

Cornering the Cadastre

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ABSTRACT

In solving a jigsaw puzzle on the scale of a Local Government cadastre, it is easier to reconstruct by doing the edges (or straight bits) first. The original Crown Land Grants in Ryde occurred in two waves. The first was under the guidance of Arthur Phillip in 1792, when 149 Portion grants were allocated in Ryde (then known as Eastern Farms). These first grants formed the first cadastre, but contained no survey information other than area, and that area was drawn on the maps as a rectangle. The basic land grant was 30 acres, which is 30 chains by 10 chains (approximately 600 m x 200 m). The second Crown Land release occurred 90 years later, with the granting of 806 small Portions between 1882 and 1886. This second release abutted the limits of the first grants and is survey accurate (as proven by the author at APAS2017). The boundaries of the first grants became established through fencing occupation and by later survey, usually at the time of subsequent subdivision or Primary Application. Many of these later surveys referred to corners and boundaries of the original first grants, and somewhat surprisingly, nearly all of the streets and driftways formed in the first grants are still active as roads in today's cadastre. The aim of this paper is to try to re-instate boundaries of these long-standing roads, by reconstructing the cadastral pattern, with reference to the survey plans throughout Ryde's history, which found and connected to any original survey marks.

KEYWORDS: *Corner, cadastre, original marks, re-instate.*

1 INTRODUCTION

Some of the first land grants in the Territory of New South Wales were in Ryde, from 1792, with each land grant being duly signed by Captain General and Governor in Chief, Arthur Phillip. A total of 149 Portions were created, along the shore of the Parramatta River and heading north (Figure 1), one example being Richard Cheers' Portion 15 (Figures 2-4).

Free settlers and ex-convicts, who were "of good conduct and disposition to industry" (i.e. hard work) were entitled to a free land grant. Each single male was given 30 acres, an additional 20 acres, if married, with a further 10 acres for each child. 30 acres is a rectangle 30 chains by 10 chains (which is approximately 603 m by 201 m). However, these first maps showed no dimensions (Figure 5). The first cadastre (Figure 6) only showed portion numbers, grant areas and names of the grantees.

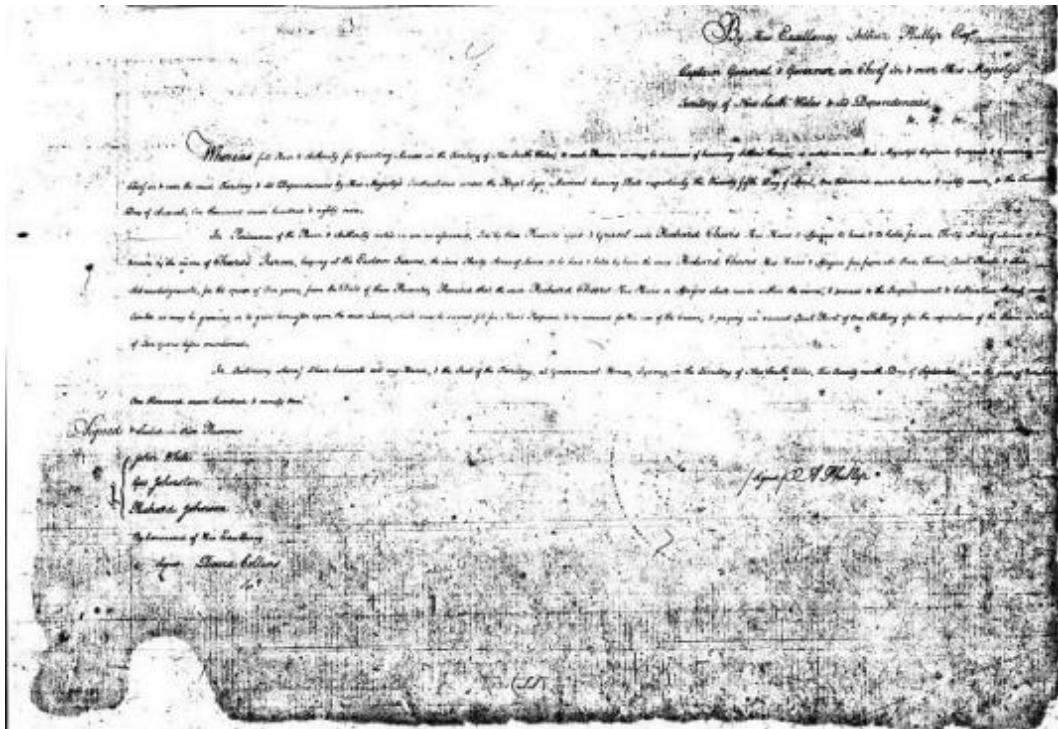
The boundaries of these grants became established through fencing occupation and by later survey, usually at a time of subdivision or primary application. The cadastre was now being determined by dimension and marking, however, modern survey accuracy was not attained until 1881-82 (Figure 7). Only then could the cadastre be considered more stable and reliable.



Figure 1: Crown Plan F145, showing the original grants.



Figure 2: Detail showing Portion 15, Richard Cheers' 30 acre grant.



“... Authority for Granting Lands in the Territory of New South Wales; to such Persons as may be desirous of becoming Settlers therein ...

In pursuance of the Power and Authority vested in me ... I do by these presents Give and Grant unto Richard Cheers His Heirs and Assigns to have and to hold for ever Thirty Acres of Land to be known by the name of Cheers's Farm, laying at the Eastern Farms, ...

in the year of Our Lord, one thousand seven hundred and ninety two.” signed A Phillip

Figure 3: Richard Cheers' 30 acre grant, dated 29 September 1792.



Figure 4: Plan 231 – First edition of Hunters Hill Parish Map.

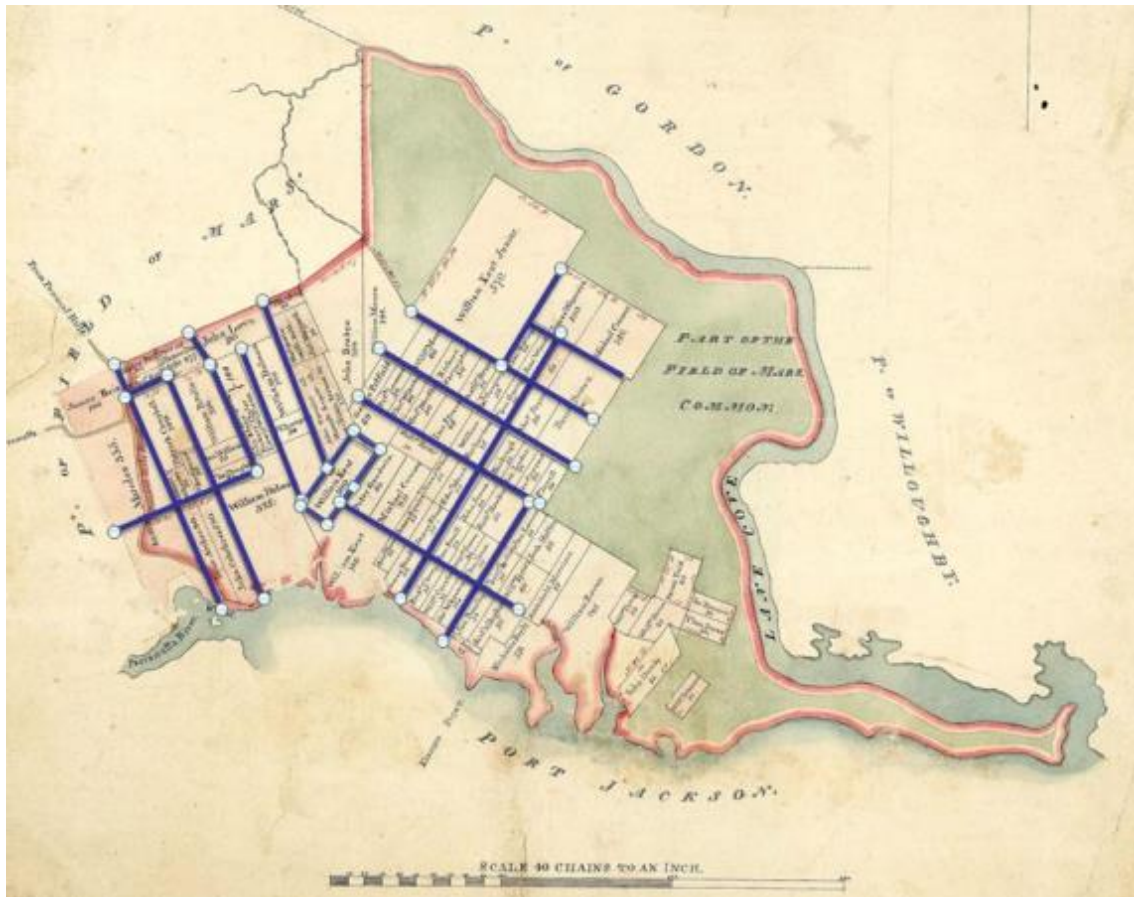


Figure 5: Ryde's original road/driftway pattern.

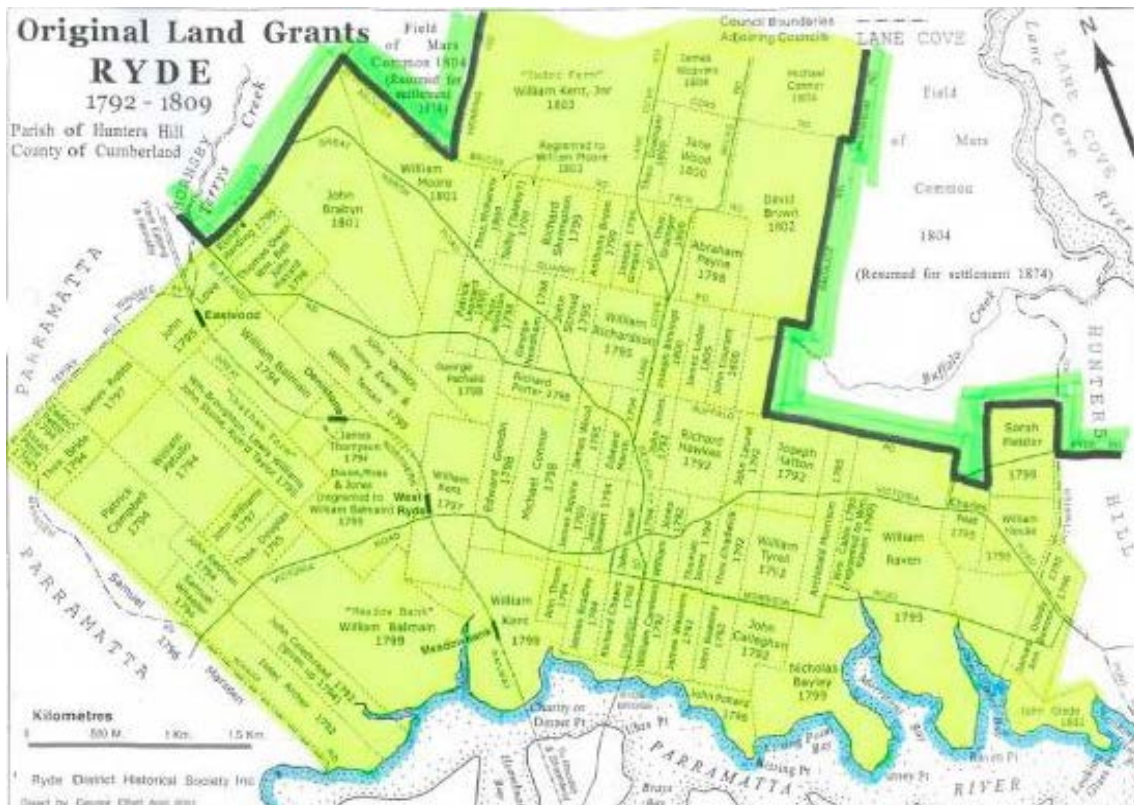


Figure 6: This map of Ryde is, effectively, its first cadastre.

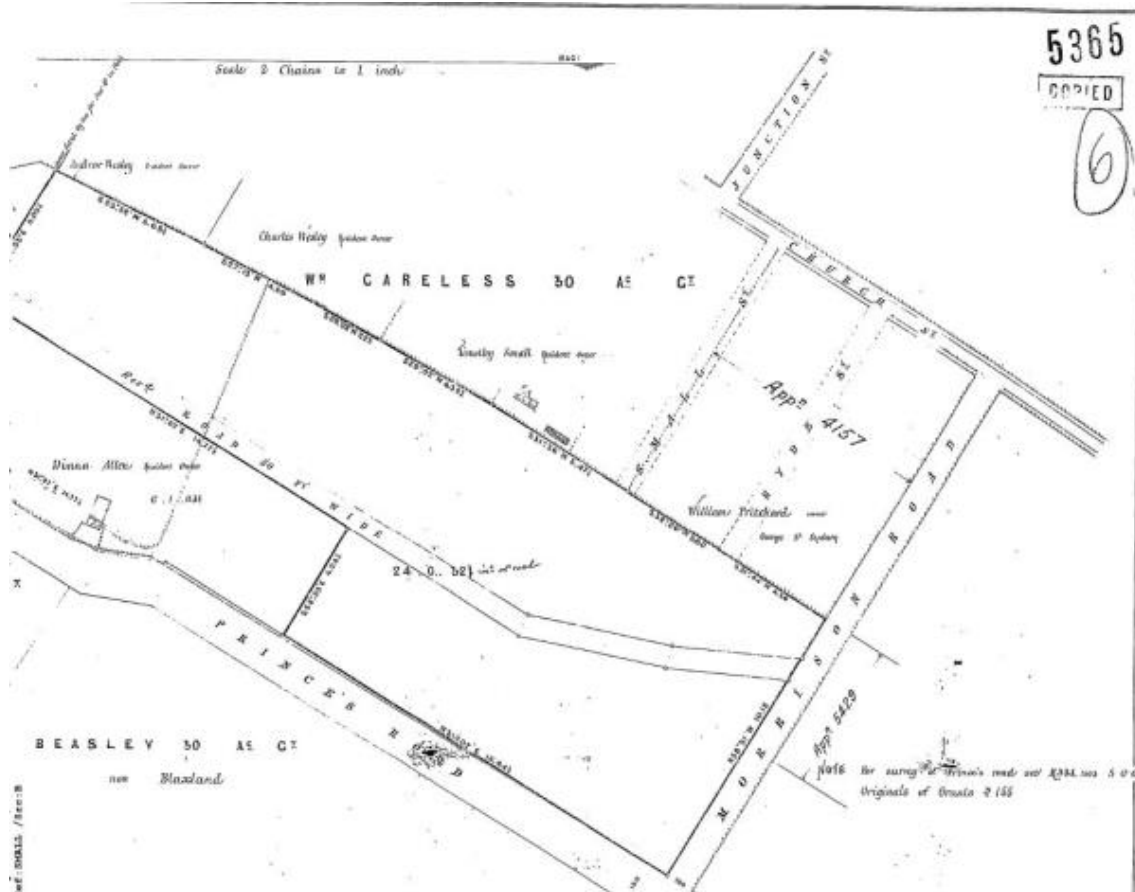


Figure 7: 1881 survey of part of James Weavers' 30 acres.

2 A MODERN CADASTRE TAKES SHAPE

At North Ryde in 1881-82, Lands Department Staff Surveyor Charles Robert Scrivener undertook a subdivision of Crown Land, being part of Field of Mars Common. This survey abutted the limits of those first Land Grants. He created 125 Portions (generally 4, 5 or 6 acres each) (Figure 8). This was the first new Crown Land release at Ryde since the original land grants, 90 years earlier. The overall area of this new release was equivalent to one tenth of the current Ryde Local Government Area.

Figure 9 shows detail of two parts of Crown Plan 386, where one is decidedly less clear and less legible, looking disconcertingly very like the First Grants plan (Figure 1). Scrivener's survey was undertaken using accurate measuring tools (theodolite and steel riband) and incorporated direct observations from an area-wide network of trigonometrical stations. This survey should form the basis of the modern cadastre in the City of Ryde. De Belin (2017) outlines how Crown Plan 386.2030 was re-stored and re-established into a condition fit to be used. Subsequent field results show Crown Plan 386.2030 is completely accurate to today's standard, and, moreover, is able to be fully replicated. Its importance to the modern cadastre is assured!



Figure 8: Crown Plan 386.2030, date of survey from September 1881 to May 1882.

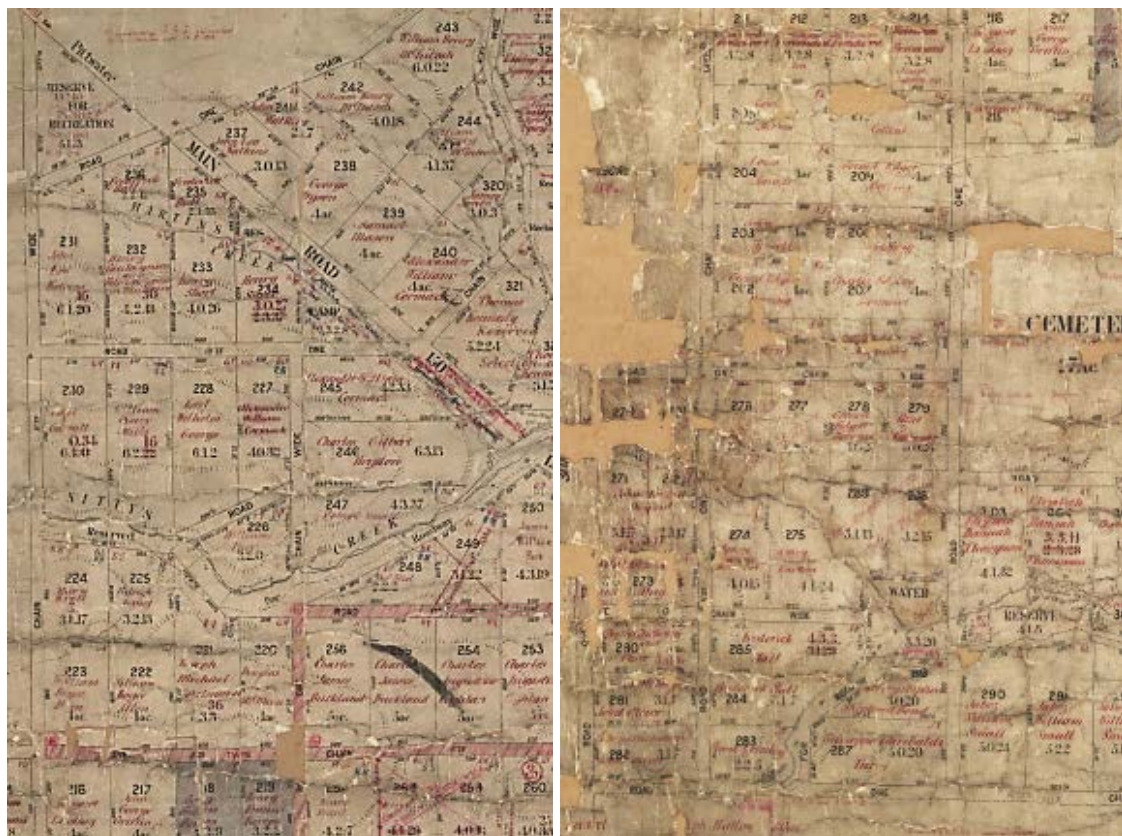


Figure 9: Detail of parts of Crown Plan 286.2030.

3 A CADASTRE GETS SET

There are now 2,243 lots descendant from the 125 Portions as surveyed by Scrivener in 1881-82, so there are many ongoing benefits in having and maintaining a sound cadastre. Crown Plan 386.2030 was the first new Crown Land release since the original grants. Crown Plan 1137.2030 (Figure 10) followed four years later in September 1886, and was part of the second new land release, extending from Marsfield to Eastwood. It was four times as extensive, creating 454 Portions.

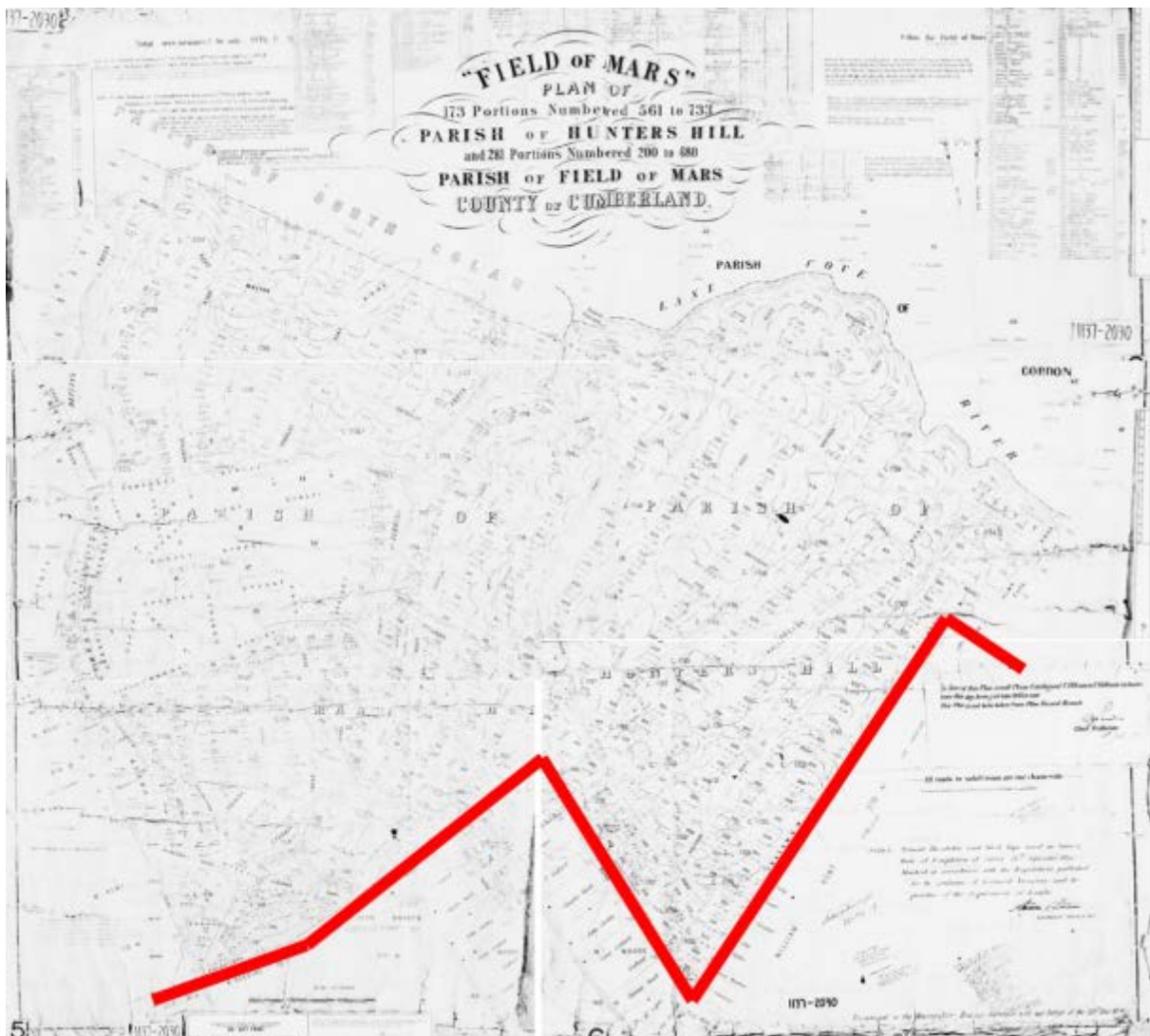


Figure 10: Crown Plan 1137.2030 of 1886, showing the limit of first grants in red.

A further crown subdivision followed in February 1887 (Figure 11), creating 227 more Portions. These two Crown plans were also in such a parlous state that within only 10 years (Figure 12), they had to be completely redrawn, this time onto smaller plans (Figure 13), showing releases of between 10 and 20 Portions each. Notwithstanding the wonderful foresight and skill of the Chief Draftsman in 1896, much survey information was not transferred to the copies, especially the type of marking.

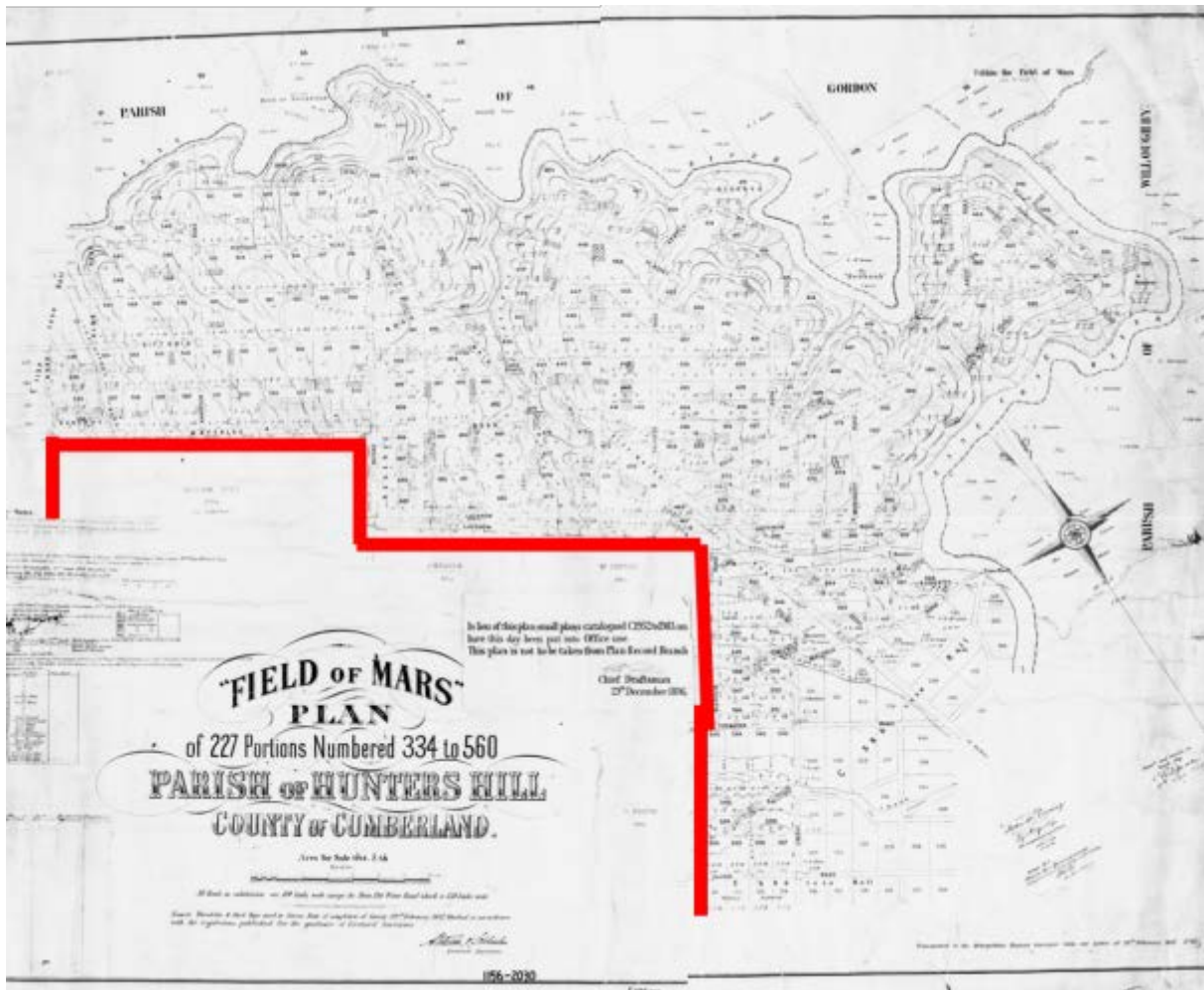


Figure 11: Crown Plan 1156.2030 of 1887, showing the limit of first grants in red.

In lieu of this plan, small plans catalogued C1952 to 1983.2030 have this day been put into Office use.
This plan is not to be taken from Plan Record Branch.



Chief Draftsman
29th December 1896.

Figure 12: Chief Draftsman's note from 1896.

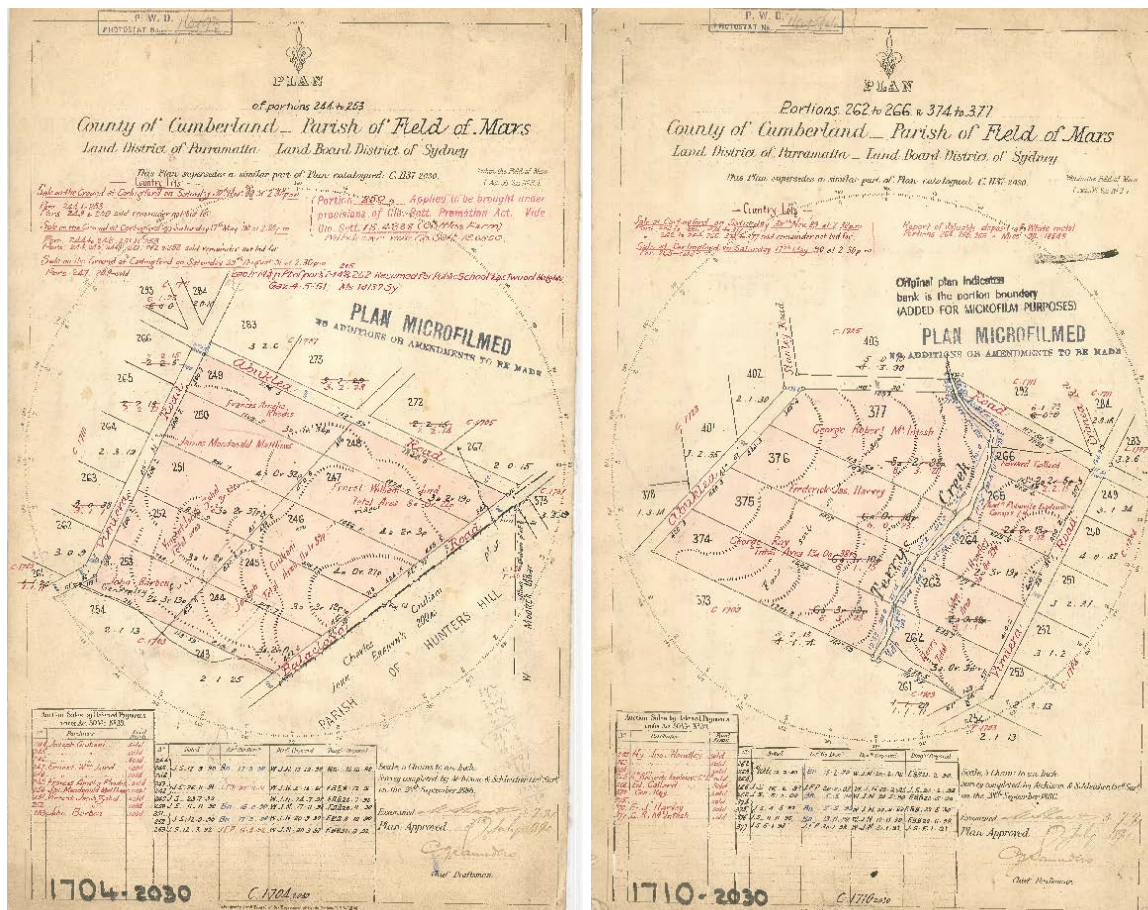


Figure 13: Redraw of part of Crown Plan 1137.2030 from 1896.

By 1887, the original land grants in Ryde were completely surrounded by the new grants. These later Crown Plans were surveyed by Atchison and Schleicher, and like Scrivener's plan, were survey accurate (Figure 14). Add to this a network of aligned streets, surveyed by Scrivener, and the framework of the modern cadastre is set... from Gladesville in the east to Eastwood in the west.

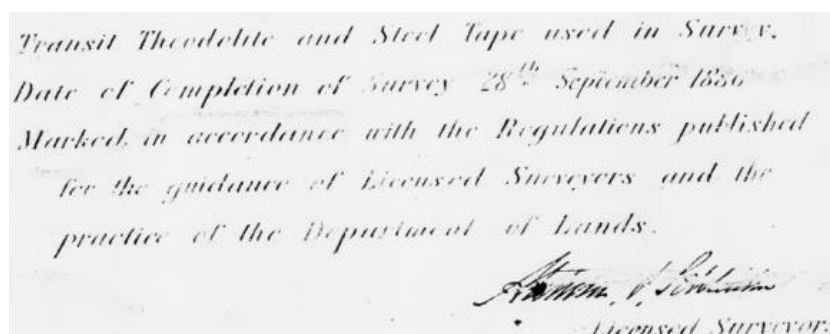


Figure 14: Surveyors' note on Crown Plan 1137.2030 from 1886 – "Transit Theodolite and Steel Tape used".

4 FINDING ORIGINAL MARKS

When reinstating boundaries, the mark hierarchy lists in order of importance: natural feature, original mark, monument and then measurement. The following examples of original marks found were all placed in the 1880s. Original broad-arrowed corner rock marks were placed by

Scrivener in Crown Plan 386.2030 (Figure 15).



Figure 15: Original corner rock marks.

Figures 16 and 17 show examples of original trigonometrical marks found in Ryde that are part of the early trig networks of the 1880s. The marks are either carving in rock or metal pins in rock. Note that the rock marks in Figure 17 do not show a broad arrow.



Figure 16: Original trigonometrical marks in Ryde.



Figure 17: Original foreshore trigonometrical marks at Bedlam Point, Gladesville.

Original dressed stone alignment posts (Figure 18) were placed by Scrivener in 1885 (de Belin, 2014). His surveys not only aligned the new streets in Crown Plan 386.2030, but also many of the roads/driftways created in the First Land Grants, plus three main roads.



Figure 18: Original stone alignment posts in North Road and Buffalo Road.

So far, a total of 82 original marks have been found: 15 corner rock marks, 8 trig station marks and 59 big stone alignment posts. Are these original marks enough to establish the basis of the modern cadastre?

5 RECONSTRUCTING THE CADASTRAL PATTERN

The position of the cadastre is locked in by original rock marks which can be easily accessed. The fact that so many of Ryde's streets were connected to the original alignment marks also means that the present cadastral pattern exactly reflects the Portions/Crown grants boundaries from 1881 to 1887. This section presents four examples to illustrate.

5.1 Rock Mark at Vimiera Road Bend

Crown Plan 1137.2030 in 1886 creates Vimiera Road containing a bend. Unfortunately, the original plan is very badly faded and indecipherable at this point. Crown Plan 1710.2030 in 1896 (re-draw), shows no mark description at the bend. DP940535 in 1920 finds the “original broad-arrowed rock mark” at the bend. DP25469 in 1946 finds an “old fence post in rock” at the bend. DP394754 in 1955 finds a “rock mark at centre of face of post” at the bend. DP408379 in 1958 finds the “original broad-arrowed rock mark” at the bend. DP210868 in 1961 finds a “rock mark” at the bend. DP217683 in 1962 finds a “drill hole and wings” at the bend.

There have been 19 plans in the 55 years since 1962. However, none of these has mentioned finding anything at the bend, relying instead on finding reference marks placed by the surveys in 1955, 1958, 1962 and later. The butt of an old square fence post (not the 70-year-old post from 1946) sits in a larger, older post hole, and the remains of the broad arrow in rock are still evident today (Figure 19), and fits with the position as re-established from all the found reference marks.



Figure 19: Remains of broad arrow rock mark at the Vimiera Road bend.

5.2 GI Pipe at Intersection of Bridge and Herring Roads

DP13850, a subdivision in 1925, found stone alignment posts in both Herring Road and Bridge Road, but left no reference marks. DP38663 in 1951 and DP36746 in 1956, both done by the same surveyor, found these same stone alignment posts in both Herring Road and Bridge Road, and placed galvanised iron (GI) pipe and concrete block reference marks. The two stone alignment posts at the intersection were removed during the construction of a high-pressure gas main shortly after 1956. However, in reconstructing the original intersection by using found reference marks, the City of Ryde survey team were able to place, in 2017, a GI pipe (under metal cover box for protection) at the original intersection.

5.3 Victoria Road Alignment Connection

DP1223761 in 2016 re-established the position of an original stone alignment post in Victoria Road by finding two concrete block reference marks, from road-widening DP337570 in 1937,

and using their shown connections (Figure 20). The comparison from this re-established point (it would have been a broad arrow cut on the dressed face) to a broad arrow found on the dressed face of another original stone alignment post is remarkable, achieving agreement to within 10 mm over a total distance of 732.12 m.

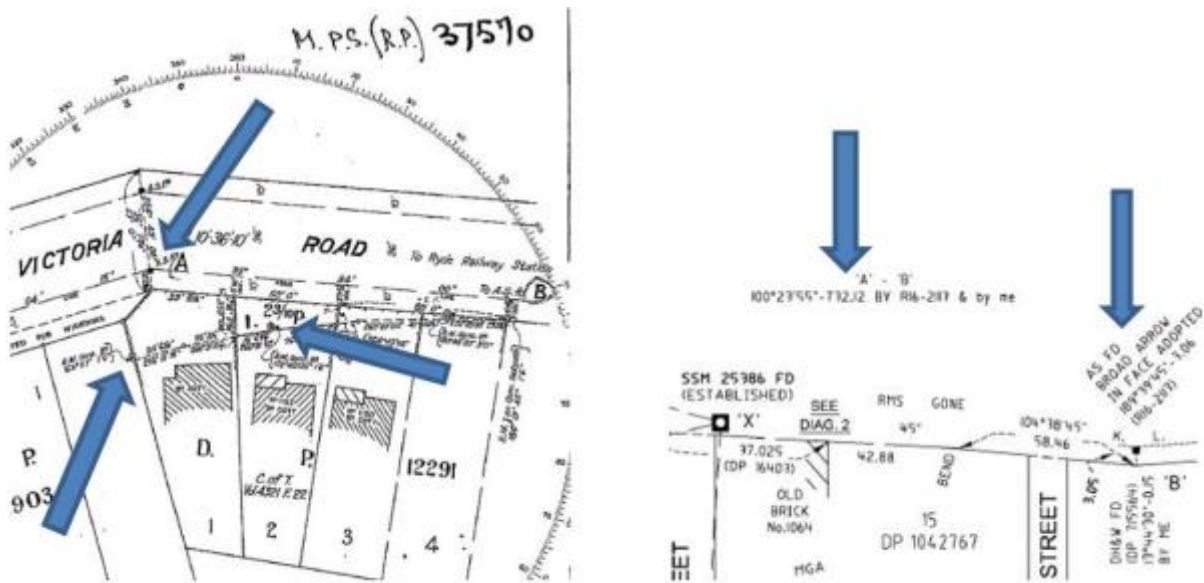


Figure 20: Detail from DP37570 in 1937 and DP1223761 in 2016.

5.4 Victoria Road Alignment Mark

Kerb renewal in Victoria Road has taken the alignment marks but the three reference GI pipes in Providence Road remain (Figure 21). Re-establishing the Victoria Road intersection is thus a straight-forward process (de Belin, 2015).

The City of Ryde survey team is currently extending investigation into the area of the first grants to reaffirm the cadastre and re-establish the street boundaries (Figure 22). Alignment marks still exist from Scrivener's work and later Roads and Maritime Services (RMS) surveys (i.e. Victoria Road widenings).

These alignment surveys effectively form an accurate control network through that area of Ryde, which covers the first grants. Many first grant corners are also shown on later, survey-accurate plans (Figure 23). Where these corners occur at street intersections, it becomes a straight-forward process to identify these first boundaries.

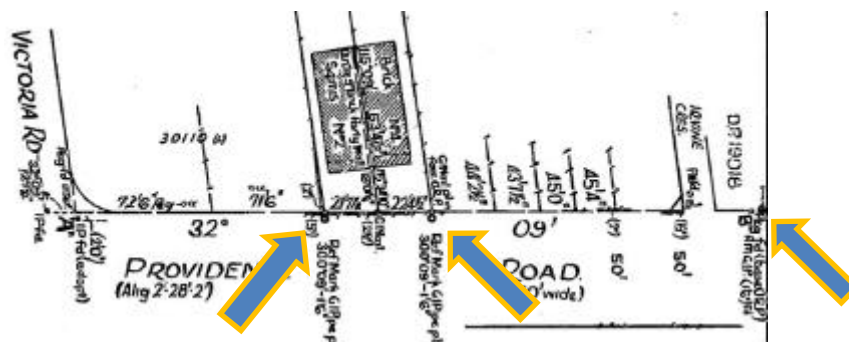


Figure 21: Detail from DP503383 in 1963, showing reference marks placed in relation to alignment marks.

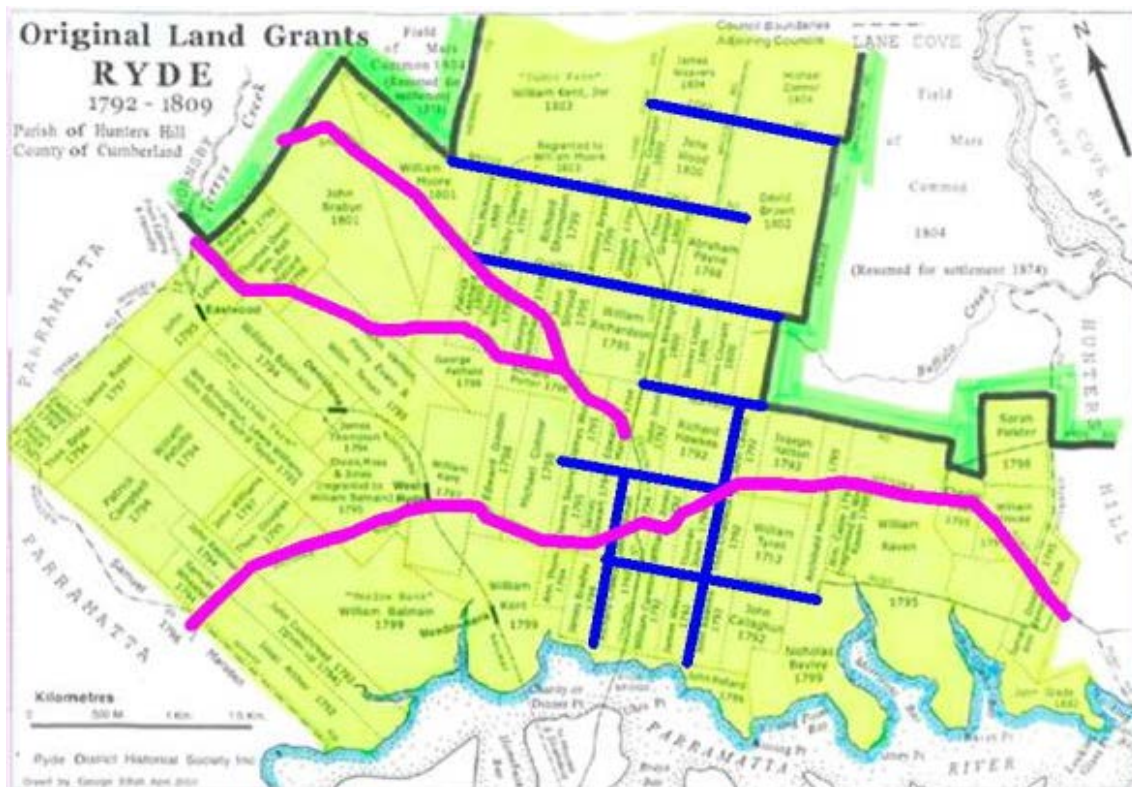


Figure 22: Alignment of original streets (blue) and later main roads (pink).



Figure 23: "Old post, SW corner Thorn's grant" from DP59986 in 1892, together with an image of the same corner in today's world.

6 CONCLUDING REMARKS

It is now possible to place the second wave of Crown Grants, which occurred during the 1880s, to almost centimetre accuracy, by finding original marks of Scrivener's work and Atchison & Schleicher's work and reinstating the boundaries between. The First Grant boundaries, although less accurate, are now becoming possible to re-instate through

investigation of the survey plan history, especially in relation to original street boundaries. Street boundaries form vital edges to large-scale areas that can then be further broken down to the present cadastre, which displays individual lots.

The importance of key boundary marks and reference marks in maintaining a sound cadastre cannot be stressed enough. One final, fine example is the reference mark (GI pipe) placed in a 1947 land subdivision by DP20789 to define a splayed corner. This reference mark has been found and relied upon over the subsequent 70 years by 12 Deposited Plans to provide definition and street fix. Surveyors have considered this point so important in defining the cadastre that, when one digs down, there are now three GI pipes in the same location (Figure 24)!



Figure 24: Three GI pipes referencing a corner, where there should be only one!

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