

300 GENERAL

A highway pavement is said to be only as good as the base under it. This material is generally of lower quality than any course placed over it, but it still carries and distributes the wheel loads. The need to be concerned with its quality and finish is very important.

The thickness of the future pavement is determined by the soil-support capabilities of the underlying subgrade. The soil-support value of this material can be found in the Final Materials Design Report.

Verification testing of the subgrade material by the field office should be done quickly so that possible design changes in overlying structure sections can be analyzed. Design adjustments at this time could be very expensive. Early verification of the subgrade will provide the needed time to consider all options so that quality versus economy can be evaluated.

When the Contractor is working a pit or quarry, quality control is the Contractor's responsibility. Nevertheless, The Resident Engineer (RE) should be aware of the methods used to work the pit and produce the materials.

Most material sources contain materials that should be avoided or wasted. Blending or selection of material from various areas of the source may be required.

The Resident Engineer cannot direct that a Contractor furnished source be worked in a particular manner, but can advise the Contractor when the methods or materials may not produce an acceptable product. Comments of this type should be supported by test results.

The subgrade will be finished using natural materials. However, it may be treated with lime or cement if conditions require. Cement is normally used for the binding agent when the subgrade materials are granular, or have a very low P.I. content. In cases of high P.I., or higher degree of clay particles, lime would normally be used as the binding agent.

Geo-composite materials are being used favorably by the department throughout the state to achieve acceptable subgrade stabilization. Approval should be obtained from ADOT Materials Group prior to using geo-composite materials. There are many different types of geo-composite materials. ADOT Materials Group will select the proper geo-composite material for your application.

The time needed to check the grade for acceptance usually depends on the Contractor's method of operation. Checking grade for compliance with finishing tolerances can usually be done rapidly if it has been previously checked or string lined by the Contractor. However, the time required to check subgrade material for design acceptance (PI and material passing a #200 [75 μ m] sieve) and to decide whether design changes are necessary could cause a delay in the acceptance of a section of subgrade. The Contractor should be kept informed of subgrade test status in order to modify the operations if necessary.

If at any time that hauling equipment leaves wheel impressions due to excessive moisture or drying, the subgrade needs to be refinished and re-compacted. It may also be advisable to retest for compaction.

All major work needed to complete the roadway to the design cross section should be completed before the subgrade is accepted. Major work includes operations that will cause re-excavation within an area where the base or pavement will be placed, or operations that will result in contamination or disturbance of the base or pavement.

Examples of work that should be completed prior to aggregate base placement include:

- all cross drains and edge drains;
- all storm drain pipes;
- all conduit crossings for electrical, landscape irrigation, and freeway management;
- system components; and
- all utility relocation work.

Exhibit 300-1 shows a typical pavement section.

Finishing Tolerances

The standard specifications will provide the allowable tolerances that must be met by the Contractor in order for the Resident Engineer to accept the base or subbase work. The Inspector and the Contractor should string line the grade together for acceptance. Tolerances may vary depending upon the type of surface being placed (i.e., Portland cement concrete pavement or asphaltic concrete pavement).

TYPICAL PAVEMENT SECTION

- Subgrade - The roadbed materials beneath the pavement structure. May be constructed from existing project materials or from imported borrow.
- Finished Subgrade Elevation - The top prepared surface of the subgrade.
- Subbase Course - One or more layers of specified material of design thickness, placed on a subgrade to support a base or surface course. A subbase is not often used.
- Base Course - One or more layers of specified material of designed thickness, placed on a subbase course or a subgrade to support a surface course.
- Surface Course - The upper portion of the pavement structure consisting of a mixture of mineral aggregates and bituminous material or Portland cement concrete. This includes all wearing courses (e.g. asphaltic concrete friction course).
- Pavement Structure - The combination of subbase course, base course, and surface course placed on the subgrade to support the traffic load.

Exhibit 300-1. Typical Pavement Section

