

**CHAPTER 13**  
**PREPARING THE FORMATION**  
**SECTION 60 – EARTH MOVEMENT AND DRAINAGE**

1301. Efficient earth movement depends upon:
- a. Planning of the alignment and grade of the formation.
  - b. Clear and accurate setting out.
  - c. Balancing teams of plant and vehicles.
  - d. Planned routing and dumping.
  - e. Prevention of damage by rutting or faulty drainage.
  - f. Supervision of working methods.
1302. Constructional operations are dealt with in Sections 61 to 64.

**Earth-Moving Plant**

1303. General principles:
- a. Establish downgrades for working plant.
  - b. Aim to arrive at destination with maximum load.
  - c. Reduce low-gear work, eg, returning “empties” should not make long, slow climbs, but after a short, steep climb should, if possible, travel on the level in high gear.
  - d. Regular servicing of machines essential.
1304. Machine operation. Notes on the application of plant and on aids to increased production by various machines are included in RESPB No 5c, Chapter 2.

**Drainage**

1305. Essential drainage must be provided for at all stages of earthwork construction. This applies to access routes and haulage roads as well as to the main working area.

1306. Drainage construction for the finished roadway is dealt with in Chapter 14. Temporary measures for the protection of the working area during construction

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should be based on the final plan, to avoid duplicating work. In no case must temporary drainage work prejudice the final plan.

1307. Forming and shaping work should be executed so as to facilitate drainage (see Sections 62 and 63). Whenever work is stopped the site should be properly safeguarded against the effects of sudden storms or flooding.