

SEWER FACILITY DESIGN CRITERIA

1.1 SIZE

THE CITY WILL NOT ACCEPT SEWER MAINS SMALLER THAN 8" IN DIAMETER FOR OPERATION AND MAINTENANCE. SEWER MAINS THAT ARE CONSTRUCTED IN A COMMON TRENCH WITH ANOTHER UTILITY WILL NOT BE ACCEPTED BY THE CITY. ADEQUATE HORIZONTAL AND VERTICAL SPACING SHALL BE MAINTAINED IN ACCORDANCE WITH STD. PLAN 501.

1.2 MINIMUM AND MAXIMUM SLOPE

ALL SEWERS SHALL BE DESIGNED AND CONSTRUCTED TO PROVIDE A MEAN VELOCITY OF NOT LESS THAN 2 FEET PER SECOND (FPS) WHEN FLOWING HALF-FULL AT THE ESTIMATED PEAK FLOW AS CALCULATED USING MANNING'S FORMULA USING AN 'n' VALUE OF 0.013 FOR VCP, OR 0.011 FOR P.V.C. THE MAXIMUM ALLOWABLE SLOPE SHALL BE THE SLOPE WHICH GENERATES A MAXIMUM FLOW VELOCITY OF 15 fps AT THE PEAK FLOW RATE AS CALCULATED USING MANNING'S EQUATION AND THE ABOVE 'n' VALUES.

MINIMUM SLOPES ALLOWED:

PIPE SIZE	'S'
8"	0.0040
10"	0.0028
12"	0.0022
15"	0.0015
18"	0.0012
21" OR GREATER	0.0010

THESE ARE MINIMUM SLOPES; SEWERS SHOULD BE DESIGNED TO PROVIDE STEEPER SLOPES, WHENEVER POSSIBLE, UP TO THE MAXIMUM SLOPE STATED ABOVE. UNDER SPECIAL CONDITIONS, THE ENGINEER MAY REQUEST SLOPES OF LESS THAN THE MINIMUM STATED. THE ENGINEER MUST SUBMIT THIS REQUEST ALONG WITH BACK-UP DATA AND CALCULATIONS TO SHOW THAT THE DEPTH OF FLOW AT DESIGN AVERAGE FLOW WILL BE 0.3 OF THE PIPE DIAMETER OR GREATER. THE ENGINEER MUST ALSO SUBMIT COMPUTATIONS TO SHOW THE DEPTHS OF FLOW AT MINIMUM AND AVERAGE RATES OF FLOW. THE REQUEST SHALL ALSO DETAIL THE REASONS WHY THE NORMAL MINIMUM SLOPES CANNOT BE ACHIEVED. THE REQUEST AND SUPPORTING DATA MUST BE APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

1.3 FLOW DESIGN CRITERIA

USE THE FOLLOWING TABLE FOR AVERAGE DAILY FLOW CALCULATIONS.

LAND USE	COEFFICIENT GPD PER ACRE
LOW DENSITY RESIDENTIAL	1600
MEDIUM DENSITY RESIDENTIAL	3200
MEDIUM-HIGH DENSITY RESIDENTIAL	4200
HIGH DENSITY RESIDENTIAL	5400
COMMERCIAL AREA	2000
INDUSTRIAL AREA	3500
OPEN SPACE	200
SCHOOL	3600 OR 20 GAL/STUDENT/DAY

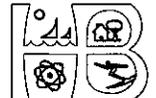
PEAKING FACTOR EQUATION: $Q_p = 1.93 (Q_{AVG})^{0.898}$

APPROVED:


CITY ENGINEER

CITY OF HUNTINGTON BEACH

DEPARTMENT OF PUBLIC WORKS



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STANDARD PLAN
500
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REVISION DATE: May 2008