

SUPPLEMENT  
TO THE  
**NEW ZEALAND GAZETTE**

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WELLINGTON, MONDAY, JANUARY 25, 1897.

*Regulations for conducting the Survey of Land in New Zealand.*

GLASGOW, Governor.

IN pursuance and in exercise of the powers and authorities conferred upon me by the fourth section of "The Land Act, 1892," I, David, Earl of Glasgow, the Governor of the Colony of New Zealand, do hereby make the regulations hereinafter set forth for the purposes of the said Act, and I do also hereby revoke the regulations heretofore in force for like purposes made on the nineteenth day of May, one thousand eight hundred and eighty-six, and published in the *New Zealand Gazette* of the twentieth day of May, one thousand eight hundred and eighty-six.

REGULATIONS.

1. In these regulations, if not inconsistent with the context,—

"Chief Surveyor" means the officer in charge of the surveys in any land district of the colony:

"Inspecting Surveyor" means a surveyor appointed to carry out the duties of inspection specified in these regulations:

"Surveyor" means a surveyor authorised by the Surveyor-General, or the Board of Examiners, to execute surveys within the Colony of New Zealand:

"Chief Draughtsman" means the officer having charge of all indoor operations in any land district.

SETTLEMENT SURVEYS.  
SURVEY DISTRICTS AND BLOCKS.

2. Survey districts shall each comprise an area of  $12\frac{1}{2}$  miles square or thereabouts, which are apportioned on the maps of the standard survey of the colony. In numbering the blocks within survey districts, the numbers are to commence at the north-west corner, and be numbered from I. to IV. No. V. will come immediately to the south of No. I., and so on throughout the district, except in irregular districts, where the same order of numbering must be followed so far as the area will allow, care being taken to use up the whole of the numbers consecutively. The lines dividing districts and blocks shall be straight, unless in irregular country, where road-lines, rivers, or section boundaries should be used as nearly approximating the right line as can be made. No survey block shall exceed in length or breadth the distance of 250 chains ( $3\frac{1}{4}$  miles) unless under special circumstances, however much less, or whatever form it may be.

BASE LINES.

3. In triangulating a survey district or a portion thereof, where it is necessary to start a fresh series of triangles, a level piece of ground must be chosen in a central and convenient place for the measurement of a base. The line should be chipped or otherwise prepared, and should be about 2 miles in length. Before commencing the measurement of the base, a standard must be laid down on the ground by standard steel band, adjusted to  $62^{\circ}$  Fahr., for reference. The band should be tried on this at the commencement and ending of each actual measurement. During measurements, temperatures are to be observed (the co-efficient to be used may be .0000062 for each degree) for correction of expansions and contractions of band, which have to be applied in calculations to deduce the

true length at 62° Fahr. The steel band when in use is to be held with a tension of 14lb., and the ends marked on flat boards spiked into the ground. These flat boards should have a hollow filled with lead, for receiving the end-marks of the band, to be made by a sharp instrument. Three boards must be used, the last being always carried forward. The base should be measured thus at least three times, and the mean of the measurements taken. Angles of inclination must be observed, so that a vertical section of the line can be made for reduction to true level. Bases of verification are to be measured in the same way. When for any reason it is inconvenient to prepare the ground, a base line may be measured 2ft. or 3ft. above the surface, the steel band being supported on adjustable stands, and, with suitable precautions, may be measured on an incline. The final length of base-line must be reduced to sea-level.

#### MINOR TRIANGULATION.

4. The surveyor must be provided with a 5in. theodolite, standard steel band, thermometer, prismatic compass, aneroid, and straining apparatus.

5. Should a major triangulation cover the area to be surveyed no measured base will be necessary, for the distances of minor trigonometrical stations will be obtained by breaking down the larger triangles, always on the Ray Trace system if practical.

6. Trigonometrical stations for minor work should be, as nearly as practicable,  $2\frac{1}{2}$  miles apart. To extend the meridian of the circuit from the geographical into the settlement survey, one of the geodesical or major trigonometrical stations is to be chosen as origin, the bearing being deduced from those given on the standard maps. If a theodolite, with three verniers, is used, at least three sets of observations are to be taken to each minor trigonometrical station in the series; the circumference of the instrument is to be divided into at least three arcs, using each one successively as an origin—thus nine readings will be observed; but if a theodolite with two verniers is used, at least four sets of observations are to be made, the horizontal arc being divided by four, and each used as an origin respectively—thus eight readings will be observed on different parts of the limb. The number of readings here set forth should never be less, but it is optional with the surveyor to take more. In each set, the instrument must be turned in one direction until the origin station is again bisected, and the return reading of the vernier is to be entered in the field-book. The angles at each trigonometrical station are to be observed in like manner, so as to complete the three angles of each triangle, and the defect,  $\mp 180^\circ$ , is to be applied to correct the summation. Points are to be selected so as to have well-conditioned triangles—no angle being less than  $30^\circ$  nor greater than  $120^\circ$ , unless under very exceptional circumstances. As far as practicable, crossing triangles, or one bearing over another bearing, are to be avoided; each triangle should appear on the maps distinct from others, and it is advantageous to carry the triangles forward in a polygonal series, by which a continuous check is obtained; care must be taken to close on to adjacent triangulations wherever practicable. Vertical angles are to be observed between stations with similar care, the datum heights for computation being taken from the standard maps.

7. The logarithms used in computations should be taken out to seven places, and the angles to seconds. After the sides and angles are known, the position of all stations are to be calculated on the

meridian and perpendicular of the initial station of the circuit, or of the survey district, as may be decided by the Chief Surveyor of the district, and a table of the same prepared. Only in cases where it is impossible to adopt the circuit origin is the district origin to be used. From this table the skeleton maps must be constructed by standard scale. The difference of height between two trigonometrical stations is to be obtained from the vertical angles taken at both stations.

8. In executing the survey of an isolated section or of a block, if a base has to be measured, minor triangulation is to be carried from it to the land to be surveyed; but, if the work is to be based on major triangulation already executed, triangles are to be carried thence in the most direct course to such survey, and no more work is to be executed than is necessary for checking the linear measurements.

9. With average care the degree of error in minor triangulation need not exceed 2 links to the mile, and this is the extreme error allowable; the error in the summation of angles of a triangle must not exceed  $30''$ . All work having error in excess of this will require revision.

10. Minor trigonometrical stations are to be constructed in the following manner: Gas-pipes, 2in. internal diameter, cut to  $2\frac{1}{2}$ ft. lengths, are to be inserted into cast-iron plates with sockets, secured by an iron pin. The alphabetical letter or number of the station is to be cut on the upper end of the pipe with a cold-chisel. The pipe thus constructed is to be sunk in the hole prepared for it to a depth of 2ft. 3in., with the metal plate downwards. The hole must be then refilled, and the loose soil firmly beaten down. Round this a circular ditch, 20ft. diameter, 1ft. deep, and 18in. wide, should be dug. On high rocky peaks where a ditch cannot be dug, a circle of stones should be made. When in use the trigonometrical tube should have a pole carrying a black-and-white flag, or a ball, bunch of brushwood, or other suitable signal inserted into it, and the pole must be properly stayed; or a light wooden pyramid may be erected over it, with calico or boards tightly tacked or battened to the sides all round for about 3ft. from the top; signals may be varied in accordance with special instructions. It is not desirable to build trigonometrical mounds, but in low positions these may be necessary; the surveyor will in such cases exercise his own judgment. If mounds be built, the exterior rim should be of stone or sods, with earth in the centre. In positions where the nature of the soil may require modifications special directions will be given.

11. The trigonometrical work only is to be mapped on one sheet, which should show trigonometrical stations (two concentric pink circles) with their alphabetical letters or numbers and local names, which should be the original Native ones where obtainable, the base line in red, other lines in black, bearings observed from each station (in blue), calculated mean distances (black), the observed angles (in the middle of each triangle) summed up (black). A few of the streams should be shown, so as to localise the trigonometrical stations readily. There should also be a note giving the results of the different measurements of the base line, which should also be given in detail in a special report. Scale, 40 chains to an inch.

#### TOPOGRAPHICAL SURVEY.

12. Combined with the trigonometrical operations, a topographical survey is to be made showing

the disposition of natural features and their names, also roads, tracks, ridges, rocks, streams, forests, passes, remarkable objects, natural and artificial, &c., and these must be shown on a topographical map. For altitudes, vertical angles are to be observed to prominent objects, such as peaks, passes, valleys, and confluence of streams. A surveyor with a good eye can make a serviceable sketch-map from his trigonometrical stations, and by theodolite alone, by taking the bearings, cross-bearings, and tangents, with estimated distances of objects; but, if the country be intricate, bearings from intervening positions can be taken where necessary. Prismatic compass and aneroid may be used when the theodolite cannot be had recourse to; in forest country this is especially necessary, as is also the determination of heights of saddles and valleys, riverbeds, lakes, swamps, &c.

13. The topographical map is to show the trigonometrical stations, lettered or numbered, trigonometrical heights in feet (in red),—barometrical heights also in red, and marked "Bar.,"—streams (in blue), hills shaded (in Indian ink); the Native or local names of places, streams, hills, &c.; roads in use (in firm burnt-sienna lines), tracks (dotted sienna), bush (green), suggested main lines of future roads (in firm red line), and any other features, natural or artificial, which can be shown. Shade the boundary of the district in colour. Scale, 40 chains to an inch.

#### RURAL BLOCK AND SECTION SURVEYS.

14. The surveyor must provide himself with a 5in. theodolite, 5-chain tested steel band, Abney level, aneroid, prismatic compass, protractor, mathematical drawing instruments, scales, planimeter, and branding-irons, &c.

15. No magnetic bearings are admissible, unless under very special circumstances in minor detail work, and this very sparingly and with permission. Flat or undulating country should be laid off in rectangular sections, but in rugged or hilly country the ridges and valleys must modify their form. It is desirable to have all the boundaries on the meridian and perpendicular; but when the general features of the country run obliquely to these, especially in rough districts, the boundaries must be arranged accordingly, so as to form lines which can be easily fenced. The less diversity of bearings the better for the avoidance of errors and multiplication of office-work. When necessary, road-lines may cross sections diagonally, but this is to be avoided, and when done, the areas of sections are to be shown in gross and net also. In forest, the boundaries of the block and section-lines for at least 3 chains from the frontage-pegs are to be cut 4ft. wide, the scrub to be cut close to the ground. All trees 2ft. through and under to be cut down, the large ones at 2½ft. from the ground, the small ones 6in. from the ground. The lines to be cut and cleared 7ft. above the ground. In open country the lines must be pared 2ft. wide. Where boundaries cross ridges only such cutting and paring are to be done as will insure the direction being seen from point to point. The back lines of sections in rough country should follow the ridges, to allow of fencing; and this will apply also to section-lines where the sections are large. In ranging long sectional lines crossing ridges, lockspits are to be cut so as to enable fencers to keep the right line. If the boundaries of the area to be sectionized exceed 3½ miles it will be necessary to divide it into two or more survey blocks, which separate blocks can be reduced into one plan for exhibition to the public. Names should be given to each road surveyed, the Native names to be re-

tained where ascertainable. In cases where roads abut on to or must cross railway-lines, the Surveyor must communicate with the Resident Engineer or District Manager of Railways on the subject, with the view of determining suitable crossings.

16. In traversing, the surveyor is to proceed to the nearest trigonometrical station and base his work on the true meridian of the district by the recorded bearing to an adjacent trigonometrical station. A close should be made with another trigonometrical station, or on to some known point, to test the accuracy of the work. Angles of elevation and depression are to be observed to reduce inclined measurements to the horizontal value. After being located and graded, the road-lines should be traversed, and the surveyor, when at a trigonometrical station, should take careful readings to as many of the traverse or subsidiary points as possible, to check his position as he proceeds. Where possible to do so, all traverses should be pegged before the bearings are observed. All bearings should be repeated to avoid error, and, where practicable, the bearing is to be thrown forward as far as possible to avoid accumulation of instrumental errors. The boundaries of sections should next be run, and, if necessary, be measured. Offsets to irregular boundaries, rivers, or streams must not exceed 4 chains in length, and must be taken at intervals in the traverse not greater than 3 chains, but they must be taken at closer distances if necessary, to correctly define the irregularities to be mapped.

17. All traverses are to be reduced on the meridian and perpendicular of a trigonometrical station, and this should be done daily, so that no actual measurements get in advance of this mode of check on the operations. Special instructions will be issued as to what trigonometrical station the work is to be co-ordinated with, in case it is impossible to use the circuit origin. As a rule, the origin of the circuit is most convenient, and affords at once a ready check by comparison with adjacent work. In rural and suburban surveys the position of all actually chained lines (excepting to range pegs), all corners of blocks and of isolated sections, whether chained or not, and the intersections with the traverses of all boundary-lines of sections, are to be calculated and tabulated. Should two traverses—say, of a road and of a river—run nearly parallel and not more than about 10 chains distant, it will not be necessary to calculate both, nor, when surveys already co-ordinated are used in the survey in hand, will it be necessary (unless specially called for) to recalculate such previous traverses so long as the closure is shown on the traverse-sheets of the new survey. The calculated positions on meridian and perpendicular are to be entered in the form marked A in the Schedule hereto, and are to be forwarded with the map.


18. Unless where otherwise specially ordered, main and cross road-lines are to be pegged generally to a breadth of 1 chain, occupation roads to ½ chain, main roads 3 to 4 miles apart, by-roads or cross-roads ½ to 1½ miles apart, and all necessary through roads to give access to back or adjoining country 1 chain wide. In very broken country it is advisable to increase the width of roads. In level country the opposite angles should be pegged by setting off half the included angle and calculated distance; but in hilly and mountainous districts, where the land is of little value, the roads tortuous, and the traverses short and intricate, pegs at angles may be dispensed with and the roads shown by straight or curved lines adjacent to conveniently-situated tra-


verse-pegs, the distances between which pegs and the sides of the road adjacent thereto, as well as the lines forming the sides of the road, may be calculated or scaled, as the case may admit. Lines bounding roads in such cases need not be parallel, but must not approach the centre of the road-line within 50 links. At distances not greater than  $\frac{1}{4}$  mile apart, iron tubes are to be inserted in positions not likely to be disturbed, and, where possible, so situated as to be visible from a trigonometrical station or from another tube. At the boundary of a section or block, however, pegs must in all cases be placed on both sides of the road. Main roads should not have a steeper grade than 1 in 15; district roads, 1 in 10; and where these grades cannot be readily obtained, the case should be reported for advice: and in all cases roads should be graded on the best lines to be found, and the gradient written on the plan, if steeper than 1 in 50. In certain cases, longitudinal and cross sections of roads will be necessary, for which special instructions will be given; but in all cases the surveyor is to insure that the grade can be obtained within the road. In cases where traverses are carried partly along an open river-bed, angle-pegs must be placed on the banks at least 30 links from the brink of river.


19. All adjacent and included prior claims and their boundaries are to be investigated, and, if necessary, redefined; for which object copies of the original plans will be furnished from the chief district offices. These claims are to be surveyed as held by established or indicated marks on the ground, and must be shown on the map by black lines if the boundaries disagree with recorded measurements based on original plans and descriptions. If owners of prior claims cannot be found, and if all the marks of their claims are obliterated, then it will be competent for the surveyor to re-establish the boundaries by his own actual survey, recording them in the same manner as new surveys. A general rule is, not to interfere with original boundaries, and, with respect to the survey of land already disposed of but not granted, the exact area should be marked off: where land has been granted, but not previously surveyed, or of which the survey marks are lost, the distances according to the grant are to be taken, in preference to any attempt to lay out upon the ground the exact area granted.

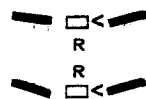
20. All pegs are to be of sawn or dressed heart of totara, kowhai (goay), blue-gum, kauri, matai, (black-pine), puriri, or hinau, 3in. by 2in., and 2ft. long, put 18in. into the ground, the hole having first been driven by an iron jumper. The front pegs of sections must have the numbers of the sections and the letter R branded on them; in bush, back pegs are to be branded with the numbers as well; road traverse pegs must have the letter R and the broad arrow, either at the side or on top; ranging pegs, the broad arrow only. In forest country, at convenient distances, trees on the traverse lines should be blazed, and the linkage marked on the face. Conspicuous trees should also be branded, and their distances and bearings from section corners noted in field-book. Sections must be pegged front and back as well as at every corner, and have ranging pegs placed 3 chains distant from the front ones, with the lines pared 2ft. wide, or cut 4ft. wide up to them: should the 3-chain distance come in an impracticable place, then the peg is to be placed wherever convenient for extending the line beyond, and the distance from the frontage peg be given on the map. Pegs must be inserted and lockspits made at the intersection of every road, large stream, or path likely to be seen by the public. Where the side lines of

sections exceed 80 chains in length, ranging pegs are to be inserted along the boundary, in places prominent from the back corner as well as from the front or range peg of the section. In forest where the timber has not been burned off, iron pins 6in. long,  $\frac{1}{4}$ in. square or diameter, should be inserted alongside every boundary-peg. In town and suburban work, pegs should be centred with a tin tack.

21. All pegs in open country should have trenches dug in the following manner: 6ft. long, 9in. wide, and 9in. deep. At adjacent section frontages, thus: 

At traverse boundaries, thus: 

At corners of isolated (spotting) sections, thus: 

On road-lines, thus: 

in all cases commencing 2ft. from the peg. Attention is to be paid to the placing of pegs or marks so that they can be best preserved, and be readily found by settlers when fencing their boundaries.

22. The positions of the section-pegs in the traverse lines already surveyed are to be measured on the ground and noted on the map, and should the section-peg be off the traverse line the point of intersection should be given, as well as the distance of the section-peg from that point. The measured or calculated distances should, where the roads are pegged on both sides, be given from adjacent road-pegs on same side also.

23. All crossings of creeks and tracks in public use are to be noted; also such notes are to be made as will give a sketch of the topographical features to be delineated on the working-plan.

24. In mapping, meridian and perpendicular lines are to be drawn through the initial station of the survey, or at even distances of 100 chains from initial point, which initial station must be a trigonometrical station; or faint-blue lines may be drawn so as to describe squares of 5in. sides. From these the skeleton boundaries and traverses are to be set off by scale and parallel ruler from the distances in the calculated traverse table. An Ordnance protractor may be used in detail plotting. The top of the map must always be to the north. In irregular and complicated figures, the areas must be given within one-half per cent. of the mathematical area.

25. After having drawn road-lines and boundaries on the map, disposition of sections is to be designed, adhering as much as possible to the cardinal points for sake of simplicity and the avoidance of error. Sections are, as nearly as practicable, to have a depth equal to three times the width or frontage to a road, stream, lake, or coast; but where land is open for selection before survey, the sections must not have a depth of less than 40 chains.

26. Measured lines are to be drawn in red, calculated lines in black, with figures in red and black respectively. Observed bearings are to be written in blue, and calculated bearings in black. New pegs should be marked by a small red circle, old pegs by a small black circle. Water is to be coloured Prussian blue, roads burnt sienna, bush green. Hills to be shaded in light Indian ink. A black marginal line is to be drawn round the map. Road-line and boundary-ends of adjacent survey sections

and blocks are to be shown. A scale 12in. in length is to be drawn; also an inscription in upright letters denoting block and district, or parish, name of surveyor, date of survey, and number of field-book. The interior detail writing should be clear and distinct. A short description of each section is to be drawn up in the form marked F in the schedule hereto.

27. The error attached to traverse survey necessarily varies with the nature of the ground, and, as it is essential for the security of settlers in rural blocks that it should not accumulate above 20 links, it will be advisable to have recourse to triangulation subsidiary to minor where the country is so rough as to prevent correct chaining. On an average, surveyors can chain a mile within an error of 2 to 4 links; the limit of error in traverse must not exceed 4 links to the mile. Should the error in closing with the triangulation exceed this limit the work must be revised. So also traverses should close in bearing with an error not exceeding 2 or 3 minutes of arc. The difference or error of closure within these limits is to be eliminated by distribution.

28. Suitable sites for schools are to be indicated, about 10 acres in rural districts and about 5 acres in suburban districts. Reserve at least 100 links frontage to all navigable rivers and coasts, bays, inlets, or creeks, and along the margins of all lakes exceeding 50 acres in area, and along the banks of all rivers and streams of an average width exceeding 50 links, and, in the discretion of the surveyor, along the bank of any river or stream of less width, making the traverse lines if possible the boundary. Bushes in sparsely-timbered country are to be reserved, and in bush-country all clumps of valuable timber; also stone-quarries, gravel- and sand-pits for road-making, where conveniently situated for trunk and district lines. In the choice of quarries they should, where possible, be selected on the ridges, or in positions from which the haulage is down-hill. The tops of all high ranges, when wooded, are to be reserved, more especially at the sources of all streams; and reserves for all or any purposes mentioned in section 235 of "The Land Act, 1892," should be recommended for reservation and marked on the plan where necessary. Places of historical or scenic interest are to be recorded on working maps, and special reports recommending their reservation are to be forwarded with the map.

29. In surveying a spotting or isolated section or claim the surveyor must proceed to the nearest geodesical or trigonometrical station, or to other established previous survey station, and connect his section work by minor triangulation, and he must prepare a plan of the section and its connections on special sheets provided for that purpose. If the claim be near to a trigonometrical station he may connect by traverse.

30. If no geodesical or trigonometrical station be available for connection it will be the duty of the surveyor to report the circumstance to the Chief Surveyor of his district before executing the survey; and in cases where a broken country is covered with forest, preventing minor triangulation or approved traverse circuit, special direction will be given for the survey and sectionizing of the locality under such conditions.

#### TOWN SURVEYS.

31. The main streets in all towns, whether on Crown lands or private lands, are to be laid out of a breadth not less than 150 links; side streets not less than 100 links wide. No right-of-way is allow-

able of a less width than 100 links. In grass country the sides of the main street-lines are to be pared; in fern and bush, cut. In addition to the pegs at the corner of every section, not fewer than four stone blocks or iron trigonometrical stations shall be placed 25 links from the building-lines, so that three of them shall be reciprocally visible from each other, and on these the angular measurements of the town are to be based. In surveys of towns which have been built on, or partially built on, the distance of standard traverse lines from the building lines will be determined by the Chief Surveyor of the district in each case. The block or trigonometrical tubes are to be flush with the surface of the ground. The point of intersection, in section and street lines, is to be defined by a tack driven into the top of the peg.

32. Open spaces are to be set apart and reserved for recreation-grounds, the number of such reserves being regulated by the superficial area of the town, being not less than one-tenth of such area, the separate size of such reserves in no case being less than  $12\frac{1}{2}$  square chains. The superficial area means the area divided into town sections, and the necessary streets to give access thereto.

33. No reserve is to be made for cemetery purposes within any town.

34. Municipal reserves are to be made at the rate of 1 acre to every 10 acres of the saleable area of the town; also one or two school-sites of not less than 2 acres each. There should also be laid out sufficient land, either outside or inside such towns, for sites for depositing nightsoil, dirt, and rubbish, and such sites shall be selected on such side of the said towns as shall be opposite to the quarter from which the prevailing summer wind blows; also sufficient land, either outside or inside such towns, for sites for gravel-pits and stone-quarries, and for depositing gravel, stone, or other materials required for making and repairing roads within such towns; provided that gravel, stone, or other road materials can be obtained in the locality. Reserves for public purposes suitable to all towns, such as are enumerated in section 235 of "The Land Act, 1892," are to be recommended. On the plans these areas to have their specific purposes written on each, either in full or in abbreviated form.

35. The streets of all towns are to be laid off in straight lines and at right angles to each other, as nearly as a due regard to the natural features of the country and drainage of the land will permit; and allotments are to be laid off at right angles to the streets which they front when possible.

36. The name and plan of every town or village, whether on Crown or private lands, are to be approved by the Governor prior to any sale.

37. The limit of error in measurement in town surveys must not exceed two links per mile.

#### SURVEY OF NATIVE LANDS.

38. The foregoing regulations apply equally to the survey of Native lands for any purposes whatsoever, and, in addition thereto, the following rules are to be observed:—

39. All boundary-lines of original blocks must be distinctly marked on the ground by lines cut through all vegetation above 2ft. in height, but subsequent subdivision may, in the discretion of the Chief Surveyor, be marked in the same manner as sections of Crown lands.

40. Where not otherwise agreed upon between the Chief Surveyor and the surveyors, the following are the rates to be paid for the survey of Native lands for the purposes of the Native Land Court:—

## Schedule Rates per Acre.

Area.	Bush.		Open.	
	Rate per Acre.		Rate per Acre.	
Acres.	£	s. d.	£	s. d.
10 to 15	0	5 0	3	0 0
15 to 20	0	4 6	3	15 0
20 to 30	0	4 0	4	10 0
30 to 50	0	3 6	6	0 0
50 to 100	0	3 0	8	15 0
100 to 200	0	2 6	15	0 0
200 to 300	0	2 0	22	10 0
300 to 500	0	1 7	30	0 0
500 to 1,000	0	1 3	39	11 8
1,000 to 2,000	0	1 0	62	10 0
2,000 to 5,000	0	0 8	100	0 0
5,000 to 10,000	0	0 4	166	13 4

(a.) Where two or more surveys adjoin, a deduction from the sum total arrived at by the above rates is to be made as follows:—

Where two sides adjoin, deduct 25 per cent. of total, or three " " 37½ " "

(b.) If the surveyors' camp is situated over 10 miles from the nearest store, in the discretion of the Chief Surveyor, there may be added to the above rates 5 per cent.; if 20 miles, 10 per cent.; if 30 miles, 15 per cent.; if 40 miles, 20 per cent.; and above that by special arrangement.

(c.) Subdivisional surveys will be allowed at mileage rates, except in very exceptional cases, when the Chief Surveyor may allow the above acreage rates or a modification of them.

## (d.) Schedule Rates per Mile.

Rough bush-country—	£	s.	d.
Road surveys ... .. per mile	20	0	0
Traverse- or boundary-line "	14	0	0
Ordinary bush-country, with scrub—			
Road surveys ... .. "	16	0	0
Traverse- or boundary-line "	13	0	0
Hilly, open country, with scrub—			
Road survey ... .. "	10	0	0
Traverse- or boundary-line "	8	0	0
Open country—			
Road surveys ... .. "	8	0	0
Traverse- or boundary-line "	6	0	0

(e.) Wherever deductions are made for contiguity, an allowance of £1 per mile will be given for plotting and calculating adopted work; the same will apply when mileage rates only are allowed. For topographical and other internal work, where acreage rates are not used, a payment of 10s. per square mile will be allowed if, in the opinion of the Chief Surveyor, the work is worth it.

(f.) In travelling to the work, by railway or coach, the surveyor will be allowed £2 a day, and four men at 7s. a day, with rail- and coach-fares added. For pack-horse work, 7s. 6d. a mile will be allowed up to 40 miles, which includes surveyor and men's pay.

(g.) It shall be competent for the Chief Surveyor of any district to make special arrangements with respect to any block, and to fix rates by the mile, or by a daily rate or other equitable rate, for surveys which do not come strictly under any of the above descriptions.

41. All claims to be made for charging orders under section 65 of "The Native Land Court Act, 1894," must be made in accordance with the Rules and Regulations of the Native Land Court. No Chief Surveyor is bound to certify to costs which exceed, in his opinion, what is a fair charge, even

in cases where arrangements have been previously made as to such costs.

42. Charges acquired by the Crown for the survey of Native lands under section 37 of "The Native Land Laws Amendment Act, 1896," are to be drawn in the Form I. given in Schedule.

43. All surveys undertaken for the purposes of the Court, when not done by the official survey staff, must be made by authorised surveyors, specially authorised by the Surveyor-General, who shall issue a specific authority in writing in each case. Men employed by surveyors to take charge of survey parties must be approved by the Chief Surveyor of the district in which the land lies; and not more than two parties shall be employed by any authorised surveyor, unless they are under the charge of authorised surveyors.

44. When triangulation is available for ascertaining distances it will not be necessary to chain long lines if the crossings of streams, ridges, or other natural features are fixed by intersections; but the crossings over ridges must be cut and cleared, and direction-pegs there placed. Where a boundary-line abuts on to a stream, lake, or coast-line, the length of such line, as well as the traverse length, must be supplied. Swamp or terrace boundaries are inadmissible; they must be shown by right lines.

45. The positions of all remarkable hills, ridges, pas, eel-weirs, Native cultivations, tracks, battle-fields, villages, rahuis, boundary-stones, &c., within or near the block under survey must be fixed by intersections; and the courses of all rivers, forest margins, swamps, lakes, coast-lines, or other natural or artificial features must be sketched in for delineation in their proper position on the map. All legal roads traversing a block must be properly shown on map, and in cases where unsurveyed formed roads intersect such a block they must also be shown.

46. The Native names of all boundaries or natural features within or pertaining to the block must be ascertained, together with the names and position of adjacent lands, and be shown on the map.

47. All plans are to be drawn upon mounted paper, to the scales given in clause 62 of these regulations, but they must not be on a less scale than 20 chains to the inch, unless by special permission. It is advisable when possible, but not absolutely necessary, to keep the maps of the uniform sizes of 30in. x 30in., or 18in. x 16in., but in no case must a less space than 100 square inches be left clear of any survey detail. Maps should be neatly drawn, in accordance with specimens to be seen in any of the survey offices. The whole boundary of the land forming the subject of the claim is to be conspicuously indicated by a tint of pink carried all round within it, and, when islands lying adjacent to the mainland are intended to be included in the claim, they must be coloured of the same tint. The map should have a plain title stating the Native name of the block, the survey district, and the land district in which the land lies, with the name or names of one or more of the applicants, and the names of those who pointed out the boundaries. The scale of the map, the meridian of the circuit in which the block is situated, and the area must be plainly drawn. In the lower left-hand corner must be quoted the number and date of letter of instructions to the surveyor, with the number and page of the field-book. The map must bear a certificate signed by the surveyor making the survey, in the form or to the effect marked H in the schedule hereto. After examination, the map, if in order, is to

be approved by the Chief Surveyor of the district, by writing the word "Approved" above his signature, and it is to be sent to the Native Land Court when the case is advertised.

48. Original plans of blocks which have been approved by the Chief Surveyor must not have further survey work or detail of a permanent character added to them. Subdivisions of such original blocks as ordered by the Native Land Court, or made at the instance of the owners of the land, must be on separate maps.

ROADS AND ROAD RIGHTS.

49. All plans to be certified to under the Public Works Acts, and plans of roads taken in exercise of road rights shall be made in accordance with the following regulations:—

50. The traverse of the survey should be connected at intervals not greater than two and a half miles to the trigonometrical stations of the district, as well as to the corners of the sections or properties through which the road passes. The regulations for ordinary road surveys, already prescribed, will equally apply in these cases.

51. Where no triangulation exists the traverse should be chained and observed twice, and, if possible, connected at, say, three-mile intervals to some permanent topographical feature outside the line of formation, at which place a peg should be placed and lockspitted.

52. The lengths of the sides of the area proposed to be taken for the work should be given for each property, as well as its true position in the property.

53. The traverse should generally commence at the same end, and the pegs should be numbered in the same direction as that of the engineering traverse, if any, and should be plotted upon sheets of regulation size, to a scale of 10 chains to an inch, or to such larger scale as will allow of all necessary detail being shown. In the case of railway surveys, the uniform scale of 3 chains to an inch is to be used, and the work plotted the length of the sheet, irrespective of the north point, and each sheet should not contain more than one mile.

54. The names of the present owners of properties, the numbers of sections or subdivisions, blocks, &c., should be written on each, wherever they can be ascertained; also the area of land taken for the work from each property or separate holding.

55. The ground-marking, pegging, &c., should be done generally as directed in a previous part of these instructions.

56. Maps should be drawn on mounted paper to the sizes and in the colours hereinbefore prescribed for working-plans. Boundaries of road districts should be edged in light colour, and the name printed in same colour, every district having different shades or colours. Lands to be taken are to be coloured in different shades or colours for each adjoining property; roads to be closed to be coloured green. Maps are to be in duplicate, or one copy on mounted tracing-cloth. The plan is to be certified as correct by the surveyor who made the survey, and also by the Chief Surveyor of the district in which the land lies. In roads taken under authority of the Governor's warrant, a certificate is to be written on the plan in the form marked H in the schedule hereto.

57. An accurate schedule of the land proposed to be taken from each property must be furnished with the plan in the form marked F in the schedule hereto, which must be certified as above.

CONTRACT SURVEY.

58. No surveyor can be considered qualified to be a contractor unless he is an authorised surveyor, holding a certificate of competency from the Surveyor-General, or from the Board of Examiners, and has had five years' experience in an approved system—that is, in any system whose field operations are subject to mathematical check.

OFFICE RECORD.

59. Field-books, working-plans, record maps, and documents relating thereto and to titles, are to be kept in a fireproof safe.

60. Working plans, whether of meridional circuits, major triangulations, minor triangulations, or block surveys, are to be drawn on antiquarian paper, cut to 30in. square. These are to be laid flat, in folios 33in. square, which will allow of their sliding in to level shelves 34in. square, constructed in a closed press, set up in the fireproof safes attached to the survey offices. Where there is not room for laying flat, folios may be placed upright. The working plans of isolated sections, after being compiled on 30in. sheets, are also to be kept in portfolios 18in. by 16in. Under special instructions, certain classes of plans may be kept in drawers without portfolios. All these plans should remain unmounted, except under special circumstances. The compiled or index plans, being unavoidably of large size, should be mounted and kept in rolls. The tops and bottoms of these maps should have thin laths glued or tacked to them, and extra-fastened with copper tacks. An index plan of each county in the land district, on a scale of 80 chains to the inch, coloured to show the tenure, should be found in the chief office of each district. These are to be hung in a convenient place for public access, and are to be mounted on rollers.

61. Original plans, block-sheets, and record plans are open to surveyors and professional draughtsmen only, under the supervision of the officer having charge of the plans, when not in use by the department; but other compiled plans are open to the public.

62. The following are the scales to be used in surveys:—

		<i>Working-plans.</i>	
Town sections, or sections			
under half an acre	..	2 chains or $\frac{1}{20}$ mile	to an inch.
Suburban sections	..	5	"
Rural sections	..	10	"
Minor triangulations	..	40	"
Topographical	..	40	"
Meridional circuit	..	320	"
Reconnaissance and major triangulation	..	160	"
Index maps	..	80	"
<i>Copied or Compiled Plans.</i>			
Town or village selection maps	..	5 or 10 chains	to an inch
Town or village Crown-grant record maps	..	2	"
Rural selection maps (after survey)	..	10	"
" (before survey)	..	40	"
Crown-grant record maps (rural)	..	20	"
Territorial maps	..	4 or 10 miles	to an inch.

		<i>Extreme Areas contained in Plans.</i>	
Working-plans of town sections	..	$\frac{7}{10}$ mile square.	
" rural sections	..	$\frac{3}{4}$ miles	"
" minor triangulations	..	12 $\frac{1}{2}$	"
" topographical	..	12 $\frac{1}{2}$	"
" reconnaissance and major triangulations	..	60	"
" meridional circuit	..	120	"

The above are suitable for keeping in the fireproof safes.

Wall-maps may be of any size and scale.

63. With a view to the systematic record of all transactions of the Land Transfer Branch, and of surveys executed under the Public Works or other

Acts, record maps on the same scales as for original surveys—namely, 20 chains to an inch for rural lands, and 1 or 2 chains to an inch for town lands—are to be prepared, on which all road-lines, subdivisions, and other details surveyed since the issue of the Crown grant under the Land Transfer Act, Public Works Acts, the Land Act, Native Land Acts, or any other proper authority, should be recorded.

64. Computation books should be of one size, so as to fit the shelves in the safe. The size should be a little above the ordinary foolscap, and the books should be numbered, paged, and the contents indexed, for easy reference.

#### MAP PUBLICATIONS.

65. Towns may be reduced to any convenient scale. Rural and suburban block or section surveys will be reduced to a scale of 20 chains or 40 chains to an inch, as the area of the sections is small or great. Survey districts are to be compiled to a scale of 40 chains to an inch, for reduction by photography to a scale of 80 chains to the inch.

66. The paper on which the drawing is made is to be perfectly white and smooth, free from dirt, creases, or wrinkles, and of such quality as will admit of a second or third drawing surface if necessary after erasures have been made. Tracing-cloth may be used, but tracing-paper, unless perfectly white and the drawing carefully done, is inadmissible.

67. The drawing is to be executed with good Indian ink, freshly rubbed down, quite black, and free from grit or glaze, a little indigo blue mixed with the ink will improve it.

68. The lines are to be firm and clean, not too fine or too close together. They must all be perfectly black, and pale ink must on no account be used. Thick lines in the printing and borders should be well filled in. Washes of any colour are inadmissible.

69. If cross-hatching or shading is required the lines composing it must be kept as open and distinct as possible, and they should not be too fine, but firm enough to reproduce well. Generally it is better to have fine hatching done by transfer from steel plate, and in such case the drawing should give only the outline. Intensity of shade should be shown by an increase in the thickness of the lines rather than by their being placed close together, as it must be borne in mind that throughout the process there is a tendency for the lines to thicken, so that if they are too close they are liable to block up in the printing, and the work will appear heavy and unsightly. This rule also applies to hill-shading, the darker portions of which should be drawn in thick distinct lines, but not crossed and recrossed with fine lines.

70. As the process produces a perfect facsimile of the original, it is essential that the latter must be complete in every respect, and the drawing, printing, and writing should all be done in as neat a style as possible, so that the result may be fit for immediate publication, and not require to be altered or touched up after transfer to stone, by which the work is always damaged more or less. The hair strokes of the printing must not be too fine. Border lines, which could not be conveniently shown on a large scale plan, can be drawn on the stone.

71. When plans are intended for reduction the lines should be of the proper thickness relatively to the scale of reduction. The printing and detail must also be relatively large in proportion. This rule is often neglected, and the result is the loss of all the finer lines, words, and figures. When drawing for reduction care must be taken to leave suffi-

cient space between the lines of the hill-shading, water-lines, or cross-hatching, so that they may be well separated when reduced, and may not block up in the printing.

72. When possible, it will be better to draw the original on a larger scale than is required for the copy, as a photographic reduction is always much sharper and much clearer than a reproduction.

73. In all cases a scale is to be drawn on the plan, and not stated as a scale of so many chains, feet, or miles, &c., to an inch.

#### DEPOSITS.

74. Deposits made for surveys to be executed by or under the authority of the Lands and Survey Department are in the first instance to be paid to the Receiver of Land Revenue or of Gold Revenue, as the case may be, and shall be by him placed in a deposit account.

75. When the plans are received and have been approved, the Chief Surveyor shall—in cases where the survey has been made by an officer of the staff—forward to the Receiver an abstract or voucher, duly certified, in favour of the "Public Account, Lands and Survey Vote." When the survey has been made by an authorised private surveyor, an abstract or voucher for the sum or sums due, in favour of the person employed, shall be sent in like manner.

76. The Receiver of Land or of Gold Revenue may, after approval of a voucher by the Chief Surveyor, pay to the person entitled any sum up to 50 per cent. of amount of deposit, and on approval of the survey by the Chief Surveyor, and the production of a voucher, shall pay out of his deposit account the balance, or full amount due, as the case may be. Such payment shall be made into the Public Account, or to the surveyor entitled to receive, as the case may require. Should there be a balance, he shall repay it to the depositor, or to the Public Account, as he may be specially instructed.

#### SCALE OF FEES FOR SURVEYS OF CROWN LANDS, SELECTED BEFORE SURVEY.

77. The charges for the survey of unsurveyed forest-covered rural lands open for purchase or selection are,—

Not exceeding 30 acres,	£6.
Exceeding 30 and up to 50 acres,	3s. 6d. per acre, but not less than £6.
Exceeding 50 and up to 100 acres,	3s. per acre, but not less than £8 15s.
Exceeding 100 and up to 200 acres,	2s. 6d. per acre, but not less than £15.
Exceeding 200 and up to 300 acres,	2s. per acre, but not less than £25.
Exceeding 300 and up to 500 acres,	1s. 8d. per acre, but not less than £30.
Exceeding 500 and up to 1,000 acres,	1s. 4d. per acre, but not less than £41 13s. 4d.
Exceeding 1,000 and up to 2,000 acres,	1s. per acre, but not less than £66 13s. 4d.

78. For the survey of any area of open rural land the scale of charges shall be two-thirds the foregoing rates.

79. In case any question shall arise as to what lands are included in the expression "open land," the same shall be settled by the Surveyor-General, whose decision shall be conclusive.

80. The Chief Surveyor may vary the above charges by substituting a charge per mile, or per day, for such work as may not come under the foregoing scale, but in no case may the charges be exceeded without proper authority first obtained.



GENERAL.

81. Field-books are to be kept in ink, and the traverse reductions worked out as the work progresses, so that the Inspecting Surveyor may check the work at any time. Each day's work is to be dated, and the index to each field-book to clearly indicate the page where the field-notes of each section, &c., are to be found. Field-books properly numbered will be issued from the District Survey Offices on application, and must be returned to the offices on being filled. The number of book and page is to be entered on each plan when sending it to the office. Surveyors cannot be too careful in keeping their field-books, for they are more value as evidence than the original plan. The notes should be full and clear, and so entered that any one may plot from them.

82. All plans deposited with any Chief Surveyor or with any inspecting officer for examination become the property of the Government, and their return for correction or addition does not give to the person to whom they are returned any right or claim to their possession. It shall be competent for any Inspecting Surveyor to require in special cases, of which due notice shall be given, that the rules, or any of them, of even date herewith, made under "The Land Transfer Act, 1885," shall also apply to surveys made under "The Land Act, 1892." All plans, field-books, tabulation, or other documents returned to surveyors for correction are to be sent back to the Chief Surveyor with all reasonable dispatch.

83. Upon the receipt of plan of a block for settlement, and as soon as possible after it has been checked, a tracing on cloth, without bearings and distances or traverse lines, and mounted on cloth, is to be sent to the Land Office; also a drawing to a suitable scale is to be prepared for lithographing either in the district or at the Head Office as the case may require.

84. One officer under the control of each Chief Surveyor shall be named by him to be entirely responsible for the preparation of the draft plans for certificates of title, Crown grants, leases, licenses, or other instruments of title, and the same officer should compare the fair copies, and certify to the correctness of the plans thereon.

85. Surveyors in the employment of Government, or executing any surveys which are to be approved by the Surveyor-General, a Chief Surveyor, or an Inspecting Surveyor, are to report to the Chief Surveyor of the district monthly, in the Form B given in the schedule hereto. Government surveyors shall also furnish, on the 31st March in each year, a report and summary of work done, cost, &c., for the past twelve months, in the Form C given in the said schedule. Chief Surveyors will report to the Surveyor-General as soon as possible after the termination of each month, but not later than the 15th of the following month, giving a summary of work executed by the surveyors acting under their supervision, the arrears, or work on hand, and proposed course of duty for the following month, according to the Form D in the schedule hereto. They shall also, as soon as possible after the 31st March in each year, furnish a statement of the work, and its cost, executed during the past year, and the expenditure in the district, in the Form E given in the said schedule.

86. With the monthly report Chief Surveyors will send diagrams of field inspections that have been made in the actual surveys then going on.

87. In provincial districts having not more than ten parties at work, field inspection is to be done by the Chief Surveyor; but, if there be more than ten

parties, an officer will be employed as Inspecting Surveyor—in conjunction with his ordinary duties, if the number to be inspected be few—to be stationed in such district and over such parties as the Chief Surveyor himself cannot overlook. It shall be the duty of the Inspecting Surveyor to inspect and check field surveys, plans, field-books, equipment, accounts, reports, or other duties which the Chief Surveyor may direct him to perform, and for that purpose shall have access to all documents, instruments, &c., connected with any survey he may be instructed to inspect.

88. The Chief Draughtsman will, in the absence of the Chief Surveyor and Commissioner of Crown Lands, have general charge and authority in the head office of the land district, open and attend to correspondence, and sign for him all papers and approve plans other than those of a statutory nature.

89. The method of keeping field-notes required by the department should be adhered to, except in cases of surveyors who have used other methods for many years. It is to be understood that all field-books and maps, whether of the official or the contract surveyor, are the property of Government. Field-books should be dated for each survey, their contents indexed, and their number given on the finished plan. The whole of the contents of the field-book should be plotted before it is returned to be filed for reference.

90. Surveyors engaged on Government work are to repair all trigonometrical stations that are seen to be dilapidated, or report their inability to do so. All renewed stations are to have same letter as the old station.

91. The forms hereafter set forth in the schedule shall be used for the purposes of the foregoing regulations in the several cases to which they are applicable, and shall be deemed to be part of the said regulations, and may be modified in each case as the facts require.

SCHEDULE.

A.

FORM OF TRAVERSE TABLE.

TRAVERSES of		, marked		District, Block											
Section				Land District.											
Page of Field-book.	Surveyor's No. Peg. or Trig. Stn.*	Cardinal Direction.	True Bearing.	Measured Distance.	Traverses of each Distance.				Total Traverses from Trig.				Remarks.		
					O.M.†		O.P.‡		O.M.†		O.P.‡				
					N.	S.	E.	W.	N.	S.	E.	W.			
			o' "	Lk.	Lk.	Lk.	Lk.	Lk.	Lk.	Lk.	Lk.	Lk.	Lk.	Lk.	

\* Note that surveyor's numbers should be sawn on back of pegs in Roman figures, and distinct from branded section numbers in front or side of pegs.  
 † On meridian.  
 ‡ On perpendicular.



G.

FORM OF SURVEYOR'S REPORT.

SURVEYOR'S REPORT on Sections in Blocks , District of

No. of Section.	Area.	Class.	Value per Acre.	REMARKS.
				State shortly approximate area in each section of forest, open, swamp, &c., whether broken, undulating, or level, agricultural or pastoral, description of forest, nature of soil, minerals, if watered, value and nature of improvements, name of occupant (if any), whether accessible by road or river, distance from nearest railway or town, &c.
Total Area }				

Surveyor. (Date.)

H.

FORM OF CERTIFICATE, NATIVE SURVEY.

I HEREBY certify that this survey has been made by under my own inspection, that it is correct, and that all the rules and regulations with respect to the survey of Native lands have been strictly complied with.

Forwarded to the Chief Surveyor at , on the day of , 18 .

Authorized Surveyor.

I.

In the matter of section 37 of "The Native Land Laws Amendment Act, 1896," and of a certain [Mention the instrument] hereinafter particularly mentioned.

To the Registrar of Deeds [or District Land Registrar] of the Registration District of

TAKE notice that the under-mentioned [Specify the instrument] has been acquired by Her Majesty the Queen under the provisions of section 37 of the above-mentioned Act, and in pursuance thereof you are hereby required to register Her Majesty as the proprietor thereof.

Particulars of Security.	Amount.
	£ s. d.

As witness my hand, this day of , 189 .

Native Minister.

Given under the hand of His Excellency the Governor of New Zealand, at the Government House, at Wellington, this twenty-first day of December, in the year of our Lord one thousand eight hundred and ninety-six.

JOHN MCKENZIE,  
Minister of Lands.

LAND TRANSFER SURVEY REGULATIONS.

WHEREAS "The Land Transfer Act, 1885," empowers the Surveyor-General of the colony, with the approval of the Governor in Council, to make such regulations as he may think necessary for insuring the accuracy of plans and surveys required under the said Act, and to cancel and alter such regulations when and as necessary: Now, therefore, I, Stephenson Percy Smith, the Surveyor-General of New Zealand, do, in pursuance of the said power, and with such approval as aforesaid, hereby revoke the regulations made by the Surveyor-General on the nineteenth May, one thousand eight hundred and eighty-six, and published in the *New Zealand Gazette* of the twentieth May, one thousand eight hundred and eighty-six, and in lieu thereof I do hereby make the regulations following, that is to say:—

1. The regulations numbered 1 to 91 of even date herewith, made under "The Land Act, 1892," shall apply equally to surveys made under "The Land Transfer Act, 1885," wherever they are not inconsistent with these rules.

2. Any plan purporting to be a survey, resurvey, or subdivision of any land is to be signed by the surveyor who actually made the measurements in the field, and shall also be verified by statutory declaration of the licensed surveyor employed to make such survey, in the following form, or to the like effect so far as applicable:—

DECLARATION.

For Subdivision of or bringing Land under the Act.

I hereby certify that this plan has been made from surveys executed by me, and that both plan and survey are correct, and have been made

in accordance with the regulations of the Surveyor-General dated , 1896.

A.B., Licensed Surveyor.

Such plan shall be sent through the District Land Registrar for approval by the Chief Surveyor or officer acting for him, and when so approved shall be deemed to be accurate for all purposes of the Land Transfer Act.

3. The surveyor will be expected to disclose all doubts, discrepancies, and difficulties, and to afford all such other information obtainable by him relating to the property and the application for certificate of title or transfer as will aid in securing accuracy and completeness in the business of the Land Transfer Department. A regard to the interests of his employer will not be considered as excusing in any degree the withholding of any information affecting the merits of the application, even though the description supplied may be literally and technically correct.

4. In districts where triangulation exists, and where the triangulation points have not been obliterated, if a resurvey or subdivision of the whole of a rural section is made for the purposes of the Land Transfer Act the survey must be connected by traverse or by a subsidiary triangle with the nearest trig. station. If only a portion of a section is being dealt with this may be dispensed with at the option of the Chief Surveyor, but the survey must be connected with at least two of the corners of the original section. If only part of a section on an already deposited plan is being dealt with, then such survey need only be connected with two or more points of that section; provided always that the section has been previously properly connected with two or more points of the original section in such a manner as to definitely fix the

position thereof. In districts and cities where permanent standard points have been placed, then the survey must be connected both by angular and linear measurement with such bench-marks, and the surveyor must, in his traverses, use the standard points as his initial for bearing and distance.

5. All measured lines and distances must be shown in red, all observed bearings in blue, all calculated bearings or distances in black, the same being written along the lines. Included angles will only be admissible in such districts where minor triangulation does not exist, or where the original stations have been lost, and where the standard points for obtaining the meridian have not been re-established, or in the subdivision of small allotments. All work adopted from a previous survey must be shown in black.

6. Tie-lines in lieu of angles will only be admissible in the subdivision of very small pieces of land.

7. The true meridian bearing between two or more trig. stations or bench-marks will be always obtained by reference to the survey office of the provincial district.

8. Where the boundary consists of natural features they must be traversed unless they form the boundary of the original section, and have been traversed by the Government surveyor. A re-traverse of such boundaries may, however, be required in cases where the original survey appears to be faulty.

9. When an irregular boundary is defined by offsets measured thereto from one or more survey lines the surveyor must furnish the distances along such line or lines at which offsets have been taken, and the length of such offsets.

10. Should a property be bounded on one or more sides by natural features, of which a retraverse is not required, the survey must be closed by traverse-lines or tie-lines in such a manner as will enable the work to be thoroughly checked.

11. All traverse-lines to be numbered, and mathematically reduced on the meridian and perpendicular of the initial station of the circuit, or, if that is not required to be connected with in the survey, on the starting or initial point of the survey, and tables are to be deposited with maps.

12. In the subdivision of small areas or town lands 2 links to the mile will be the maximum error allowed, and in the case of the survey of rural land 4 links to the mile; bearings must close to two or three minutes, according to the nature of the survey. Recent approved surveys adjacent should be connected with the survey being made.

13. All bearings must be observed with a serviceable and adjusted theodolite; the steel measuring-band must be tested and corrected before survey to the Government standard.

14. Deposited plans must be on mounted drawing-paper cut to 30in. by 30in., or 20in. by 20in., cut so that due north is perpendicular to the paper, which must be the exact size named, to fit the office portfolios.

15. The smaller sizes protracting sheets can be obtained at the survey office of the provincial district. Plan to accompany application, transfer, lease, or mortgage to be 15in. by 10in., or on the larger size mentioned above if necessary.

16. Plans of allotments containing 1 to 10 perches should be drawn to a scale of not less than  $\frac{1}{2}$  chain to lin.; 10 to 20 perches, 1 chain to lin.; 20 perches to 1 acre, 2 chains to lin.; 1 acre to 10 acres, 5 chains to lin.; 10 acres to 320 acres, 10 chains to lin.; 320 acres and above, 20 chains to lin. In cases where details are numerous, plans

may be enlarged to 10 or 20 links to an inch. Marginal diagrams of intricate portions may be used. All plans should bear the surveyor's name and address; they should be drawn in a neat, plain, and professional manner, in accordance with examples, which will be shown to surveyors on application.

17. Where the land forms a part of two or more original sections the boundaries of such sections must be shown by a distinguishing colour.

18. The sectional numbers, or names of Native blocks, with the names of the owners or occupiers of the land represented by the plan, and also the names of the owners or occupiers of adjoining lands, whenever obtainable, should be written on the plan, and inquiries, if necessary, must be made for that purpose by the surveyor. Names of adjoining proprietors may be dispensed with in surveys for subdivisional purposes.

19. If the boundary is a wall, it must be shown whether it is a party wall, and whether the line runs through the centre or otherwise. The true position of all boundary-fences must be shown, and the nature of the boundary of the land, whether wall, house, fence, ditch, hedge, stream, road, or undefined, should be stated. The position of a traverse line relative to the hedge, ditch, or fence should be clearly stated (or shown by enlarged marginal plan), whether the line measured is inside or outside or in the middle of the boundary. Swamps, terraces, or irregular fences are inadmissible as boundaries. These must be reduced to straight lines, having defined bearings and distances.

20. Every plan of any survey made under the Land Transfer Act must exhibit, distinctly delineated, the adjacent and included natural features, all the sides of roads, streets, passages, thoroughfares, fences, squares, reserves appropriated or set apart for public use, and also show all allotments into which the land may be divided, marked with distinct numbers. In towns, all the buildings on the section dealt with, and the buildings abutting on the boundaries of adjoining lots, are to be shown on the plan. All plans of private townships, or of extensions of private townships, which require to be submitted to the Governor under sections 17 and 18 of "The Land Act, 1892," are to conform in all particulars with that Act, the 10th section of "The Land Act Amendment Act, 1895," and these regulations.

21. The nature of the boundary—namely, roads, reserves, sections, natural features, together with all easements, such as eaves, light-rights, drainage-rights, whether on, over, or under the surface, and all claims by adjoining owners over the property under survey, &c.—should be shown.

22. All measurements must be given in links.

23. In case of intricate boundaries an accurate description of them must be furnished with the plan.

24. Roads, streets, and rights-of-way to be coloured with burnt sienna; edge of land to be dealt with, green; water, Prussian blue. Where natural features, such as terraces, are shown as the boundary of an allotment or section, they should be coloured with sepia.

25. If required, the licensed surveyor must produce his actual field-book for the inspection of the officer checking his work.

26. The actual measurements made in the field must be given, notwithstanding that they may not agree with the Crown grant or public map, and, should the difference be material, the measured distance and bearing to the next adjacent Crown-

grant boundary is to be furnished, in order to determine whether there is any real encroachment, or whether the differences arise from former defective surveys. The license of any surveyor will be cancelled if it is found that the measurements or bearings certified by him as correct differ materially from those which exist on the ground. And, in dealing with this subject, the surveyor must adhere to the principle of the unchangeableness of original lines and corners, established by Government or other duly-authorized surveyors, done in good faith; in other words, where the lines and corners are originally established on the ground by a proper officer, in pursuance of the survey system ordered by the law of the time, they must be regarded as the true lines and corners which they represent, even if subsequent surveys indicate that the posts, pegs, or marks are out of line, and that the corners are out of position, according to the original description thereof. Surveyors should also bear in mind that the Act prohibits the District Land Registrar from issuing a title to land held in adverse occupation.

27. When an existing fence or building is relied on as the boundary of a property the surveyor should state in a note on the plan the evidence he can obtain as to the erection of such boundary, and the date on which it was erected; and also, in cases where such boundary is departed from, the same information and the reasons for the same should be given.

28. When a survey made under the Land Transfer Act differs materially from the Crown grant or public map the Chief Surveyor, before altering or rectifying the records of his department to enable a correct certificate of title to be issued, will, if he deem it necessary, require a verifying survey to be made by another surveyor, to be approved of by him, or by the Inspector, to determine the correctness or otherwise of the deposited or of the original survey.

29. The required declaration shall be made on the margin of large plans, and may be on the back of those of a small size.

30. All surveys under the Land Transfer Act are to be substantially pegged on the ground, such pegs to be not less than 3in. by 2in. scantling of the heart of totara, kowhai, blue-gum, kauri, matai (black-pine), puriri, or hinau, not less than 18in. or 24in. long, to be driven 15in. or 21in. into the ground, according to the nature of the soil, the hole having first been driven by an iron jumper; the pegs to be branded with the allotment number, with not less than lin. figures branded one-eighth

of an inch into the wood. At frontage-pegs of rural and suburban lands, when practicable, trenches at least 2ft. long, 9in. deep, and 9in. wide, and not less than 2ft. therefrom, to be cut in the direction of boundary-lines. Where wooden pegs cannot be driven, as in cities, iron bolts or spikes are to be used instead. Boundary pegs must wherever possible be inserted on the boundary, and not at stated distances therefrom.

31. The position of every peg is to be shown on the plan by a red circle; old pegs, when found, by a black circle; the position of lockspits or other original marks to be shown on plan if necessary. In all cases in which lands are subdivided for townships at least four iron pegs, not less than lin. square and 18in. long, reciprocally visible from one another, should be driven in the street 25 links off the section lines, to which reference may be made in cases of dispute. Where the boundaries on the ground differ materially from the Crown-grant boundaries such Crown-grant boundaries to be shown by dotted black lines.

32. Plans returned to surveyors for correction are to be at once amended as directed, and be returned to the Chief Surveyor.

33. All plans for use under the Land Transfer Act are to be signed by the proprietor of the land, or by his lawfully-authorized attorney or agent.

34. All plans shall show on the face of them the town district, borough, or road district within which the land is situated.

35. These regulations shall come into force on and after the day of , 1896.

As witness my hand, this seventeenth day of December, one thousand eight hundred and ninety-six.

S. PERCY SMITH,  
Surveyor-General of New Zealand.

In pursuance of the provisions of "The Land Transfer Act, 1885," His Excellency the Governor of the Colony of New Zealand, with the advice and consent of the Executive Council of the said colony, approves of the foregoing regulations.

Approved in Council, this eleventh day of January, one thousand eight hundred and ninety-seven.

GLASGOW.

AMELIUS M. SMITH,  
For Clerk of the Executive Council.

