

completion of the land-plan survey, to restore the original centre-line pegs of the railway survey, including the tangent and intersection or tie-line pegs. Where necessary the curves are to be computed in the same manner as for the engineering survey. If iron tubes have not been put in during the engineering survey, or if they have been made inaccessible during construction, the surveyor shall put in iron tubes of standard pattern at intersection pegs at half mile intervals. Where the land-plan survey is carried out before construction is commenced, and iron tubes have not been put in during the engineering survey, the surveyor should not put in tubes where they are likely to be made inaccessible during construction. If necessary, instead of a tube at the intersection peg, two tubes should be put in as extension pegs or tie-line pegs.

3. Lands to be taken are to be coloured in different shades or colours for each adjoining property.

4. Where land is taken from two or more sections or subdivisions belonging to one owner, the area taken from each section or subdivision must be stated and each section coloured distinctively.

5. The name of the survey district and the number of the block in such survey district must be given on each sheet, and the block or survey district boundary must be indicated by the respective conventional dotted lines adopted for that purpose by the Lands and Survey Department, and marked "Block" or "Survey district boundary," as the case may be. The name of the local body in whose district the land lies is also to be stated, and the boundaries of such districts are to be shown if coming within the plan.

6. When Crown land is taken for a railway or a ballast-pit, &c., such land should be described as "Crown land" and not "Railway reserve," "Ballast reserve," &c., unless it has been actually reserved for such purpose by *Gazette* notice.

7. All existing roads that are to be left open for the use of the public, whether crossed by railway or not, must be coloured burnt sienna.

8. If any part of a road crossed by a railway is to be closed to the use of the public and occupied exclusively by the railway, the portion to be closed must be coloured green and the area must be stated.

9. Land required to be taken for new roads, such as approach roads to railway-stations or road-deviations rendered necessary by existing roads being closed by railway-works, are to be coloured sepia or orange, or if portions of such new road or deviation are taken from adjoining sections then such area so taken from each section shall be coloured alternately sepia or orange.

10. The use of burnt sienna, sepia, orange, and green must be restricted to the cases mentioned above.

11. No private crossing on railways to be distinctively coloured or shown in any way.

12. Plans to be in duplicate, one copy to be prepared on mounted drawing-paper, and one copy to be on mounted tracing-cloth.

13. The regulations of the Lands and Survey Department to be observed except where herein varied.

14. Land plans, or portions thereof, with all necessary explanatory data when completed, should be forwarded to the Head Office, through the local office of the Department, before being submitted to the Chief Surveyor for approval. On receipt of the plans, or any portion of same at this office, a progress payment of 50 per cent. of the value of the work done will be made; and after the whole of the plans have been approved by the Department and the Chief Surveyor, the final payment will be made.

#### APPENDIX R.

##### DETERMINATION OF MEAN HIGH-WATER MARK AND MEAN SEA-LEVEL.

Land abutting on tidal waters is bounded by the line of ordinary high-water mark, or, more precisely, the line of mean high water taken over a period of 370 days. On the open seashore mean high-water mark is a contour-line which can be easily determined by a series of tidal observations extending over the above-mentioned period. In the case of tidal estuaries and rivers mean high-water mark usually departs from a level line, and usually requires for its exact determination that similar tidal observations at the extremities and at suitably placed intermediate stations of the boundary to be fixed are available.

*Mean sea-level* is now used exclusively as the datum for all surveys on land by the Lands and Survey Department. It may be established within a small fraction of a foot by continuous tidal observations for a period of 370 days, and is that surface which the water of the ocean would form if it were not disturbed by the attraction of the sun and moon and the force of the wind. Information regarding the bench-marks connected with the automatic tide-gauges from which the mean sea-level was determined at