DIVISION 5
SUBGRADE, BASES AND SHOULDERS

SECTION 500
FINE GRADING SUBGRADE, SHOULDERS AND DITCHES

500-1   DESCRIPTION

Perform the work covered by this section on all portions of the project which will be paved under the contract including, but not limited to, preparing, grading, shaping, manipulating moisture content and compacting either an unstabilized or stabilized roadbed to a condition suitable for placement of base course, pavement and shoulders. Clean, shape and maintain roadway ditches; strip existing vegetation; and place and compact in accordance with Sections 235 and 560 all materials resulting from the shaping operation. Stockpile surplus material for the construction of shoulders and dispose of any necessary surplus stockpile material as waste.

On those portions of the project where there is no pavement to be placed under the contract, perform the work of Sections 225 or 230, depending upon the source of the material. This section will not be applicable to such work.

500-2   CONSTRUCTION METHODS

(A) General

Shape the roadway to conform to the lines, grades and typical sections shown on the plans. Strip all existing vegetation from the ground surface wherever shaping of the roadway is to be done. Use all suitable surplus material in the construction of the roadway or stockpile for use in shoulder construction. Dispose of surplus material in excess of that needed for roadway or shoulder construction as waste. Obtain additional material, if needed, from roadway excavation or borrow sources.

Remove all unsuitable material, boulders and all vegetative matter and replace with suitable material. Obtain suitable material, when not available from the shaping or fine grading operation, from roadway excavation or borrow sources.

Clean, reshape and maintain roadway ditches in a satisfactory condition until final acceptance of the project. Conduct operations so as to avoid damage to any previously constructed structures and facilities.

(B) Preparation of Subgrade

Shape the subgrade to the lines, grades and typical sections shown on the plans. Where the Engineer directs that areas of the subgrade are to be stabilized with aggregate, the subgrade surface in such areas may, subject to the approval of the Engineer, be left uniformly below grade to provide for the addition of the stabilizer material.

Store or stockpile material excavated in preparing the subgrade so as to not interfere with proper drainage or later operations of stabilization, placing base or placing pavement.

(C) Compaction of Subgrade

Compact all material to a depth of 8 inches below the finished surface of the subgrade to a density equal to at least 100% of that obtained by compacting a sample of the material in accordance with AASHTO T 99 as modified by the Department. Copies of these modified testing procedures as described in the *Conventional Density Operator's Manual* are available from the Materials and Tests Unit.

1　　　　Compact the subgrade at a moisture content which is approximately that required to
2　　　　produce the maximum density indicated by the above test method. Dry or add moisture
3　　　　to the subgrade when required to provide a uniformly compacted and acceptable
4　　　　subgrade.

5　　　　Where the subgrade is to be stabilized with lime, aggregate or cement, the above density
6　　　　requirements will not apply before the incorporation of the stabilizing material; however,
7　　　　perform compaction in accordance with Articles 501-10, 510-3 or 542-9, as appropriate.

8　**500-3　TOLERANCES**

9　A tolerance of ± 1/2 inch from the established grade will be permitted after the subgrade has
10　been graded to a uniform surface. Subgrade tolerance of ± 1/4 inch from the established
11　grade is required for subgrade under concrete pavement mainline lanes.

12　Perform the grading operation such that the maximum difference between the established
13　grade and the graded subgrade within any 100 foot section is 1/2 inch for normal subgrade
14　and 1/4 inch for subgrade for concrete pavement.

15　**500-4　MAINTENANCE OF SUBGRADE**

16　Provide and maintain ditches and drains to drain the subgrade satisfactorily. Where previously
17　approved subgrade is damaged by natural causes, hauling equipment or other traffic, restore
18　the subgrade to the required lines, grades, typical sections and density.

19　**500-5　MEASUREMENT AND PAYMENT**

20　*Fine Grading* will be paid at the contract lump sum price. Such lump sum price will be full
21　payment for all material excavated to a depth of 0.4 feet below the existing graded surface.

22　Any material which has been excavated from the subgrade at the depth greater than 0.4 feet
23　below the existing graded surface will be *Unclassified Excavation* and will be paid in
24　accordance with Article 225-7.

25　As an exception to the above, on those areas in which the Contractor is responsible for
26　constructing the embankment on which the subgrade is located, no payment will be made for
27　that excavation that may be necessary to bring the grade to the established subgrade elevation
28　and typical section. Incorporate such surplus material into the project at no additional cost to
29　the Department.

30　When sufficient material is not available from the fine grading operation to complete the work
31　of fine grading, additional material will be paid in accordance with Article 225-7 for
32　*Unclassified Excavation* or Article 230-5 for *Borrow Excavation*, depending on the source of
33　material.

34　Surplus material stockpiled for shoulder construction and incorporated into the work will be
35　paid in accordance with Article 560-4 for *Shoulder Borrow*. No payment will be made for the
36　removal and disposal of any surplus material remaining in the stockpile after the shoulders
37　have been completed.

38　Maintenance, repair and restoration of the subgrade to the required lines, grades, typical
39　sections and density as it applies to fine grading is incidental to the work of this section.

40　Payment will be made under:

Pay Item	Pay Unit
Fine Grading	Lump Sum