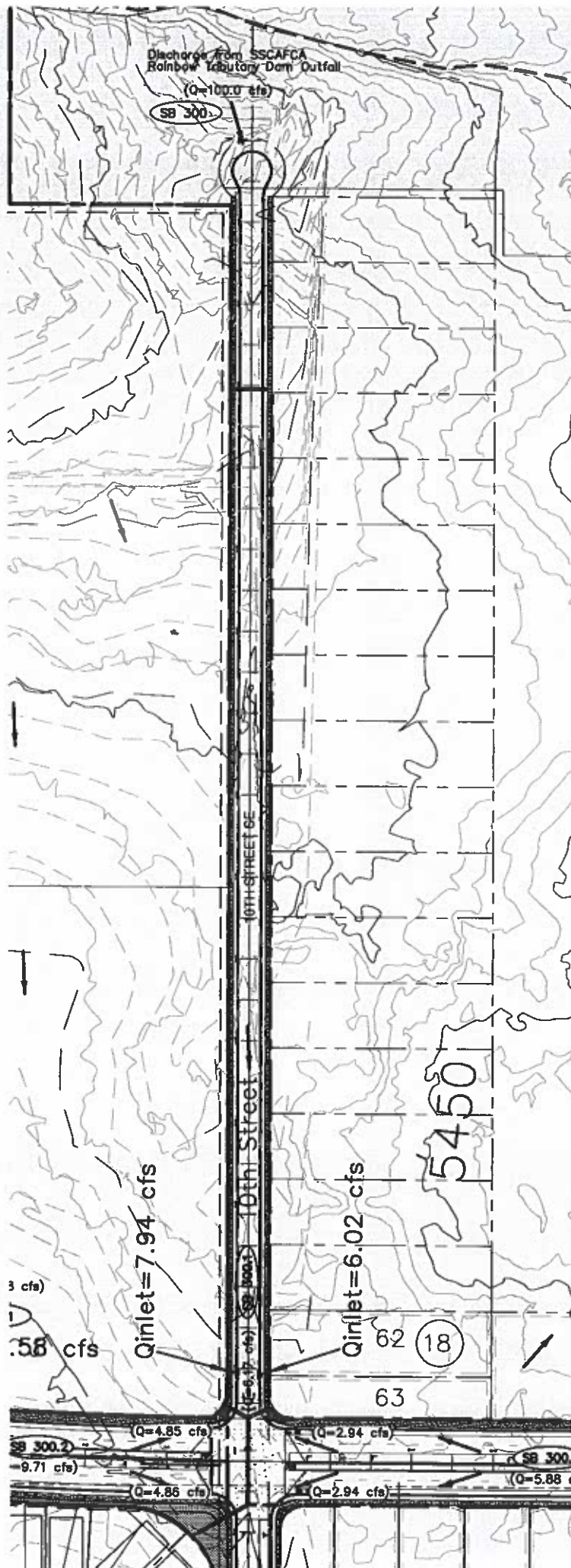


APPENDIX B

HYDRAULICS

~~Westside Blvd Street Capacity and Inlet Capacity Calculations~~

10th Street Capacity and Inlet Capacity Calculations



**Exhibit 5.5 – 10th Street SUMP Inlet Street Location
(Inlet 13.1 and 13.2)**

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 21+12) --- 1.48% RIGHT (Pt.K)

Gutter

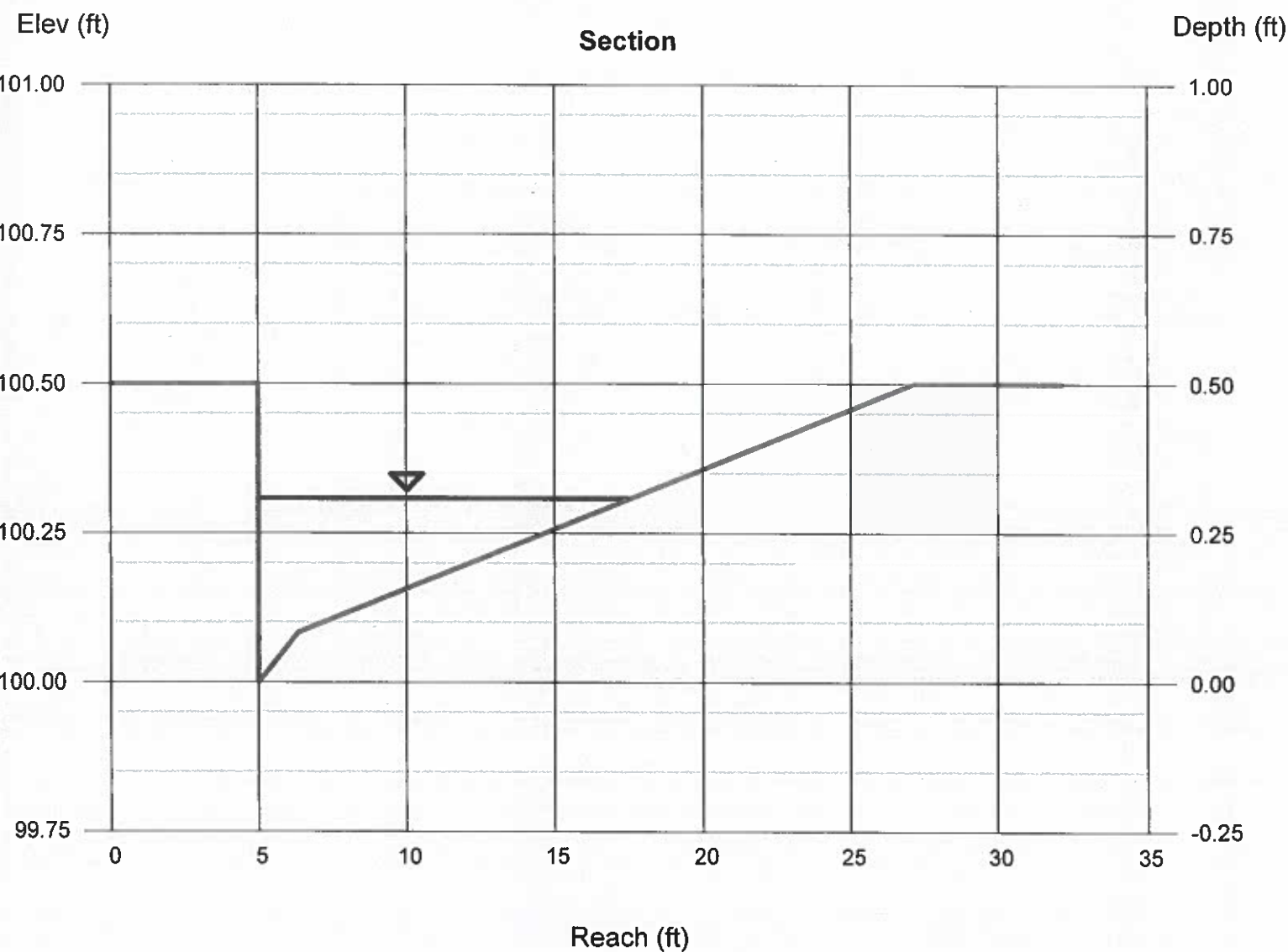
Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.48
N-Value = 0.014

Highlighted

Depth (ft) = 0.31
Q (cfs) = 6.400
Area (sqft) = 1.62
Velocity (ft/s) = 3.96
Wetted Perim (ft) = 12.88
Crit Depth, Yc (ft) = 0.39
Spread Width (ft) = 12.57
EGL (ft) = 0.55

Calculations

Compute by: Known Q
Known Q (cfs) = 6.40



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 21+12) --- 1.48% LEFT (Pt.K)

Gutter

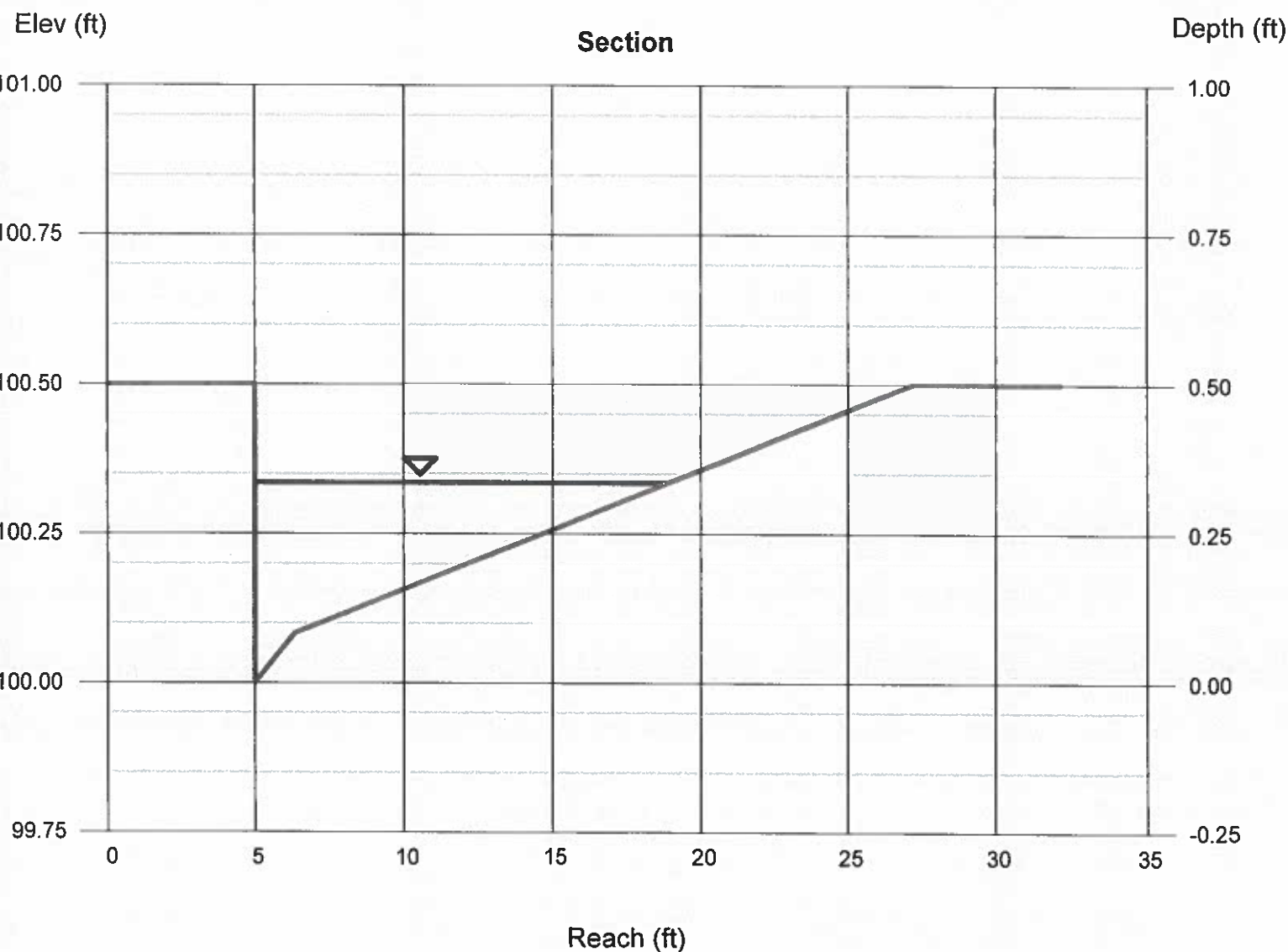
Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.48
N-Value = 0.014

Highlighted

Depth (ft) = 0.33
Q (cfs) = 8.320
Area (sqft) = 1.97
Velocity (ft/s) = 4.21
Wetted Perim (ft) = 14.26
Crit Depth, Yc (ft) = 0.43
Spread Width (ft) = 13.92
EGL (ft) = 0.61

Calculations

Compute by: Known Q
Known Q (cfs) = 8.32



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 16+18) --- 1.85% RIGHT (Pt.L)

Gutter

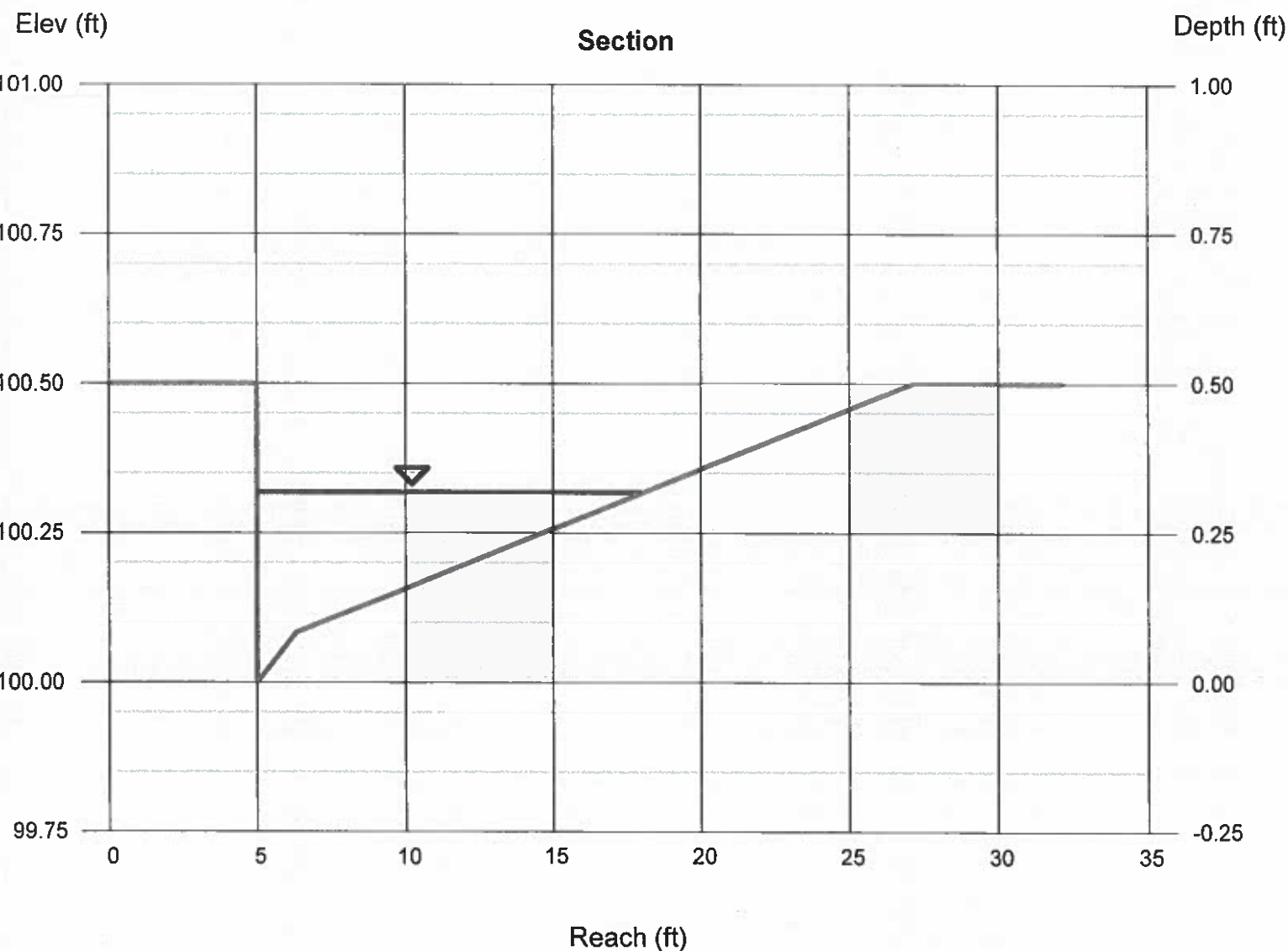
Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.85
N-Value = 0.014

Highlighted

Depth (ft) = 0.32
Q (cfs) = 7.910
Area (sqft) = 1.75
Velocity (ft/s) = 4.53
Wetted Perim (ft) = 13.39
Crit Depth, Yc (ft) = 0.42
Spread Width (ft) = 13.07
EGL (ft) = 0.64

Calculations

Compute by: Known Q
Known Q (cfs) = 7.91



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 16+18) --- 1.85% LEFT (Pt. L)

Gutter

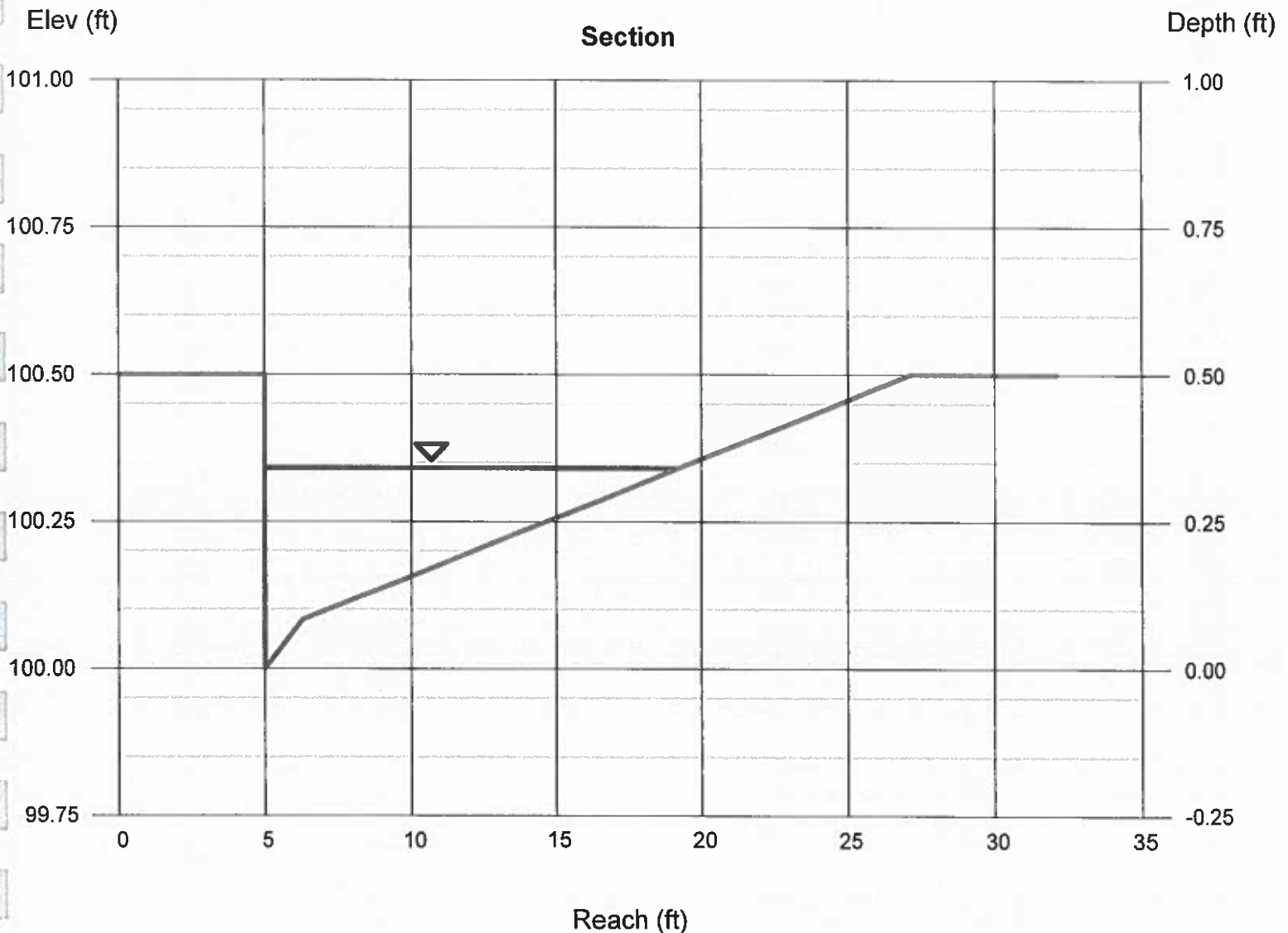
Cross SI, Sx (ft/ft) = 0.020
Cross SI, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.85
N-Value = 0.014

Highlighted

Depth (ft) = 0.34
Q (cfs) = 9.830
Area (sqft) = 2.06
Velocity (ft/s) = 4.77
Wetted Perim (ft) = 14.56
Crit Depth, Yc (ft) = 0.45
Spread Width (ft) = 14.22
EGL (ft) = 0.70

Calculations

Compute by: Known Q
Known Q (cfs) = 9.83



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 14+18) --- 1.76% RIGHT (Pt. M)

Gutter

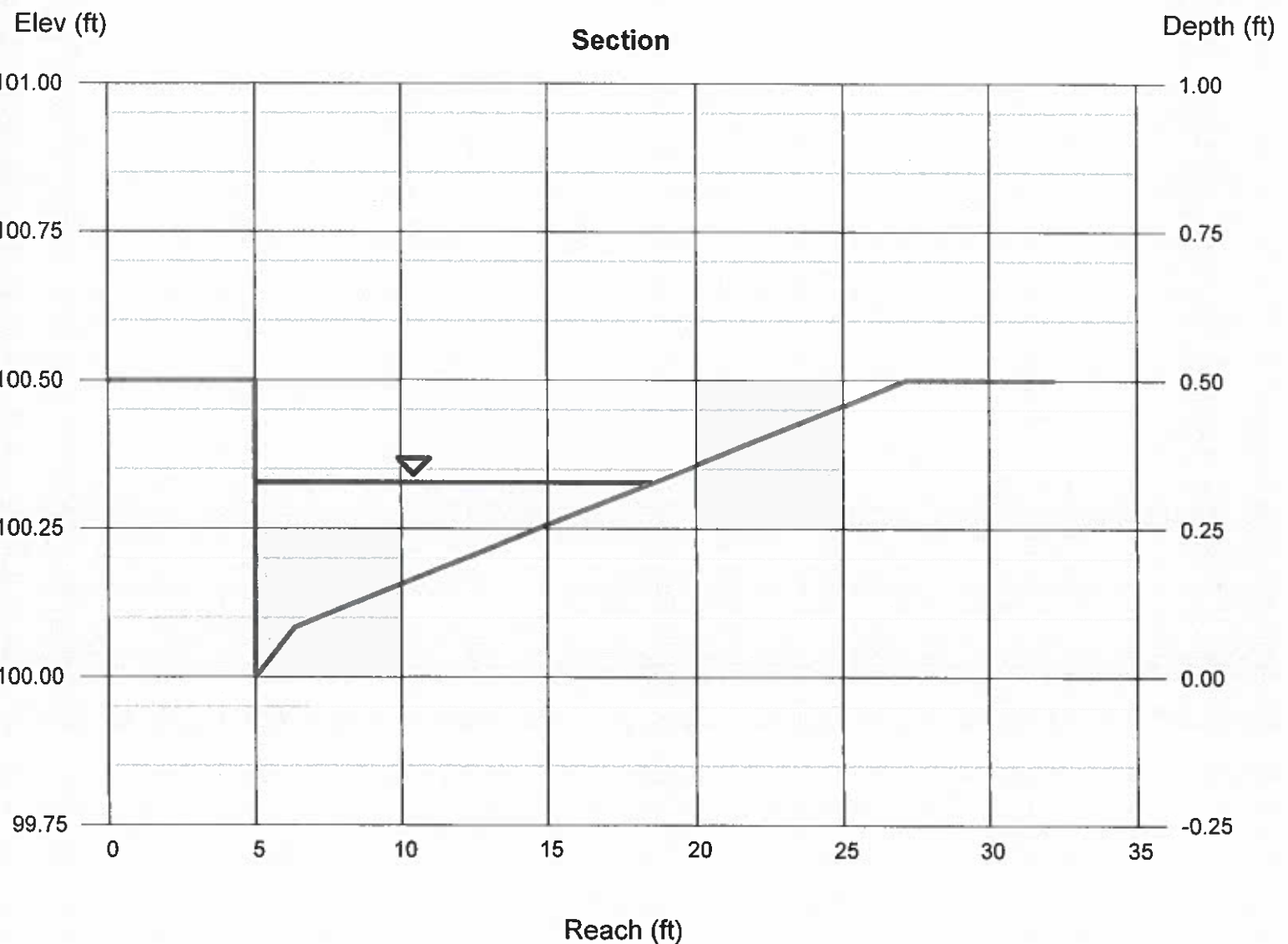
Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.76
N-Value = 0.014

Highlighted

Depth (ft) = 0.33
Q (cfs) = 8.520
Area (sqft) = 1.88
Velocity (ft/s) = 4.54
Wetted Perim (ft) = 13.90
Crit Depth, Yc (ft) = 0.43
Spread Width (ft) = 13.57
EGL (ft) = 0.65

Calculations

Compute by: Known Q
Known Q (cfs) = 8.52



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 14+18) --- 1.70% LEFT (Pt. M)

Gutter

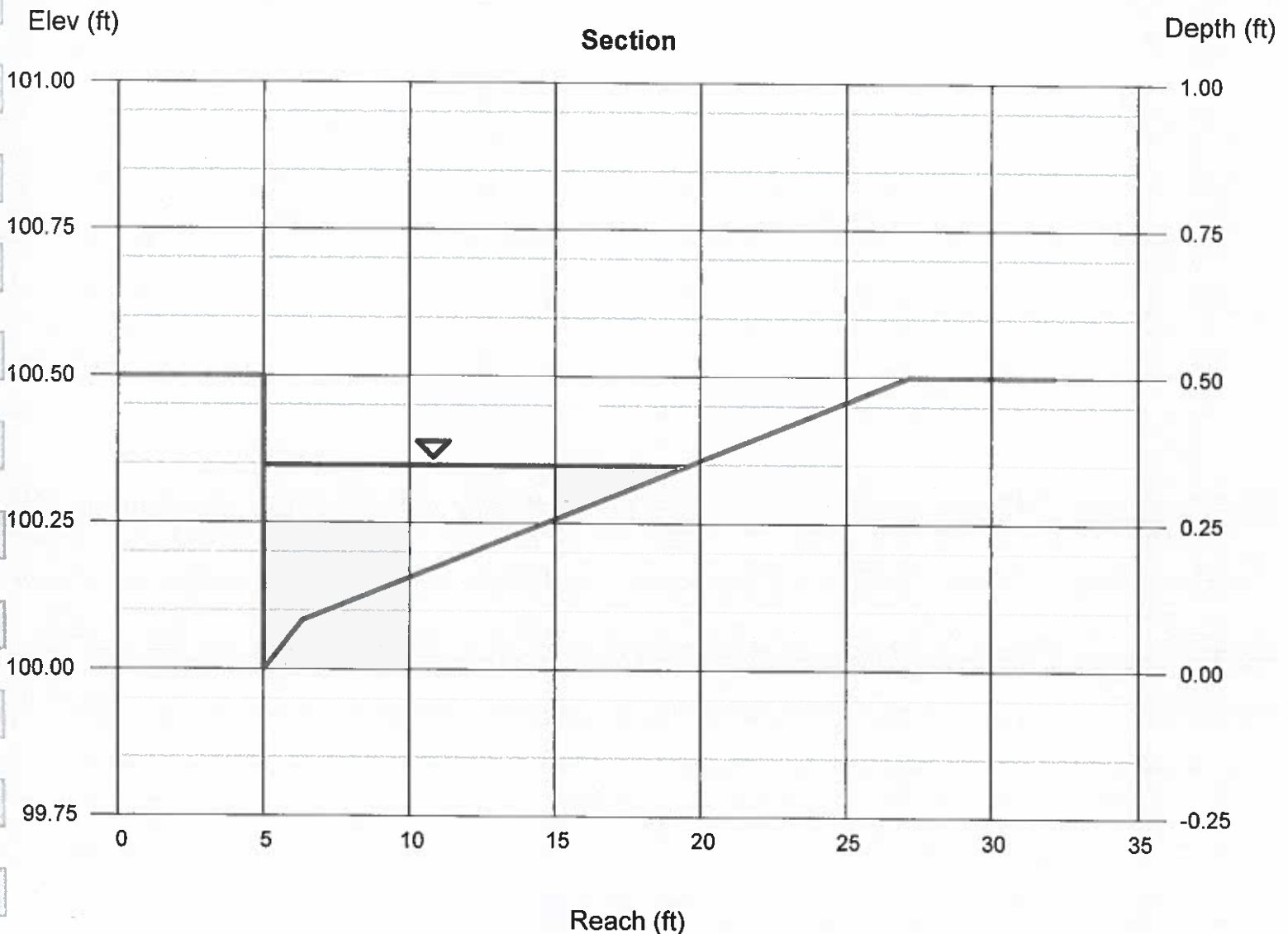
Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.85
N-Value = 0.014

Highlighted

Depth (ft) = 0.35
Q (cfs) = 10.44
Area (sqft) = 2.16
Velocity (ft/s) = 4.83
Wetted Perim (ft) = 14.92
Crit Depth, Yc (ft) = 0.46
Spread Width (ft) = 14.57
EGL (ft) = 0.71

Calculations

Compute by: Known Q
Known Q (cfs) = 10.44



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 10+95) --- 1.54% LEFT (Pt. N)

Gutter

Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.54
N-Value = 0.014

Highlighted

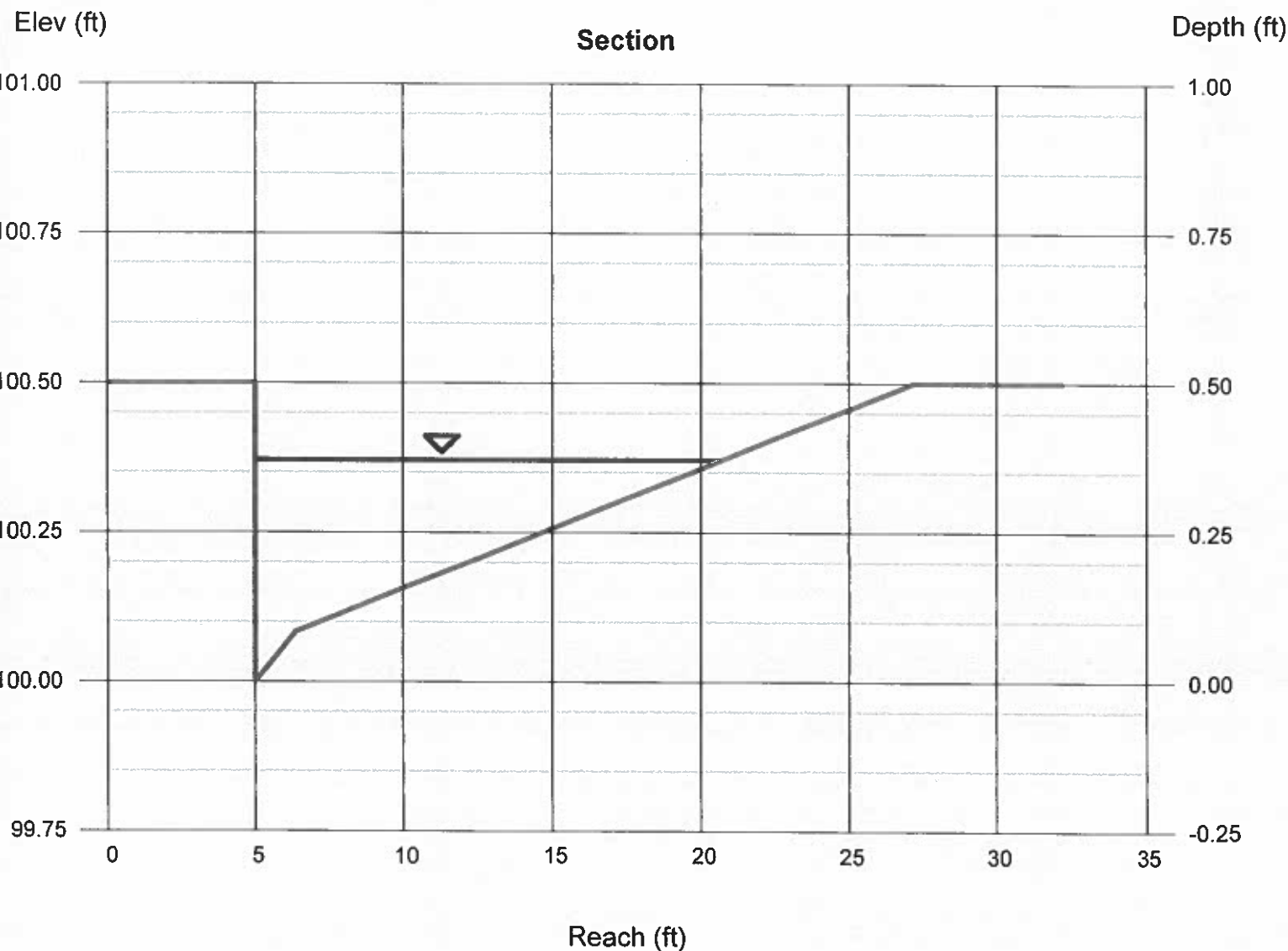
Depth (ft) = 0.37
Q (cfs) = 11.67
Area (sqft) = 2.51
Velocity (ft/s) = 4.65
Wetted Perim (ft) = 16.09
Crit Depth, Yc (ft) = 0.48
Spread Width (ft) = 15.72
EGL (ft) = 0.71

Calculations

Compute by: Known Q
Known Q (cfs) = 11.67

*11.67 cfs
- 3.70 cfs (Inlet 3.4)

7.97 cfs*



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 10+95) --- 1.54% LEFT (Pt. N) (2)

Gutter

Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.54
N-Value = 0.014

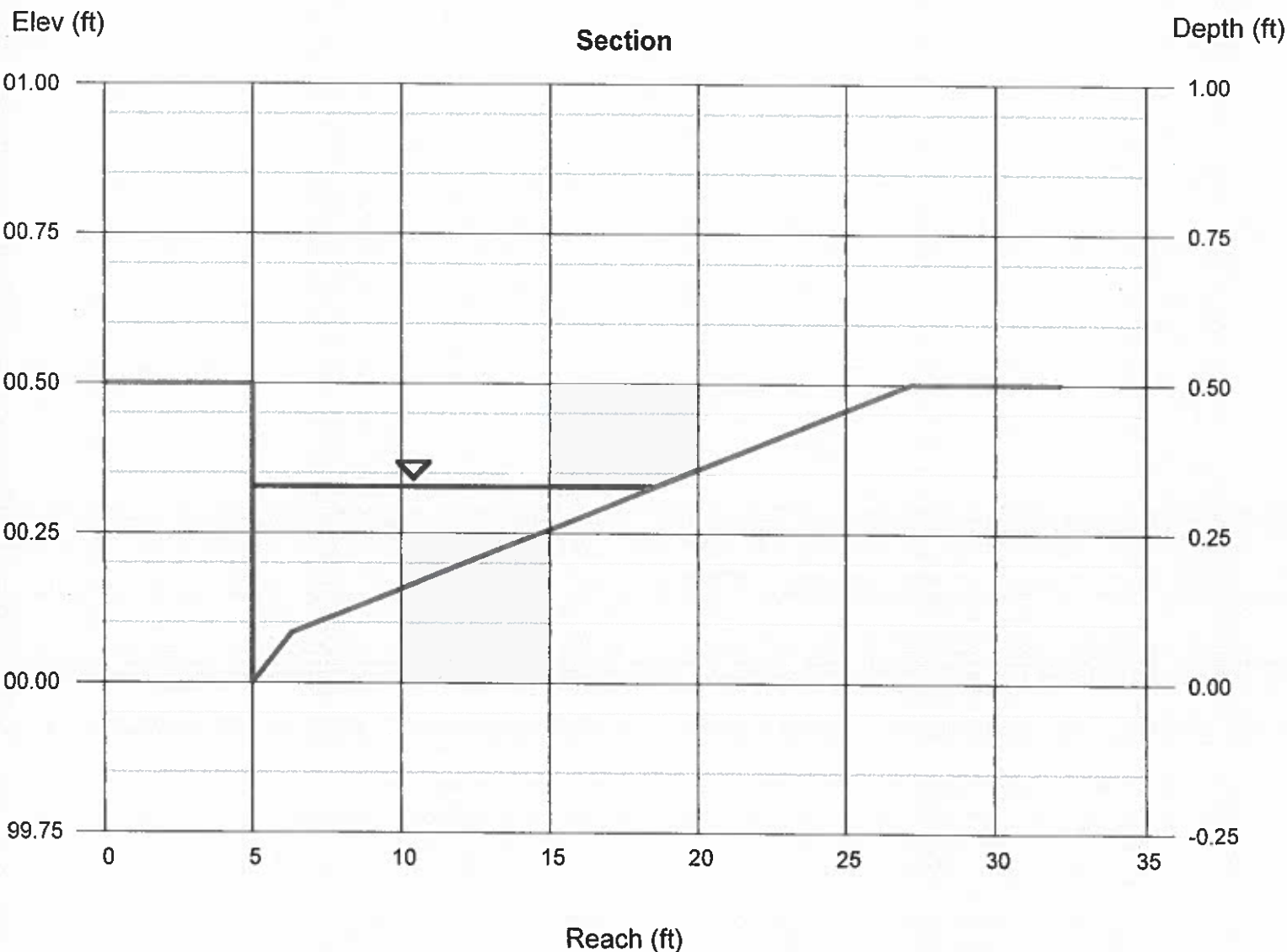
Highlighted

Depth (ft) = 0.33
Q (cfs) = 7.970
Area (sqft) = 1.88
Velocity (ft/s) = 4.24
Wetted Perim (ft) = 13.90
Crit Depth, Yc (ft) = 0.42
Spread Width (ft) = 13.57
EGL (ft) = 0.61

Calculations

Compute by: Known Q
Known Q (cfs) = 7.97

7.97 cfs
3.00 cfs (Inlet 3.3)
4.97 cfs



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 10+95) --- 1.54% LEFT (Pt. N) (3)

Gutter

Cross SI, Sx (ft/ft) = 0.020
Cross SI, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.54
N-Value = 0.014

Highlighted

Depth (ft) = 0.28
Q (cfs) = 4.970
Area (sqft) = 1.32
Velocity (ft/s) = 3.77
Wetted Perim (ft) = 11.60
Crit Depth, Yc (ft) = 0.36
Spread Width (ft) = 11.32
EGL (ft) = 0.50

Calculations

Compute by: Known Q
Known Q (cfs) = 4.97

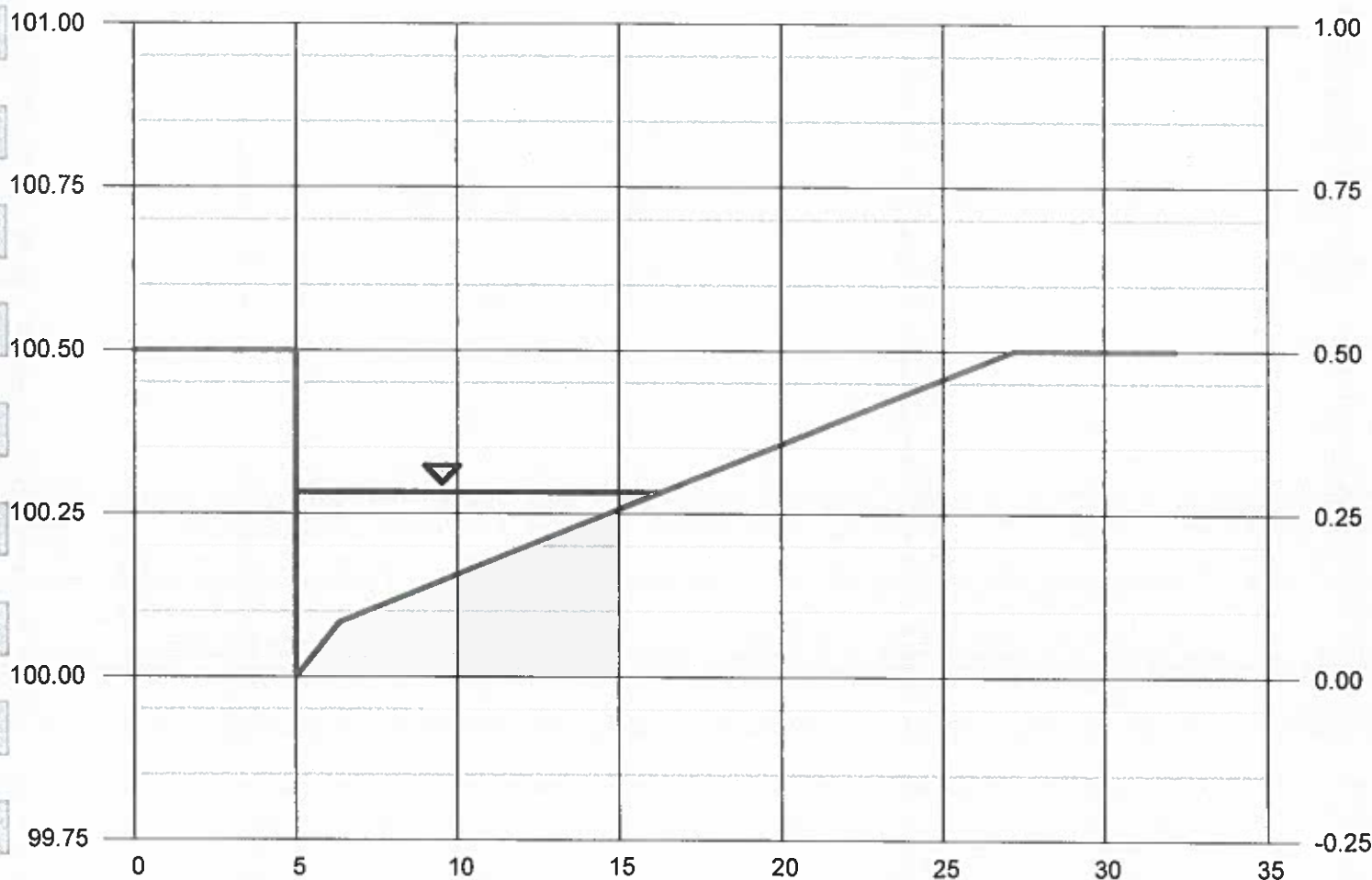
4.97 cfs
2.20 cfs (Inlet)

2.77 cfs

Elev (ft)

Section

Depth (ft)



Reach (ft)

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 10+95) --- 1.67% RIGHT (Pt. N)

Gutter

Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.67
N-Value = 0.014

Highlighted

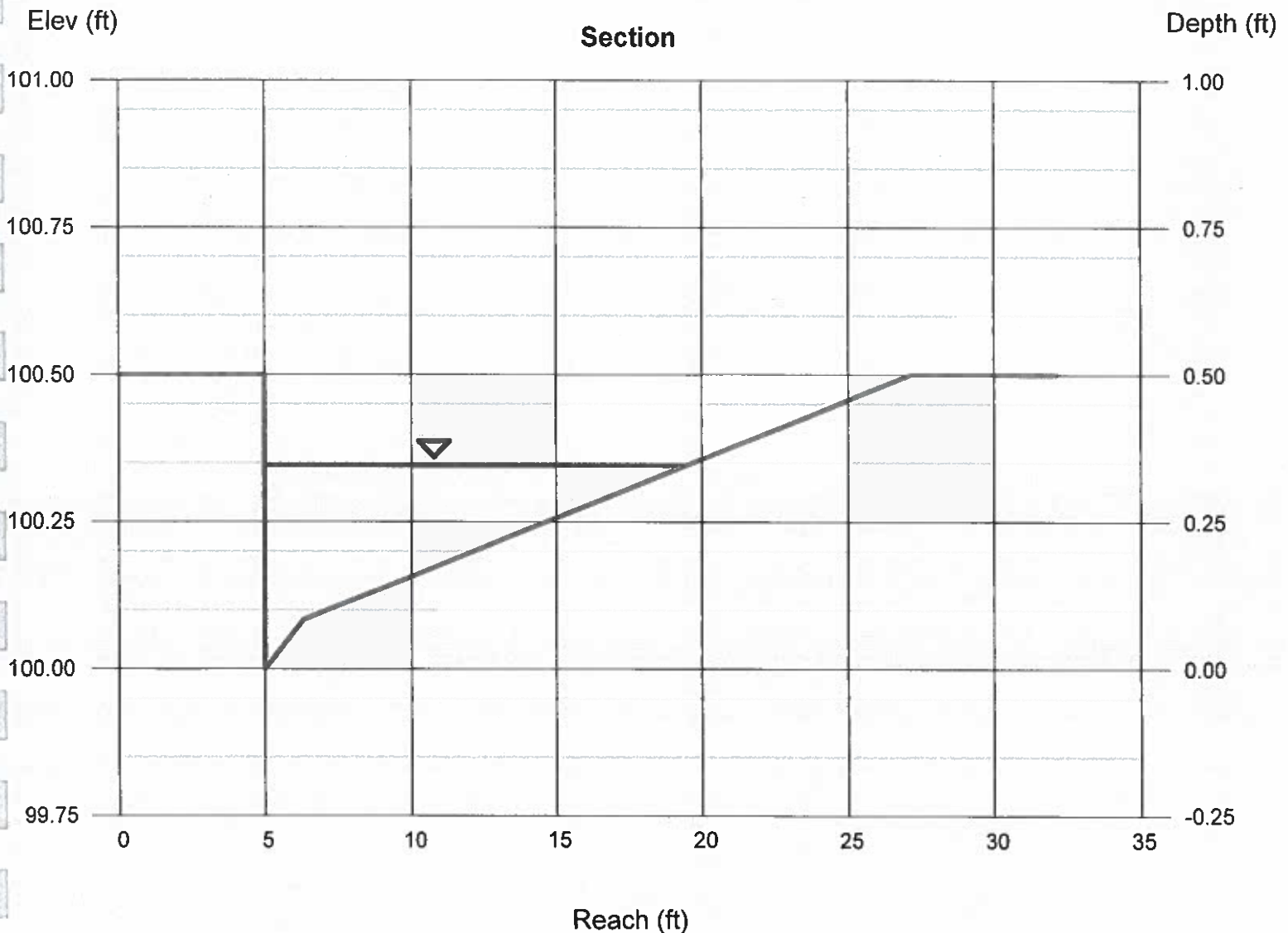
Depth (ft) = 0.35
Q (cfs) = 9.760
Area (sqft) = 2.13
Velocity (ft/s) = 4.58
Wetted Perim (ft) = 14.82
Crit Depth, Yc (ft) = 0.45
Spread Width (ft) = 14.47
EGL (ft) = 0.67

Calculations

Compute by: Known Q
Known Q (cfs) = 9.76

9.76 cfs
- 3.20 cfs (Inlet 3.2)

6.56 cfs



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 10+95) --- 1.67% RIGHT (Pt. N) (2)

Gutter

Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.67
N-Value = 0.014

Highlighted

Depth (ft) = 0.30
Q (cfs) = 6.560
Area (sqft) = 1.58
Velocity (ft/s) = 4.15
Wetted Perim (ft) = 12.73
Crit Depth, Yc (ft) = 0.39
Spread Width (ft) = 12.42
EGL (ft) = 0.57

Calculations

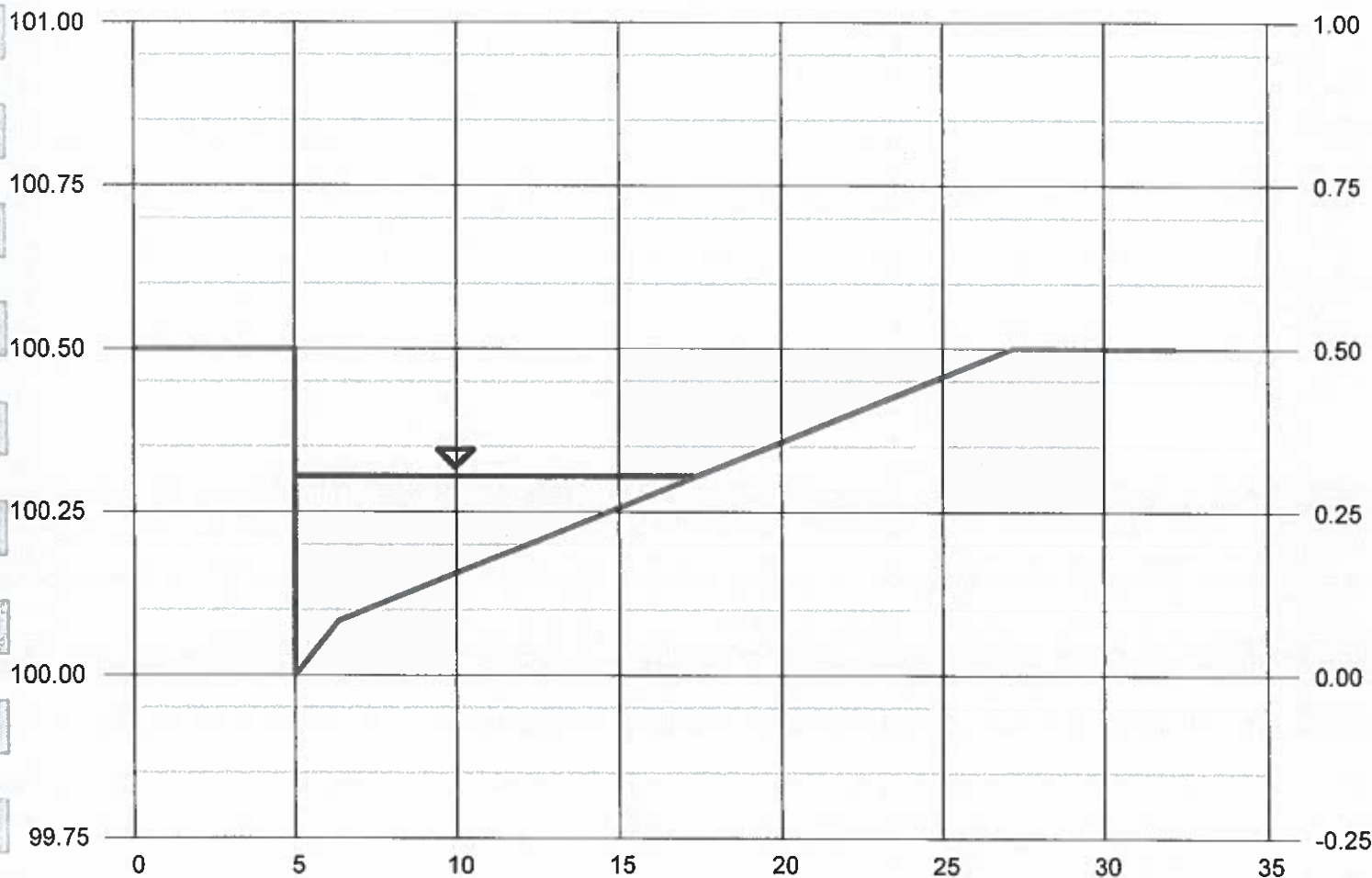
Compute by: Known Q
Known Q (cfs) = 6.56

6.56 cfs
2.50 cfs (Inlet 3.1)
4.06 cfs

Elev (ft)

Section

Depth (ft)



Reach (ft)

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Thursday, Oct 17 2019

10th Street - (STA 10+95) --- 1.67% RIGHT (Pt. N) (3)

Gutter

Cross Sl, Sx (ft/ft) = 0.020
Cross Sl, Sw (ft/ft) = 0.063
Gutter Width (ft) = 1.33
Invert Elev (ft) = 100.00
Slope (%) = 1.67
N-Value = 0.014

Highlighted

Depth (ft) = 0.26
Q (cfs) = 4.060
Area (sqft) = 1.09
Velocity (ft/s) = 3.72
Wetted Perim (ft) = 10.53
Crit Depth, Yc (ft) = 0.34
Spread Width (ft) = 10.27
EGL (ft) = 0.48

Calculations

Compute by: Known Q
Known Q (cfs) = 4.06

4.06 cfs
1.80 cfs (Inlet)
2.26 cfs

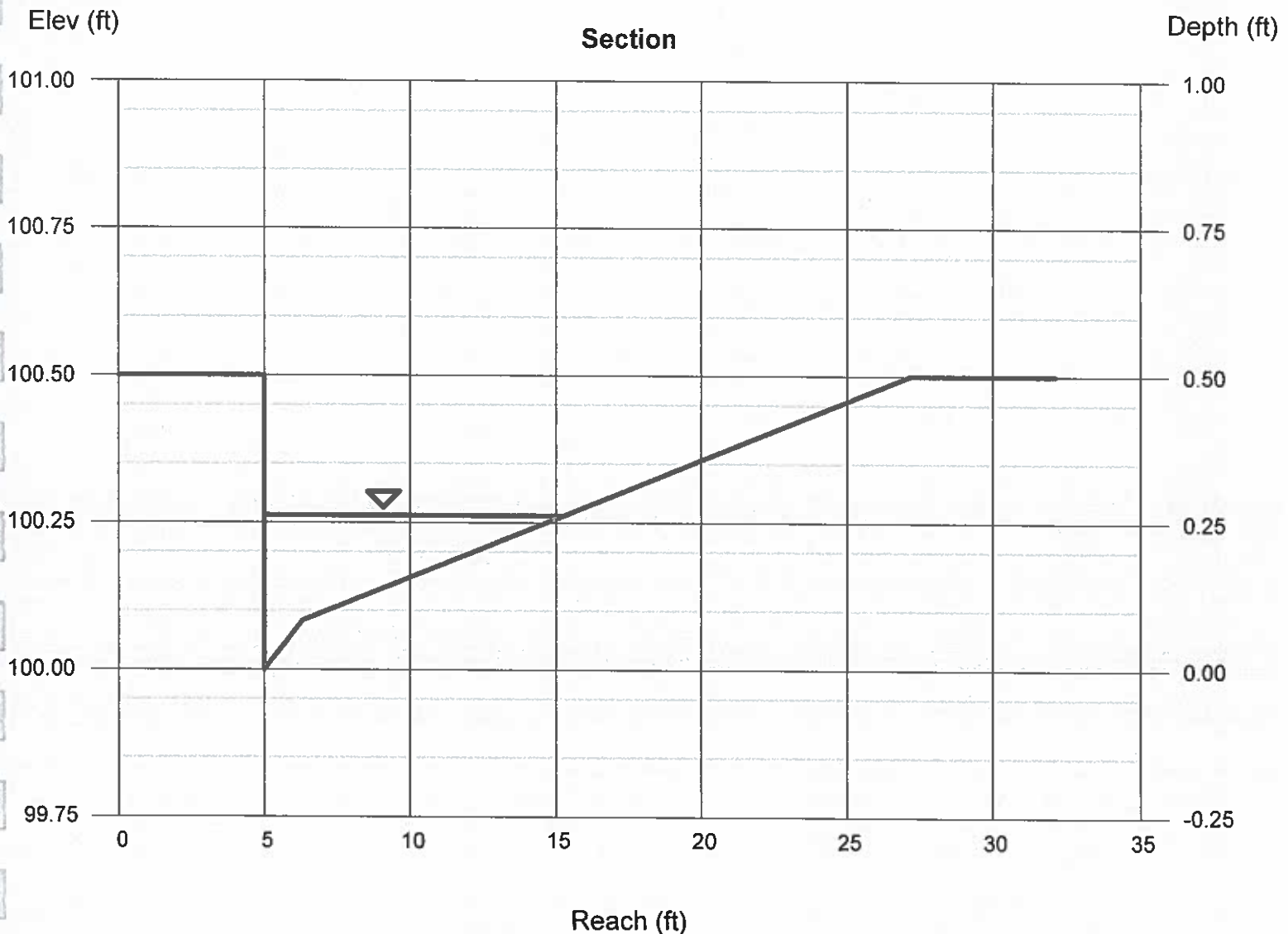


TABLE 1.1

Westside Blvd							
AHYMO summary of Pond Volume-Storage (100yr-6hr)							
Location	POND ID	Q in cfs	Qout cfs	Spillway Width (ft)	Max Storage Volume	Max Elev (ft)	
Section A ✓	A	5.22	4.46	5.0	0.077	2.94	
Section B ✓	B	11.01	10.77	11.0	0.083	2.97	
Section C ✓	C	10.12	9.91	10.0	0.047	2.98	
Section D ✓	D	3.43	3.37	6.0	0.0275	2.83	
Section E	E	9.07	9.01	9.0	0.0325	2.98	
Section F ✓	F	15.38	15.16	14.5	0.1187	3.00	

f:/projects/18034/drainage/Hydro Sum Table 18034 Westside.xlsx

revised 9-5-19 DLH

5.7

TABLE 4.1

Summary of Public Storm Drain

10th Street

Upstream	Downstream	Pipe length feet (C-C)	Pipe size inches	Design Q(cfs)	Upstream			Downstream		
					Rim	HGL	Invert	Rim	HGL	Invert
Headwall	102" Outfall				5404.00	5393.51		5400.00	5393.98	
1076	1000	76.0	10"x10"	552.4			5391.30			5385.00
SDMH 1	Headwall				5409.10	5399.23		5404.00	5395.97	
1224.7	1076	148.7	72"	552.4			5394.40			5391.30
SDMH 2	SDMH 1				5414.16	5402.41		5409.10	5399.23	
1358.9	1224.7	134.2	72"	552.4			5397.22			5394.40
SDMH 3	SDMH 2				5415.47	5404.4		5414.16	5401.93	
1443.9	1366.9	77.0	72"	536.2			5399.34			5397.27
SDMH 4	SDMH 3				5417.40	5408.53		5415.47	5403.82	
1567.9	1451.9	116.0	72"	514.7			5402.83			5399.39
SDMH 5	SDMH 4				5420.03	5417.05		5417.40	5414.81	
1744	1577.9	166.1	54"	220.5			5407.57			5404.33
SDMH 6	SDMH 5				5421.42	5418.31		5420.03	5417.05	
1832.72	1744	88.7	54"	220.5			5410.03			5407.57
SDMH 7	SDMH 6				5427.16	5422.47		5421.42	5418.31	
2151.5	1832.72	318.8	54"	220.5			5416.14			5410.03
SDMH 8	SDMH 7				5433.00	5426.59		5427.16	5422.47	
2467.2	2151.5	315.7	54"	220.5			5421.90			5416.14
SDMH 9	SDMH 8				5433.64	5427.55		5433.00	5426.99	
2508.42	2473.2	35.2	48"	214.5			5422.60			5422.00
SDMH 10	SDMH 9				5439.54	5432.47		5433.64	5428.68	
2911.43	2514.42	397.0	42"	189.5			5427.13			5422.65
SDMH 11	SDMH 10				5444.92	5435.97		5439.54	5432.47	
3275.55	2911.43	364.1	42"	189.5			5431.23			5427.13
SDMH 12	SDMH 11				5450.00	5439.54		5444.92	5435.97	
3647.71	3275.55	372.2	42"	189.5			5433.50			5431.23
SDMH 13	SDMH 12				5450.00	5442.94		5450.00	5442.25	
3752.42	3653.71	98.7	42"	114.0			5434.62			5433.55
SDMH 14	SDMH 13				5456.90	5446.33		5450.00	5442.86	
4100.71	3758.42	342.3	42"	100.0			5436.43			5435.12
SDMH 15	SDMH 14				5460.43	5450.86		5456.90	5446.33	
4550.71	4100.71	450.0	42"	100.0			5438.73			5436.43
SDMH 16	SDMH 15				5461.85	5453.89		5460.43	5450.86	
4849.6	4550.71	298.9	42"	100.0			5440.27			5438.73
SDMH 17	SDMH 16				5465.00	5457.8		5461.85	5453.89	
5237.00	4849.6	387.4	42"	100.0			5442.26			5440.27
Stubout	SDMH 17				5465.00	5458.34		5465.00	5457.8	
5291.00	5237.00	54.0	42"	100.0			5443.00			5442.26

f:/ 18034/Projects/Drainage/Table 5 Summary of Storm Drain

10/17/2019

TABLE 4.2

Summary of Public Storm Drain											
10th Street-Westside Blvd. Lateral											
Upstream	Downstream	Pipe length feet (C-C)	Pipe size inches	Design Q(cfs)	Upstream			Downstream			
					Rim	HGL	Invert	Rim	HGL	Invert	
SDMH 18 3970.7	SDMH 12 3650.7	320.0	36"	75.6	5452.50	5446.98		5450.00	5442.25		5434.50
SDMH 19 4046.7	SDMH 18 3970.7	75.0	36"	75.6	5450.00	5448.04		5452.50	5446.98		5439.75
f./ 18034/Projects/Drainage/Table 5 Summary of Storm Drain										10/17/2019	

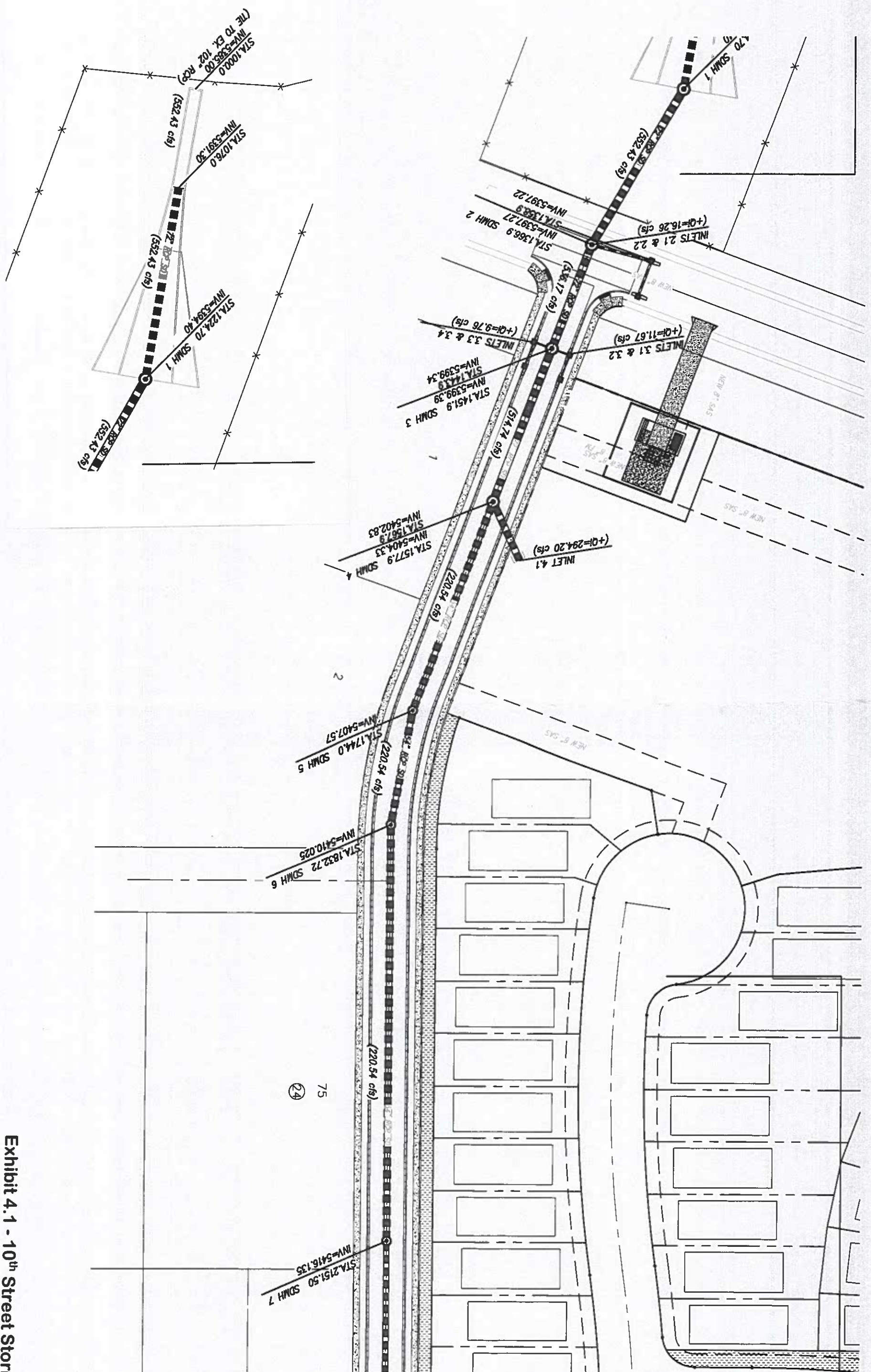


Exhibit 4.1 - 10th Street Storm Drain

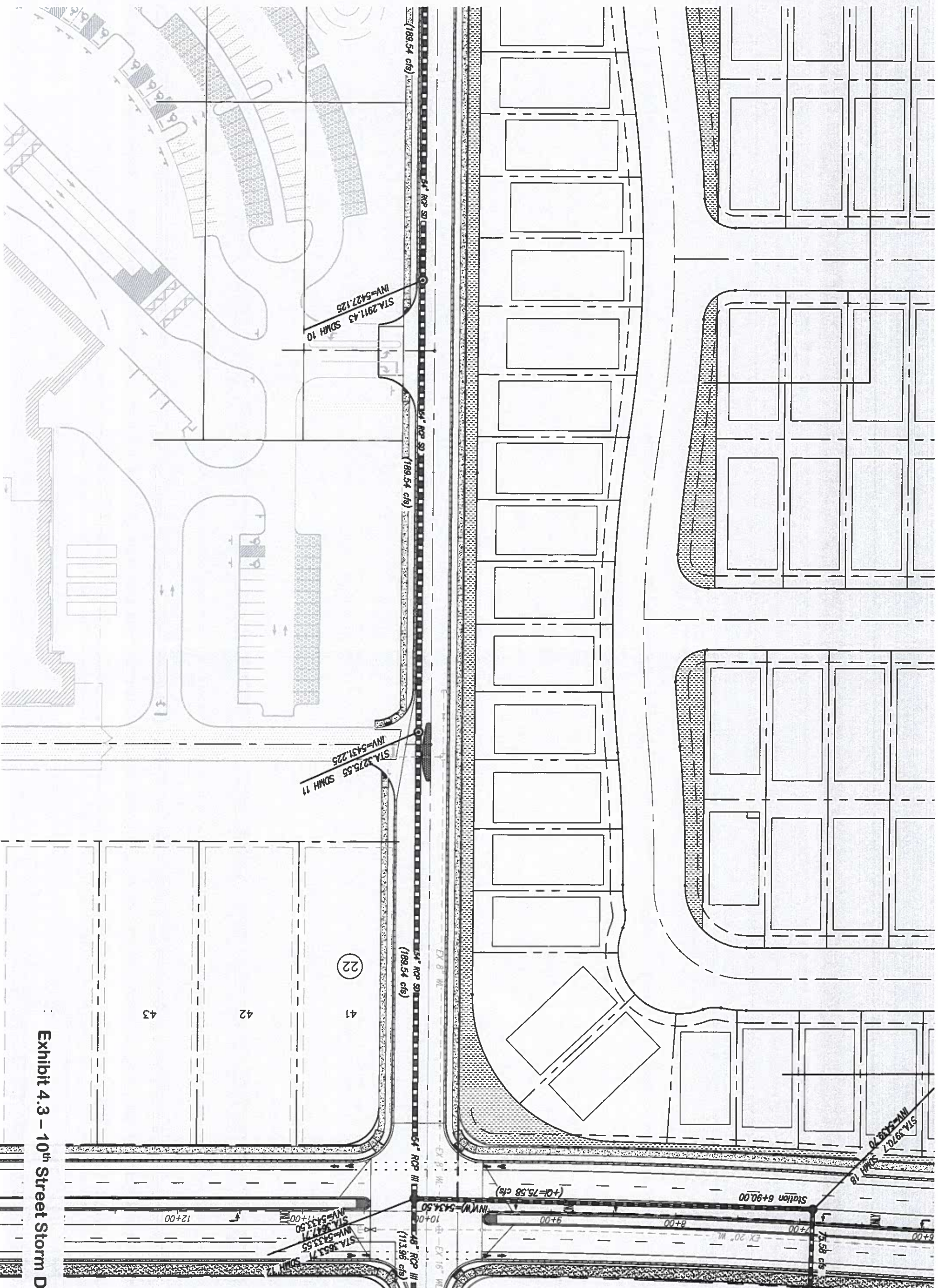


Exhibit 4.3 – 10th Street Storm Drain

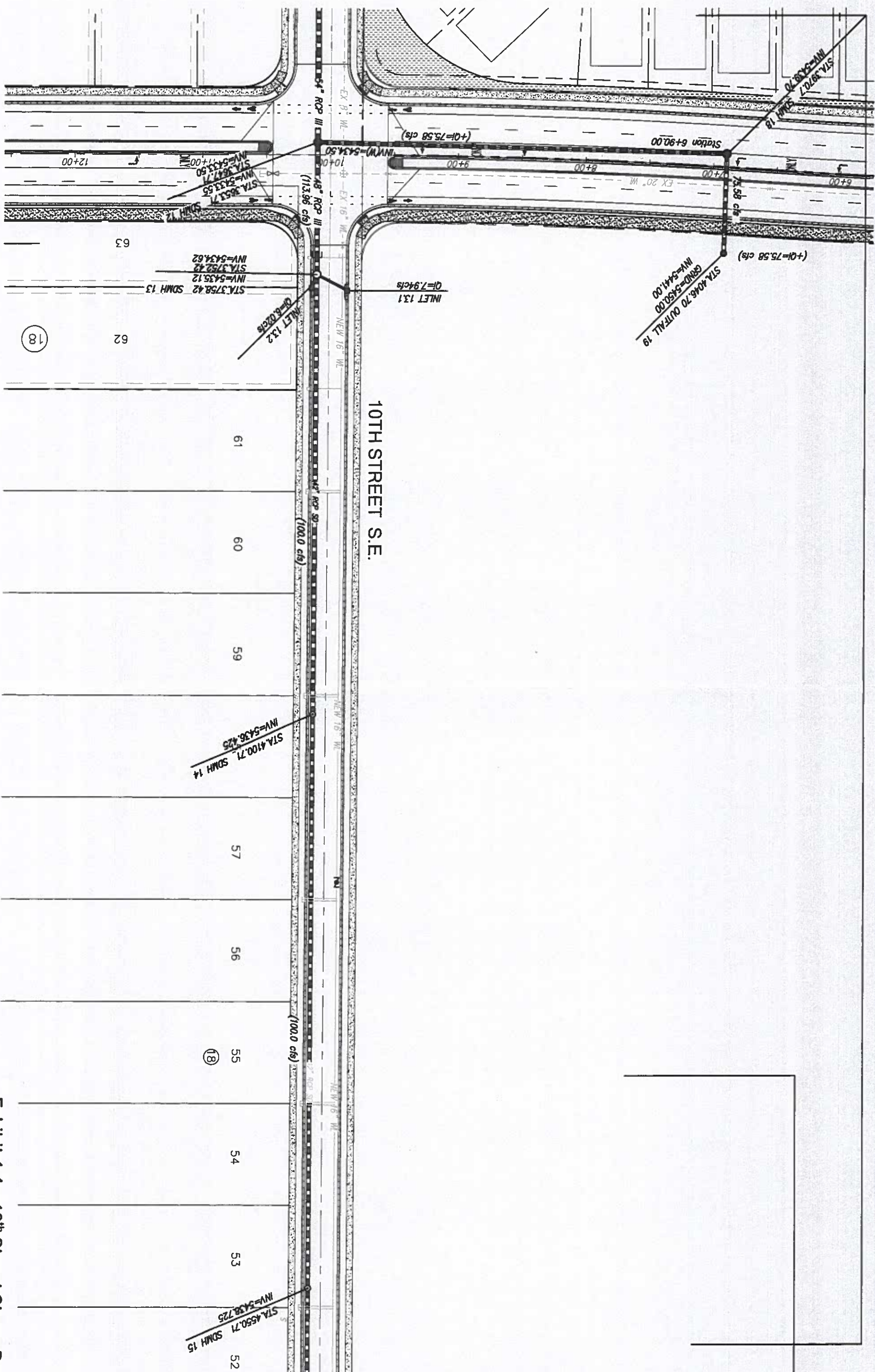


Exhibit 4.4 – 10th Street Storm Drain

T1 LOS DIAMANTES DEVELOPMENT		T2 10TH STREET DRAIN - LATERAL ON WESTSIDE BLVD		T3 LOW AREA SB 301 TO 10TH STREET STORM		T4 LOW AREA SB 301 TO 10TH STREET STORM	
SO	3650.7005434.500	1			5442.250		
R	3970.7005439.700	1	.013				
R	4046.7005441.000	1	.013				
SH	4046.7005441.000	1			5441.000		
CD	1	4	1	.000	.000	.000	.00
Q			75.580	.0			

FILE: 10ST_LAT2.WSW
WSPGW - CIVILDESIGN Version 14.05
Program Package Serial Number: 1454
WATER SURFACE PROFILE LISTING
Date: 10-17-2019 Time: 1:32:50
PAGE 1

[illegible]

LOS DIAMANTES DEVELOPMENT
10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW
RAINBOW DAM OUTFALL TO 102" STORM DRAIN

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT or I.D.	Base Wt	ZL	No Wth Pts/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1000.000	5385.000	5.900	5390.900	552.43	13.14	2.68	5393.58	.00	5.90	7.83	8.500	.000	.00	1 .0
WALL ENTRANCE														
1000.000	5385.000	8.975	5393.975	552.43	6.16	.59	5394.56	.00	4.56	10.00	15.000	10.000	.00	0 .0
1000.000	5385.000	1.893	5386.893	552.43	29.19	13.23	5400.12	.00	4.56	10.00	15.000	10.000	.00	0 .0
7.496	.0829					.0488	.37	1.89	3.74	1.59	.014	.00	.00	RECTANG
1007.496	5385.622	1.912	5387.534	552.43	28.89	12.96	5400.49	.00	4.56	10.00	15.000	10.000	.00	0 .0
28.551	.0829					.0449	1.28	1.91	3.68	1.59	.014	.00	.00	RECTANG
1036.047	5387.988	2.006	5389.994	552.43	27.54	11.78	5401.77	.00	4.56	10.00	15.000	10.000	.00	0 .0
22.173	.0829					.0390	.86	2.01	3.43	1.59	.014	.00	.00	RECTANG
1058.220	5389.826	2.104	5391.930	552.43	26.26	10.71	5402.64	.00	4.56	10.00	15.000	10.000	.00	0 .0
17.780	.0829					.0339	.60	2.10	3.19	1.59	.014	.00	.00	RECTANG
1076.000	5391.300	2.206	5393.506	552.43	25.04	9.74	5403.24	.00	4.56	10.00	15.000	10.000	.00	0 .0
WALL EXIT														
1076.000	5391.300	4.666	5395.966	552.43	23.42	8.51	5404.48	.00	5.77	4.99	6.000	.000	.00	1 .0
148.700	.0208					.0182	2.71	4.67	1.90	4.46	.013	.00	.00	PIPE
1224.700	5394.400	4.832	5399.232	552.43	22.64	7.96	5407.19	.00	5.77	4.75	6.000	.000	.00	1 .0
43.629	.0210					.0173	.76	4.83	1.76	4.45	.013	.00	.00	PIPE
1268.329	5395.317	4.913	5400.230	552.43	22.29	7.71	5407.94	.00	5.77	4.62	6.000	.000	.00	1 .0
90.571	.0210					.0163	1.48	4.91	1.70	4.45	.013	.00	.00	PIPE

102"
OUTFALL

Headwell

MH 1

Date: 10-16-2019 Time: 2:36:25

WATER SURFACE PROFILE LISTING

LOS DIAMANTES DEVELOPMENT

10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW
RAINBOW DAM OUTFALL TO 102" STORM DRAIN

*****														No Wth
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT or I.D.	Base Wt	ZL	Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1358.900	5397.220	5.190	5402.411	552.43	21.25	7.01	5409.42	.00	5.77	4.10	6.000	.000	.00	1 .0

JUNCT STR	.0073					.0168	.13	5.19	1.49		.013	.00	.00	PIPE
1366.900	5397.279	4.648	5401.926	536.17	22.82	8.08	5410.01	.00	5.74	5.01	6.000	.000	.00	1 .0

37.184	.0268					.0173	.64	4.65	1.86	3.96	.013	.00	.00	PIPE

1404.084	5398.274	4.805	5403.079	536.17	22.09	7.57	5410.65	.00	5.74	4.79	6.000	.000	.00	1 .0

39.816	.0268					.0160	.64	4.81	1.73	3.96	.013	.00	.00	PIPE

1443.900	5399.340	5.065	5404.404	536.17	21.06	6.89	5411.29	.00	5.74	4.35	6.000	.000	.00	1 .0

JUNCT STR	.0063					.0169	.13	5.06	1.53		.013	.00	.00	PIPE

1451.900	5399.390	4.427	5403.817	514.74	23.01	8.22	5412.04	.00	5.70	5.28	6.000	.000	.00	1 .0

25.147	.0297					.0179	.45	4.43	1.97	3.72	.013	.00	.00	PIPE

1477.047	5400.136	4.536	5404.672	514.74	22.44	7.82	5412.49	.00	5.70	5.15	6.000	.000	.00	1 .0

37.231	.0297					.0166	.62	4.54	1.87	3.72	.013	.00	.00	PIPE

1514.278	5401.240	4.760	5406.000	514.74	21.40	7.11	5413.11	.00	5.70	4.86	6.000	.000	.00	1 .0

26.922	.0297					.0150	.40	4.76	1.69	3.72	.013	.00	.00	PIPE

1541.200	5402.038	5.012	5407.050	514.74	20.40	6.46	5413.51	.00	5.70	4.45	6.000	.000	.00	1 .0

18.338	.0297					.0138	.25	5.01	1.51	3.72	.013	.00	.00	PIPE

1559.538	5402.582	5.308	5407.890	514.74	19.45	5.88	5413.77	.00	5.70	3.83	6.000	.000	.00	1 .0

8.362	.0297					.0130	.11	5.31	1.30	3.72	.013	.00	.00	PIPE

MH2

MH3

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WATER SURFACE PROFILE LISTING

LOS DIAMANTES DEVELOPMENT

10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW
RAINBOW DAM OUTFALL TO 102" STORM DRAIN

*****													No Wth
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Height/Dia.-FT or I.D.	ZL	Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	Type Ch
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1567.900	5402.830	5.704	5408.534	514.74	18.55	5.34	5413.87	.00	5.70	2.60	6.000	.00	1 .0
JUNCT STR .1500													PIPE
1577.900	5404.330	10.481	5414.811	220.54	13.87	2.99	5417.80	.00	4.16	.00	4.500	.00	1 .0
166.100	.0195					.0126	2.09	10.48	.00	3.05	.013	.00	PIPE
1744.000	5407.570	9.480	5417.049	220.54	13.87	2.99	5420.04	.00	4.16	.00	4.500	.00	1 .0
88.720	.0277					.0126	1.12	9.48	.00	2.71	.013	.00	PIPE
1832.720	5410.025	8.290	5418.314	220.54	13.87	2.99	5421.30	.00	4.16	.00	4.500	.00	1 .0
318.780	.0192					.0126	4.01	8.29	.00	3.07	.013	.00	PIPE
2151.500	5416.135	6.338	5422.473	220.54	13.87	2.99	5425.46	.00	4.16	.00	4.500	.00	1 .0
315.700	.0183					.0126	3.97	6.34	.00	3.13	.013	.00	PIPE
2467.200	5421.900	4.693	5426.593	220.54	13.87	2.99	5429.58	.00	4.16	.00	4.500	.00	1 .0
JUNCT STR .0167													PIPE
2473.200	5422.000	4.987	5426.987	214.54	13.49	2.83	5429.81	.00	4.12	.00	4.500	.00	1 .0
35.220	.0170					.0119	.42	4.99	.00	3.15	.013	.00	PIPE
2508.420	5422.600	4.947	5427.547	214.54	13.49	2.83	5430.37	.00	4.12	.00	4.500	.00	1 .0
JUNCT STR .0083													PIPE
2514.420	5422.650	6.025	5428.675	189.54	11.92	2.21	5430.88	.00	3.96	.00	4.500	.00	1 .0
397.010	.0113					.0093	3.69	6.03	.00	3.36	.013	.00	PIPE

MH4

MH5

MH6

MH7

MH8

MH9

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LOS DIAMANTES DEVELOPMENT

10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW
RAINBOW DAM OUTFALL TO 102" STORM DRAIN

WATER SURFACE PROFILE LISTING

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Top Height/Dia.-Ft or I.D.	Base Wt	ZL	No Wth Prs/Pip
MH10	2911.430	5.349	5432.474	189.54	11.92	2.21	5434.68	.00	3.96	.00	4.500	.000	.00	1 .0
	364.120	.0113				.0093	3.38	5.35	.00	3.36	.013	.00	.00	PIPE
MH11	3275.550	5431.225	5435.967	189.54	11.92	2.21	5438.17	.00	3.96	.00	4.500	.000	.00	1 .0
	372.160	.0061				.0093	3.46	4.74	.00	4.50	.013	.00	.00	PIPE
MH12	3647.710	5433.500	5439.535	189.54	11.92	2.21	5441.74	.00	3.96	.00	4.500	.000	.00	1 .0
JUNCT STR	.0083					.0078	.05	6.03	.00		.013	.00	.00	PIPE
MH13	3653.710	5433.550	5442.254	113.96	9.07	1.28	5443.53	.00	3.22	.00	4.000	.000	.00	1 .0
	98.710	.0108				.0063	.62	8.70	.00	2.61	.013	.00	.00	PIPE
MH14	3752.420	5434.620	5442.939	113.96	9.07	1.28	5444.22	.00	3.22	.00	4.000	.000	.00	1 .0
JUNCT STR	.0833					.0081	.05	8.32	.00		.013	.00	.00	PIPE
MH15	3758.420	5435.120	5442.860	100.00	10.39	1.68	5444.54	.00	3.07	.00	3.500	.000	.00	1 .0
	342.290	.0038				.0099	3.38	7.74	.00	3.50	.013	.00	.00	PIPE
MH16	4100.710	5436.425	5446.326	100.00	10.39	1.68	5448.00	.00	3.07	.00	3.500	.000	.00	1 .0
	450.000	.0051				.0099	4.45	9.90	.00	3.50	.013	.00	.00	PIPE
MH17	4550.710	5438.725	5450.855	100.00	10.39	1.68	5452.53	.00	3.07	.00	3.500	.000	.00	1 .0
	298.890	.0052				.0099	2.95	12.13	.00	3.50	.013	.00	.00	PIPE
MH18	4849.600	5440.265	5453.892	100.00	10.39	1.68	5455.57	.00	3.07	.00	3.500	.000	.00	1 .0
	387.400	.0051				.0099	3.83	13.63	.00	3.50	.013	.00	.00	PIPE

WATER SURFACE PROFILE LISTING

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LOS DIAMANTES DEVELOPMENT

10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW
RAINBOW DAM OUTFALL TO 102" STORM DRAIN

*****															*****																													
Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Width	Flow Top	Height/Dia.-FT	Base I.D.	No Wth Prs/Pip	*****																													
L/Elem	Ch Slope	*****													SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	*****																						
*****															*****															*****														
5237.000	5442.255	15.548	5457.803	100.00	10.39	1.68	5459.48	.00	3.07	.00	3.500	.000	.00	1 .0																														
54.000	.0138														.0099	.53	15.55	.00	2.47	.013	.00	PIPE																						
5291.000	5443.000	15.336	5458.336	100.00	10.39	1.68	5460.01	.00	3.07	.00	3.500	.000	.00	1 .0																														
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																														

MH17

STUBOUT

FILE: 10st_sd10.WSW

W S P G W - EDIT LISTING - Version 14.05
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

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CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT 1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIER/PIP	WIDTH	DIAMETER	WIDTH				DROP										

CD	1	4	1		8.500															
CD	2	2	0	.000	15.000	10.000				.00										
CD	3	2	0	.000	8.500	17.550				.00										
CD	4	4	1		6.000															
CD	5	4	1		2.000															
CD	6	4	1		6.000															
CD	7	4	1		2.000															
CD	8	4	1		2.000															
CD	9	4	1		6.000															
CD	10	4	1		6.000															
CD	11	4	1		4.500															
CD	12	4	1		1.500															
CD	13	4	1		4.500															
CD	14	4	1		2.500															
CD	15	4	1		4.500															
CD	16	4	1		3.000															
CD	17	4	1		4.000															
CD	18	4	1		1.500															
CD	19	4	1		1.500															
CD	20	4	1		3.500															

PAGE NO 1

W S P G W

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

LOS DIAMANTES DEVELOPMENT

HEADING LINE NO 2 IS -

10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW

HEADING LINE NO 3 IS -

RAINBOW DAM OUTFALL TO 102" STORM DRAIN

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET *

U/S DATA STATION INVERT SECT

1000.000 5385.000 1

ELEMENT NO 2 IS A WALL ENTRANCE *

U/S DATA STATION INVERT SECT

1000.000 5385.000 2

ELEMENT NO 3 IS A REACH

U/S DATA STATION INVERT SECT

1076.000 5391.300 2

ELEMENT NO 4 IS A WALL EXIT

U/S DATA STATION INVERT SECT

1076.000 5391.300 4

ELEMENT NO 5 IS A REACH

U/S DATA STATION INVERT SECT

1224.700 5394.400 4

W S ELEV
5390.000

RADIUS .000
ANGLE .000
ANG PT MAN H
0

RADIUS .000
ANGLE .000
ANG PT MAN H
1

PAGE NO 2

ELEMENT NO	6 IS A REACH	STATION	1358.900	INVERT	5397.220	SECT	4	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
ELEMENT NO	7 IS A JUNCTION	STATION	1366.900	INVERT	5397.279	SECT	6	5	0	Q4	.000	INVERT-3	5400.250	PHI 3	PHI 4
	U/S DATA											ANGLE	.000	90.000	.000
ELEMENT NO	8 IS A REACH	STATION	1443.900	INVERT	5399.340	SECT	6	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
ELEMENT NO	9 IS A JUNCTION	STATION	1451.900	INVERT	5399.390	SECT	9	7	8	Q4	9.760	INVERT-3	5404.000	PHI 3	PHI 4
	U/S DATA											ANGLE	.000	90.000	.000
ELEMENT NO	10 IS A REACH	STATION	1567.900	INVERT	5402.830	SECT	9	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
	U/S DATA											ANGLE	.000	.000	1

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	11 IS A JUNCTION	STATION	1577.900	INVERT	5404.330	SECT	11	10	0	Q4	.000	INVERT-3	5402.880	PHI 3	PHI 4
	U/S DATA											ANGLE	.000	45.000	.000
ELEMENT NO	12 IS A REACH	STATION	1744.000	INVERT	5407.570	SECT	11	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
ELEMENT NO	13 IS A REACH	STATION	1832.720	INVERT	5410.025	SECT	11	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
	U/S DATA											ANGLE	.000	.000	1
ELEMENT NO	14 IS A REACH	STATION	2151.500	INVERT	5416.135	SECT	11	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
	U/S DATA											ANGLE	.000	.000	1
ELEMENT NO	15 IS A REACH	STATION	2467.200	INVERT	5421.900	SECT	11	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
	U/S DATA											ANGLE	.000	.000	1
ELEMENT NO	16 IS A JUNCTION	STATION	2473.200	INVERT	5422.000	SECT	13	12	0	Q4	.000	INVERT-3	5424.500	PHI 3	PHI 4
	U/S DATA											ANGLE	.000	90.000	.000
ELEMENT NO	17 IS A REACH	STATION	2508.420	INVERT	5422.600	SECT	13	N	.013	RADIUS	.000	ANGLE	.000	ANG PT	MAN H
	U/S DATA											ANGLE	.000	.000	1
ELEMENT NO	18 IS A JUNCTION	STATION	2514.420	INVERT	5422.650	SECT	15	14	0	Q4	.000	INVERT-3	5424.150	PHI 3	PHI 4
	U/S DATA											ANGLE	.000	45.000	.000

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	19 IS A REACH U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
ELEMENT NO	20 IS A REACH U/S DATA	2911.430	5427.125	15	.013	.000	.000	.000	1
ELEMENT NO	21 IS A REACH U/S DATA	3275.550	5431.225	15	.013	.000	.000	.000	1
ELEMENT NO	22 IS A JUNCTION U/S DATA	3647.710	5433.500	15	.013	.000	.000	.000	1
ELEMENT NO	23 IS A REACH U/S DATA	3653.710	5433.550	17	.013	.000	.000	.000	1

ELEMENT NO	23 IS A REACH U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
ELEMENT NO	24 IS A JUNCTION U/S DATA	3752.420	5434.620	17	.013	.000	.000	.000	1
ELEMENT NO	25 IS A REACH U/S DATA	3758.420	5435.120	20	.013	.000	.000	.000	1

ELEMENT NO	25 IS A REACH U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
ELEMENT NO	26 IS A REACH U/S DATA	4100.710	5436.425	20	.013	.000	.000	.000	1
ELEMENT NO	27 IS A REACH U/S DATA	4550.710	5438.725	20	.013	.000	.000	.000	1
ELEMENT NO	28 IS A REACH U/S DATA	4849.600	5440.265	20	.013	.000	.000	.000	1
ELEMENT NO	29 IS A REACH U/S DATA	5237.000	5442.255	20	.013	.000	.000	.000	1

W S P G W
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	29 IS A REACH U/S DATA	STATION	INVERT	SECT	N	ANGLE	RADIUS	ANG PT	MAN H
ELEMENT NO	30 IS A SYSTEM HEADWORKS U/S DATA	5291.000	5443.000	20	.013	.000	.000	.000	0

W S ELEV
5443.000

T1 LOS DIAMANTES DEVELOPMENT

0

T2 10 STREET STORM DRAIN (10-10-19) FILE: 10ST_SD10.WSW

T3 RAINBOW DAM OUTFALL TO 102" STORM DRAIN

SO	1000.0005385.000	1			5390.000				
WE	1000.0005385.000	2		.500					
R	1076.0005391.300	2		.014				.000	
WX	1076.0005391.300	4							
R	1224.7005394.400	4		.013				.000	40.000 1
R	1358.9005397.220	4		.013				.000	-10.000 1
JX	1366.9005397.279	6	5	.013	16.260	5400.250		-90.0	.000
R	1443.9005399.340	6		.013				.000	.000 1
JX	1451.9005399.390	9	7	8.013	11.670	9.7605404.0005404.000		-90.0	90.0 .000
R	1567.9005402.830	9		.013				.000	.000 1
JX	1577.9005404.330	11	10	.013	294.200	5402.880		-45.0	.000
R	1744.0005407.570	11		.013				.000	.000 1
R	1832.7205410.025	11		.013				.000	.000 1
R	2151.5005416.135	11		.013				.000	.000 1
R	2467.2005421.900	11		.013				.000	.000 1
JX	2473.2005422.000	13	12	.013	6.000	5424.500		90.0	.000
R	2508.4205422.600	13		.013				.000	.000 1
JX	2514.4205422.650	15	14	.013	25.000	5424.150		45.0	.000
R	2911.4305427.125	15		.013				.000	.000 1
R	3275.5505431.225	15		.013				.000	.000 1
R	3647.7105433.500	15		.013				.000	.000 1
JX	3653.7105433.550	17	16	.013	75.580	5435.000		-90.0	.000
R	3752.4205434.620	17		.013				.000	.000 1
JX	3758.4205435.120	20	18	19.013	7.940	6.0205437.1705437.170		-45.0	45.0 .000
R	4100.7105436.425	20		.013				.000	.000 1
R	4550.7105438.725	20		.013				.000	.000 1
R	4849.6005440.265	20		.013				.000	.000 1
R	5237.0005442.255	20		.013				.000	.000 1
R	5291.0005443.000	20		.013				.000	.000 0
SH	5291.0005443.000	20				5443.000			
CD	1 4 1	.000	8.500	.000	.000	.000	.00		
CD	2 2 0	.000	15.000	10.000	.000	.000	.00		
CD	3 2 0	.000	8.500	17.550	.000	.000	.00		
CD	4 4 1	.000	6.000	.000	.000	.000	.00		
CD	5 4 1	.000	2.000	.000	.000	.000	.00		
CD	6 4 1	.000	6.000	.000	.000	.000	.00		
CD	7 4 1	.000	2.000	.000	.000	.000	.00		
CD	8 4 1	.000	2.000	.000	.000	.000	.00		
CD	9 4 1	.000	6.000	.000	.000	.000	.00		
CD	10 4 1	.000	6.000	.000	.000	.000	.00		
CD	11 4 1	.000	4.500	.000	.000	.000	.00		
CD	12 4 1	.000	1.500	.000	.000	.000	.00		
CD	13 4 1	.000	4.500	.000	.000	.000	.00		
CD	14 4 1	.000	2.500	.000	.000	.000	.00		
CD	15 4 1	.000	4.500	.000	.000	.000	.00		
CD	16 4 1	.000	3.000	.000	.000	.000	.00		
CD	17 4 1	.000	4.000	.000	.000	.000	.00		
CD	18 4 1	.000	1.500	.000	.000	.000	.00		
CD	19 4 1	.000	1.500	.000	.000	.000	.00		
CD	20 4 1	.000	3.500	.000	.000	.000	.00		
Q	100.000	.0							