Design Standard

Electrical Manholes

Detailed specifications follow.

PART 1 - GENERAL INSTALLATION PROCEDURES

1.01 Manholes shall have a minimum of a 42" hole opening.

1.02 Ladder ups will be mounted in the center of every ladder.

1.03 All 600 amp T-bodies and 200 amp elbows will have test points.

1.04 All manholes will be clean at the completion of the project.

1.05 Stabilizing sand shall be used for installation of all manholes.

1.06 A minimum of 10 feet of rigid conduit with galvanized bell ends shall be required on each duct bank coming in and going out of the manhole.

1.07 All conduits shall be cut off flush with the wall in the manholes.

1.08 All electrical manhole covers shall be labeled with ‘ELECTRIC’ on the top of them.

1.09 All cables shall be labeled with feeder number and bldg. numbers, cables should be marked with red and blue marking tape to identify the phases.

1.10 All switches shall be anchor down and set so that it can be operated from manhole lid opening.

1.11 Any position on the switch that is not used shall have a bushing well insert on the switch and a dust cover on the bushing and shall be grounded.

1.12 Any terminations in the manhole shall be supported between the rack in the manhole and as close the wall as possible.

1.13 All empty ducts coming into manholes shall be sealed off.

1.14 All fire taping shall be wrapped with cloth taping (3M 77cloth tape).

1.15 All ducts shall be swapped before sealing or pulling cable and shall have a pull string in each conduit.

1.16 All racks shall be as high as possible in manhole.
1.17 All racks and rack arms shall be fiber glass.

1.18 Tie wraps shall be 3’ in length and ½” in width.

1.19 Manhole lids shall be 4” above final grade.

1.20 Iron castings for manhole rings and covers shall conform to ASTM A48, Class 30, and be traffic rated.

PART 2 - MANHOLE DIAGRAMS

2.01 Precast concrete TAMU electrical manholes 8’ x 10’ x 8’ including thin-wall knockout, pull irons, sump box with grate, ground rod sleeve, “Safrail” fiberglass ladder, “Bilco” ladder up. 1 neck extension and a McKinley #SS38I ring and a ductile iron cover marked “ELECTRIC” cast bin to a 42” diameter precast concrete neck extension X21” high.
PROVIDE LADDER SAFETY POST AND ATTACH TO LADDER PER MANUFACTURERS INSTRUCTIONS. POST SHALL BE A BILCO HOT DIP GALVANIZED STEEL MODEL LU-2.

FIRST LADDER RUNG TO BE WITHIN 12" OF TOP OF NECK LADDER RAIL TO EXTEND 6" ABOVE FIRST RUNG. PROVIDE FLAT STEPS FOR LADDER.

FINISHED GRADE TO BE SLOPED GENTLY AWAY FROM MANHOLE OPENING TO PREVENT RUNOFF FROM ENTERING MANHOLE.

18" NECK SECTION MINIMUM OR AS REQUIRED TO MEET SLOPE REQUIREMENTS IN SPECIFICATION AND GRADING SHOWN ON CIVIL PLANS.

HEAVY DUTY NON-METALLIC VERTICAL CABLE RACK ANCHORED TO WALL WITH STAINLESS STEEL EXPANSION BOLTS, TYPICAL.

HEAVY DUTY NON-METALLIC LONG SUPPORT ARM WITH CABLE SUPPORTS AS REQUIRED TYPICAL.

CORROSION RESISTANT GROUND BUS CUP

SEAL AFTER GROUND ROD IS INSTALLED

3/4" X 10'-0" GROUND ROD

SUMP PIT LOCATE NEAR LADDER

CONDUIT ENTRY AS REQUIRED TYPICAL

PULLING EYE TYPICAL

#2/0 GROUND RING AROUND INSIDE OF MANHOLE

6"
PART 3 - MANHOLE CABELING

3.01 All cables are to be wrapped one time around manhole.

3.02 Every wall shall have two support racks mounted in order to support cable.

3.03 Zip tied down.

3.04 Fire taping shall be used from duct to the termination.

PART 4 - GROUNDING

4.01 All manholes shall have a minimum of two 5/8" by 10’ grounding rods.

4.02 All switches and electrical equipment mounted in manholes shall be grounded.

4.03 The ladder shall be grounded.

PART 5 - SUMP PUMP

5.01 All manholes will have sump pumps installed in them.

5.02 Three 2” PVC pipe shall be used for sump pump circuit.

5.03 All manholes shall have a sump pit that is a minimum of 1 foot deep, and 18” x 18” in width and length with grate.

5.04 2” sump pump drainage PVC will be run to manhole lid with one way check valve with quick disconnect.