

### *Catch-water Ditches.*

15. Ditches shall be formed at one or both sides of the cuttings, as the inclination of the ground may require, so as to exclude from them any water draining off or flowing from the adjoining lands. They shall not be nearer than twenty feet from the top of the slopes, and shall be graded to such depths as to carry the water clear of the cutting and into the ditches at the sides of the embankments, or to the nearest water-course.

### *Slope Drains.*

16. The cuttings shall, in all cases, during the progress of the work as well as afterwards, be kept perfectly dry; and whenever the slopes are wet and the material seriously affected by springs, soaks, heavy rains or thaws, they shall be thoroughly drained by forming oblique drains up the slopes, not less than 3 feet deep, and at such intervals as the Engineer may direct; such drains to be filled with broken stone or coarse gravel as already described.

### *Slips.*

17. When slips occur in the cuttings after they are properly formed, the material must be immediately removed by the Contractor, the slopes re-formed, and such precautions adopted as the Engineer may deem necessary.

### *Embankments.*

18. The embankments shall be formed according to drawing No. 8. The materials taken from the cuttings or borrow pits to be used in forming the embankments and road approaches must be approved by the Engineer; ice or snow must be excluded. When the quantity of the cutting is more than sufficient to make the embankment of the specified width, the surplus material may be wasted; but in every case where either borrowing or wasting is resorted to, the material must be taken and deposited as the Engineer may approve.

### *Logging Embankments.*

19. In places where the natural surface of the ground upon which the embankment is to rest, is covered with vegetable matter which cannot be burned off in clearing, and which would, in the opinion of the Engineer, impair the work, the same must be removed to his entire satisfaction. In the event of the line crossing muskies or morasses, it may be deemed by the Engineer expedient that a platform of logs shall be formed under the embankment, of such width as will extend through and to not less than six feet beyond the side slopes, and 16 inches deep. The logs to range from 6 inches to 15 inches in diameter, and must be laid close together laterally and also longitudinally, as may be directed.

### *Under Drains.*

20. Where the embankment is to be formed on side hill ground covered with pasture, the ground shall be deeply ploughed before the work is commenced; and where the slope is so steep as to endanger the slipping of the embankment, benches shall be cut in such a manner as the Engineer may direct. If the ground is wet or spongy through springs or soaks, it shall first be thoroughly underdrained as the Engineer may see expedient. These drains will be constructed in a similar way to that in which ordinary land drains are sometimes made. A trench will first be dug to a minimum depth of four feet, and in the bottom of this trench, four or five cedar or spruce poles about three inches in diameter will first be laid by hand, breaking joint; over the poles will then be placed not less than three feet of small broken stone, not larger than ordinary road metal or good gravel ballast, over which will be