SECTION 02231

CRUSHED STONE FLEXIBLE BASE COURSE

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Foundation course of crushed stone.

1.02 UNIT PRICES

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

1.03 SUBMITTALS

A. Submittals shall conform to requirements of all provisions and sections of these specifications.

B. Submit samples of crushed stone and soil binder for testing.

1.04 TESTS

A. Tests and analysis of soil materials will be performed in accordance with ASTM C131, ASTM D1557, ASTM D4318, Tex-101-E, and Tex-110-E under provisions of Section 01410 - Testing Laboratory Services.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Stockpiles shall be made up of layers of processed aggregate materials. Load material by making successive vertical cuts through entire depth of stockpile.

PART 2 P R O D U C T S

2.01 MATERIALS

A. Crushed Stone: Material retained on the No. 40 Sieve meeting the following requirements:

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

2. Los Angeles abrasion test percent of wear not to exceed 40 when tested in accordance with ASTM C131.

B. Soil Binder: Material passing the No. 40 Sieve meeting the following requirements when tested in accordance with ASTM D4318:

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 subgrade 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 subgrade in accordance with requirements of Section 02221 and Section 02225 or Sections 02241.

C. Correct subgrade 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 subgrade in advance of base course operations.

3.03 PLACEMENT

A. Spread and shape in lifts to compacted thickness not to exceed 8 inches. 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 subgrade 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 95 percent of Modified Proctor density in accordance with ASTM D1557, 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 01410 - 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 Owner.

D. Compaction Testing will be performed in accordance with ASTM D1556 or ASTM D2922 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 crushed stone 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