



SETTLEMENT REFERENCE POINT PIPE DEFLECTION

PIPE SIZE (Diameter)	MAX. DEFLECTION (Degrees)	30% OF MAX. (Degrees)	70% OF MAX. (Degrees)
8"	2.3869°	.7161°	1.6708°
10"	2.4283°	.7285°	1.6998°
12"	2.0367°	.6110°	1.4257°
14"	1.7531°	.5259°	1.2272°
16"	1.5428°	.4628°	1.08°
18"	1.38°	.4140°	.9660°
20"	1.2456°	.3737°	.8719°

$\alpha = \tan^{-1} \frac{(X1 - X1') - (X2 - X2')}{Z}$ α = DEFLECTION ANGLE IN DEGREES
X1 = INITIAL READING OF 1ST SRP
X1' = CURRENT READING OF 1ST SRP
X2 = INITIAL READING OF 2ND SRP
X2' = CURRENT READING OF 2ND SRP
Z = DISTANCE BETWEEN SRP'S

$\alpha < 30^\circ$ DEGREE READING FROM ABOVE (DEPENDING ON PIPE SIZE), NO REQUIREMENTS.
 $\alpha \geq 30^\circ$ DEGREE READING FROM ABOVE (DEPENDING UPON PIPE SIZE), SRP REQUIREMENT #1 APPLIES
 $\alpha \geq 70^\circ$ DEGREE READING FROM ABOVE (DEPENDING UPON PIPE AIZE), SRP REQUIREMENTS #1 AND #2 APPLY.

NOTE: IF α COMES OUT NEGATIVE, DISREGARD THE MINUS SIGN. SCALE: NONE

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS-BUREAU OF ENGINEERING
SETTLEMENT REFERENCE POINT PIPE DEFLECTION

BY: DEM APP'D _____ DATE: 12/23/2004
CH'D: MBS APP'D _____ CHIEF, BUREAU OF ENGINEERING REVISION: 0
DETAIL: HPL-5625.1

SIZE OF PIPE	8"	8"	12"	14"	16"	18"	20"	
DEFLECTION	D	6"	6-1/16"	5-1/8"	4-13/32"	3-7/8"	3-15/32"	3-1/8"
OUTSIDE DIA OF PIPE	23"	23.02"	20-3/4"	20.78"	18-9/16"	16-5/16"	14-1/16"	11-13/16"
CAULKING MIN.	3/16"	3/16"	3/16"	1/4"	5/16"	11/32"	11/32"	
SPACE MAX.Gr	9/16"	9/16"	9/16"	1/2"	9/16"	9/16"	17/32"	
SIZE OF PIPE	8"	10"	12"	14"	16"	18"	20"	

NOTE:
R = RADIUS OF CURVE FORMED BY
PIPE
Gr = OFFSET IN BELL OF JOINT
L = LENGTH OF PIPE
DEFLECTION = MAX. AMOUNT
SHOWN IN TABLE

8" PIPE DATA

12" LENGTH	R EQ. 288'-6-3/4"
8" "	R EQ. 192'-6-1/8"
4" "	R EQ. 96'-5-1/2"

SCALE: NONE

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS-BUREAU OF ENGINEERING
DEFLECTION TABLE FOR CLASS GH PIPE

BY: DEM APP'D _____ DATE: 12/23/2004
CH'D: MBS APP'D _____ CHIEF, BUREAU OF ENGINEERING REVISION: 0
DETAIL: HPL-5625

NO.	DATE	DESCRIPTION	BY	APP.
TABLE OF REVISIONS				
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION				

REFERENCE INFORMATION
& FILE NO. OF SURVEYS



BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF SAN FRANCISCO

DESIGNED: DATE:	APPROVED
DRAWN: DATE:	SECTION MANAGER DATE:
NL 11/10	DEPUTY BUREAU MANAGER DATE:
CHECKED: DATE:	BUREAU MANAGER DATE:
MBS 11/10	

SCALE:
NONE
SHEET OF SHEETS
8 OF 10

CITY AND COUNTY OF SAN FRANCISCO
AUXILIARY WATER SUPPLY SYSTEM
AWSS STANDARD DRAWING VIII

SPECIFICATION NO.
DRAWING NO. AWSS 8
FILE NO.
REV. NO. 0