

EXECUTION

PREPARATION

- A. EXCAVATE PITS FOLLOWING WORKING DRAWINGS.
- B. PROVIDE EQUIPMENT TO GUARD AGAINST ELECTROCUTION AND AN ALARM SYSTEM ON DRILLING EQUIPMENT CAPABLE OF DETECTING ELECTRICAL CURRENT AS IT APPROACHES ELECTRIC LINES.
- C. TEST PIT UNDERGROUND UTILITIES CROSSING BEFORE HDD OPERATION.

OPERATION

A. GENERAL.

- 1. DETERMINE DRILLING LENGTH AND EQUIPMENT PULL STRENGTH FOR TYPE OF SOIL ENCOUNTERED.
- 2. PROVIDE METHOD TO CONTROL LINE AND GRADE.
 - a. PROVIDE AND MAINTAIN INSTRUMENTATION THAT ACCURATELY LOCATES PILOT HOLE.
 - b. DRILL PILOT HOLE ALONG PATH FOLLOWING DRAWINGS TO THESE TOLERANCES:
 - 1) VERTICAL ALIGNMENT PLUS OR MINUS 0.5 FOOT. VERTICAL PATH OF THE PILOT HOLE MUST NOT ESTABLISH NEW HIGH POINTS NOT SHOWN ON DRAWINGS.
 - 2) HORIZONTAL ALIGNMENT PLUS OR MINUS 1.0 FOOT.
 - c. INCLUDE ELECTRONIC MONITORING OF THE HORIZONTAL AND VERTICAL DRILLING HEAD LOCATION. OBTAIN AN ACCURACY RANGE WITHIN 1 INCH OF ACTUAL POSITION OF THE PIPELINE. RECORD POSITION READINGS AT A MAZIMUM OF 10 FOOT INTERVALS.
 - d. AT COMPLETION OF PILOT HOLE DRILLING, FURNISH ENGINEER TABULATIONS OF HORIZONTAL AND VERTICAL ALIGNMENT.
- 3. WHEN WATER IS ENCOUNTERED.
 - a. PROVIDE AND MAINTAIN A DEWATERING SYSTEM OF SUFFICIENT CAPACITY TO REMOVE WATER.
 - b. KEEP EXCAVATION FREE OF WATER UNTIL BACKFILL OPERATION IS IN PROGRESS.
 - c. PERFORM DEWATERING IN SUCH A MANNER THAT REMOVAL OF SOILS PARTICLES ARE HELD TO A MINIMUM.
 - d. DEWATER INTO A SEDIMENT TRAP.
- 4. MAINTAIN CLOSE OBSERVATION TO DETECT SETTLEMENT OR DISPLACEMENT OF SURFACE AND ADJACENT FACILITIES.
 - a. NOTIFY ENGINEER IMMEDIATELY IF SETTLEMENT OR DISPLACEMENT OF SURFACE AND ADJACENT FACILITIES.
 - b. ACT TO MAINTAIN SAFE CONDITIONS AND PREVENT DAMAGE.

B. DRILLING OPERATION.

- 1. DRILLING FLUIDS.
 - a. MAINTAIN DRILLING FLUID IN BORE HOLE TO INCREASE STABILITY OF THE SURROUNDING SOIL AND REDUCE DRAG ON PULLED PIPE.
 - b. DISPOSE OF DRILLING FLUID AND OTHER SPOILS AT LOCATION FOLLOWING LAWS, ORDINANCES, RULES, AND REGULATIONS OF LOCAL JURISDICTION.
 - c. TRANSPORT EXCESS FLUIDS AND OTHER SPOILS TO THE DISPOSAL SITE, AT NO ADDITIONAL COST TO THE CITY OF ROCKY MOUNT.
 - d. MINIMIZE DRILLING FLUID AT LOCATIONS OTHER THAN ENTRY AND EXIT POINTS. IMMEDIATELY CLEAN UP ANY DRILLING FLUIDS THAT INADVERTENTLY SURFACE.
 - e. PROVIDE CLEAN WATER FOR DRILLING, AT NO COST TO THE CITY OF ROCKY MOUNT, AT ENGINEER'S REQUIREMENT.
- 2. PILOT HOLE DRILLING.
 - a. ANGLE ENTRY HOLE SO THAT CURVATURE OF PILOT HOLE DOES NOT EXCEED ALLOWABLE BENDING RADIUS OF HDPE PIPE.
 - b. BE ABLE TO MAKE A TURN OF UP TO 90 DEGREES AND MAINTAIN A CURVATURE NOT TO EXCEED ALLOWABLE BENDING RADIUS OF HDPE PIPE.
 - c. ALIGNMENT ADJUSTMENT AND RESTARTS.
 - 1) FOLLOW PIPELINE ALIGNMENT ON DRAWINGS WITHIN TOLERANCES SPECIFIED HEREIN. BEFORE ADJUSTMENTS, NOTIFY ENGINEER FOR APPROVAL.
 - 2) NOTIFY ENGINEER WHEN FORWARD MOTION OF OPERATION IS STOPPED BY AN OBSTRUCTION.
 - a. ABANDON IN PLACE WITH DRILLING FLUID, UNLESS ENGINEER DIRECTS OTHERWISE.
 - b. UPON ENGINEER'S APPROVAL, ATTEMPT A SECOND INSTALLATION AT APPROVED LOCATION OR EXCAVATE AT THE POINT OF DIFFICULTY AND INSTALL THE HDPE PIPE BY TRENCH METHOD.
 - 3) WITHDRAWALS, ABANDONMENTS, AND RESTARTS ARE AT NO ADDITIONAL COST TO THE CITY OF ROCKY MOUNT WHEN HDD IS PROVIDED AS AN OPTION OF INSTALLATION OF PIPE.
 - 4) EXERCISE CAUTION INCLUDING, BUT NOT LIMITED TO, LOCATING UTILITIES, DRILLING DOWNHOLES (TEST PITS) TO OBSERVE DRILL STEMS OR REAMER ASSEMBLY TO CLEAR OTHER EXISTING UTILITIES AT LOCATIONS FOLLOWING DRAWINGS.
 - 5) KEEP THE NUMBER OF BORING PITS TO A MINIMUM, NO CLOSER THAN FOLLOWING DISTANCES, UNLESS OTHERWISE APPROVED BY ENGINEER.
 - a. EQUIPMENT MUST BE CAPABLE OF BORING FOLLOWING LENGTHS IN A SINGLE BORE.

HORIZONTAL DIRECTIONAL BORE NOTES (SHEET 1 OF 2)

REVISIONS		
NO	DATE	DESCRIPTION

CITY OF ROCKY MOUNT
DEPT. OF ENGINEERING

APPROVED -	STD. NO. 1.8b
DATE 12-19-08	REVISION -