

## SECTION 02100 – SITE PREPARATION AND EARTHWORK

### PART 1 – GENERAL

#### 1.01 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.02 SECTION INCLUDES:

Furnish all labor, materials, tools and equipment necessary for excavation, filling, backfilling, rough and finish grading, and related items necessary to complete all work shown on the Drawings and/or specified herein.

#### 1.03 ORDINANCES AND PERMITS:

The Contractor shall comply with all applicable ordinances and regulations and obtain the required permits.

#### 1.04 EXISTING UTILITY LINES:

The existence of active and abandoned underground utility lines within the construction is not definitely known other than those indicated in their approximate locations on the Drawings. The Contractor shall tone all areas to be excavated to locate existing utilities.

Should any unknown line be encountered during excavation, the Contractor shall immediately notify the Consultant of such discovery. The Consultant shall then investigate and issue instructions for the preservation or disposition of the unknown line. Authorization for extra work shall be issued by the Consultant only as he deems necessary.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS:

Imported topsoil shall be fertile, friable soil of loamy character, free from subsoil, debris, stones and as approved by the Consultant. Topsoil excavated in connection with the construction of the project may be used in lieu thereof.

## PART 3 - EXECUTION

### 3.01 LAYING OUT:

- A. The laying out of base lines, establishing of grade and staking out the entire work shall be done by a Licensed Surveyor (Licensed in the State of Hawaii) at the expense of the Contractor and he shall be solely responsible for their accuracy. The Contractor shall erect and maintain substantial batter boards showing construction lines and levels.
- B. Should any discrepancies be discovered in the dimensions given in the plans, the Contractor shall immediately notify the Consultant before proceeding any further with the work, otherwise, he will be held responsible for any costs involved in correction of construction placed due to such discrepancies.

### 3.02 SITE PREPARATION:

- A. Prior to the start of the grading operations, the areas designated for new construction shall be cleared of all above ground vegetation and other deleterious materials, which shall be disposed off-site. The near-surface organically contaminated soils shall then be stripped from the site and stockpiled for future use as topsoil. This material shall not be used in Structural fills. Any soft or loose spots encountered during stripping operations shall be removed and the resulting depression shall be backfilled in accordance with these specifications.
- B. Prior to placement of compacted fill or backfill, the exposed subgrade shall be scarified to a depth of eight inches, moisture conditioned to at least two percent above the optimum moisture content, and compacted to a minimum 95 percent compaction as determined by ASTM D 1557-9. All soft and compressible material shall be removed and replaced with select on-site or borrow soils compacted in thin lifts.

### 3.03 GRADING:

- A. The Contractor shall at all times control the grading around building areas so that the ground is adequately sloped to preclude the ponding of water adjacent to and beneath the structure and their foundation. Surface water shall also be directed away from slopes.
- B. Grading work will be monitored by the Consultant and periodic density tests performed to verify that adequate compaction is consistently achieved by the grading contractor.
- C. All graded areas shall be grassed as soon as possible after finish grading for erosion protection.

#### 3.04 EXCAVATION:

- A. Usable materials such as clayey sand as approved by the Architect shall be stockpiled (for later use as fill material) in a location designated by the Consultant. This material may also be excavated directly to fill at the Contractor's option. All excess usable material shall remain on the property as the stockpile. If required because of high moisture content, the on-site soils shall be dried and aerated prior to their use as engineered fill.
- B. Non-usable material such as adobe, mud and soft material shall become the property of the Contractor and shall be disposed of outside the public boundary limits, at the Contractor's expense.

#### 3.05 FILL AND BACKFILL:

- A. Fill shall be laid in loose lifts eight inches in thickness, moisture conditioned to within two percent of the optimum, and uniformly compacted to a minimum of 90 percent relative compaction as determined by the afore-referenced test. Fills and backfills within pavement areas shall be compacted to at least 95 percent of maximum dry density within 2 feet of finished subgrade.
- B. Filling operations shall be performed so as to bring the entire project area to the finish grades shown on the Drawings, allowing for concrete slab.
- C. In General, fill and backfill operation shall be carried out as follows:
  - 1. Roadway backfills shall be placed and compacted in accordance with grading recommendations utilizing the appropriate mechanical compactor around and above the pipes. Jetting and ponding of the backfill shall not be allowed.

#### 3.06 INSUFFICIENT EARTH MATERIALS:

Contractor shall import necessary materials without any additional cost to the owner for structural fill or yard fill to complete grading work. Such imported materials shall be subject to approval of Architect and shall meet requirements as specified for each category of materials.

#### 3.07 TOPSOIL AND FINISH GRADING:

The Contractor shall deposit and spread a uniform 12 inches layer of imported topsoil around all areas other than AC paved areas and lightly compacted to the finish elevations shown on the Drawings.

3.08 FILL TESTING:

All yard and pavement sections shall be tested by an independent testing agency and all test results submitted to the Consultant for approval. All cost of testing shall be borne by the Contractor. Testing shall be made throughout the area for each 6-inch compacted layer. All test results must be approved before the Contractor can proceed with placing of topsoil or base course.

END OF SECTION