

DIVISION 31 – EARTHWORK
31 23 00 EXCAVATION AND FILL
31 23 33 TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.01 TRENCHING

A. References:

1. All trenching and shoring shall conform to the requirements of WAC 296-155, Part N.
2. Trenching, testing and backfilling of buried utilities shall conform to Division 7 of the current adopted edition of the Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge and Municipal Construction.
3. WSU Standard Detail Drawings:
 - i. C 31 23 33 “Standard Utility Trench & Pipe Placement”
 - ii. C 33 05 13 “Standard Manhole”
 - iii. C 33 41 00 “Perforated Storm Drain Pipe Placement and Backfill”
4. Trenching and backfill operations shall also comply with WSU Design Standard 31 00 00 “Earthwork.”

PART 2 - PRODUCTS

2.01 CONTROLLED DENSITY FILL (CDF)

- A. The use of Controlled Density Fill (CDF), a sand, cement, and water slurry capable of attaining over 100 psi, has proven to be an efficient method of backfill. Where compaction around utilities or tight structures is necessary, CDF may be a cost effective alternate to mechanically compacted fills. Specification of CDF is acceptable where it is compatible with design. Also consider the use of CDF in locations where vibration from compaction equipment may be detrimental to the University's operations.

PART 3 - EXECUTION

3.01 FIELD QUALITY ASSURANCE

- A. WSU may retain a Special Inspector to perform on-site observation and testing services. During the course of construction, the Inspector will advise the WSU Project Manager in writing, with copy to the Contractor, if any work does not appear to conform to the Contract Documents.

3.02 TESTING AND BACKFILL PROCEDURES

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- A. Notification and Scheduling: The Contractor shall notify the WSU Construction Manager (CM) and submit testing procedures in writing at least 48 hours prior to testing.
- B. Measuring and Recording: WSU CM shall coordinate with WSU Facility Information Resource Management (FIRM) to conduct on-site GPS surveys, while utilities remain exposed, for updating the WSU Geographic Information Systems (GIS). Contractor shall not completely backfill underground utilities until locations and depths have been observed and recorded by WSU FIRM staff.
- C. Backfill and Compaction: Contractor shall not completely backfill underground utilities until the appropriate tests have been completed and observed by authorized WSU Facilities Services personnel. Contractor shall backfill pipe sufficiently to prevent movement of the pipe under pressure; joints and fittings shall remain exposed for inspection during pressure testing. Contractor shall ensure all required concrete thrust blocks are in place and sufficiently cured before testing.
 - 1. See specific requirements for testing utilities in the WSU Design and Construction Standards for those particular utilities.
 - 2. Contractor is responsible for properly securing, stabilizing, and securing all piping, fittings, and connections prior to and throughout testing procedures.

3.03 OVER EXCAVATION

- A. Contractor shall correct, at no additional cost to WSU, when trench is over-excavated without authority or to stabilize a trench rendered unsuitable through negligence or improper operations.

END OF SECTION