

SUBSIDIARY CONDUIT LAYING PLASTIC CONDUIT

1. GENERAL

1.01 This section describes laying of plastic conduit for subsidiary conduits in both main trench and separate trench installations. Plastic conduit is used because of the ease of handling, as well as its flexibility and adaptability.

1.02 (Reserved for future use)

1.03 Installation of subsidiary conduit will generally follow all rules of placing main plastic conduit, except that, generally, more bends are necessary because of obstructions encountered, such as crossing streets and surfacing the conduit to enter buildings or attaching to riser poles. Keep lengths of lateral conduit runs as short as possible, especially laterals with more than two 90° bends. Avoid reverse bends if possible. It is very difficult to pull cable through a reverse bend. Encase all bends in concrete.

1.04 Where existing ducts of materials other than plastic are to be picked up and extended, use standard plastic adaptors.

2. SUBSIDIARY CONDUIT PLACED IN SAME TRENCH WITH MAIN CONDUIT

2.01 Where practicable, subsidiary conduit should be placed in the same trench with the main conduit. It may either be included in a multiple conduit unit of the main conduit, or placed on top of the main conduit formation.

2.02 If it is included in a multiple unit of the main conduit, the use of expanded web conduit and conduit couplings may be indicated at the point where the subsidiary branches away from the main run.

2.03 Where subsidiary conduit of a type not normally requiring protection is laid on top of the main conduit, the top protection, if specified on the detail plans, should be placed on the portion

of the main conduit not covered by the subsidiary ducts. If the width of the subsidiary ducts is sufficient to cover the main conduit, no other protection need be placed.

3. SEPARATE TRENCH FOR SUBSIDIARY CONDUIT

3.01 Where subsidiary ducts are to be placed in a separate trench, the trench should be dug deep enough to provide a cover of at least 24 inches for the topmost ducts, unless local ordinance requirements require greater depth.

3.02 The width of the trench will depend on the amount of plastic conduit to be placed. For a single duct of 4-inch plastic conduit, a 9-inch width is sufficient. Larger complements of subsidiary duct will require a corresponding increase in width.

3.03 Where practicable, grade the trench so that it will have a fall of at least 3 inches per 100 feet toward the manhole. When an obstruction is encountered in the trench, and it is necessary to dig a deeper trench than would otherwise be required in order to obtain drainage, vertical dips or offsets may be placed without approval of the Plant Engineer as follows: one offset or a combination of offsets where the offset distance totals not more than five feet and the radii are 100 feet or greater. The bottom of the trench should be leveled with fine material to provide a smooth, firm bed for the ducts. When installing conduit, it is particularly important that uniform support be provided along its entire length between couplings. If the bottom of the trench is found to be unstable or to have soft spots, consult the inspector or supervisor to determine the need for a concrete base. If concrete base is specified, it should be placed in accordance with the instructions covering such work.

3.04 In backfilling conduit, particular care should be given to placing and compacting fine material at the sides and on top of the ducts. All

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wood blocking used in grading the trench of conduit should be removed, exercising care not to disturb the alignment of the ducts.

4. LAYING SUBSIDIARY DUCTS

4.01 The following precautions should be observed in laying of subsidiary ducts.

- Clean conduit bore, remove projecting burrs, dirt, etc
- Stagger all joints, horizontally and vertically
- Align conduit sections carefully to avoid disturbing joints after they are made

4.02 Single, two-duct and three-duct conduit, when used for subsidiaries, shall be laid in accordance with the instructions for main conduit construction, except that the concrete base and encasement may be omitted.

4.03 Subsidiaries constructed of steel pipe shall be laid in accordance with the instructions for main conduit construction, except that the concrete base and encasement may be omitted.

4.04 The size of bends used in the construction of underground dips or for changes in the direction of subsidiaries should conform to the size of conduit employed.

4.05 If it is known that a cable is to be placed in the immediate future, place a fish wire of the proper size (eg, 109 Construction Wire) at the time the subsidiary ducts are laid. Otherwise, do not place a fish wire.

4.06 In general, no top protection is required for subsidiary ducts and protection shall not be placed unless specified on the detail plans. Where protection is specified, it shall be provided in accordance with the detailed plans.

5. JOINTS IN SUBSIDIARY DUCTS

5.01 Where two types of subsidiary conduit are joined together, the joints or conduit couplings which connect the two types of conduit shall be encased in 3 inches of cement mortar or concrete. This encasement shall include 6 inches of conduit on either side of the joint or coupling.

5.02 Where bends are placed in subsidiary conduit runs, the conduit bends shall be encased in cement mortar or concrete. This mortar or concrete shall be 3 inches thick and shall include 6 inches of conduit on both sides of the joint.

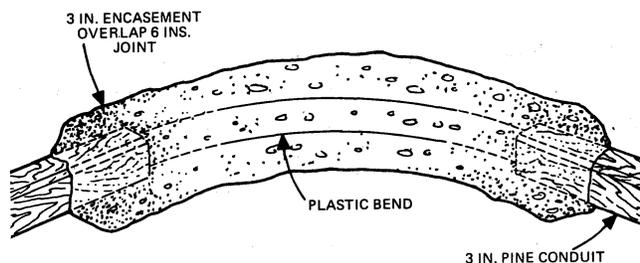


Fig. 1

6. CONSTRUCTING BENDS AND TURNS FOR SUBSIDIARY CONDUIT

6.01 The number of turns permissible in a subsidiary duct is limited by the length of radius of the turns, the length of the subsidiary, and the size of the cable to be installed therein.

6.02 If obstructions in the trench or other conditions require more turns than are shown on the detail plans, the inspector or supervisor should be consulted as to whether turns of longer radii than originally planned or a service manhole should be constructed. *Reverse curves in subsidiary ducts should be avoided.*

7. USE OF SPLIT CONDUIT

7.01 When required, order factory split conduit, it does not reduce inside diameter of conduit.

8. PUSHING SUBSIDIARY DUCTS UNDER PAVEMENT

8.01 Where it is not desirable to disturb pavement or other surface materials by trenching, steel pipe subsidiary ducts may be placed under the pavement, etc, by means of a pipe pusher.

8.02 The methods of pushing pipe are outlined in instructions covering the operation of the pipe pusher. Whenever this equipment is employed, the instructions governing its use should be followed.