Section 02714

FLEXIBLE BASE COURSE FOR TEMPORARY ROADS, DETOURS, SHOULDERS, AND DRIVEWAYS

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Foundation course of crushed concrete or stone.

1.02 UNIT PRICES

A. Measurement for flexible base is on a square yard basis. Separate measurement will be made for each different required thickness of base course.

B. Refer to Section 01290 - Payment Procedures for unit price procedures.

1.03 REFERENCES

A. ASTM C 131 - Standard Test Method for Resistance to Degradation of Small-Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.

B. ASTM D 1556 - Density of Soil in Place by the Sand-Cone Method.

C. ASTM D 1557 - Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 10 lb Rammer and 18" Drop.

D. ASTM D 2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

E. ASTM D 361 - Test Method for Water Content of Soils and Rock in Place by Nuclear Methods (shallow depth).

F. ASTM D 3017 - Test Method for Water Content of Soils and Rock in Place by Nuclear Methods.

G. ASTM D 4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

H. TxDOT Tex-101-E - Preparation of Soil and Flexible Base Materials for Testing.

I. TxDOT Tex-110-E - Determination of Particle Size Analysis of Soils.

1.04 SUBMITTALS

A. Submittals shall conform to requirements of Section 01330 - Submittals Procedures.

B. Submit samples of flexible base course and soil binder for testing.

1.05 TESTS

A. Tests and analysis of soil materials will be performed in accordance with ASTM C 131, ASTM D 1557, ASTM D 4318, Tex-101-E, and Tex-110-E under provisions of Section 01454 - Testing Laboratory Services.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Provide materials from stockpiles that are protected during storage from contaminates that would be detrimental to the flexible base course.

B. Load materials from same area of stockpile to maintain uniformity of each successive delivery to the project site.

PART 2 P R O D U C T S

2.01 MATERIALS

A. Crushed Stone or Concrete: Material retained on the No. 40 sieve meeting the following requirements:

1. Durable particles of crusher-run broken limestone, crushed concrete, crushed sandstone, or granite obtained from an approved source.

2. Los Angeles abrasion test percent of wear not to exceed 42 when tested in accordance with ASTM C 131.

B. Soil Binder: Material passing the No. 40 sieve meeting the following requirements when tested in accordance with ASTM D 4318:

1. Maximum Liquid Limit: 40

2. Maximum Plasticity Index: 12

3. Maximum Lineal Shrinkage: 7 (when calculated from volumetric shrinkage at liquid limit).

C. Mixed Materials shall meet the following requirements:

1. Minimum compressive strength of 35 psi at 0 psi lateral pressure and 175 psi at 15 psi lateral pressure using triaxial testing procedures.

2. Grading in accordance with Tex-101-E and Tex-110-E within the following limits:

Sieve	Percent Retained
1-3/4 inch	0 to 10
No. 4	45 to 75
No. 40	60 to 85

PART 3 E X E C U T I O N

3.01 EXAMINATION

A. Verify compacted sub grade is ready to support imposed loads.

B. Verify lines and grades are correct.

3.02 PREPARATION

A. Complete backfill of new utilities below future grade.

B. Prepare sub grade in accordance with requirements of Section 02230 - Embankment and Section 02315 - Roadway Excavation or Sections 02336 - Lime Stabilized Sub grade and 02337 - Lime/Fly-ash Stabilized Sub grade.

C. Correct sub grade deviations in excess of plus or minus 1/2 inch in cross section, or in 16 foot length by loosening, adding or removing material, reshaping and recompacting by sprinkling and rolling.

D. Prepare sufficient sub grade in advance of base course operations.

3.03 PLACEMENT

A. Spread and shape in lifts to compacted thickness not to exceed 6 inches in depth. Complete spreading, shaping, and compacting on same day material is deposited.

B. Place base so that projecting reinforcing steel from curbs remain at approximate center of base. Secure a firm bond between reinforcement and base.

C. Start rolling operations as soon as possible after placement. Use sheepfoot, steel, or

pneumatic rollers as approved. Roll longitudinally with sub grade starting from sides. Overlap successive strips by one-half width of each rear wheel.

D. Maintain moisture between optimum and 3 percent above optimum moisture.

E. Compact to 90 percent of Modified Proctor density in accordance with ASTM D 1557, unless otherwise indicated on the Drawings.

F. Finish to grade and compact lift before placing successive lift.

G. Maintain shape by grading throughout operation.

H. Provide total thickness indicated on Drawings.

3.04 TOLERANCES

A. Completed surface shall be smooth and conform to typical section and established lines and grades.

B. Top surface of embankment: Plus or minus 1/4 inch in cross section, or in 16-foot length.

3.05 FIELD QUALITY CONTROL

A. Testing will be performed under provisions of Section 01454 - Testing Laboratory Services.

B. A minimum of one core will be taken at random locations per 1,000 linear feet per lane of roadway or 500 square yards of base to determine in-place depth.

C. Contractor may, at his own expense, request additional cores in the vicinity of cores indicating nonconforming in-place depths. If the average of the tests falls below the required depth, place and compact additional material at no additional cost to the City.

D. Compaction Testing will be performed in accordance with ASTM D 1556 or ASTM D 2922 and ASTM 3017 at a random location near each depth determination core. Rework and recompact areas that do not conform to compaction requirements.

E. Fill cores and density test sections with new compacted flexible base.

3.06 PROTECTION

A. Sprinkle to prevent excessive loss of moisture.

B. Restrict construction traffic on finished base to equipment required to complete the work.

END OF SECTION

THE FOLLOWING ITEMS SHOULD BE CHECKED FOR COORDINATION DURING DESIGN:

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A. Coordinate this specification with other related specifications including the following related Sections.

RELATED SECTIONS
Section 02221 - Embankment: Prepare site for foundation course
Section 02225 - Roadway Excavation: Prepare site for foundation course
Section 02227 - Excavation, Trenching, Fill, and Backfill for Utilities
Sections 02241 and 02246 - Subgrades: Prepare subgrade for foundation course

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END OF NOTES