# DIVISION 31 – EARTHWORK

## DESIGN CRITERIA

Site specific geotechnical and soil reports shall be referenced when determining excavation, compaction and backfilling requirements. See Standard Specification Section 31 00 00 for more information.

## EXCAVATION AND FILL 31 23 00

NATURALLY OCCURRING ASBESTOS

Naturally occurring asbestos (NOA) has been found in soil on campus. Prior to any significant earthmoving or grading activities, soil sampling shall be conducted by a third party to determine if NOA is present. The sampling may take place at the same time as the geotechnical work if required. If NOA is found at the site by method CARB 435, all site work must be conducted in accordance with the California's Air Resources Board's Asbestos Airborne Toxic Control Measure (ATCM) standards. Results shall be provided to the University's Representative.

IMPORT FILL REQUIREMENTS

Fill material shall not contain environmental contaminants, asbestiform fibers, or construction debris. Contractor shall provide evidence of compliance in accordance with CARB 435 analysis and the Department of Toxic Substances Control Information Advisory – Clean Imported Fill Material (https://dtsc.ca.gov/Schools/upload/SMP_FS_Cleanfill-Schools.pdf). Results shall be provided to the University's Representative for review prior to importation.

All onsite sourced fill placed in landscape/planting areas and all surface applications shall contain<0.25% asbestos with no trace detections of asbestos as measured by CARB 435, or <0.1% by weight as analyzed by quantitative TEM method if trace asbestos is identified by CARB 435 analysis. See Standard Specification Section Landscape Grading 31 22 19 and Landscape Planting 32 90 00 for more information.

COMPACTION

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 percent relative density for cohesionless material.

Landscape Areas: For soil cleanup and preparation, refer to the University's Standard Specification Section31 22 19 Landscape Grading. Soil preparation shall yield an uncompacted soil profile that is at least twenty-four inches deep. Lightly compact fill to prevent settling. Compaction shall not exceed 200 psi to a depth of twenty-four inches when measured with a compaction tester.

Maximum allowable open trench is 600 linear feet at any one time. All trenches are to be covered at end of workday. All trench plates must have non-skid epoxy coating.

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 C-12, Asbestos Cement Pipe Undercrossing, for details and materials.

All utilities shall be installed on a 6 inch minimum bed of sand with the exception of gravity, sewer and storm, which shall be installed on a 6 inch minimum bed of crushed rock.

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.

End of Division 31