

NEW SOUTH WALES CROWN LANDS OFFICE SURVEY DIRECTIONS 1981

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DIRECTIONS FOR THE EMPLOYMENT OF SURVEYORS BY THE CROWN LANDS OFFICE

In addition to the Survey Practice Regulations the following Directions shall apply to all surveys required for lodgement at the Crown Lands Office, New South Wales.

GENERAL

- 1.1 These Directions, which supersede the Directions of 1963, will be effective for surveys which commenced on or after 1st January, 1981.
- 1.2 In these Directions the expression:-"Surveyor General" shall mean a person appointed to that position in the Department of Lands, or any person acting in that position for the time being.

"District Surveyor" shall mean any person appointed to that position for a specific Land Board District or any person authorised to act for him for the time being. In respect of lands in the Western Division "District Surveyor" shall mean the Senior Surveyor of the Western Lands Commission.

"Surveyor" shall mean any person duly registered as a surveyor with the Board of Surveyors of New South Wales.

"Survey" shall include the measurement and marking, the drawing of the plan, preparation of a letter transmitting same and any necessary report and schedules on approved forms.

- 1.3 All surveys required for lodgement at the Crown Lands Office, New South Wales, other than under the Public Roads Act, 1902, shall be effected under instructions or authority issued by the Surveyor General or a District Surveyor and shall be made in strict accordance with the design and directions accompanying such instruction or authority.
- 1.4 Unless otherwise directed all surveys shall be completed to the standards required by the Survey Practice Regulations, 1933, excluding Regulation 46, and in accordance with any additional requirements of these Directions.
- 1.5 Unless special approval is given to the contrary by the District Surveyor all surveys shall be completed and plan lodged within the period specified on an instruction. In the event of recall of any instruction after such period no claim need be met for partially completed work.
- 1.6 All Registered Surveyors are expected to be familiar with the provisions of the Surveyors Act, the Survey Co-ordination Act, the Survey Practice Regulations, the Survey Co-ordination Regulations, the Conveyancing Act Regulations, 1961, the Real Property Act Regulations, 1970 and these Directions.
- 1.7 Surveys found to be erroneous, or surveys in contravention to instructions or surveys not in accordance with these Directions may be rejected by the Surveyor General or District Surveyor, and the charges for the same may be disallowed; or if such charges have been paid, the amount thereof may be surcharged against any moneys which may

be due or may become due, or may be recovered as a debt from the Surveyor in default: or, if another Surveyor be employed to amend or re-measure, then the cost of his services (but not exceeding the charges for the original survey) may be surcharged to the account of the Surveyor in default, or may be recovered from him as a debt.

- 1.8 When a survey is rejected for any of the before-mentioned causes, the marking shall be effaced by the Surveyor in default if so directed. A plan may be rejected on account of erroneous survey, defective drawing, damage in transmission or other sufficient reason. A rejected plan will not be returned to the Surveyor, neither shall payment for the same be allowed.
- 1.9 Under certain circumstances, e.g., when there has been failure to complete a survey in accordance with these Directions, or when a plan has been inaccurately or badly drawn, or an area has been incorrectly computed, and it may not be expedient to reject the survey or plan, a discount, to be approved by the Surveyor General, which shall not exceed the original cost of the authorised charges for the service, may be imposed to cover the cost of professional labour involved in examination and amendment; or, in event of the charges for the imperfect service having been paid, such discount may be surcharged to the account of the Surveyor in default, or may be recovered from him as a debt.
- 1.10 Requisitions re errors or omissions in connection with any survey must meet with prompt attention and reply by the Surveyor; if unanswered for a period exceeding one month it shall be competent for the Surveyor General or District Surveyor to cause inquiry or amendment of survey, the cost of which may be surcharged to the Surveyor's account.
- 1.11 Attention is directed to the propriety of giving reasonable notice to the owner or occupier of alienated land before entry thereon in connection with any survey under these Directions.
- 1.12 Any parcel of land surveyed under the provisions of any of the Crown Lands Acts administered by the Minister for Lands, other than under the Public Roads Act, 1902, shall be measured and marked as a lot of a deposited plan. Any parcel of freehold land to be resumed or measured for conveyance shall be measured as a lot under the provisions of the Conveyancing Act Regulations. 1961, or the Real Property Act Regulations, 1970, as appropriate.
- 1.13 Each plan shall be accompanied by a separate letter reporting details of the survey and definition of boundaries and a calculation, on an approved form, proving the accuracy of the survey and the area of the land surveyed.
- 1.14 All plans shall be transmitted as soon as possible after completion of the field work to the District Surveyor or the Director of Crown Lands in respect of alignments, remarking and alteration of alignment and realignment of streets. They shall be accompanied by field notes.
- 1.15 Every Contract Surveyor shall indemnify the Minister for Lands from any claims for wages, allowances, claims under the Workers Compensation Act or damages of any kind in respect of his employees or equipment.

- 1.16 Fencing must not be accepted as defining former boundaries unless so determined by survey. Care must be taken in cases where previously measured lines are redefined from blazed trees or other limited data. Details of the number and location of blazed trees found are to be reported where they are relied on for redefinition. Generally lines should not be re-determined from blazed trees or limited data unless they are run through to their terminals.
- 1.17 For the purpose of S.P. Reg. 21 (b)(v) strips of land in the Crown estate are not regarded as frontage roads unless used, or likely to be used, for access.

FIELD NOTES

- 2.1 Field notes shall be recorded in ink on loose leaf field sheets supplied by the Crown Lands Office.
- 2.2 In the event of alteration of a mistake, there should be no erasure, but the erroneous entry should be struck through and the correction written above.
- 2.3 A diagram shall be provided in the field notes to illustrate the survey sufficiently to facilitate the preparation of a complete and accurate plan therefrom without recourse to any other records and without verbal explanation.
- 2.4 Bearings, in degrees, minutes and parts thereof, shall be clearly shown, together with particulars of repetition of angles. All closing angles shall be observed and noted.
- 2.5 Lengths shall be entered as measured, all corrections (e.g. slope and temperature) shall be noted and the lengths deduced therefrom shall be clearly indicated.
- 2.6 References from reference trees or other reference marks must be clearly shown either on a diagram or in tabular form referred to in the diagram by letters.
- 2.7 Where reference or other marks are recorded on plans of former surveys in positions which influence the definition of boundaries on the subject survey, Surveyors must indicate whether such reference marks were "found" or were "gone". The term "gone" is not to be used unless proper search has been made and notes of measurements made for that purpose are recorded in the field notes.
- 2.8 Details of astronomical observations are to be set out in full in field notes. Reduced observations shall be shown in the field notes and azimuth comparisons recorded.

RURAL SURVEYS

3.1 Four major corners of each area where available shall be marked with the number of the lot or lots surveyed. The number shall be placed preferably on a reference tree or reference rock or marked on a tree or rock situated on the corner. In the event of suitable trees or rocks being unavailable the corner peg shall be so numbered, or, if a fence post is situated on the corner, it shall be so numbered. However, where suitable trees or rocks are situated beyond 30 m but less than 60 m from such corner they may be marked and numbered and references shown on the plan but such marks cannot be

accepted as reference marks under the Survey Practice Regulations.

In addition to these requirements reference marks shall be placed at intervals of not more than 1500 m apart on all marked and unmarked boundaries.

- 3.2 All corners and angles of the boundaries measured in any lot shall be defined by pegs or marks as set out in these Directions. Angles of a traverse along a watercourse the bank of which is a boundary or along a water race or unmarked road or easement need not be so marked.
- 3.3 All scrub and trees of a less diameter than 100 mm within 400 mm of any measured lot boundary shall be cleared, unless directed otherwise by the District Surveyor.
- 3.4 All trees remaining after clearing operations within 1 m of a measured boundary shall be blazed, and if situated on any boundary they shall be double blazed, unless directed otherwise by the District Surveyor.
- 3.5 On unfenced boundaries, line pegs or marks shall be placed at intervals of not more than 200 m excepting that, if any peg or mark is visible from the peg or mark next on either side of it, such intervals may extend to but not exceed 300 m.
- 3.6 Permanent marks and reference marks shall be placed as required by the Survey Practice Regulations and Local Government Ordinance 32. Any additional marks shall be subject to approval by the District Surveyor.
- 3.7 Where any lot has frontage to a non-tidal stream, the bank of which is reasonably well defined, the bank, which is defined as the limit of the bed in Section 235A of the Crown Lands Consolidation Act, shall be fixed by offsets from an unmarked traverse. Where the bank at a corner is liable to erosion, the corner peg shall be placed on the boundary a safe distance back from the bank. In all cases where a boundary terminates on the bank of a watercourse, distances shall be measured and recorded to the bank, traverse and corner and the plan of survey noted accordingly.
- 3.8 Lots shall not be measured with frontage to cliffs, lakes, lagoons, ill-defined watercourses and swamps; boundaries bordering thereon shall be defined by marked lines.
- 3.9 Except under special conditions, as prescribed by law, a boundary cannot extend beyond mean high water. Mean high water mark definitions are set out in the Manual of the New South Wales Integrated Survey Grid.
- 3.10 Where part of a boundary or parts of boundaries are inaccessible, a connecting traverse shall be made between the extremities of the measured parts where pegs and reference marks (preferably trees or rocks) are to be placed. The unmeasured parts are to be shown by broken lines on the plan.
- 3.11 For the purpose of intercommunication or access to amenities, roads shall be provided in the most suitable positions. Unless otherwise directed, they shall not be less than 20m no more than 60m wide and where reasonably practicable they shall be of even width. Access must be provided to each unalienated title, but where a group of freehold titles are held in one interest, access to the group only is required.

- 3.12 As far as possible, roads should be measured along lot boundaries.
- 3.13 Roads measured within lots shall be known as reserved roads. Unless otherwise directed they are to be measured on one side and both sides are to be marked as required by Paragraph 5.7 of these Directions. Where reserved roads meet a boundary the distance along that boundary to the measured side of the reserved road shall be recorded on the plan together with the distance across the road.
- 3.14 The position of a water race or legally constructed drain intersecting a lot shall be defined by traverses, unless it can be accurately defined from the boundaries of the lot. There shall be reservation to a width 3 m from each side of the centre line of the race; where the cutting exceeds 3 m in depth or a tunnel is constructed, the width shall be 6m from each side of the centre line.
- 3.15 In any survey of a lot or group of lots which exceeds 2500 ha, or where so directed, one series of astronomical observations for azimuth shall be taken.
- 3.16 Where in any survey of a lot or group of lots, any part is situated 10 km distant in a direct line from any other part, astronomical observations for azimuth shall be taken near those extremities.
- 3.17 A series of astronomical observations for azimuth shall consist of not less than three complete sets and no set shall differ by more than 30 seconds from the adopted mean.
- 3.18 No boundary which has been previously determined and is sufficiently marked for fencing purposes shall be re-surveyed if an angular and linear close within the prescribed limits can be obtained, provided that the cost of essential comparisons of azimuth is less than the cost of re-survey.
- 3.19 A comparison of azimuth shall consist of a survey for azimuth purposes only between two or more marks found on a boundary. This survey is distinct from a connection along a boundary to a corner which in itself forms a terminal of a line of azimuth.
- 3.20 All lots surveyed shall be connected to some previously recorded survey unless otherwise directed. The azimuth of the survey connected with shall be observed and noted on plan.
- 3.21 No surveyed lot of unalienated land shall be subdivided or encroached upon without specific instructions or approvals to that effect.
- 3.22 In the subdivision of a measured lot, connections along boundaries are required from the extremities of the subdividing line to the nearest points established in the former survey. One subdivided area shall close to the requirements of the Survey Practice Regulations. The residue area shall be by compilation and where difficulties arise in compilation, the residue area shall not be surveyed unless so instructed by the District Surveyor.
- 3.23 In all surveys within view of trigonometrical stations bearings shall be observed thereto and the particulars recorded on the plan. A connection to a trigonometrical station shall be traversed if so directed in the instruction, unless found to be impracticable or very difficult.

- 3.24 Wherever practicable, connections shall be measured to corners of lots or measured parcels on the opposite side of frontage streams and to lots within 100 m of the lot being measured and separated therefrom by vacant Crown lands.
- 3.25 When instructions call for survey of a specific area, there shall be no change in the area measured.
- 3.26 Any desirable modification in the form of measurement shall be reported to the District Surveyor, accompanied by applicant's written consent; but any modification effected without the District Surveyor's approval will be at the risk of the Surveyor.
- 3.27 Any landward boundary of a reserve or road along a watercourse or foreshore, which is presently shown by an irregular line or any boundary defined by a former irregular feature shall in any redefinition be shown by right lines, circular curves or any combination thereof defining, as close as possible, the original location.

URBAN SURVEYS

- 4.1 All parcels will be marked as consecutive numbered lots in each plan of survey, regardless of the number of sheets on the plan.
- 4.2 Unless instructed to the contrary, the area of any urban lot shall not be less than the minimum area specified for the locality by the Local City, Municipal or Shire Council.
- 4.3 Unless instructed to the contrary, the frontage of any urban lot shall not be less than the minimum frontage specified by the Local City, Municipal or Shire Council.
- 4.4 Sufficient clearing shall be undertaken to enable the identification of each boundary line between pegs placed.
- 4.5 Permanent and reference marks shall be placed as required by the Survey Practice Regulations and Local Government Ordinance 32, and in addition, a reference mark, preferably a galvanised iron pipe, shall be placed on the site of the intersection of major building lines where a corner at the intersection of two streets is cut off or rounded off.

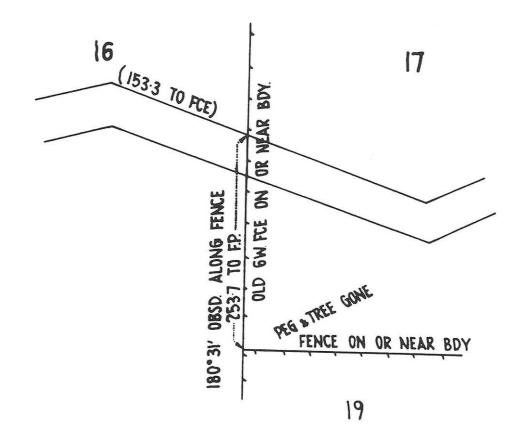
PUBLIC ROADS

- 5.1 In the survey of any road under the Public Roads Act the provisions of the Public Roads Act, the Survey Practice Regulations, Ordinance 32 of the Local Government Act and these Directions must be strictly observed.
- 5.2 Where the proposed road traverses freehold titles or Crown tenures each terminal of the proposed road must be connected to a defined survey point and a comparison of azimuth determined. Where the proposed road traverses vacant Crown lands it must be connected to a registered survey and if practicable a comparison of azimuth determined.

(i) Where the proposed road intersects title boundaries between separate ownerships or the boundaries of Crown tenures those boundaries shall be carefully re-established and the intersections of the sides of the proposed road and those boundaries shall be defined by survey and marked. The bearings of such boundaries shall be determined and measurements shown to defined survey points on those boundaries.

(ii) Provided that, where the terminals of the proposed road have been accurately connected to former registered surveys and all internal titles and unnecessary roads can be accurately plotted in relationship to the proposed road, the requirements of this Direction may be dispensed with if such connections involve undue expense.

(iii) Provided also that where a fence has been erected on or near a boundary between different ownerships or of Crown tenures and the intersection is not defined as provided in the first paragraph of this Direction, the distance along the proposed road traverse to that fence shall be noted and a bearing observed and noted along the line of that fence. Fences shall not be adopted as boundaries unless sufficient investigation is made to establish that presumption. Unless boundaries are properly redefined cuts on fencing shall be noted vide the adjacent diagram. Distances to corner fence posts on or near title corners to be shown where practicable.



5.4 Where the proposed road provides for resumptions along the frontage of an existing title or Crown tenure all cuts shall be determined on the ground where readily practicable but, where insufficient marks are found and the old surveys can be accurately plotted in relationship to the proposed road, this requirement may be dispensed with, excepting that in the case of a Crown tenure sufficient computed connections must be provided to permit the compilation of a plan of the residue area.

- 5.5 Where an intersection with the boundary between separate ownership or of a Crown tenure has not been defined as set out in the first paragraph of Direction 5.3 reference marks shall be placed to permit of ready re-establishment of the proposed road at that point. Without limiting discretion it will generally be preferable to place these reference marks at each end of the road traverse line which crosses that boundary.
- 5.6 New roads shall be measured of uniform width wherever possible. Small areas of unnecessary roads shall not be closed except in special circumstances.
- 5.7 A road shall be marked on both sides by trees blazed in the prescribed manner, and hardwood pegs, not less than 75 mm square and at least 500 mm long, shall be inserted 450 mm in the ground at all angles and at intervals prescribed by the Survey Practice Regulations, with lockspits at pegs on the side measured.
- 5.8 Where an angle of a new road is defined by the centre of a fence post, it shall be \bigwedge

marked RD and plan noted FPRD

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- 5.9 Reference trees marked "RD" may be placed, in addition to markings required by the Survey Practice Regulations, at terminals of the proposed road and at intervals of about 1500 m throughout.
- 5.10 The survey requirements of the Department of Main Roads for intersections or junctions with Main Roads or Trunk Roads shall be carefully adhered to and it shall be the responsibility of the measuring Surveyor to obtain the concurrence of the Divisional Engineer of that Department unless such has been provided for in the instructions for survey.
- 5.11 Severed land shall be identified by survey and sufficient information supplied to enable its metes and bounds to be determined.
- 5.12 All easements, rights of way, etc. apparent on the ground shall be accurately defined in relation to the boundaries of the proposed road and such information shall be shown on the plan.

NATURE AND POSITION OF MARKS

- 6.1 Where any line or corner is required to be marked in accordance with these Directions, the points to be marked shall be firmly marked with a peg, drill hole in rock, drill hole in concrete or similar material, or a nail in fixed timber, or as otherwise required by the Survey Practice Regulations.
- 6.2 A broad arrow shall be cut into one face of each survey peg near its top.
- 6.3 Pegs on corners or angles of surveys, alignment pegs, each terminal of a cut off corner of an urban lot, each tangent point within an urban lot, all road pegs and all pegs within a cemetery shall be of sound durable hardwood or white cypress pine.

- 6.4 In surveys of lots of 4000 square metres or more all pegs shall be at least 530 mm long and not less than 75 mm square section at the top end.
- 6.5 In surveys of lots less than 4000 square metres all pegs shall be at least 400 mm long and not less than 75 mm by 35 mm at the top end.
- 6.6 Lockspits shall be placed in the direction of each boundary line from all marked corners or angles other than at pegs on the corners of lots of less than 4000 square metres or unmeasured sides of roads or where the corner is located on a track in use.
- 6.7 Lockspits shall consist of trenches 1 m long, 200 mm wide and 150 mm deep commencing 300 mm from the peg or may consist of packed stones of similar dimensions.
- 6.8 Where any corner or angle is marked with a drill hole broad arrow, chisel mark or nail in fixed timber, where practicable wings shall be cut in solid rock, concrete or fixed timber 80 mm long 20 mm wide and not less than 15 mm deep commencing 50 mm from the corner or where the surface renders it desirable lines may be painted at least 300 mm long and 20 mm wide.
- 6.9 Where a corner to be marked is situated on bed rock, concrete or similar material within 300 mm of the surface, marking shall consist of a drill hole not less than 10 mm in diameter and 30 mm deep with a broad arrow at least 80 mm long directed thereto and cut into the rock or material 15 mm deep.
- 6.10 Where a corner to be marked is situated on fixed timber, marking shall consist of a galvanised nail with a broad arrow at least 80 mm long directed thereto and cut into the timber 15 mm deep.
- 6.11 Where a fence post is situated on a corner to be marked, it shall be marked with a broad arrow at least 80 mm long and 15 mm deep cut into the face of the post.
- 6.12 Where any tree is required to be blazed, it shall be marked with two cuts each at least 300 mm long situated on opposite sides of the tree in the direction of the boundary line. Each cut shall have a horizontal cut at least 50 mm deep at the base. The wood of the tree shall be pared down from the top to the horizontal cut. Where a tree is required to be double blazed an additional blaze at least 200 mm long shall be marked above each of the other blaze marks.
- 6.13 Reference trees shall be prepared by removing a shield of bark at least 1 m in length with a width at the bottom of at least one-third of the girth of the tree. This shield shall face directly towards the corner. A broad arrow at least 100 mm long and 15 mm deep shall be cut centrally in the shield approximately 300 mm below the top of the shield, and the point of the arrow shall be the reference point.
- 6.14 Numbers cut in satisfaction of Paragraph No. 3.1 of these Directions shall be 100 mm in length and 15 mm deep on reference trees, rocks and fence posts and 50 mm long by 6 mm deep on pegs.
- 6.15 An urban lot peg shall be marked with the number of each lot to which that peg is common. Such numbers to be at least 40 mm long cut 6 mm deep into the peg or may be painted in black on a white or yellow background on the exposed faces of the peg

which shall be so placed and numbered that each lot number will face towards the lot to which it refers.

- 6.16 Where any urban lot corner is marked on a rock, concrete, or fixed timber, numbers of like dimensions to those specified in Paragraph 6.15 of these Directions are to be cut or painted thereon.
- 6.17 Where a tree is situated on a corner or angle, a shield of bark shall be removed facing a boundary line and a broad arrow shall be marked on the shield so as to be on that boundary line. A reference shall be determined from the point of that broad arrow to the corner and the plan noted "Tree on Corner" and the reference noted in the usual manner. Normally, trees so marked should be marked with the lot number or numbers.
- 6.18 Where a reference mark is required to be placed, it shall consist of anyone of the following: -

(i) A concrete block in the form of a truncated pyramid 400 mm long, 150 mm square at the lower end and 100 mm square at the upper end with a galvanised iron nail or suitable metal plug not less than 80 mm long and 5 mm diameter inserted therein so that the head of the nail or plug shall project 3 mm beyond the surface of the upper end of the block. The block shall be formed of concrete made from three parts of clean sand and one part of cement or four parts of blue metal crushings, two parts of sand and one part of cement.

The block shall be reinforced longitudinally throughout by at least two 5 mm diameter steel rods or by galvanised wires of not less than No.8 gauge. The block shall be firmly set upright with the top 75 mm below the surface.

(ii) A mass of concrete cast in situ of the specification provided in (i) not less than 150 mm square throughout and 400 mm deep with a galvanised iron nail or non corrosive metal plug not less than 80 mm long and 5 mm diameter inserted therein so that the head of the nail or plug shall project 3 mm beyond the upper surface. The upper surface shall be 75 mm below the surface.

(iii) A galvanised iron pipe 300 mm long and 20 mm internal diameter with a rim not less than 3 mm thick.

(iv) A galvanised iron spike 100 mm long driven into fixed timber with a broad arrow 80 mm long cut into the timber 15 mm deep and directed thereto.

(v) A drill hole cut into a kerb, a brick, concrete or stone wall or other substantial structure at least 6 mm diameter and 10 mm deep with a broad arrow at least 80 mm long and directed thereto.

(vi) A drill hole at least 10 mm diameter and 30 mm deep cut into bed rock or natural rock with a broad arrow 80 mm long and directed thereto.

(vii) A broad arrow cut into the face of a reference tree,

(viii) An existing permanent mark placed, adopted or established under the provisions of the Survey Co-ordination Act, 1949.

PLANS

7.1 Plans shall be drawn in a dense black waterproof or plastic drawing ink as appropriate and without colour or edging. Rub-on lettering, treated with Krylon Workable Fixatif or similar spray, may be used on a cronaflex form. Plans shall be drawn on the following forms :-

(i) Lots shall be on Form A293, A294 or A295. Plan Form A295 is to be used only as an annexure to plan Form A294 and shall not exceed three (3) in number;

(ii) Roads prepared for purposes of the Public Roads Act shall be on Form A296 or A297. Where the survey is too extensive to be depicted on the latter, the plan may be prepared on a similar form with dimensions not exceeding 1500 mm by 500 mm. Plans on A297 or larger may include a maximum of three additional sheets on the Form A297a; and

(iii) Alignments, realignments, alteration and remarking of alignments shall not be smaller than 420 mm by 297 mm nor larger than 1500 mm by 500 mm unless prior approval is given by the Roads Officer, Investigation Branch, Crown Lands Office, and shall be on cronaflex material of good quality.

- 7.2 Plans shall be accurately plotted and if found to be incomplete, faulty or not up to the standard of professional work they may be rejected without compensation.
- 7.3 All parcels of land drawn on plan Forms A293, A294 or A295, regardless of the number of sheets on the plan shall be numbered as consecutive lots in strict numerical sequence in accordance with the survey instruction. The sequence shall be -

(i) For rural surveys, (see Appendix" A") commencing with the next available parish number issued by the Local Land Board Office; and

(ii) For urban surveys, (see Appendix "B") commencing at 1 for each deposited plan or as otherwise directed.

- 7.4 Plan of survey which involves the subdivision of an existing survey is to show, in addition to the new survey, the residue of the particular lot or measured parcel subdivided. In special cases, with prior approval of the District Surveyor or at his direction, the above requirement would not apply. Where a residue is shown, it shall be by way of compilation (unless in certain cases the District Surveyor requests full survey) and bearings and distances of all right line boundaries are to be shown. In cases where the residue area is extensive and complicated in design bearings may be omitted. The surveyor's certificate should be completed to identify both the surveyed and compiled sections of the plan (see Appendix "D"). Where part only of a lot is surveyed, the boundaries actually measured should be identified in the certificate.
- 7.5 <u>Reduction Ratios</u>

The reduction ratio to which the plan is drawn shall be chosen from the following ratios:-

1: 50, 1: 100, 1: 125, 1: 200, 1: 300, 1: 250, 1: 400, 1:600, 1: 800 or multiples of powers of ten thereof.

Where plan Form A293 is used, the plan shall be drawn at a reduction ratio which will admit of all details and notation being clearly reproduced by photographic process at the same ratio; in every other case the plan shall be drawn at a reduction ratio which will admit of all details and notation being clearly reproduced by photographic process at double the ratio.

Use of excessively large or small reduction ratios may lead to rejection of plans.

Lots in the Western Division

Lots in the Western Division will preferably be drawn to a ratio of 1: 80 000 but a ratio of 1: 50 000 may be used where necessary to show boundaries, measurements and improvements more clearly.

7.6 Plans shall contain the following information: -

(i) The reduction ratio to which the plan is drawn.

(ii) A record of any pegs, marks or monuments of former surveys used or connected with, together with specific reference to-the catalogue or registered number of the plan of such surveys .

(iii) The north point (which shall not be directed below the horizontal) and meridian of the survey, e.g. true, grid, integrated survey grid, magnetic, local or assumed.

(iv) The datum line of the azimuth of the survey, shown by distinguishing letters placed at the terminals thereof, together with a description of the marks defining the datum line.

(v) Lot numbers, areas, a record of monuments placed, lengths and bearings of all boundaries and details of connecting lines.

(vi) The widths of all roads indicated in the plan and of their footways and carriage ways if defined by alignment.

(vii) Information sufficient to indicate that the external boundaries have been properly established and do not include any part of adjoining properties or roads. The surveyor shall disclose in the plan or in an accompanying report any doubt, discrepancy or difficulty suggested by or encountered in the survey.

(viii) The identities of all adjoining lands.

(ix) Sufficient information to define the site of any proposed easement and to indicate the relationship of the easement to the boundaries of any affected parcel.

(x) The site, nature, width and origin of any existing easement affecting a parcel comprised in the plan and its relationship to the boundaries of that parcel.

(xi) The present name of every road shown thereon, confirmed by reference to the local Council or other appropriate authority if necessary.

(xii) All known names of rivers, creeks, hills, lakes, localities, etc., care being taken to ascertain and adhere to the correct orthography.

(xiii) The signature of the surveyor and the date of completion of the survey. In the case of compiled plans a statement identifying the source of information from which the plan has been compiled.

(xiv) Boundaries of territorial divisions as set out in Appendix (J).

(xv) Where plan Forms A294 and A295 are used and tabulations of dimensions and marks are used in any additional sheet, they shall be shown on the sheet to which they relate.

(xvi) A part of a lot in a subdivision shall not be shown on any additional sheet unless the lot is shown as a whole unit elsewhere in the plan.

(xvii) No information other than the survey, the north point, all diagrams and tabulations of dimensions and reference marks relating thereto shall be shown in the plan drawing area of any plan form.

- 7.7 Boundaries of lots measured shall be shown by heavy unbroken lines, other boundaries by unbroken black lines. Traverse lines, connections observed trigonometrical rays, and computed lines shall be shown by broken black lines. All measured angles in boundaries, reserved roads and traverse lines are to be depicted by small circles. Where permanent marks or reference marks other than 6.18 (vii) are placed, two concentric circles shall be shown at the angle to which they refer.
- 7.8 Reserved roads within lots shall be represented on the plan by unbroken black lines on the measured side and broken black lines on the opposite side. The width shall be written along the course of the road thus "Reserved road 20 wide".
- 7.9 Lines of coasts, rivers, creeks etc"., shall be shown by firm black lines. An arrow is to be drawn indicating the direction of the current and where practicable both sides of a watercourse are to be drawn.
- 7.10 Where a fence or other structure is near a boundary its relative position thereto shall be noted on the plan.
- 7.11 All bearings shall be recorded in degrees, minutes and seconds from the north clockwise. The rounding of bearings is left to the judgement of the Surveyor.
- 7.12 Particulars of former corners and reference marks shall be indicated as "found" or "gone". The term" gone" is not to be used unless proper search has been made and notes of measurements made for that purpose are recorded in the field notes. The bearing and distance from any reference mark found to the corner are to be recorded on the plan.
- 7.13 The date of survey in the certificate on plan shall be the date on which the measurements and necessary markings were completed on the ground.

7.14 (i) <u>LENGTHS</u>

As a general rule lengths under 500 m should be expressed to the nearest 0.01 m, except that short lengths, where circumstances require higher accuracy, may be expressed to the nearest 0.005 m. All lengths of 500 m and above should be expressed to the nearest 0.1 m provided that, if the Surveyor considers it desirable these lengths may be expressed to the nearest 0.01 m.

(ii) <u>AREAS</u>

Areas will be shown in hectares (ha) except for areas of 10,000 hectares and over which will be shown in square kilometres (km^2) and for areas less than one (1) hectare which will be shown in square metres (m^2) . All areas will be shown to not more than four (4) significant figures except for areas less than 100 m² which will be shown to not more than one (1) decimal place.

e.g.	4567	ha	4567 m^2
	456.7	ha	456.7 m^2
	45.67	ha	45.7 m^2
	4.567	ha	

7.15 The bearings and distances from reference marks or other special marks or monuments to corners, angles, and alignment marks shall be noted on the plan in tabular form, the points referred to being identified by letters in alphabetical order.

Station or Corner	Bearing	<u>From</u>	<u>Length</u>	<u>Number</u> <u>Marked</u>
А	0° 31'	Bloodwood	25.25	15 - 16
В	265° 30'	Ironbark	17.565	17
С	Fence post or	a corner		17
D	Rock mark at	corner		16
E	165° 32'	G.I. Pipe	0.455	
F	Numbered pe	g at corner		16

REFERENCE TO CORNERS

Particulars of corner and reference marking shall appear in full in the schedule illustrated above with a separate entry for each item. Fence posts, which are situated on corners, if numbered shall be listed in above schedule and shown as "Fence post on corner" (with any necessary reference S.P. Reg. 33) followed by the numbers so placed. The note ditto is not to be used. Where an additional reference mark is placed at a corner, particulars thereof must be shown immediately below the corner notation.

7.16 DRAFTING STANDARDS

(i) Pens with a nib ground to a predetermined size should be used. Points are available in the "Micronorm" range of 0.25 mm, 0.35 mm, 0.5 mm, 0.7 mm etc. and these sizes are recommended.

(ii) As a general rule, the ratio of character height to line thickness shall be 10: 1. However, although a minimum height has not been adopted, provided the result is quite legible, the minimum line thickness on plans will be 0.25 mm.

(iii) A suitable lettering style is called "Microfont", an example of which is hereunder :-

	N						
		1					

Some alternatives are available, the circled versions being preferred. Alpha capitals should be used with lower case being adopted only for the conventional symbols of "m²" and "ha" while all lettering, both alpha and numeric, should be vertical.

(iv) The decimal marker should take the form of a prominent" dot" of diameter slightly larger than the line thickness of the relevant numerals. It should appear at mid-numeral height and occupy a space equivalent to the average numeral width.

- 7.17 Every plan shall be kept free from blemishes and from creases caused by folding or otherwise.
- 7.18 The heading of the plan shall identify the land comprised therein.
- 7.19 A diagram may be used to amplify any detail not clearly shown on the main plan owing to smallness of reduction ratio. These will be drawn (if to reduction ratio) to an appropriate ratio chosen from 1: 20, 1: 25, 1: 30, 1: 40, 1: 50, 1: 60, 1: 80, 1: 100, 1: 125 or multiples of powers of ten thereof.
- 7.20 The Surveyor shall endorse upon the plan of survey a certificate in or to the effect of Form 1 in the Schedule to the Survey Practice Regulations. When a partial survey is performed the certificate should identify the part surveyed.
- 7.21 Distinctive symbols, boundaries and conventional signs used on plans shall be those prescribed by Regulation 8 of the Survey Co-ordination Regulations, 1951 (see Appendix" J").
- 7.22 Where a fence post is proved to be on a corner and the other references have disappeared, the plan must shown" F.P. on Cor" not "FP fd".
- 7.23 Plans of proposed roads under the Public Roads Act shall have the following special requirements:-
 - (i) Both sides of a proposed road are to be shown by heavy black lines;

(ii) Careful plot of intersections of the proposed road with title boundaries or existing roads must be made, special care being taken where connection is not made by survey and the relative information shown on the pi an has been determined only by plot;

(iii) Lots of lands to be resumed or withdrawn, roads to be dedicated and roads to be closed are to be depicted as a whole and drawn to scale. Where it is necessary to draw a plan on more than one sheet, the join lines adopted shall be such that all proposed new lots are depicted as a whole and are drawn to scale.

(iv) Information as to owners and occupiers of lands affected by the proposal and lot numbers as to lands to be resumed or roads to be closed must not be shown on the plan of survey; and

(v) Each plan lodged shall be accompanied by a dye-line copy thereof appropriately tinted to illustrate the proposal and noted with the names and addresses of the owners and occupiers of affected I ands as at the date of survey and showing the areas of the lands to be resumed and the roads to be closed.

- 7.24 All direct bearings and distances required for describing the relative positions of measured land shall be calculated and noted on the plan.
- 7.25 Astronomical observations are to be shown in a table on the plan under the headings of the observation station, body observed and variation between survey azimuth and true azimuth.

ALIGNMENT, REALIGNMENT, REMARKING AND ALTERATION OF ALIGNMENT OF STREETS

ALIGNMENT OF STREETS

- 8.1 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 City, Municipal and Shire Councils, under Section 27, Public Roads Act, 1902, and in accordance with the provisions of Sections 258 260, Local Government Act, 1919.
- 8.2 The carriageway in a street 20 m wide shall, as a rule, be 13 m and the footways 3.5 m 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.
- 8.3 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 the 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.
- 8.4 The Council shall satisfy the Minister that private subdivision streets, splayed corners and areas provided for road have been dedicated to the Public.

- 8.5 Connections shall be made to trigonometrical stations when practicable and to the nearest adjacent alignment survey for comparison of azimuth. At least two Permanent Marks or State Survey Marks shall be placed in suitable positions and connections thereto shown upon the plan. Connection shall also be made to any other Survey Coordination Marks in the immediate locality (see Survey Coordination Act, 1949).
- 8.6 Both kerb lines are to be measured and radiations taken from alignment pins to permanent buildings, both to be shown upon the plan (see Appendix "E").
- 8.7 Encroachment by structures of a permanent character and fences upon the footways should be located by measurements from the kerb lines; all buildings within 1.5 m of the building lines shall, if possible, be located and shown upon the plan (see Appendix "E").
- 8.8 Connections shall be made between alignment pins at the intersections of the street as shown in Appendix "E".
- 8.9 Excepting where building lines junction at an acute angle of 75 degrees or less, the markings of the alignment should be placed at the intersection of the kerb and building lines unless prevented by obstructions, in which latter 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 200 m apart. Where building lines junction at an acute angle of 75 degrees or less, alignment markings are to be placed in the kerb lines rectangularly from the point of junction of the building lines (see Appendices "F" and "G").
- 8.10 Alignment markings shall not be placed at the intersection of aligned streets with those not yet aligned.
- 8.11 Streets necessitating alignment by surveys shall be measured and marked in accordance with Appendices "E", "F" and "G". Full information with respect to measurement, together with calculation of curves, to be indicated upon the plan as shown on Appendix "F".
- 8.12 Alignment pins used for marking the alignment shall be iron castings, open box style, 100 mm x 100 mm x 450 mm 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 600 mm long for use in sandy soils.
- 8.13 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.
- 8.14 The plan of survey shall be plotted to a convenient reduction ratio according to the amount of information required to be shown. Connections, boundaries of subdivision titles and kerb lines are to be shown respectively by short, medium and long broken lines. The layout of the plan to be generally in accordance with Appendix "E".

- 8.15 The various classes of buildings together with offsets thereto from the kerb line should be shown upon the plan and indicated as shown in Appendix II E". Offset from kerb as laid to kerb line should be shown.
- 8.16 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, etc. should also be shown.
- 8.17 Alignment markings placed should be indicated by black squares; alignment marks found should be indicated by open squares. See Appendices "E" and "H".
- 8.18 The boundaries of grants, if correctly located, to be shown upon the plan in firm lines and by 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.
- 8.19 The names of owners and occupiers of any buildings encroaching upon the streets should not be indicated upon the plan, but full particulars with respect of such occupiers must be shown by the surveyor on a copy of the plan and forwarded therewith.

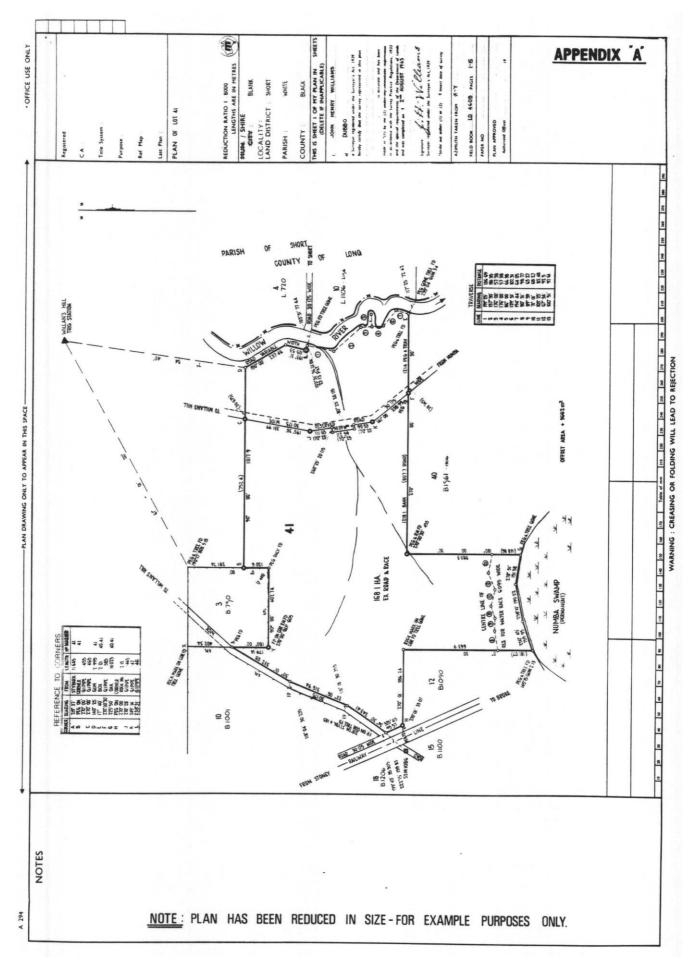
REALIGNMENT OF STREETS

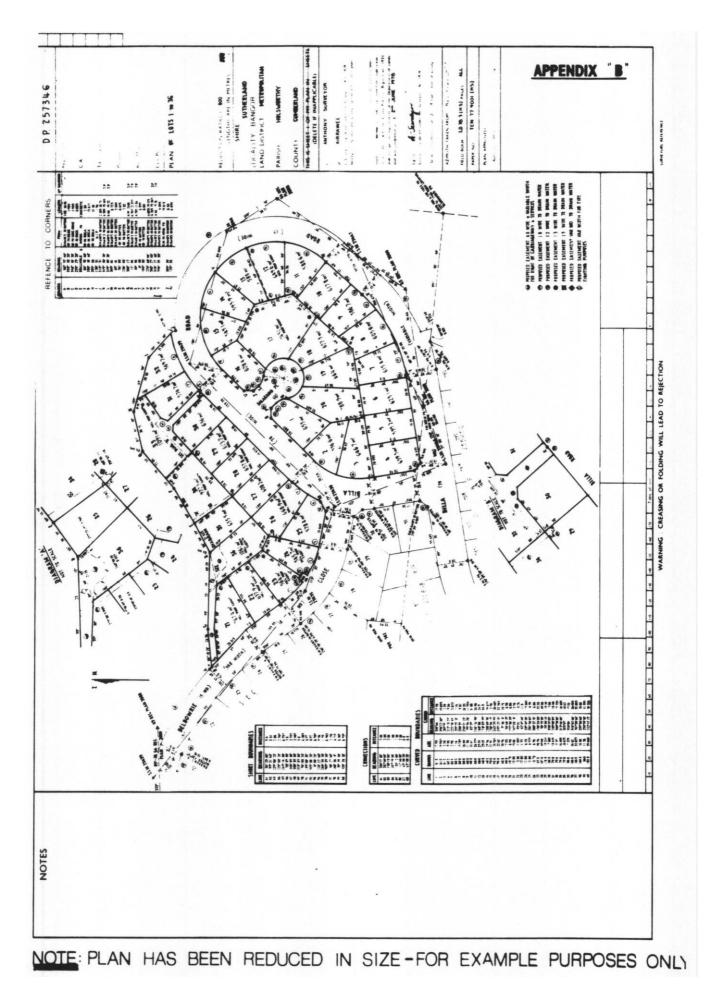
- 8.20 A realignment of a street is carried out by the Minister for Lands on application by City, Municipal and Shire Councils under Section 27. Public Roads Act, 1902 and in accordance with the provisions of Section 262, Local Government Act, 1919. The street either can have been previously aligned and the realignment must then be based on the alignment or a public road which is sufficiently measured and defined in the opinion of the Surveyor General. Should it not be sufficiently measured it must first be aligned.
- 8.21 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 streets in prolongation of the new alignment. See Appendix "H". In the absence of suitable kerbs or gutters for such marking a concrete block shall be placed in the footway.
- 8.22 Commonwealth property shall not be included in the realignment as it is unaffected by State Legislation. Crown land, also, is not included in realignments.
- 8.23 Plans shall be drawn similarly to the requirements for alignment plans and in accordance with information in Appendix "H". Particulars of ownerships shall not be shown on plan but a copy of the plan shall be forwarded therewith setting out such information.

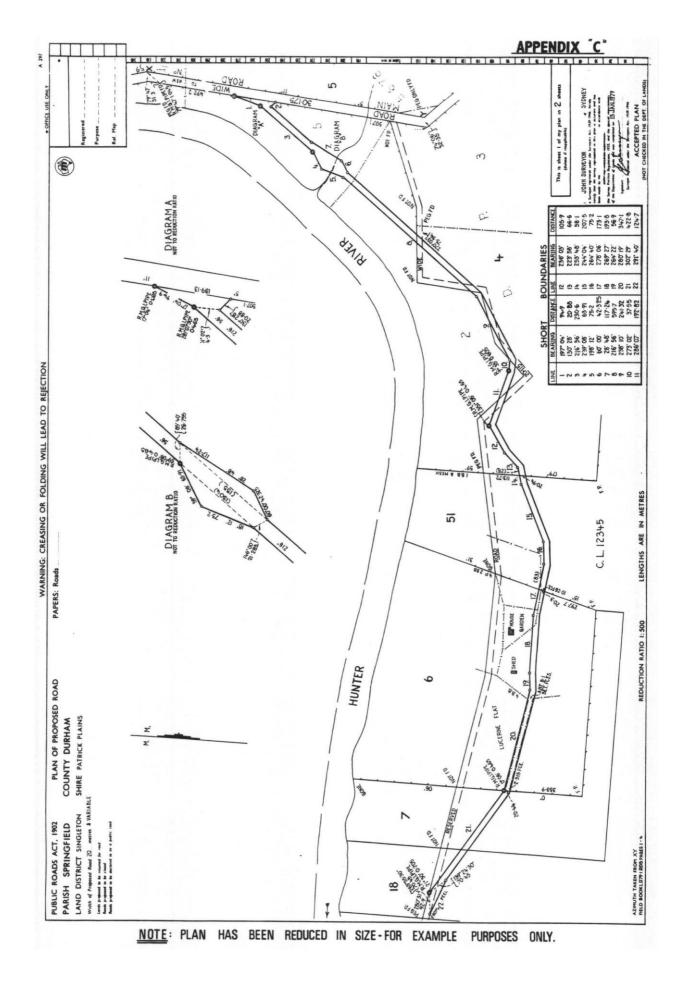
REMARKING AND ALTERATION OF ALIGNMENT OF STREETS

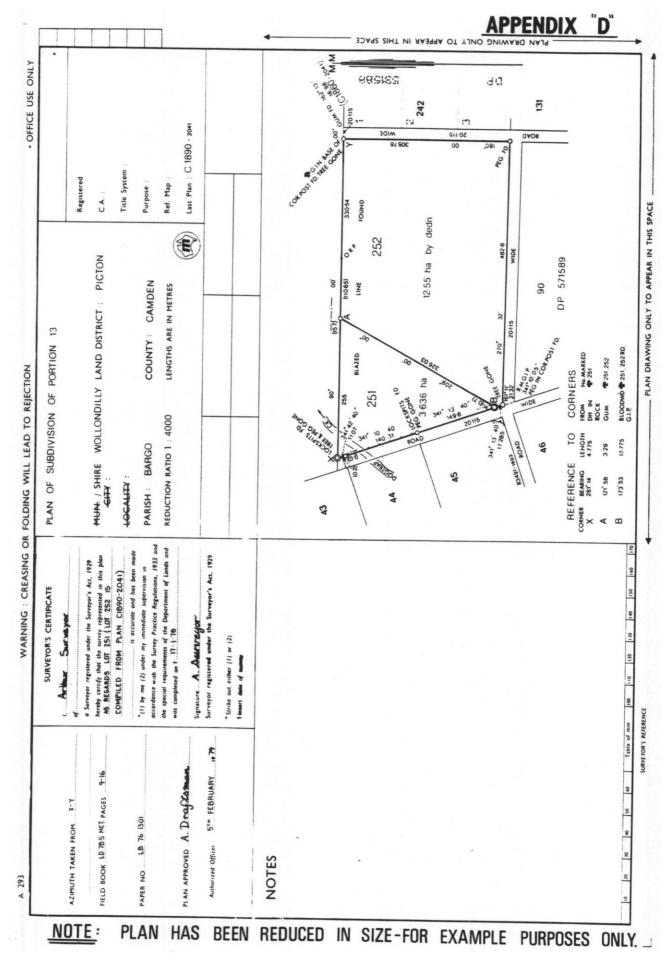
- 8.24 Remarking of alignment is self explanatory. Alteration of alignment means, usually, the alteration in width of carriage and footways, and/ or to include parcels of land subsequently dedicated as public road.
- 8.25 Survey shall be based on the alignment and alignment pins are to be used for remarking or for altered positions of alignment marks.

8.26 Plans shall be drawn similarly to requirements for alignment plans and information shall be similarly shown thereon in accordance with Appendix "E".



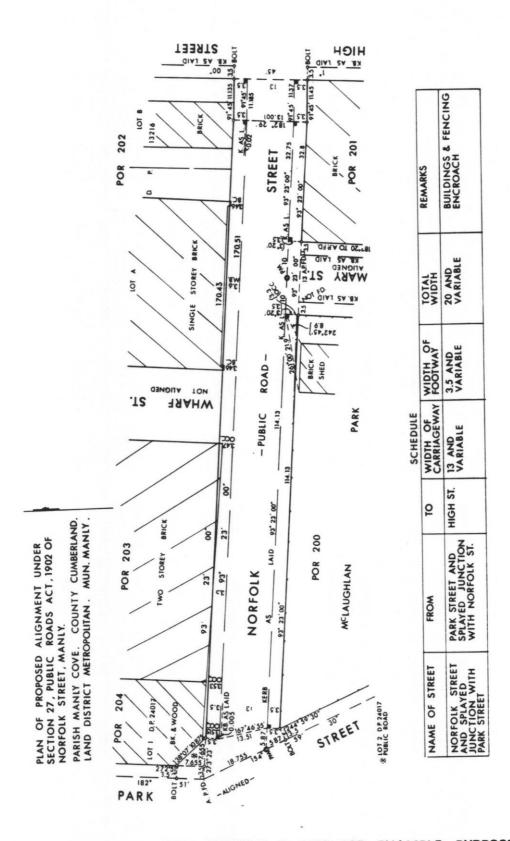






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APPENDIX E

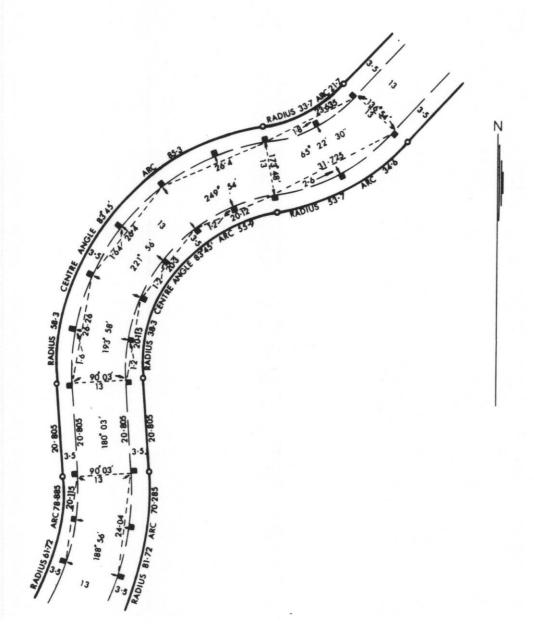


NOTE: PLAN HAS BEEN REDUCED IN SIZE-FOR EXAMPLE PURPOSES ONLY.

APPENDIX "F"

ALIGNMENT SURVEYS

SHOWING PLACEMENT OF MARKS AND MEASUREMENT REQUIRED IN RESPECT OF CURVES - DIRECTIONS 8.9. AND 8. 11.





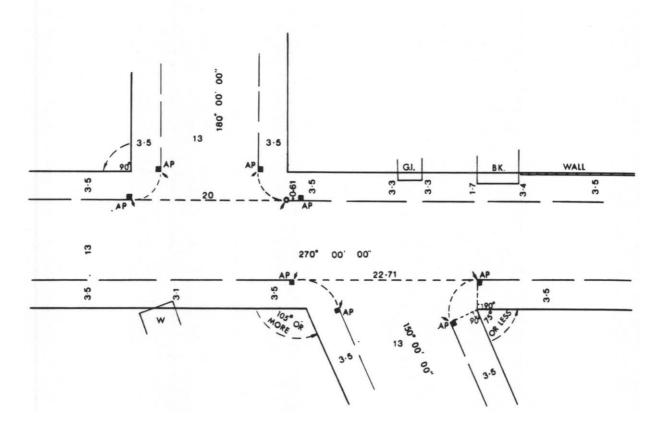
ALIGNMENT SURVEYS

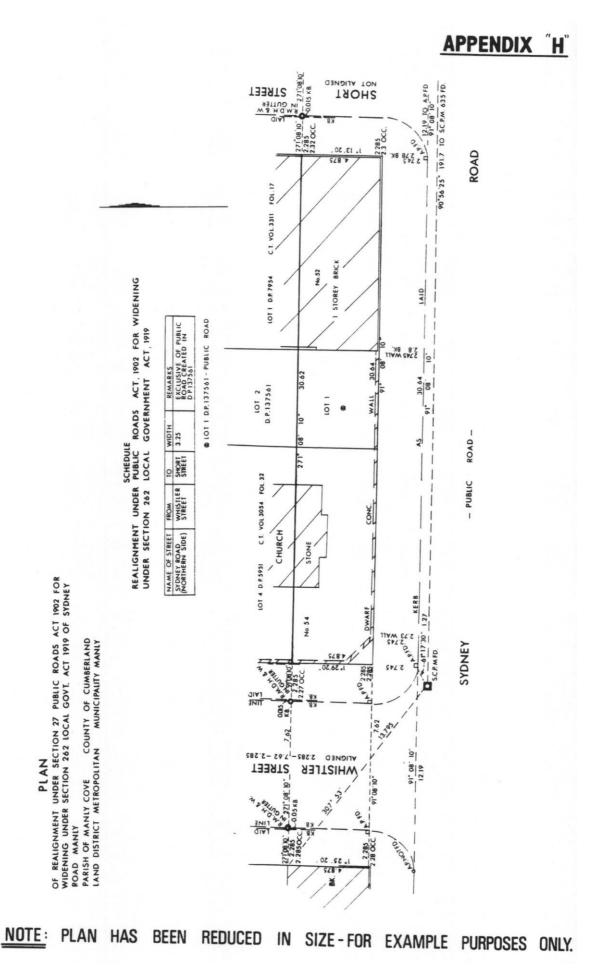
SHOWING F

PLACEMENT

OF MARKS

DIRECTIONS 8.9 and 8.11.





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(Western Division)	
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Flood Prevention Trust District.	
NOTE When boundaries are concurrent they should	be combined as in the following example
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Permanent Mark (Survey Co-ordination Act)	P.M.642 OR 5.5.M. 1753

END OF DIRECTION