

Working
Profiles.

vertical. The gradients will be drawn with great care by the District Engineer, and, after being approved by the Chief Engineer, and finally adopted, they will be shown by a blue line; the working Profile will be completed by drawing vertical pink lines at every 100 feet, on one side of which will be neatly written in black figures the height of the surface of the ground above *datum*, as ascertained by the levels taken on the Plugs, and on the other side the height of formation level, as calculated. At each *change of gradient*, the vertical lines will be in blue, and the height of formation level written in the same color. The difference between the height of surface and formation level, ascertained as above, will give the height or depth of *cutting* or *filling*, as the case may be, at each Station or Centre Stake.

Centre
Stakes.

13. Each Centre Stake, which will have the distance marked thereon, according to the actual chaining thus, 304, must also have distinctly marked on the opposite side the height or depth of the Plug above or below formation level, to indicate the depth of cutting or height of filling; thus, Cut 10.05 or Fill 4.79.

Cross Sec's

14. The next proceeding will be to make Cross Sections. These will be taken at least at every 100 feet Station, whether in cuttings or embankments, and also at a sufficient number of intermediate points, wherever a change in the ground takes place, so as to insure a perfectly accurate record of the various inequalities of the original surface.

15. At these intermediate points Centre Stakes will be driven, and the chaining marked thereon; one side thus, 304+27; and on the other side, the cutting or filling as the case may be; thus Cut 40.60 or Fill 7.80.

Cross Sec'n
Lines.

16. The lines of the Cross-Sections must be set out exactly at right angles to the centre line on tangents; and on curved portions at right angles to the tangent of the curve. These lines must be determined by instrumental means (say by a cross staff with a line of sights at least eight inches long.) Two stakes will be driven on each side of the centre line, one at 30 feet and the other at 60 feet, measured very carefully, on a horizontal line. In very deep cuttings or high em-