

SECTION 00344 - TREATED SUBGRADE

(Follow all instructions and make all edits with "Track Changes" turned on. This Section is not published in the Oregon Standard. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project, unless the item(s) that are included in the subsection, paragraph, sentence, or bullet are not required on the Project and then they should be deleted. In general do not re-number or re-letter subsections when item(s) are deleted. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Section 00344 is not a Standard Specification and is included in this Project by Special Provision.

Description

00344.00 Scope - This Work consists of treating the upper layer of Subgrade with water and either lime, chloride, or portland cement to form a stabilized Course of Material at the locations and to the lines, grades, thicknesses, and Cross Section shown or directed.

00344.01 Definitions:

Treated Subgrade - Subgrade that is improved by the addition of Soil stabilizing Materials.

Materials

00344.10 Soil Stabilizing Materials - Furnish Soil stabilizing Materials meeting the following requirements:

| Material | Type | Requirements |
|--------------------------|---|---|
| Hydrated Lime | AASHTO M 216, Type 1 | Grade A |
| Granular Quicklime (CaO) | AASHTO T 27 and AASHTO T 219 | 100% passing 3/8" sieve |
| | (grading and hydroxide content) | 15% max. passing No. 100 sieve min. 85% Calcium Hydroxide |
| Calcium Chloride | AASHTO M 144 (sampling) AASHTO T 143 (testing) | — |
| Sodium Chloride | AASHTO M 143 | — |
| Portland Cement | AASHTO M 85 | Section 02010 |

Store Materials according to 00165.75.

00344.11 Water - Furnish water meeting the requirements of Section 00340.

Construction

00344.40 Preparation - Before starting Subgrade Work, including backfill, complete all underground Work contemplated in the area of the Subgrade. This requirement includes Work by the Contractor, by the Agency, or by others. Drain all depressions or ruts containing water.

00344.41 Addition of Stabilizing Material - Apply stabilizing Materials at a uniform rate as specified using Equipment and methods that will ensure uniformity of distribution. The use of blade graders to distribute lime will not be allowed. Allow only Equipment that is used for watering, applying and mixing the stabilizing Material to pass over the Material until after it is mixed into the Soil. Add water, if necessary, during mixing operations to provide optimum moisture content.

(Fill in the first blank with the percent of stabilizing Material to be used. Fill in the second blank with the type of stabilizing Material being used.)

Add _____ percent _____ to the Subgrade, calculated as a percentage of the in-place dry Soil unit weight, unless otherwise directed.

00344.42 Mixing - Perform mixing operations until the Treated Subgrade Material is uniform and free of streaks or pockets and all Material, other than stones, will pass a 1-inch sieve. Do not allow the content of stabilizing Material to vary by more than plus or minus 1 percent from the amount specified.

00344.43 Finishing - Immediately after mixing the Treated Subgrade, grade the mixture to specified line, grade and Cross Section and compact the mixture to the specified density. Compact and finish within 12 hours after compaction begins. If the Contractor has not compacted and finished the Material within 12 hours, loosen the mixture and add stabilizing Material and water as directed. Remix the freshened Material, regrade and recompact, at no additional cost to the Agency. During compaction, maintain the mixture at proper grade and Cross Section and at optimum moisture content.

00344.44 Curing - Limit traffic over Treated Subgrade to Equipment that does not cause any damage to the Subgrade and that does not visibly deflect, ravel or wear the surface. Keep the finished surface moist and protect from rutting, spalling, displacement and disfiguration for a period of 7 Days, or until a subsequent Course of Material is placed, to prevent drying of the mixture by evaporation or absorption.

00344.45 Compaction:

(a) Achieve the required density of Treated Subgrade Materials as specified in 00330.43(b).

(b) Compact the Subgrade until it is firm and unyielding. Unyielding means no more than 1/4-inch deflection of the Subgrade when proof-rolled with a fully loaded 10 to 12-cubic yard dump truck. Test and proof-roll within 24 hours prior to placing base Material on the Subgrade.

(c) Over-excavate areas of visible deflection to a depth of 12 inches or more below Subgrade, as directed. Place fabric, backfill the over-excavated Subbase area up to the Subgrade elevation with a single Lift of 1 1/2" - 0 crushed Rock and compact. Apply the

compactive effort until the density of the top 6 inches of the Subbase Rock is as specified in 00641.44(a). In addition, proof-roll these areas to verify they are firm and unyielding as specified above.

(d) Notify the Engineer if the specified compaction is not attained. The Contractor may be required to use a modified compaction procedure or apply additional compactive effort. If approved Materials meeting the Specifications cannot be compacted to the required density regardless of compactive effort or method, the Engineer may reduce the required density or direct that alternative Material be used. Do not proceed with finishing or compaction of the Subgrade until the Contractor is able to compact the Material to the satisfaction of the Engineer.

00344.46 Tolerances:

(a) Rework areas found to be deficient in thickness by more than 3/4 inch, and add fresh stabilizing Material in an amount equal to one-half the original amount.

(b) Finish the surface of the Treated Subgrade so that it does not vary by more than 0.06 foot from the established line, grade, and Cross Section and be free of ruts, depressions, and irregularities. When tested with a 12-foot straightedge, the maximum variation of the finished surface from the testing edge is 3/4 inch.

Measurement

00344.80 Measurement - The quantities of Treated Subgrade will be measured on the area basis, measured along the lines and grades of the area actually treated.

The quantities of Soil stabilizing Materials will be measured on the dry weight basis. Packaged Materials will be accepted at the net weight shown by the manufacturer, subject to periodic verification and approval. Provide a certificate with each shipment together with a certified copy of the weight of each delivery. Measurement of stabilizing Material will not include any that is lost, displaced, used in reworking, used in restoration Work or used contrary to direction.

Payment

00344.90 Payment - The accepted quantities of Treated Subgrade and Soil stabilizing Materials will be paid for at the Contract unit price, per unit of measurement, for the following items:

(Delete Pay Item(s) from the list that are not included in the Schedule of Items, but do not change the alpha characters next to the Pay Items.)

| Pay Item | Unit of Measurement |
|--|----------------------------|
| (a) Treated Subgrade, ____ Inches Thick..... | Square Yard |
| (b) Lime | Ton |
| (c) Portland Cement | Ton |
| (d) Calcium Chloride..... | Ton |
| (e) Sodium Chloride | Ton |

(Use the following paragraph when Pay Item (a) is included in the Pay Item list above.)

In item (a), the depth of the Treated Subgrade is inserted in the blank.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for:

- Draining water from the Subgrade
- Soil stabilization Work
- Smoothing the Subgrade in preparation for staking
- Blading, shaping and compacting the Subgrade, including Roadbed Materials, to final line, grade and Cross Section