

1.13 FORCE MAIN CRITERIA

THE SIZE OF SEWER FORCE MAINS SHALL BE DETERMINED BY A COMPARATIVE STUDY OF THE CONSTRUCTION COST AND PUMPING COSTS FOR SEVERAL ALTERNATIVE SIZES. IN NO CASE SHALL A FORCE MAIN BE LESS THAN 4" IN DIAMETER. THE CAPACITY OF THE FORCE MAIN SHALL BE THE DESIGN PEAK FLOW FROM THE PUMP STATION CALCULATED FROM MANNING'S EQUATION USING "n" = 0.011. THE NOMINAL DESIGN VELOCITY FOR A FORCE MAIN SHOULD BE 3.0 fps, WITH MINIMUM VELOCITY OF 2.0 fps, AND MAXIMUM VELOCITY OF 6.0 fps. THE DISCHARGE SHALL BE INTO A MANHOLE WITH A SMOOTH FLOW TRANSITION TO A GRAVITY SEWER.

1.14 SEPARATION FROM SEWER AND WATER AND RECLAIMED WATER LINE

HORIZONTAL SEPARATION

STATE DEPARTMENT OF PUBLIC HEALTH SERVICES REGULATIONS REQUIRE A 10' MINIMUM HORIZONTAL SEPARATION BETWEEN WATER OR RECLAIMED WATER AND SEWER LINES. THERE ARE SPECIAL CONSTRUCTION METHODS WHICH MAY BE USED WHERE THIS SEPARATION CANNOT BE ACHIEVED AND THEY ARE SHOWN IN CITY STD. PLAN 501. SEPARATION OTHER THAN THE PUBLIC HEALTH DEPARTMENT MINIMUMS MUST BE APPROVED BY THE CITY ENGINEER.

VERTICAL SEPARATION

WATER, SEWER, AND RECLAIMED WATER LINES ARE TYPICALLY LOCATED VERTICALLY FROM THE STREET SURFACE DOWN IN ORDER OF DECREASING QUALITY. WATER WILL BE THE SHALLOWEST AND SEWER MAINS WILL BE THE DEEPEST. CITY STD. PLAN 501. SHOWS THE CLEARANCE REQUIREMENTS FOR PARALLEL AND PERPENDICULAR CONSTRUCTION OF WATER AND SEWER LINES. CONCRETE ENCASEMENT MAY BE REQUIRED IF THE CLEARANCES INDICATED IN STD. PLAN 501 CANNOT BE ACHIEVED. DETAILS OF APPROVED ENCASEMENT INSTALLATIONS ARE SHOWN IN STD. PLAN 514 AND THE LENGTH OF ENCASEMENT SHALL BE SUFFICIENT TO EXTEND A MINIMUM OF 10' ON EACH SIDE OF THE CROSSING TO PROVIDE THE REQUIRED HORIZONTAL SEPARATION. WATER, RECLAIMED WATER AND SEWER LINES OF 24" DIA. OR GREATER MAY CREATE SPECIAL HAZARDS BECAUSE OF LARGE VOLUMES OF FLOW. THEREFORE, INSTALLATIONS SHALL BE REVIEWED AND APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH SERVICES AND THE UTILITIES DIVISION PRIOR TO ISSUANCE OF PUBLIC WORKS PERMIT.

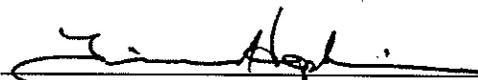
1.15 HOUSE LATERALS

SEWER LATERALS SHALL BE CONSTRUCTED 1' PAST THE PROPERTY LINE FROM THE MAIN LINE AND THERE SHALL BE A SEPARATE LATERAL FOR EACH INDIVIDUALLY OWNED BUILDING SEWER LATERALS SHALL BE A MINIMUM 4" DIAMETER. APARTMENT AND CONDOMINIUM DEVELOPMENTS SHALL HAVE AT LEAST ONE 6", OR ONE 8" LATERAL TO (AS DETERMINED BY SEWER STUDY) SERVE EACH BUILDING IN THE DEVELOPMENT WHICH CONTAINS MORE THAN ONE DWELLING UNIT. SEWER LATERALS WILL BE CONSIDERED PRIVATE FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. SLOPE OF HOUSE LATERALS SHALL BE 1% MINIMUM. REPLACEMENT PIPE SHALL MATCH EXISTING PIPE MATERIAL. EXISTING 4" CHIMNEYS SHALL NOT HAVE MORE THAN ONE HOUSE CONNECTION.

1.16 MONUMENTATION

PERMANENT VISIBLE MONUMENTS SHALL BE SET TO INDICATE THE LOCATIONS OF ALL SEWER LATERALS. AN "S" STAMPED IN THE CURB FACE IS THE MOST DESIRABLE METHOD. THE METHOD USED SHALL BE INDICATED ON THE PLANS. A LICENSED CIVIL ENGINEER OR SURVEYOR SHALL VERIFY LOCATION OF THESE SET MONUMENTS AND SHALL BE REFLECTED IN THE AS-BUILT DRAWINGS SUPPLIED TO PUBLIC WORKS AT THE CONCLUSION OF THE PROJECT.

APPROVED:



CITY ENGINEER

REVISION DATE: May 2008

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



SEWER FACILITY
DESIGN CRITERIA

STANDARD PLAN
500
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