

1.0 GENERAL

1.1 REFERENCE STANDARDS

ASTM D698 "Moisture Density Relationship of Soils" Standard Compaction Tests.

1.2 PRODUCTS

- .1 Common Material: All deposits other than solid rock, including partially cemented materials which can be ripped and excavated with heavy construction equipment.
- .2 Rock: Firmly cemented material or solid rock which cannot be removed with 0.5 m³ (3/4 yd.³) capacity power shovel without drilling and blasting.
- .3 Common Fill: Sub-soil free from roots, rocks larger than 50 mm (2 inches) and building debris. Excavation material is suitable if it conforms to the above and is approved by the City of Medicine Hat.
- .4 Pit Run Gravel Fill: Sand and gravel, free from silt, clay, loam, friable or soluble materials, vegetative matter.
- .5 On-Site Topsoil: Native salvaged materials approved for use by the Project Manager.
- .6 Imported Topsoil: Topsoil shall be friable, neither heavy clay nor of very light sandy nature, consisting of approximately 45% sand, 35% silt, 20% clay and a pH value ranging from 6.5 to 7.5. Topsoil shall be free from subsoil, roots, vegetation, debris, toxic materials, and stones over 25mm (one inch) in diameter. Topsoil minimum organic content shall be six (6) percent. Topsoil shall consist of a homogeneous mixture of topsoil and compost within the top 150 mm (6 inches).

2.0 EXECUTION

2.1 GENERAL

- .1 Locate all underground utilities prior to commencing excavation.
- .2 Obtain approval of the Project Manager and all utilities, prior to commencing excavation.

2.2 EXCAVATION (TOPSOIL)

- .1 Remove all weed and vegetation growth from areas to be stripped.
- .2 Excavate topsoil within areas specified.
- .3 Do not permit topsoil to be mixed with sub-soil.
- .4 Do not strip topsoil under wet conditions.
- .5 Do not disturb soil within branch spread of trees or shrubs that are to remain.
- .6 Stockpile topsoil on site.

2.3 COMMON EXCAVATION

- .1 Excavate, to elevations and dimensions specified, all common material encountered.
- .2 Conform excavation work to grades established by the elevations and to grades specified on drawings.
- .3 Excavate to proper elevation all unsuitable material encountered from construction area and stockpile on site.
- .4 Cut clean rough subgrade to within 50 mm (2 inches) of elevation and grade specified.
- .5 Make changes in grade natural. Blend slopes into level areas.
- .6 Excavated material shall be used within the site for backfilling and embankment operations.
- .7 If the Project Manager deems that the equipment used for excavation is inadequate in size or over sized for work area, replace with suitable equipment as directed.
- .8 Where rock is encountered, any excavation work for payment shall be authorized by the Project Manager, prior to the start of excavation.

2.4 DEWATERING

- .1 Keep excavations dry at all stages of operation. Provide necessary equipment including pumps, piping and temporary drains and trenches.

- .2 Ensure water discharge does not contain silt held in suspension.
- .3 Direct surface drainage away from excavated areas. Do not allow spillage over embankments.

2.5 SUBGRADE PREPARATION

- .1 Subgrade preparation includes the preparation of excavated areas to receive sub-base or base gravel construction or foundation, and does not include landscaped areas.
- .2 Scarify subgrade to depth of 150 mm (6 inches).
- .3 Grade material to specified levels, profiles and cross sections eliminating uneven areas and low spots and make ready to receive further surface treatment. Make changes in grade natural. Blend slopes into level areas.
- .4 Machine grade subgrade to within 150 mm (2 inches) of elevation and grade specified.
- .5 Compact subgrade to 100% of Standard Proctor Density.
- .6 Subgrade shall be approved by the Project Manager prior to placing of further construction courses.

2.6 PLACEMENT OF FILL

- .1 Depths specified are measurement of fill after compaction.
- .2 Carry out backfilling and embankment operations systematically and as early as possible to allow maximum time for natural settlement and compaction.
- .3 Use unfrozen material over frost-free ground conditions.
- .4 Place common fill in continuous horizontal layers not exceeding 150 mm (6 inches).
- .5 Place gravel fill in continuous horizontal layers not exceeding 255 mm (10 inches) loose depth.
- .6 Apply water to fill material uniformly and in sufficient quantities or aerate fill material, to obtain optimum moisture content for compaction.

- .7 Compact common fill to 100% of Standard Proctor Density.
- .8 Compact gravel fill to 97% of Standard Proctor Density.
- .9 Compact fill material without disturbing or damaging buried services.
- .10 Do not damage waterproofing, drainage tiles or pipes.

2.7 WATER

- .1 The Contractor is responsible for supplying, loading, hauling and distributing water for compaction purposes.

2.8 BACKFILLING EQUIPMENT

- .1 Mechanical backfilling equipment may be used except where by so doing damage to trees, buildings, sidewalks, curbs, piping, or other existing structures or man-made obstacles above or below ground cannot be avoided. Such work shall be hand excavated and backfilled where such obstacles prevent the use of mechanical equipment.

2.9 CAUTION IN EXCAVATION

- .1 Caution shall be exercised with respect to structures, piping or other man-made obstacles that may exist within the working area and due consideration given to the protection and support of such properties and structures.

2.10 TESTING

- .1 Soil samples will be taken by the designated testing firm, from the several material sources to establish Standard Proctor Densities. Densities will be determined during construction operations as frequently as required to ensure quality control of the work.
- .2 In the event that tests reveal improper compaction in filling, the defective area shall be removed and recompacted at the Contractor's expense. Retesting shall be at the Contractor's expense.

END OF SECTION