

CONSTRUCTION AND MATERIAL SPECIFICATIONS

SECTION VII

A. Scope

The specifications outlined herein are for specific application to the backfilling of utility trenches including but not limited to sanitary sewer, water main, gas, electric, cable and telephone.

B. Construction Methods

1. Trench for pipe shall not be wider than twice the outside diameter of the pipe. The bottom of the trench shall be shaped carefully to fit the bottom of the pipe for a depth of approximately 30 percent of the outside diameter of the pipe plus 4 inches. A fine aggregate bedding not less than 4 inches thick shall be placed thereon and accurately shaped by means of a template to provide a uniform contact under the pipe. (Penn DOT Class B Bedding.) Do not advance trenching operations more than 100 feet ahead of completed pipeline, except as specified in the State Highway Occupancy Permit.
2. Backfilling
 - a. In legal or dedicated right-of-way of existing or proposed Township streets and State Highways.

Material obtained in trench excavation in the legal or dedicated right-of-way of existing or proposed Township streets and State Highways shall not be utilized for backfill. Granular material (Penn DOT 2A minimum) shall be used to bed the pipe and to backfill the pipe within two inches of the road surface.

Methods of backfill placement shall conform to the requirements of Penn DOT Form 408.

Temporary repaving of the existing macadam surface shall consist of 1" thick ID-2A binder course applied and rolled prior to opening to traffic. Temporary paving repairs shall be maintained and repaired or replaced as needed until such time as permanent paving restoration is made.

Permanent surface restoration within the cartway of the streets shall consist of excavation to a depth of 6 inches below finished grade over the

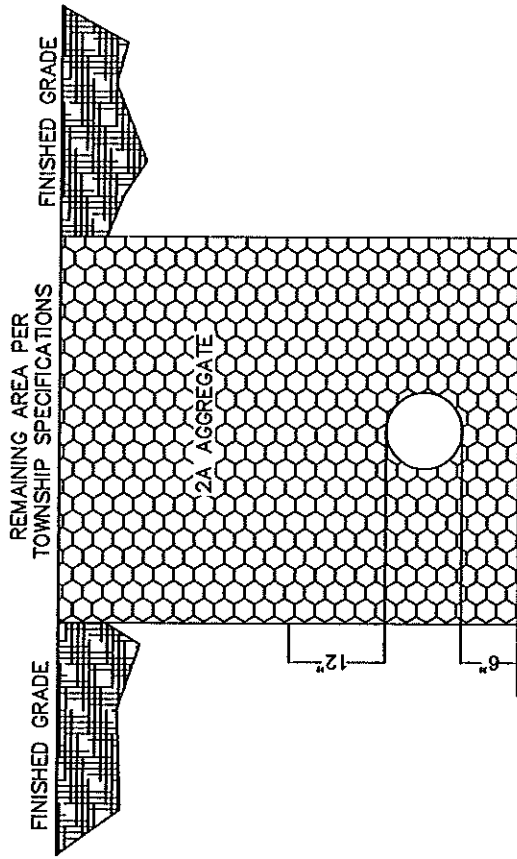
trenches, and a width sufficient to provide a one foot wide bearing on undisturbed subgrade on each side of the trench. The sides of this excavation shall be neatly cut, parallel lines, and vertical throughout their complete 6-inch depth. Upon completion of the cut back and on a properly prepared sub-base, the Contractor shall construct a 5" thick, when compressed, bituminous concrete base course, and a 1-1/2" thick, when compressed, ID-2A bituminous surface course. Construction shall be in accordance with Penn DOT Form 408, latest revision. In no case shall permanent paving repairs be made in less than 60 days after completion of temporary repairs unless authorized by the Township Engineer.

- b. In areas outside of existing or proposed legal/dedicated right-of-way, material obtained in trench excavation may be used for backfill. Material shall be placed in layers not to exceed 4 inches and thoroughly compacted using mechanical tampers. Special care shall be taken to ensure adequate compaction under the haunches and along the side of the pipe. Puddling or jetting may be considered if test demonstrations indicate that compaction requirements can be met.
 - c. In areas outside of existing or proposed legal/dedicated right-of-way, material obtained in trench excavation may be used for backfill. Material shall be free of any large debris, roots etc. and approved by the Township inspector.
 - d. Flowable backfill material may be substituted for the 2A aggregate, within right-of-way, or material obtained in trench excavation, outside right-of-way, conforming to PA DOT Special Provision S94 (52060130), Type A or B.
3. Control of Excavated Material
- a. Keep the ground surface on both sides of the excavation free of excavated material to comply with Federal and State laws and codes.
 - e. Provide temporary barricades to prevent excavated material from encroaching on private property, walks, gutters and storm drains.
 - f. Maintain accessibility to all fire hydrants, valve pit covers, valve boxes, curb boxes, fire and police call boxes, and other utility controls at all times. Keep gutters clear or provide other satisfactory facilities for street drainage. Do not obstruct natural watercourses. Where necessary, provide temporary channels to allow the flow of water either along or across the site of work

- g. In areas where pipelines parallel or cross-streams, ensure that no material slides, is washed, or is dumped into the stream course. Remove cofferdams immediately upon completion of pipeline construction.

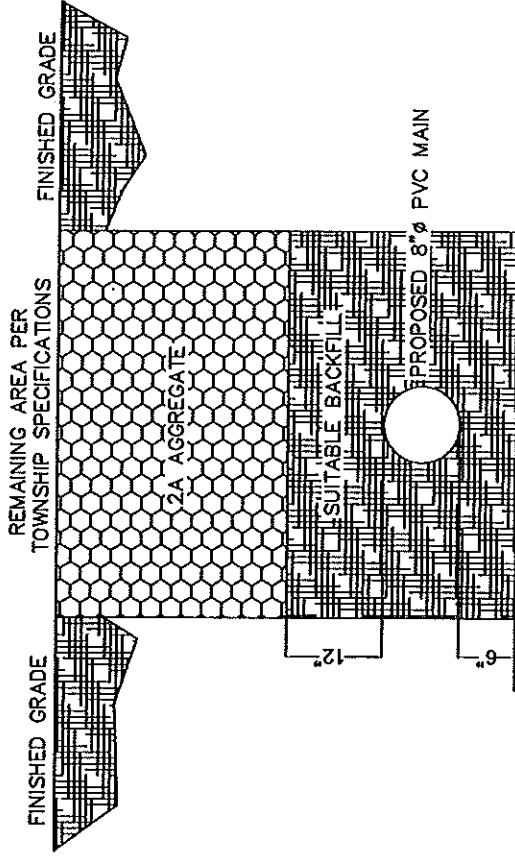
4. Dewatering

- d. Keep excavations dry and free of water. Dispose of precipitation and subsurface water clear of work.
- e. Intercept and divert surface drainage away from excavations. Design surface drainage systems so that they do not cause erosion on or off the site, or cause unwanted flow of water.
- f. Comply with Federal and State requirements for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.



TRENCH DETAIL FOR ALL UTILITIES
EXCEPT WATER MAIN

N. T. S.



TRENCH DETAIL FOR WATER MAIN ONLY

N. T. S.



TYPICAL TRENCH DETAIL