SECTION 02335

SUBGRADE PREPARATION & BASE MATERIAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Provide subgrade preparation and the base material installation complete, including clearing, grading, excavation, filling and compaction and dewatering.

B. Subgrade is that area on which pavement, surfacing, base, sub-base, or layer of any other material which may be specified is to be placed.

1.2 QUALITY ASSURANCE

A. Reference Standards

1. Perform all work in accordance with all applicable laws, codes, and regulations required by the State of California, the local County.

2. Reference to “Standard Specifications” shall mean the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation, CAL TRANS.

3. Lime treatment of subgrade shall be performed by a Contractor who is experienced in this aspect of construction and has the proper equipment to perform this work.

B. Related work specified elsewhere includes:

1. Section 01010, Summary of Work

2. Section 02741, AC Paving & Surfacing

C. Stipulations:

1. The finished surface of the subgrade, at any point, shall not vary more than 0.05’ above or below the elevation indicated on the drawings.

D. ASTM Standards:

1. Relative compaction will be determined in general accordance with ASTM Test Methods D1557 and D2167, or D6938.

E. Inspection and Testing:

1. No site earthwork shall be performed without prior notification of the Geotechnical Engineer the Geotechnical Engineer shall be notified at least 48 hours prior to commencement of any earthwork

2. The Contractor shall satisfy himself as to the quality and nature of the materials which are required to be graded during this work.
1.3 PROJECT CONDITIONS

A. Coordination: Coordinate this work with the work of other Sections to avoid delay and interference with other work.

PART 2 - MATERIALS

2.1 FILL MATERIAL

A. General Non-organic material, soil and rock materials obtained from on-site excavations may be used as fill as specified herein.

B. Select Fill Select fill material shall be soil and rock, which is free of perishable material, rubble and building debris, and shall conform to the following requirements.

<table>
<thead>
<tr>
<th>Size</th>
<th>Percent Finer</th>
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<tbody>
<tr>
<td>6 inch</td>
<td>100</td>
</tr>
<tr>
<td>4 inch</td>
<td>90-100</td>
</tr>
<tr>
<td>No.200</td>
<td>10-90</td>
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</tbody>
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Plasticity Index 20 percent maximum

Select fill shall be used in all fills intended to support structures, roads, and utilities and in all fills used for landslide repair, buttresses, or remedial grading.

C. Random Fill - Random fill shall be soil and rock material from on-site excavation which does not meet the requirements for "select fill".

Random fill may be used in non-structural locations. Random fill material may be used only in specific locations approved in advance by the Geotechnical Engineer.

2.2 AGGREGATE BASE- CLASS II

A. Aggregate base shall be Class II and free from vegetable matter or other deleterious substances. The percentage composition by weight & aggregate base shall conform to Section 26 of the Standard Specifications.

2.3 RECYCLED AGGREGATE BASE- CLASS II

A. Subject to the approval of the Geotechnical Engineer, recycled aggregate base shall be Class II, and free from vegetable matter or other deleterious substances. The percentage composition by weight of aggregate base shall conform to Section 26 of the Standard Specifications. Existing material may be reused if it meets the specifications for Aggregate Base- Class II and the required compaction and the approval of the Geotechnical Engineer.

PART 3 - EXECUTION
3.1 SUBGRADE PREPARATION

A. Refer to Section 02200, Site Preparation & Plant Protection for topsoil stripping.

B. Scarify subgrade to a depth of at least 8" below the final subgrade elevation, harrow, dry roll, and break clods to achieve a finely divided condition.

C. The subgrade and till material shall be moisture conditioned by watering or drying and mixing as needed, to a moisture content near the optimum moisture content. Where so designated, the moisture content before compaction shall be within the specified range.

D. Harrow the earth to mix the wet earth with the dry beneath, until the whole mass of loose material is at the proper state of moisture for compaction.

E. All fill material shall be placed in horizontal layers eight inches or less in loose thickness. Fill material shall be compacted with a sheepsfoot roller or other approved equipment to achieve at least 90 percent relative compaction, unless otherwise specified. The upper 8 inches of subgrade shall be compacted to at least 95 percent relative compaction.

F. Field density tests will be performed by the Engineer to determine the degree of compaction obtained. Where compaction is less than that required, additional compactive effort will be required by the Contractor. Contractor shall make adjustment.

G. The Contractor shall be responsible for placing and compacting approved fill material in accordance with the specifications. Should the Contractor fail to meet the density requirements, he shall reduce his rate of haul, furnish additional spreading and/or compaction equipment, remove and replace the fill material, adjust the soil moisture content, use different compaction equipment or make any other adjustments necessary to achieve a satisfactorily compacted fill.

H. The finished subgrade surface shall be firm and unyielding under the weight of a loaded water truck traveling over the surface.

I. No fill shall be compacted during periods of rain nor on ground which is saturated or has standing water. Loose soil, which has been stockpiled and wetted by rain or any other means, shall not be used until the moisture content is within limits required by the Geotechnical Engineer.

J. All non-slope fill surfaces shall be graded smooth, low spots filled in, and the surface sloped for drainage and rolled with rubber-tired equipment to seal it against excessive infiltration of water. Stockpile areas and haul roads shall be restored to the original ground contours and condition using compacted fill. Excess eat and all other unsuitable material shall be removed from the site.

3.2 AGGREGATE BASE

A. Deliver to site as a uniform mixture and spread each layer in one operation without segregation.

B. Class II Aggregate base shall be readily compacted and spread with equipment that will provide a uniform layer conforming to the planned section, as specified in Section 26 of the Standard Specifications.

C. The aggregate base shall be compacted to at least 95 percent relative compaction.
D. Proof roll and mark spots for additional compaction or correction. Proof rolling operations must be performed in the presence of the Geotechnical Engineer.

3.3 CLEANUP

A. Cleanup: Per Section 01740

END OF SECTION

05/15/13