

UNDERGROUND CABLE PLACING

SETTING UP REEL AND APPARATUS

<u>Contents</u>	<u>Page</u>
1. General	1
2. Checking Duct	1
3. Setting Up Cable Reel	1
4. Pulling Apparatus	6
5. Rope for Pulling	14

1. GENERAL

1.01 This Section along with others in the series is a revision of information previously contained in G55.110. The principal addition is the use of locally developed cable pulling equipment and methods.

1.02 This section replaces Parts 1, 2, 3, and 4 of G55.110.

2. CHECKING DUCT

2.01 Check to determine if the selected duct, as indicated on the running sheet or print, has been wired. If more than one duct in the same section is found wired, be sure to use the correct duct.

2.02 If the duct which has been selected is not wired, advise the supervisor before pulling the cable.

2.03 If the duct which has been selected has been previously rodged, make a spring coil test in accordance with Section G55.105 to determine the condition of the duct. If the duct has not been rodged and the cable placing crew is to rod, make the spring coil test upon completion of the rodging.

3. SETTING UP CABLE REEL

3.01 Before setting up a reel, check the reel number and the size, gauge, and length of cable on it with the information given on the running sheet or print.

**SECTION**

G55.110.1-S

Page 1

14 Pages

UNDERGROUND CABLE PLACING  
SETTING UP REEL AND APPARATUS

3.02 If it is necessary to roll the reel to the desired location, roll it in the direction indicated by the arrow on the reel. A full reel of cable of maximum size may weigh as much as five tons and it is necessary, therefore, to exercise careful control of its movement. In handling a heavy reel it should never be permitted to tilt. Where uneven ground condition is encountered provide a substantial runway of heavy planks leveled by blocking so that tilting of the reel will not occur.

3.03 When loading a reel of cable, it should be kept in mind that the cable will unroll in the direction opposite to that of the arrow on the reel.

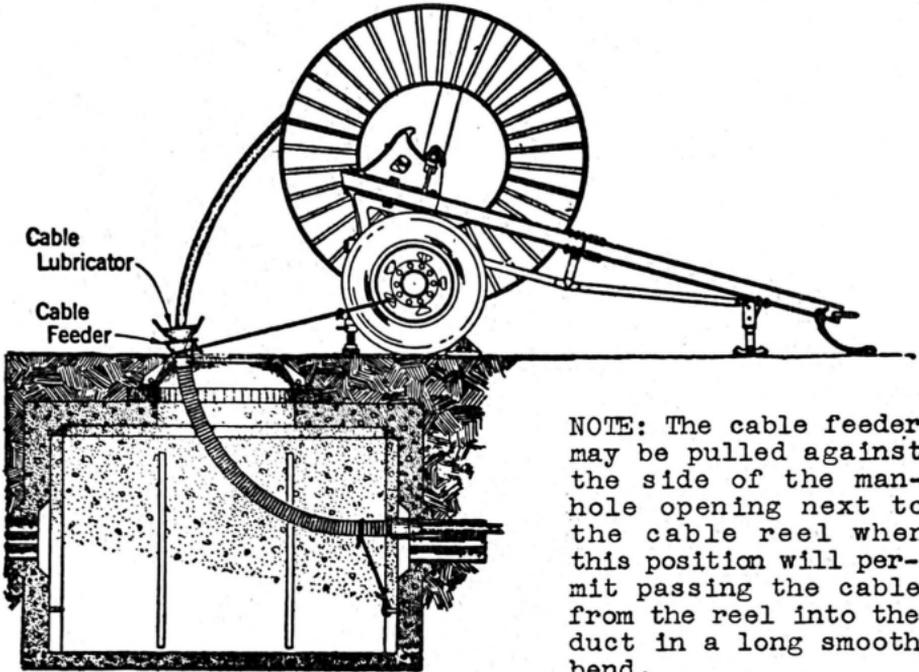
3.04 If it is necessary to move a reel of cable in a construction truck, use the CT Cable Reel Sling in loading and unloading the reel.

3.05 Set up the reel on the same side of the manhole as the conduit section in which the cable is to be placed. The reel should be in alignment with the duct and in such position that the cable can be passed from the top of the reel in a long smooth bend into the duct without twisting. Never pull the cable from the bottom of the reel. Before removing lag banding from reels, secure the banding to the lags at several points, to prevent the banding from flying when it is cut.

3.06 If the duct line into which the cable is to be pulled contains a curve, the reel should be set up at the manhole nearer the curve, when condition will permit.

3.07 It is essential that the reel be in proper alignment and level during the placing operations as incorrect locating of the reel will cause unnecessary binding which may result in adjacent turns of the cable sticking together.

3.08 In general cable reel trailers should be used to transport and support cable reels in connection with the cable placing operation. See other instructions for loading and unloading cable reel trailers.



NOTE: The cable feeder may be pulled against the side of the manhole opening next to the cable reel when this position will permit passing the cable from the reel into the duct in a long smooth bend.

3.09 When cable reel trailers are used to support the reels, one trailer may be left attached to the auxiliary truck. On heavily travelled streets the use of the wire roller guide (see Paragraph 4.04) will make it possible to place the auxiliary truck and trailer so that they will not interfere with the free flow of traffic.

3.10 The lumber carrier holds two reels of cable and may be used on jobs that require the transporting of a number of reels. The safety chains shall always be placed over the spindle bars on the carrier to prevent the reels from jumping out of the hangers. The brakes shall be set when the carrier is not in motion and the wheels shall be chocked when standing on a grade.

## SECTION

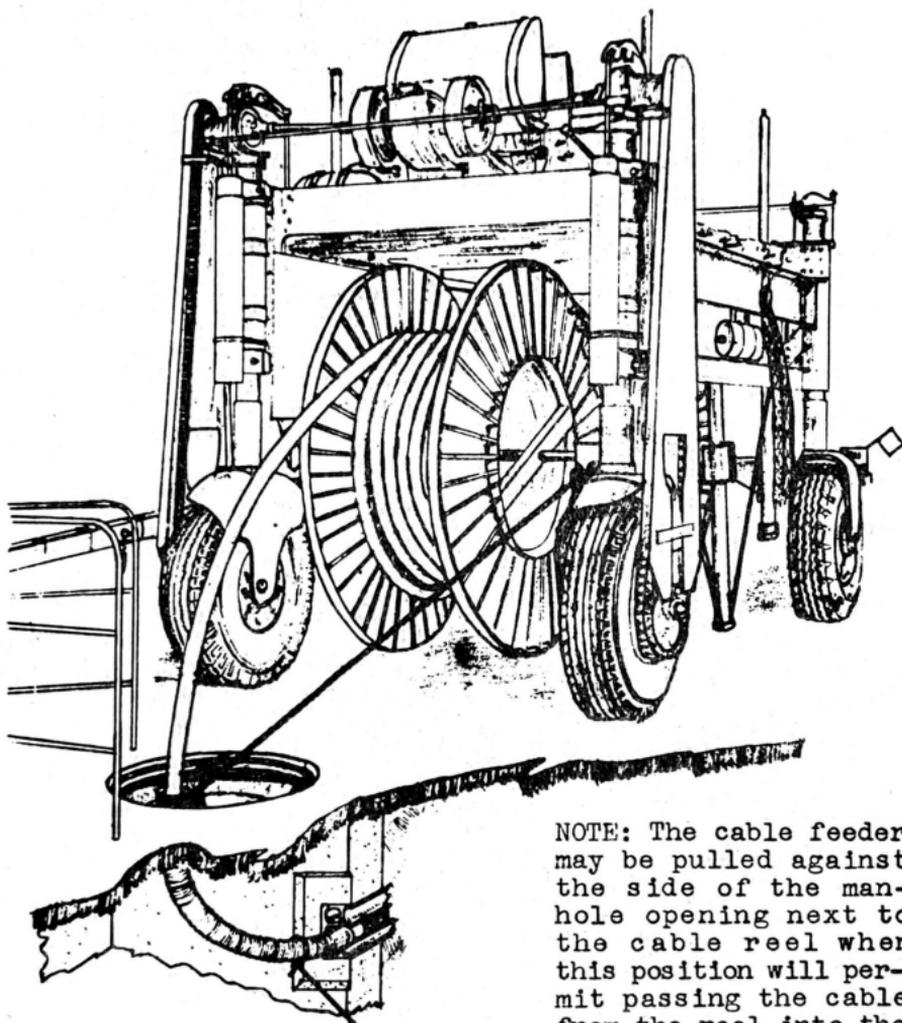
G55.110.1-S

Page 3

UNDERGROUND CABLE PLACING  
SETTING UP REEL AND APPARATUS

(a) The lumber carrier may be used to feed cable into a manhole at a heavily travelled intersection with very little disruption of traffic.

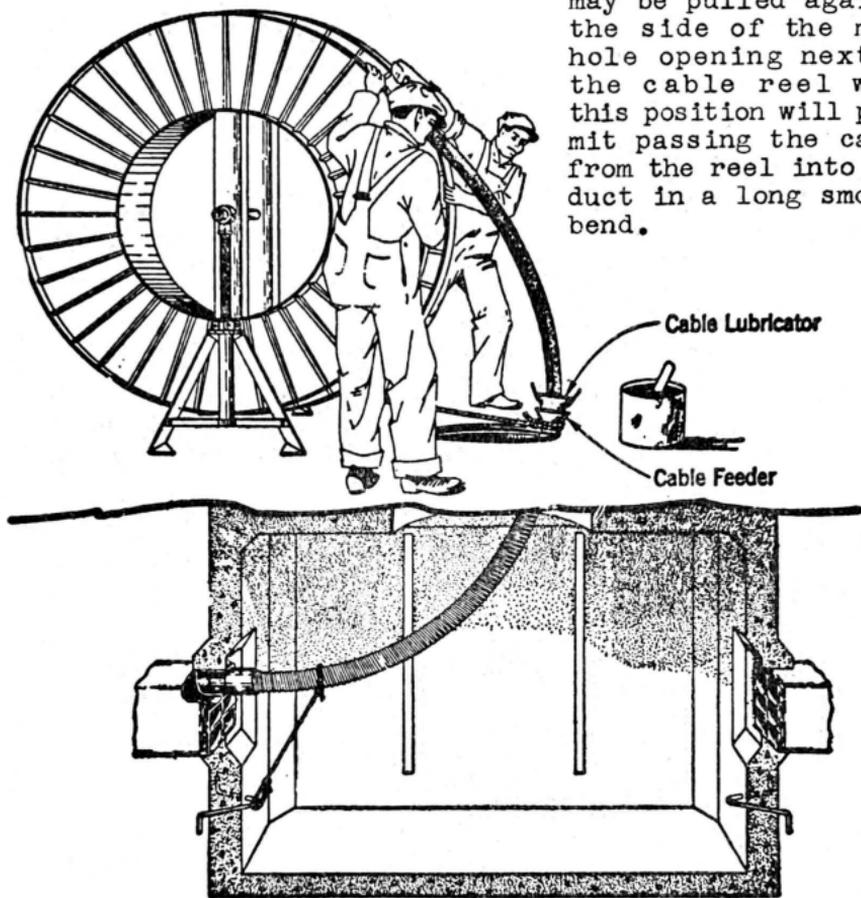
(b) When the lumber carrier is used in cable placing, one or two men may be used at the cable storage lot for placing grips, opening and loading reels and bundling the lags.



NOTE: The cable feeder may be pulled against the side of the manhole opening next to the cable reel when this position will permit passing the cable from the reel into the duct in a long smooth bend.

3.11 The use of reel jacks is illustrated below:

NOTE: The cable feeder may be pulled against the side of the man-hole opening next to the cable reel when this position will permit passing the cable from the reel into the duct in a long smooth bend.



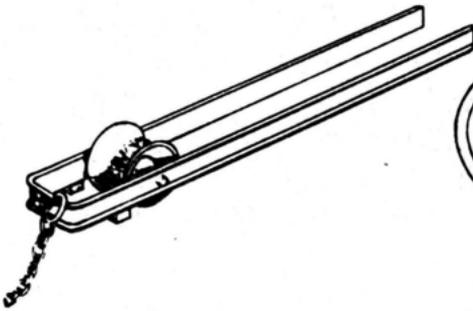
3.12 If a workman remains in the feeding manhole during pulling operations, he should keep to the side of the manhole and out of the vertical plane formed by the cable reel and the cable feeder tube.

3.13 When securing the cable feeder to the pulling iron below the duct opening, care must be exercised in tightening the tie so that the feeder is not pulled below the level of the duct in which the cable is to be placed.

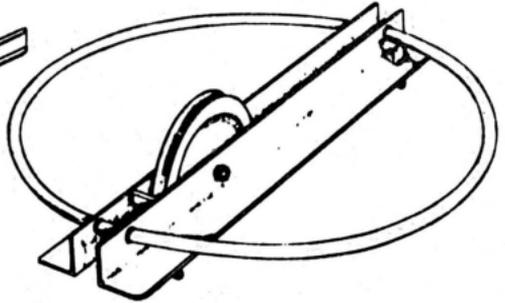
SECTION

#### 4. PULLING APPARATUS

4.01 The wire strongback, illustrated below, shall be used when pulling in the winch line when it is not practical to pull directly out of the manhole opening. When the strongback is not equipped with a safety ring, it shall be provided with a safety chain to prevent its falling into the manhole.



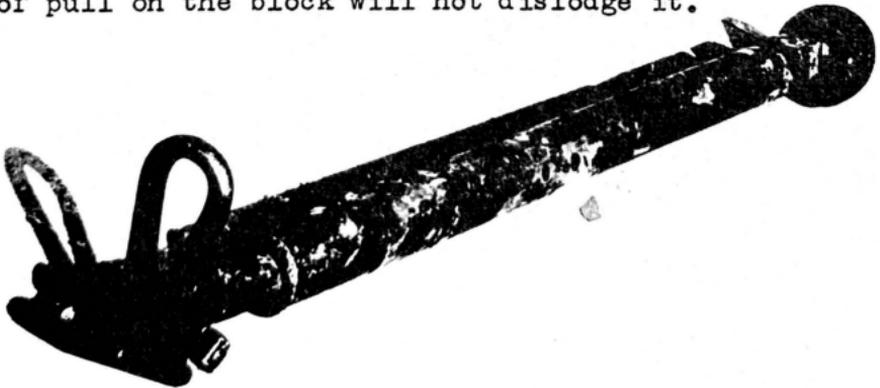
WIRE STRONGBACK



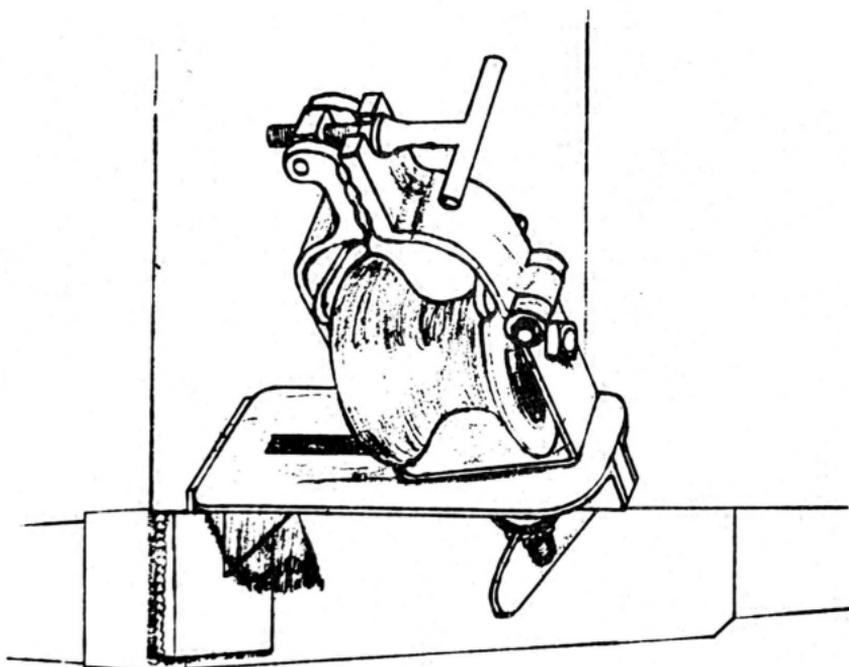
WINCH LINE STRONGBACK

4.02 The winch line strongback, illustrated above, will withstand the full weight of the pull from the winch and may be used in pulling in cable when it is not practical to pull directly out of the manhole.

4.03 The manhole jack, illustrated below, should be used in manholes that do not have adequate pulling irons. The jack is fitted with two extensions. The short extension is to be used in manholes under 8 ft. in length and the long extension in manholes 8 ft. in length and over. The jack shall be so placed that it has a firm footing against the manhole walls and that the angle of pull on the block will not dislodge it.

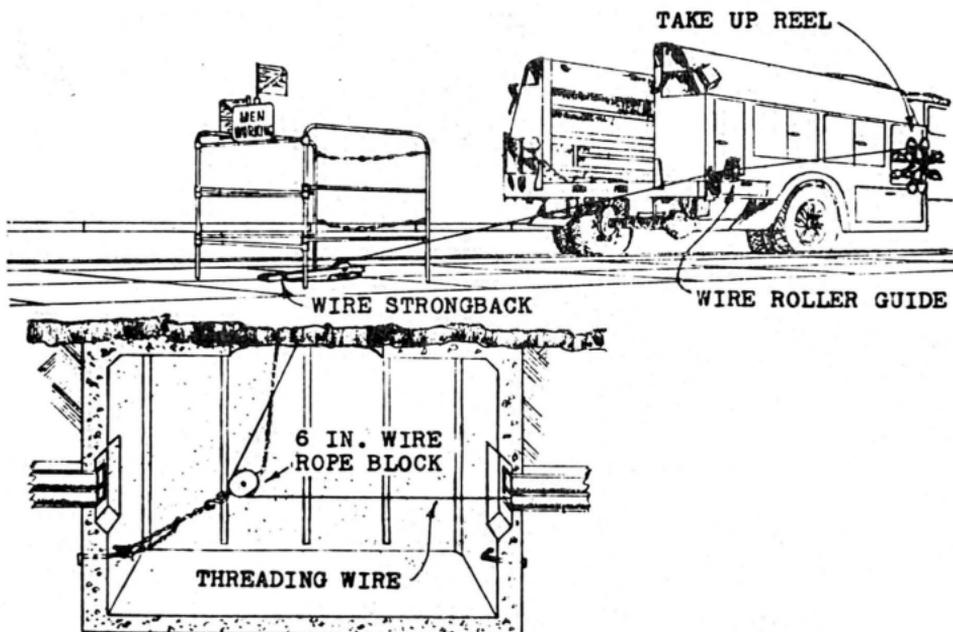


4.04 The wire roller guide, illustrated below, may be used in conjunction with the wire strongback when pulling in the winch line when it is not practical to pull directly out of the manhole. The guide is made up of three parts: the single cable sheave, the sheave platform, and the bracket which is secured to the side of the truck. The sheave is bolted to the platform by means of a bolt passed through the slot in the platform and secured with a wing nut. To form the proper angle and to properly align the guide with the take up reel, the wing nut may be loosened and the guide turned or moved along the slot. The guide should be removed from the bracket and stored in the truck when not in use.

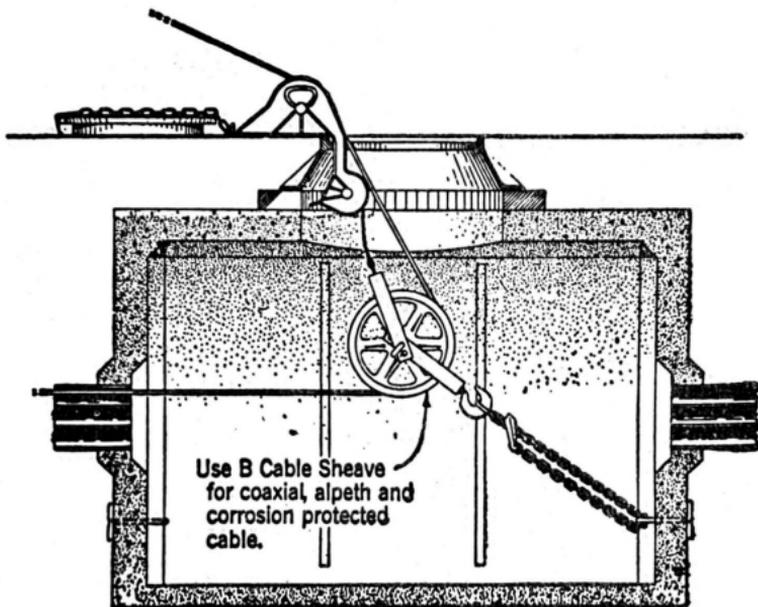


4.05 When pulling in the winch line the threading wire shall be passed through a six-inch wire rope block. The block may be attached to a pulling iron directly or to a pulling iron with a 1/2 in. x 6 ft. construction chain. If no pulling iron is available, a manhole jack may be used as outlined in Paragraph 4.03 above. The block shall not be secured to any manhole hardware other than the pulling iron nor shall any material other than the 1/2 in. x 6 ft. construction chain be used to make the attachment.

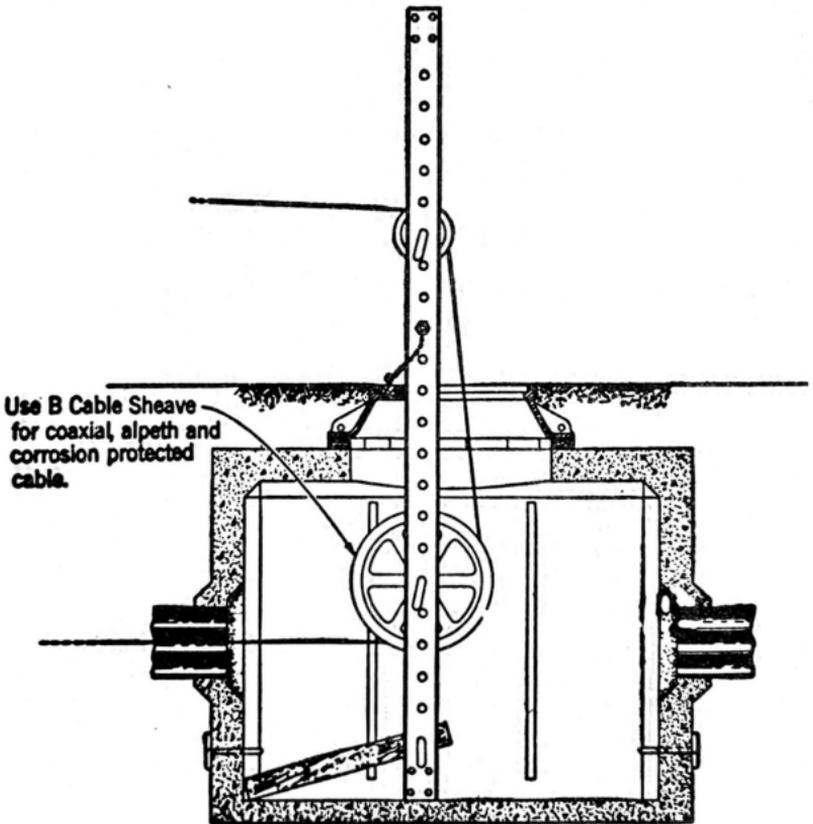
4.06 The take-up reel on the auxiliary truck may be used as illustrated below to pull in the winch line by means of the threading wire. The wire roller guide mounted on the rear of the auxiliary truck allows flexibility in the angle the truck forms with the manhole.



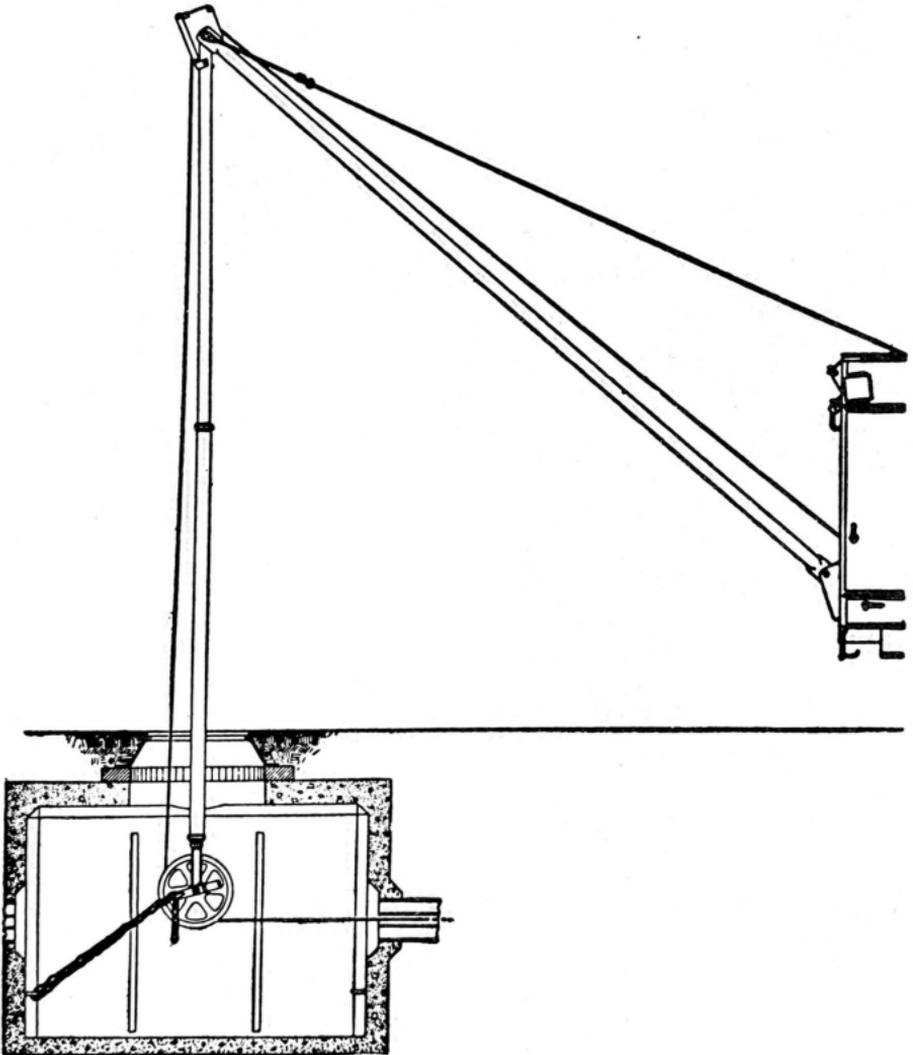
4.07 If the manhole is equipped with pulling-in irons, the sheaves and sheave shackles, illustrated below, may be used.



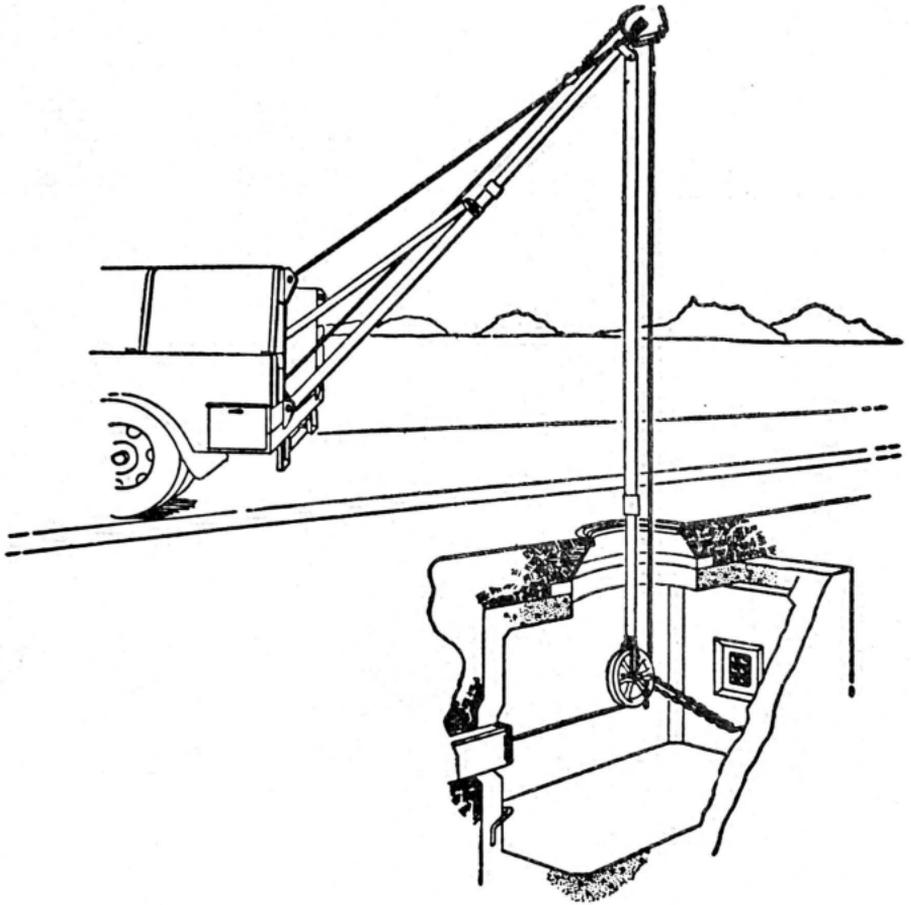
4.08 If the manhole is not equipped with pulling-in irons and a pulling frame is available, it may be used for placing cable. The pulling frame should be placed in a vertical position as illustrated below. A block should be placed to support the frame at the manhole opening and a second block on the floor of the manhole to keep the foot of the frame from moving. When possible the truck should be placed in line with the conduit run. If it is necessary to make the pull at an angle to the conduit run, the frame should be braced at its base and at the manhole opening to prevent any side movement of the frame.



4.09 The D Underground Cable Puller, illustrated below, may be used to place cable when the construction truck is equipped with derrick attachments. The apparatus is equipped with a chain and push braces. The chain is for attaching the sheave to pulling-in irons and the push braces are used where pulling-in irons are not provided.

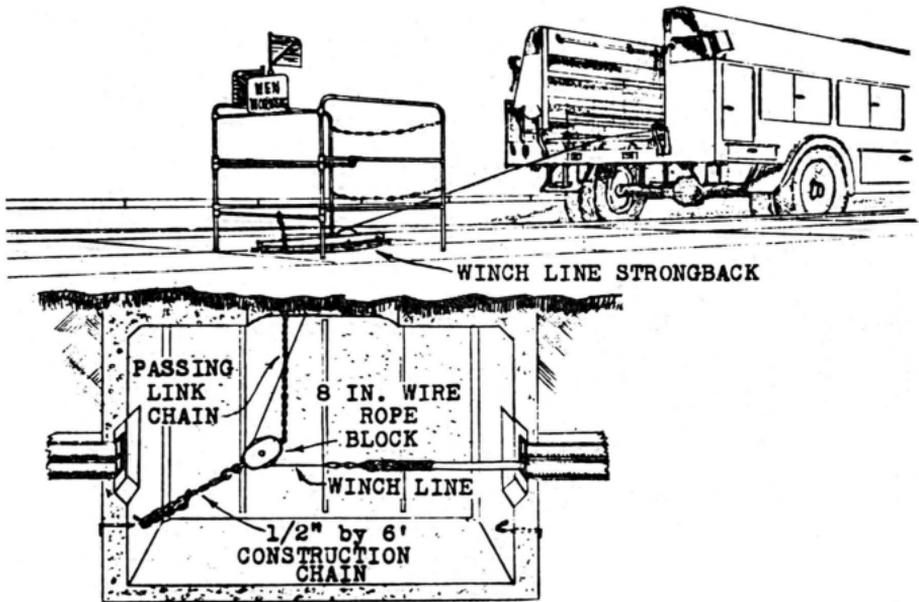


4.10 If it is necessary to place the construction truck at an angle to the conduit run, the attachment tube collar may be turned and locked at the desired angle. The set-up is shown in the illustration. The rope guide sheave should be placed near the middle of the vertical leg of the derrick, if the derrick is not equipped with side rollers.



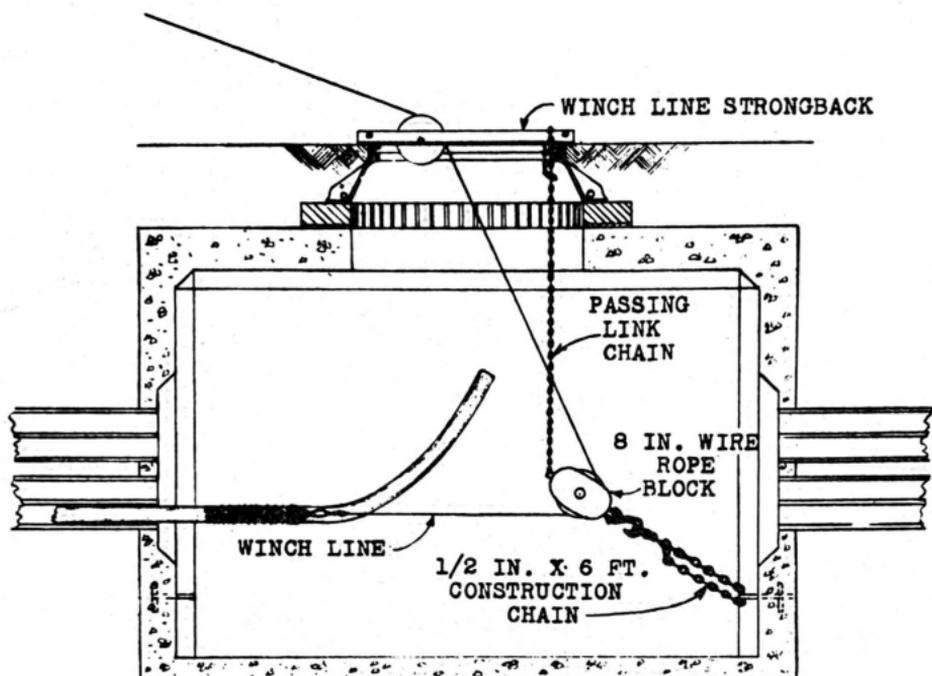
4.11 The length of the vertical leg on the D Underground Cable Puller can be increased by use of the extension provided for the type of derrick.

4.12 The pulling truck shall be on the same side of the manhole as the conduit section into which the cable is to be pulled. The truck should be as near in line and as close to the manhole as conditions will permit. An 8-inch wire rope block shall be placed in the manhole and secured to the pulling iron by means of a 1/2 in. x 6 ft. construction chain. If there are no pulling irons, a manhole jack may be used as outlined in Paragraph 4.03 above. If conditions will not permit the pulling truck to be placed over the manhole, the winch line strongback should be used as illustrated below.



4.13 Where extra lengths of cable are to be left in the manhole it is desirable to feed the cable into the manhole in which the extra lengths are desired. Where this is not practical the extra lengths may be pulled into the manhole by means of the winch line and a luffing grip, as illustrated below. Provided the pull is not excessive, the man assigned to this operation may be permitted to stay in the manhole and signal the driver of the truck with an extension cord to the buzzer in the

truck. Care should be taken to see that the man stands in the clear.



4.14 Workmen should not remain in the manhole into which the cable is being pulled except when it is absolutely necessary in connection with luffing operations.

#### 5. ROPE FOR PULLING

5.01 Only approved pulling ropes shall be used in connection with cable placing and removing operations.