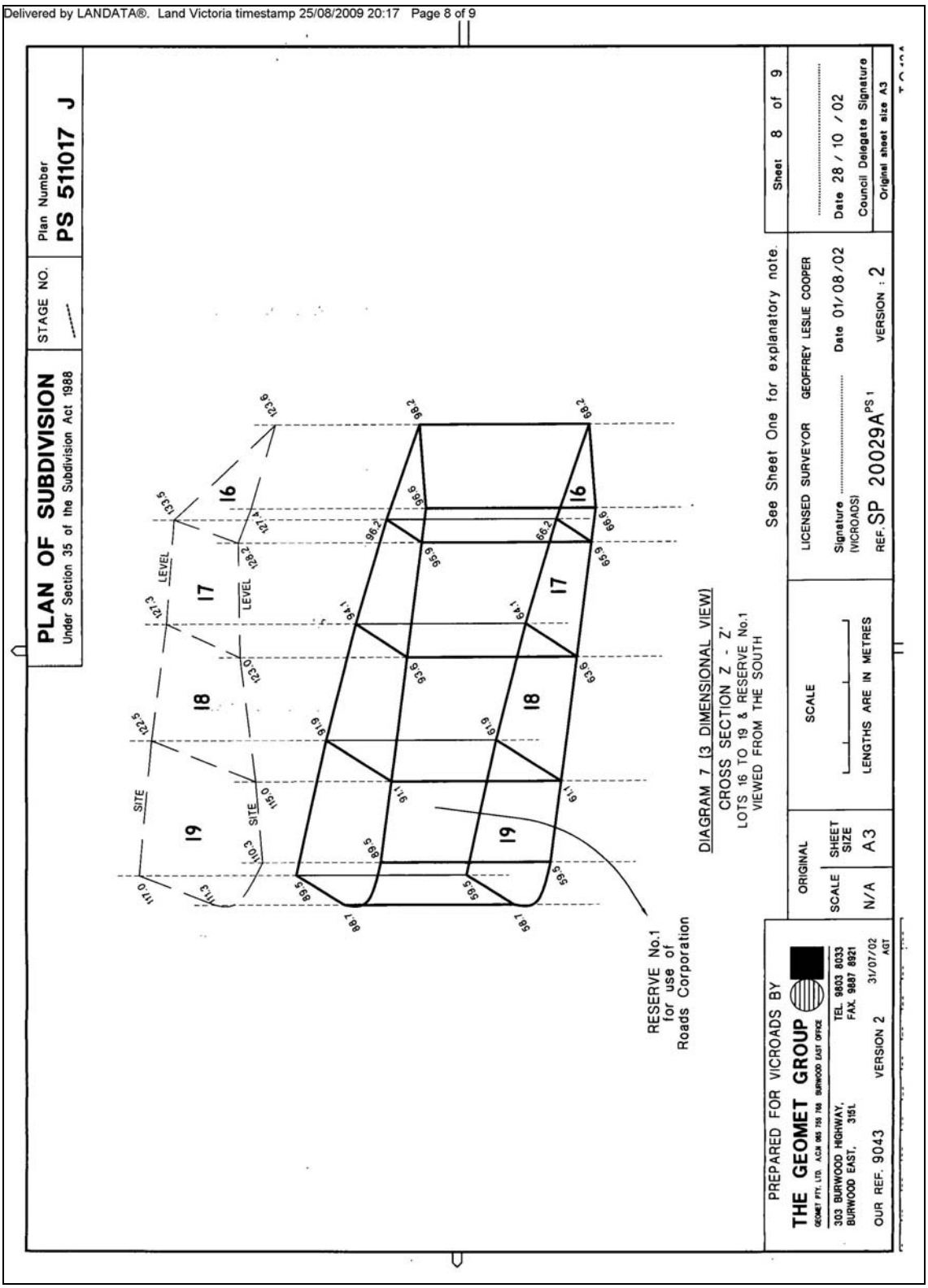
PS 511017J – Sheet 5 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



PS 511017J – Sheet 6 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



PS 511017J – Sheet 7 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)



PS 511017J – Sheet 8 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)

PLAN OF SUBDIVISION
Under Section 35 of the Subdivision Act 1988

STAGE NO. ------

Plan Number **PS 511017 J**

VESTING DATES & TRANSFER REGISTRATION DATES OF ACQUIRED LAND

Land affected	Land acquired by compulsory process			Date of recording of Vesting Date	Date of registration of transfer	LTO reference	Assistant Registrar of Titles Signature
	Vesting Date	Government Gazette Page	Government Gazette Year				
That part of Reserve No.1 contained in Vol. 8886 Fol. 182	21/02/2002	281	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 854	24/01/2002	99	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 832	24/01/2002	99	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 842	24/01/2002	99	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 850	7/02/2002	207	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 836	24/01/2002	92	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 837	24/01/2002	98	2002				
That part of Reserve No.1 contained in Vol. 9755 Fol. 652	24/01/2002	97	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 838	24/01/2002	98	2002				
That part of Reserve No.1 contained in Vol. 8924 Fol. 839	24/01/2002	97	2002				

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TEL. 9803 8033 FAX. 9887 8921
OUR REF. 9043 VERSION 2 31/07/02 AGT

LICENSED SURVEYOR : GEOFFREY LESLIE COOPER
Signature ..... Date 01/08/02
(VICROADS)
REF. SP 20029A PS 1 VERSION : 2

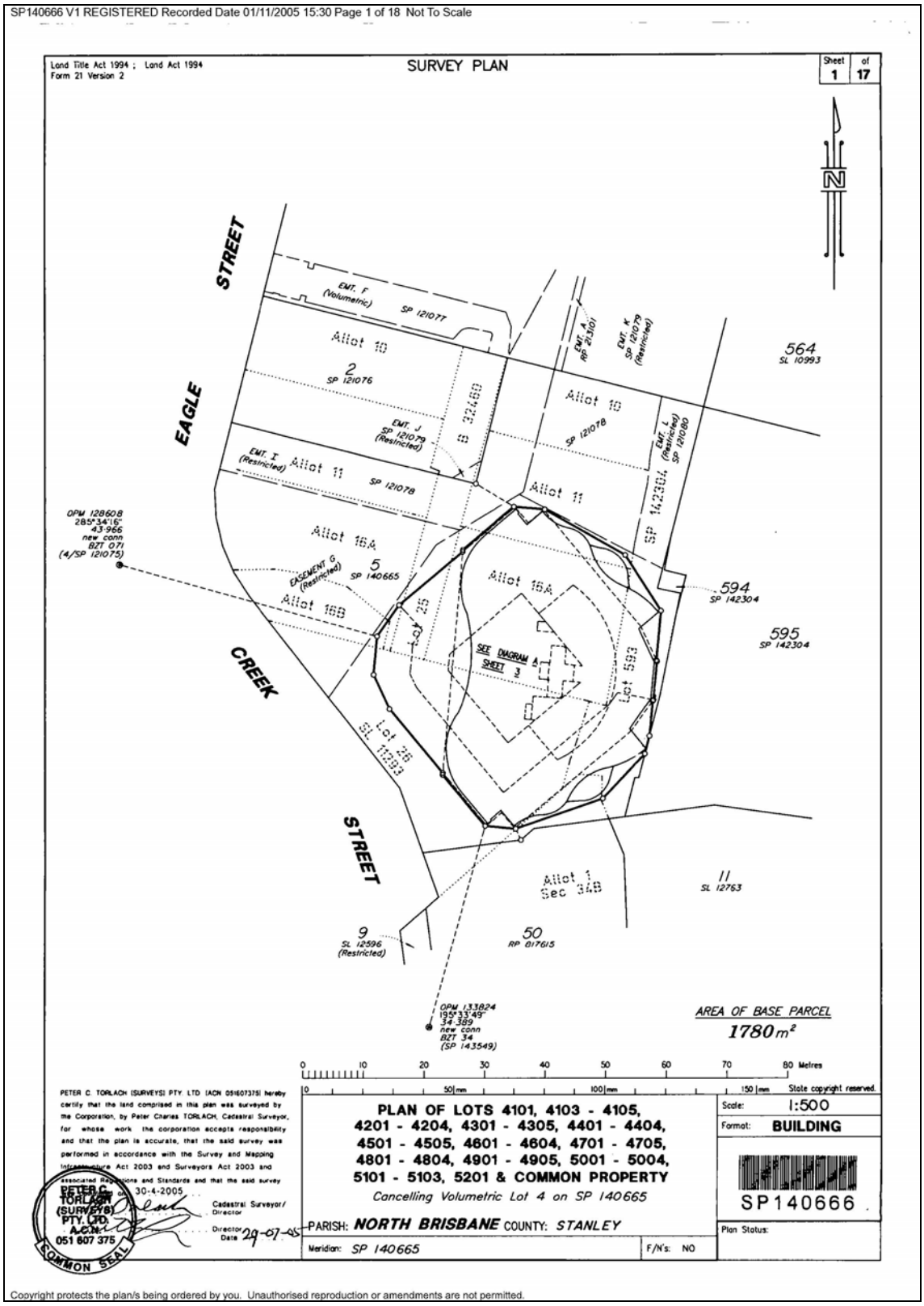
Sheet 9 of 9
Date 28 / 10 / 02
Council Delegate Signature
Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100

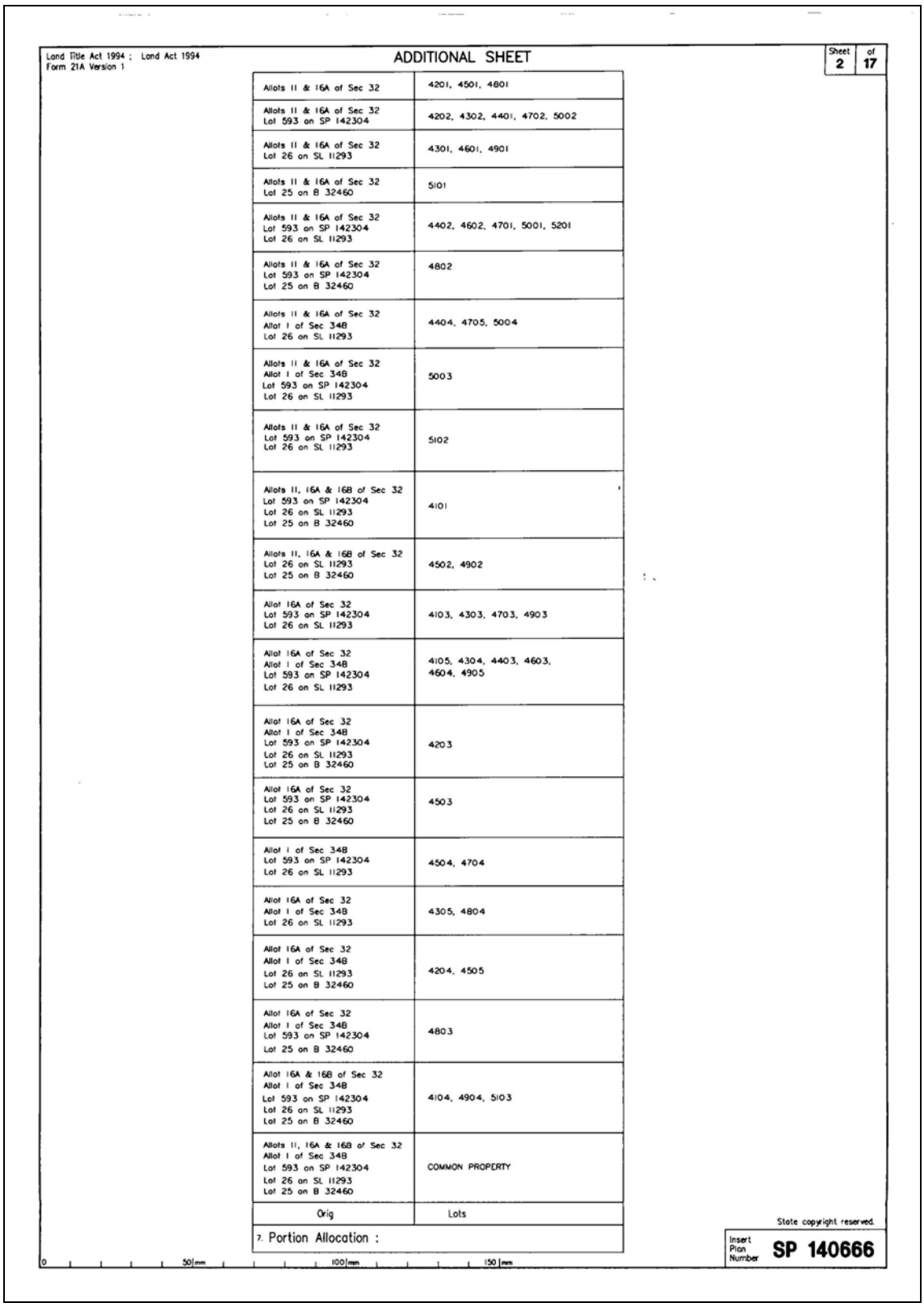
T.O.15

PS 511017J – Sheet 9 of 9 – Eastlink Tunnel, Donvale, Melbourne (Source www.acsv.com.au)

Appendix I – Case Study 2



SP 140666 – Sheet 1 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



Land Title Act 1994 ; Land Act 1994
Form 21A Version 1

ADDITIONAL SHEET

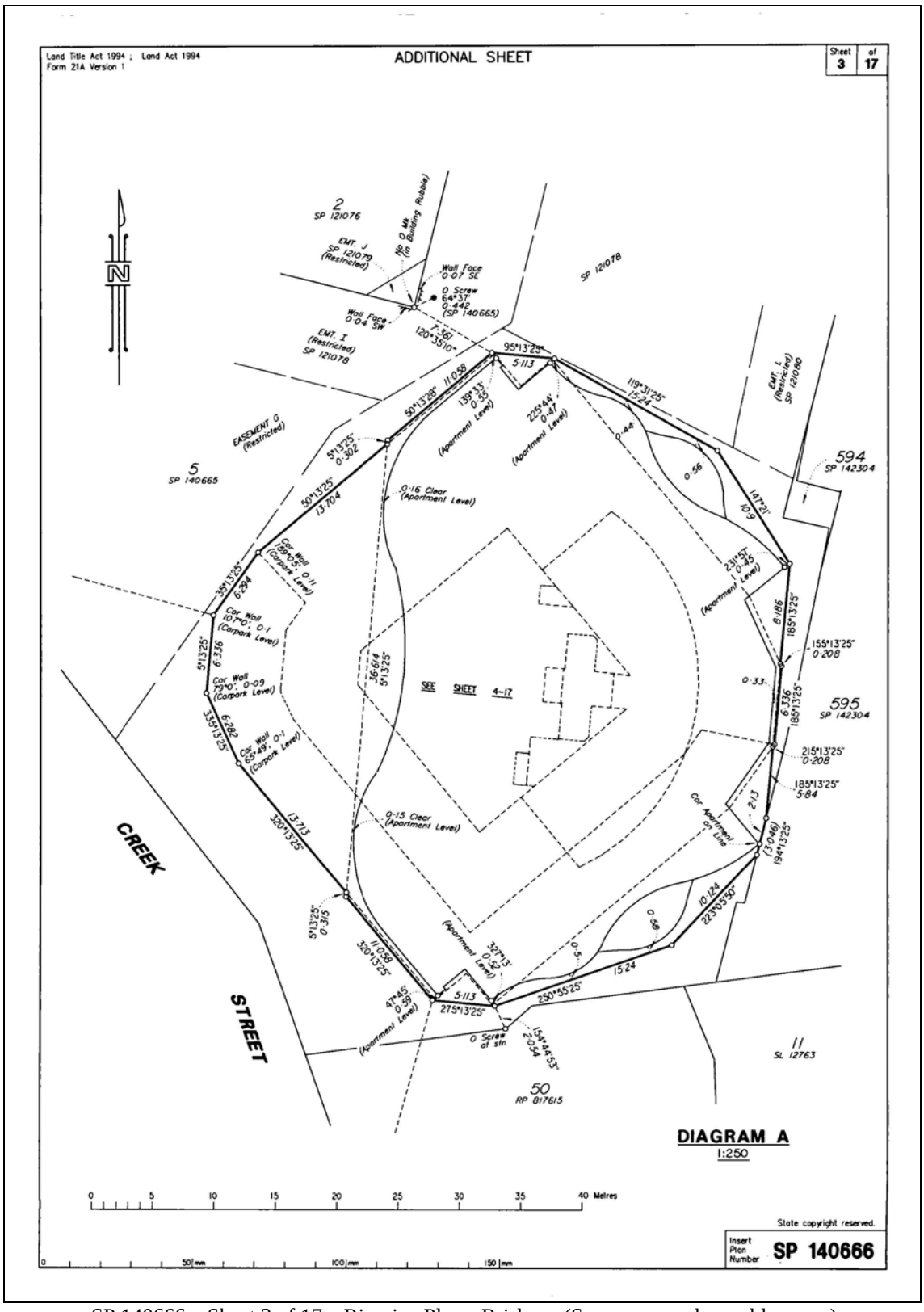
Sheet 2 of 17

Allots 11 & 16A of Sec 32	4201, 4501, 4801
Allots 11 & 16A of Sec 32 Lot 593 on SP 142304	4202, 4302, 4401, 4702, 5002
Allots 11 & 16A of Sec 32 Lot 26 on SL 11293	4301, 4601, 4901
Allots 11 & 16A of Sec 32 Lot 25 on B 32460	5101
Allots 11 & 16A of Sec 32 Lot 593 on SP 142304 Lot 26 on SL 11293	4402, 4602, 4701, 5001, 5201
Allots 11 & 16A of Sec 32 Lot 593 on SP 142304 Lot 25 on B 32460	4802
Allots 11 & 16A of Sec 32 Allot 1 of Sec 34B Lot 26 on SL 11293	4404, 4705, 5004
Allots 11 & 16A of Sec 32 Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 26 on SL 11293	5003
Allots 11 & 16A of Sec 32 Lot 593 on SP 142304 Lot 26 on SL 11293	5102
Allots 11, 16A & 16B of Sec 32 Lot 593 on SP 142304 Lot 26 on SL 11293 Lot 25 on B 32460	4101
Allots 11, 16A & 16B of Sec 32 Lot 26 on SL 11293 Lot 25 on B 32460	4502, 4902
Allot 16A of Sec 32 Lot 593 on SP 142304 Lot 26 on SL 11293	4103, 4303, 4703, 4903
Allot 16A of Sec 32 Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 26 on SL 11293	4105, 4304, 4403, 4603, 4604, 4905
Allot 16A of Sec 32 Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 26 on SL 11293 Lot 25 on B 32460	4203
Allot 16A of Sec 32 Lot 593 on SP 142304 Lot 26 on SL 11293 Lot 25 on B 32460	4503
Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 26 on SL 11293	4504, 4704
Allot 16A of Sec 32 Allot 1 of Sec 34B Lot 26 on SL 11293	4305, 4804
Allot 16A of Sec 32 Allot 1 of Sec 34B Lot 26 on SL 11293 Lot 25 on B 32460	4204, 4505
Allot 16A of Sec 32 Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 25 on B 32460	4803
Allot 16A & 16B of Sec 32 Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 26 on SL 11293 Lot 25 on B 32460	4104, 4904, 5103
Allots 11, 16A & 16B of Sec 32 Allot 1 of Sec 34B Lot 593 on SP 142304 Lot 26 on SL 11293 Lot 25 on B 32460	COMMON PROPERTY
Orig	Lots
7. Portion Allocation :	

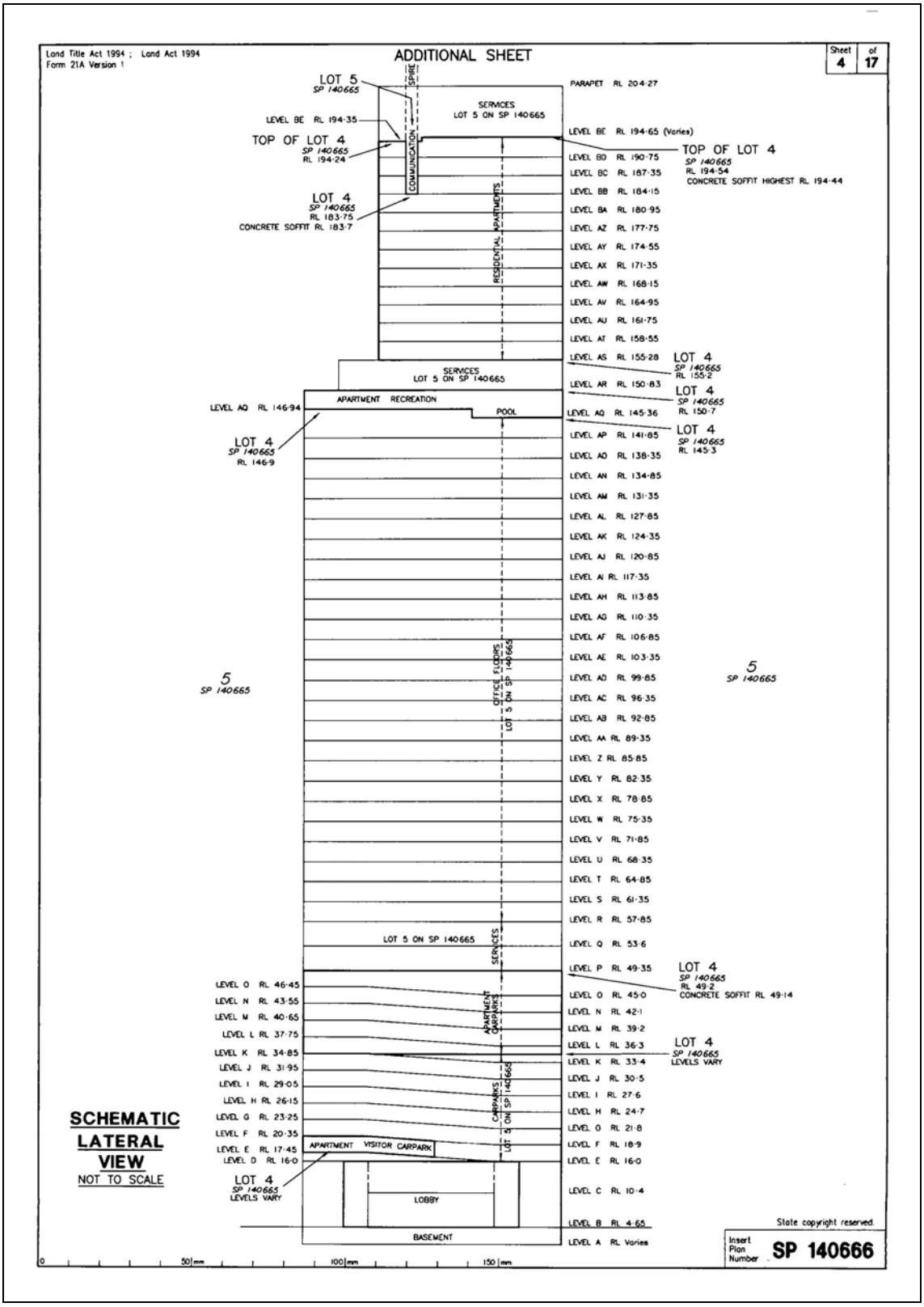
0 50 mm 100 mm 150 mm

Insert Plan Number SP 140666

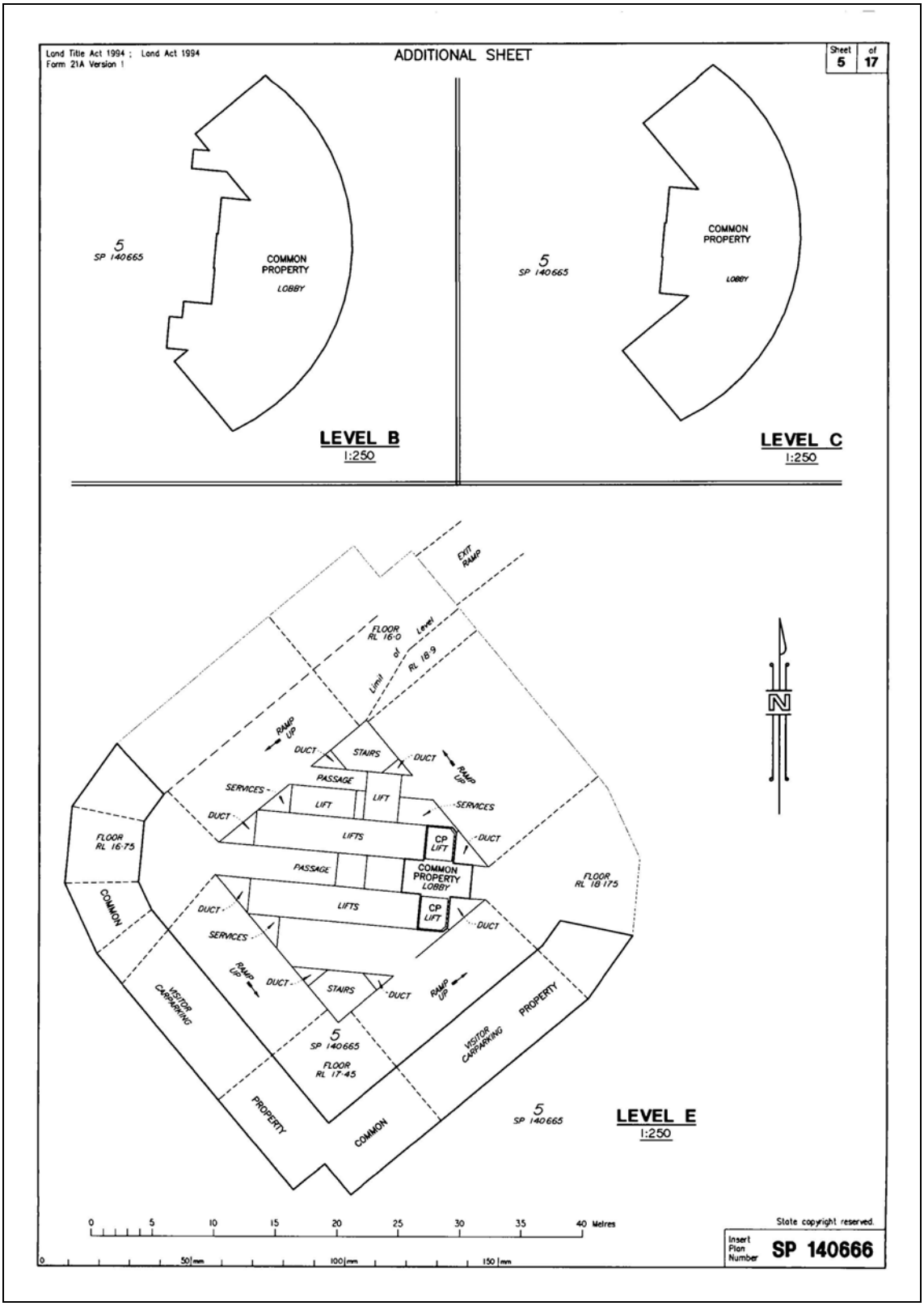
SP 140666 – Sheet 2 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



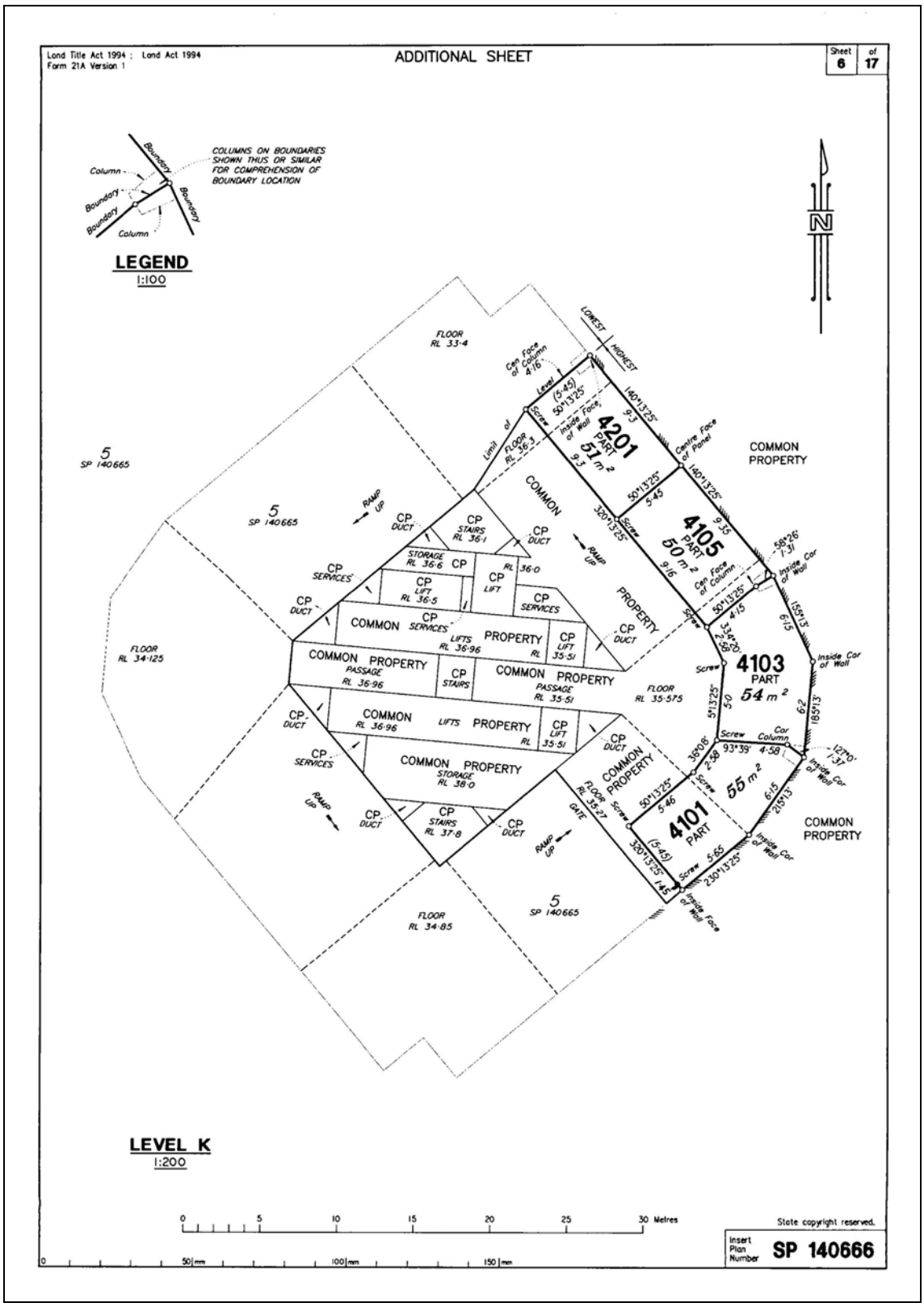
SP 140666 – Sheet 3 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



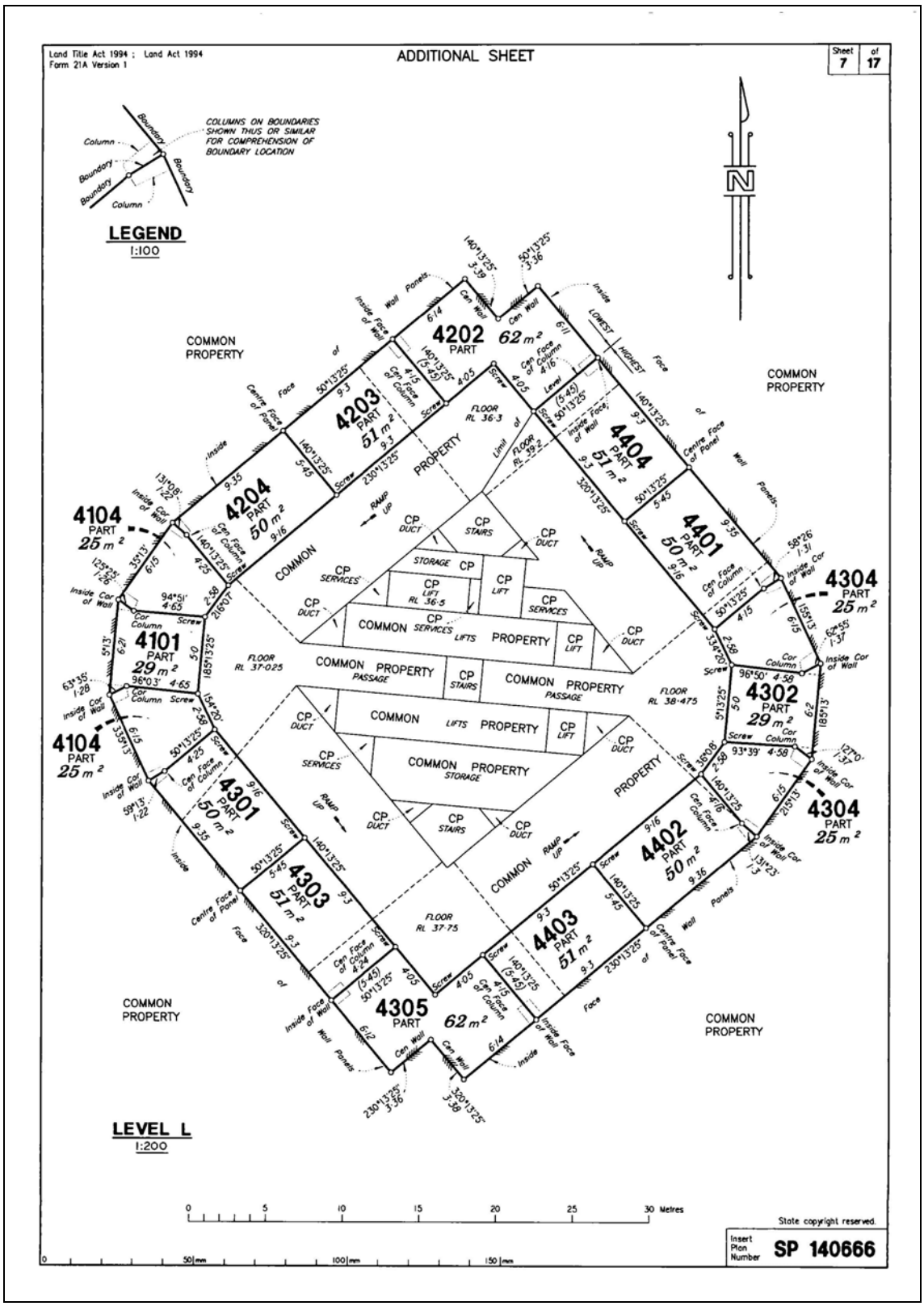
SP 140666 – Sheet 4 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



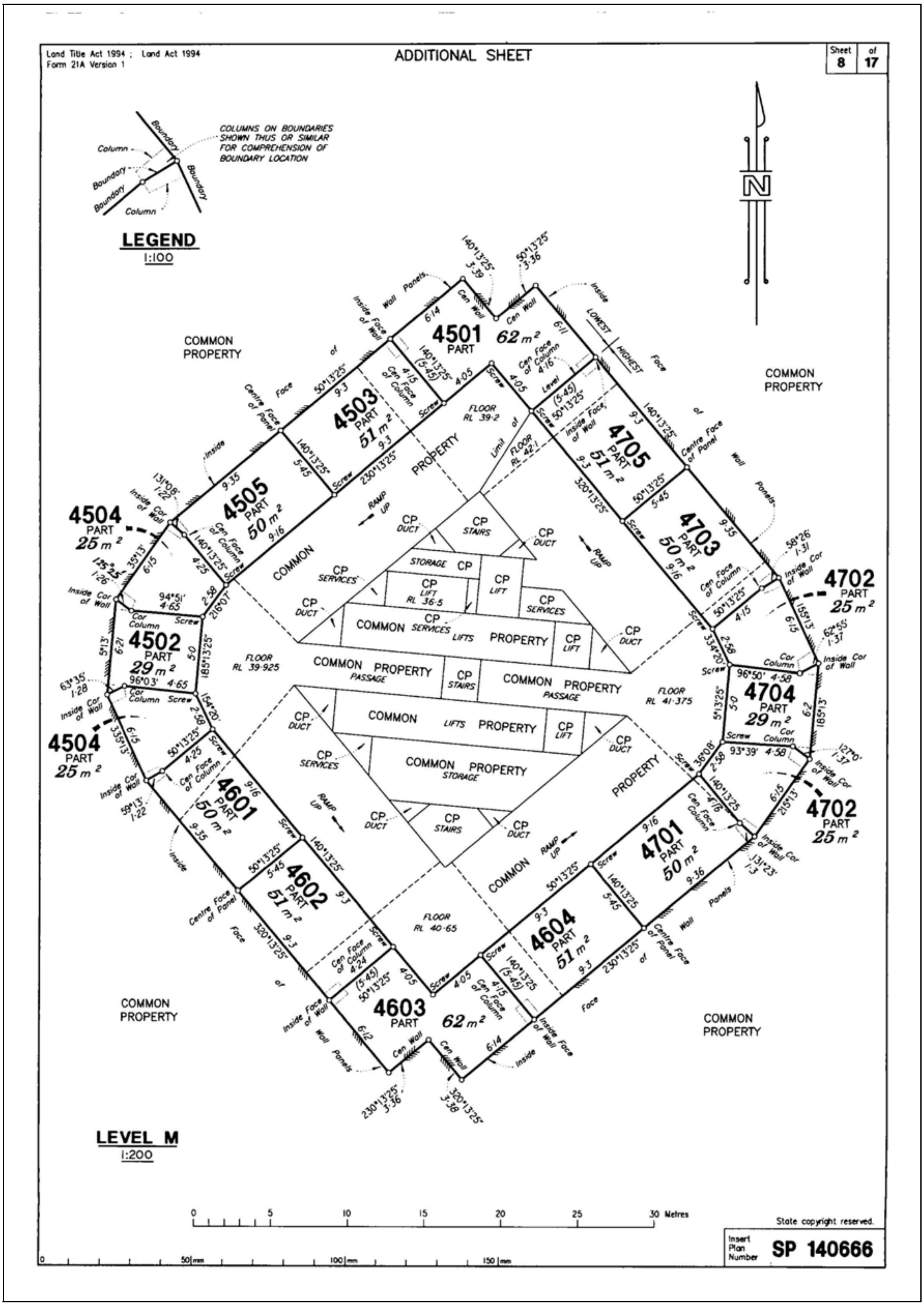
SP 140666 – Sheet 5 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



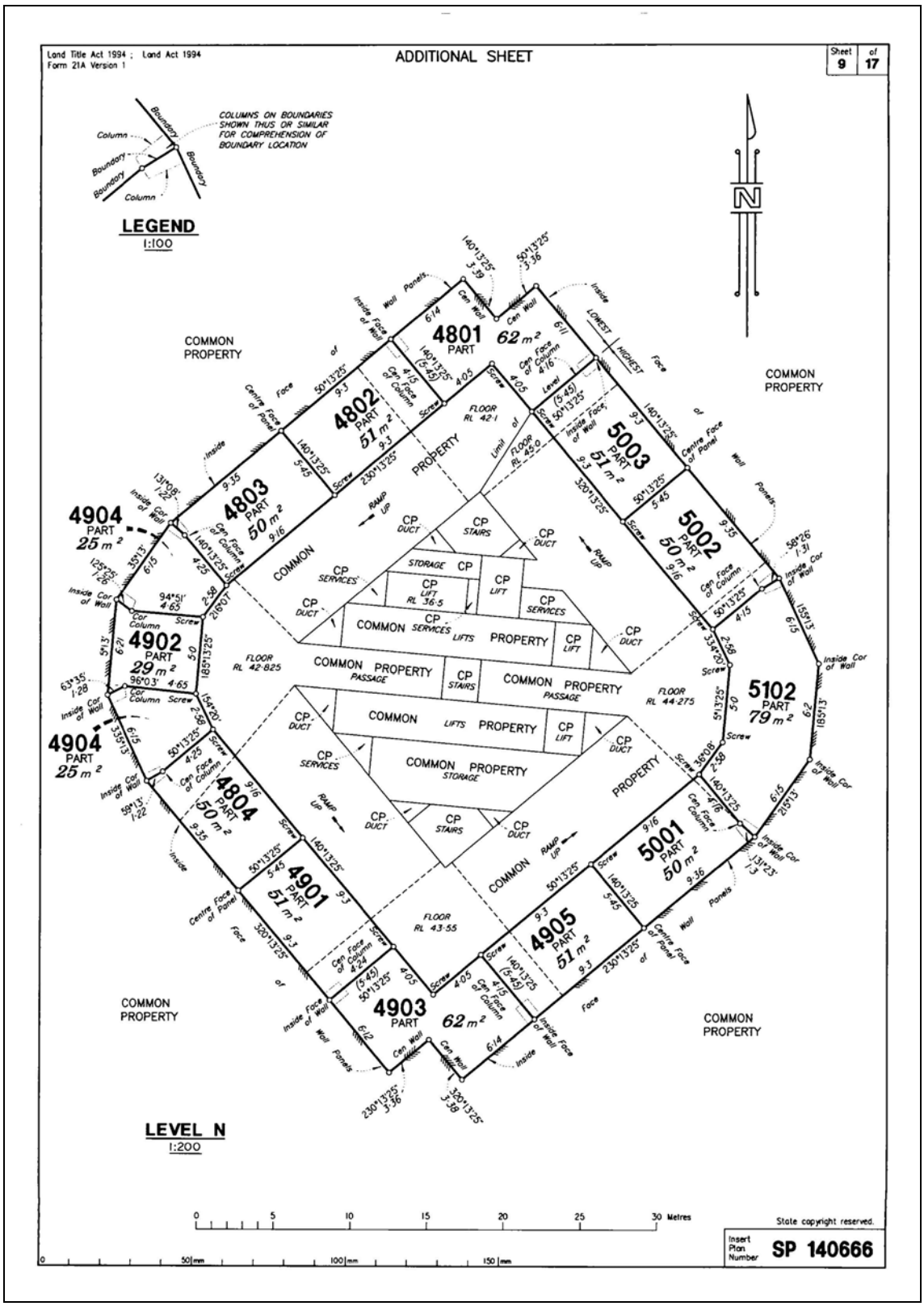
SP 140666 – Sheet 6 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



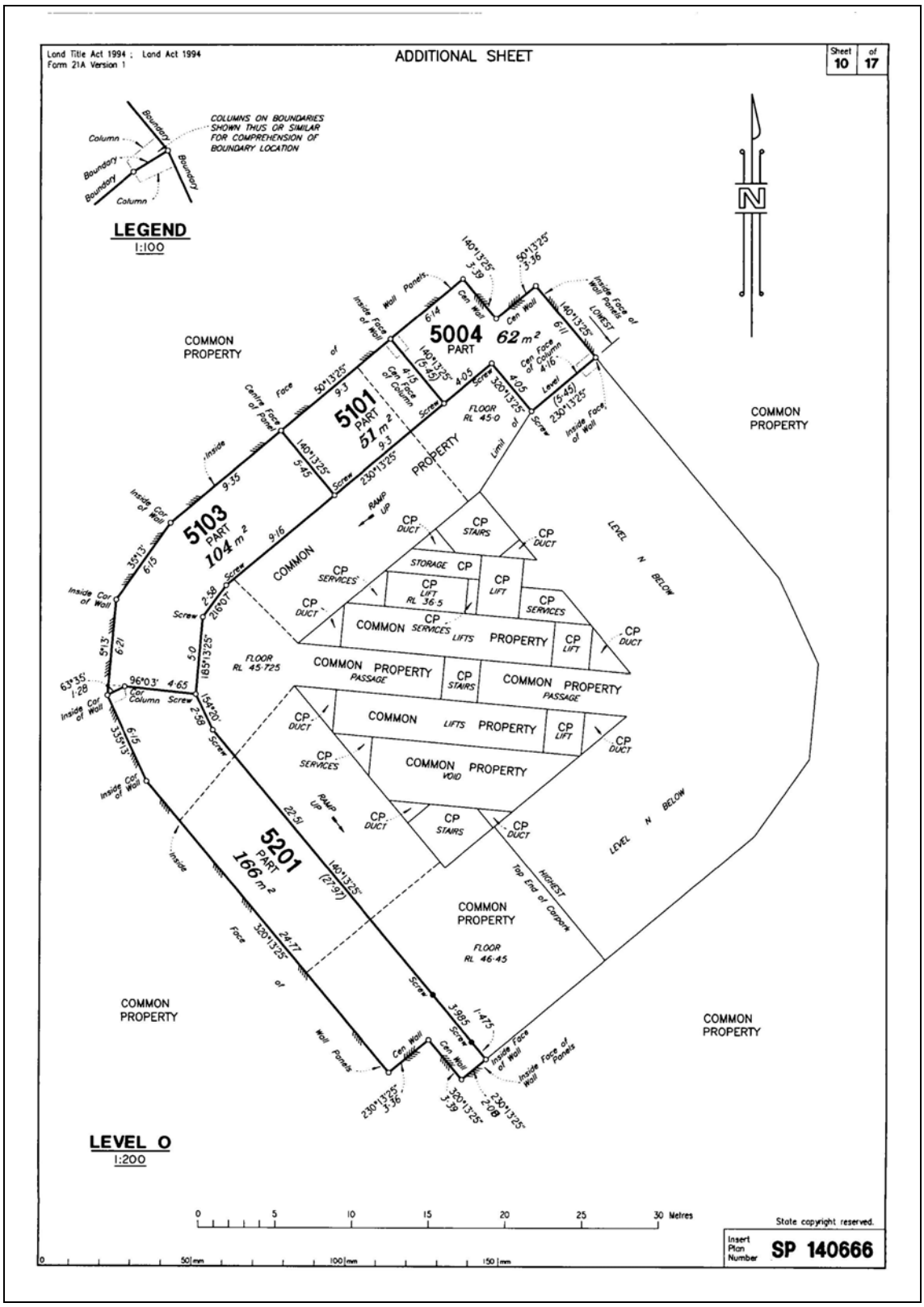
SP 140666 – Sheet 7 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



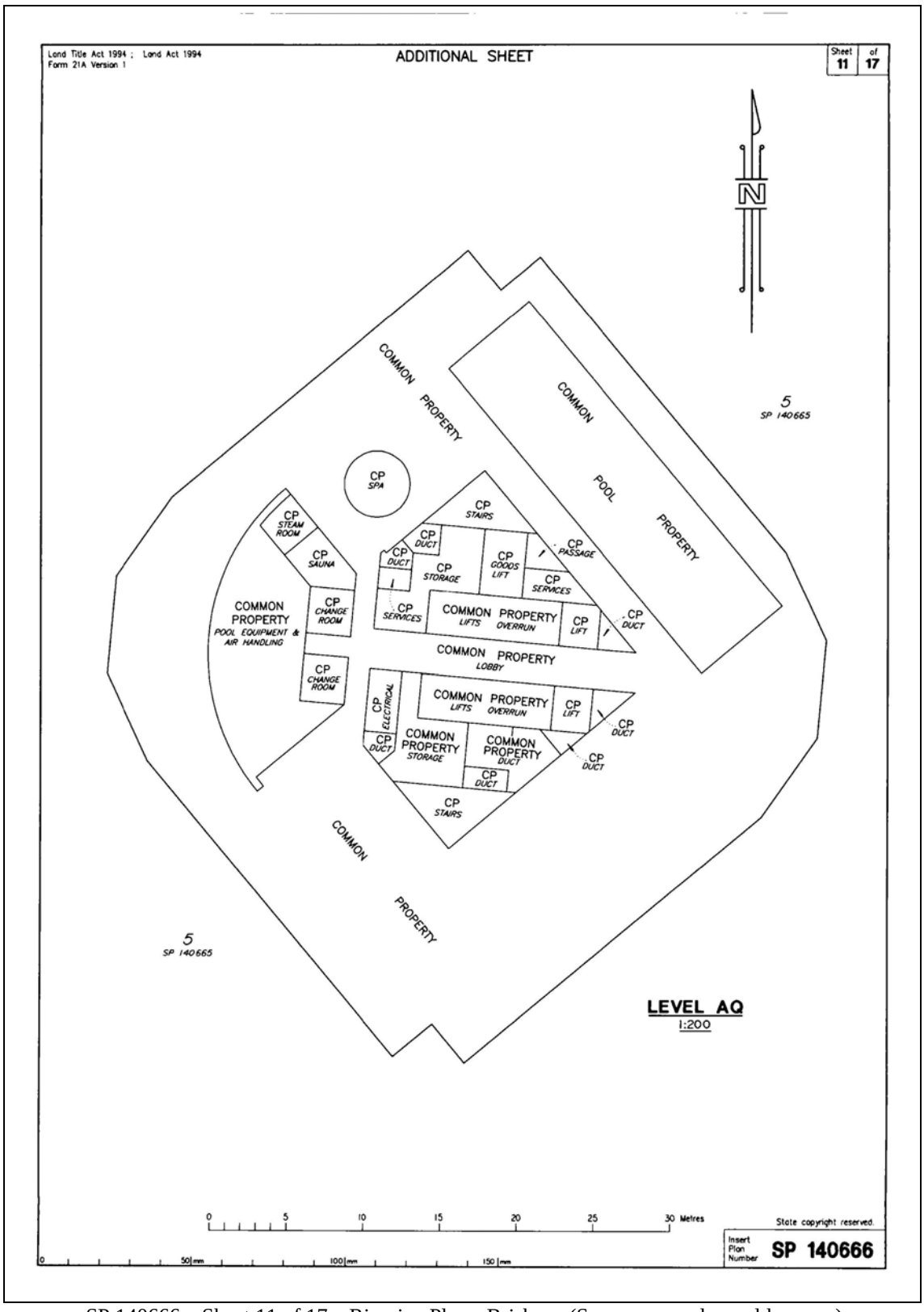
SP 140666 – Sheet 8 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



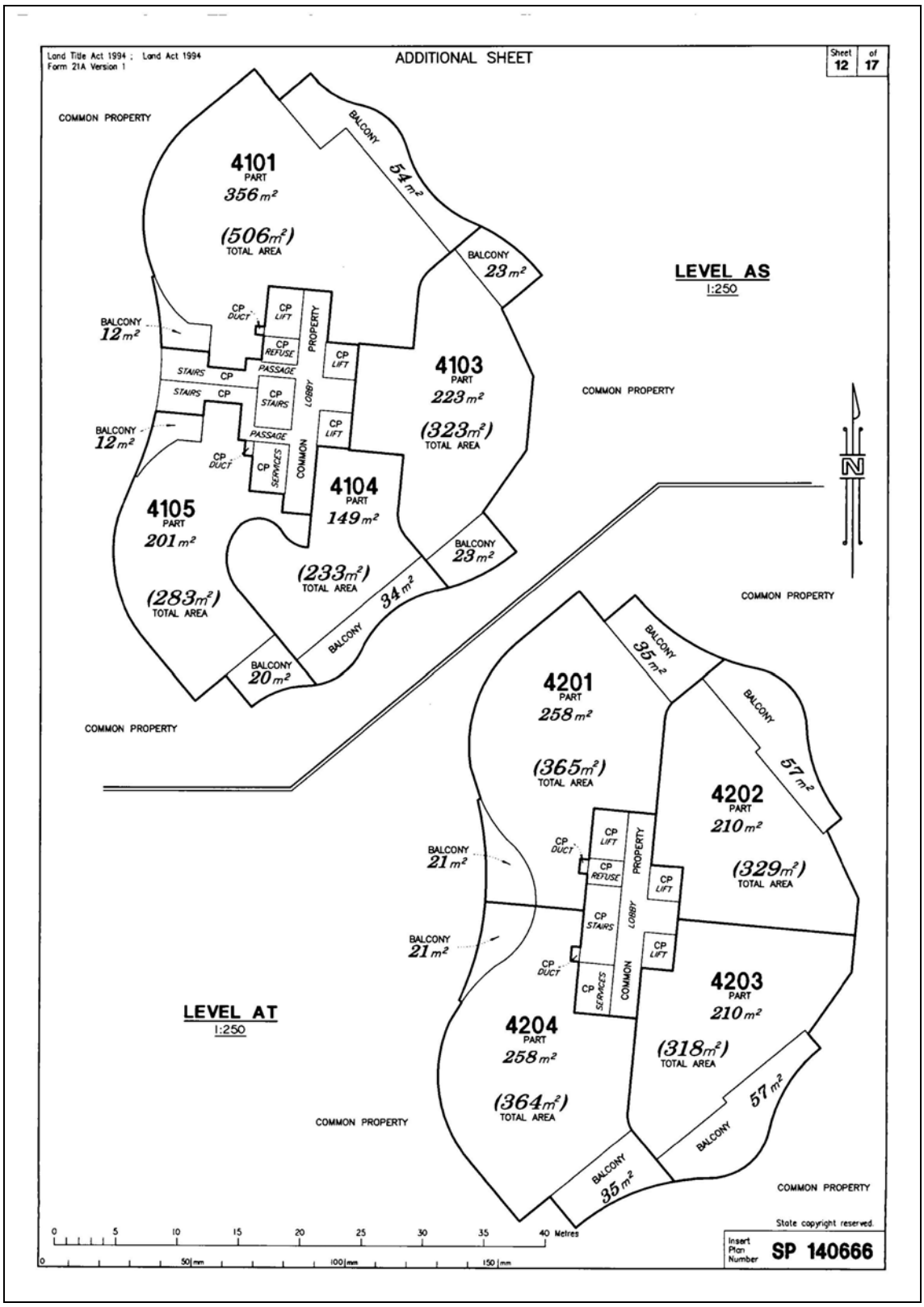
SP 140666 – Sheet 9 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



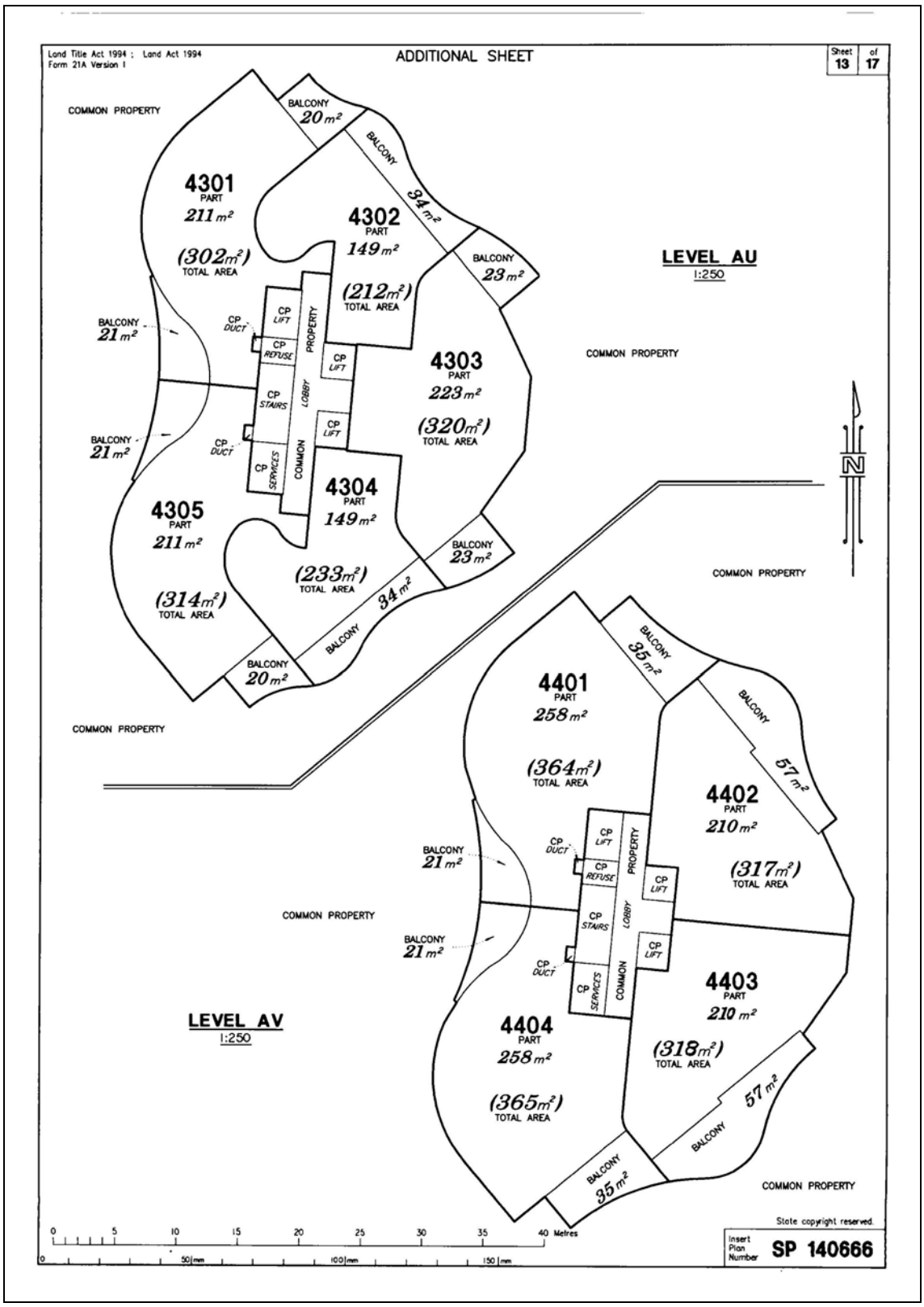
SP 140666 – Sheet 10 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



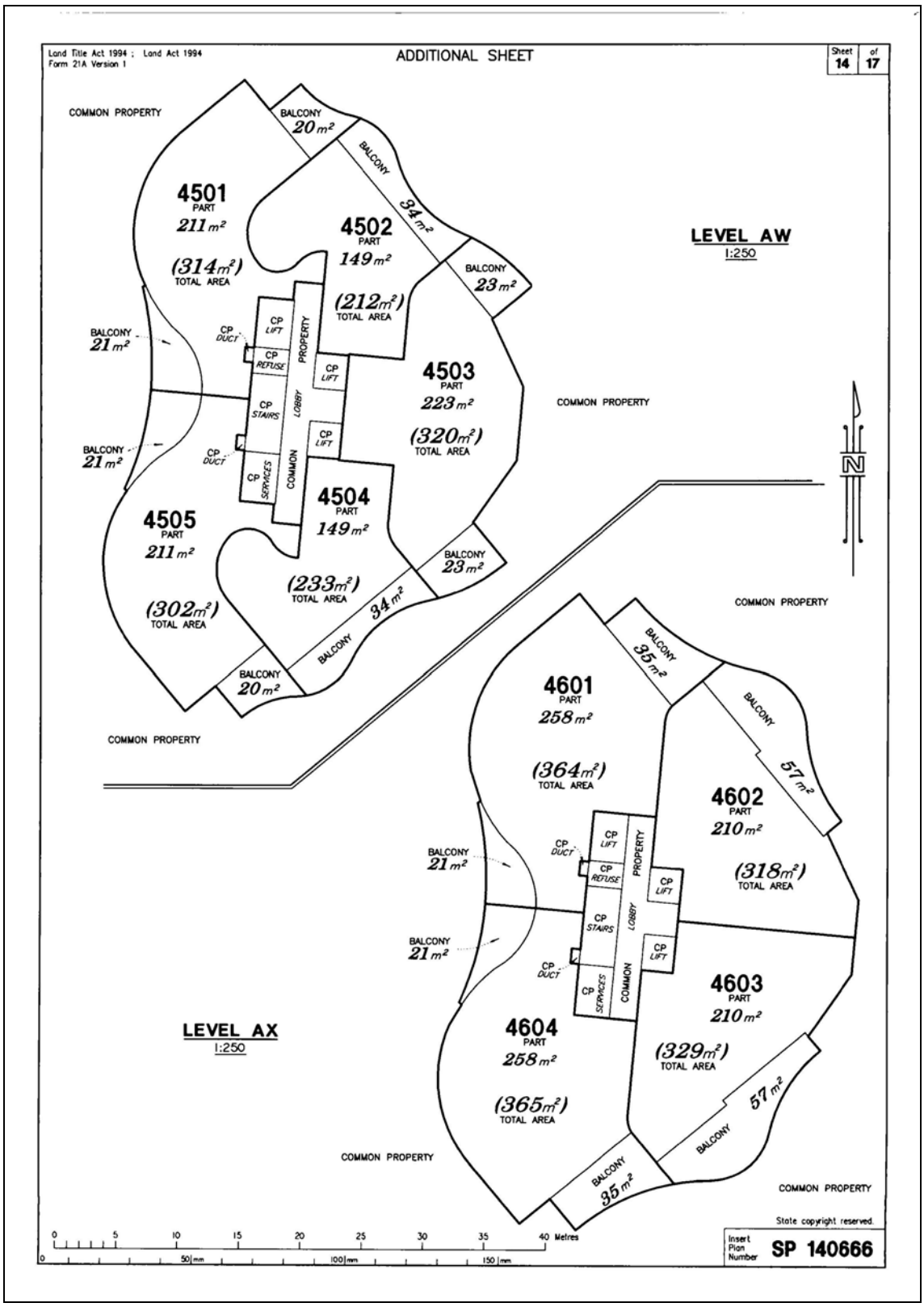
SP 140666 – Sheet 11 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



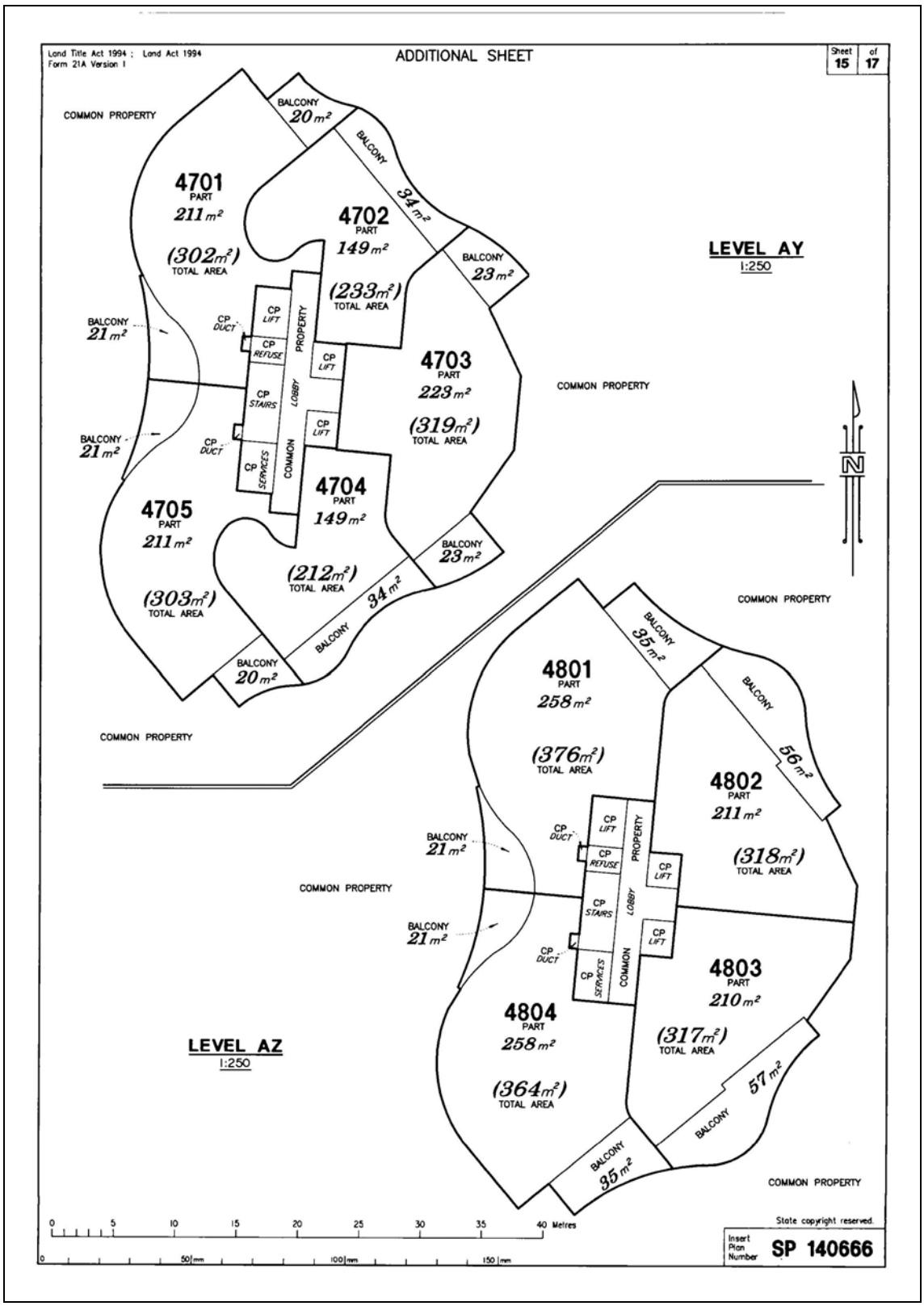
SP 140666 – Sheet 12 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



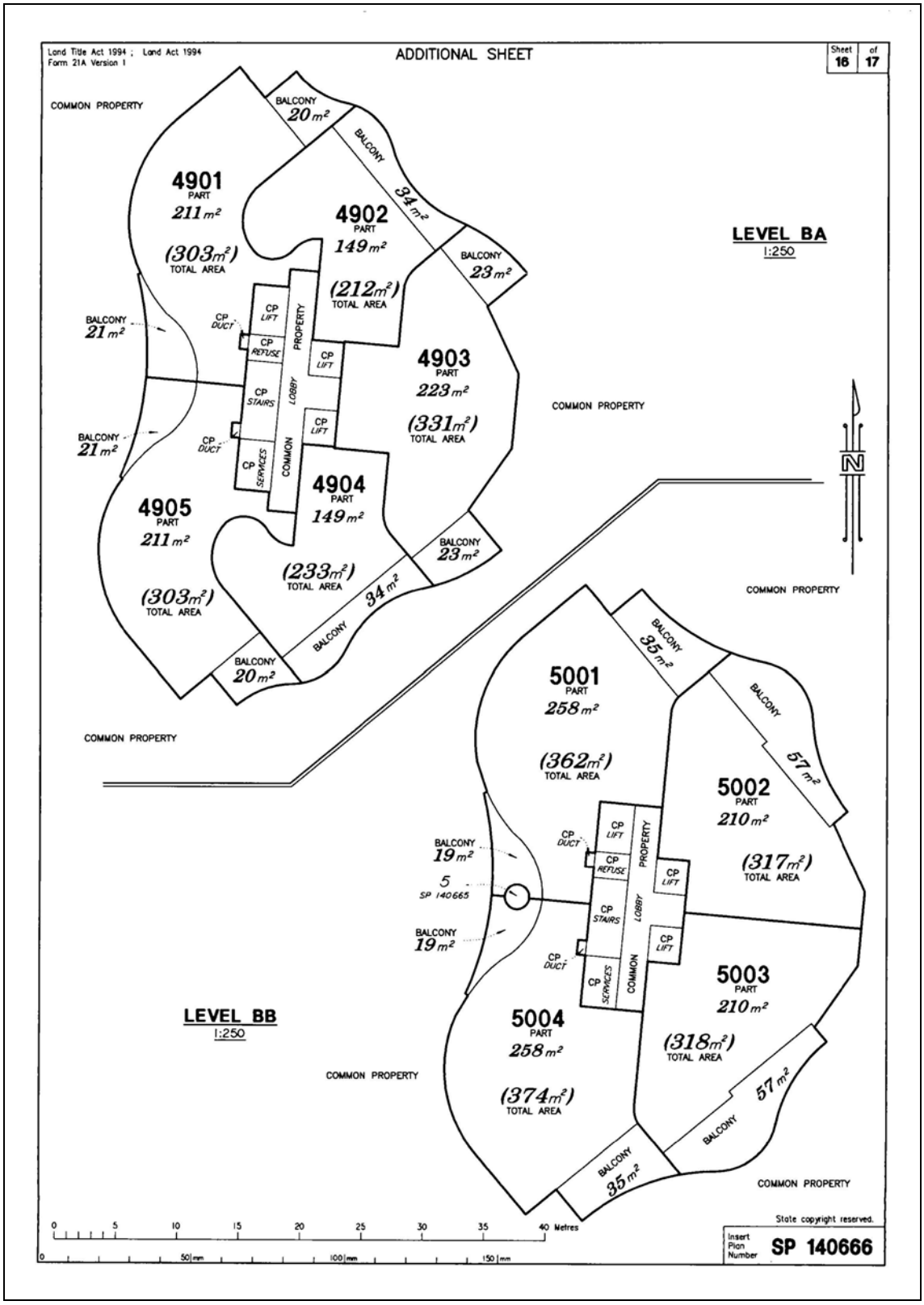
SP 140666 – Sheet 13 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



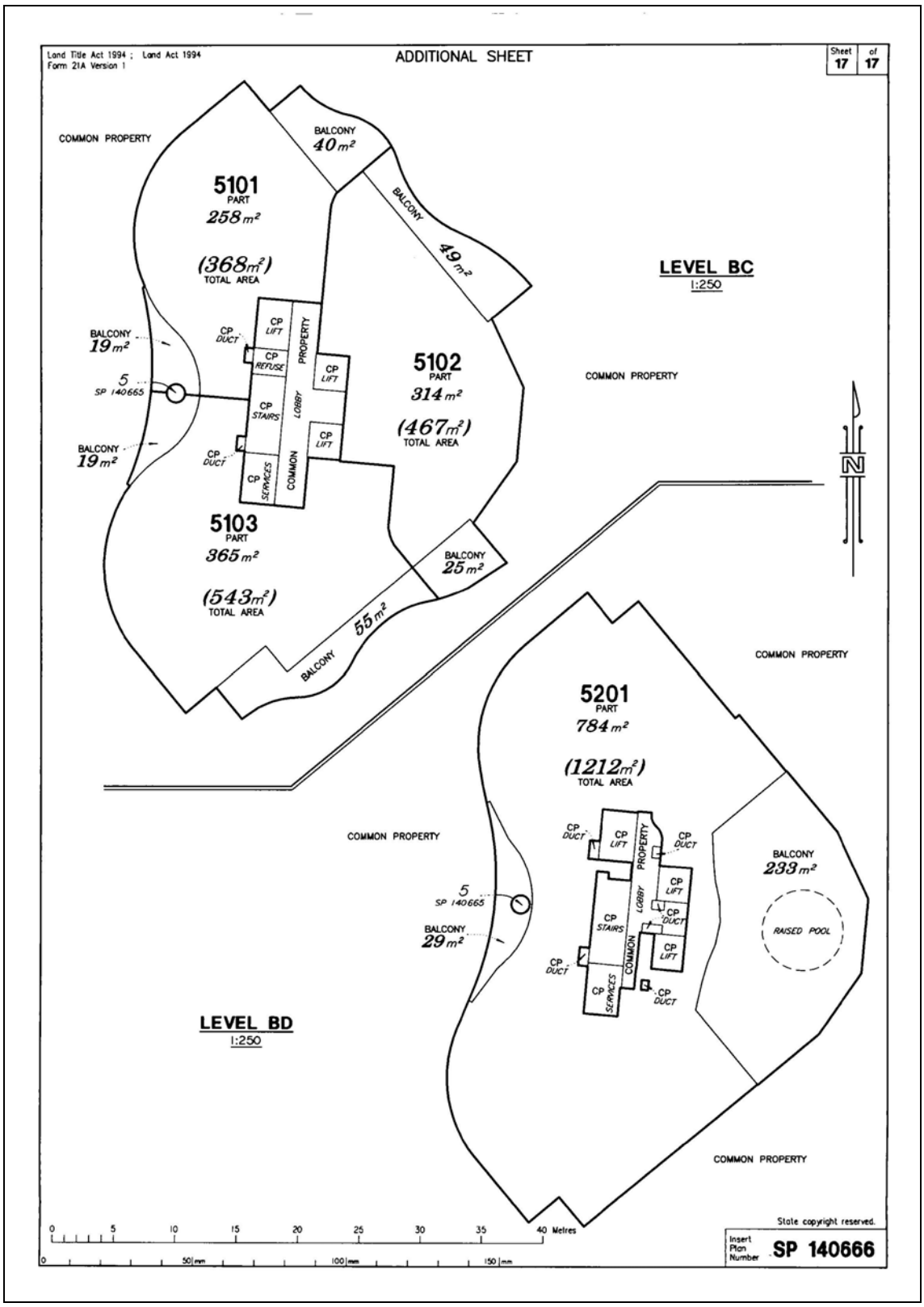
SP 140666 – Sheet 14 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



SP 140666 – Sheet 15 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



SP 140666 – Sheet 16 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)



SP 140666 – Sheet 17 of 17 – Riparian Plaza, Brisbane (Source www.derm.qld.gov.au)

PLAN OF SUBDIVISION

STAGE No.

LTO USE ONLY
EDITION 3

PLAN NUMBER
PS 421454L

LOCATION OF LAND

PARISH: MELBOURNE NORTH
CITY: MELBOURNE
SECTION: 21
CROWN ALLOTMENT: 17 AND 19 (PARTS)

LTO BASE RECORD: CHART 27 (3083)
LAST PLAN REF: -
TITLE REFERENCE: VOL 9310 FOL 934

POSTAL ADDRESS: 318-322 LITTLE BOURKE STREET
AND 2-16 DRIVER LANE
MELBOURNE 3000

AMG CO-ORDINATES: E 320 650
OF APPROX. CENTRE N 5 812 800
OF LAND IN PLAN ZONE 55

VESTING OF ROADS OR RESERVES

IDENTIFIER	COUNCIL/BODY/PERSON
NIL	NIL

COUNCIL CERTIFICATION AND ENDORSEMENT

COUNCIL NAME: MELBOURNE CITY COUNCIL REF: TP 99/572 (1875)

1. This plan is certified under Section 6 of the Subdivision Act 1988.
~~2. This plan is certified under Section 11(7) of the Subdivision Act 1988. Date of original certification under Section 6. / /~~
~~3. This is a statment of compliance issued under Section 21 of the Subdivision Act 1988.~~

OPEN SPACE

(i) A requirement for public open space under Section 18 of the Subdivision Act 1988 ~~has~~/has not been made.
(ii) The requirement has been satisfied
(iii) The requirement is to be satisfied in Stage _____

Council Delegate
~~Council Seal~~
Date 18 / 8 / 99

APPLIES TO MASTER PLAN (STAGE 1) ONLY

Re-certified under Section 11(7) of the Subdivision Act 1988.
Council Delegate
Council Seal
Date / /

NOTATIONS

LOTS 1 TO 100, 117 TO 200, 211 TO 300, 311 TO 400, 415 TO 500 (ALL INCLUSIVE) HAVE BEEN OMITTED FROM THIS PLAN.

DEPTH LIMITATION:
DOES NOT APPLY

STAGING:
THIS IS A STAGED SUBDIVISION
PLANNING PERMIT NO:

SURVEY:
THIS PLAN IS BASED ON SURVEY
THIS SURVEY HAS BEEN CONNECTED TO PERMANENT MARKS:
IN PROCLAIMED SURVEY AREA NUMBER:

LOCATION OF BOUNDARIES DEFINED BY BUILDINGS:
BOUNDARIES SHOWN BY THICK CONTINUOUS LINES ARE DEFINED BY BUILDINGS

MEDIAN: BOUNDARY MARKED 'M'
INTERIOR FACE: ALL OTHER LOT BOUNDARIES INCLUDING COMMON PROPERTY No. 2

ALL INTERNAL SERVICE DUCTS AND PIPE SHAFTS WITHIN THE BUILDINGS ARE DEEMED TO BE PART OF THE COMMON PROPERTY No. 1 THE POSITIONS OF THESE DUCTS AND SHAFTS HAVE NOT BEEN SHOWN ON THE DIAGRAMS CONTAINED HEREIN.

EASEMENT INFORMATION

LEGEND: A - APPURTENANT EASEMENT E - ENCUMBERING EASEMENT R - ENCUMBERING EASEMENT (ROAD)

EASEMENTS PURSUANT TO SECTION 12(2) OF THE SUBDIVISION ACT 1988 APPLY TO THE LAND IN THIS PLAN

EASEMENT REFERENCE	PURPOSE	WIDTH (METRES)	ORIGIN	LAND BENEFITED/IN FAVOUR OF
E-1	WAY (LIMITED TO HEIGHT SEE CROSS-SECTION C-C' & V-V') SEE SHEET 15	SEPLAN	THIS PLAN	LOT A ON THIS PLAN

LTO USE ONLY
STATEMENT OF COMPLIANCE/ EXEMPTION STATEMENT
RECEIVED ☑
DATE: 28/9/99

LTO USE ONLY
PLAN REGISTERED
TIME 11.00
DATE 7/10/99
Ian R. McLeod
Assistant Registrar of Titles

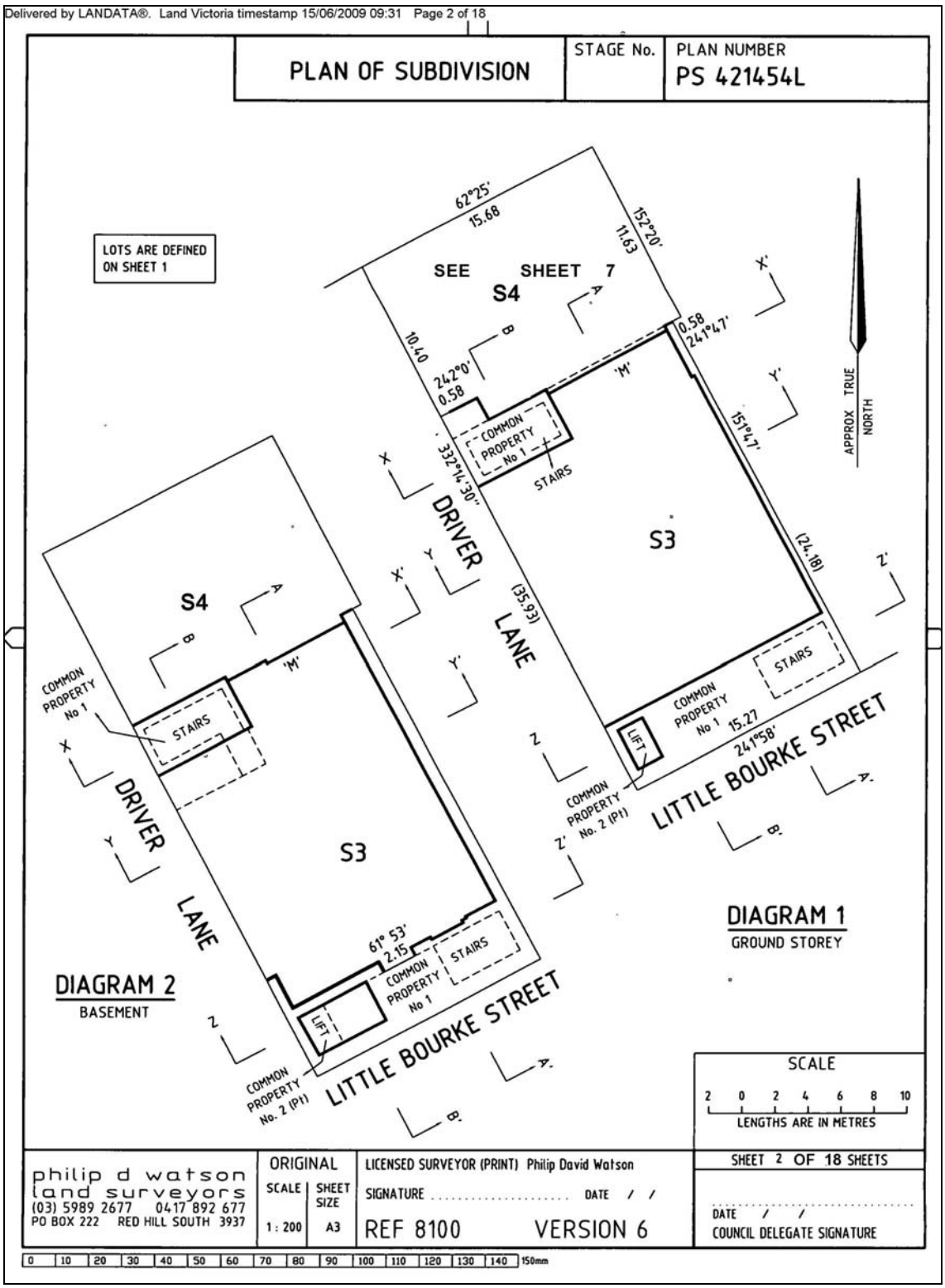
SHEET 1 OF 18 SHEETS

philip d watson
land surveyors
(03) 5989 2677 0417 892 677
PO BOX 222 RED HILL SOUTH 3937

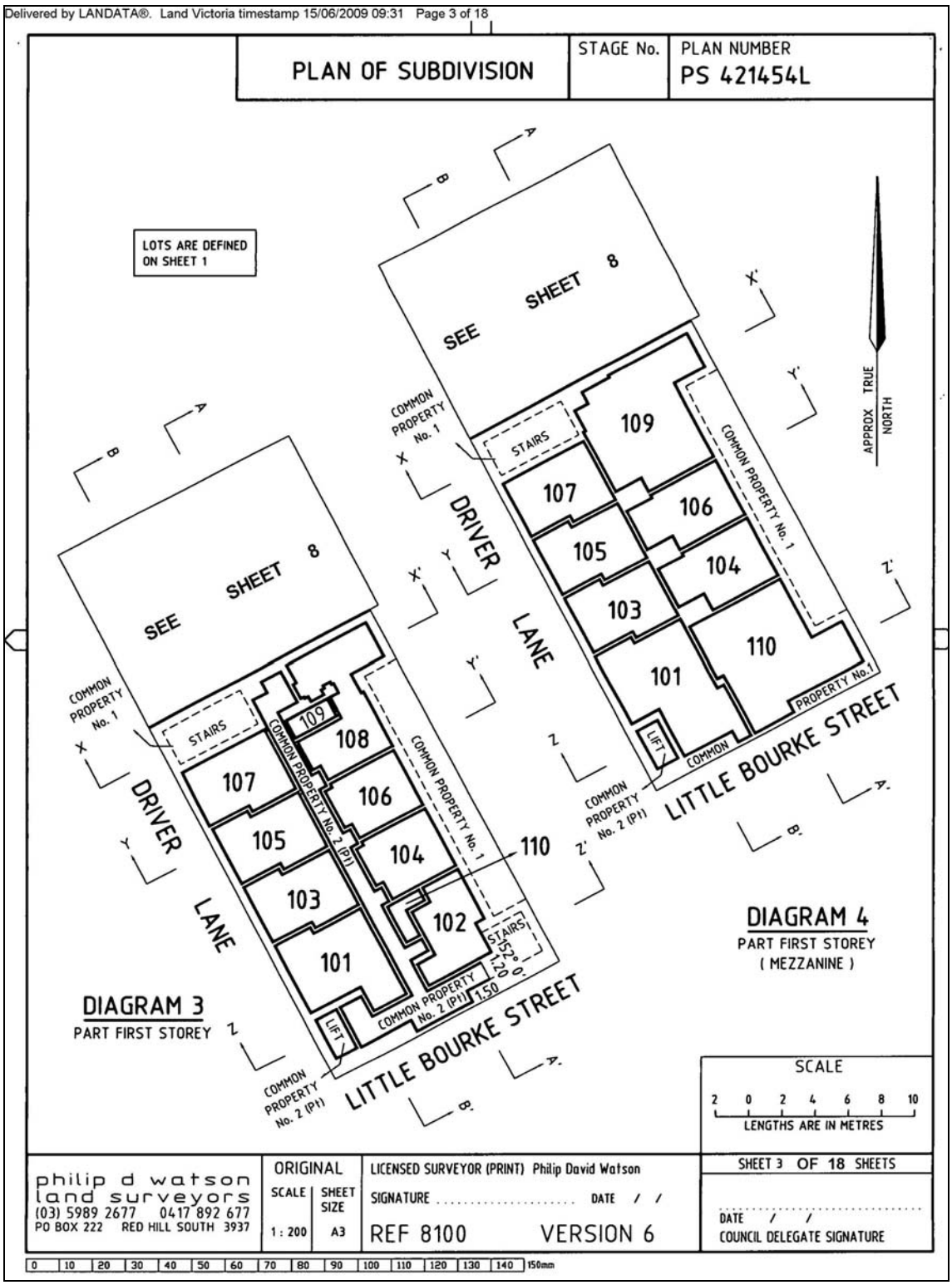
LICENSED SURVEYOR (PRINT) Philip David Watson
SIGNATURE ..... DATE / /
REF 8100 VERSION 6

DATE / /
COUNCIL DELEGATE SIGNATURE
ORIGINAL SHEET SIZE A3

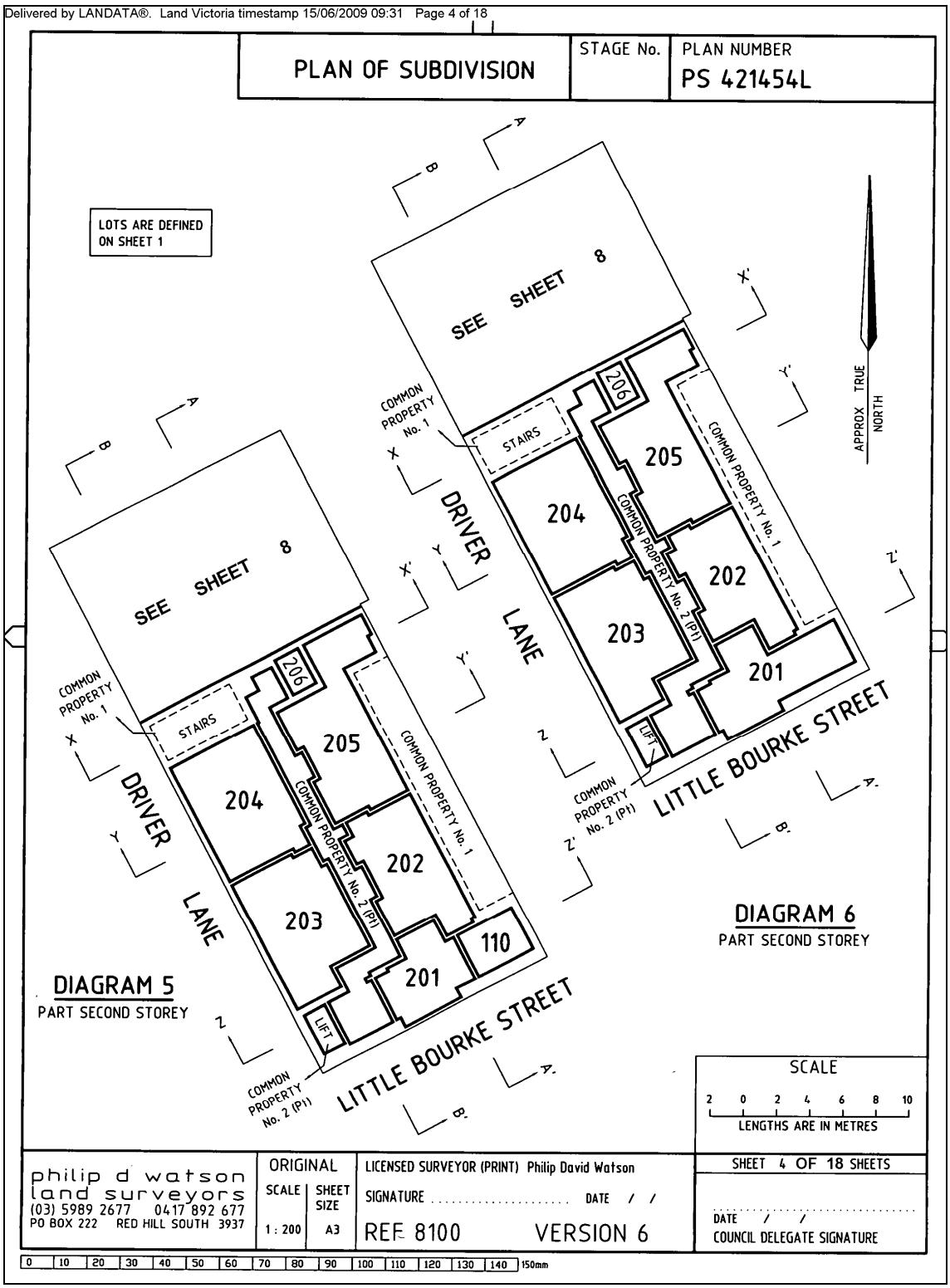
PS 421454L – Sheet 1 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



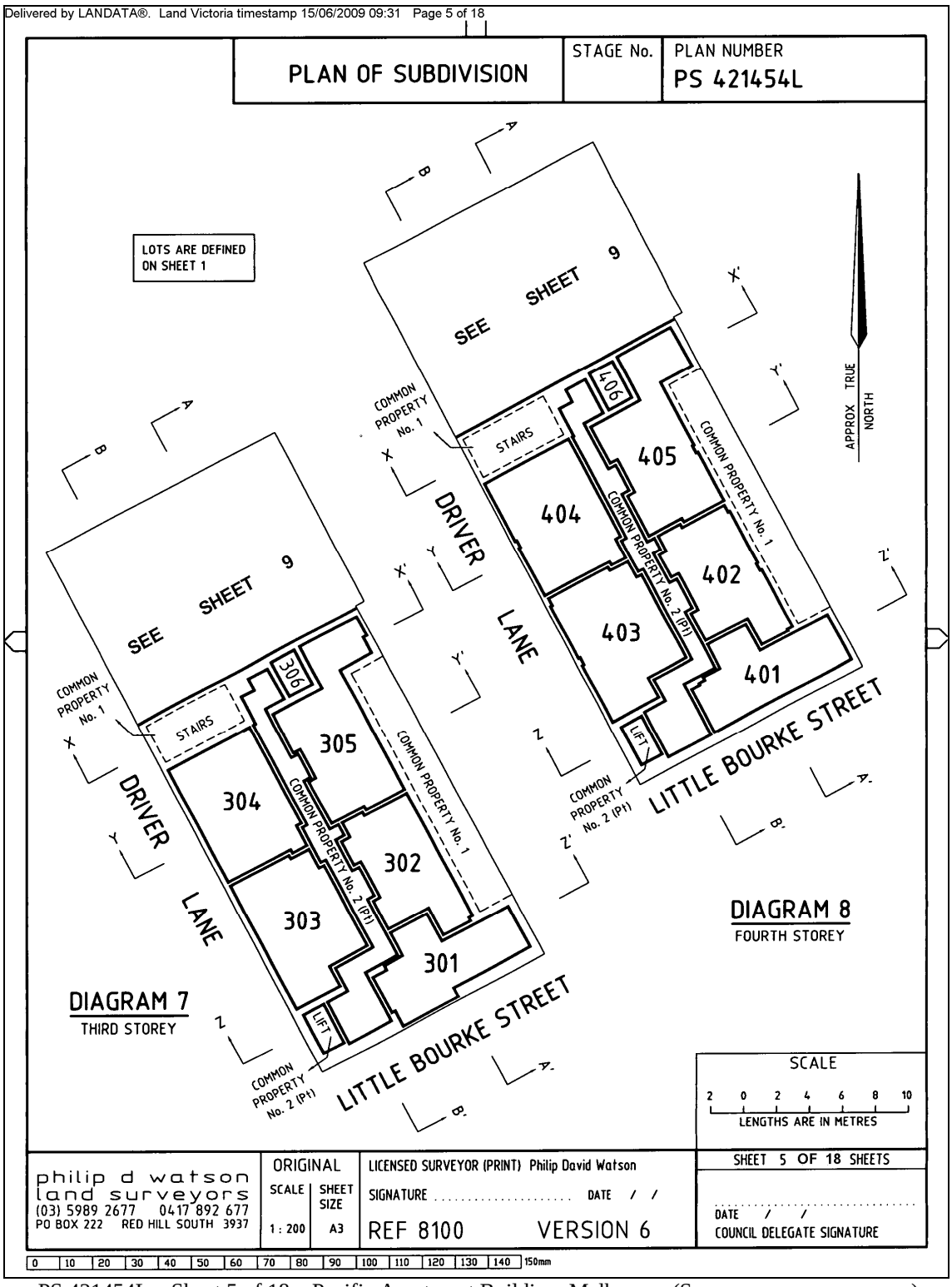
PS 421454L – Sheet 2 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



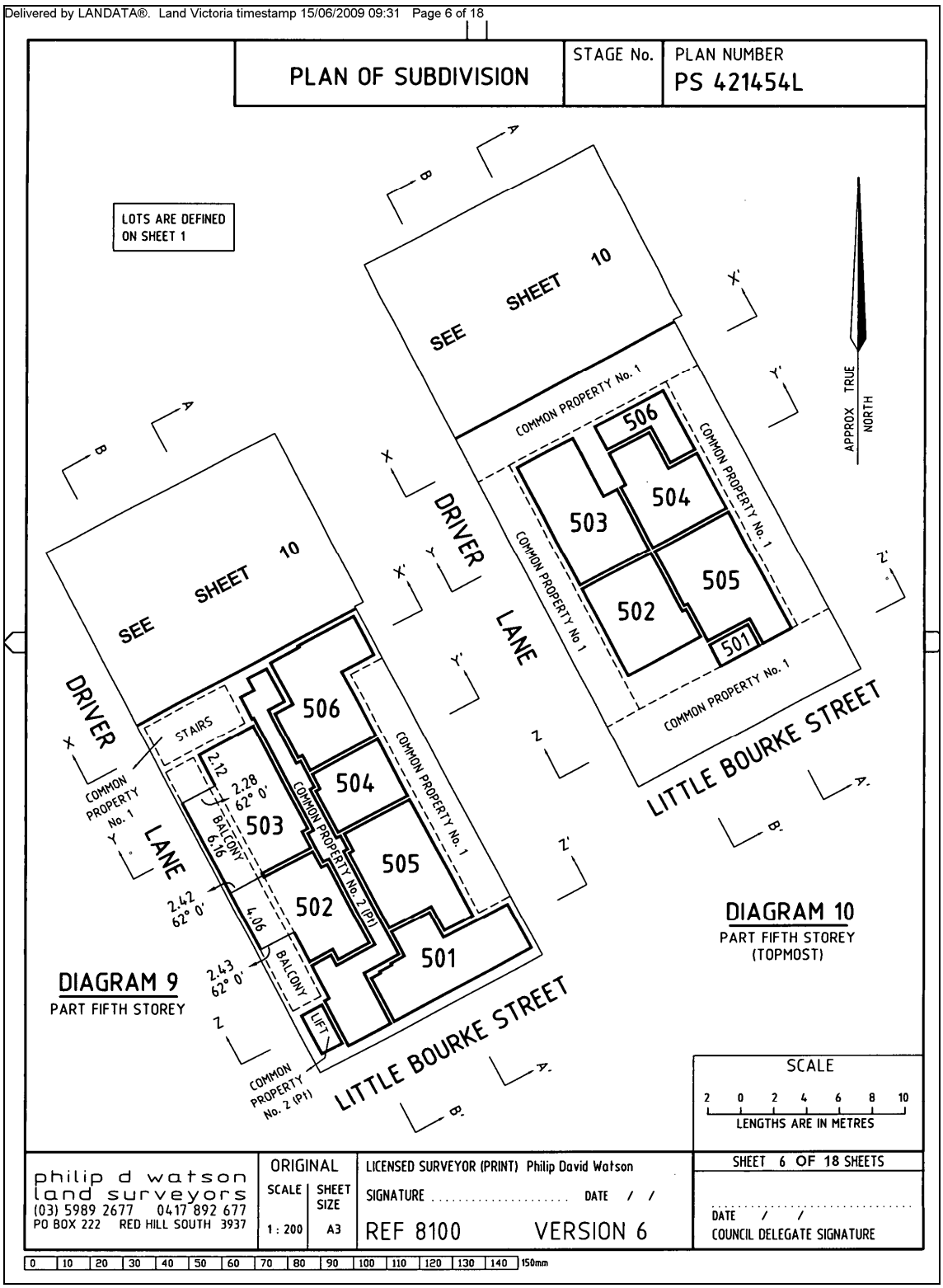
PS 421454L – Sheet 3 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



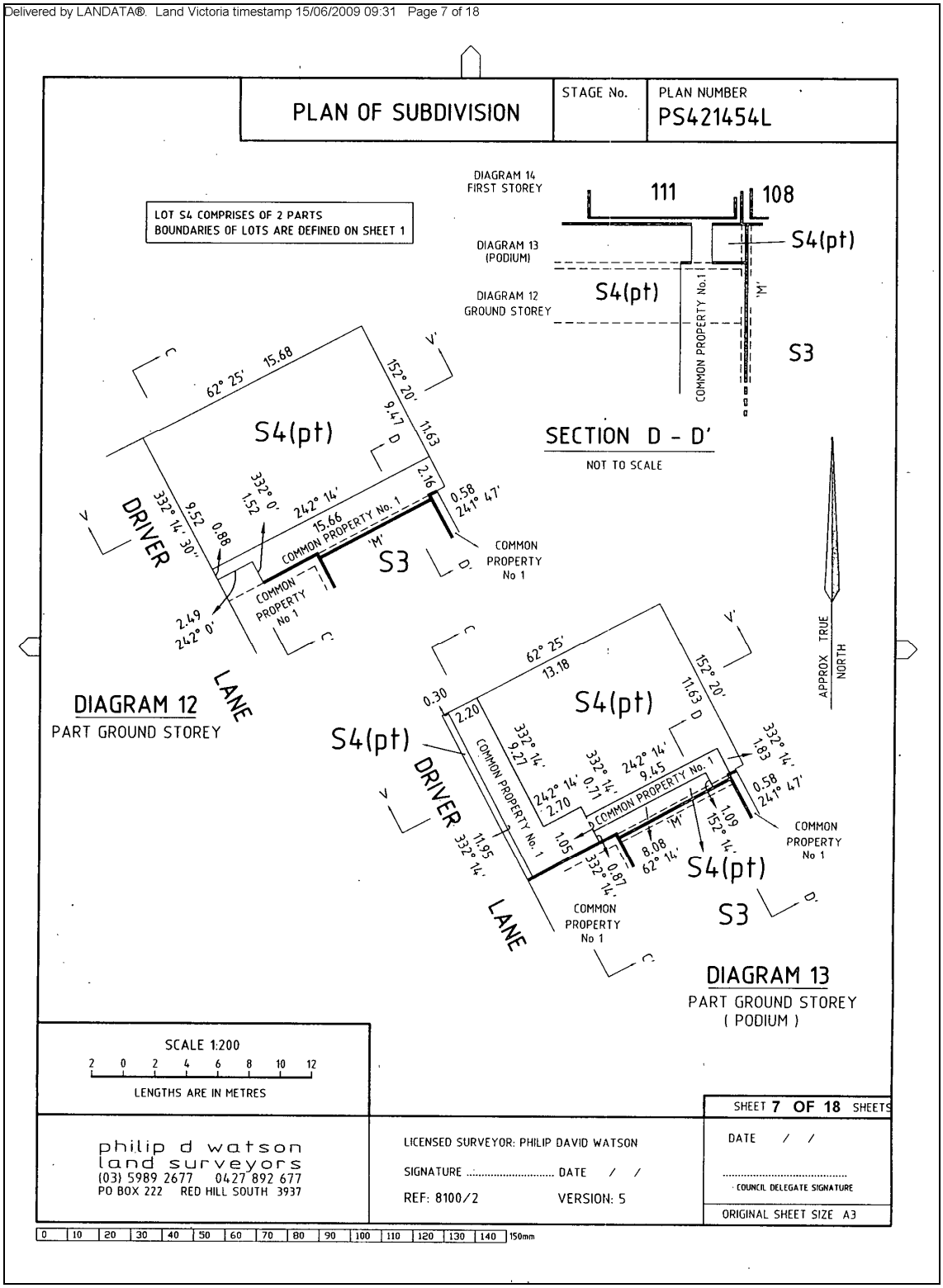
PS 421454L – Sheet 4 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



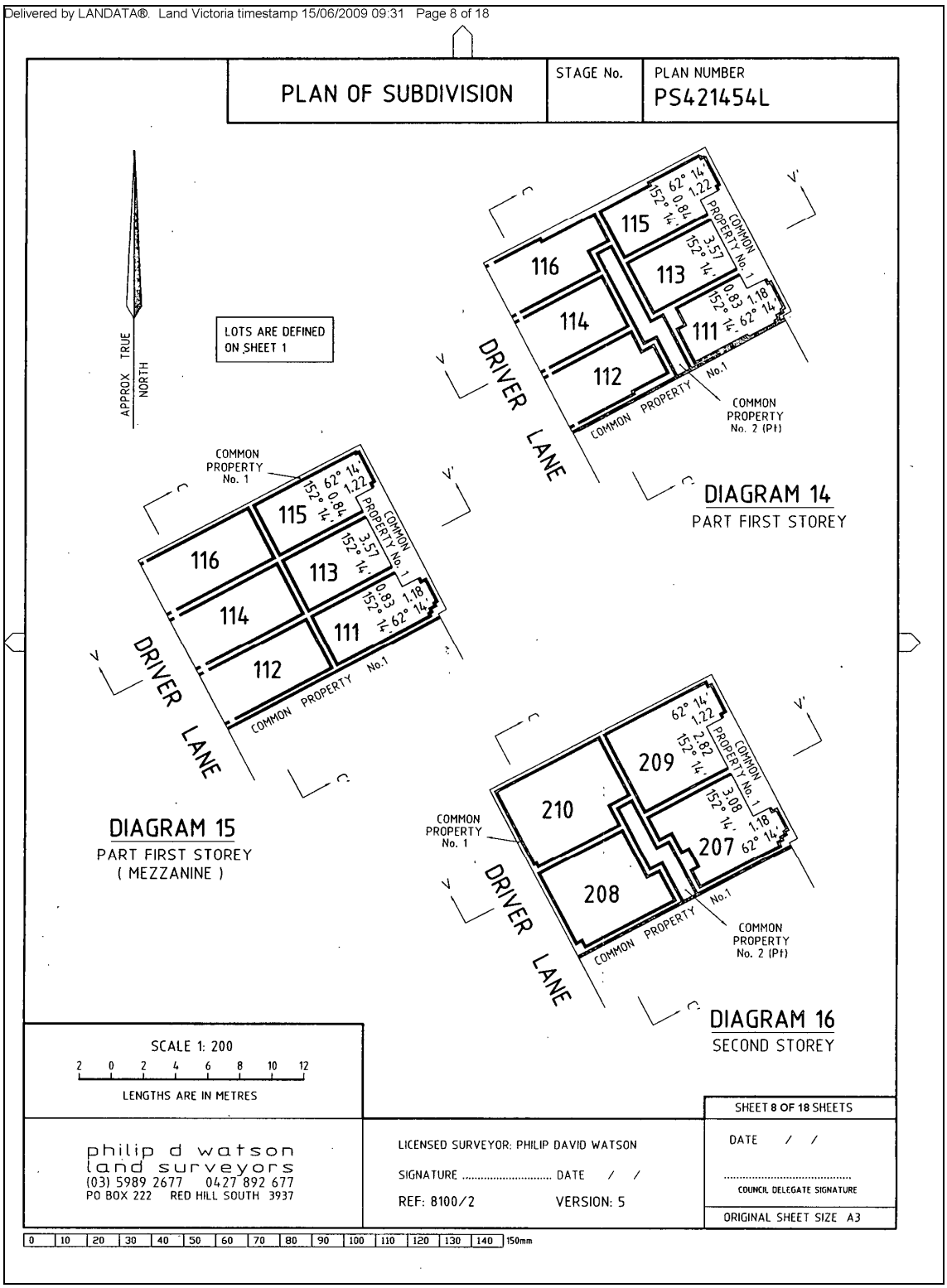
PS 421454L – Sheet 5 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



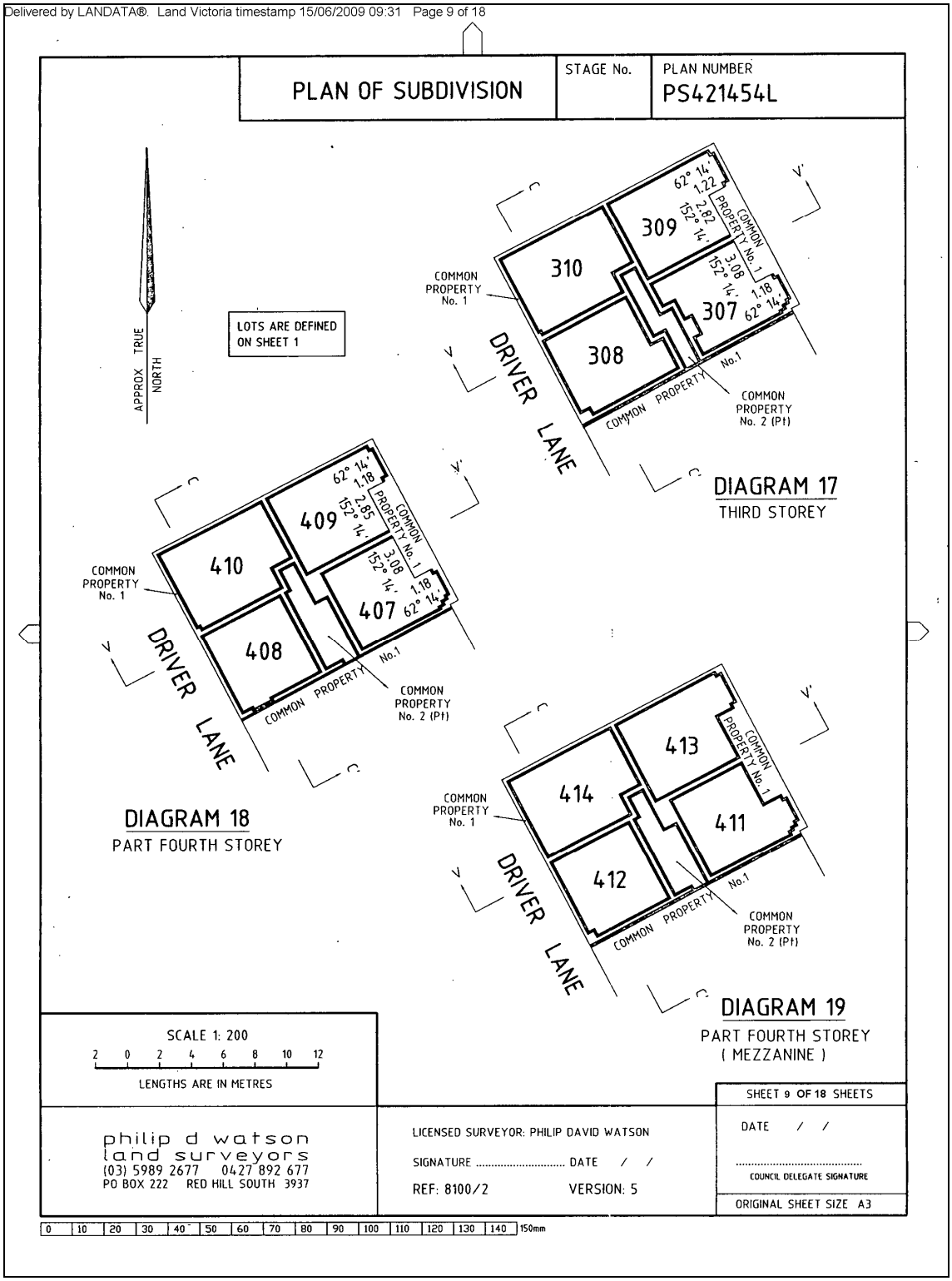
PS 421454L – Sheet 6 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



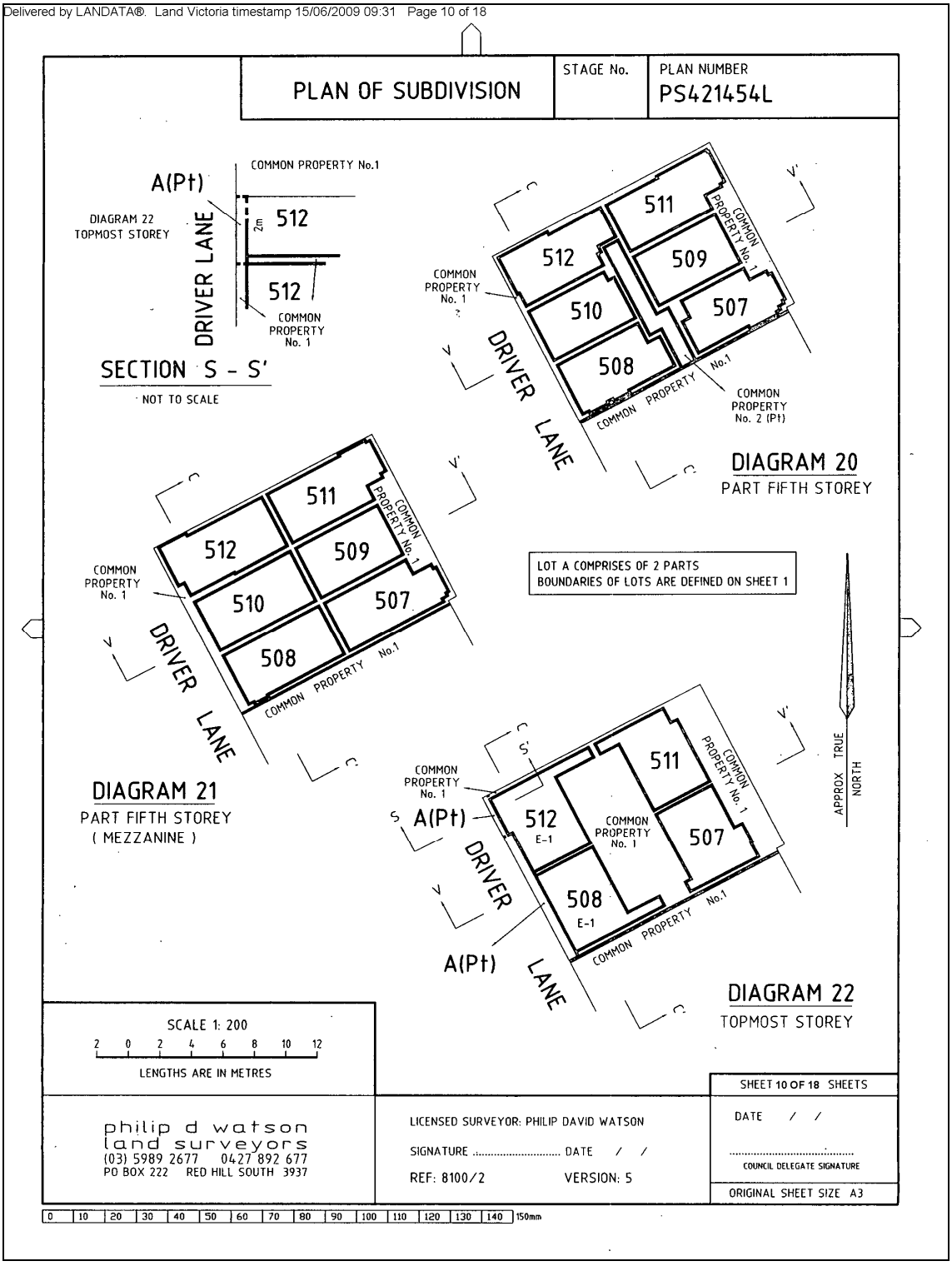
PS 421454L – Sheet 7 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



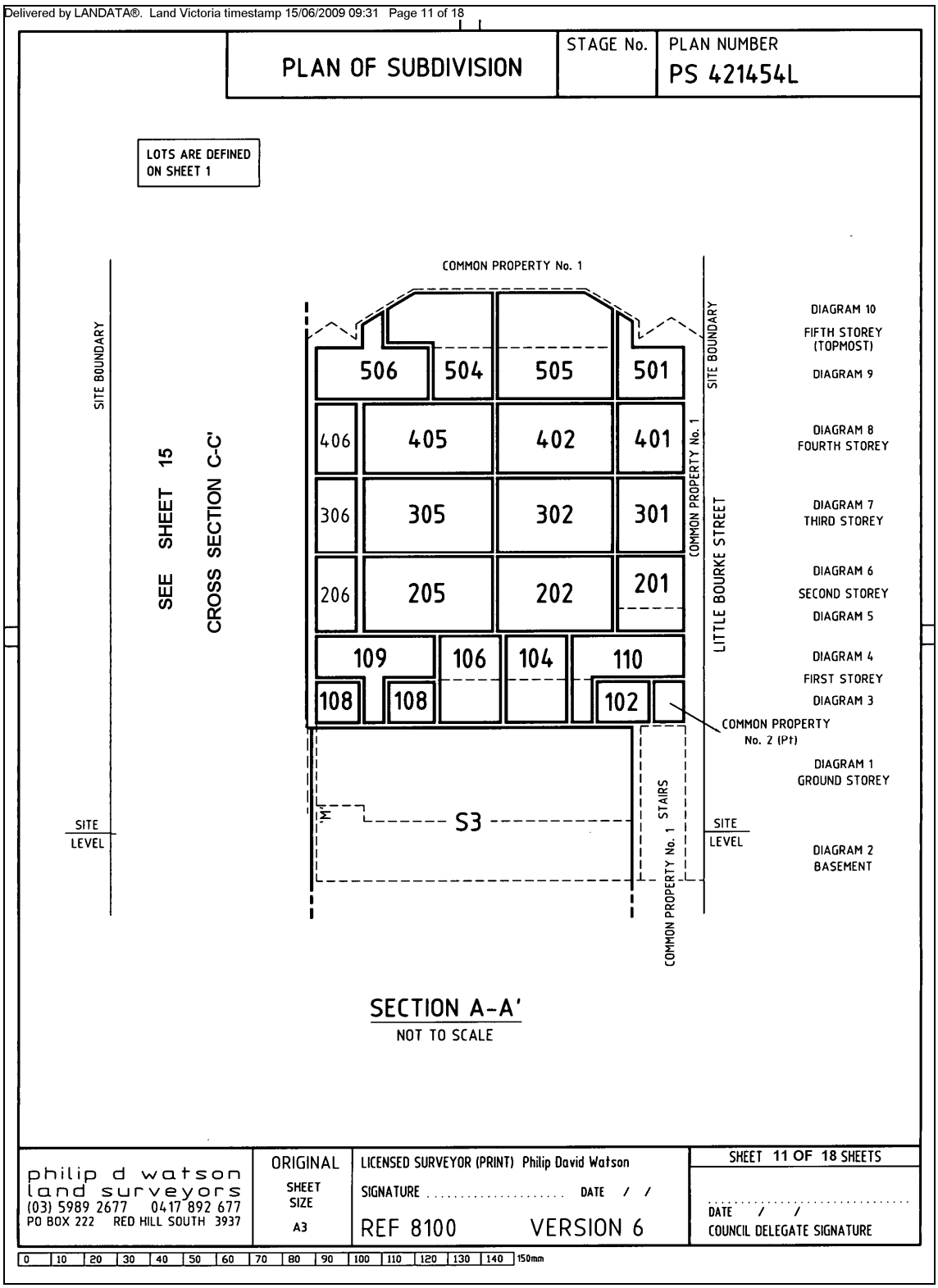
PS 421454L – Sheet 8 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



PS 421454L – Sheet 9 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



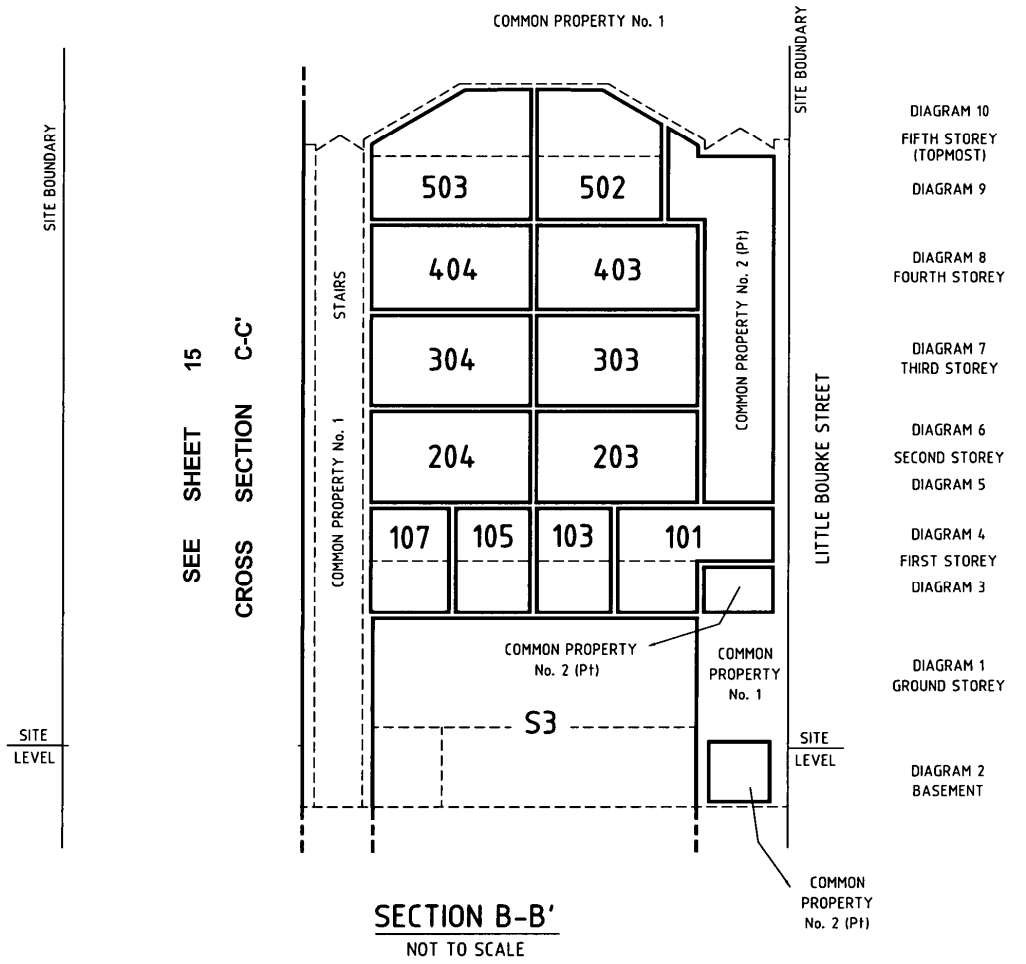
PS 421454L – Sheet 10 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



PS 421454L – Sheet 11 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)

PLAN OF SUBDIVISION	STAGE No.	PLAN NUMBER PS 421454L

LOTS ARE DEFINED ON SHEET 1

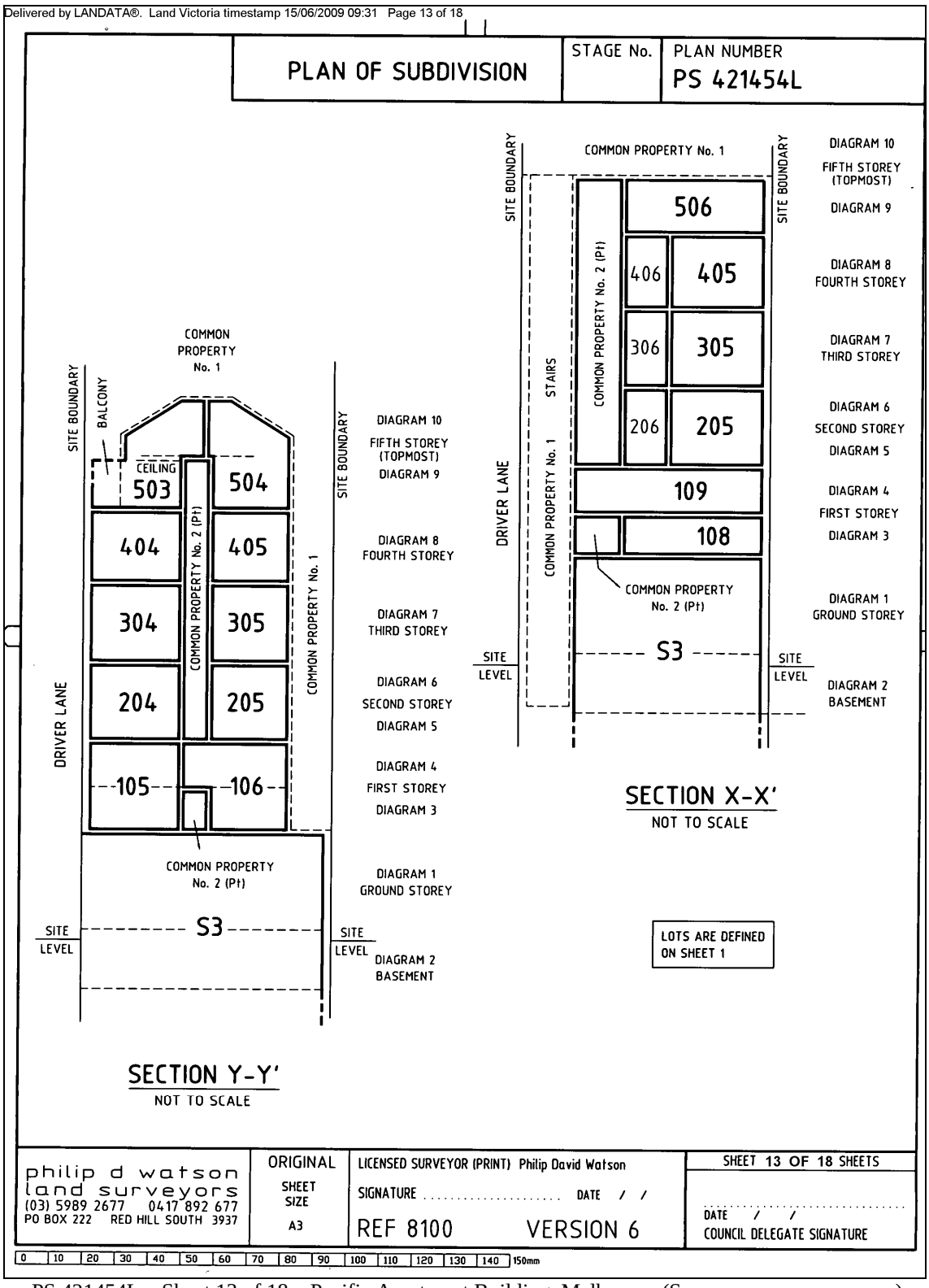


SECTION B-B'
NOT TO SCALE

philip d watson land surveyors (03) 5989 2677 0417 892 677 PO BOX 222 RED HILL SOUTH 3937	ORIGINAL SHEET SIZE A3	LICENSED SURVEYOR (PRINT) Philip David Watson SIGNATURE ..... DATE / / REF 8100 VERSION 6	SHEET 12 OF 18 SHEETS ..... DATE / / COUNCIL DELEGATE SIGNATURE

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm

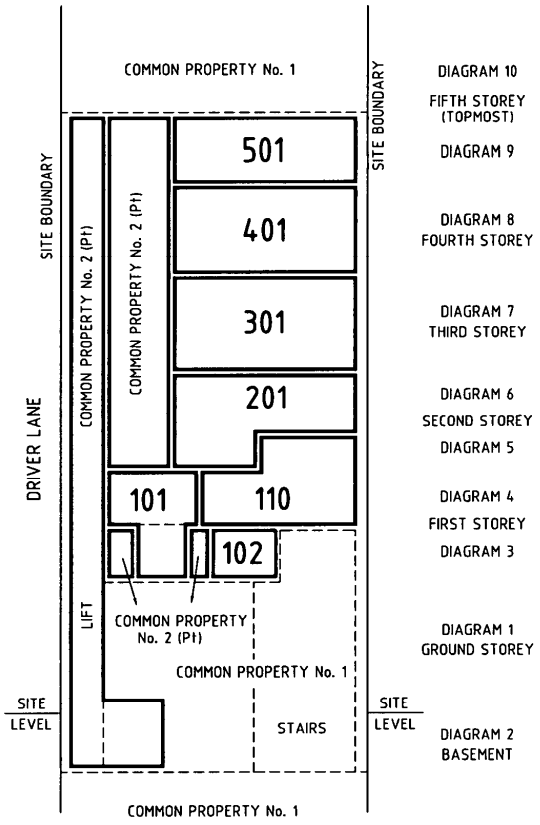
PS 421454L – Sheet 12 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



PS 421454L – Sheet 13 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)

PLAN OF SUBDIVISION	STAGE No.	PLAN NUMBER PS 421454L

LOTS ARE DEFINED ON SHEET 1



SECTION Z-Z'
NOT TO SCALE

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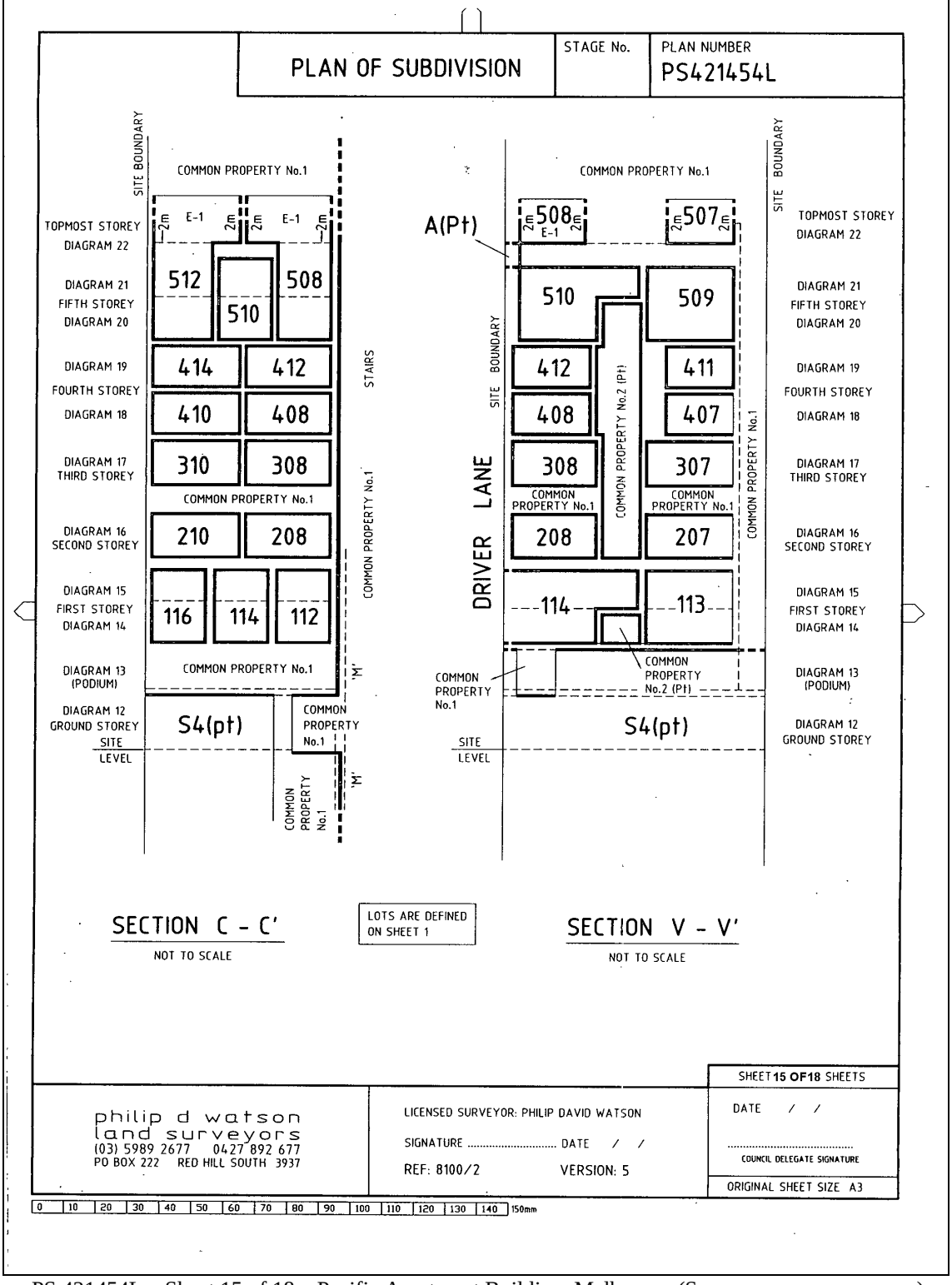
PS 421454L – Sheet 14 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)



PS 421454L – Sheet 15 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)

PS421454L

Owners corporation information formerly contained on Sheets

16, 17

of this plan is now available in the Owners Corporation Search Report

Sheets

17

have been removed from this plan

Sheet 16

PLAN OF SUBDIVISION	STAGE No.	PLAN NUMBER PS 421454L

CREATION OF RESTRICTION

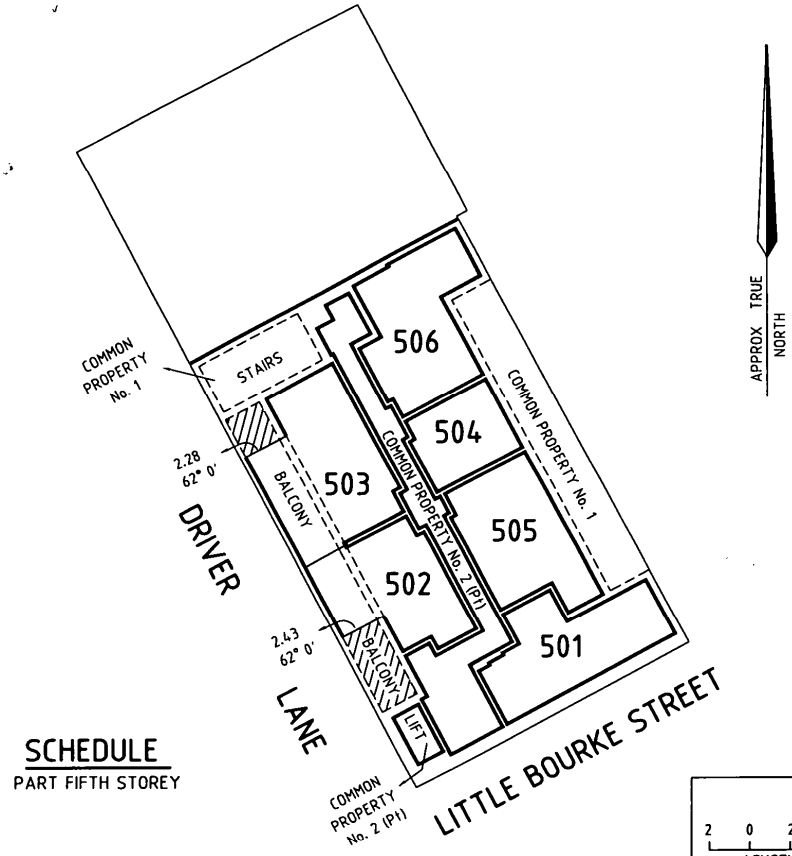
UPON REGISTRATION OF THIS PLAN THE FOLLOWING RESTRICTION IS TO BE CREATED.

LAND TO BENEFIT: LOTS 502 AND 503

LAND TO BE BURDENED: THOSE PARTS OF COMMON PROPERTY No.1 SHOWN HATCHED ON THE FOLLOWING SCHEDULE

DESCRIPTION OF RESTRICTION:

THOSE PARTS OF COMMON PROPERTY No.1 SHOWN HATCHED ON THE FOLLOWING SCHEDULE SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN ACCESS FOR MAINTENANCE OR REPAIRS OF PLANT AND EQUIPMENT LOCATED AT ROOF LEVEL, PROVIDED THAT THIS RESTRICTION ON THE USE OF THE SAID LAND SHALL NOT APPLY OR EXTEND TO THE REGISTERED PROPRIETORS OR PROPRIETOR, THEIR TENANTS OR OCCUPIERS, OF LOTS 502 AND 503 ON THIS PLAN.



SCHEDULE

PART FIFTH STOREY

SCALE

2 0 2 4 6 8 10

LENGTHS ARE IN METRES

philip d watson
land surveyors
(03) 5989 2677 0417 892 677
PO BOX 222 RED HILL SOUTH 3937

ORIGINAL		LICENSED SURVEYOR (PRINT) Philip David Watson	SHEET 18 OF 18 SHEETS
SCALE 1 : 200	SHEET SIZE A3	SIGNATURE ..... DATE / /	..... DATE / / COUNCIL DELEGATE SIGNATURE
		REF 8100 VERSION 6	

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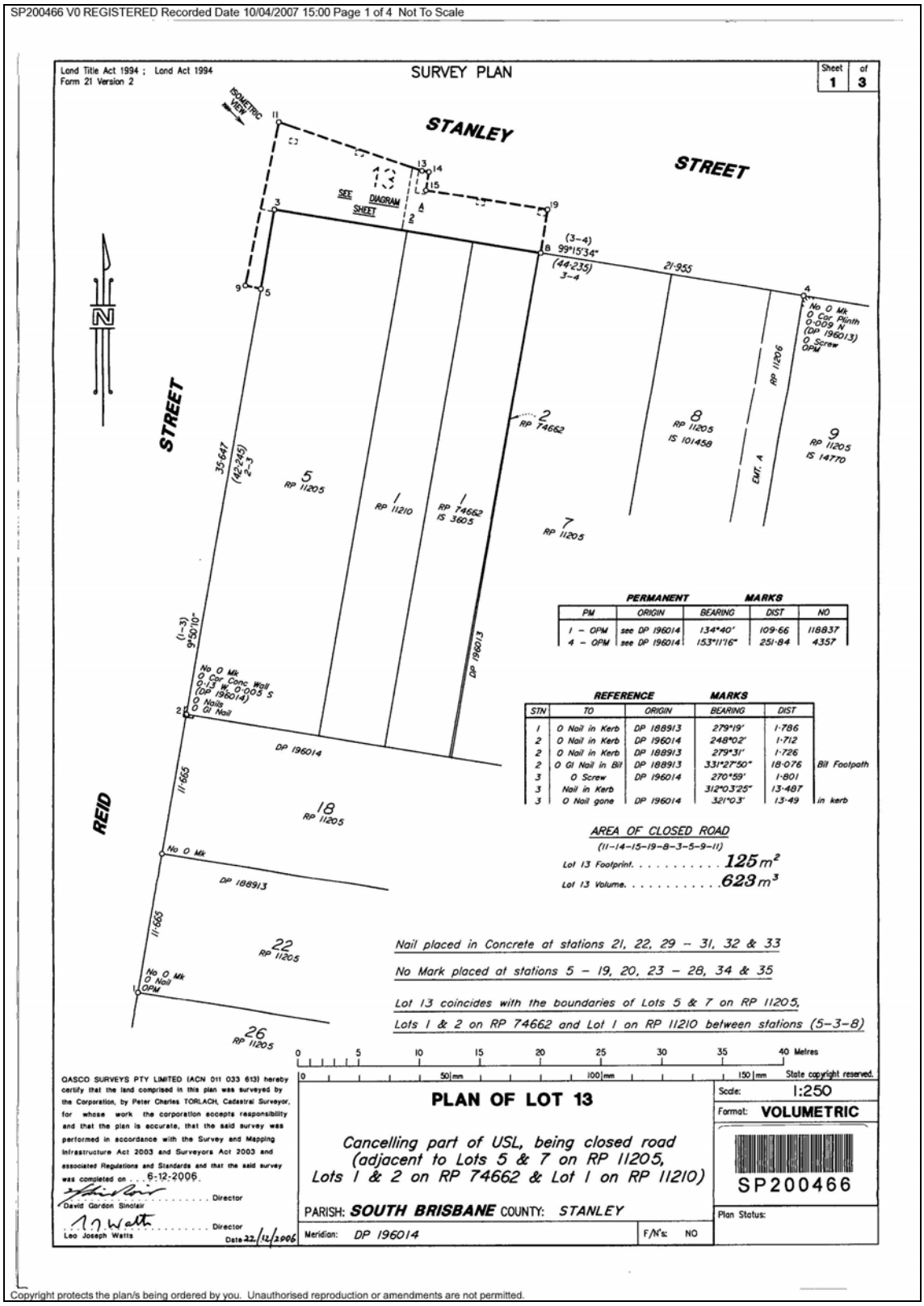
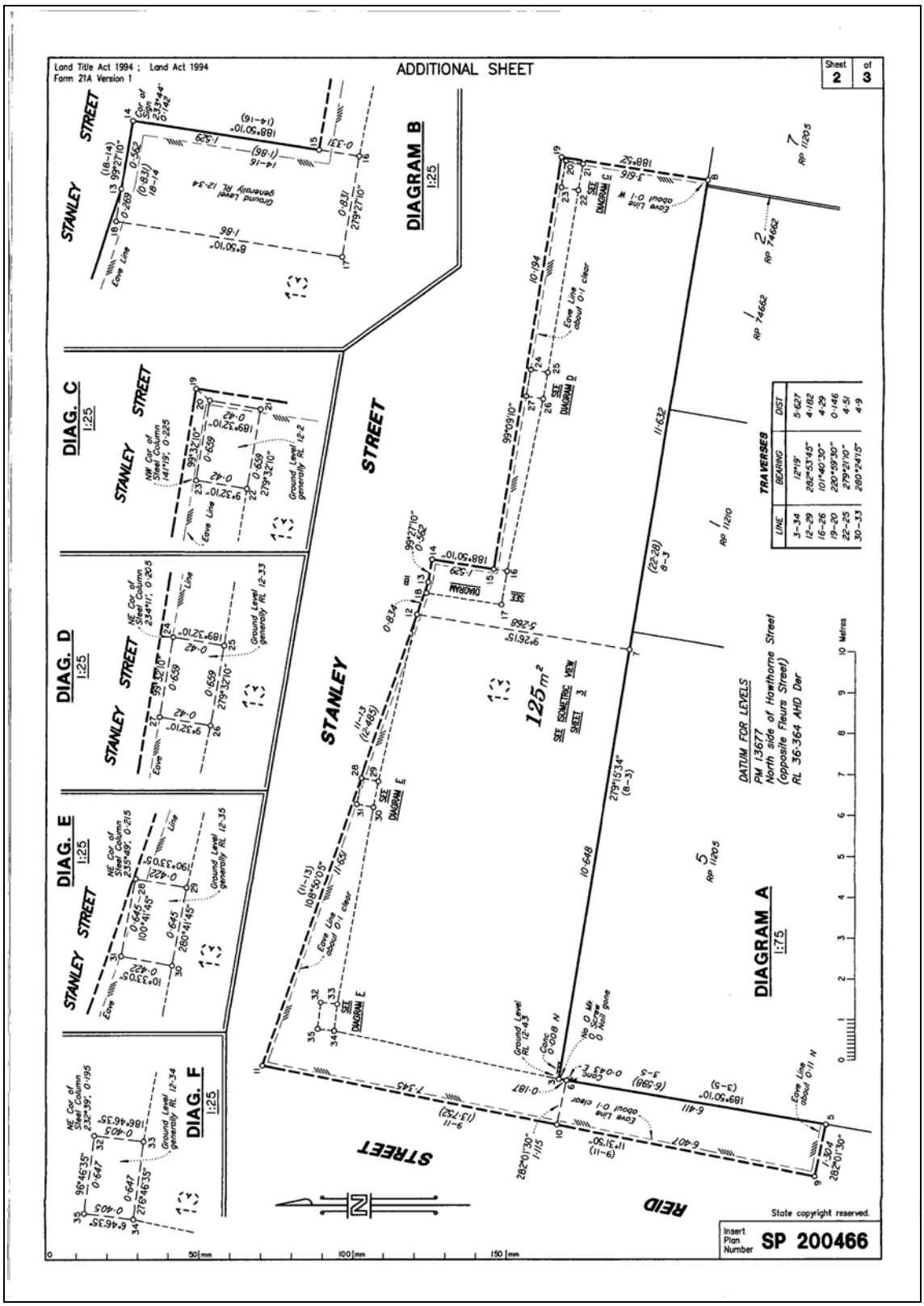
PS 421454L – Sheet 18 of 18 – Pacific Apartment Building, Melbourne (Source www.acsv.com.au)

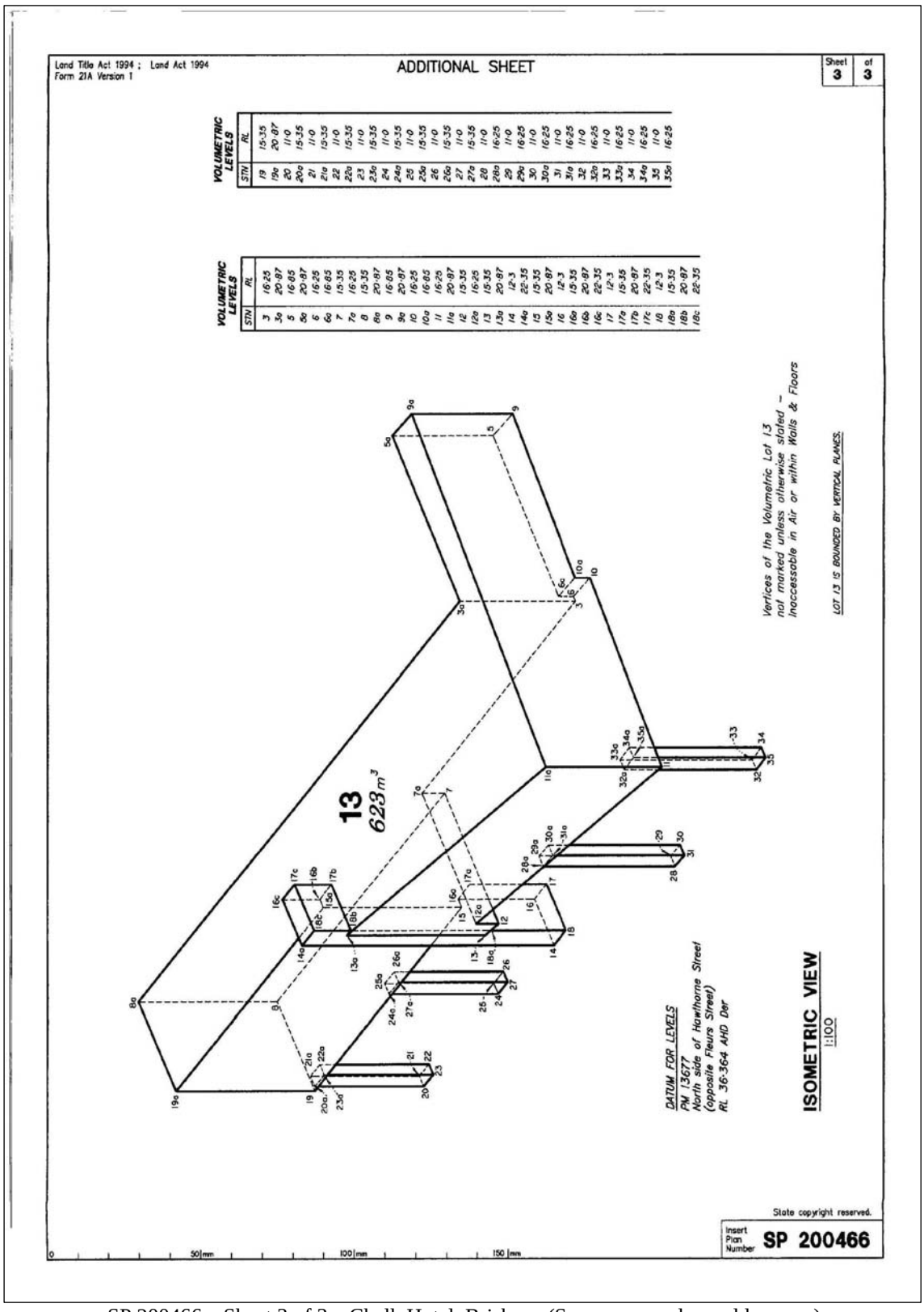
Appendix J – Case Study 3



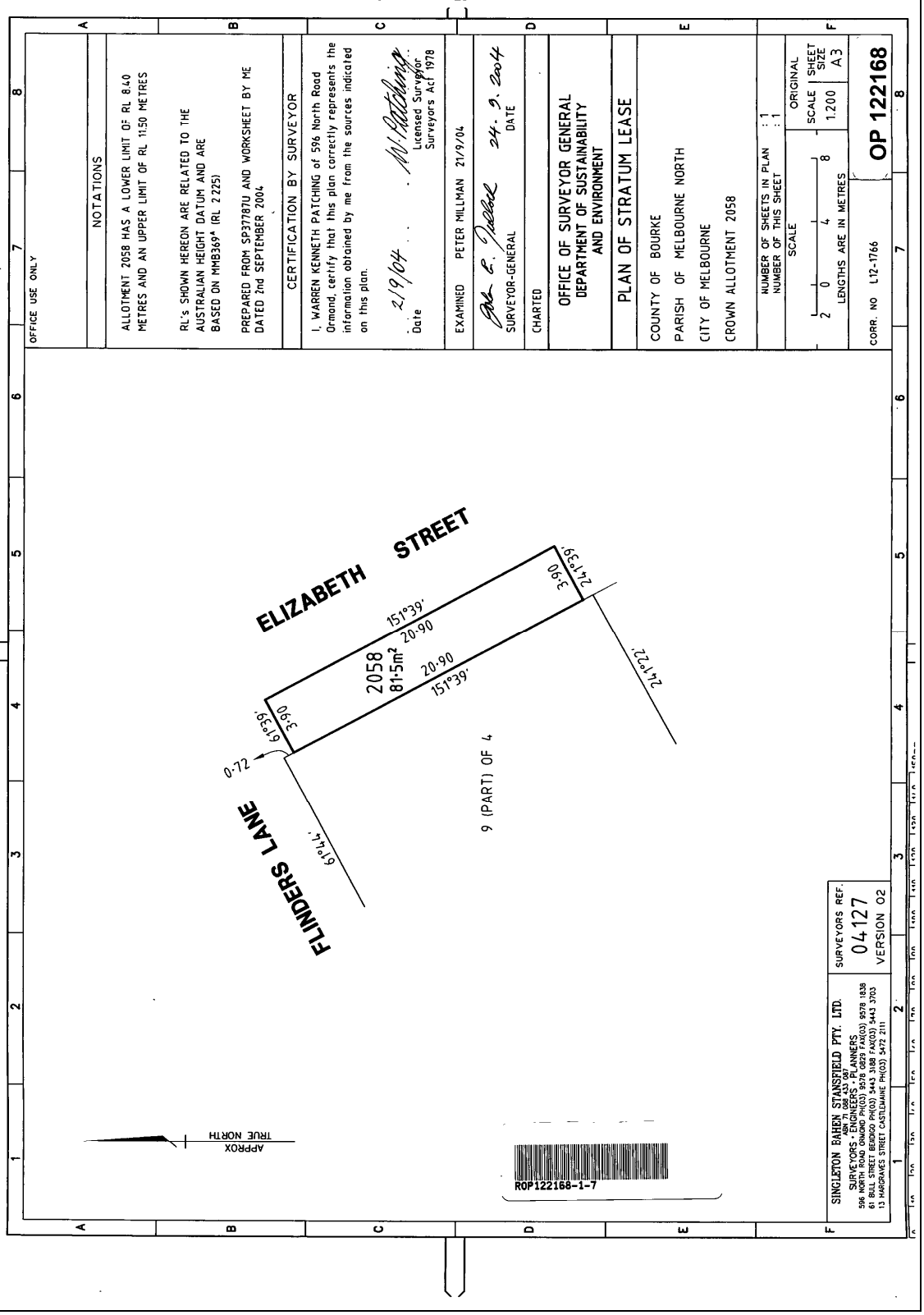
SP 200466 – Sheet 1 of 3 – Chalk Hotel, Brisbane (Source www.derm.qld.gov.au)



SP 200466 – Sheet 2 of 3 – Chalk Hotel, Brisbane (Source www.derm.qld.gov.au)

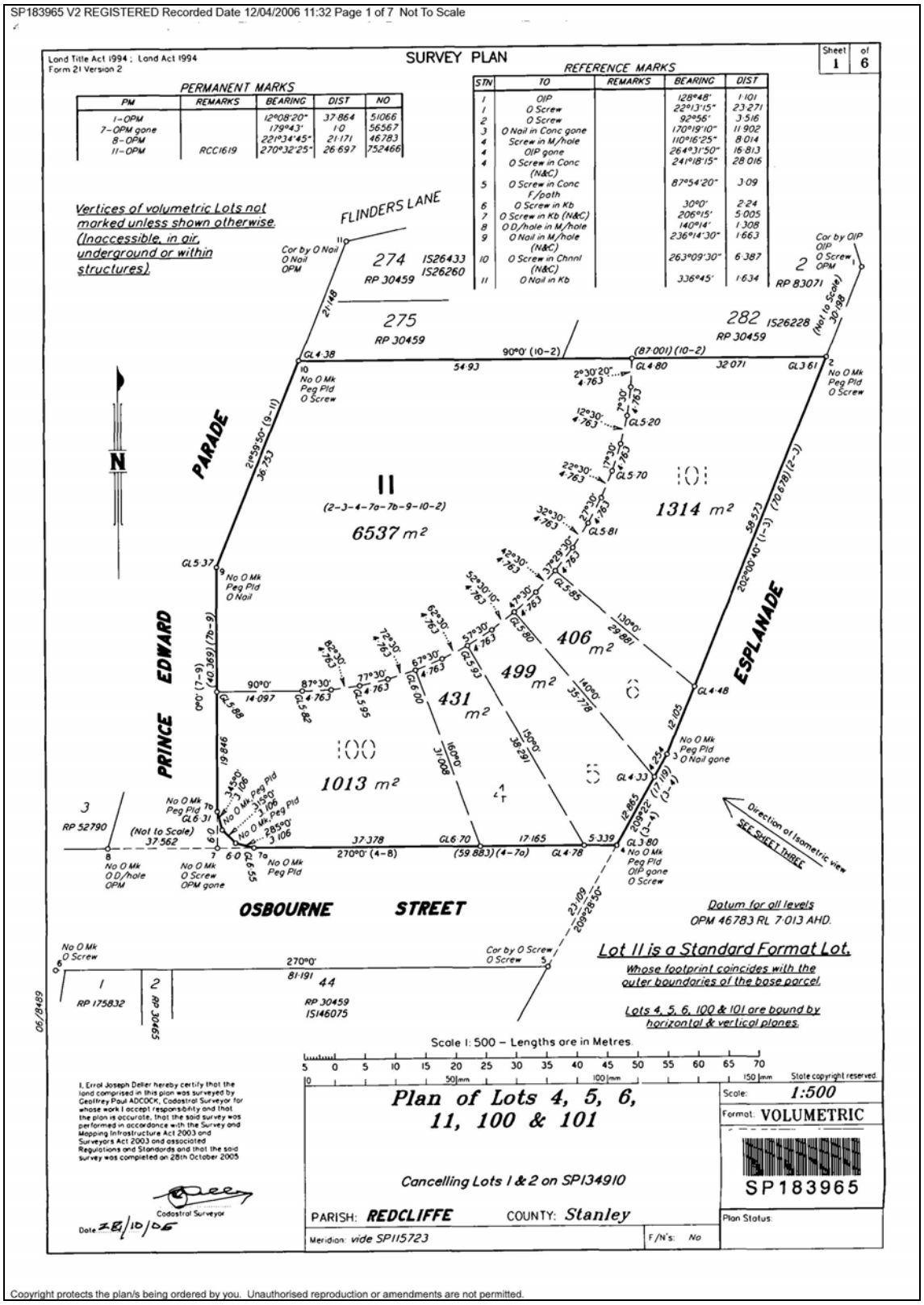


SP 200466 – Sheet 3 of 3 – Chalk Hotel, Brisbane (Source www.derm.qld.gov.au)

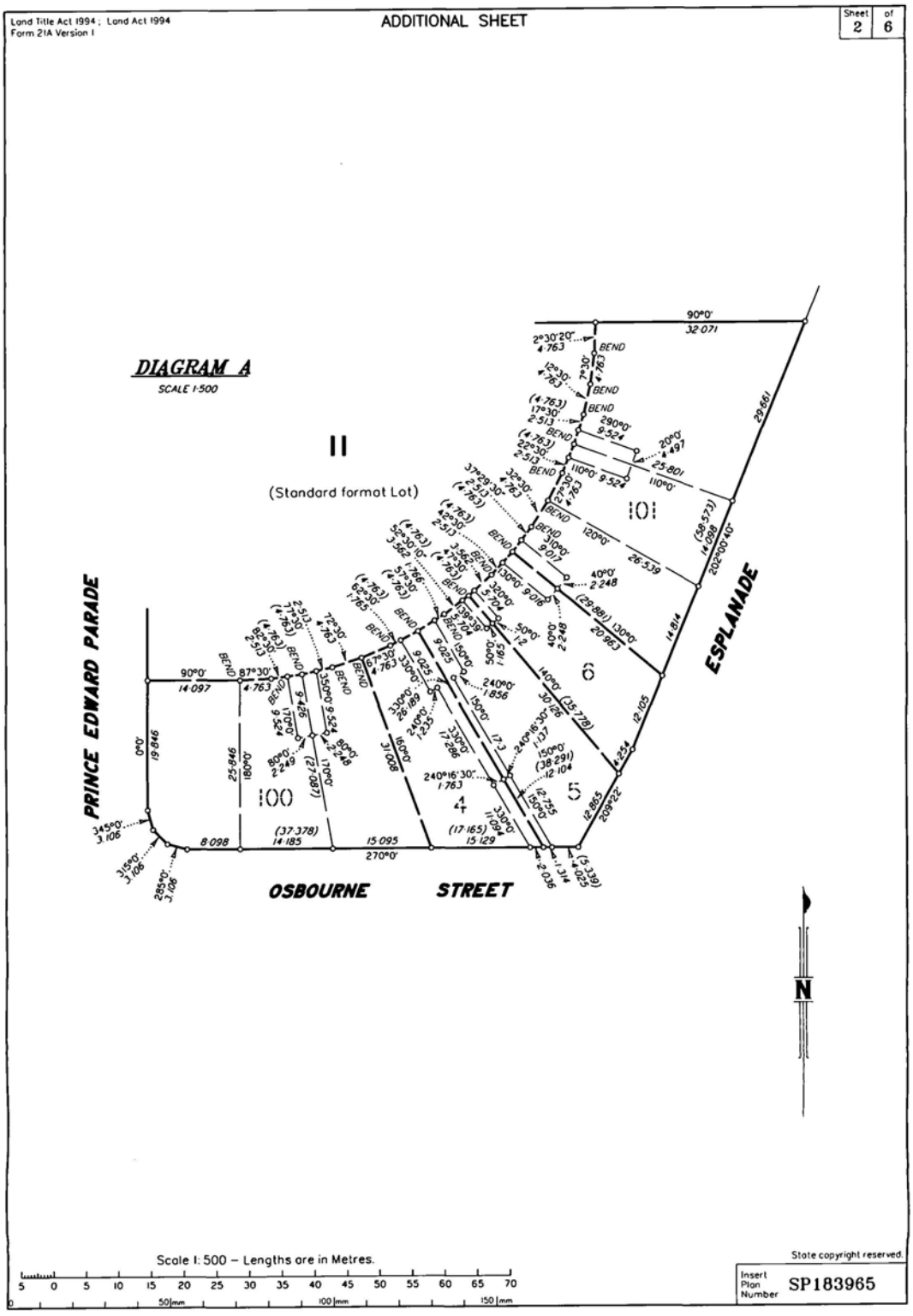


OP 122168 – Sheet 1 of 1 – Flinders Station Hotel, Melbourne (Source www.acsv.com.au)

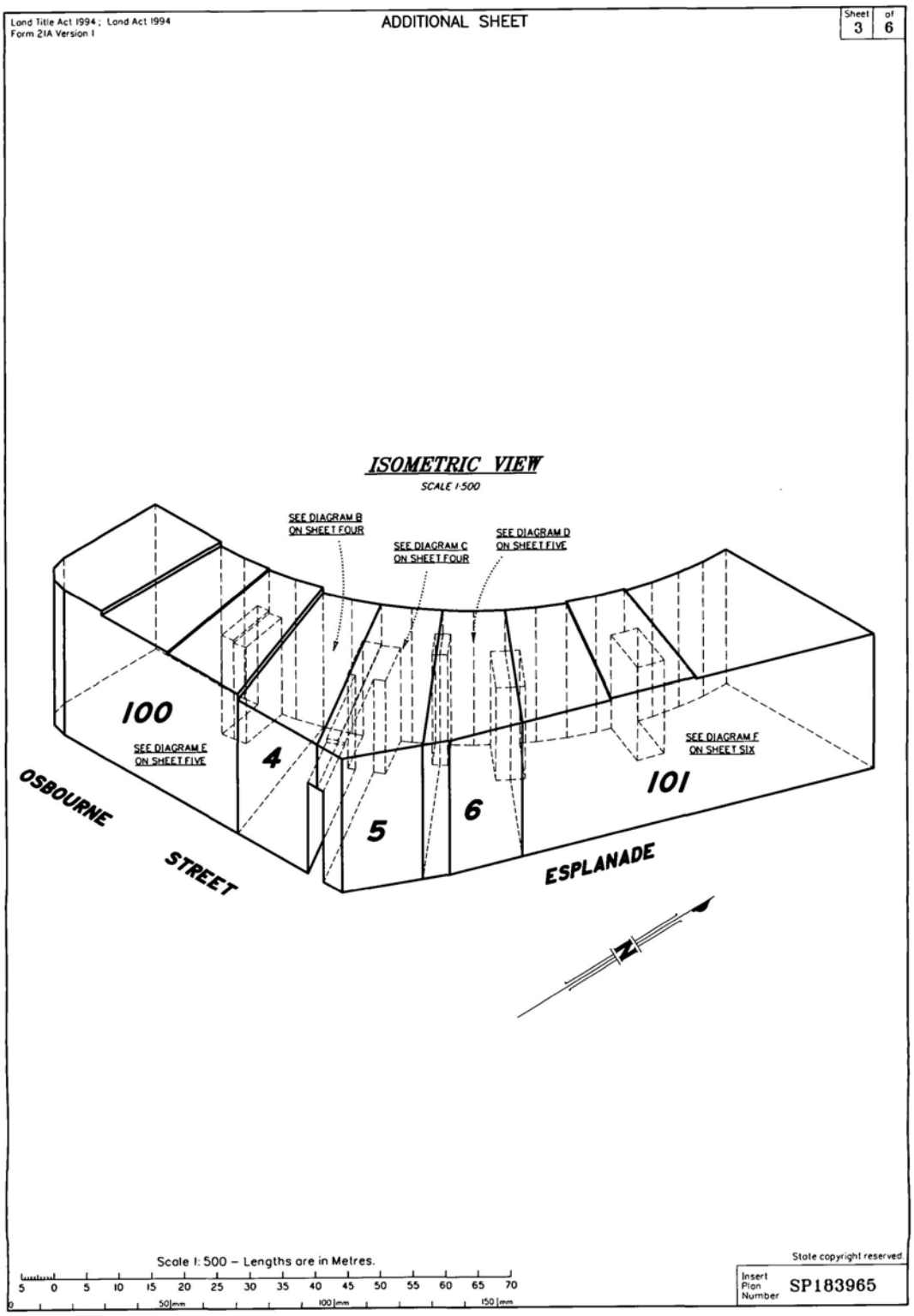
Appendix K – Case Study 4



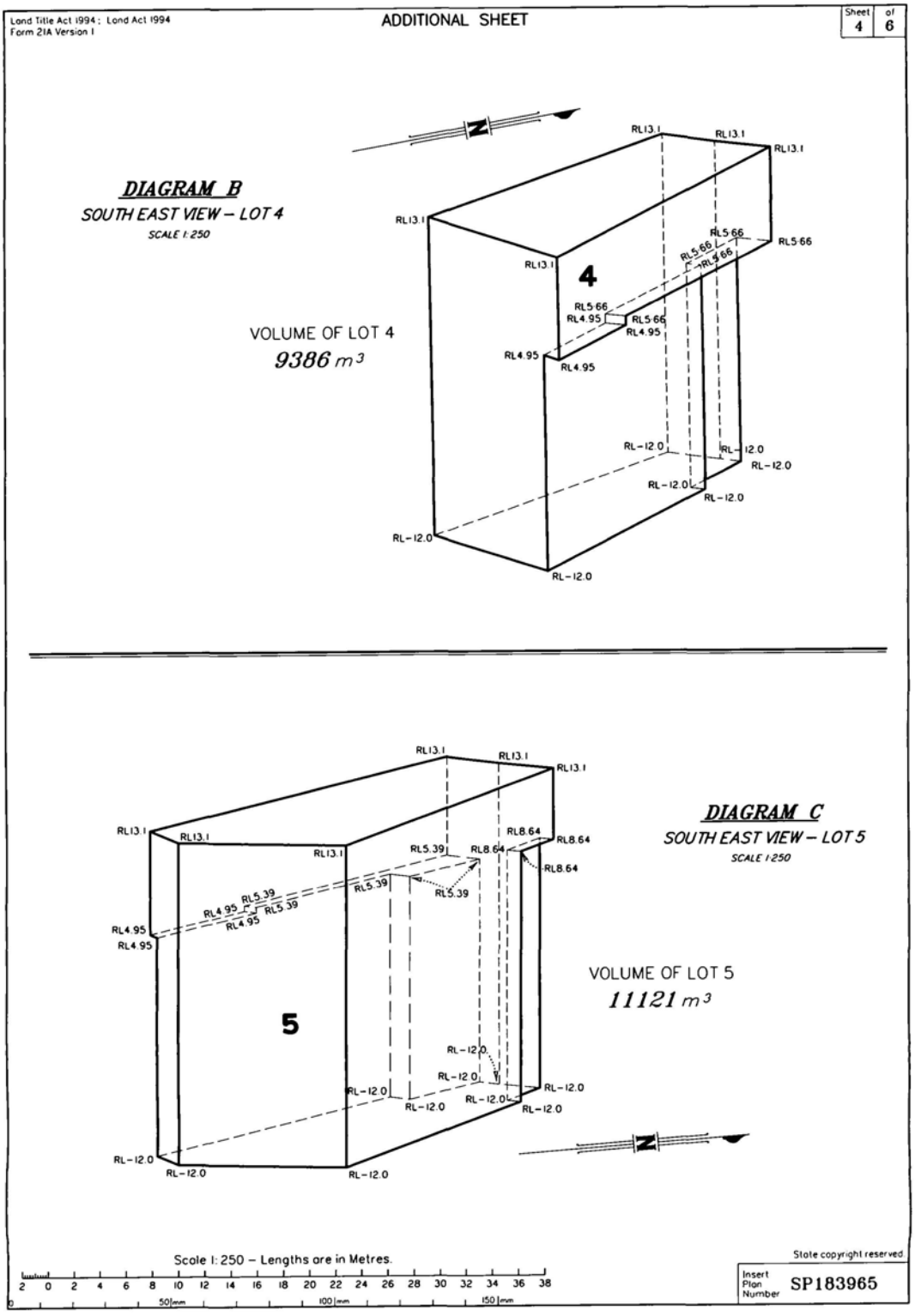
SP 183965 – Sheet 1 of 6 – Scarborough, Queensland (Source www.derm.qld.gov.au)



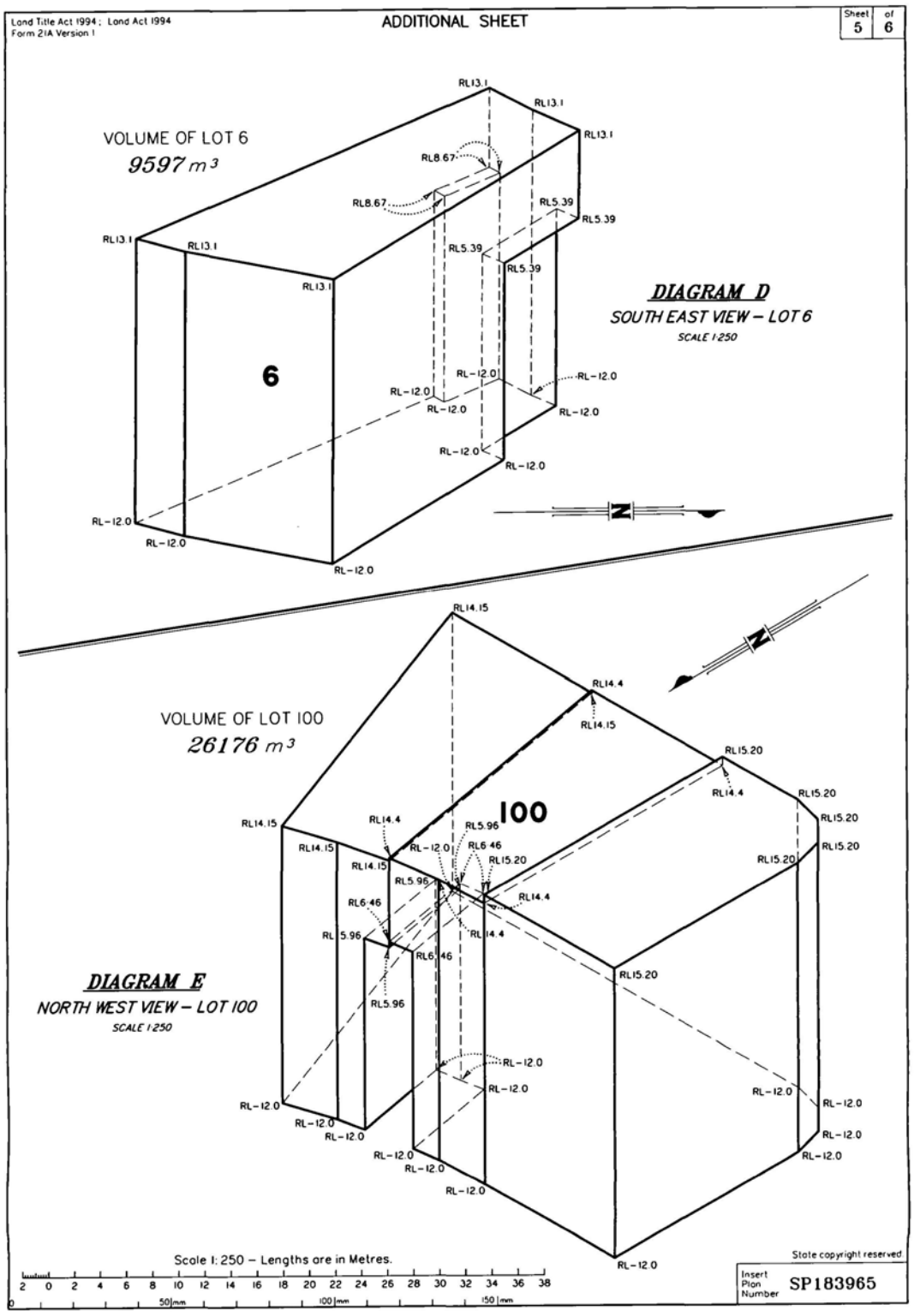
SP 183965 – Sheet 2 of 6 – Scarborough, Queensland (Source www.derm.qld.gov.au)



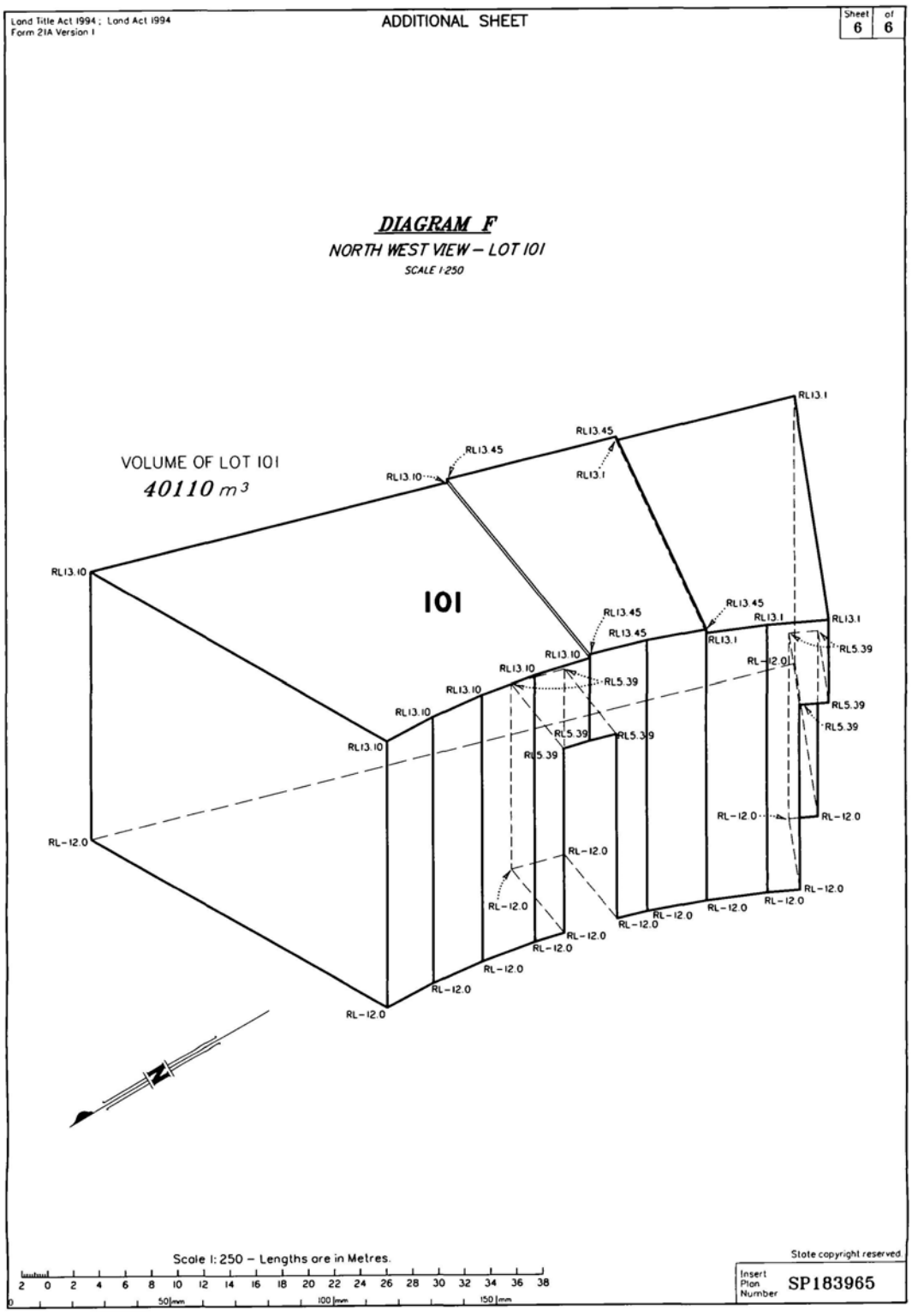
SP 183965 – Sheet 3 of 6 – Scarborough, Queensland (Source www.derm.qld.gov.au)



SP 183965 – Sheet 4 of 6 – Scarborough, Queensland (Source www.derm.qld.gov.au)



SP 183965 – Sheet 5 of 6 – Scarborough, Queensland (Source www.derm.qld.gov.au)



SP 183965 – Sheet 6 of 6 – Scarborough, Queensland (Source www.derm.qld.gov.au)

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