PLAINTIFF'S EXHIBIT
JMMC-233

Laying ..... pipe is a relatively simple job. However, experience and research show that certain elementary requirements should be observed to insure trouble-free service for generations.

Good judgment suggests that it is more economical to use conscientious care in handling and installing pipe than it is to spend money later on for unnecessary maintenance. There have been innumerable instances where the blame for a repair job was charged to the pipe only to find by later investigation that the fault was properly chargeable to the method of laying the pipe or lack of reasonable care in handling or installing it.

The following review of the principal points of good practice in the handling and laying of pipe may be helpful in the promotion of better pipe line construction.

From the time the pipe is taken from the machine until it is loaded on freight cars or trucks, the manufacturer exercises utmost care to avoid damage to his products. Every precaution is taken to insure that the pipe will arrive at destination in first-class condition.

Damage from rough handling in transit will occasionally occur. Consequently, the purchaser should inspect the pipe as it is being unloaded. Damaged pipe should be noted on the freight bill and immediately brought to the attention of the agent to insure proper adjustment with the transportation company.

In unloading, dropping pipe to the ground from trucks or cars is apt to cause damage which may not show up until after the pipe is installed in the line. Pipe being unloaded on skids should not be rolled against other pipe. Observance of these simple precautions takes little time and trouble and can save money.

The width of trench for various sizes of pipe is determined by the type of soil, the depth of laying ..... and the space required to allow workmen to backfill thoroughly around and under the pipe. It is conceivable to install a 36" pipe, for instance, in a trench 48" wide but it would be a physical impossibility to tamp the backfill properly around and under the pipe with such small clearance. The trench must be of sufficient width to enable the workmen to tamp the backfill around the bottom half of the pipe.

The bottom of the trnch should be cut ~~through~~ true and even so that the bottom of the pipe will have a bearing for it's full length. When trenches are dug with a power shovel or backhoe, special care should be taken to make sure that the trench bottom is levelled off to provide a bed for the pipe.

Large mains laid in heavy traffic streets, under railroad crossings or any location where shock might be transmitted to the pipe should be laid deeper than the minimum required. In some cases, a minimum covering of 4 to 5 feet is required for mains of even large diameters to provide a cushion to absorb shocks due to traffic.

Bell holes should be of sufficient size but ~~two~~ too large bell holes are a detriment. Experience has shown that large bell holes ..... place undue stress on small diameter pipe resulting in breaks due to extreme and unnecessary beam action.

In rock excavation..... at no place should the rock come closer than 6" to the finished pipe line. A bed of sand or earth free from stones or clods 6" deep should be made on the bottom of the trench and the pipe placed on this cushion. Failure to do this may result in the pipe resting on a sharp point of rocks, a

condition which has caused many breaks in small diameter mains. Pipe should not be allowed to rest on any unyielding structure nor should it be called on to support another structure. Pipe should not be laid in a manner to cause it to act as a beam. It should not be poured solid in concrete walls, footings or any immovable objects as the weight of the backfill and settlement of the trench often cause the pipe to act as a cantilever beam with resulting failure.

COPY FORM	INITIALS	DATE
	CSP	10-19-99

BOX NUMBER	SEGMENT NO.	REQUESTING PARTY
04-1913		B&B

NOTES