3CP 4 – AGGREGATE SURFACING – ADDITIVE BID ITEMS NO. 3 AND NO. 5

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Special Provisions, and other Technical Specification Sections apply to this Section

1.02 SUMMARY

A. This Section includes the following:

1. Subgrade and base courses
2. Installation of D.G. (decomposed granite) paving

B. Related Sections include the following:

1. Section "Site Boulders"
2. Section "Planting"

1.03 DEFINITIONS

A. Owner refers to the Contra Costa County Flood Control and Water Conservation District, which is the lead agency. Owner or Owner's Representative (O.R.) for the project refers to the district engineer, associates, or agents.

B. Base Course: Course placed between the subgrade asphalt, decomposed granite path, aggregate, or concrete site improvements

C. In-Channel: Active Channel, Floodplain, and Banks

D. Excavation: Removal of material encountered above finished and subgrade elevations and to lines and dimensions indicated

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by O.R. Authorized additional excavation and replacement material will be paid on an extra work basis in accordance with the provisions of the Contract.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by O.R. Unauthorized excavation and required replacement to grade with import soil shall be made without additional compensation.

E. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below base course, drainage fill, or topsoil materials.

F. Native Soil: Existing site soil

G. General Fill: Soil selected from the excavations with the approval of the Soils Engineer, excluding only the black and dark brown expansive clays.

1.04 SUBMITTALS

A. Product Data: For the following:

1. Stabilizer Solutions Inc.; stabilizer and aggregate samples for D.G. Paving
2. Base Course, Class II Permeable, Drain Rock, and Bedding Course

B. Mock-up of Stabilized D.G. Paving (Decomposed Granite) surfacing. Coordinate D.G. aggregate analysis and product approval with Stabilizer Solutions Inc. prior to initiating mock-up. Provide 10-foot by 10-foot mock-up at designed depth, both with specified steel edging and without.

C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:

1. Select Fill

D. Specifications and certification sheets on Select Fill material.

1.05 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, shall be provide by Owner (ASTM D 3740 and ASTM E 548). See Special Provisions for special conditions of payment.

B. Pre-excavation Meeting: Conduct meeting at Project site to comply with specified requirements.

PART 2 PRODUCTS

2.01 SOIL AND AGGREGATE MATERIALS

A. General: Provide imported borrow soil materials for all fill.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, GC, SW, SP, SC, SM, CL and ML; free of rock or gravel larger than 3-inches in any dimension, debris, waste, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 Soil Classification Groups OL, OH, CH, MH, and PT.

1. Unsatisfactory soils also include satisfactory soils not maintained within 4percent of optimum moisture content at time of compaction.

D. Base Course: Shall conform to Caltrans Class II aggregate base specification, latest edition. Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1½-inch sieve and not more than 8 percent passing a No. 200 sieve.

E. General Fill: Native soil from site for use as general site fill for the old creek channel and at locations with final slopes less than 5:1. For additional specification data see "EarthMax Soils Report 2.8.10".

F. Stabilized D.G. (decomposed granite): Crushed granite aggregate (approximately 3/8" minus) per Stabilizer Solutions Inc. specification and approval. Color, golden buff color from an approved, local Bay Area supplier (American Soil & Stone or approved equal). Aggregate sample shall be submitted to Owner and Stabilizer Solutions Inc. for review and approval for use. Combine aggregate with Stabilizer Solutions Inc. stabilizer product in quantities as recommended by the manufacturer to complete the work. Stabilizer Solutions Inc. tel. 800.336.2468. Northern California Representative Peter Herrera 480-590-0015. For D.G. surfacing edging see Site Furnishings Specification.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."

3.02 SUBGRADE PREPARATION

A. Soil subgrades in areas to receive DG paving should be scarified, moisture conditioned to at least optimum moisture content, and compacted.

B. The compacted surface should be firm and unyielding and should be protected from damage caused by traffic or weather.

C. Areas of unstable soils shall be over-excavated to competent soils or a minimum of 18-inches below finished subgrade elevation where competent soils are not encountered. The bottom of the excavation should then be completely covered with a ground stabilization Geotextile Fabric and backfilled with base course. Caltrans Class II permeable material may be allowed with O.R. approval. The Geotechnical Engineer should observe all weak and unstable areas during construction to determine if alternative subgrade stabilization procedures are more appropriate.

3.03 SUBGRADE INSPECTION

A. Notify O.R. when excavations have reached required subgrade.

B. If O.R. determines that unsatisfactory soil is present and/or not firm and unyielding, continue excavation and replace with compacted backfill or fill material as directed.

C. Proof-roll subgrade below site improvements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.

2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15-tons.

3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by O.R., and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by O.R., without additional compensation.

3.04 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or footings with additional concrete as specified above. Controlled density fill, with 28-day compressive strength of 1000 psi, may be used when approved by O.R.

3.05 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials without intermixing. Place, grade, and shape stock piles to completely drain surface water. Cover to prevent windblown dust. Soils from specified areas required for resampling shall be separated and covered until final soil disposal determination.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of trees.

2. Locate Stockpiles where approved by O.R.

3.06 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, sub-drainage, damp-proofing, and waterproofing

2. Surveying locations of underground utilities for Record Documents

3. Testing and inspecting underground utilities

4. Removing concrete formwork

5. Removing trash and debris

6. Removing temporary shoring and bracing, and sheeting

7. Installing permanent or temporary horizontal bracing on horizontally supported walls

B. Place backfill on subgrades that are firm and unyielding.

3.07 SOIL MOISTURE CONTROL

A. All Select Fill shall be moisture conditioned to 0 to 4% above optimum per ASTM D1557

1. Do not place backfill or fill soil material on surfaces that are not firm or unyielding

2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 4 percent and is too wet to compact to specified dry unit weight.

3.08 COMPACTION OF FILL, SOIL BACKFILL, SUBGRADE PREPARATION

A. Place backfill and fill soil materials in layers not more than 8-inches in loose depth for material compacted by heavy compaction equipment, and not more than 4-inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to the following percentages of maximum dry unit weight according to ASTM D 1557:

1. DG Surface: scarify and re-compact top 12-inches of existing subgrade and each layer of backfill or fill soil material to 95 percent.

2. In unpaved planting areas scarify and re-compact the top 6-inches below subgrade and compact each layer of backfill or fill soil material to a maximum 85 percent. Coordinate with excavation mitigation measures noted below.

3.09 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances

B. Site Grading: Slope grades as shown on plans and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Unpaved Areas: Plus or minus 1-inch

2. DG Surface: Plus or minus ½-inch

3.10 BASE COURSE

A. Place base course on firm and unyielding subgrade.

B. On prepared subgrade, place base course under pavements and walks as follows:

1. Shape base course to required crown elevations and cross-slope grades

2. Place base course 6-inches or less in compacted thickness in a single layer

3. Place base course that exceeds 6-inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6-inches thick or less than 3-inches thick.

4. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

C. Pavement Shoulders: Shoulders along edges of D.G. pavement shall be installed with base course per plans. Construct shoulders of satisfactory, free draining soil materials and compact simultaneously with each subbase and base layer to max. 85 percent of maximum dry unit weight to allow for vegetation establishment.

3.11 D.G. SURFACING (DECOMPOSED GRANITE)

A. Install D.G. Path and Surfacing per Stabilizer Solutions (manufacturer) Specifications and Installation Procedures under direct observation of a Stabilizer Solutions representative. Install only after O.R. review and approval of a successful paving mock-up.

B. Compact soil area beneath path to 95 percent of maximum dry unit weight. Compact two 12-inch shoulders on each side or path or paving area edge at 90 percent to accommodate vegetation establishment. Once compaction is approved, excavate area for DG Path and Surfacing from compacted finish and subgrade with vertical sides. Over excavate only to the extent necessary to install metal edging and to minimize the re-compaction of shoulders adjacent to D.G. surfacing.

C. Install as noted on the Plans and per Manufacturer’s recommendations

3.12 DISPOSAL OF SURPLUSS AND WASTE MATERIALS

A. Disposal: Remove all excavated native soils, surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.