

**The History of Alignment Surveys in New South Wales
A Retrospective.**

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The History of Alignment Surveys in New South Wales

Preface.

This paper is part of an anthology designed specifically to provide a contemporary focus for candidates preparing for the assessment procedures conducted by the Board of Surveying and Spatial Information (BOSSI) leading to the awarding of a Certificate of Competency and accompanying registration as a Land Surveyor under the provisions of the Surveying Act, 2002.

Introduction.

In April 1788, Governor Phillip instructed his Surveyor General Augustus Alt to draft a plan for a town on the principle that extent of empire demanded grandeur of design. In Alt's plan Sydney Town was to have wide avenues (the main street was to be two hundred feet in width) and a planned expansion, but the very grandeur of the plan and the need to use available labour on the production of food and shelter caused the plan to be shelved. Macquarie, upon his arrival restored some of the original grandeur by redesigning the streets.

The first roads of Sydney were twenty (20) feet wide, being access corridors between property selections, then forty-six (46) feet wide until finally the administration settled on an established width of sixty-six (66) feet. Major-General Lachlan Macquarie (Governor of NSW 1810-1821), in characteristic style wanted the streets of Sydney to be 200 links wide. In the earliest years of the Colony however, many streets and roads came into existence without defined boundaries or known widths. The need to determine these grew more urgent as the Colony developed.

As far as the development of Sydney itself was concerned Commissioner Bigge had this to say in his third report,

"The regulations for building in the town of Sydney were promulgated by Governor Macquarie, by a public order, on the 18th August, 1810. Previous to that period very little attention had been paid to the regular progress or admeasurement of the town allotments, or even to the formation of the streets. Much improvement was rendered necessary and has taken place within the last seven years, both in the towns of Sydney and Parramatta, by regular and convenient directions. In both of these towns it has been found necessary to purchase the interests claimed by individuals in the houses that obstructed improvement, or projected beyond the regular lines of the streets; and agreements have from time to time been made with them for the surrender of their interests to government. (Bigge, 1823)

This is probably the earliest reference to a street alignment, and the rationale guiding the activity evidently had aesthetic as well as economic factors.

A public notice was published on November 4, 1824,

"The Government and General Orders respecting the width of Roads throughout the Colony having being disregarded in many instances the Lt. Governor calls the attention of the Public to them and for general information now makes it known that whenever Public Roads are marked out thirty feet will be required as well as eight feet on each side for a footpath and any persons encroaching by building or fences do so on their own responsibility."

Sydney Police Act 4 William 1V, No.7.

On 6th August 1833, the Sydney Police Act, 4 William 1V, No.7, was enacted to, *inter alia*, facilitate the removal and prevention of "nuisances and obstructions" on public ways within the town of Sydney. Under the Act, the Surveyor-General was directed to set out and mark the limits

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of the town. He was also required “to set out the breadth of the carriageways and footways in the town and cause the footways to be marked by posts at the corners and intersections of the streets or wherever the same may be necessary for defining the footways.”

Sections 48 and 49 of the Act provide the detail as follows:

XLVIII. And be it further enacted, That the Surveyor General of the said Colony for the time being, shall appoint one or more fit and proper persons as Surveyor or Surveyors of the said town, subject to the approbation of the Governor; and upon appointment of such Surveyor or Surveyors, and the place or places of holding his or their office or offices, being notified in the Government Gazette, the person or persons so to be appointed, shall be deemed to be the Surveyor or Surveyors of the said town within the meaning of this Act; and every such Surveyor, or some person on his behalf, shall attend at his office every day, Sunday, Christmas Day, and Good Friday excepted, between the hours of eleven in the forenoon and three in the afternoon.

*XLIX. As may be practicable, within three months after the passing of this Act, or in case of unavoidable delay, as soon thereafter, as can be done, the breadth of the carriage and footways in the streets and public places within the said town, **and shall cause the said footways to be marked by posts at the corners and intersections of the streets, or wherever the same may be necessary for defining the footways;** and the carriage and footways, when so set, shall be deemed to be the carriage and footways within the meaning of this Act.*
[bold print added]

This 1833 enactment heralded the beginning of an era of alignment surveys in New South Wales, which lasted for 160 years and established an important element to be considered by land surveyors when involved in the re-instatement of boundaries.

Act 5 William IV No.20

A further Act 5 William IV No.20 to prevent encroachments onto public ways and regulate the alignment of streets in the town of Sydney came into force on 28th October 1834. Section 2 of this Act provided that before the Surveyor- General set out a footway in any street or public place in the town he should present to the Governor a plan showing the breadth of the carriageways and footways; the Governor was then to publish a notice in the Gazette “to fix and declare the distance from the curb-stone or exterior edge of the footway in any such street or public place within which it was not lawful to erect a building provided that the distance should in no case exceed 12 feet (3.66m) unless with the consent of the owner of the soil.”

This Act, *inter alia*, restricted the footway width to 12 feet except with the consent of the adjoining landholder.

Act 6 William IV No.9

Act 5 William IV No.20 was amended by Act 6 William IV No.9 on October 9, 1835 to provide that *the measurement of the breadth of the footways in the said town of Sydney...shall in all cases be taken and measured from the kerbstone or exterior edge of the footways as laid down by the town Surveyor, under the provision of the Act, without reference being in any manner had to breadth of the carriageway mentioned in the Government notice or in any other notice whatever.*

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The 1835 Act thus made it quite clear that, irrespective of the kerb-to-kerb measurement as compared to the proclaimed carriageway width, the alignment should be fixed by measuring from the kerb defining the footways.

Act 5 William IV No 20 and Act 6 William IV No 9 were repealed by the Sydney Corporation Act of 1879, which was later repealed and consolidated by the Sydney Corporation Act, 1902.

The Towns Police Act 2 Vic. No.2

The Towns Police Act, 2 Vic. No. 2 was introduced on August 10, 1838 “for removing and preventing nuisances and obstructions and for the better alignment of streets in the towns of Parramatta, Windsor, Maitland, Bathurst and such other towns (including the suburbs of Sydney) as might be proclaimed by Gazette notice”. Sections 4, 43, 45 and 46 of Act 2 Vic. No.2 applied to the towns outside of Sydney the same provisions as those operating in the town of Sydney by virtue of Act 4 Wm. 1V No.7 and Act 5 Wm. 1V No. 20. Section 43 required the Surveyor-General to set out and mark the limits of the aforesaid towns, while Sections 45 to 48 inclusive, dealt with the detail of alignment as follows:

45. And be it further enacted That the said Surveyor General or any person or persons deputed by him shall set out as far as may be practicable within twelve months after the passing of this Act or in the case of unavoidable delay as soon thereafter as can be done the breadth of the carriage and foot-ways in the streets and public places within each of the said towns respectively and shall cause the said foot-ways to be marked by posts at the corners and intersections of the streets or wherever the same may be necessary for defining the foot-ways and the carriage and foot-ways when so set out shall be deemed to be the carriage and foot-ways within the meaning of this Act and the said foot-ways shall in all cases be taken and measured from the curb-stone or exterior edge thereof as laid down by the said Surveyor General or any person or persons deputed by him without reference being in any manner had to the breadth of the carriage-way adjoining thereto or any parts or part thereof whether such carriage-way may or may not in any part exceed the breadth of the carriage-way mentioned in a notice to be published in the New South Wales Government Gazette.

46. And be it further enacted, That before the said Surveyor General or any person deputed by him aforesaid shall set out the foot-way in any street or part of a street or public place in any of the said towns after the passing of this Act he shall lay before the Governor and Executive Council a plan of the same setting forth the proposed breadth of the carriage and foot-ways and thereupon it shall and may be lawful for the said Governor and Council by notice in the New South Wales Government Gazette to fix and declare the distance from the curb-stone or exterior edge of the said foot-way in any such street or part of a street or public place within which it shall not be lawful to erect any building Provided that such distance shall in no case exceed twelve feet unless with the consent of the proprietor of the soil.

*47. Provided always and be it further enacted That the curb-stone or exterior edge of the said foot-ways shall in no case be placed or formed upon land not hitherto forming part of the street or foot-way unless with the consent of the proprietor of such land or under and by virtue of the provisions of an Act of the said Governor and Council passed in the fourth year of the reign of His late Majesty King William the Fourth intituled “**An Act for altering and improving the “Roads throughout the Colony of New South Wales and for opening “and improving the Streets in the Towns thereof”**” and provided also that all land which shall have been at the time of the publication of the general objects of this Act in the New South Wales*

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Government Gazette or shall hereafter be left open and used as a carriage or foot-way within any of the said towns at the public expense shall be deemed and taken to be dedicated to the public and shall not be fenced in or reserved on any pretence whatsoever but shall be subject to all such and the like regulations orders powers authorities and provisions to which land used as a public thoroughfare now is or hereafter shall be subject by law Provided always That it shall and may be lawful for the Governor of the said Colony with the advice of the Executive Council thereof by any writing under his hand countersigned by the Clerk of the said Council to permit and suffer at the discretion of the said Governor and Council the owner or possessor of any land adjoining to any foot-way within any of the said towns which has heretofore left open and used as carriage or foot-way to resume the possession of so much of the said land as shall exceed the distance of twelve feet from the outer curb-stone or exterior edge of the footways within the said towns as at present or hereafter to be laid down by the said Surveyor General or any person deputed by him as to and under and upon such conditions regulations and restrictions as shall be directed by the said Governor and Executive Council respecting the same.

48. And be it further enacted That as soon as the foot-way of any street part of a street or public place of any of the said towns shall be fixed and declared by the Governor and Executive Council as hereinbefore mentioned no house shop or other building shall be erected nor allowed to project or encroach in any part within the distance from the curb-stone or exterior edge of the said foot-way fixed and declared as aforesaid nor shall any house shop or other building which is now erected within the distance to be fixed and declared as aforesaid from the curb-stone or exterior edge of the said foot-way be rebuilt in the whole or in any part nor shall any addition or alteration be made to the same except in conformity with the provisions hereof and any person who shall erect or rebuild any such house shop or other building in whole or in any part or make any addition or alteration to the same except according to the provisions hereof shall forfeit and pay for every such offence the sum of twenty pounds and if the said house shop or other building or any addition or projection shall not be removed or abated within one month after notice shall be served to that effect by the Police Magistrate on the proprietor or occupier thereof or left at his or her usual place of abode the further sum of one pound for every day the same shall remain contrary to the provisions of this Act and it shall be lawful for two or more Justices of the Peace the said Police Magistrate being one of them to grant a warrant to cause the said house shop or other buildings and all additions or alterations thereto so far as the same may be contrary to the provisions of this Act to be taken down and the materials thereof to be sold and thereout to pay the charges of taking down the same and the surplus if any shall be paid to the owner of such materials.

[bold print added]

The Country Towns Alignment Act 19 Vic. No. 10

This Act amended Act 2 Vic. No. 2 on September 7, 1855 and the provisions contained therein empowered the Surveyor- General or any Magistrate or municipal officer under the authority of the Governor to set out and mark streets in designed towns so as to give a width of 12.8 m (42 feet) for the carriageway and 3.66 m (12 feet) for each footway.

The Municipalities Act, 31 Vic., No. 12.

The introduction of this Act on the 23rd December 1867 vested in Municipal Councils the exclusive right to carry out alignments, **conferring upon them in respect to alignments those powers that formerly vested in the Surveyor-General.**

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The Municipalities constituted under this Act were divided into two classes designated respectively "Boroughs" and "Municipal Districts".

Extract from *The Surveyor* July 1894.

Lucas v. Borough of Drummoyne was an action bought by Mr. J. H. Lucas, a licensed surveyor in practice in Sydney, and formerly a staff surveyor in the Department of Lands on June 21 to 29, 1894, to recover a sum of money from the Borough of Drummoyne alleged to be due on a survey for the alignment of the streets in the borough. Full details of this case were published in *The Surveyor* Vol. VII. No.7 on July 9, 1894 - Pages 155 & 156.

With the assistance of an opinion of the Honorable the Attorney-General Edmund Barton, the presiding judge laid down three points of general interest to surveyors of the day.

- (1) *Marking of the positions of the footways by means of alignment posts should follow and not precede the confirmation by the Executive Council and also that the Government is in no way responsible for that marking.*
- (2) *The alignment of streets was a matter with which the Surveyor-General had nothing whatever to do*
- (3) *The action to be taken by Government was merely to declare the widths of the carriage and footways.*

From December 1867, until the passing of the Public Roads Act of 1897 all alignments surveys (excluding Sydney's metropolitan area) were carried out under the provisions of the Towns Police Act, 2 Vic.2 No.2, the Country Towns Alignment, 19 Vic No 10 and the Municipalities Act, 1867 - 31 Vic No12. (Acts 5 Wm. IV No.20 and 6 Wm IV No.9 were repealed by the Sydney Corporation Act, 1879.)

With the commencement of the Public Roads Act 1897, a municipal council could apply to the Minister *to cause a carriageway and footway in any street or public place to be surveyed, set out and defined, and to cause a plan thereof to be prepared, and to submit it to the Governor for approval.*

It would appear that prior to 1864 any marking regime relied upon the Sydney Police Act 4 William IV No 7 and the Towns Police Act 2 Vic, No 2. Both pieces of legislation stated in part, *to be marked by posts at the corners and intersections of the streets or wherever the same may be necessary for defining the footways.* In the Surveyor-General's regulations issued in 1864 the first prescriptive measure for the marking of alignments appeared outside of the aforementioned legislation.

Surveyor General's Department

Regulations for Employment of Licensed Surveyors 1864

The Regulations for the Guidance of Licensed Surveyors connected with the Survey Department of New South Wales dated 9th May 1864, provided *inter alia*, as follows,

In making the first surveys in any new town, in addition to the above marking which will obviously disappear with the occupation of the allotments, sound blocks of wood 2 feet in length and 6 inches square or in diameter, are to be sunk in the ground, 3 inches below the surface, in the kerb line (12 feet from the building line) of a principal street of the town, and at a distance of not less than 10 chains apart, and so placed that blunt points to which they may be cut, or large nails may be driven into them, will be precisely in the kerb lines of that street, and off two

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intersecting streets. These marks are intended to form a basis with which future surveys in the town may be connected.

The requirement to place alignment blocks, was repeated in the regulations issued in 1872 but thereafter did not appear again.

Sydney Corporation Act, 1879

The Sydney Corporation Act, 1879, which applied exclusively to the City of Sydney, repealed Act 5 William No.20 and Act 6 William IV No.9. Section 88 of the new Act provided that *before the footpath in any new public way in the City is laid down, the City Surveyor shall submit to the Council a plan setting forth the proposed breadth of the carriageway and footpath and thereupon the Council may, by notice in the Gazette and one or more daily papers published in Sydney, fix and declare the distance from the kerbstone or exterior edge of the footpath in the public way within which it shall not be lawful to erect any building, so that such distance shall not in any case exceed 12 feet, unless with the consent in writing of the owner of the premises and a line drawn at such distance shall, for all purposes, be the building line of the way.*

This was “bench mark” legislation. Importantly, this Act provided inter alia, that ***in any proceeding at law or in equity touching any building line in Sydney, it shall be held conclusively that every kerbstone laid down before (1879) was lawfully laid down.*** This provision continued through to the Act of 1932.

The definition of “**Building-line**” in this particular legislation is A line inside of and in all its parts corresponding with the outer line of the curbing as now or hereafter lawfully defined and at the authorized distance there-from as shown upon the plan approved by the Council of any street such building-line being so measured irrespective of the width of the carriage-way.

Extract from *The Surveyor* 1895

Hall's critical paper, “The Survey System of New South Wales” read before the Institution of Surveyors, New South Wales and published in *The Surveyor* 1895, Vol. 3 No. 9, caustically described alignment surveys

A few words on street alignment surveys and their cost. The accuracy of these surveys within themselves is assured, so the marking and cost will be a sufficient note. In most of the suburbs and towns eight alignment posts about four feet high are observable at the intersections of each two streets; they are there to define building and kerb lines and to form the basis of surveys necessary within their limits. They cost about nine shillings per post erected, and as they are too high to set a theodolite over and awkwardly placed, being in line with verandah and telegraph posts, it is no wonder they don't receive much praise from surveyors. A section of the Towns Police Act necessitates them, but by a very slight modification of the clause they might be dispensed with, and a substitute, in the form of one stone sunk level with surface of road, might take their place, fulfill all requirements, and save about 3 pound at every intersection.

Mr. Hall's expressed views and his comments regarding the resentment of surveyors generally towards four foot high alignment posts may well have been the reason which prompted the Department of Land's acceptance of “**other forms of permanent marking for alignment surveys**” in the Regulations which followed in 1901.

Mr. Hall provides an important clue as to dimension of alignment posts, the regulations themselves being silent in this regard. Coupled with scaled dimensions from Mr. Richmond's diagram referred to at the end of this paper, it is reasonable to say that alignment posts were generally 10 to 12 inches square and 6 feet long, inserted 2 feet into the ground.

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By the end of the 19th Century, practically every street of importance in the cities and major towns and suburbs in New South Wales had been aligned. The position of the kerb lines, although evidenced by marked stones, posts or pins, was later firmly established by the construction of sandstone kerbs, many of which are still in evidence today.

Department of Lands

Regulations for the Employment of Licensed Surveyors 1901

The Regulations for the Employment of Licensed Surveyors issued by the Department of Lands in 1901 is identified as the first major attempt to impose prescriptive measures to the performance and marking of surveys for alignment of streets under the Towns Police Act 2 Victoria No.2.

Appendix F

Instructions for Alignment of Streets.

Preliminary Power to align streets

1. *Under the Municipalities Act, No.23 A.D. 1897, a Municipal Council shall exercise certain powers conferred upon Police Magistrates and the Surveyor General under the Towns Police Act, 2 Victoria No.2, which include the setting out and defining of carriage-ways and footways in streets and public places, commonly known as alignment.*

Survey carried out by Lands Department

2. *Alignment of streets is effected by the Lands Department on behalf of a Municipal Council by procedure under Public Roads Act of 1897.*

Widths of carriage and footways

3. *As to widths of carriage and foot ways: in a street 66 feet broad the usual division is 42 feet for carriage-way, with a footway of 12 feet on each side. These widths may be increased or decreased according to the breadth of the street and the requirements of the Municipal Council. It occasionally happens that the sides of a street cannot be made parallel, when an adjustment of the footways generally ensues.*

Particulars of grants and original subdivisions, &c, to be collected

4. *Inquiry should be made to ascertain whether the street proposed for alignment has been dedicated to the public; and, in any case in which that has not been done, the omission should be subject of report. Information, as complete as possible, should be collected respecting holdings abutting on the streets about to be aligned. Plans of original surveys and subsequent subdivisions should be inspected, and the descriptions in grants and deeds of conveyance of the lands affected should be perused, in order to ascertain how the street was originally intended to be laid out, although, as pointed out herein (para.11), where the survey, as originally defined, does not accord with the documentary evidence, by metes and bearings, due weight must be bestowed to the limits defined by occupation under the original survey.*

SURVEY

Preliminary traverse

5. *By transverse measurement of the street between buildings or between fences, and measurement along frontages, &c., the approximate positions of the kerb lines of*

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the street to be aligned may generally be found. Preliminary traverse then follows, which it is convenient to make identical, or to coincide as nearly as possible, with the kerb lines. Care should be taken over this part of the work, as the judicious choice of the traverse lines is an important condition precedent to satisfactory completion of the survey.

Marking traverse station (vide Minl. 86-2692)

- 6. It is necessary that traverse stations should be marked in a permanent manner. The surveyor is responsible for "leaving his survey so marked that it may be recovered at any future time without relying on wooden pegs or other destructible or removable objects." A convenient and effective mark for a traverse station is of iron rod, about half-an-inch in diameter and 12 inches long, driven a few inches below the surface.*

Method of fixing positions of buildings

- 7. Unless the street is very wide or there is a continuous traffic, a traverse on one side is sufficient, as buildings of a permanent character should be fixed by radiating offsets from that line (vide Diagram D). A few rectangular offsets, sufficient to obviate the necessity for much computing, should be noted.*

To enable recovery of alignment

- 8. Attention is directed to Diagram D, which indicates radiations from points in the kerb line, two of such radiations being in line with the sides of a building; thus ensuring a ready means, possible under certain circumstances, of identifying the alignment when the posts or other marks may have been destroyed. Also, on Diagram A and D the offsets (at right angles to the kerb lines) to an edifice very near the building line will enable the same object to be attained with sufficient accuracy for most purposes.*

Encroachment on footway

- 9. Encroachment by structure of a permanent character on the footway should be shown on the plan by measurements relatively to the kerb line. As a general rule it is useful to determine the position of all buildings, &c., within 12 feet of the building lines; but this is matter in which the surveyor must be guided by the conditions of the structures.*

Connections from traverse stations

- 10. It is requisite to note the bearing and distance from a traverse station to any alignment post or intersection of kerb lines immediately adjacent, so as to connect the two systems of lines in a satisfactory manner.*

Care to be taken in determining lines of street

- 11. In determining the kerb and building lines due care should be exercised so as to avoid interference with vested interests; and, when it is surmised that the original survey of the street may perhaps have been faulty the streets may sometimes be made a little narrower than was designed rather than interfere with permanent structures, unless it is established on valid evidence that the obstructions are encroachments upon the street as originally projected. It is also sometimes desirable to make an angle in a street, although on plan of original subdivisions the*

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street may be represented as straight, but from error in survey was not so defined on the ground.

MARKING

How alignment posts are to be placed

12. *The alignment is defined by posts at street corners and crossings. These should ordinarily be placed at the intersections of the kerb and building lines of each street (see Diagram A); but at places where the angle of intersection is less than 70 degrees, the post should be fixed in the kerb line at a point at right angles to the end of the building line (see Diagram B). An alignment post indicating an angle in the kerb line should be so placed that one face shall be on one of the lines forming the angle, and the corner of the post, which indicates the angle should have a broad arrow cut upon it (see Diagram C). When on account of undulating surface of the ground, an alignment post at a street crossing cannot be seen from a post at the next street, an intermediate post should be inserted (in the kerb line) so that in every instance the kerb can be identified from post to post.*
13. *The mode or character of marking of alignment is at the discretion of the Municipal Council. Wooden posts or wrought stones are used generally.*

Posts to be provided by Municipal Council

14. *As a Municipal Council has to provide, and to have in readiness at time of survey, posts, stones or other forms of permanent marking of the alignment, the Surveyor is not required to proceed to survey unless the posts, &c., have been supplied; and any failure on the part of the Council in that particular should at once be reported.*

Surveyor responsible for placing posts

15. *The Surveyor is responsible for the correct placing of posts, or other alignment marks, before transmitting his plan of survey of the streets aligned, which plan must bear a note stating that the alignment marks have been placed in the positions indicated thereon.*

DRAWING

Paper to be used

16. *The best double-mounted drawing paper should be used for the plan, except in cases where it might be convenient for transit, when the best single-mounted may be used.*

Scale

17. *The plan is to be plotted on a scale of either one or two chains to an inch, according to the amount of detail to be shown. The scale should be drawn on the plan.*

Colours to be used

18. *The roadway between the kerb lines is to be tinted red (lake); other streets adjacent not aligned at the same time are to be tinted sienna. The building lines are to be drawn in red, the kerb lines in blue, and the preliminary traverses and connection in purple. The positions of alignment posts are to be indicated by black squares, and the traverse stations by small triangles the same colour as the traverses.*

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19. *The limits of grants are to be delineated in black lines, firm or broken according as they are certain or doubtful, and the full names of the grantees are to be written, and the areas.*
20. *The names of owners and occupiers of encroachments are to be written on the plan, and full particulars are to be reported.*
21. *The relative position of the kerb line to permanent structures (especially public buildings) is to be determined by measurement, and the particulars are to be distinctly shown on the plan (see Diagram D). This affords the most reliable means of re-establishing an alignment.*
22. *Distinctive colours, either by hatching or tinting, should be used to indicate the different classes of buildings, red for brick, yellow for stone, blue for iron, and burnt sienna for wood; or the letters B., S, W., may be used to denote brick, stone, and wood. Verandahs should be tinted with very thin Indian ink.*

Writing of dimensions

23. *The lengths and bearings of the building lines are to be written along the lines in red, and whenever convenient the lengths from the original plans should be inserted, for comparison, in brown. The widths of the road and footways should be written in blue, and the amount of encroachment, if any, should be in black figures.*

Street names and schedule of streets aligned

24. *The names of the streets are to be written within their limits. A schedule giving the name of the street to be aligned, its terminals, the widths of road and footways, and remarks concerning encroachments, &c., is to be inserted on the plan.*

Title

25. *The title of the plan should set forth the number of streets to be aligned, and specify the Municipal district within which the survey is situated. It should also state that the streets are "proposed to be aligned under the provisions of the Public Roads Act of 1897."*
26. *All writing on alignment plans shall be in black, except where otherwise specified.*

Field book

27. *The original field notes of survey should be transmitted with the plan.*

Report

28. *The letter transmitting plan should contain general information as to the alignment survey, with particulars of any encroachments worthy of notice, mode of marking the alignment, &c.*

Note- For excerpts from plans in exemplification of the detail of measurements which should be quoted on a plan of alignment of a road; see diagrams (Appendices Sa, Sb, Sc).

Clauses 13 and 14 of these regulations provide the first evidence of various physical characteristics of alignment marks scattered throughout New South Wales. Municipal Council's

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were required to provide the marks to be placed, with a hint that wooden posts or wrought stones were the preferred options. It is clear however that Council's preference for other forms of marking was acceptable to the Department of Lands.

There is no evidence thus far of instructions regarding use of either imperial measurement i.e. feet and inches, or chains and links. A study of alignment plans shows a practice of the traverse dimensions being in chains and offsets and alignment dimensions in feet and inches. A possible explanation for this mixture may lay in the fact that in accordance with the requirements of Lands Department practice, a surveyor was required to have as part of his equipment "*one set of light steel bands not less than 500 links long*" but steel bands of a length of only 66 feet. It would appear the decision was purely logistical.

The concern of the surveyor, as reflected in the Lands Department Regulations of 1901 and subsequent regulations, was not so much to re-establish street boundaries in their original position, but to define the street as it was being used, in a manner not to cause substantial buildings to encroach upon the alignment. This principle of not necessarily adopting the abuttal i.e. the original alignment as established by pre-existing surveys, manifested in a number of cases dealt with by the Courts – in particular *Turner-v-Hubner* (1923) 24 S.R.3.

Police Offences Act, 1901

The early legislation applying to towns outside the City of Sydney (Acts 2 Vic. No.2 and 19 Vic No.10) was repealed and consolidated by the Police Offences Act 1901. Under Sections 44 to 48 inclusive of this Act, the Surveyor-General or the municipal council with respect to the streets in such towns was required or authorized to set out and mark the carriageway and footway.

Width of Streets and Lanes Act, 1902

This Act repealed and re-enacted the provisions of the Width of Streets and Lanes Act, 1881 and contains the following provisions,

3. Every street laid out or defined since the 20th day of December 1881, or hereafter laid out or defined, shall be 66 wide at least; and every lane laid out or defined since the 20th day of October, 1881, or hereafter laid out or defined, shall be 20feet wide at least.

The provisions of this Act ceased to apply to land in municipalities and shires on the coming into operation of the Local Government Act, 1919, on January 1, 1920.

Public Roads Act, 1902

Sections 24 and 25 of the Public Roads Act 1897 were replaced in similar terms by Sections 27 and 28 of the Public Roads Act 1902.

Sec.27. On written application by the Council of any municipality the Minister for Lands may cause the carriage way and footways in any street or public place in such municipality to be surveyed, set out and defined, and a plan thereof to be prepared, which plan may be submitted by the Minister to the Governor for approval.

Sec.28. On written application by the Council of any municipality the Minister may cause the width and the position of the carriage way, and the footways in any street or public place that has been previously aligned under this or any other Act to be remarked or altered and a plan thereof to be prepared, which plan may be submitted by the Minister to the Governor for approval.

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These provisions were in turn repealed and consolidated in Section 40 of the Crown and Other Roads Act 1990.

Sydney Corporation Act 1902

This Act replaced the Sydney Corporation Act of 1879. Section 95 of the new Act contained provisions similar to those in Section 88 of the 1879 Act. From 1879 onwards, the various Sydney Corporation Acts, including the last, namely the Sydney Corporation Act 1932, declared that ***in any proceeding at law or in equity touching any actual building line in Sydney, it shall be held conclusively that every kerbstone laid down before (1879) was lawfully laid down and the production of the Gazette alignment notice and the relevant plan plans makes the contents of the same binding on the parties.***

(Refer also to *Dalley v. Sydney Municipal Council* (1901) 1 S.R.221 in *The Surveyor* Vol. XXIX No.5 Page 127.)

Department of Lands:

Regulations for the Employment of Licensed Surveyors, 1914

Clause 81 of the Regulations for the Employment of Licensed Surveyors, 1914 provided that *Survey for alignment of streets shall be performed in accordance with instructions set forth in Appendices D and S.* These regulations clearly state that the power to align or re-align streets outside of the City of Sydney is pursuant to the provisions of s.95 of The Local Government Act, No.56, 1906 and s.27 and s.28 of the Public Roads, 1902.

The bulk of the instructions from the 1901 Regulations were carried forward into those issued in 1914. The changes made reflected the enactment of legislation in the intervening period, as expressed above, the deletion of the provision that alignment of streets is effected by the Lands Department, as a result of the 1894 decision in *Lucas v Borough of Drummoyne*, and conjecturally, representations made by the Institution of Surveyors NSW, as outlined in Hall's paper *The Survey Systems of New South Wales*, published in *The Surveyor* 1895, Vol. III No.9.

In total there are 30 clauses the 1914 Regulations, however only those, which illustrate the significant changes, which were made, are provided hereunder.

Appendix D Alignment of Streets

Power to align streets

1. *The setting out and defining of carriage ways and footways in streets and public places, commonly known as alignment, is carried out by Lands Department on behalf of Municipal and Shire Councils, under Sections 27 and 28," Public Roads Act, 1902," and in accordance with the provisions of Section 95(1)(d) Local Government Act, No.56. 1906.*

Connection to Trig. Station

4. *Connections should be made to a Trig. Station when practicable, and to the nearest adjacent alignment survey for comparison for azimuth. Two or three permanent marks should also be sunk into the ground in suitable places, and connection thereto shown upon the plan.*

Unnecessary marking

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9. *Alignment markings should not be placed at the intersection of aligned streets with those not yet aligned (see Specimen Plan, Appendix S).*

Material used in marking

11. *Wooden posts, wrought stones, cement blocks, or iron castings may be used for marking the alignment, which should be supplied by the Council, and be in readiness at time of survey.*

These regulations show a further relaxing of prescriptive materials to be used for marking. Clause 11 introduces cement blocks as well as iron castings to complement the established wooden posts and wrought stones.

Registrar- General's Department: Instructions to Surveyors, 1915

The Instructions to Surveyors, Specially licensed for the purpose of effecting Surveys under the Real Property Act, 1900, issued by the Registrar-General's Department on 1st July, 1915 contained the first and only instructions ever issued regarding determination and re-determination of building lines from established alignment marks.

Determination of building lines in City of Sydney.

26. *In the City of Sydney, the kerbs as laid should be used for determining the building lines, except in the case of an alignment made since the 4th of July, 1879, in which case such alignment should be adopted for that purpose. (See Sydney Corporation Act, 1902, sections 95 and 96.)*

Determinations of building lines where there are no alignments and original marks have been destroyed.

27. *Where in any locality there are no alignments and original marks have been destroyed, evidence should be furnished by suitable connections to occupations on both sides of a street or road, and, as the case may require, to adjacent streets or roads, that such first-mentioned street or road has been determined in its correct position and at its correct width. Connections to kerbs as laid, if any, on both sides of the street or road should be supplied, and where it is found that such kerbs have been carefully laid and are in reasonable agreement with the position of such street or road as ascertained in the manner above described, consideration should be given to the desirability of accepting them for the purpose of fixing the building lines relatively thereto.*

Determination of building lines from alignments.

28. *In all cases where alignments of any road, street or lane have been made, they must be used in determining the building lines; and in this connection it is pointed out that building lines of a street or road should be determined from the alignment marks in that street or road. (See Diagram, Appendices C and D.)*

Determination of building lines from kerbs as laid where alignment marks have been destroyed.

29. *Where alignment marks in the immediate locality in which a Surveyor may be working have been destroyed, he should go further afield for other alignment marks and where these can be found they must be used. Where, however, all alignment have been destroyed and the alignment cannot be re-determined, kerbs - where they have been properly laid - may be taken as evidence of the positions of building lines where this can reasonably be done. Where their adoption would not be prejudicial to the interests of*

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owners in any town section or other locality they may be adopted for the purpose of any survey under the Real Property Act. But before their use can be permitted it must be clearly shown that the alignment cannot be re-established.

Land affected by alignment.

30. *If any land has been affected by alignment, the extent to which such land has been so affected should, if possible, be ascertained.*

Local Government Act, 1919:

The Act of 1919 defines **alignment** as meaning the boundary line between any public place and any land abutting thereon, and contains the following provisions relating to alignment.

258. *The Council may cause the alignment of any public road to be set out and marked under the Public Roads Act, 1902, and any such alignment shall be an alignment under this Act.*

259. *The provisions of this Act with respect to alignment of roads shall, unless inconsistent with the context, be deemed to include alteration of alignment and re-alignment.*

260. (1) *In the case of every public road, any alignment for the time being in existence fixed before or after the commencement of this Act in accordance with the provisions of this or any other Act shall be deemed to be an alignment for the purposes of this Act.*

(2) *Where before or after the commencement of this Act the carriage-way or footway of any public road has been set out, defined, aligned, marked, remarked, or altered under the Police Offences Act, 1901, or the Public Roads Act, 1902, the boundary line between the road and any land abutting thereon as fixed by or in relation to such setting out, defining, aligning, marking, re-marking, or altering of the carriage-way or footway, shall be deemed to be the alignment of the road for the purposes of this Act.*

Sydney Corporation Act 1932

This Act repealed the Sydney Corporation Act 1902 and re-enacted the earlier provisions in Section 100. To accommodate the changing environment of a large City, a new unique form of marking alignment surveys, being permanent survey marks placed in the carriage-way on lines parallel to the alignment and distant either one, two or three feet from the kerb line, was introduced.

Position, Character and Manner of Permanent Marks.

By-Law No.20 Part III, Sydney Corporation Act, 1932-1934.

PART III. –SURVEY MARKS.

Position of Permanent Marks.

6. (a) *Permanent survey marks shall be placed in the carriage-way in positions free from the existence of any water, sewerage, lighting or other service, service boxes, manhole covers, gully frames, border stones or other fixtures, as prescribed in this clause.*
- (b) *At each junction or intersection of a proposed public way with another proposed public way or with an existing public way, where the angle of intersection ranges*

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from 55 degrees to 125 degrees and where the distance cut off from the intersection of the alignments of such ways does not exceed 10 feet, the permanent marks shall be placed either-

- (i) at points where the prolongation of the building line of one way meets the prolongation of the kerb line of the other way or lines parallel to and distant either one, two or three feet in the carriage-way from that kerb line;*
- (ii) or at points where the prolongation of the kerb line of one way meets the prolongation of the kerb line of the other way or lines parallel to and distant either one, two or three feet in the carriage-way from that kerb line;*
- (iii) or at points where the prolongation of lines parallel to and distant either one, two or three feet in the carriage-way from the kerb lines of each way intersect.*
- (c) At each junction or intersection of a proposed public way with another proposed public way or with an existing public way, where the angle of intersection ranges from 55 degrees to 125 degrees and where the distance cut off from the intersection of the alignments of such way exceeds 10 feet, the permanent marks shall be placed either-*
 - (i) at points where the prolongation of the building line of one way meets the prolongation of the kerb line of the other way or lines parallel to and distant either one, two or three feet in the carriage-way from that kerb line;*
 - (ii) or at points rectangularly opposite either to the termination of the alignment or to the termination of the kerb line of each way and distant either one, two or three feet in the carriage-way from the kerb lines of each way.*
- (d) At each junction or intersection of a proposed public way with another proposed public way or with an existing public way, where the angle of intersection is less than 55 degrees, the permanent marks shall be placed at points rectangularly opposite to the termination of the alignment of each way distant either one, two or three feet in the carriage-way from the kerb lines of each way.*
- (e) At each junction or intersection of a proposed public way, with another proposed public way or with an existing public way, where the angle of intersection is greater than 125 degrees and where the distance cut off from the intersection of the alignments of such ways does not exceed ten feet, the permanent marks shall be placed either-*
 - (i) at points where the prolongation of the kerb line of one way meets the prolongation of the kerb line of the other way or lines parallel to and distant either one, two or three feet in the carriage-way from that kerb line;*
 - (ii) or at points where the prolongation of lines parallel to and distant either one, two or three feet in the carriage-way from the kerb lines of each way intersect.*
- (f) At each junction or intersection of a proposed public way or with an existing public way, where the angle of intersection is greater than 125 degrees and where the distance cut off from the intersection of the alignments of such ways exceeds 10 feet, the permanent marks shall be placed at points rectangularly opposite either to the termination of the alignment or to the termination of the kerb line of each way and distant either one, two or three feet in the carriage-way from the kerb lines of each way.*
- (g) A permanent survey mark shall be placed at each angle of a proposed public way at the intersection of lines parallel to and distant either one, two or three feet in the carriage-way from the kerb lines, and in similar positions rectangularly opposite each tangent point of a curve and also the mid-point of the curve where its length exceeds 100 feet, provided that where a series of chords of a regular curve is adopted in lieu of the curve, permanent survey marks shall be placed as herein prescribed opposite the angles at the ends thereof.*
- (h) Permanent survey marks shall be placed at intervals of not more than four hundred feet throughout the whole length of the proposed way in accordance with the positions prescribed in sub-clause (g).*

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- (i) *Where a proposed public way terminates in a cul-de sac, permanent survey marks shall be placed at the termination in accordance with the positions prescribed in sub-clause (g).*
- (j) *Where a proposed public way is the continuation of an existing public way, permanent survey marks shall be placed at the termination of the existing public way at points rectangularly distant either one, two or three feet in the carriage-way from the kerb line of the proposed public way provided that where it is impracticable to place the marks at the termination, such marks may be placed as near as is possible to that position within the proposed public way.*

Character and Manner of Permanent Marks.

- 7(a) *Permanent survey marks shall consist of a brass tack or core in a non-corrosive metal plug set in concrete and covered by a suitable iron box, the top of which shall be set flush with the surface.*
- (b) *In proposed public ways to be constructed of concrete or to have a concrete base, the concrete shall be excavated if necessary and the metal plug shall be inserted vertically in the concrete with its top at a sufficient depth from the surface to allow the placing of a suitable iron box above it.*
- (c) *In proposed wood-blocked public ways, the top of the plug shall be set sufficiently low to allow the free passage of the iron box across it in order to prevent any disturbance of the mark by movement of the wood-blocks.*
- (d) *In proposed public ways of other type than as set out in sub-clause (b) the carriage-way shall be excavated at the position prescribed by this By-law to allow of the formation of a concrete block in situ. The metal plug shall be inserted vertically in the concrete block with its top flush with the surface of the concrete on which shall rest a suitable iron box. The dimensions of such concrete block shall not be less than- Depth, 12inches; top, 12 inches square; tapering to a base of 8 inches square.*

Vesting in Council.

- 8 *The care, control and maintenance of permanent survey marks shall be vested in the Municipal Council of Sydney.*
- 9. *A person shall not move, injure, or in any way interfere with any permanent survey mark.*

The Sydney Corporation Act 1932 was repealed on January 1, 1949 and placed the affairs of the City Council under the provisions of the Local Government Act 1919 and in line with the remainder of New South Wales, providing however that the repeal would not affect the status of any road, etc. which was, or deemed to be, a public way. This also meant that alignment surveys effected in the City of Sydney were required to conform with the Local Government Act 1919 and the provisions of the Lands Department's 1914 Regulations.

New South Wales Department of Lands Survey Directions 1963

These Regulations were the first revision the Lands Department's instructions in almost fifty years and as well as a general modernisation of those issued in 1914, they also included the provisions for the realignment of streets pursuant to the provisions of Section 262 of the Local Government Act, 1919,

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ALIGNMENT, REALIGNMENT, REMARKING AND ALTERATION OF ALIGNMENT OF STREETS

ALIGNMENT OF STREETS

- 9.1 *The setting out and defining of carriageways and footways in streets and public places, commonly known as alignment, is carried out by the Minister for Lands on application by Municipal and Shire Councils, under Section 27 and 28, "Public Roads Act, 1902", and in accordance with the provisions of Sections 258/260 Local Government Act, 1919.*
- 9.2 *The carriageway in a street 66 feet wide shall, as a rule, be 42 feet and the footways 12 feet on each side. These may however, be increased or decreased according to the breadth of a street and the requirements of a Council which requirements the measuring surveyor must ascertain. Where any street is aligned of uneven width, where practicable, adjacent building and kerb lines shall be parallel*
- 9.3 *Full information respecting holdings abutting on the streets should be obtained – plans of original surveys and subdivisions should be inspected, and perusals made of the descriptions of grants and deeds of conveyance of adjoining lands, in order to ascertain the original intention with respect of the location of the streets. If it is found that the position of any street as defined on the ground is not in accord with such documentary evidence, such street should be located as nearly as possible in a position originally assigned to it, having due regard to the occupations adjoining it, and the avoidance of unnecessary interference with vested interests. The original width shall be adhered to, unless the existence of permanent structures fully warrant a slight diminution.*
- 9.4 *The Council shall satisfy the Minister that private subdivision streets, splayed corners and areas provided for road widening have been dedicated to the Public*
- 9.5 *Connections shall be made to trig. stations when practicable, and to the nearest adjacent alignment survey for comparison of azimuth. At least two permanent or substantial reference marks shall be placed in suitable places, and connection thereto shown upon the plan. Connection shall also be made to any Survey Co-ordination Permanent Marks in the immediate locality (see Survey Co-ordination Act, 1949).*
- 9.6 *Both kerb lines are to be measured and radiations taken from alignment pins to permanent buildings, both to be shown on the plan; see appendix "D".*
- 9.7 *Encroachment by structures of a permanent character and fences upon the footways should be located by measurements from the kerb lines; all buildings within four of the building lines shall, if possible, be located and shown upon the plan*
- 9.8 *Connections shall be made between alignment pins at the intersections of the street as shown in Appendix "D".*
- 9.9 *Excepting where building lines junction at an acute angle of less than 75 degrees, the markings of all the alignment should be placed at the intersection of the kerb and building lines unless prevented by obstructions, in which case, such marking may be placed along the kerb line and the distance from the intersection noted upon the plan. An angle in a kerb line should be marked and if the intersections of streets are not intervisible, markings may be introduced at suitable intervals, not more than ten chains apart. Where building lines junction at an acute angle of less than 75 degrees alignment markings are to be placed in the kerb lines rectangularly from the point of junction of the building lines.*

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- 9.10 *Alignment markings shall not be placed at the intersection of aligned streets with those not yet aligned.*
- 9.11 *Streets necessitating alignment by surveys shall be measured and marked in accordance with Appendix "D". Full information with respect to measurement, together with calculation of curves, to be indicated upon the plan as shown on Appendix "D".*
- 9.12 *Alignment pins used for marking the alignment shall be iron castings, open box style, 4 inches x 4 inches x 18 inches which should be supplied by the Council, and be in readiness at time of survey. These are available at the Department of Lands as also are castings 24 inches long for use in sandy soils.*
- 9.13 *The Surveyor shall ensure that the necessary markings have been placed in their proper positions before transmitting his plan of survey, which fact should be reported in his letter of transmission.*
- 9.14 *The plan of survey shall be plotted to a convenient scale in feet, according to the amount of information required to be shown; plan to be neatly drawn upon the best tracing linen using best quality waterproof ink. All measurements other than offsets shall be in feet and decimals thereof. Connections, boundaries of subdivision titles and kerb lines are to be shown respectively by short, medium, and long broken lines The lay out of the plan to be generally in accordance with Appendix "D".*
- 9.15 *The various classes of buildings together with offsets thereto from the kerb line should be shown upon the plan in feet and inches and indicated as shown in Appendix "D". Offset from kerb as laid to kerb line should be shown in feet and inches.*
- 9.16 *A schedule of the streets proposed to be aligned with particulars as to terminals, width of carriageways and of footways, as well as the extent of encroachments, &c. should also be shown.*
- 9.17 *Alignment markings placed should be indicated by black squares; alignment marks found should be indicated by open squares. See Appendices "D" and "E".*
- 9.18 *The boundaries of grants, if correctly located, to be shown upon the plan in firm lines, and broken lines when their location is doubtful. When building lines are identical with grant boundaries, it will be sufficient to note upon the plan the original lengths of such boundaries for purpose of comparison. Information respecting private subdivisions to be shown in broken lines.*
- 9.19 *The names of owners and occupiers of any buildings encroaching upon the streets should not be indicated the plan, but full particulars with respect of such occupiers must be shown by the surveyor on a dye-line copy of the plan and forwarded therewith.*
- 9.20 *The field notes of survey to be transmitted with the plan.*

REALIGNMENT OF STREETS

- 9.21 *A realignment of a street means a widening of such street in accordance with the provisions of Section 262, Local Government Act, 1919. The street must have been previously aligned and the realignment must be based on the alignment. The realignment method must not be used where the land is wholly free from buildings and obstructions.*

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- 9.22 *Alignment pins must not be used to mark the proposed new building line but permanent marks or substantial reference marks shall be placed in the side of the streets in prolongation of the new alignment. See Appendix "E". In the absence of suitable kerbs or gutters for such marking a concrete block shall be placed in the footway.*
- 9.23 *Commonwealth property shall not be included in the realignment as it is unaffected by State Legislation.*
- 9.24 *Plans shall be drawn on tracing linen similarly to the requirements for alignment plans and in accordance with information in Appendix "E".*

REMARKING AND ALTERATION OF ALIGNMENT OF STREETS

- 9.25 *Remarking of alignment is self explanatory and alteration of alignment means, usually, the alteration in width of carriage and footway*
- 9.26 *Survey shall be based on the alignment and alignment pins are to be used for remarking or for altered positions of alignment marks.*
- 9.27 *Plans shall be drawn on tracing linen similarly to requirements for alignment plans and information shall be similarly shown thereon in accordance with Appendix "D".*

Clause 9.12 reflects an interesting change of attitude on the part of the Department of Lands. Although councils remain responsible for the supply of the necessary marks to be placed in the survey, the choice of mark is removed and a precise specification of the physical characteristic of the mark to be made available to the measuring surveyor is prescribed in Clause 9.12. An alternative style of mark for use in sandy soils was made available by the Department.

The expression "re-alignment" used in the context of the Lands Department Directions, describes the re-marking of a previously aligned street and should not be confused with the statutory procedure provided in s262 of the Local Government Act, 1919 and Part VB of the Main Roads Act, 1924, which empowered a roads authority to plan and implement long range schemes for the widening of arterial roads through built-up areas. An alignment action was an action designed primarily to define the limits of a street or road, which were in doubt, while the purpose a re-alignment action was to acquire land immediately or in due course for the widening of a road or street – it was a "special provision", which is not available in the Roads Act, 1993.

The New South Wales Crown Lands Office Survey Directions 1981

The provisions for Alignment, Realignment, Remarking and Alteration of Alignment of Streets designated in Clause 9 of the 1963 Directions were repeated in the 1981 Directions as Clause 8, with only those changes necessary to accommodate metrication being made.

The Crown and Other Roads 1990

The Public Roads Act, 1902 was repealed and the provisions of Sections 27 and 28 of that Act were consolidated in Section 40 of the Crown and Other Roads Act 1990.

Defining the boundaries of and re-aligning roads (see Act No.95, 1902, s.27)

40(1). *The Minister may cause surveys to be carried out and a plan to be prepared for any of the following purposes:*

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- (a) *defining:*
 - (i) *the carriageway and footways of a road; and*
 - (ii) *the boundary between a road and any land that abuts it, or either of them;*
- (b) *re-marking or altering;*
 - (i) *the width and position of the carriageway and footways of any road that has previously been aligned under this or any other Act; and*
 - (ii) *the boundary between such a road and land that abuts it, or either of them;*
- (c) *re-aligning a public road vested in or under the control and management of a council for the purpose of widening it under section 262 of the Local Government Act 1919.*

In total, Clause 40 consists of 9 sub-clauses; however the remaining clauses have not been repeated here.

The expression “re-aligning” in the context of Clause 40 is identical to that described in Clause 9.21 of the Department of Land’s 1963 Survey Directions i.e. the street must have been previously aligned and the re-alignment must be based on the alignment.

Roads Act 1993

The Roads Act 1993 commenced on July 1, 1993 and superseded the roads provisions of the Crown and Other Roads Act 1990, the State Roads Act 1986, the Local Government Act 1919, the Public Gates Act 1901, Width of Roads and Lanes Act 1902 and the Traffic Safety (Lights and Hoardings) Act 1951.

Since July 1, 1993, Sections 18 to 21 of the Roads Act, 1993, have governed the fixation of road boundaries. Sub-clause 18(1) provides;

A roads authority may cause surveys to be carried out to identify the boundaries of a public road if those boundaries have not previously been properly identified or if the survey marks used to identify those boundaries cannot be located or ascertained.

The repealing of the Crown and Other Roads Act 1990 brought closure to the concept of defining and marking footways and the accompanying fixing of alignments which had existed in New South Wales in excess of 150 years.

Surveyor General’s Directions for Survey Practice 1993

The Surveyor General, due to changing practices introduced in 1990 through the Survey Practice Regulations, recommenced issuing Directions in 1993. These Directions are a collection of procedures and standards, which clarify and supplement the Regulations with up-to-date information. The provisions of the Roads Act, 1993 eliminated the need for continuing regulation relating to the conduct of alignment surveys and consequently no further information has been forthcoming from the Surveyor-General.

Conclusion

Professional land surveyors require a thorough working knowledge of current and historical legislation relating to the fixation of road boundaries to enable them to better understand the legal requirements for the reinstatement of such boundaries.

The following points, by no means exhaustive, provide a starting point to aspects to be considered in the re-determination of alignment boundaries.

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- Where roads and streets have been the subject of alignment or re-alignment, the marks placed in those surveys must be used in any redefinition of street boundaries unless it can be shown that they have been disturbed.
- Irrespective of the kerb-to-kerb measurement as compared to the proclaimed carriageway width, the alignment should be fixed by measuring from the kerb defining the footways. (Act 6 William IV No.6)
- After alignment marks have disappeared the position of a kerb line may often be re-established with the aid of the alignment field book. Radiations and offsets gathered in the field are not always shown on the plan. If sufficient buildings shown can be identified and if they agree with the information in the field book it quite legitimate practice to re-fix the kerb line from them, using the radiations shown.
- The field books of old sewerage detail surveys within the Metropolitan, Newcastle and Maitland areas contain field traverses of surprising accuracy. Besides the traverses the books contain radiations and measurements, usually to the nearest tenth of a link (2 cms) to alignment marks, buildings and other permanent features. If using these field books, care should be exercised to confirm by calculation, that the usually un-checked radiations are reliable.
- It is very often found that old sandstone kerbs in the Metropolitan area have been laid on or close to the kerb line. This is not universally true however, and neither this type of kerb nor any other should be adopted as defining a kerb line without supporting evidence, such as connections.
- A practice usually considered unsound, unless supported by confirmatory evidence, is the adoption for the purpose of fixing the alignment of Street A, of marks in the kerb line of a cross or intersecting Street B, which marks were placed supposedly on the alignment of Street A.
- The object of an alignment survey is to fix the alignment and kerb lines of streets and therefore it is logical to assume that when the marks were placed, more care would be exercised over their relationship to the kerb line than as to their lateral position. The same remarks apply to the use of permanent and reference marks to fix streets other than those in which they are placed.
- It is also worth remembering that in older alignment surveys it was often the custom, when aligning Street A, to place marks in the return of the kerb line in Street B even if the street was not included in the scheme for alignment. Generally, no particular effort was made to correctly define Street B and consequently these alignment marks, if used to fix that street, are quite liable to give an incorrect definition. The Regulations issued in 1914 stated specifically in Clause 9 that *Alignment marking should not be placed at the intersection of aligned streets with those not yet aligned*. It is reasonable to assume that the customary practice, referred to above, would have ceased at that time.
- A common source of error in redefinition of title boundaries is that caused by ignoring the effect of the alignment of streets subsequent to the original plan of subdivision. Alignments nearly always seem to have altered the original positions of streets to some extent, although it is sometimes very difficult to prove this or ascertain the amount of shift. The alteration from the original position of streets was principally by design "to avoid unnecessary interference with vested interests" as attested to in Clause 3 of the 1914 Regulations, and repeated in the ensuing Regulations issued in 1963 and 1981 respectively. (*Turner-v-Hubner*)

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- The circumstances pertaining to the case *Turner v. Hubner* (24 S.R.3) were similar to those in *Turner v. Myerson* except that the side streets had been aligned after the original subdivision. The decision given was the same in effect with the addition that the alignment plan did not afford any help in fixing the positions of boundaries shown in the old subdivision and could not be accepted as providing a satisfactory starting point for that purpose.
- Where a subdivision has been affected by the later alignment of streets it is logical and a generally accepted rule that any gain or loss caused thereby will accrue to or be borne by the owner of the land immediately affected.
- Alignment surveys are well known for the care and accuracy with which they were carried out. Like the detail surveys made for sewerage design, the field books are rich with connections to durable monuments such as the corners of substantial buildings and to subdivision pegs, fence posts, manholes and like objects as were found nearby at the time of survey. This information is of great assistance to the re-tracement surveyor when the original markings of neighbouring properties have been lost or create conflicting evidence.

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APPENDIX 1

EXTRACT FROM *THE SURVEYOR* 1889

ERECTION OF POSTS TO MARK ALIGNMENT OF STREETS.

An improved method of fixing square posts, (either stone, iron or wood,) for marking alignment of streets. Reported by Mr. Richmond, Surveyor.

A nail (or peg and tack) is driven into the ground at the point B, where the angle of the post is to stand, then the surface of the ground being made fairly level, the square shown in Diagram is laid down, with its angle at the nail B, and one of its outside edges along the kerb line, between the point B and the kerb intersection D, the remaining side being invariably in the Roadway (vide sketch). A nail is driven in the ground at the mark on the square at each of the ends A and C, then the square is removed and the hole dug; the post being afterwards erected and adjusted in position by means of the square placed by the nails A and C.

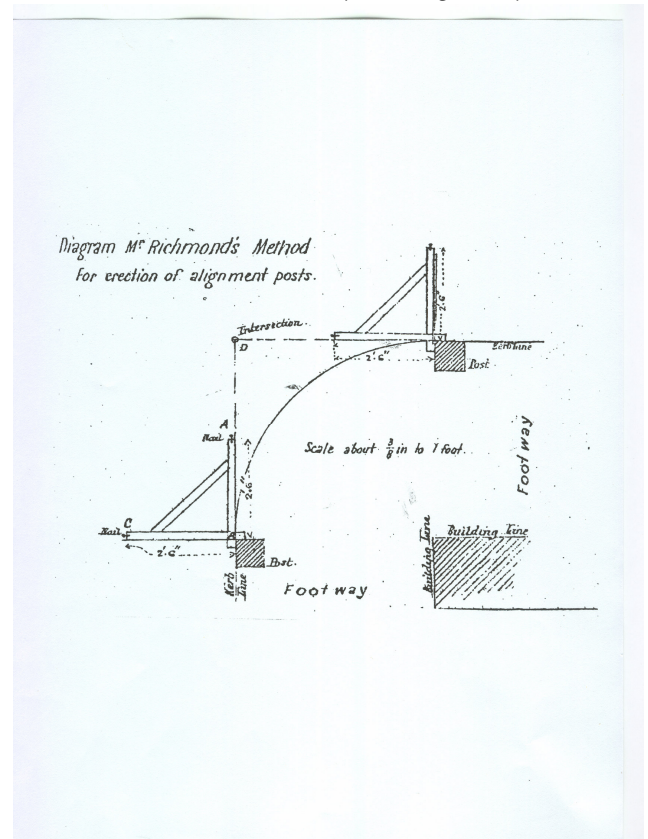
To keep the square steady whilst the post is being plumbed, one man stands on the square and directs the adjustment, taking care to see that the square has not shifted during the operation.

By this method a party of four men has marked out the holes and fixed sixty posts in a day.

Two squares of like dimensions should be used, and it is necessary to have the sides equal in length (at the right angle) so that the position of the square, and the square, may be interchangeable, as one set of men with their square may mark out the hole, and another set of men with their square may fix the post: consequently difference in the size of the squares would cause error.

The marking of the alignment of streets at Orange has been conducted with satisfactory result in the manner above described. The squares used were made of flat iron riveted. (See diagrams.)

Surveyor General's Office, Sydney,
June 1889.



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APPENDIX 2

Chronology of Legislation

Alignments of Public Roads

Sydney Police Act 4 William 1V No 7 August 6, 1833

An Act for regulating the Police in the Town and Port of Sydney, and for removing and preventing Nuisances and Obstructions therein.
This is the first Act dealing with the alignment of the streets in the Colony.

The Public Roads Act 4 William 1V No 11. August 28, 1833

An Act for making, altering and improving the Roads throughout the Colony of New South Wales and for opening and improving the Streets in the Towns thereof. This Act was repealed as far as it related to the City of Sydney by the Sydney Corporation Act of 1879, and Sections 1 to 18 inclusive, 20, 21 and 22 were repealed by the Roads Act, 1902.

5 William 1V No 20 October 28, 1834

An Act for better regulating the alignment of Streets in the Town of Sydney.

The Sydney Corporation Act of 1879, which later became the Sydney Corporation Act 1902 repealed this.

6 William 1V No 9 October 9, 1835

An Act to explain and amend an Act of the Governor and Council, intituled, "An Act for better regulating the Alignment of Streets in the Town of Sydney".

The one of 1879 also repealed this Act.

Act 8 William 1V No.1 June 28, 1837

An Act for regulating the appointment of the Surveyor of the Town of Sydney and for transferring to other Persons certain powers heretofore vested in the Surveyor General of the Colony of New South Wales and in the Surveyors and Assistant Surveyors of Roads in the said Colony.

The Towns Police Act 2 Victoria No. 2 August 10, 1838

An Act for regulating the Police in the Towns of Parramatta, Windsor, Maitland, Bathurst and other Towns, respectively, and for removing and preventing Nuisances and Obstructions, and for the better alignment of streets Therein (including the suburbs of Sydney) as might be proclaimed by Gazette notice.

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Sections 43, 45 and 46 of Act 2 Vic. No.2 applied to the towns outside of Sydney the same provisions as those operating in the town of Sydney by virtue of Act 4 Wm.1V No.7 and Act 5 Wm. 1V No.20.

The Country Towns Alignment Act 19 Victoria No.10 September 7, 1855

An Act to amend the Country Towns Police Act as respects the alignment of streets.

This Act amended Act 2 Vic No.2 inter alia empowering the Surveyor-General or any Magistrate or municipal officer under the authority of the Governor to set out and mark streets in designed towns so as to give a width of 42 feet (12.8m) for the carriageway and 12 feet (3.66m) for each footway.

The Municipalities Act 31 Victoria No.12 December 23, 1867

An Act to establish Municipalities.

The Sydney Corporation Act 43 Victoria No.3 July 4, 1879

An Act to consolidate and amend the Laws relating to the Corporation of the City of Sydney.

This Act repealed 5 William No 20 and 6 William IV No 9, and provided inter alia that "in any proceeding at law or in equity touching any building line in Sydney, it shall beheld conclusively that every kerbstone laid down before (1879) was lawfully laid down". This provision continued through to the Act of 1932.

Streets and Lanes Act 45 Victoria, No.28 December 20, 1881

An Act to regulate the width of Streets and Lanes (Reid's Act)

The Public Roads Act 1897 June 30, 1897

An Act to amend and consolidate the law relating to the opening, closing, and survey of roads; to make provision for the disposal of unnecessary roads and of lands resumed or withdrawn but not required for roads, and of certain other lands; for the prevention of the obstruction and injury of roads; for the alignment and the alteration of the alignment of streets in Municipalities; for granting leave to place public gates in certain cases; and for other matters of the like nature; and for that purpose to amend the Act 4 Wm. IV No. 11; the Public Gates Act of 1875; and the Crown Lands Acts of 1884 and 1889

This Act repealed Act 4 William IV No.11 so far as it applied to the opening and altering and improving roads (other than private roads) by agency of the Surveyor-General, or related to the assessment of damages upon claims for compensation.

The Police Offences Act 1901 October 3, 1901

An Act to consolidate the Statutes relating to Police Offences.

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Under Sections 44 and 48 of this Act, the Surveyor-General or the municipal council with respect to the streets in such towns, was required or authorised to set out and mark the carriageway and footway.

This Act repealed Act 4 Wm IV No 7 and Act 4 Wm IV No 11

The Public Roads Act, 1902 December 12, 1902

An Act to consolidate the Acts relating to the opening, closing, survey, altering and improving of Roads and the alignment and alteration of alignment of Streets in Municipalities.

This Act repealed Sections 1-18 (inclusive) 20, 21 and 22 and so much of Sections 33 and 36 as refers to the said sections of 4 Wm.1V No.11 and the whole of the Public Roads Act of 1897.

The Sydney Corporation Act, 1902 August 20, 1902

An Act to consolidate the Statutes relating to the Corporation of the City of Sydney.

This Act replaced the Sydney Corporation Act 1879.

The Local Government Extension Act, 1906 December 18, 1906

This Act established Shires in New South Wales. It was repealed and re-enacted as the Local Government Act, 1906 on December 28, 1906.

The Local Government Act, 1906 December 28, 1906.

An Act to consolidate and amend the law relating to the Local Government of Shires and Municipalities.

The Local Government Act, 1919 December 20, 1919.

An Act to make better provision for the government of areas; to extend the powers and functions of local governing bodies; to establish bodies to take common action on behalf of areas; to repeal certain Acts; to amend certain other Acts; and for purposes consequent thereon or incidental thereto.

The Sydney Corporation Act 1932 December 22, 1932.

An Act to consolidate the Acts relating to the Corporation of the City of Sydney.

The Crown and Other Roads Act 1990 September 26, 1990

An Act to provide for the opening, closing, marking and alignment of roads; to provide for the regulation of certain roads; to provide for related matters; and to repeal the Public Roads Act 1902 and certain other enactments.

The Roads Act 1993 July 1, 1993

An Act to make provision with respect to the roads of New South Wales; to repeal the State Roads Act 1986, the Crown and Other Roads Act 1990 and certain other enactments; and for other purposes.

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Re-alignment of Public Roads.

Public Roads Act, 1902.

Local Government Act, 1919

Main Roads Act, 1924

Crown and Other Roads Act, 1990.

Roads Act, 1993

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Note: *The Surveyor* was the original journal of the New South Wales Division of the Institution of Surveyors Australia Inc. and was published from July 1888 until the end of 1927. It assumed a national identity as *The Australian Surveyor* in 1928 and the New South Wales Division continued as publisher until that responsibility transferred to the Institution of Surveyors Australia Inc. in 1952.