DIVISION 31 – EARTHWORK

DESIGN CRITERIA
Site specific geotechnical and soil reports shall be referenced when determining excavation, compaction and backfilling requirements.

EXCAVATION AND FILL

DEWATERING
Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

FILL
Samples of all imported materials required for backfill or structural fill shall be submitted a minimum of 15 days prior to use.

Specifications shall include all materials that could be used for the project. Materials shall include select backfill, imported fill, native fill, structural fill, aggregate base, landscape fill, crushed rock and drainage fill. Aggregate base shall be Class 2 as specified in Section 26 of the State of California Department of Transportation Standard Specifications.

BACKFILL
Backfill excavation promptly as work permits, but not until completion of the following:
1) Acceptance of construction below finish grade, including, where applicable, waterproofing or damp proofing, and
2) Inspection, testing, approval, and recording locations of underground utilities.

Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers.

COMPACTION
Percentage of Maximum Density Requirements: Compact soil to no less than the following percentages of maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D1557 and not less than the following percentages of maximum density, for soils which do not exhibit a well-defined moisture-density relationship (cohesionless soils):
Vehicle Pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material at 95 percent maximum density for cohesive materials or 95 percent relative density for cohesionless material.

Pedestrian Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material at 95 percent of maximum density for cohesive material or 95 inches relative density for cohesionless material.

Lawn or Unpaved Areas: Compact top 12 inches of subgrade and each layer of backfill or fill material at 85 percent maximum density for cohesive soils and 90 percent of relative density for cohesionless materials.

TRENCHING AND BACKFILLING

Maximum allowable open trench is 600 linear feet at any one time. All trenches are to be covered at end of workday.

For trenches that cross existing asbestos-cement (AC) pipes, a portion of AC pipe must be cut out and replaced with plastic pipe. Replacing the AC pipe reduces the likelihood of pipe failure due to trench settlement. Refer to UCD standard drawing 888 for details and materials.

WARRANTY

Work shall be warranted against settlement for a period of 2 years after the date of final acceptance. Settlement shall be defined on paved surfaces, as when the depression is 3/8-inch below the average of the sides of the uncut portion.