

SECTION 105 - ROCK EXCAVATION

105.1 DESCRIPTION OF WORK

105.1.1 Furnish all labor, material and equipment to excavate rock and dispose of rock as specified herein.

105.2 REQUIREMENTS OF REGULATORY AGENCIES

105.2.1 Observe all municipal ordinances and State and Federal laws relating to the transportation, storage, handling and use of explosives.

105.2.2 Blasters shall be duly licensed and shall have their license on the work site at all time during blasting activities.

105.3 DEFINITION

105.3.1 The word "rock," wherever used as the name of an excavated material or material to be excavated, shall mean solid ledge rock which, in the opinion of the City Engineer, requires, for its removal, drilling and blasting or mechanical hammer.

105.3.2 No soft or disintegrated ledge rock, no loose, shattered, or broken stone, regardless of size, in rock fills or elsewhere; no frozen earth or existing paving; and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed for payment as rock excavation.

105.4 EXECUTION

105.4.1 Excavate rock to the lines and grades indicated on the drawings and as specified in 105.6 - Measurement and Payment. Dispose of excavated material not suitable for backfill in a location approved by the Owner.

105.4.2 Excavate rock in trenches to 6-inches below the bottom of the pipe to be installed.

105.4.3 Excavate rock in structure excavations to 6" below the bottom of the foundation.

105.4.4 Conduct operations involving explosives by experienced personnel only, with all possible care to avoid injury to persons and damage to property.

105.4.5 Blast only with such quantities and strengths of explosives and in such manner as to break the rock approximately to the intended lines and grades.

105.4.6 Care shall be taken to avoid excessive cracking of the rock upon or against which any pipe or structure will be built, and to prevent damage to existing pipes or other structures and property above or below ground.

- 105.4.7 Cover rock with blasting mats where required.
- 105.4.8 Give sufficient warning to all persons in the vicinity of the work before a charge is detonated. Employ flagmen to stop or direct traffic as required.
- 105.4.9 When required by the City, the contractor shall have a seismograph on site to monitor vibration.
- 105.5 EXCESS ROCK EXCAVATION
- 105.5.1 If rock is excavated beyond the limits of excavation indicated on the drawing, specifications, or not authorized in writing by the Engineer, the excess excavation, whether resulting from over breakage or other causes, shall be backfilled, by and at the expense of the Contractor, as specified below.
- 105.5.2 In pipe trenches, excess excavation below 6" from the bottom of the pipe shall be filled with material of the same type, placement and compaction as specified for the bedding.
- 105.5.3 In excavations for structures, excess excavation in the rock beneath foundations shall be filled with 3,000 psi concrete. Other excess excavation shall be filled with earth.
- 105.5.4 If rock below normal depth is shattered due to drilling or blasting operations and such shattered rock is unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled as described in "EXCESS ROCK EXCAVATION." All such removal and backfilling shall be classified as excess rock excavation.
- 105.5.5 Keep and submit to the Engineer an accurate record of each blast. The record shall show the general location of the blast, the depth and number of drill holes, the kind and quantity of explosive used, and other data required for a complete record.
- 105.6 MEASUREMENT AND PAYMENT
- 105.6.1 The contractor shall notify the owner when rock measurements can be performed. If backfill commences before measurement is made, the contractor will not be paid for that portion of the rock removed. Maximum measurement for rock excavation in pipe trenches shall be to six (6) inches below bottom of pipe with the width of trench at 2' 0" plus the interior diameter of pipe, regardless of the excess width excavated. Maximum measurement for precast and cast-in-place structures shall be structure width plus four (4) feet; structure length plus four (4) feet; and base of structure. Payment shall be the price bid per cubic yard and is to include aggregate fill to bring the ditch to plan grade.