

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G40.090.1
Issue 1, October, 1946
AT&T Co Standard

CONDUIT AND MANHOLES

PRECAUTIONS

Part	Page
1. General	1
2. Safety Precautions	2
3. Permits	3
4. Protection of Openings and Construction Material	3
5. Temporary Work	3
6. Traffic Maintenance	4
7. Fire Hydrants	4
8. Protection of Property	4
9. Separations from Foreign Structure*	5
10. Pavement Replacement	5

1. GENERAL

1.01 In this section attention is called to several matters related to underground conduit construction in which the safety of the workman or the public or the preservation of public property is concerned. Because of the variety of situations which may arise it is recognized that every possible contingency cannot be covered. However, if attention is paid to the points included and the workman bears in mind at all times that safety to all concerned is of primary importance, much will be accomplished toward minimizing the hazards of the work.

1.02 The material of this section is not intended to supersede State or municipal regulations. When such exist, the inspectors, supervisors and foremen are expected to familiarize themselves with the requirements and see that they are observed.

2. SAFETY PRECAUTIONS

2.01 Precautions relating to specific operations appear throughout the associated sections of practices as a part of the details of operation. The precautions listed below represent a summary of this information.

(a) Blasting shall be done only by an authorized powder man.

(b) In excavating in or along streets or highways, guard against loose stones or rocks rolling into the driving area. Keep shoulders of excavation clear of all loose objects and keep excavated material at least 18 inches away from the edge.

(c) Check excavations for leaking gas and if present guard against sources of ignition until repairs to leaking structure can be made.

(d) Because of the hazard of oxygen deficiency or the presence of harmful gases due to decomposed waste material in excavations, a check of the atmosphere should be made if there is any question as to the safety of working conditions. Ordinarily this will apply only to deep excavations.

(e) To guard against caving, the walls of excavations 3 to 5 feet deep in which men are required to work should be supported by shoring except where the walls are sloped at least 6 inches in each foot of rise or are in solid rock. Excavations in excess of 5 feet require shoring or tight sheeting, depending on the nature of the soil and the width of the excavation.

(f) When removing bracing, always remove the lower braces first, leaving the upper ones until last for protection.

(g) All tunnels through soil should be adequately shored with the timber properly fitted and wedged in place.

(h) In handling multiple clay conduit, grasp it near the webs rather than at the corners. Use care in moving multiple conduit which has been damaged or has been subject to rough handling. Such conduit may have developed cracks in the walls without actually breaking, and sections so weakened may break away when the conduit is lifted.

(i) In the preparation of mortar bandages, protect the hands against soreness by wearing light rubber gloves or rubber coated fabric gloves.

(j) When removing the roof panels of sectional steel forms, support them by hand to avoid dropping as they are pried loose.

3. PERMITS

3.01 Permits which are required to do work in accordance with the detail plans should be secured before starting the job. All permits or a record of all permits should be retained by the supervisor or inspector, ready for immediate reference during the progress of the job.

3.02 Permits may be required for the following operations:

- (a) Opening streets.
- (b) Closing any thoroughfare to traffic.
- (c) Excavating on private property.
- (d) Placing material on the street or on private property.
- (e) Construction involving the property of other utilities or services.
- (f) Crossing under railroads.
- (g) Placing conduit on bridges.
- (h) United States Government permits when crossing navigable streams.
- (i) Blasting.
- (j) Use of water.

4. PROTECTION OF OPENINGS AND CONSTRUCTION MATERIAL

4.01 Protect all openings, equipment, construction material or excavated material as follows:

- (a) By suitable fences or barricades, warning signs or red flags as required by day.
- (b) By watchman at night, and by day when necessary.
- (c) By torches or red lanterns at night.

Note: Care should be exercised in the use of red lanterns when in proximity to railroad crossings in order not to interfere with train operation.

4.02 Under constricted working conditions or in fast-moving traffic areas, flag men should be used to guide traffic safely past the point of operations.

5. TEMPORARY WORK

5.01 Temporary work should be as inexpensive as practicable, but in all cases the work should be made sufficiently substantial to last the length of time that the installation is expected to be in service.

5.02 When removing a pavement surface do the work in such a manner as to permit as much as possible of the material to be reused for temporary restoration of the pavement.

- 5.03 Unless specifically directed otherwise in the detail plans, complete all work in a permanent manner.

6. TRAFFIC MAINTENANCE

6.01 Interfere as little as practicable with traffic. Where necessary to facilitate free movement of traffic or to allow access to property along the line of work, build bridging over the trench. Such bridging should be adequate to support any load that is likely to pass over it.

6.02 Arrange spoil and material piles in a manner such as to infringe as little as practicable on the driving area. Arrange for regulation of traffic when the operation of equipment or movement of trucks to and from the vicinity of the work will interfere with the normal movement of traffic.

6.03 Do not have open at one time any more trench than is necessary. Coordinate the various operations from the point of opening pavement to completion of backfill so that the space thus occupied is the minimum consistent with the conditions governing the work. Close as much trench as practicable before the end of each day's work.

6.04 Close streets to traffic only when other measures are impracticable and then only after obtaining permission from the Police and Fire Departments or other responsible authorities.

7. FIRE HYDRANTS

7.01 Fire hydrants must be accessible at all times. If necessary to maintain accessibility, bridge the trench with timbering strong enough to support fire apparatus. Do not place any materials in front of a fire hydrant. Leave a clear space of 10 feet (or more, if required by municipal or other regulations) on both sides of fire hydrants.

8. PROTECTION OF PROPERTY

8.01 Do not undertake construction involving interference with foreign property without obtaining the necessary permission. In laying out the line of trench endeavor as far as practicable, to avoid interference with underground structures of other companies or of the municipality. Properly support all exposed structures or structures liable to disturbance due to proximity to the excavation. Where necessary make the support permanent and leave it in the trench.

8.02 In parkways and lawns, keep the sod and top soil separated from other excavated material and place excavated earth on tarpaulins or burlap, where necessary, so

as not to damage the grass. This work and the restoration of the sod should be done with care and completed to the satisfaction of the authorities or property owners.

8.03 The necessary gutters to carry storm water away from the work should be provided and kept free of obstructions. In dewatering excavations, make certain that the discharge is carried to a suitable point of run-off.

8.04 If any foreign structure is damaged report the damage to the supervisor or inspector. Do not make permanent repairs until the consent of the property owner has been obtained.

9. SEPARATIONS FROM FOREIGN STRUCTURES

9.01 The minimum desirable separations between foreign structures and telephone conduit and manholes should be as follows:

From Telephone Conduit

(a) Electric light, power or other conduits—at least 3 inches of concrete, 4 inches of brick masonry or 12 inches of earth.

(b) Other foreign pipes such as gas, water, oil mains, etc.—at least 6 inches clearance when crossing and 12 inches when paralleling.

From Telephone Manholes

(c) Electric light, power or other conduits—at least 3 inches of clearance from the outside surface of the manhole wall or roof.

(d) Other foreign pipes such as gas, water, oil mains, etc.—at least 6 inches clearance when crossing and 12 inches when paralleling.

9.02 The clearances in (b) and (d) above are provided to facilitate maintenance of the foreign structure and are subject to adjustment to meet particular conditions. In the event a question arises as to the practicability of these clearances, consult with the owning company.

9.03 For clearances at railroad crossings refer to G41.140.

10. PAVEMENT REPLACEMENT

10.01 Information on pavement replacement is included in the appropriate sections for use in the event there are no local regulations covering such work. Where municipal, county or State specifications are in existence the restoration shall be made to conform.