SECTION 138 – CONSTRUCTION SEQUENCE

2924. **General.** Means of access and working space are generally severely limited. Climatic conditions are often bad. Good organization and efficient phasing of the right plant are vital.

2925. **Construction Park.** Before work starts a properly organized base should be established to provide for:

a. Reception of plant materials and labor.
b. Storage of fuel and re-fueling.
c. Plant parking and servicing.
d. Supply of spare parts, tyres etc.
e. Controlled issues of equipment, tools and stores.

The site must be well drained and vehicle routes must be kept in good condition in all weathers. The park organization will either move forward or send up an advanced subsidiary as progress permits.

2926. **Access routes.** Every effort must be made to get plant forward to high points on the alignment so that downhill working can be established. If temporary routes can be found, clear of the road alignment the will also be valuable for getting up fuel and stores without interfering with road construction work.

2927. **Catchwater drainage (see Section 68).** Catchwater drains must be complete in advance of work on the formations and must be sited to protect all working areas from flooding and erosion.

2928. **Preparation of Culvert Sites and Improvement of Out Falls.** The excavation of culvert sites and any necessary widening and regarding of the natural waterway must be done early, to avoid delaying work on the formation and to form adequate transfer points for water from the catchwater system. If possible a light excavation should be sent forward with dragline or back water equipment.

If slab or RSJ culverts with masonry or concrete abutments are to be used, a temporary crossing of heavy timbers should be provided. A small tilting dram mixer will be needed for concrete work at culverts.

2929. **Stripping.** Removal of topsoil from the whole formation width can start as soon as catchwater drainage control has been established. When using dozers in wet, peaty soil sloping cuts must be made uphill; if the normal downhill cut is made water will be pushed ahead of the dozer and trapped, and the dozer will quickly bog down.

If for any reason dozers cannot be used the best machine is a heavy excavation with face shovel equipment.

2930. **Cut and Fill.** Work on major cuts and fills must be put in hand early, especially where rock cutting is involved. Retaining walls and toe walls should be built as soon as materials and labour can reach the site.

Some fill material is nearly always needed for embankments and for making up to grade level. Borrow pits if required, should be opened in advance. A mobile and quick working excavation should be allotted to each borrow pit in use.

2931. **Side Drains (see Section 67).** Work must keep pace with the opening of the formation. It is convenient to complete the construction of culvert aprons, catch pits and head and wing walls when side drains are being finished.

2932. **Subgrade Treatment (see Section 65).**

2933. **Base (see Chapter 17).** In cold mountainous regions a gravel base (preferably grouted) may prevent damage by frost.

2934. **Bridge and Culverts.** Bridging and the completion of culvert decking should be pushed on as soon the base has been laid far enough and if the necessary vehicles can pass over it. Alternative temporary crossings should be improvised whenever possible, to prevent delay in pushing the road forward.

2935. **Surfacing.** See Chapter 18 and chapters dealing with specific types.

2936. **Maintenance.** Regular maintenance gangs should be establishment as soon as a fair length of road has been completed. Their primary task is the detection and correction of any faults or weaknesses in the drainage system, and the clearance of catch pits and blocked culverts or ditches.