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LAKE COUNTY
LAK-90-11.90

SANITARY SEWER NOTES

ITEM SPECIAL - LAKE COUNTY PRECAST CONCRETE MANHOLE OR LAKE COUNTY PRECAST CONCRETE DROP MANHOLE

MANHOLES SHALL BE BUILT ACCORDING TO THESE PLANS AND SPECIFICATIONS AT THE LOCATIONS AND ELEVATIONS SPECIFIED EXCEPT THAT THE HEIGHT OF ANY UNIT MAY BE CHANGED. IF THE HEIGHT IS CHANGED MORE THAN 1 FOOT, COMPENSATION OR DEDUCTIONS FOR THE WORK INVOLVED, WHETHER INCREASED OR DECREASED, WILL BE PROVIDED FOR IN A SUPPLEMENTAL AGREEMENT.

PRECAST CONCRETE MANHOLE UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE PROVISIONS OF ASTM "SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE RISERS AND TOPS," C-478. WHEN NECESSARY TO MEET UNUSUAL SERVICE CONDITIONS, RISER SECTIONS SHOULD BE MANUFACTURED TO COMPLY WITH THE REQUIREMENTS FOR "REINFORCED CONCRETE CULVERT, STORM DRAIN AND SEWER PIPE," C-76. WHEN PLANS CALL FOR SPECIAL PROCEDURES NOT COVERED BY ASTM SPECIFICATIONS, SHOP DRAWINGS SHALL BE FURNISHED. INSTALLATION OF PRECAST CONCRETE MANHOLES SHALL BE AS INDICATED IN THESE PLANS. WHEN REQUIRED, MANHOLE RISER SECTIONS WILL BE TESTED IN ACCORDANCE WITH ASTM "METHODS OF TEST FOR DETERMINING PHYSICAL PROPERTIES OF CONCRETE PIPE OR TILE," C-497.

JOINTS BETWEEN MANHOLE UNITS SHALL BE CONSTRUCTED AS SHOWN ON THE CONTRACT DRAWINGS. RUBBER GASKETS SHALL MEET THE REQUIREMENTS SET FORTH IN ASTM SPECIFICATIONS FOR "JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE, USING FLEXIBLE, WATERTIGHT, RUBBER GASKETS," C-443.

MANHOLE STEPS SHALL BE PROVIDED FOR ALL MANHOLES. THE VERTICAL DISTANCE BETWEEN STEPS SHALL IN GENERAL BE 12". ALL STEPS SHALL BE FIRMLY ANCHORED INTO THE SECTIONS OF THE MANHOLE WALL WITH EMBECCO GROUT OR EQUAL. THE UPPERMOST STEP SHALL BE BUILT NOT OVER TWO FEET (2'-0") BELOW THE CAST IRON MANHOLE RIM. THE STEPS PROVIDED SHALL BE CAST IRON EQUAL TO NEEVAH FOUNDRY COMPANY CATALOGUE NO. R-1980-E, EAST JORDAN IRON WORKS NO. 8500 OR AN APPROVED EQUAL.

MANHOLE COVERS SHALL BE HEAVY DUTY PATTERN. THE LID AND SEAT SHALL HAVE MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING. THE LID SHALL BE PROVIDED WITH TWO (2) CONCEALED PICK HOLES AND SHALL BE THE SOLID TYPE WITH THE WORDS "SANITARY SEWER" CAST INTO IT. THE MANHOLE FRAMES AND COVERS FURNISHED SHALL BE NEEVAH FOUNDRY CATALOGUE, NO. R-1782, EAST JORDAN IRON WORK, NO. 1710 OR AN APPROVED EQUAL.

BRICK FOR MANHOLES SHALL CONFORM IN ALL RESPECTS TO AMERICAN SOCIETY FOR TESTING MATERIALS LATEST "STANDARD SPECIFICATIONS FOR SEWER BRICK," SERIAL DESIGNATION C-32, GRADE SA, SIZE 2-1/4" x 3-3/4" x 8" OR AS APPROVED AVAILABLE STANDARD DIMENSIONS.

MORTAR FOR JOINTS FOR MANHOLE BRICK BARRELS SHALL BE PROPORTIONED OF ONE (1) PART BY VOLUME OF PORTLAND CEMENT AND TWO (2) PARTS OF CLEAN, COARSE, SCREENED SAND, THOROUGHLY MIXED DRY, AND WITH SUFFICIENT WATER SLOWLY ADDED, AFTER DRY MIXING, TO GIVE PROPER CONSISTENCY. A MAXIMUM OF FIVE PERCENT (5%) BY VOLUME OF HYDRATED LIME CONFORMING TO 712.04 MAY BE ADDED TO THE MORTAR. CEMENT FOR MORTAR SHALL BE 701.01 THROUGH 701.07. SAND SHALL BE 703.03. NO PREPARED MORTAR WILL BE ACCEPTABLE.

CONCRETE FOR MANHOLE BASES AND FLOW CHANNELS SHALL BE CLASS C CONFORMING TO SPECIFICATIONS OF 499 AND 511.

THE PRECAST MANHOLES SHALL BE CONSTRUCTED ESSENTIALLY AS SHOWN IN THE PLANS. MANHOLE BARREL SECTIONS SHALL BE MANUFACTURED IN 1, 2, 3, AND 4 FOOT LENGTHS AND MAY BE USED IN ANY COMBINATION TO OBTAIN THE DESIRED DEPTH. JOINTS SHALL BE MADE WITH RUBBER GASKETS AND THE ANNULAR SPACE EXPOSED IN THE INSIDE SHALL BE FILLED WITH CEMENT MORTAR. MANHOLES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT THE TOTAL DEPTH FROM INVERT TO TOP ELEVATION WILL ALLOW A MINIMUM OF THREE COURSES TO A MAXIMUM OF SIX COURSES OF BRICK IN ORDER TO ADJUST THE FRAME AND COVER TO THE DESIRED FINISHED ELEVATION.

WHERE THERE ARE CHANGES IN THE DIRECTION OF THE SEWER OR ENTERING BRANCHES TO THE MANHOLE, THE CENTERLINE OF THE INVERT SHALL HAVE A TRUE CURVE OF AS LARGE A RADIUS AS THE SIZE OF MANHOLE WILL PERMIT.

NO MORTAR OR CONCRETE SHALL BE PLACED IN WATER, AND NO WATER SHALL BE ALLOWED TO FLOW OVER OR AGAINST THE CONCRETE BEFORE IT HAS SET FOR A PERIOD OF TIME DEEMED SUFFICIENT BY THE ENGINEER TO PREVENT DAMAGE TO THE STRUCTURE.

SEWERS AND MANHOLES MUST BE MADE WATERTIGHT AT ALL POINTS AND IF, AFTER THE WORK IS COMPLETED, LEAKS ARE DISCOVERED, THEY MUST BE CAULKED OR OTHERWISE STOPPED. ANY DEFECTS IN THE WORK DISCOVERED AT ANY TIME SHALL BE IMMEDIATELY CORRECTED.

ALL CASTINGS, IRONWORK PIPE CONNECTIONS, ETC. SHALL BE BUILT INTO THE MASONRY WHENEVER REQUIRED AND IN THE MANNER DIRECTED BY THE ENGINEER.

DROP MANHOLE CONNECTIONS SHALL BE PROVIDED FOR LATERAL SEWERS WHEN CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER. PIPE AND FITTINGS SHALL BE THE SAME JOINT, STRENGTH, AND SPECIFICATIONS AS THE SEWER PIPE. CONCRETE ENCASUREMENT SHALL BE CLASS "C" CONFORMING TO SPECIFICATIONS OF 499 AND 511.

IF WORK IS CARRIED ON IN COLD WEATHER, THE CONTRACTOR SHALL AT HIS OWN EXPENSE PROVIDE THE NECESSARY MEANS FOR HEATING BRICK, SAND, AND WATER, AND FOR COMPLYING WITH ALL THE REQUIREMENTS OF THE ENGINEER, TO THOROUGHLY PROTECT THE MASONRY, DURING AND AFTER LAYING, FROM DAMAGE BY FROST. NO WORK SHALL BE DONE ON THE MASONRY OR BACKFILLING DURING SUCH DAYS AS, IN THE OPINION OF THE ENGINEER, ARE UNSUITABLE FOR GOOD WORKMANSHIP.

ALL SEWERS AND MANHOLES ON THEIR COMPLETION ARE TO BE LEFT CLEAN AND FREE FROM RUBBISH AND KEPT SO UNTIL THE ACCEPTANCE OF THE WORK. PROVIDED ANY REPAIRS OR ALTERATIONS ARE MADE TO THE MANHOLE AFTER PERFORMING THE LEAKAGE TEST SPECIFIED HEREIN, A RETEST MAY BE REQUIRED.

THE UNIT PRICE STIPULATED PER EACH MANHOLE OR DROP MANHOLE SHALL INCLUDE ALL EXCAVATION AND BACKFILL, CLEARING AND GRUBBING, REMOVAL OF WATER, PROTECTION OF EXISTING STRUCTURES AND UTILITIES, IN ADDITION TO ALL LABOR, EQUIPMENT, TOOLS, APPLIANCES, AND MATERIALS NECESSARY TO CONSTRUCT MANHOLES OR DROP MANHOLES IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. PAYMENT FOR EACH MANHOLE OR DROP MANHOLE SHALL BE MADE AT THE CONTRACT PRICE, COMPLETE IN PLACE FOR:

ITEM SPECIAL - LAKE COUNTY PRECAST CONCRETE MANHOLE

OR

ITEM SPECIAL - LAKE COUNTY PRECAST CONCRETE DROP MANHOLE.