DRAINAGE PLAN

TURKEY CREEK 3RD ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

Baughman

ENGINEERING | SURVEYING | PLANNING
LANDSCAPE ARCHITECTURE

21 JUNE 2006

Drainage Plan
TURKEY CREEK 3RD ADDITION
Wichita, Sedgwick County, Kansas

Baughman Company, P.A.
21 JUNE 2006

Existing Site Conditions

The proposed Turkey Creek 3rd Addition is located at the northeast corner of the intersection of 135th Street West and Pawnee. The development consists of approximately 200 acres of existing agricultural ground. An existing pond is located near the northwest corner of the property.

The soil types on the site consist primarily of Type B soils. All soil types are of the silty loam variety. The NRCS Soil Survey can be found in Appendix B.

There is offsite flow entering the property from the west, across 135th Street West. This flow consists of approximately 7 acres at the northwest corner conveyed by an existing 24" CMP. There is approximately 45 acres encroaching this development from the west via a 24" HCMP. Another 7 acres drains through the site near the southwest corner via a 24" CMP. The two 7 acre flows have a time of concentration of 15 min where as the 45 acre runoff has a time of concentration of approximately 24 minutes.

Proposed Site Conditions

The proposed site will consist of a residential subdivision with associated streets, ponds, and utilities. The proposed subdivision will consist of approximately 536± lots. Storm sewer will be utilized throughout the subdivision to convey the runoff to the detention pond systems. The detention ponds will limit the overall site developed runoff to at least the existing runoff. A three pond system will be utilized and drain the detained runoff to the east, into the existing Calfskin Creek.
The ponds will be referred to in this report as they are labeled on the according to their Reserve .

Pond F Summary

Static Water Surface Elevation	=	*1349.0*
100 year Design Surface Elevation	=	*1351.3*
Outlet	=	15" RCP into Pond G

Pond G Summary

Static Water Surface Elevation	=	*1333.0*
100 year Design Surface Elevation	=	*1337.8*
Outlet	=	1 - 48" RCP

Pond E Summary

Static Water Surface Elevation	=	*1336.0*
100 year Design Surface Elevation	=	*1339.2*
Outlet	=	*36" RCP into Pond G*

Offsite Flow

There are 3 introductions of offsite flow onto the proposed site.

According to the USGS Quadrangle Sheet, there is approximately 7 acres draining from the northwest onto this property. This offsite flow produces approximately 42 cfs conveyed through an existing 24" CMP. This flow will be accepted into a 30" SWS pipe which will drain into Pond F.

The largest introduction of offsite flow is conveyed on the west side of the plat near center of the west line. The flow consists of approximately 45 acres and with a time of concentration of 24 minutes, accounts for approximately 220 cfs. This flow will be accommodated via a ditch section in a 55' Reserve I. This ditch section will consist of approximately a 5 foot bottom width and 5:1 side slopes. To handle the total flow, the ditch will need to be approximately 3' deep. The ditch will drain to the east and into Pond G through 2 – 48" RCP under Liberty Road.

The other introduction of offsite flow is introduced along the west line of the proposed site near the southwest corner. This drainage flows through a 24" CMP and will be accepted into a proposed 36" RCP SWS system. This system will drain into Pond E.

Detention Summary

The proposed development meets or exceeds current City of Wichita requirements pertaining to detention of existing and proposed runoff rates. The following summary chart relates existing and proposed discharges at critical points of the site.

POINT	Q_2 Existing	Q_2 Proposed	Q_{100} Existing	Q_{100} Proposed
Overall Site Runoff Produced	350 cfs	400 cfs	865 cfs	1000 cfs
Pawnee Road	100 cfs	Negligible	260 cfs	Negligible
Calfskin Creek	400 cfs	120 cfs	1150 cfs	400 cfs

The above 'Overall Site Runoff Produced' is the amount of runoff produced by the site in existing conditions and runoff produced after development. These figures do not account for any detention of the proposed ponds.

Proposed Pond F (located in Reserve F) will accept a maximum 100 year runoff of 215 cfs and discharge via 15" RCP into Pond G. This figure includes the offsite runoff which is introduced from the west. The pond will have an emergency

overflow at the northeast corner into the existing (former) railroad ditch. This ditch ranges in depth from 5' to 10' and drains into the Calfskin Creek. Upon development, the ditch will remain at existing grade. The pond is detaining approximately 200 cfs of developed runoff.

Proposed Pond E (located in Reserve E) will accept a maximum runoff of 215 cfs and discharge via a 36' RCP into Pond G. This figure also includes the offsite runoff which is introduced from the west. The pond is detaining is approximately 180 cfs of developed runoff.

Proposed Pond G (located in Reserve G) will accept a maximum runoff of 530 cfs. This figure includes offsite runoff from the west as well as discharges from both Ponds F and E. Pond G discharges approximately 80 cfs via a 48" SWS which will drain directly into the Calfskin Creek. This pond is detaining approximately 450 cfs of developed runoff.

Overall Site Flow Summary

The proposed development provides adequate detention as required by the City of Wichita. The existing site produces approximately 865 cfs of runoff, and receives approximately 300 cfs of offsite runoff from the west. Upon development, the site will produce approximately 1000 cfs. The site will need to detain approximately 150 cfs in the proposed ponds upon development.

The existing conditions consist of all runoff eventually draining to the Calfskin Creek to the east. The majority of the runoff is conveyed across the proposed site and discharges directly into the Calfskin Creek. Currently, approximately 260 cfs of runoff discharges through the site and then continues south, across Pawnee, and to the Calfskin upstream of the project. Upon development, this runoff will be re-directed through the pond systems and discharge directly into the Calfskin, adjacent to the subdivision.

FEMA Floodplain

The base flood elevations depicted on the drainage plan are per hydraulic modeling in HEC-2, which was previously submitted with Turkey Creek 2nd Addition. The existing FEMA 100-yr Floodplain boundary is located outside of any residential lots and/or structures.

APPENDIX A

StormCad

Existing	2yr	5yr	100yr	*Developed*	2yr	5yr	100yr
Intensity	3.83	4.56	7.37	Intensity	3.83	4.56	7.37
Rational C	0.45	0.5	0.58	Rational C	0.52	0.54	0.67

Basin ID	Area	Existing Flowrates			Developed Flowrates		
	acres	2-yr cfs	5-yr cfs	100-yr cfs	2-yr cfs	5-yr cfs	100-yr cfs
1	0.5	0.9	1.1	2.1	1.0	1.2	2.5
2	1.3	2.2	3.0	5.6	2.6	3.2	6.4
3	3.9	6.7	8.9	17	7.8	9.6	19
4	11	19	25	46	22	27	53
5	2.0	3.4	4.6	8.5	4.0	4.9	9.9
6	5.5	9.5	13	24	11	14	27
7	0.6	1.0	1.4	2.6	1.2	1.5	3.0
8	1.2	2.1	2.7	5.1	2.4	3.0	5.9
9	8.6	15	20	37	17	21	42
10	1.2	2.1	2.7	5.1	2.4	3.0	5.9
11	1.1	1.9	2.5	4.7	2.2	2.7	5.4
12	2.6	4.5	5.9	11	5.2	6.4	13
13	4.8	8.3	11	21	9.6	12	24
14	2.8	4.8	6.4	12	5.6	6.9	14
15	5.6	9.7	13	24	11	14	28
16	1.4	2.4	3.2	6.0	2.8	3.4	6.9
17	1.2	2.1	2.7	5.1	2.4	3.0	5.9
18	19	33	43	81	38	47	94
19	2.7	4.7	6.2	12	5.4	6.6	13
20	11	19	26	48	23	28	56
21	1.2	2.1	2.7	5.1	2.4	3.0	5.9
22	15	26	34	64	30	37	74
23	5.3	9.1	12	23	11	13	26
24	5.5	9.5	13	24	11	14	27
25	4.8	8.3	11	21	9.6	12	24
26	3.2	5.5	7.3	14	6.4	7.9	16
27	2.2	3.8	5.0	9.4	4.4	5.4	11
28	12	21	27	51	24	30	59
29	1.4	2.4	3.2	6.0	2.8	3.4	6.9
30	1.8	3.1	4.1	7.7	3.6	4.4	8.9
31	8.0	14	18	34	16	20	40
32	2.3	4.0	5.2	9.8	4.6	5.7	11
33	2.3	4.0	5.2	9.8	4.6	5.7	11
34	4.5	7.8	10	19	9.0	11	22
35	1.3	2.2	3.0	5.6	2.6	3.2	6.4
36	4.0	6.9	9.1	17	8.0	9.8	20
37	1.4	2.4	3.2	6.0	2.8	3.4	6.9
38	1.2	2.1	2.7	5.1	2.4	3.0	5.9
39	0.4	0.7	0.9	1.7	0.8	1.0	2.0
40	1.5	2.6	3.4	6.4	3.0	3.7	7.4
41	2.0	3.4	4.6	8.5	4.0	4.9	9.9
42	1.8	3.1	4.1	7.7	3.6	4.4	8.9
43	1.5	2.6	3.4	6.4	3.0	3.7	7.4
44	2.1	3.6	4.8	9.0	4.2	5.2	10
45	1.1	1.9	2.5	4.7	2.2	2.7	5.4
46	1.5	2.6	3.4	6.4	3.0	3.7	7.4
47	8.0	14	18	34	16	20	40
48	1.2	2.1	2.7	5.1	2.4	3.0	5.9
49	2.3	4.0	5.2	9.8	4.6	5.7	11
50	0.8	1.4	1.8	3.4	1.6	2.0	4.0
51	3.0	5.2	6.8	13	6.0	7.4	15
52	7.7	13	18	33	15	19	38
53	2.0	3.4	4.6	8.5	4.0	4.9	9.9
TOTAL	**202**	**349**	**461**	**865**	**403**	**498**	**999**

Drainage area, acres	9
Li = Inlet Length	5
So = street grade, ft/ft	0.008
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	17.9	22.2	44.4
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	17.9	22.2	44.4
depth of flow, ft	0.59	0.64	0.83
Flow width, ft	18.91	20.48	26.59
Froude Number	0.97580	0.98883	1.03278
Length 1, ft	16.25	17.83	24.17
Length 2, ft	10.67	11.71	15.87
Length 3, ft	30.45	33.41	45.30
case 1, Li < L2 intercepted flow bypassed flow	VALID 5.5 12.4	VALID 6.2 15.9	VALID 9.2 35.2
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 8.7 9.2	NO GOOD 10.4 11.8	NO GOOD 18.4 26.0

Drainage area, acres	2.7
Li = Inlet Length	5
So = street grade, ft/ft	0.01
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	5.4	6.6	13.3
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	5.4	6.6	13.3
depth of flow, ft	0.36	0.39	0.51
Flow width, ft	11.55	12.50	16.23
Froude Number	1.00486	1.01828	1.06354
Length 1, ft	10.22	11.21	15.20
Length 2, ft	6.71	7.36	9.98
Length 3, ft	19.15	21.01	28.49
case 1, Li < L2 intercepted flow bypassed flow	VALID 2.6 2.7	VALID 3.0 3.7	VALID 4.4 8.9
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 3.1 2.2	NO GOOD 3.7 2.9	NO GOOD 6.6 6.7

Drainage area, acres	8.6
Li = Inlet Length	5
So = street grade, ft/ft	0.027
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	17.1	21.2	42.5
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	17.1	21.2	42.5
depth of flow, ft	0.46	0.50	0.65
Flow width, ft	14.80	16.03	20.81
Froude Number	1.72090	1.74387	1.82138
Length 1, ft	22.42	24.61	33.36
Length 2, ft	14.72	16.16	21.91
Length 3, ft	42.03	46.12	62.53
case 1, Li < L2 intercepted flow bypassed flow	VALID 3.8 13.3	VALID 4.3 16.9	VALID 6.4 36.1
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 7.3 9.8	NO GOOD 8.7 12.5	NO GOOD 15.5 27.0

Drainage area, acres	2.6
Li = Inlet Length	5
So = street grade, ft/ft	0.027
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	5.2	6.4	12.8
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	5.2	6.4	12.8
depth of flow, ft	0.30	0.32	0.42
Flow width, ft	9.45	10.23	13.29
Froude Number	1.59692	1.61824	1.69017
Length 1, ft	13.29	14.58	19.77
Length 2, ft	8.72	9.57	12.98
Length 3, ft	24.90	27.33	37.05
case 1, Li < L2 intercepted flow bypassed flow	VALID 1.9 3.2	VALID 2.2 4.2	VALID 3.2 9.6
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 2.7 2.5	NO GOOD 3.2 3.2	NO GOOD 5.8 7.1

Drainage area, acres	7.7
Li = Inlet Length	5
So = street grade, ft/ft	0.0053
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	15.3	19.0	38.0
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	15.3	19.0	38.0
depth of flow, ft	0.60	0.65	0.85
Flow width, ft	19.27	20.87	27.09
Froude Number	0.79672	0.80736	0.84324
Length 1, ft	13.52	14.83	20.11
Length 2, ft	8.88	9.74	13.20
Length 3, ft	25.33	27.80	37.69
case 1, Li < L2 intercepted flow bypassed flow	VALID 5.7 9.7	VALID 6.4 12.6	VALID 9.5 28.6
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 8.0 7.3	NO GOOD 9.5 9.4	NO GOOD 16.9 21.1

Drainage area, acres	13
Li = Inlet Length	5
So = street grade, ft/ft	0.012
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	25.9	32.0	64.2
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	25.9	32.0	64.2
depth of flow, ft	0.63	0.68	0.88
Flow width, ft	20.12	21.79	28.28
Froude Number	1.20749	1.22361	1.27800
Length 1, ft	21.39	23.47	31.82
Length 2, ft	14.04	15.41	20.89
Length 3, ft	40.09	43.99	59.64
case 1, Li < L2 intercepted flow bypassed flow	VALID 6.1 19.8	VALID 6.8 25.2	VALID 10.1 54.1
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 11.3 14.6	NO GOOD 13.4 18.6	NO GOOD 23.8 40.4

Drainage area, acres	8
Li = Inlet Length	5
So = street grade, ft/ft	0.012
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	15.9	19.7	39.5
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	15.9	19.7	39.5
depth of flow, ft	0.52	0.57	0.74
Flow width, ft	16.77	18.16	23.57
Froude Number	1.17140	1.18704	1.23980
Length 1, ft	17.30	18.98	25.73
Length 2, ft	11.36	12.46	16.90
Length 3, ft	32.42	35.57	48.23
case 1, Li < L2 intercepted flow bypassed flow	VALID 4.6 11.3	VALID 5.2 14.5	VALID 7.7 31.8
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 7.5 8.4	NO GOOD 9.0 10.7	NO GOOD 16.0 23.5

Drainage area, acres	8
Li = Inlet Length	5
So = street grade, ft/ft	0.025
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	15.9	19.7	39.5
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	15.9	19.7	39.5
depth of flow, ft	0.46	0.49	0.64
Flow width, ft	14.62	15.83	20.54
Froude Number	1.65243	1.67449	1.74892
Length 1, ft	21.26	23.33	31.63
Length 2, ft	13.96	15.32	20.77
Length 3, ft	39.85	43.72	59.28
case 1, Li < L2 intercepted flow bypassed flow	VALID 3.7 12.2	VALID 4.2 15.5	VALID 6.2 33.3
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 6.9 9.0	NO GOOD 8.3 11.4	NO GOOD 14.7 24.8

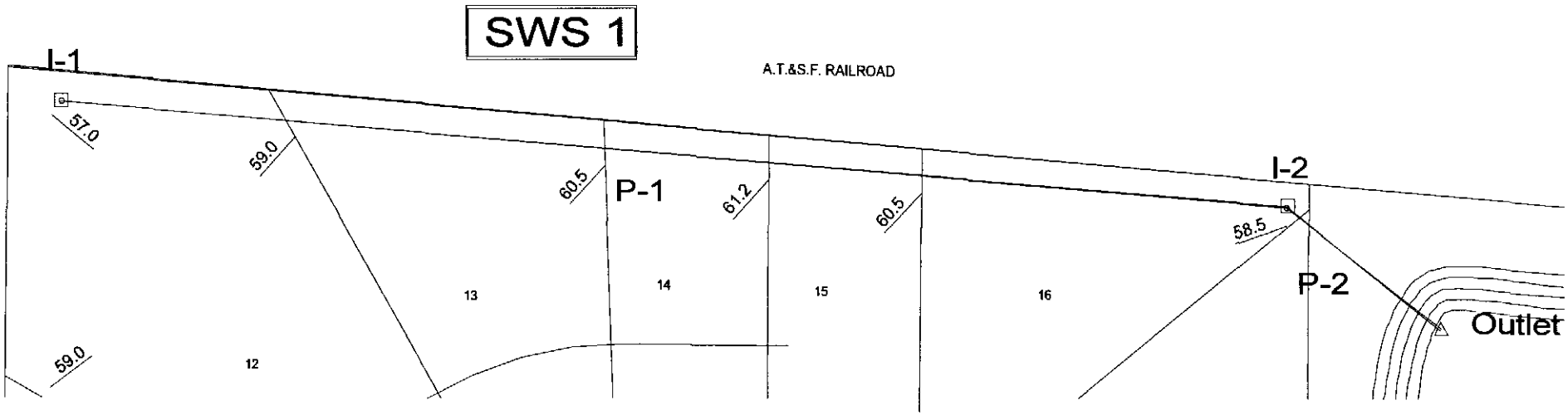
Grass

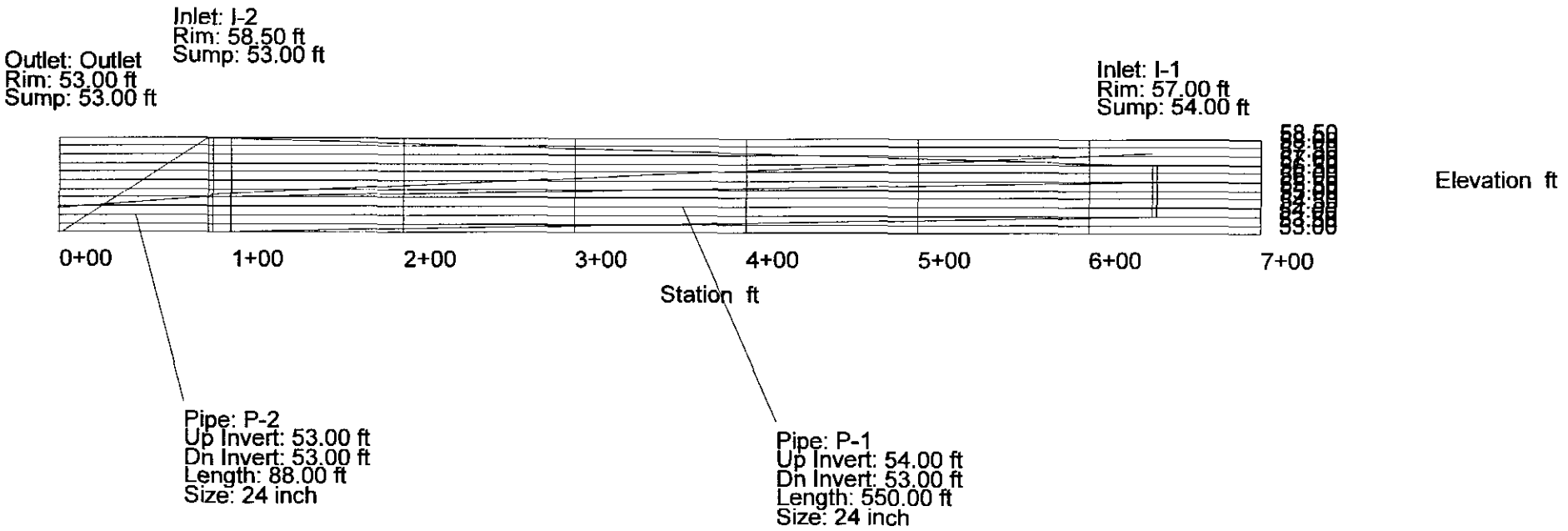
Drainage area, acres	10
Li = Inlet Length	5
So = street grade, ft/ft	0.025
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.03
Z in Izzard's Eq. = 1/Sx	32

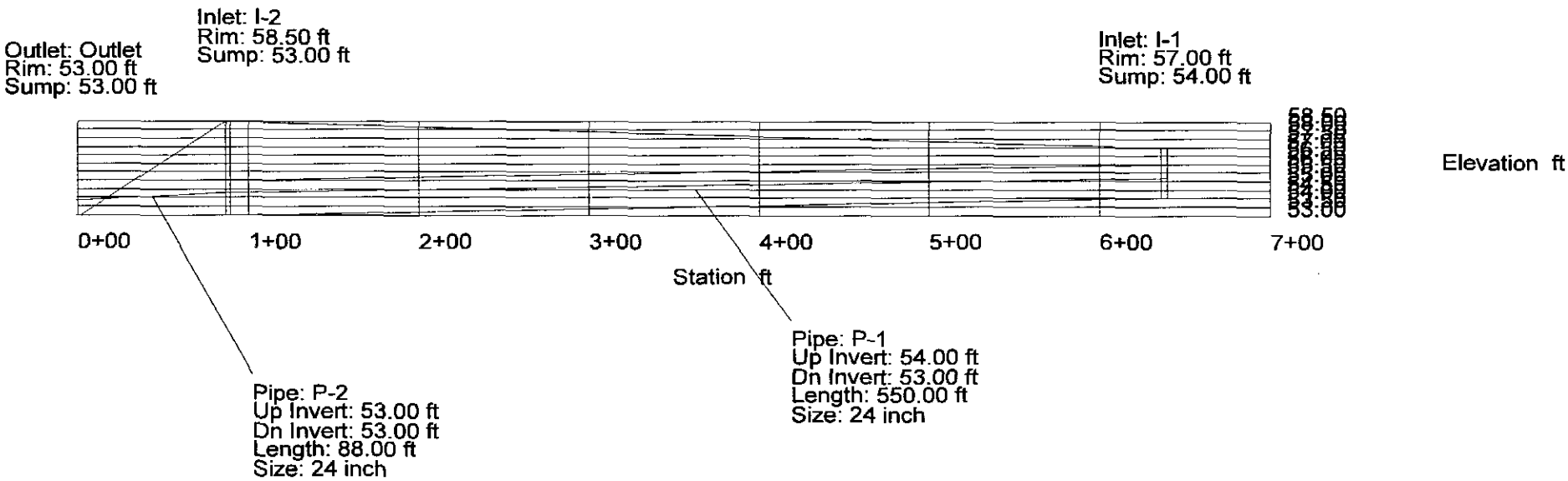
	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	19.9	24.6	49.4
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	19.9	24.6	49.4
depth of flow, ft	0.56	0.60	0.78
Flow width, ft	17.85	19.33	25.09
Froude Number	1.25286	1.26958	1.32601
Length 1, ft	19.69	21.60	29.29
Length 2, ft	12.93	14.19	19.23
Length 3, ft	36.90	40.49	54.90
case 1, Li < L2 intercepted flow bypassed flow	VALID 5.1 14.9	VALID 5.7 18.9	VALID 8.4 40.9
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 9.0 11.0	NO GOOD 10.7 14.0	NO GOOD 18.9 30.4

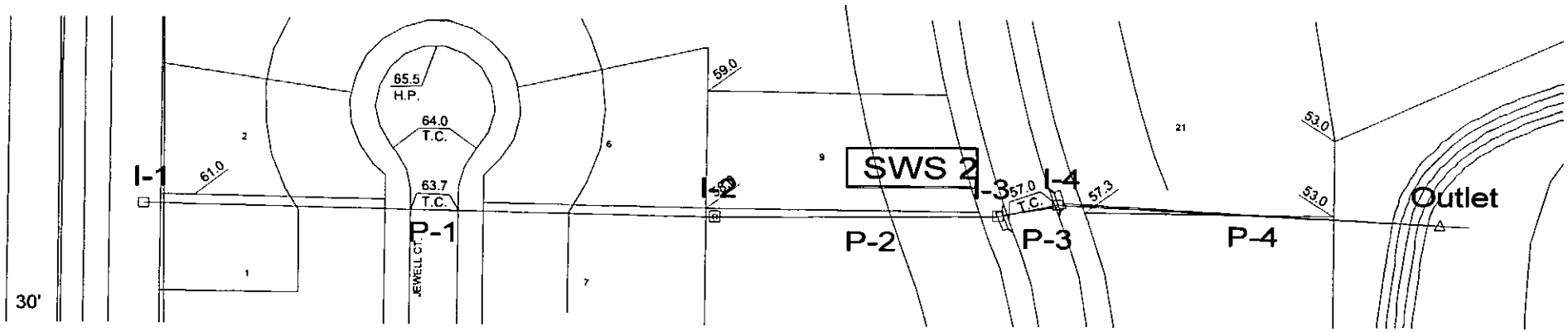
Drainage area, acres	10
Li = Inlet Length	5
So = street grade, ft/ft	0.005
Sx = 'cross slope, ft/ft	0.03125
Manning's n	0.022
Z in Izzard's Eq. = 1/Sx	32

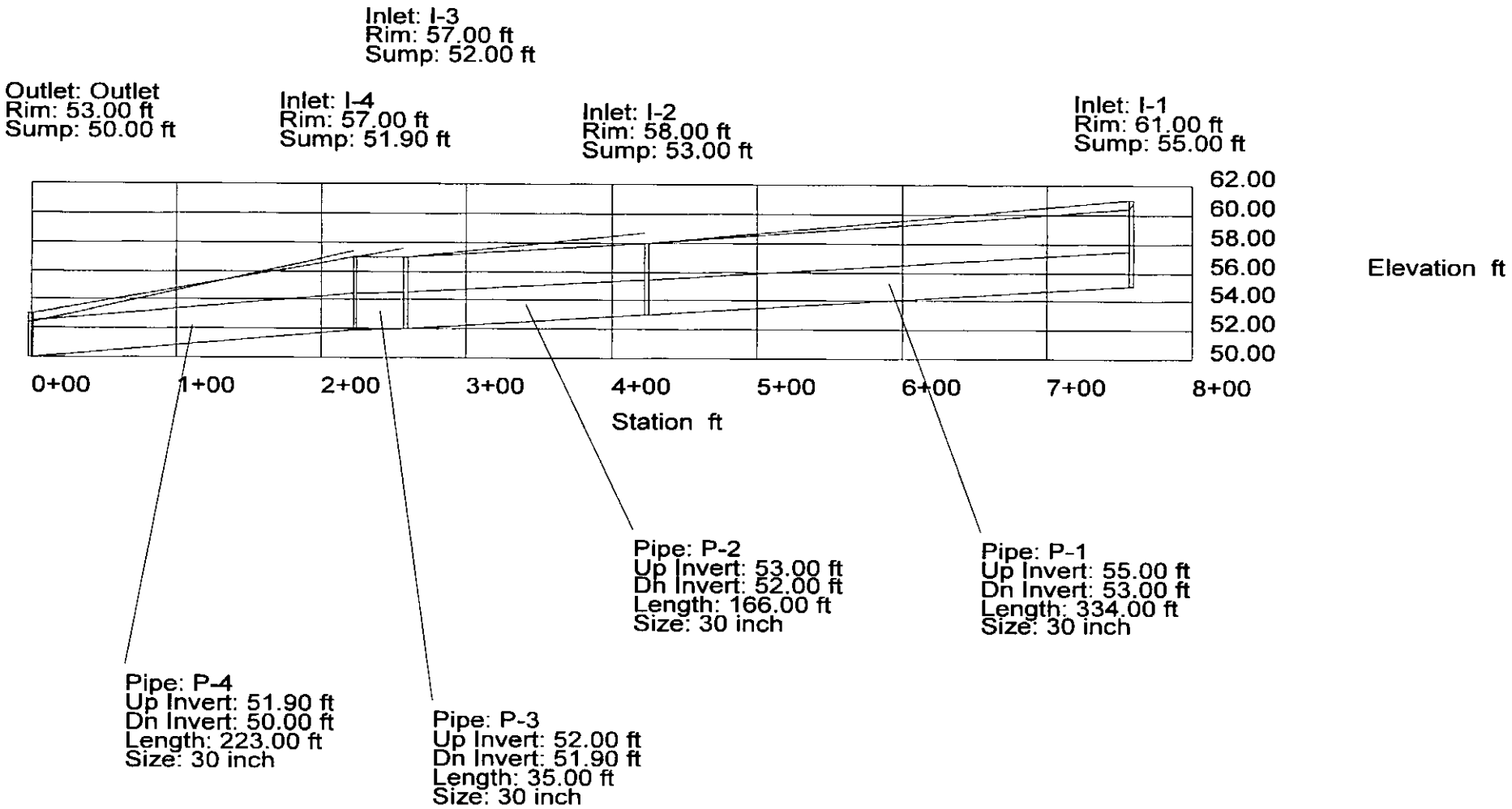
	2-yr	5-yr	100-yr
Rainfall Intensity, in/hr	3.83	4.56	7.37
Rational "C"	0.52	0.54	0.67
Flowrate, cfs	19.9	24.6	49.4
Additional Flow, cfs	0.0	0.0	0.0
Total Flowrate, cfs	19.9	24.6	49.4
depth of flow, ft	0.67	0.73	0.94
Flow width, ft	21.49	23.27	30.20
Froude Number	0.78802	0.79854	0.83404
Length 1, ft	14.91	16.36	22.18
Length 2, ft	9.79	10.74	14.56
Length 3, ft	27.94	30.66	41.57
case 1, Li < L2 intercepted flow bypassed flow	VALID 6.7 13.2	VALID 7.5 17.1	VALID 11.1 38.2
case 2, Li > L2 intercepted flow bypassed flow	NO GOOD 10.0 9.9	NO GOOD 11.9 12.7	NO GOOD 21.2 28.2

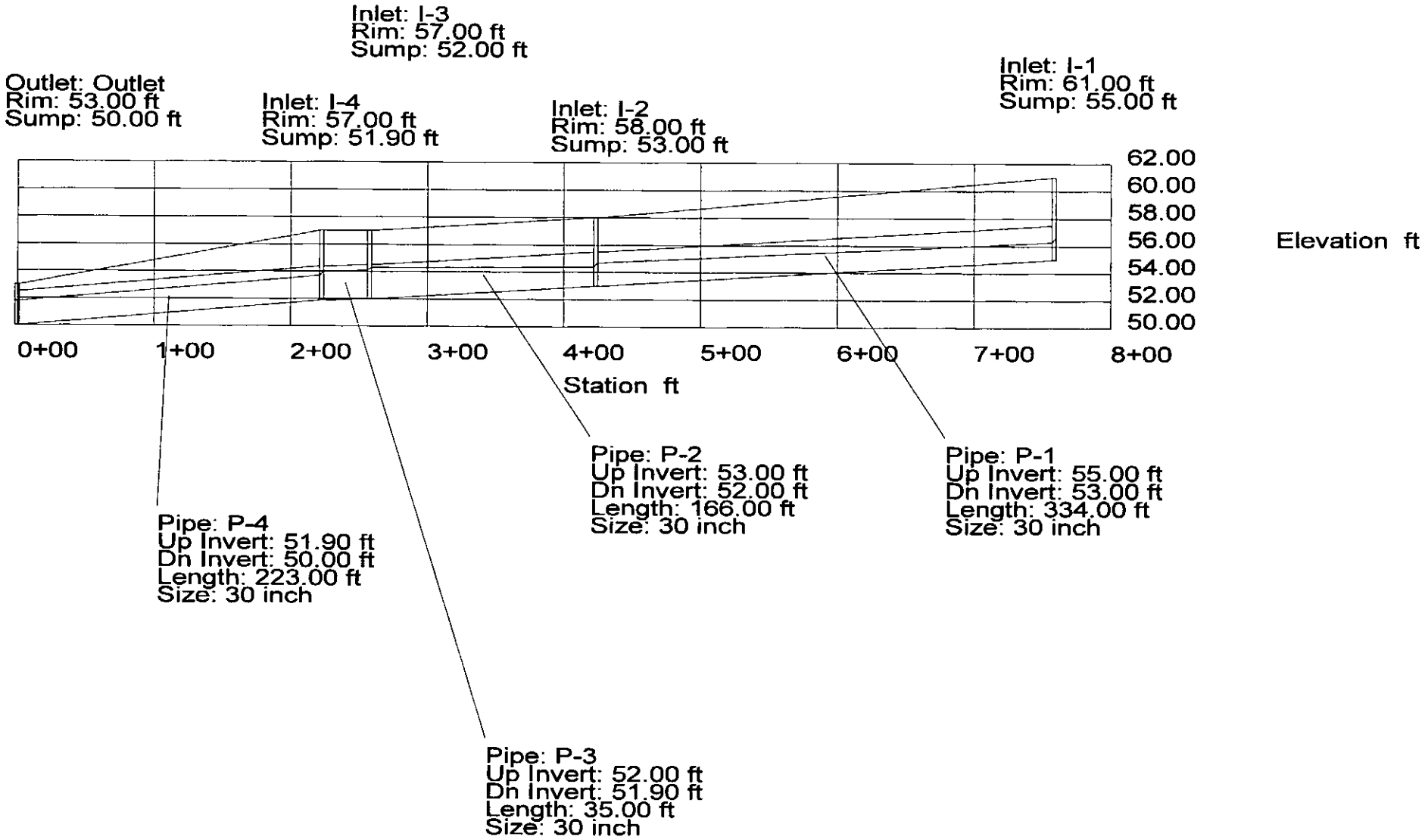

SWS 1
I-1
A.T.&S.F. RAILROAD
57.0
59.0
60.5
P-1
61.2
60.5
I-2
58.5
P-2
Outlet
59.0
12
13
14
15
16

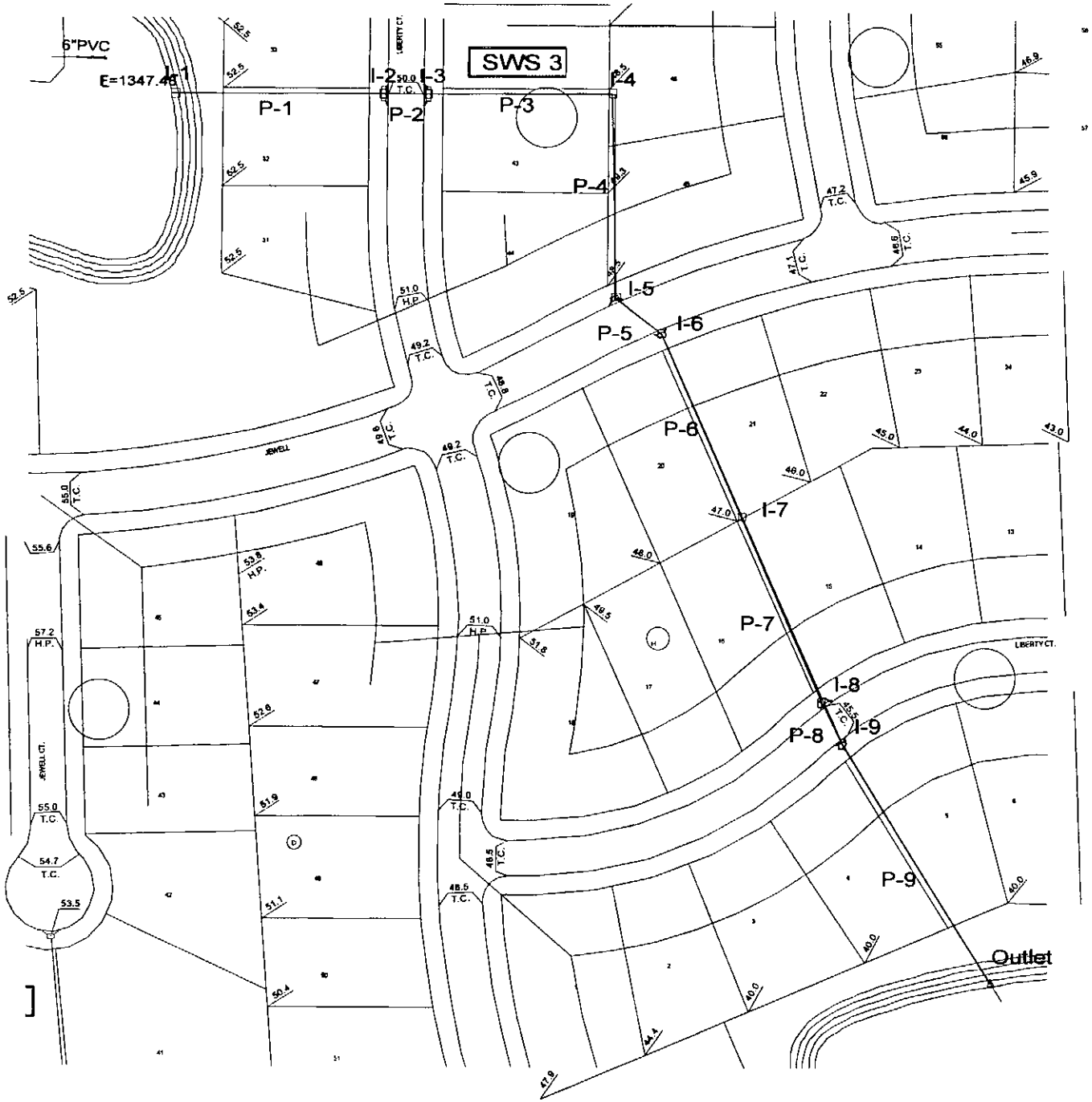

Inlet: I-2
Rim: 58.50 ft
Sump: 53.00 ft
Outlet: Outlet
Rim: 53.00 ft
Sump: 53.00 ft
Inlet: I-1
Rim: 57.00 ft
Sump: 54.00 ft
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
Station ft
Pipe: P-2
Up Invert: 53.00 ft
Dn Invert: 53.00 ft
Length: 88.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 54.00 ft
Dn Invert: 53.00 ft
Length: 550.00 ft
Size: 24 inch

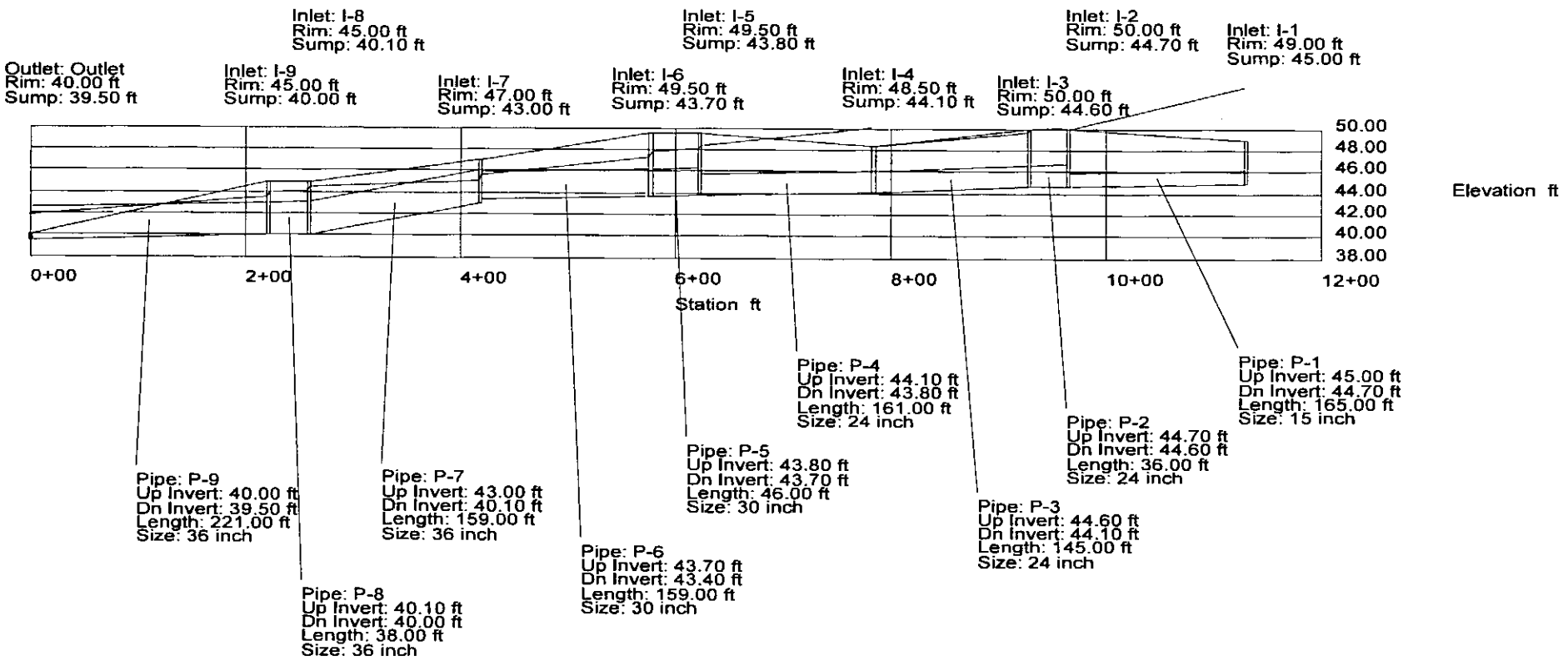


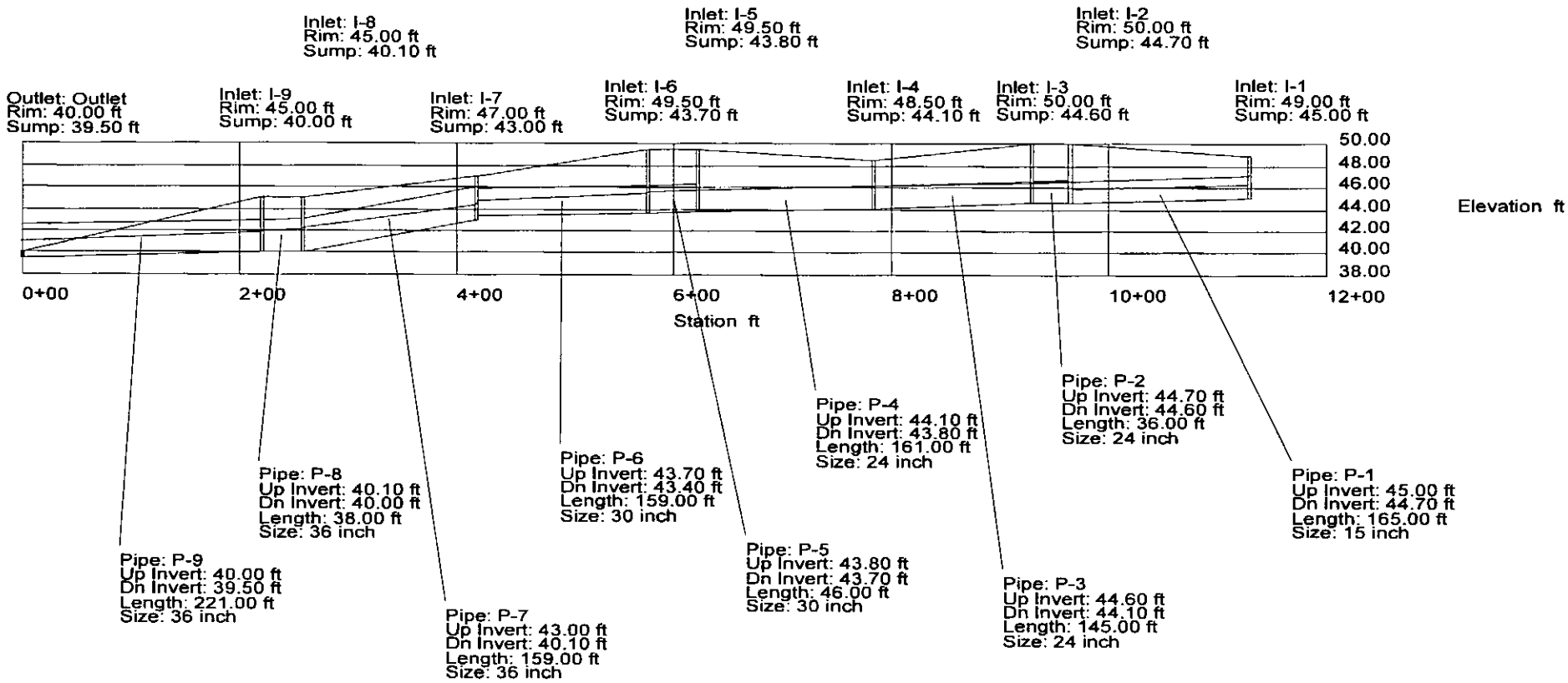

I-1
61.0
65.5
H.P.
64.0
T.C.
63.7
T.C.
P-1
JEWELL CT.
59.0
I-2
SWS 2
P-2
I-3
57.0
T.C.
P-3
I-4
57.3
53.0
53.0
P-4
Outlet
30'

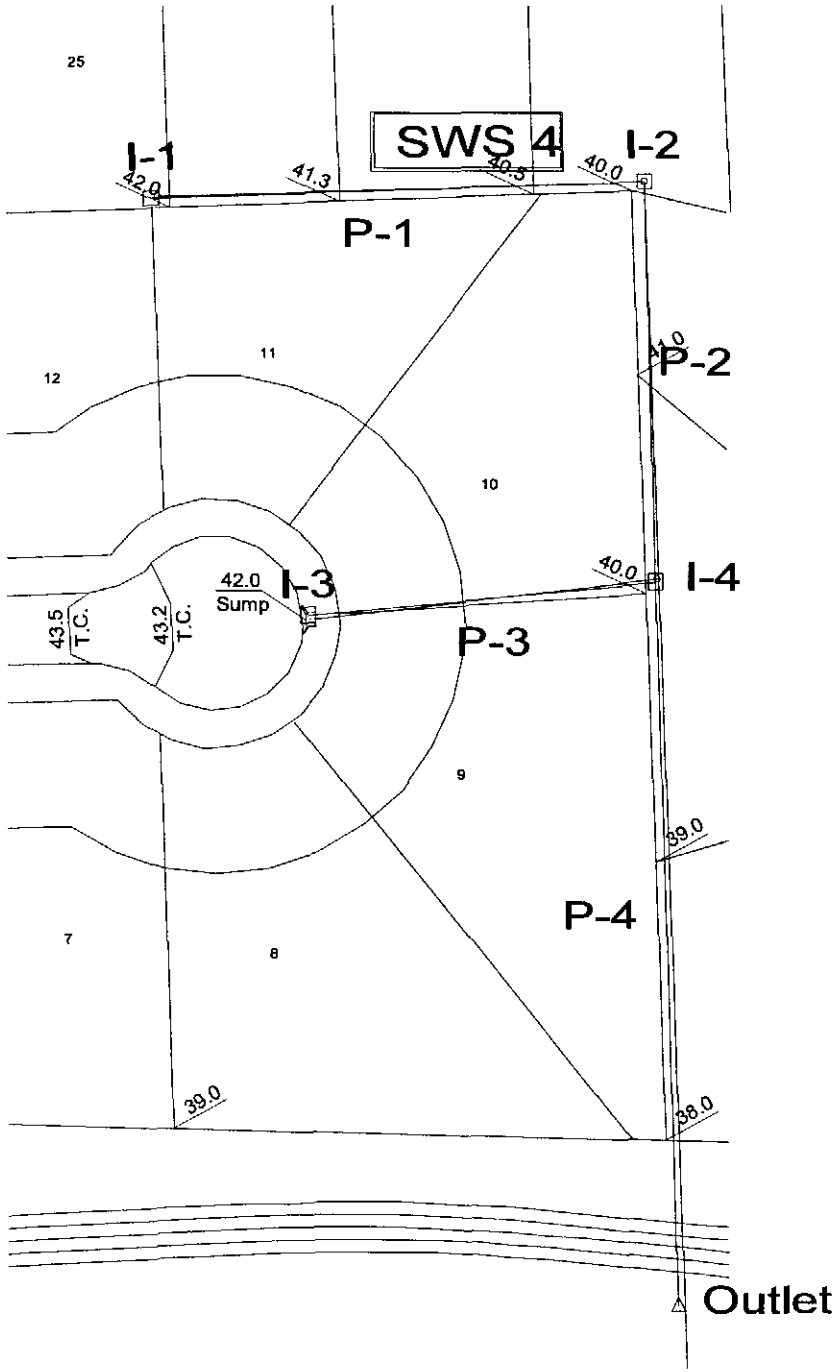

Inlet: I-3
Rim: 57.00 ft
Sump: 52.00 ft
Outlet: Outlet
Rim: 53.00 ft
Sump: 50.00 ft
Inlet: I-4
Rim: 57.00 ft
Sump: 51.90 ft
Inlet: I-2
Rim: 58.00 ft
Sump: 53.00 ft
Inlet: I-1
Rim: 61.00 ft
Sump: 55.00 ft
62.00
60.00
58.00
56.00
54.00
52.00
50.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
Station ft
Pipe: P-4
Up Invert: 51.90 ft
Dn Invert: 50.00 ft
Length: 223.00 ft
Size: 30 inch
Pipe: P-3
Up Invert: 52.00 ft
Dn Invert: 51.90 ft
Length: 35.00 ft
Size: 30 inch
Pipe: P-2
Up Invert: 53.00 ft
Dn Invert: 52.00 ft
Length: 166.00 ft
Size: 30 inch
Pipe: P-1
Up Invert: 55.00 ft
Dn Invert: 53.00 ft
Length: 334.00 ft
Size: 30 inch

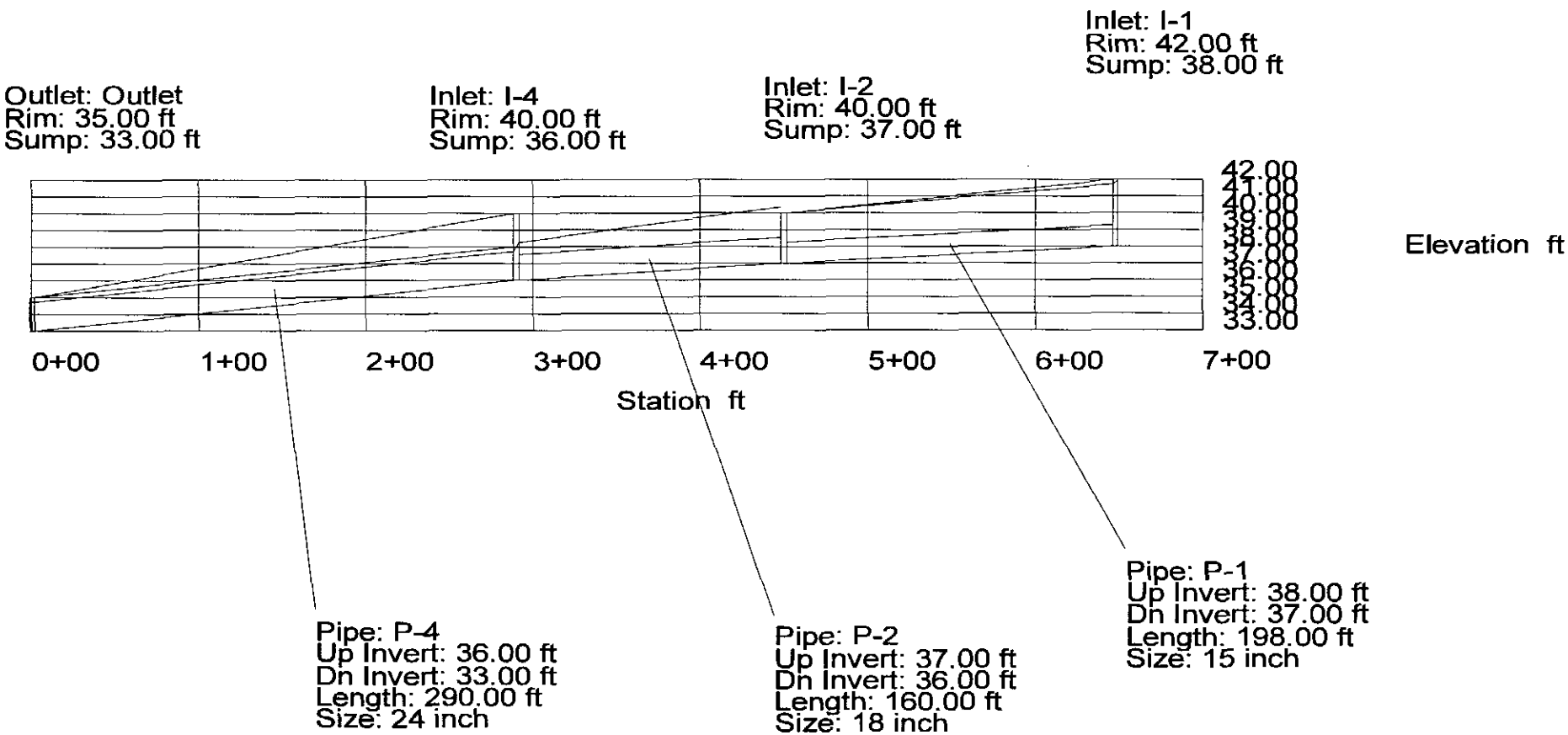

Inlet: I-3
Rim: 57.00 ft
Sump: 52.00 ft
Outlet: Outlet
Rim: 53.00 ft
Sump: 50.00 ft
Inlet: I-4
Rim: 57.00 ft
Sump: 51.90 ft
Inlet: I-2
Rim: 58.00 ft
Sump: 53.00 ft
Inlet: I-1
Rim: 61.00 ft
Sump: 55.00 ft
62.00
60.00
58.00
56.00
54.00
52.00
50.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
Station ft
Pipe: P-4
Up Invert: 51.90 ft
Dn Invert: 50.00 ft
Length: 223.00 ft
Size: 30 inch
Pipe: P-2
Up Invert: 53.00 ft
Dn Invert: 52.00 ft
Length: 166.00 ft
Size: 30 inch
Pipe: P-1
Up Invert: 55.00 ft
Dn Invert: 53.00 ft
Length: 334.00 ft
Size: 30 inch
Pipe: P-3
Up Invert: 52.00 ft
Dn Invert: 51.90 ft
Length: 35.00 ft
Size: 30 inch

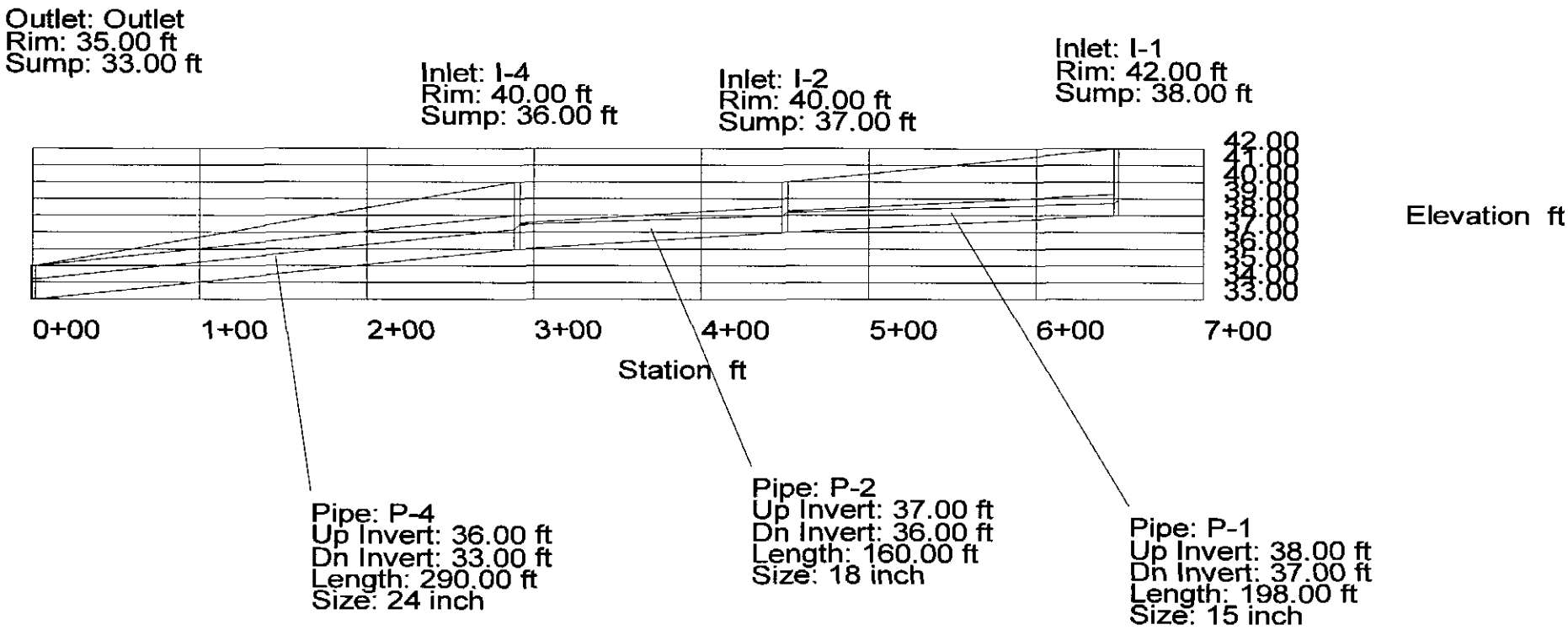

6"PVC
E=1347.46
I-1
I-2
I-3
I-4
I-5
I-6
I-7
I-8
I-9
SWS 3
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
Outlet
JEWELL
JEWELL CT.
LIBERTY CT.
LIBERTY CT.

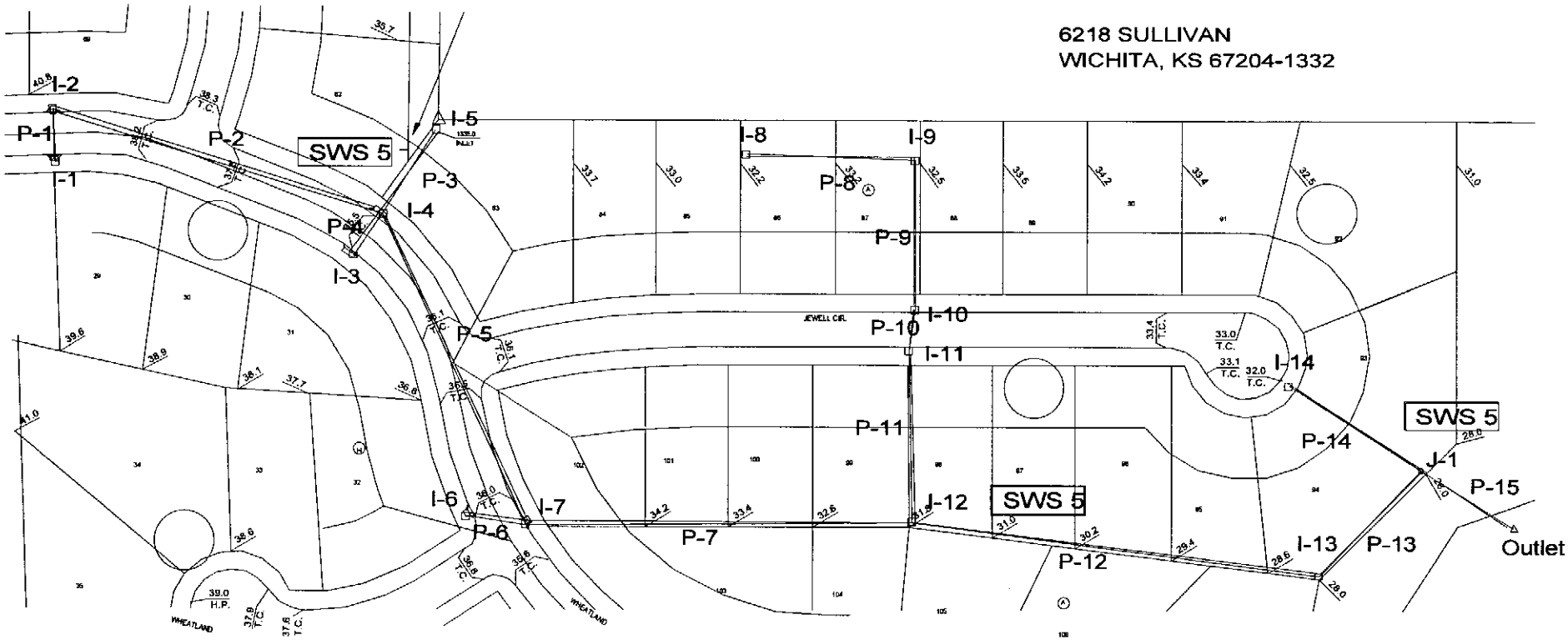

Inlet: I-8
Rim: 45.00 ft
Sump: 40.10 ft
Inlet: I-5
Rim: 49.50 ft
Sump: 43.80 ft
Inlet: I-2
Rim: 50.00 ft
Sump: 44.70 ft
Inlet: I-1
Rim: 49.00 ft
Sump: 45.00 ft
Outlet: Outlet
Rim: 40.00 ft
Sump: 39.50 ft
Inlet: I-9
Rim: 45.00 ft
Sump: 40.00 ft
Inlet: I-7
Rim: 47.00 ft
Sump: 43.00 ft
Inlet: I-6
Rim: 49.50 ft
Sump: 43.70 ft
Inlet: I-4
Rim: 48.50 ft
Sump: 44.10 ft
Inlet: I-3
Rim: 50.00 ft
Sump: 44.60 ft
50.00
48.00
46.00
44.00
42.00
40.00
38.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
Station ft
Pipe: P-9
Up Invert: 40.00 ft
Dn Invert: 39.50 ft
Length: 221.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 40.10 ft
Dn Invert: 40.00 ft
Length: 38.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 43.00 ft
Dn Invert: 40.10 ft
Length: 159.00 ft
Size: 36 inch
Pipe: P-6
Up Invert: 43.70 ft
Dn Invert: 43.40 ft
Length: 159.00 ft
Size: 30 inch
Pipe: P-5
Up Invert: 43.80 ft
Dn Invert: 43.70 ft
Length: 46.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 44.10 ft
Dn Invert: 43.80 ft
Length: 161.00 ft
Size: 24 inch
Pipe: P-3
Up Invert: 44.60 ft
Dn Invert: 44.10 ft
Length: 145.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 44.70 ft
Dn Invert: 44.60 ft
Length: 36.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 45.00 ft
Dn Invert: 44.70 ft
Length: 165.00 ft
Size: 15 inch

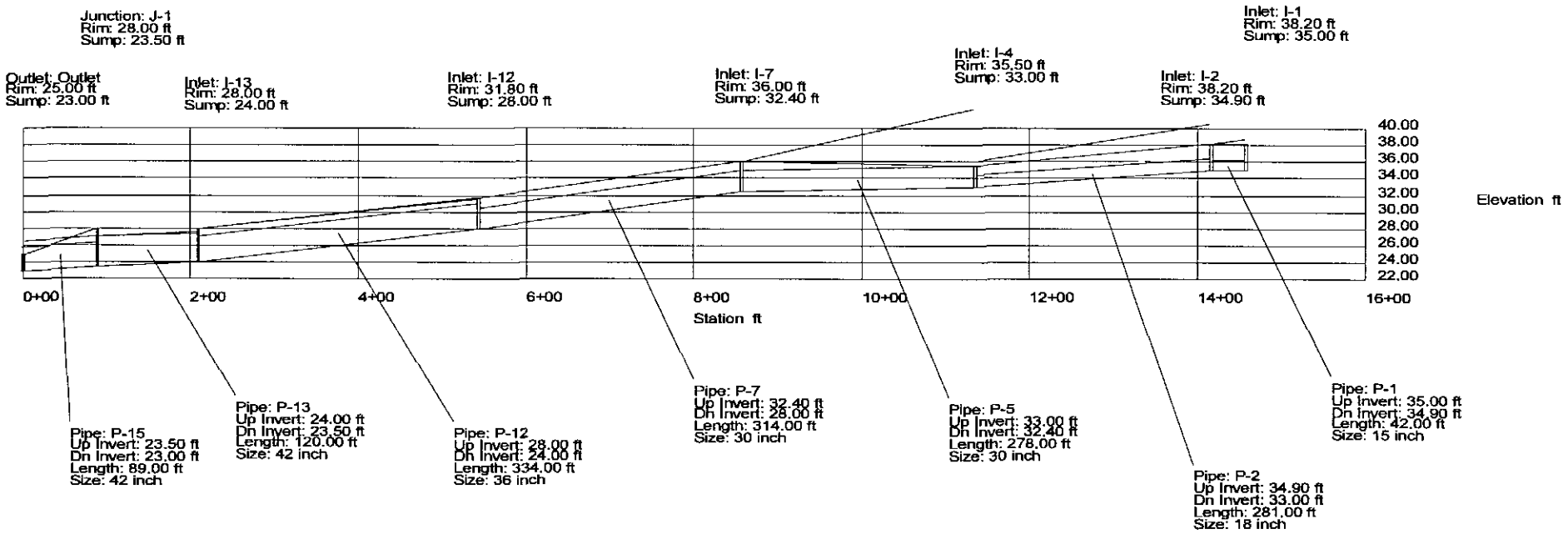

Inlet: I-8
Rim: 45.00 ft
Sump: 40.10 ft
Inlet: I-5
Rim: 49.50 ft
Sump: 43.80 ft
Inlet: I-2
Rim: 50.00 ft
Sump: 44.70 ft
Outlet: Outlet
Rim: 40.00 ft
Sump: 39.50 ft
Inlet: I-9
Rim: 45.00 ft
Sump: 40.00 ft
Inlet: I-7
Rim: 47.00 ft
Sump: 43.00 ft
Inlet: I-6
Rim: 49.50 ft
Sump: 43.70 ft
Inlet: I-4
Rim: 48.50 ft
Sump: 44.10 ft
Inlet: I-3
Rim: 50.00 ft
Sump: 44.60 ft
Inlet: I-1
Rim: 49.00 ft
Sump: 45.00 ft
50.00
48.00
46.00
44.00
42.00
40.00
38.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
Station ft
Pipe: P-9
Up Invert: 40.00 ft
Dn Invert: 39.50 ft
Length: 221.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 40.10 ft
Dn Invert: 40.00 ft
Length: 38.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 43.00 ft
Dn Invert: 40.10 ft
Length: 159.00 ft
Size: 36 inch
Pipe: P-6
Up Invert: 43.70 ft
Dn Invert: 43.40 ft
Length: 159.00 ft
Size: 30 inch
Pipe: P-5
Up Invert: 43.80 ft
Dn Invert: 43.70 ft
Length: 46.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 44.10 ft
Dn Invert: 43.80 ft
Length: 161.00 ft
Size: 24 inch
Pipe: P-3
Up Invert: 44.60 ft
Dn Invert: 44.10 ft
Length: 145.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 44.70 ft
Dn Invert: 44.60 ft
Length: 36.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 45.00 ft
Dn Invert: 44.70 ft
Length: 165.00 ft
Size: 15 inch

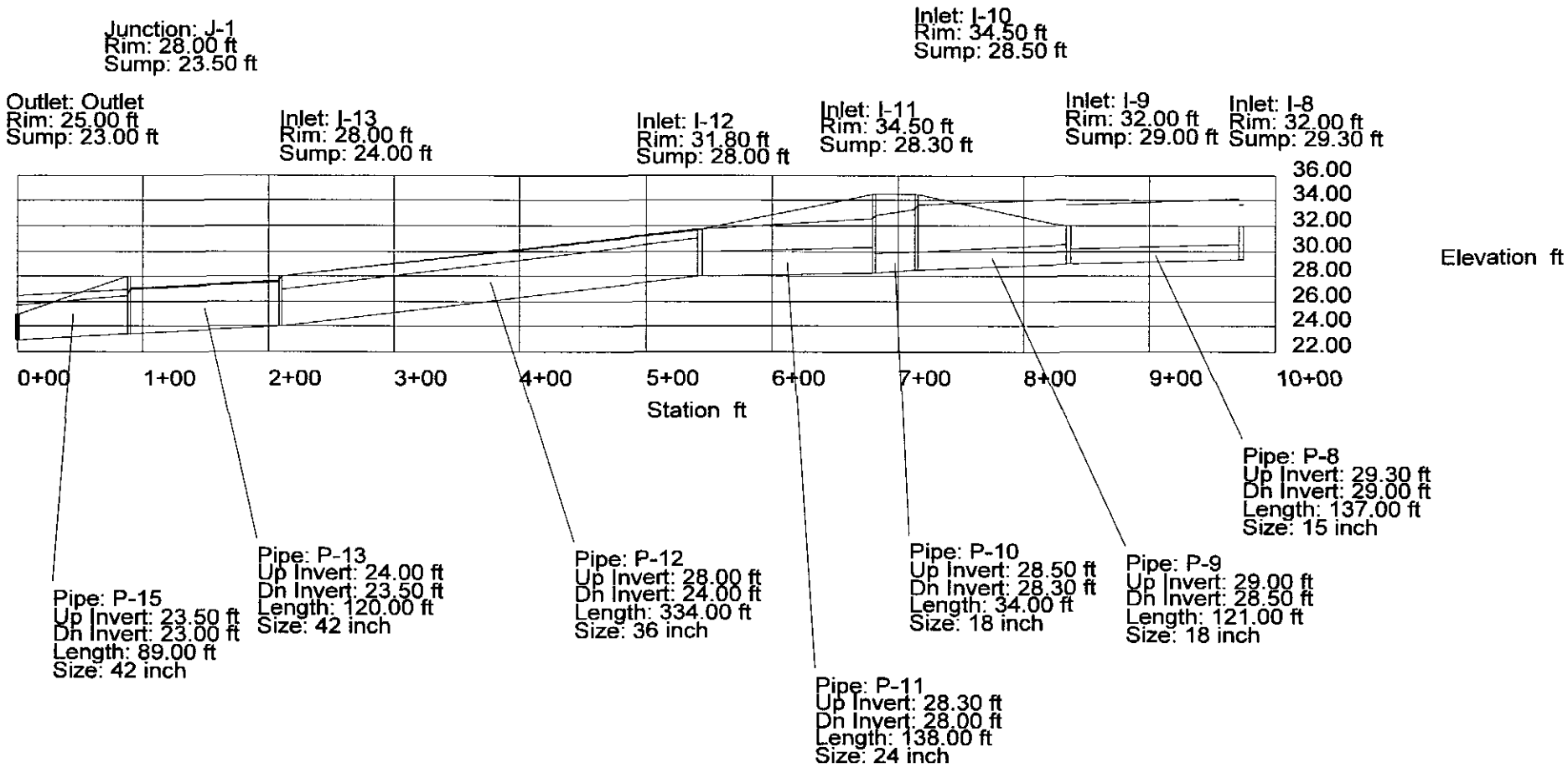

25
SWS 4
I-1
I-2
42.0
41.3
40.5
40.0
P-1
P-2
11
12
10
I-3
42.0
Sump
I-4
40.0
43.5
T.C.
43.2
T.C.
P-3
9
39.0
P-4
7
8
39.0
38.0
Outlet

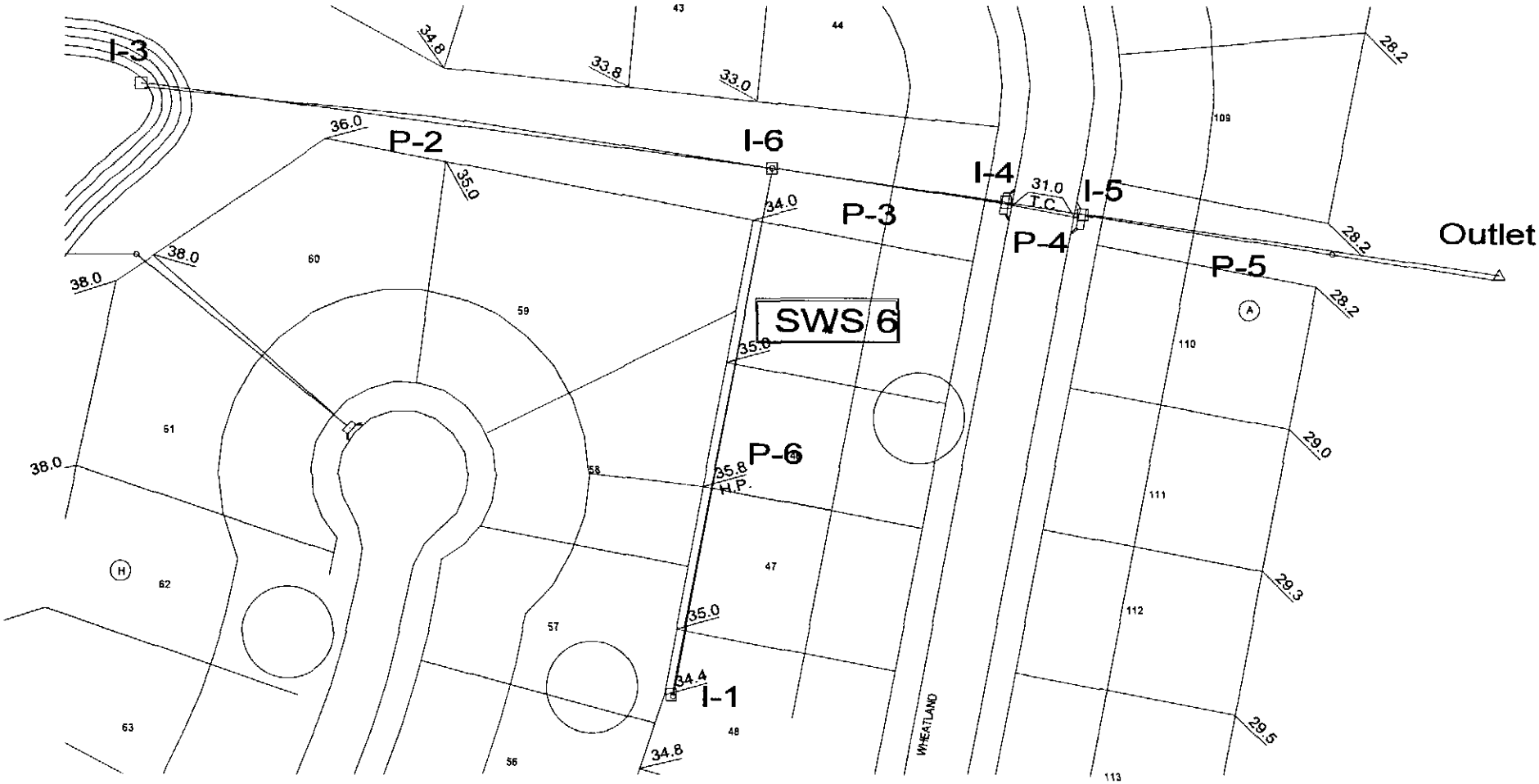

Inlet: I-1
Rim: 42.00 ft
Sump: 38.00 ft
Outlet: Outlet
Rim: 35.00 ft
Sump: 33.00 ft
Inlet: I-4
Rim: 40.00 ft
Sump: 36.00 ft
Inlet: I-2
Rim: 40.00 ft
Sump: 37.00 ft
42.00
41.00
40.00
39.00
38.00
37.00
36.00
35.00
34.00
33.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
Station ft
Pipe: P-4
Up Invert: 36.00 ft
Dn Invert: 33.00 ft
Length: 290.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 37.00 ft
Dn Invert: 36.00 ft
Length: 160.00 ft
Size: 18 inch
Pipe: P-1
Up Invert: 38.00 ft
Dn Invert: 37.00 ft
Length: 198.00 ft
Size: 15 inch

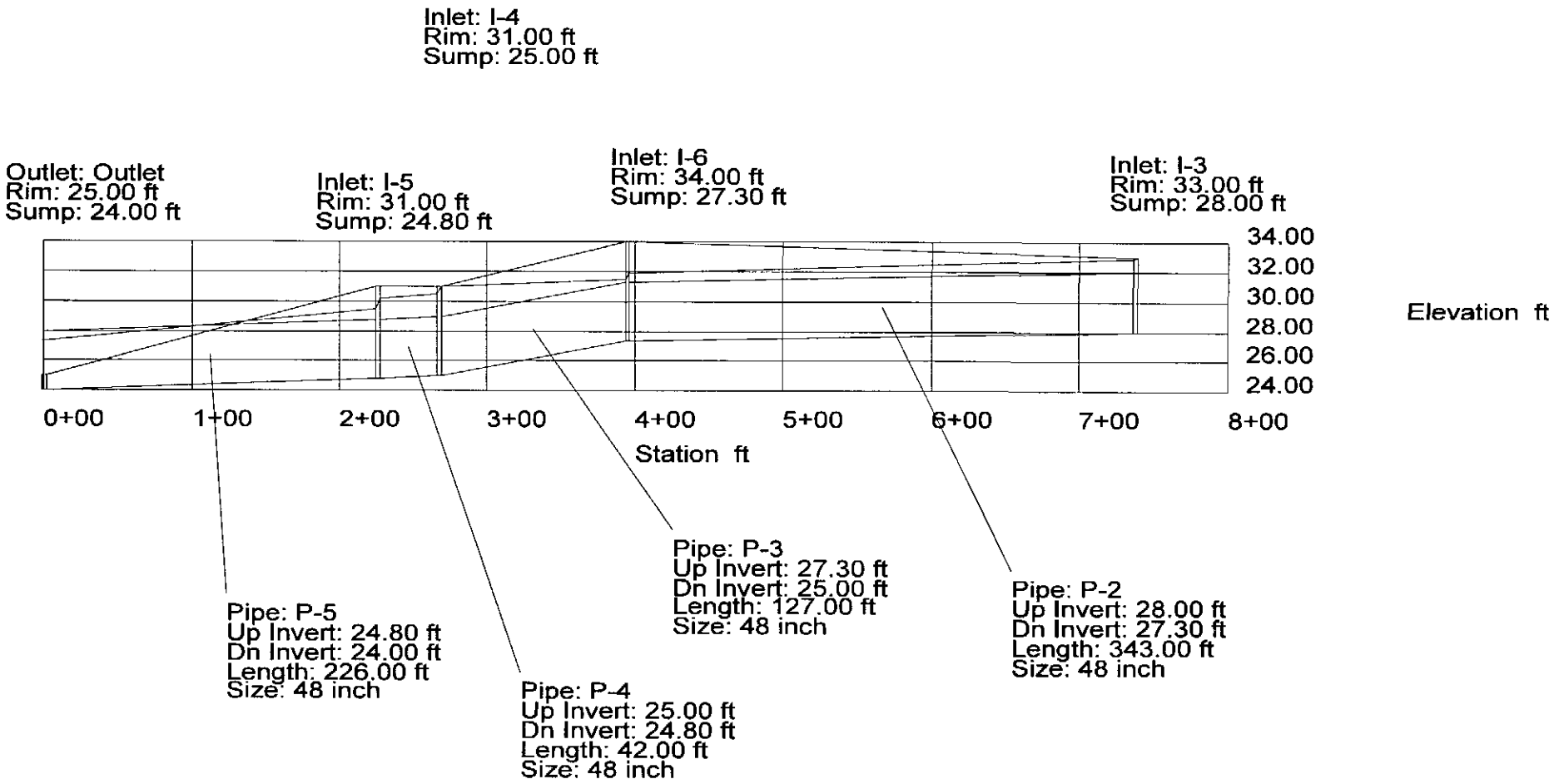

Outlet: Outlet
Rim: 35.00 ft
Sump: 33.00 ft
Inlet: I-4
Rim: 40.00 ft
Sump: 36.00 ft
Inlet: I-2
Rim: 40.00 ft
Sump: 37.00 ft
Inlet: I-1
Rim: 42.00 ft
Sump: 38.00 ft
42.00
41.00
40.00
39.00
38.00
37.00
36.00
35.00
34.00
33.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
Station ft
Pipe: P-4
Up Invert: 36.00 ft
Dn Invert: 33.00 ft
Length: 290.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 37.00 ft
Dn Invert: 36.00 ft
Length: 160.00 ft
Size: 18 inch
Pipe: P-1
Up Invert: 38.00 ft
Dn Invert: 37.00 ft
Length: 198.00 ft
Size: 15 inch

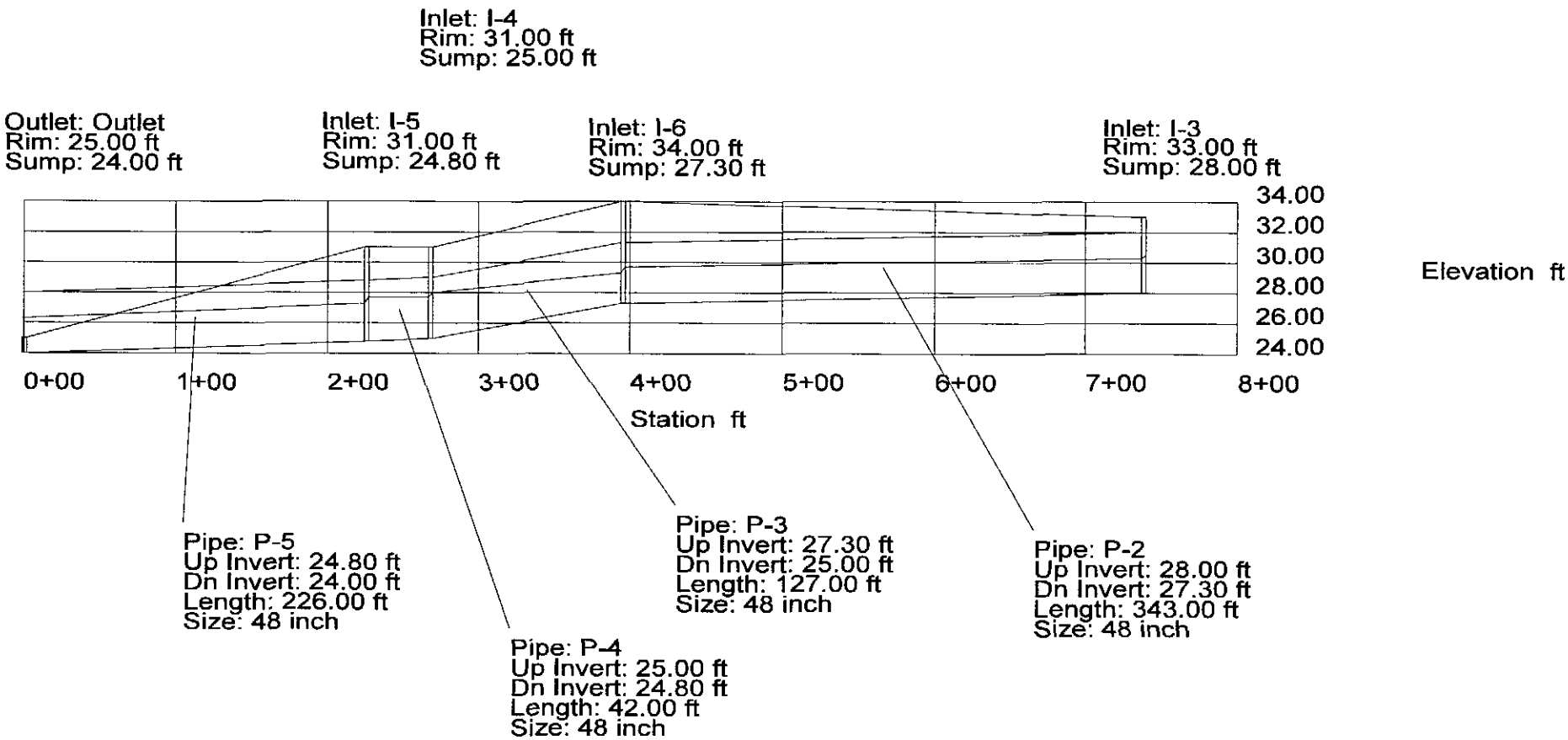

6218 SULLIVAN
WICHITA, KS 67204-1332
I-2
P-1
P-2
SWS 5
I-5
I-8
I-9
P-3
I-4
P-8
P-4
P-9
I-3
JEWELL CIR.
P-10
I-10
P-5
I-11
I-14
SWS 5
P-11
P-14
J-1
P-15
I-6
I-7
J-12
SWS 5
P-6
P-7
P-12
I-13
P-13
Outlet
WHEATLAND
WHEATLAND

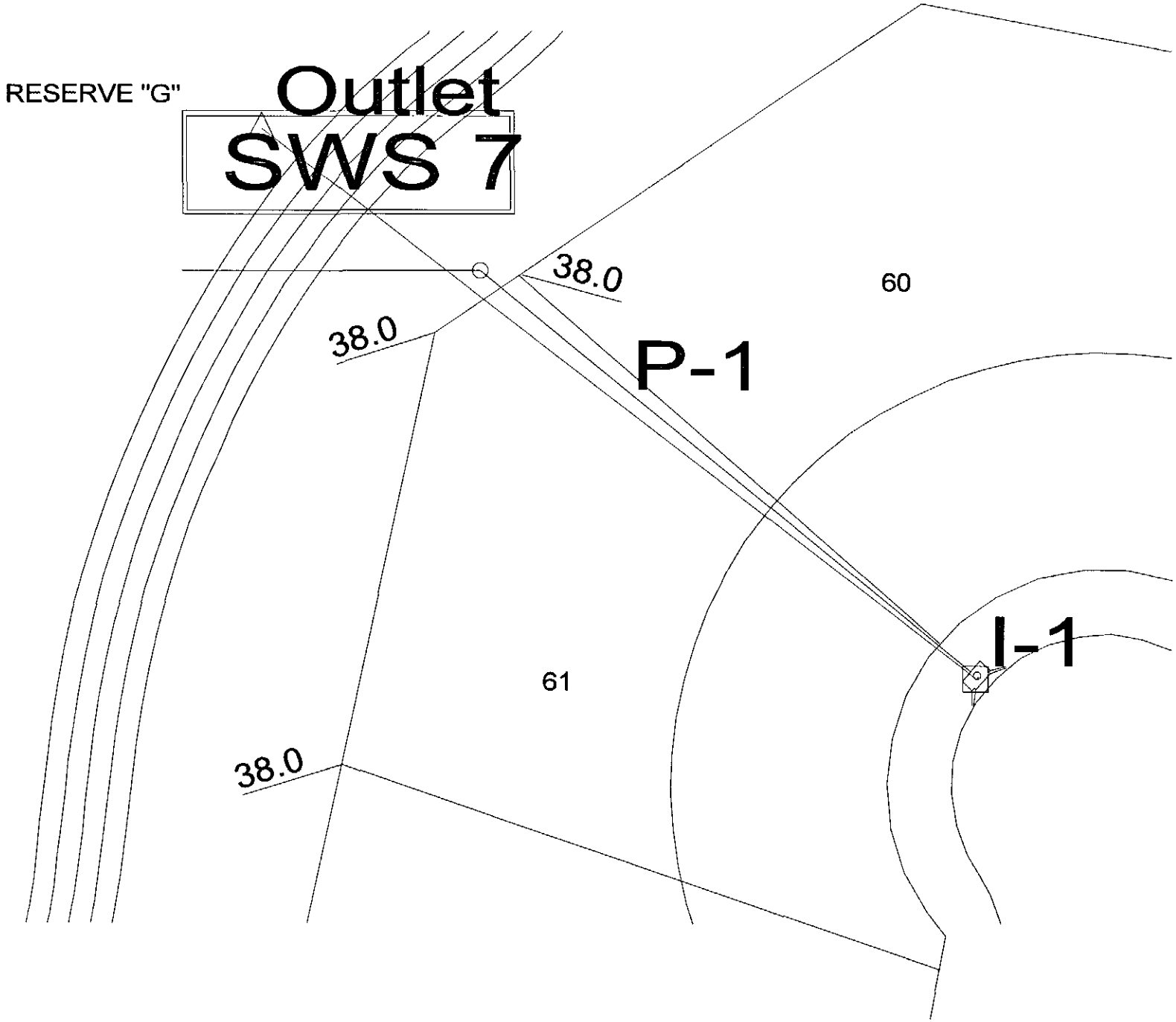



Junction: J-1
Rim: 28.00 ft
Sump: 23.50 ft
Inlet: I-10
Rim: 34.50 ft
Sump: 28.50 ft
Outlet: Outlet
Rim: 25.00 ft
Sump: 23.00 ft
Inlet: I-13
Rim: 28.00 ft
Sump: 24.00 ft
Inlet: I-12
Rim: 31.80 ft
Sump: 28.00 ft
Inlet: I-11
Rim: 34.50 ft
Sump: 28.30 ft
Inlet: I-9
Rim: 32.00 ft
Sump: 29.00 ft
Inlet: I-8
Rim: 32.00 ft
Sump: 29.30 ft
36.00
34.00
32.00
30.00
28.00
26.00
24.00
22.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
Station ft
Pipe: P-15
Up Invert: 23.50 ft
Dn Invert: 23.00 ft
Length: 89.00 ft
Size: 42 inch
Pipe: P-13
Up Invert: 24.00 ft
Dn Invert: 23.50 ft
Length: 120.00 ft
Size: 42 inch
Pipe: P-12
Up Invert: 28.00 ft
Dn Invert: 24.00 ft
Length: 334.00 ft
Size: 36 inch
Pipe: P-11
Up Invert: 28.30 ft
Dn Invert: 28.00 ft
Length: 138.00 ft
Size: 24 inch
Pipe: P-10
Up Invert: 28.50 ft
Dn Invert: 28.30 ft
Length: 34.00 ft
Size: 18 inch
Pipe: P-9
Up Invert: 29.00 ft
Dn Invert: 28.50 ft
Length: 121.00 ft
Size: 18 inch
Pipe: P-8
Up Invert: 29.30 ft
Dn Invert: 29.00 ft
Length: 137.00 ft
Size: 15 inch


I-3
P-2
I-6
I-4
I-5
P-3
P-4
P-5
Outlet
SWS 6
P-6
I-1
WHEATLAND
34.8
33.8
33.0
36.0
35.0
34.0
31.0
T.C.
28.2
38.0
35.8
H.P.
29.0
29.3
29.5
34.4
43
44
109
110
111
112
113
60
59
58
57
56
51
62
63
47
48

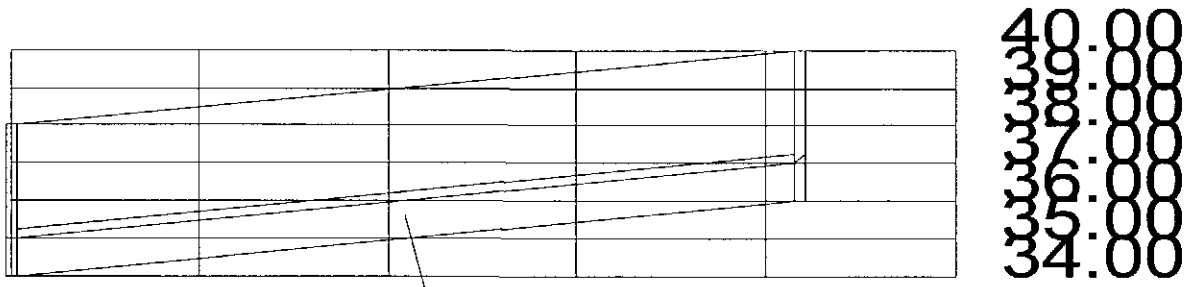

Inlet: I-4
Rim: 31.00 ft
Sump: 25.00 ft
Outlet: Outlet
Rim: 25.00 ft
Sump: 24.00 ft
Inlet: I-5
Rim: 31.00 ft
Sump: 24.80 ft
Inlet: I-6
Rim: 34.00 ft
Sump: 27.30 ft
Inlet: I-3
Rim: 33.00 ft
Sump: 28.00 ft
34.00
32.00
30.00
28.00
26.00
24.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
Station ft
Pipe: P-5
Up Invert: 24.80 ft
Dn Invert: 24.00 ft
Length: 226.00 ft
Size: 48 inch
Pipe: P-4
Up Invert: 25.00 ft
Dn Invert: 24.80 ft
Length: 42.00 ft
Size: 48 inch
Pipe: P-3
Up Invert: 27.30 ft
Dn Invert: 25.00 ft
Length: 127.00 ft
Size: 48 inch
Pipe: P-2
Up Invert: 28.00 ft
Dn Invert: 27.30 ft
Length: 343.00 ft
Size: 48 inch


Inlet: I-4
Rim: 31.00 ft
Sump: 25.00 ft
Outlet: Outlet
Rim: 25.00 ft
Sump: 24.00 ft
Inlet: I-5
Rim: 31.00 ft
Sump: 24.80 ft
Inlet: I-6
Rim: 34.00 ft
Sump: 27.30 ft
Inlet: I-3
Rim: 33.00 ft
Sump: 28.00 ft
34.00
32.00
30.00
28.00
26.00
24.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
Station ft
Pipe: P-5
Up Invert: 24.80 ft
Dn Invert: 24.00 ft
Length: 226.00 ft
Size: 48 inch
Pipe: P-4
Up Invert: 25.00 ft
Dn Invert: 24.80 ft
Length: 42.00 ft
Size: 48 inch
Pipe: P-3
Up Invert: 27.30 ft
Dn Invert: 25.00 ft
Length: 127.00 ft
Size: 48 inch
Pipe: P-2
Up Invert: 28.00 ft
Dn Invert: 27.30 ft
Length: 343.00 ft
Size: 48 inch


RESERVE "G"
Outlet
SWS 7
38.0
60
38.0
P-1
I-1
61
38.0

Outlet: Outlet
Rim: 38.00 ft
Sump: 34.00 ft

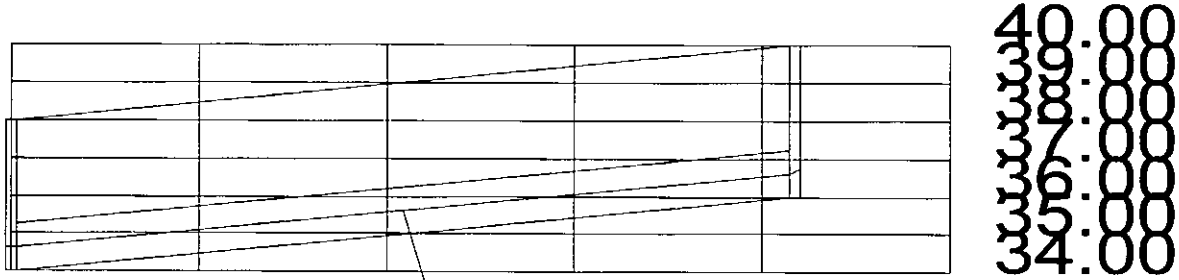
Inlet: I-1
Rim: 40.00 ft
Sump: 36.00 ft



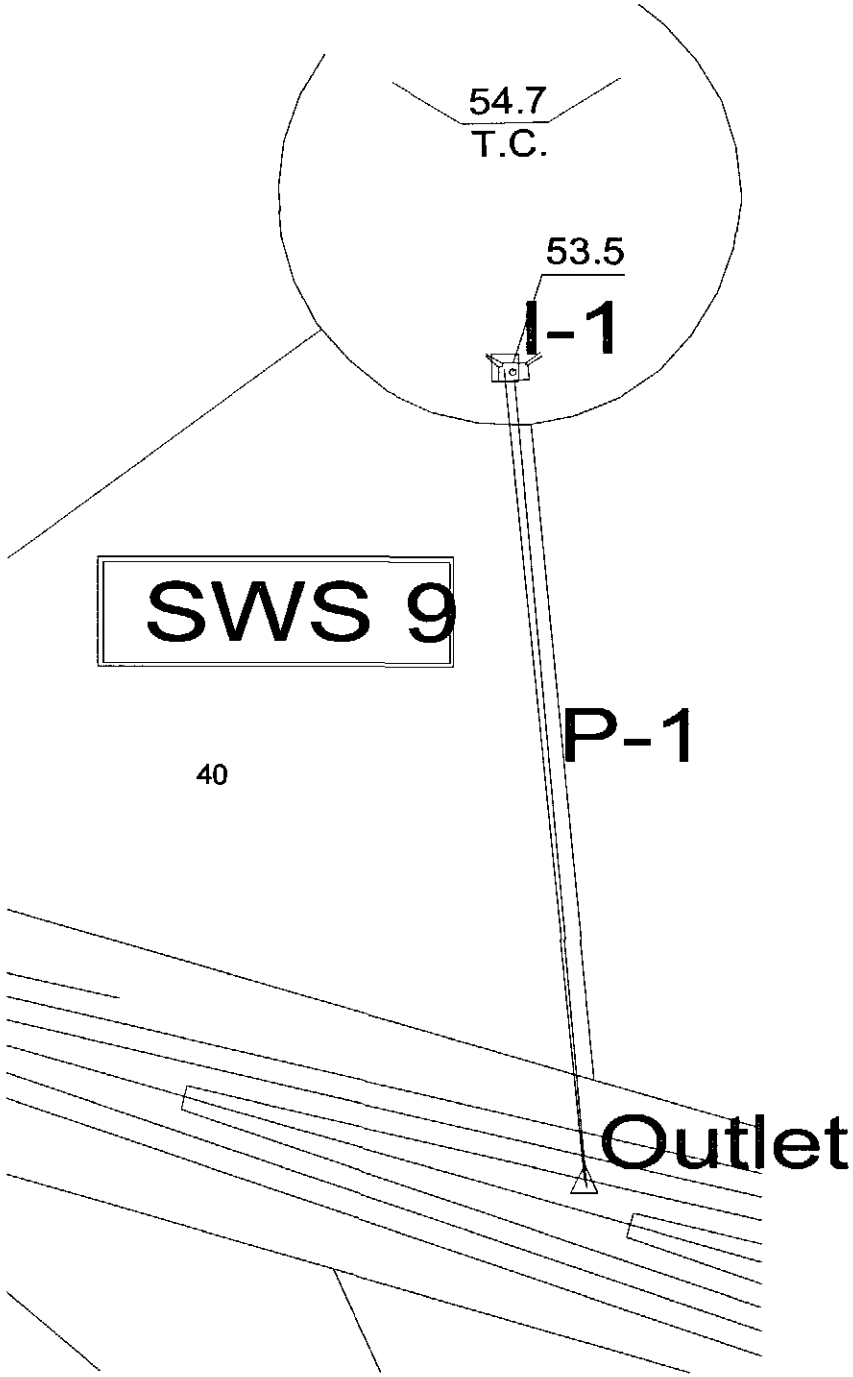
Pipe: P-1
Up Invert: 36.00 ft
Dn Invert: 34.00 ft
Length: 209.00 ft
Size: 15 inch

Inlet: I-1
Rim: 40.00 ft
Sump: 36.00 ft

Outlet: Outlet
Rim: 38.00 ft
Sump: 34.00 ft

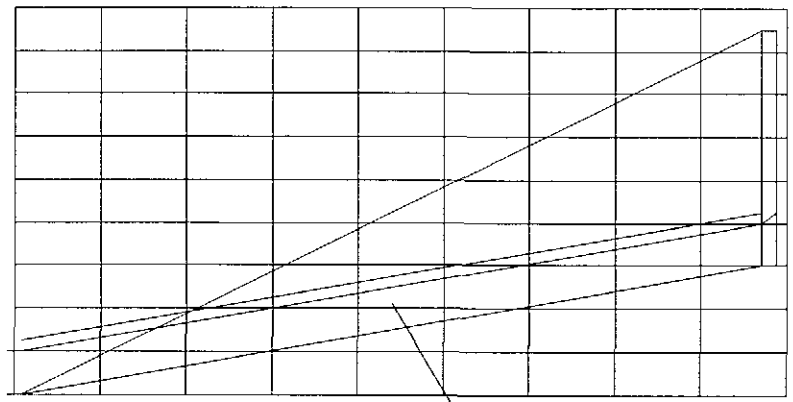


Pipe: P-1
Up Invert: 36.00 ft
Dn Invert: 34.00 ft
Length: 209.00 ft
Size: 15 inch


54.7
T.C.
53.5
I-1
SWS 9
P-1
40
Outlet

Outlet: Outlet
Rim: 45.00 ft
Sump: 45.00 ft

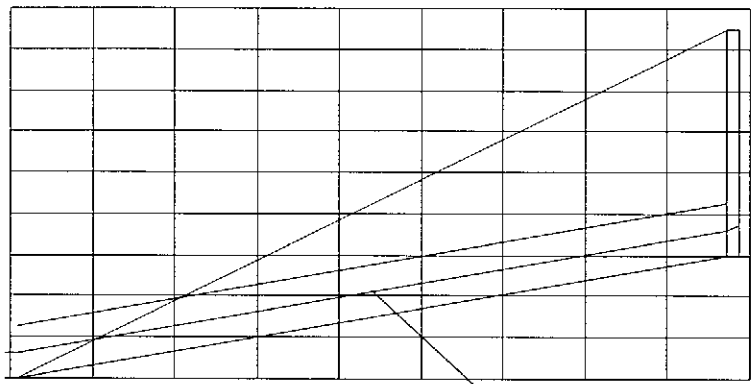
Inlet: I-1
Rim: 53.50 ft
Sump: 48.00 ft



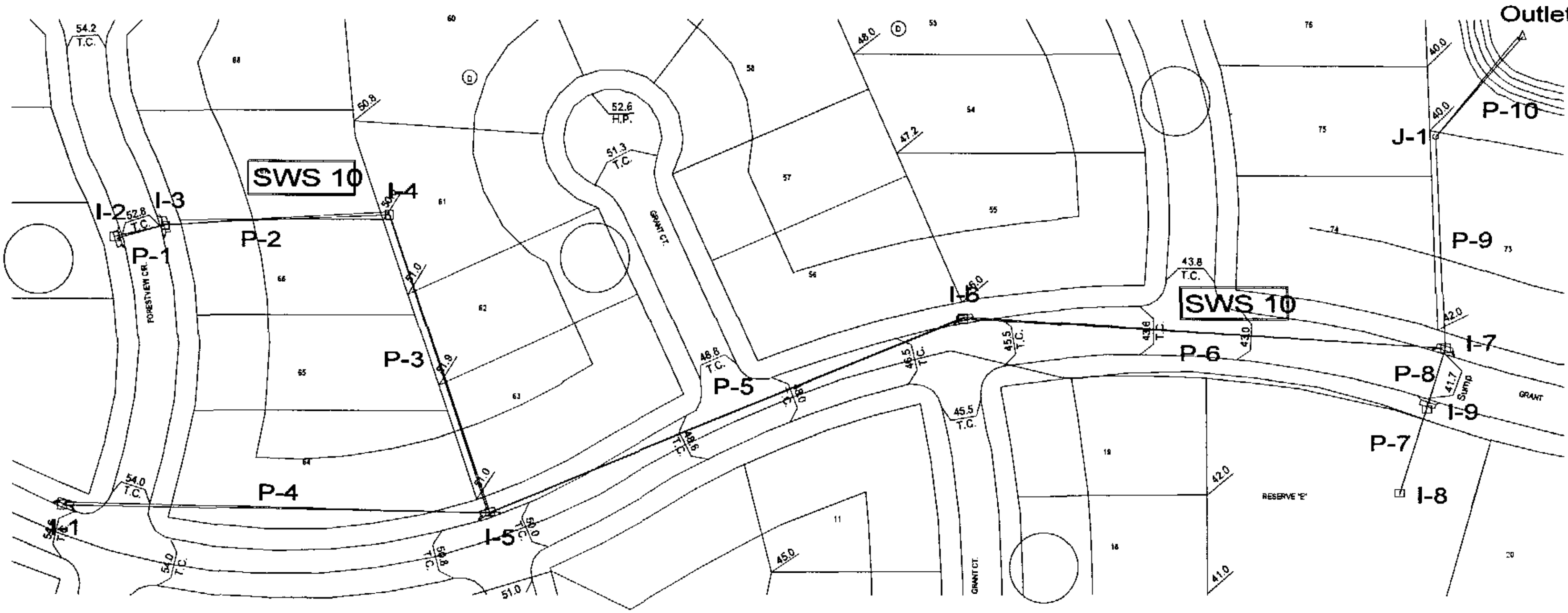
Pipe: P-1
Up Invert: 48.00 ft
Dn Invert: 45.00 ft
Length: 176.00 ft
Size: 15 inch

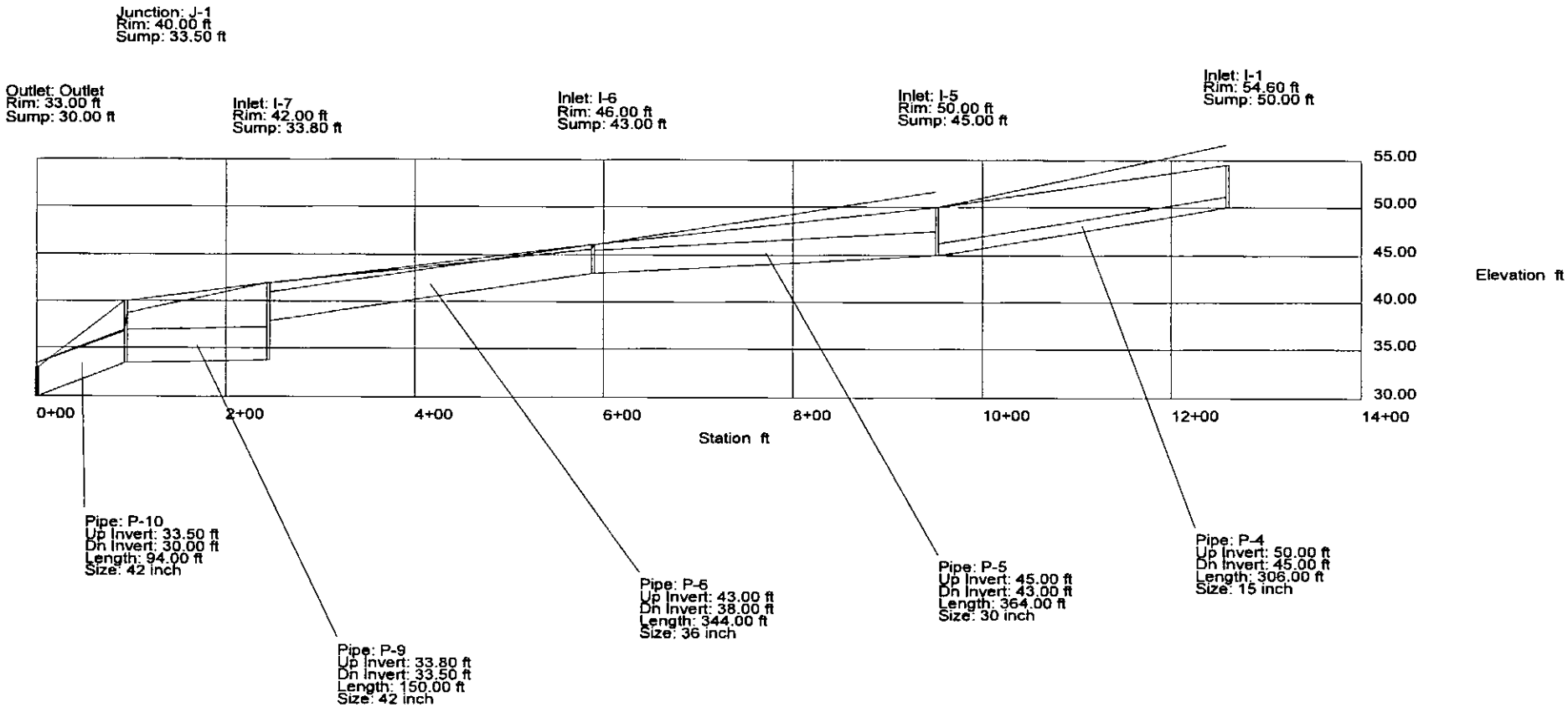
Outlet: Outlet
Rim: 45.00 ft
Sump: 45.00 ft

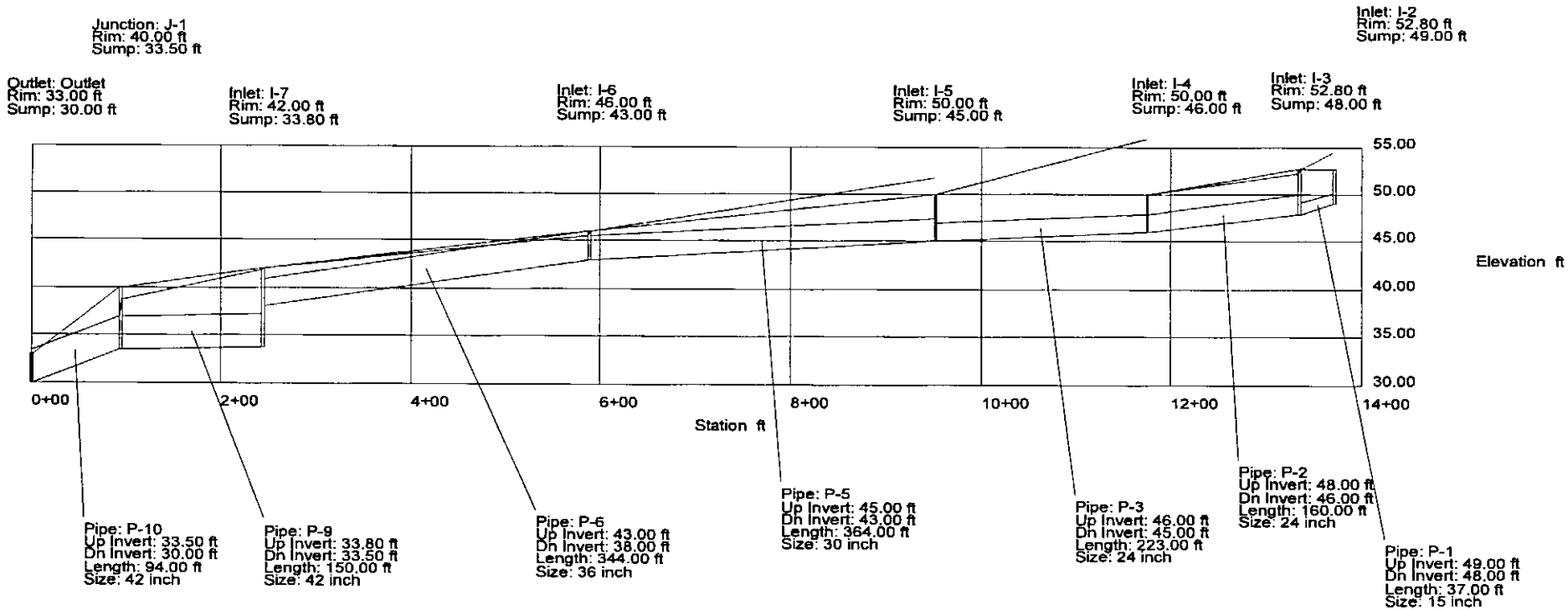
Inlet: I-1
Rim: 53.50 ft
Sump: 48.00 ft

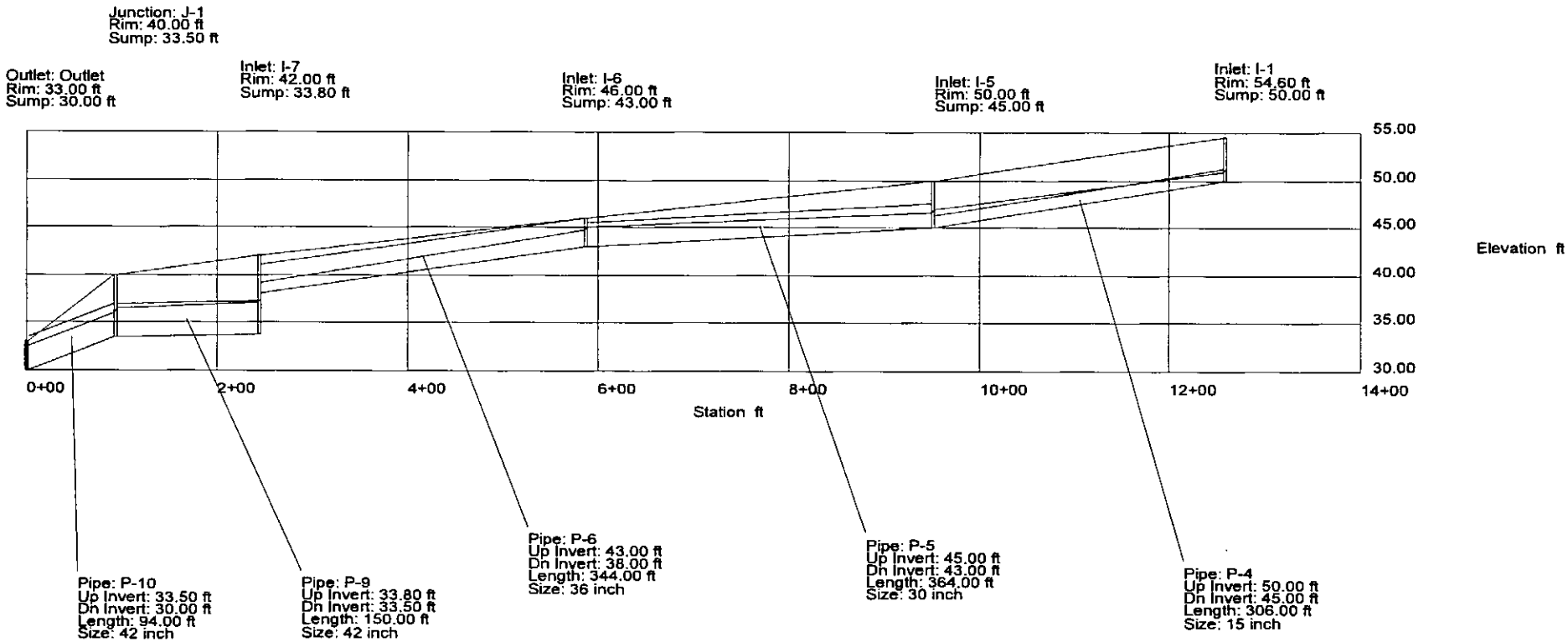


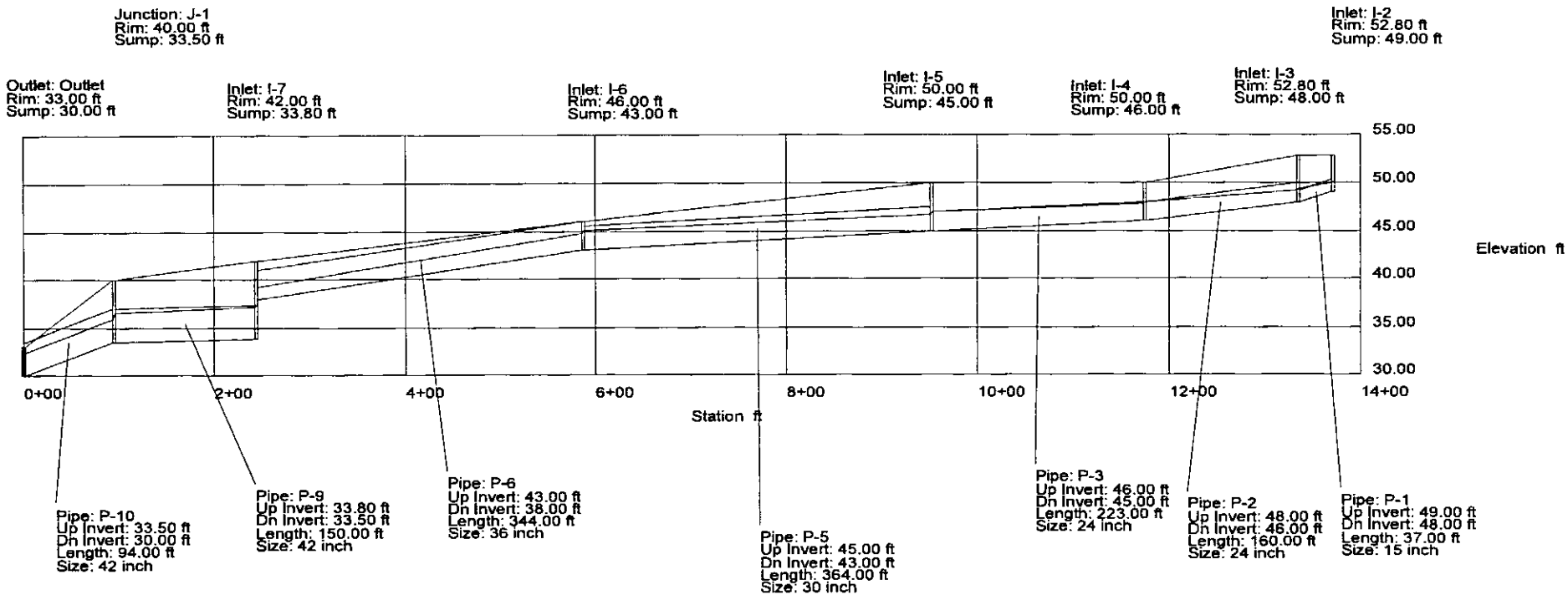
Pipe: P-1
Up Invert: 48.00 ft
Dn Invert: 45.00 ft
Length: 176.00 ft
Size: 15 inch

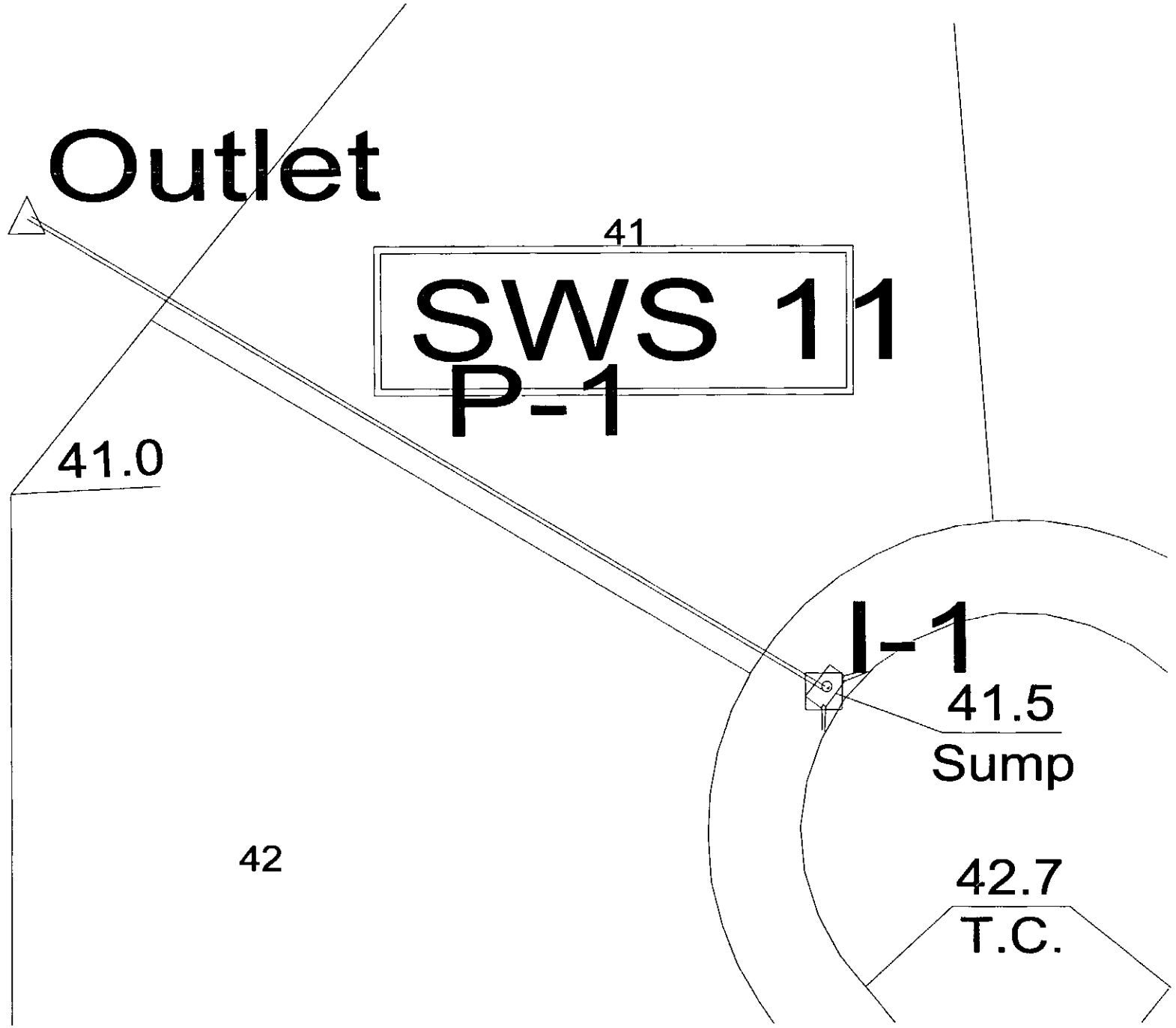

Outlet
P-10
J-1
P-9
I-7
P-8
I-9
P-7
I-8
P-6
SWS 10
I-6
P-5
I-5
P-4
I-1
P-3
I-4
SWS 10
P-2
I-3
I-2
P-1
GRANT CT.
FORESTVIEW CIR.
RESERVE "E"
52.6
H.P.
51.3
T.C.
43.8
T.C.
54.2
T.C.
54.0
T.C.
Sump


Junction: J-1
Rim: 40.00 ft
Sump: 33.50 ft
Outlet: Outlet
Rim: 33.00 ft
Sump: 30.00 ft
Inlet: I-7
Rim: 42.00 ft
Sump: 33.80 ft
Inlet: I-6
Rim: 46.00 ft
Sump: 43.00 ft
Inlet: I-5
Rim: 50.00 ft
Sump: 45.00 ft
Inlet: I-1
Rim: 54.60 ft
Sump: 50.00 ft
55.00
50.00
45.00
40.00
35.00
30.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
Station ft
Pipe: P-10
Up Invert: 33.50 ft
Dn Invert: 30.00 ft
Length: 94.00 ft
Size: 42 inch
Pipe: P-9
Up Invert: 33.80 ft
Dn Invert: 33.50 ft
Length: 150.00 ft
Size: 42 inch
Pipe: P-6
Up Invert: 43.00 ft
Dn Invert: 38.00 ft
Length: 344.00 ft
Size: 36 inch
Pipe: P-5
Up Invert: 45.00 ft
Dn Invert: 43.00 ft
Length: 364.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 50.00 ft
Dn Invert: 45.00 ft
Length: 306.00 ft
Size: 15 inch


Junction: J-1
Rim: 40.00 ft
Sump: 33.50 ft
Inlet: I-2
Rim: 52.80 ft
Sump: 49.00 ft
Outlet: Outlet
Rim: 33.00 ft
Sump: 30.00 ft
Inlet: I-7
Rim: 42.00 ft
Sump: 33.80 ft
Inlet: I-6
Rim: 46.00 ft
Sump: 43.00 ft
Inlet: I-5
Rim: 50.00 ft
Sump: 45.00 ft
Inlet: I-4
Rim: 50.00 ft
Sump: 46.00 ft
Inlet: I-3
Rim: 52.80 ft
Sump: 48.00 ft
55.00
50.00
45.00
40.00
35.00
30.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
Station ft
Pipe: P-10
Up Invert: 33.50 ft
Dn Invert: 30.00 ft
Length: 94.00 ft
Size: 42 inch
Pipe: P-9
Up Invert: 33.80 ft
Dn Invert: 33.50 ft
Length: 150.00 ft
Size: 42 inch
Pipe: P-6
Up Invert: 43.00 ft
Dn Invert: 38.00 ft
Length: 344.00 ft
Size: 36 inch
Pipe: P-5
Up Invert: 45.00 ft
Dn Invert: 43.00 ft
Length: 364.00 ft
Size: 30 inch
Pipe: P-3
Up Invert: 46.00 ft
Dn Invert: 45.00 ft
Length: 223.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 48.00 ft
Dn Invert: 46.00 ft
Length: 160.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 49.00 ft
Dn Invert: 48.00 ft
Length: 37.00 ft
Size: 15 inch

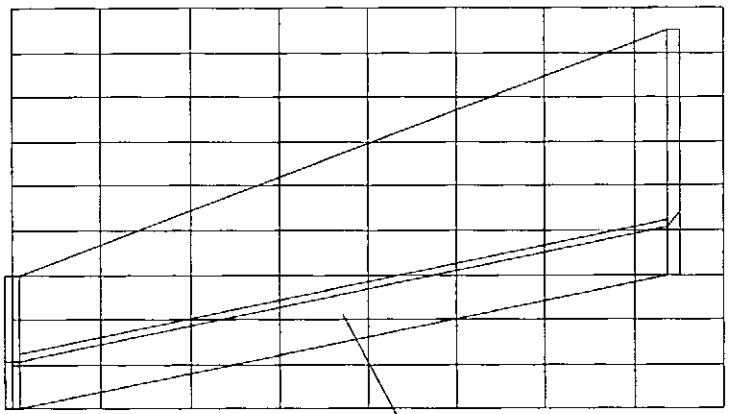

Junction: J-1
Rim: 40.00 ft
Sump: 33.50 ft
Outlet: Outlet
Rim: 33.00 ft
Sump: 30.00 ft
Inlet: I-7
Rim: 42.00 ft
Sump: 33.80 ft
Inlet: I-6
Rim: 46.00 ft
Sump: 43.00 ft
Inlet: I-5
Rim: 50.00 ft
Sump: 45.00 ft
Inlet: I-1
Rim: 54.60 ft
Sump: 50.00 ft
55.00
50.00
45.00
40.00
35.00
30.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
Station ft
Pipe: P-10
Up Invert: 33.50 ft
Dn Invert: 30.00 ft
Length: 94.00 ft
Size: 42 inch
Pipe: P-9
Up Invert: 33.80 ft
Dn Invert: 33.50 ft
Length: 150.00 ft
Size: 42 inch
Pipe: P-6
Up Invert: 43.00 ft
Dn Invert: 38.00 ft
Length: 344.00 ft
Size: 36 inch
Pipe: P-5
Up Invert: 45.00 ft
Dn Invert: 43.00 ft
Length: 364.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 50.00 ft
Dn Invert: 45.00 ft
Length: 306.00 ft
Size: 15 inch


Junction: J-1
Rim: 40.00 ft
Sump: 33.50 ft
Inlet: I-2
Rim: 52.80 ft
Sump: 49.00 ft
Outlet: Outlet
Rim: 33.00 ft
Sump: 30.00 ft
Inlet: I-7
Rim: 42.00 ft
Sump: 33.80 ft
Inlet: I-6
Rim: 46.00 ft
Sump: 43.00 ft
Inlet: I-5
Rim: 50.00 ft
Sump: 45.00 ft
Inlet: I-4
Rim: 50.00 ft
Sump: 46.00 ft
Inlet: I-3
Rim: 52.80 ft
Sump: 48.00 ft
55.00
50.00
45.00
40.00
35.00
30.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
Station ft
Pipe: P-10
Up Invert: 33.50 ft
Dn Invert: 30.00 ft
Length: 94.00 ft
Size: 42 inch
Pipe: P-9
Up Invert: 33.80 ft
Dn Invert: 33.50 ft
Length: 150.00 ft
Size: 42 inch
Pipe: P-6
Up Invert: 43.00 ft
Dn Invert: 38.00 ft
Length: 344.00 ft
Size: 36 inch
Pipe: P-5
Up Invert: 45.00 ft
Dn Invert: 43.00 ft
Length: 364.00 ft
Size: 30 inch
Pipe: P-3
Up Invert: 46.00 ft
Dn Invert: 45.00 ft
Length: 223.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 48.00 ft
Dn Invert: 46.00 ft
Length: 160.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 49.00 ft
Dn Invert: 48.00 ft
Length: 37.00 ft
Size: 15 inch


Outlet
41
SWS 11
P-1
41.0
I-1
41.5
Sump
42
42.7
T.C.

Outlet: Outlet
Rim: 36.00 ft
Sump: 33.00 ft

Inlet: I-1
Rim: 41.50 ft
Sump: 36.00 ft



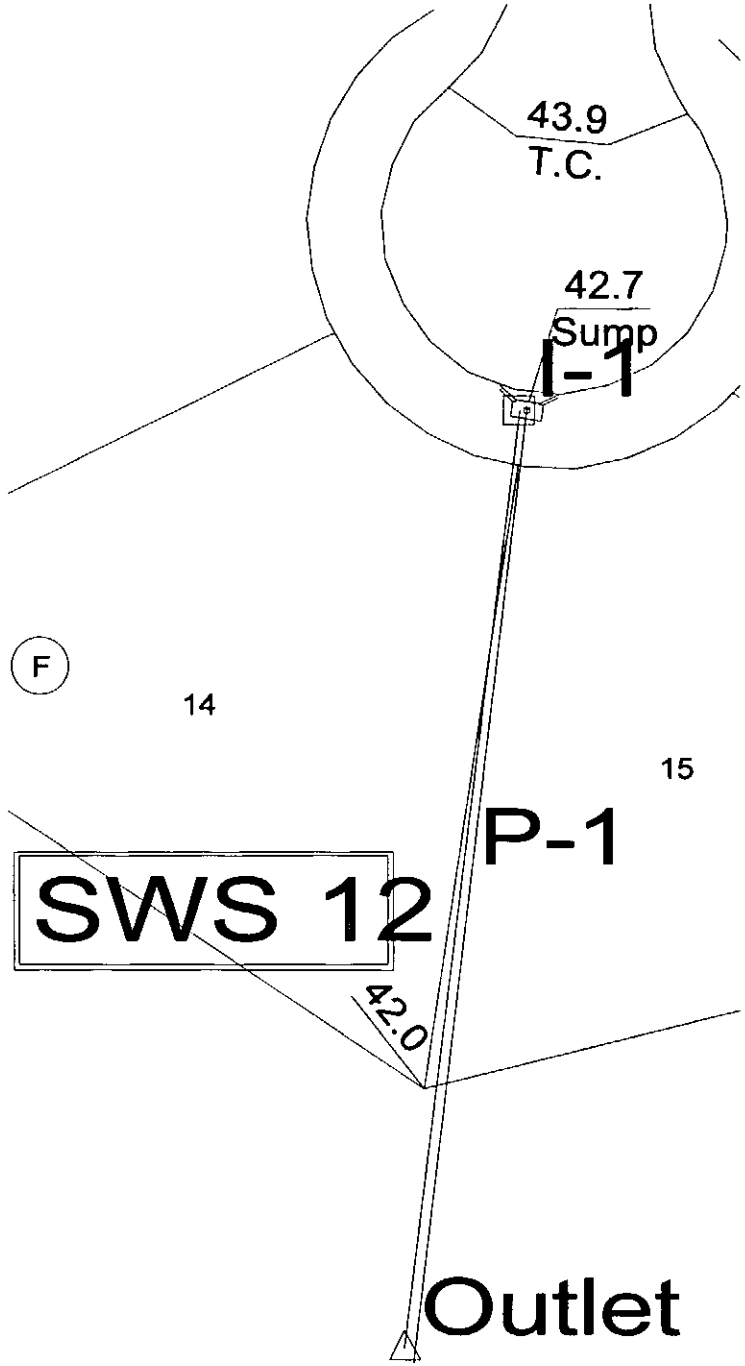
42.00
41.00
40.00
39.00
38.00
37.00
36.00
35.00
34.00
33.00

Elevation ft

0+00 02 04 06 08 10 12 14 60

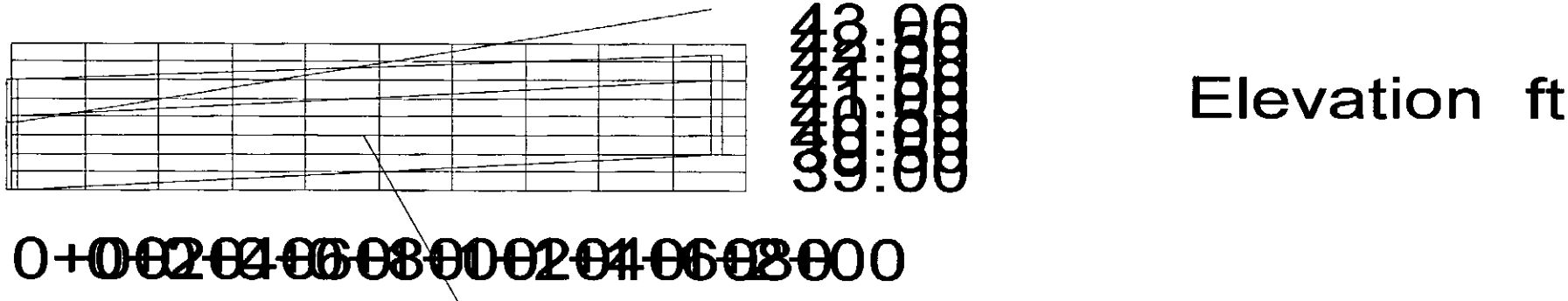
Station ft

Pipe: P-1
Up Invert: 36.00 ft
Dn Invert: 33.00 ft
Length: 149.00 ft
Size: 15 inch


43.9
T.C.
42.7
Sump
I-1
F
14
15
P-1
SWS 12
42.0
Outlet

Inlet: I-1
Rim: 42.70 ft
Sump: 40.00 ft

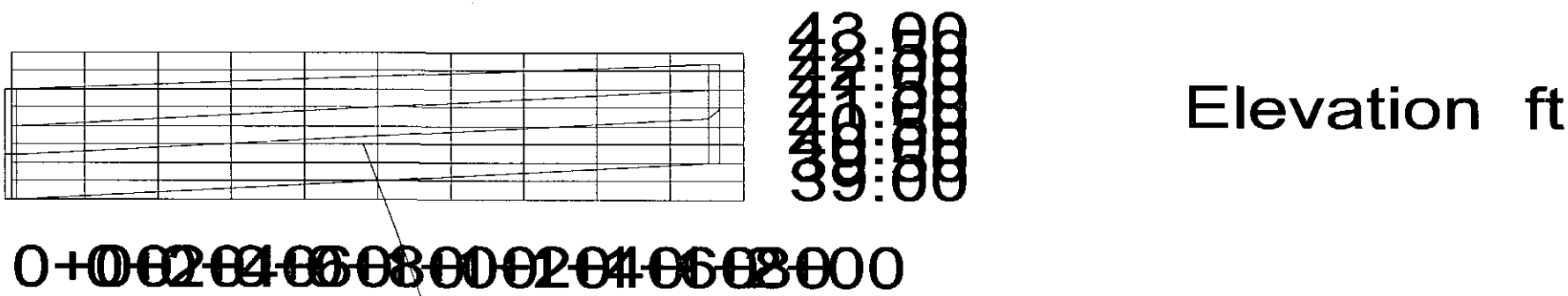
Outlet: Outlet
Rim: 42.00 ft
Sump: 39.00 ft



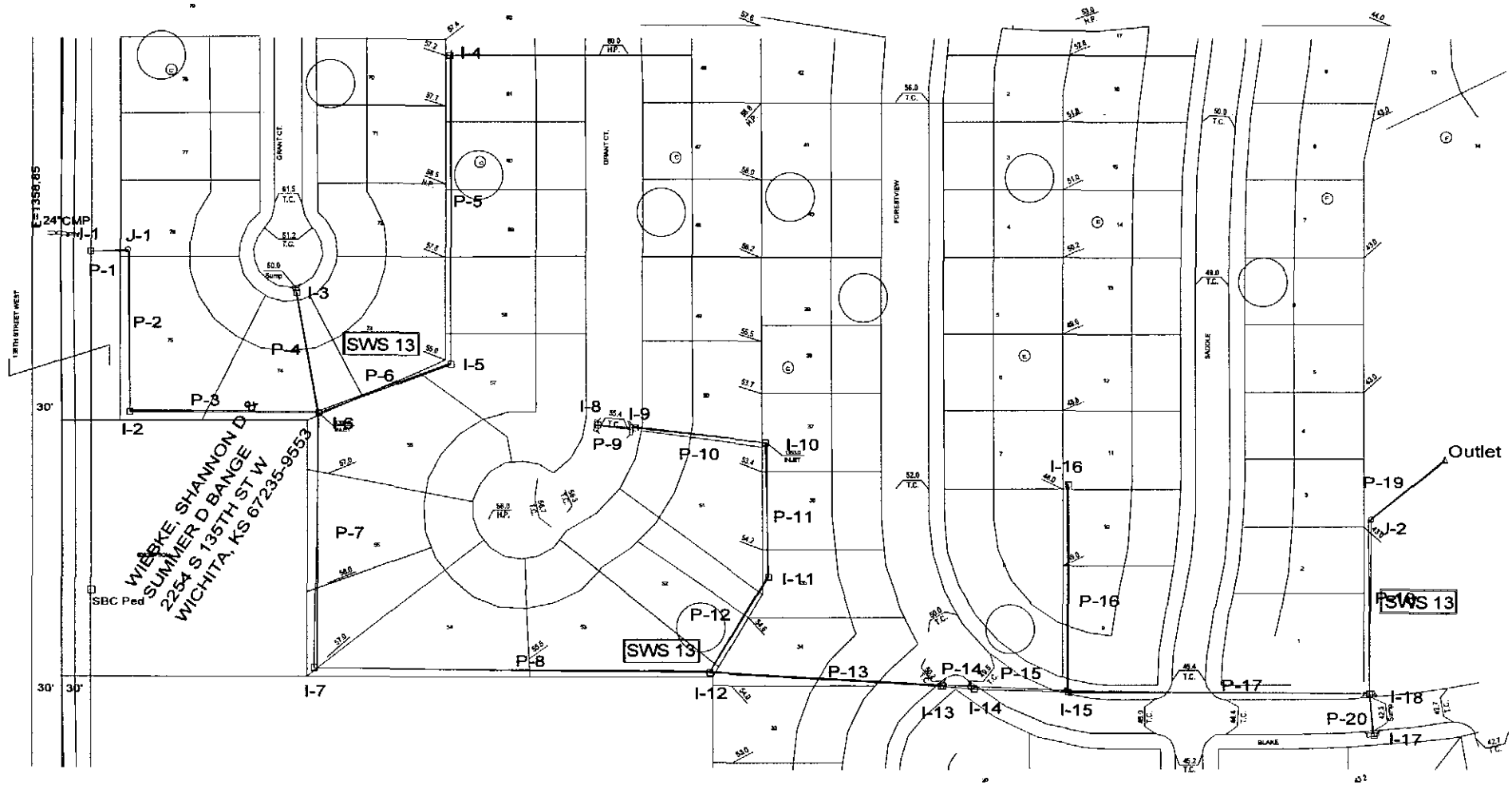
Pipe: P-1
Up Invert: 40.00 ft
Dn Invert: 39.00 ft
Length: 192.00 ft
Size: 24 inch

Outlet: Outlet
Rim: 42.00 ft
Sump: 39.00 ft

Inlet: I-1
Rim: 42.70 ft
Sump: 40.00 ft



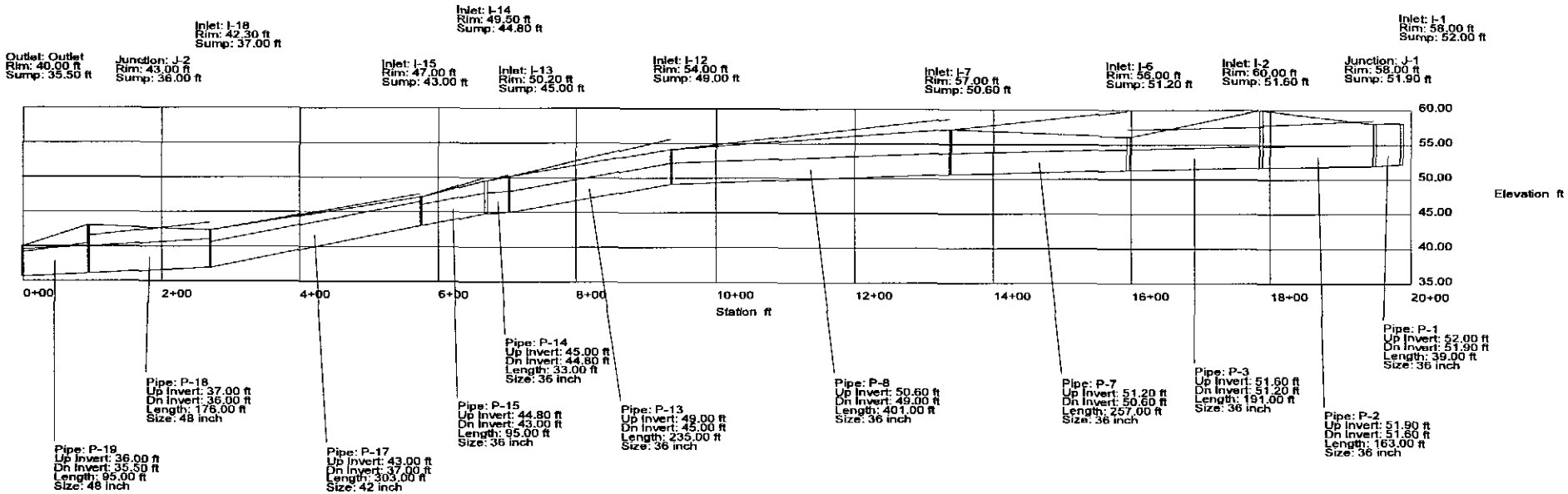
Pipe: P-1
Up Invert: 40.00 ft
Dn Invert: 39.00 ft
Length: 192.00 ft
Size: 24 inch

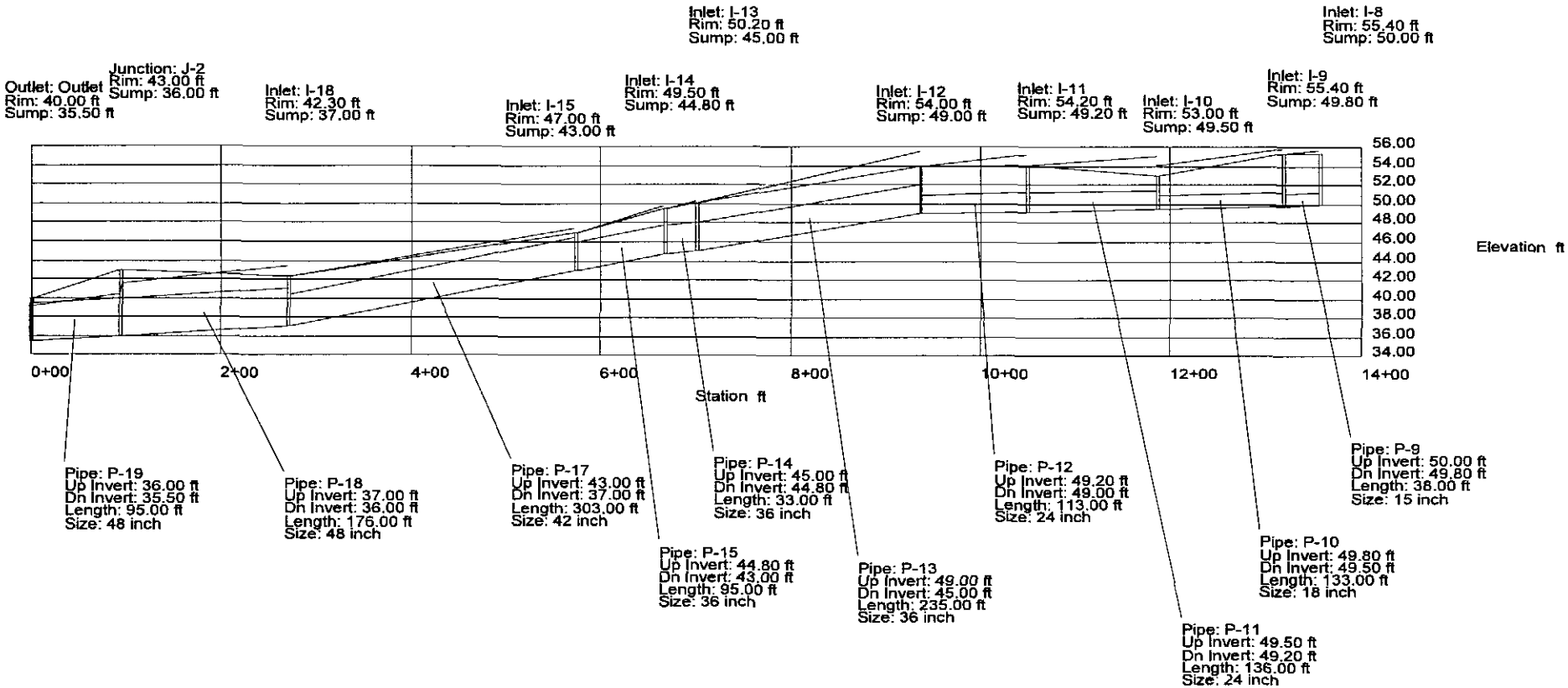


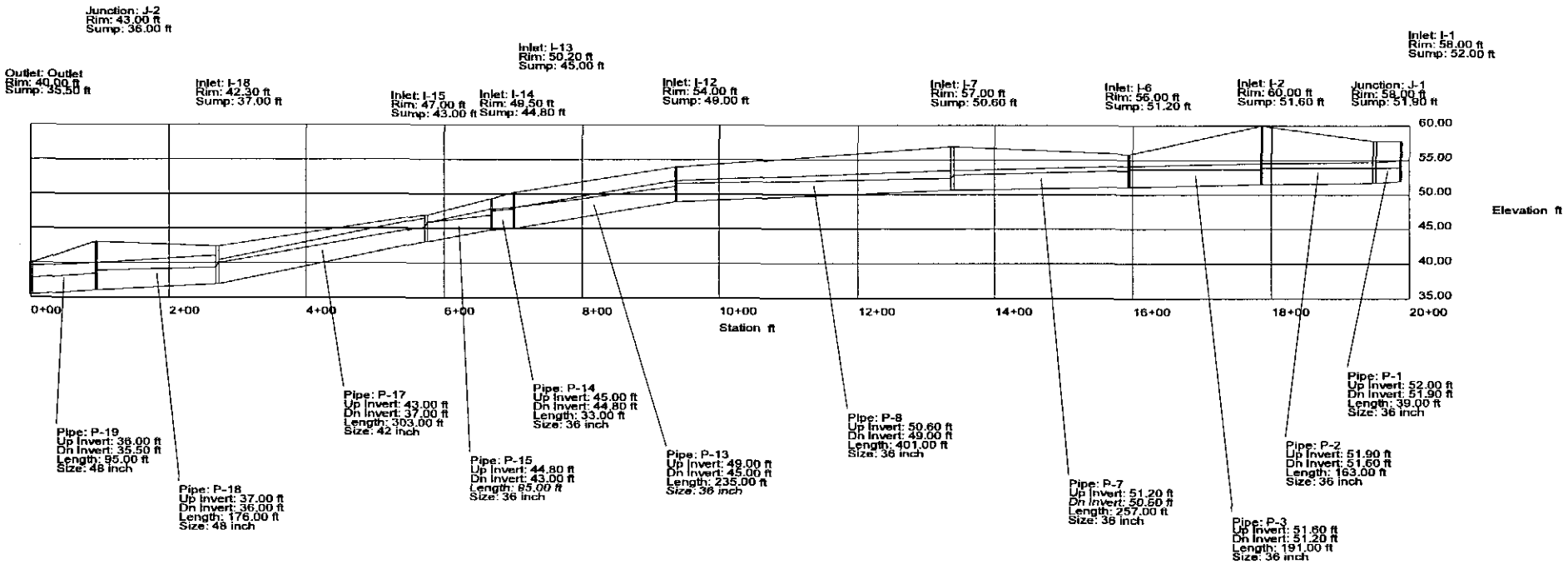
Project Title: Turkey Creek 3rd
f:\...\turkey creek 3rd\stormcad\13-100.stm
06/21/06 10:49:13 AM

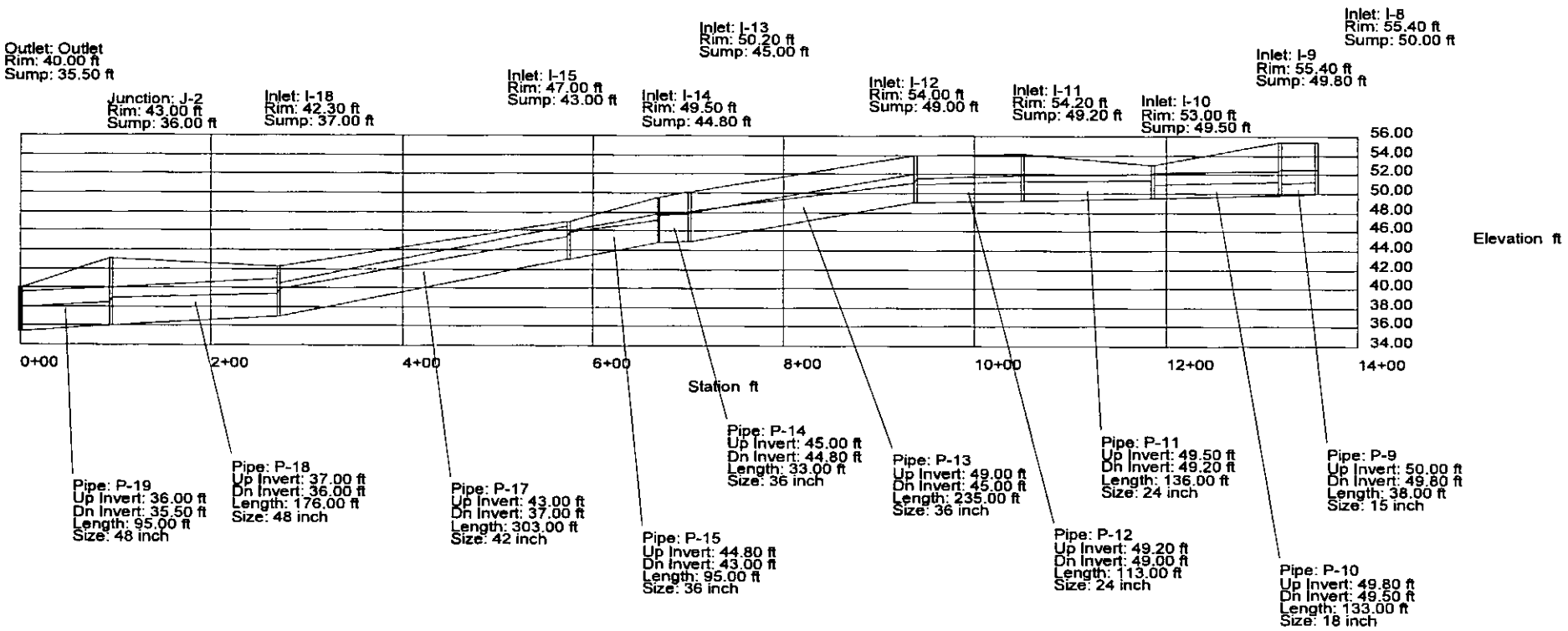
Baughman Company, P.A.
© Haestad Methods, Inc. 37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

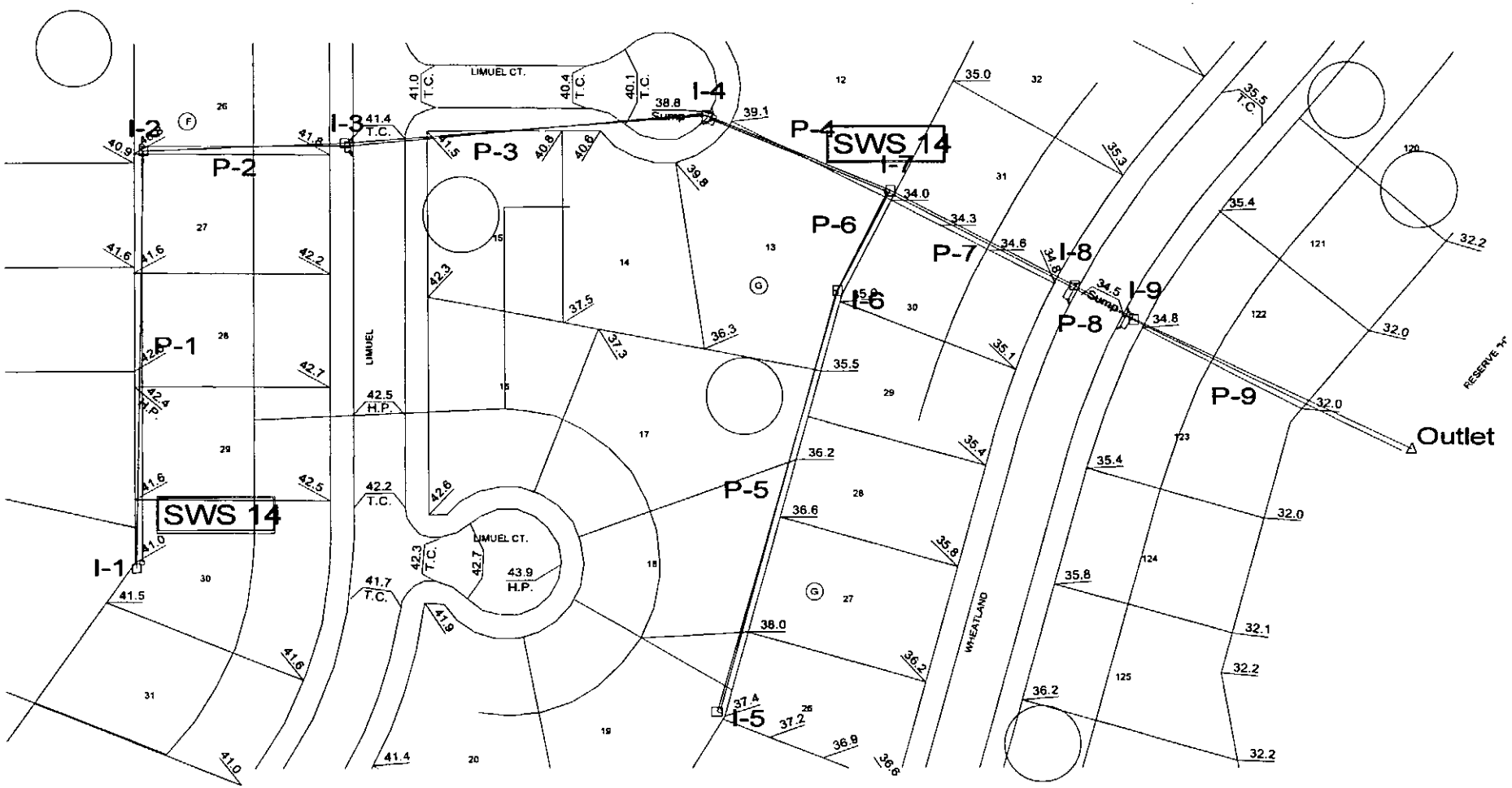
Project Engineer: Baughman Company, P.A.
StormCAD v1.0
Page 1 of 1

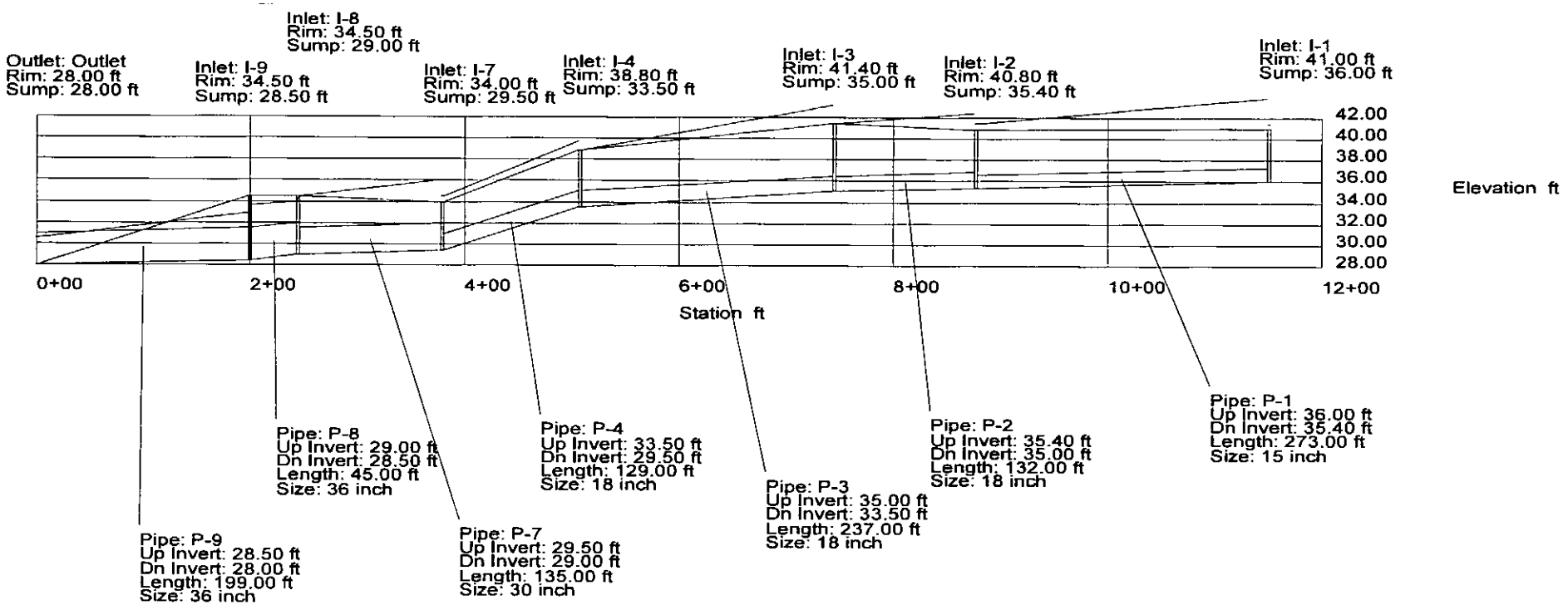

Outlet: Outlet
Rim: 40.00 ft
Sump: 35.50 ft
Junction: J-2
Rim: 43.00 ft
Sump: 36.00 ft
Inlet: I-18
Rim: 42.30 ft
Sump: 37.00 ft
Inlet: I-15
Rim: 47.00 ft
Sump: 43.00 ft
Inlet: I-14
Rim: 49.50 ft
Sump: 44.80 ft
Inlet: I-13
Rim: 50.20 ft
Sump: 45.00 ft
Inlet: I-12
Rim: 54.00 ft
Sump: 49.00 ft
Inlet: I-7
Rim: 57.00 ft
Sump: 50.60 ft
Inlet: I-6
Rim: 56.00 ft
Sump: 51.20 ft
Inlet: I-2
Rim: 60.00 ft
Sump: 51.60 ft
Junction: J-1
Rim: 58.00 ft
Sump: 51.90 ft
Inlet: I-1
Rim: 58.00 ft
Sump: 52.00 ft
60.00
55.00
50.00
45.00
40.00
35.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
18+00
20+00
Station ft
Pipe: P-19
Up Invert: 36.00 ft
Dn Invert: 35.50 ft
Length: 95.00 ft
Size: 48 inch
Pipe: P-18
Up Invert: 37.00 ft
Dn Invert: 36.00 ft
Length: 176.00 ft
Size: 48 inch
Pipe: P-17
Up Invert: 43.00 ft
Dn Invert: 37.00 ft
Length: 303.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 44.80 ft
Dn Invert: 43.00 ft
Length: 95.00 ft
Size: 36 inch
Pipe: P-14
Up Invert: 45.00 ft
Dn Invert: 44.80 ft
Length: 33.00 ft
Size: 36 inch
Pipe: P-13
Up Invert: 49.00 ft
Dn Invert: 45.00 ft
Length: 235.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 50.60 ft
Dn Invert: 49.00 ft
Length: 401.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 51.20 ft
Dn Invert: 50.60 ft
Length: 257.00 ft
Size: 36 inch
Pipe: P-3
Up Invert: 51.60 ft
Dn Invert: 51.20 ft
Length: 191.00 ft
Size: 36 inch
Pipe: P-2
Up Invert: 51.90 ft
Dn Invert: 51.60 ft
Length: 163.00 ft
Size: 36 inch
Pipe: P-1
Up Invert: 52.00 ft
Dn Invert: 51.90 ft
Length: 39.00 ft
Size: 36 inch

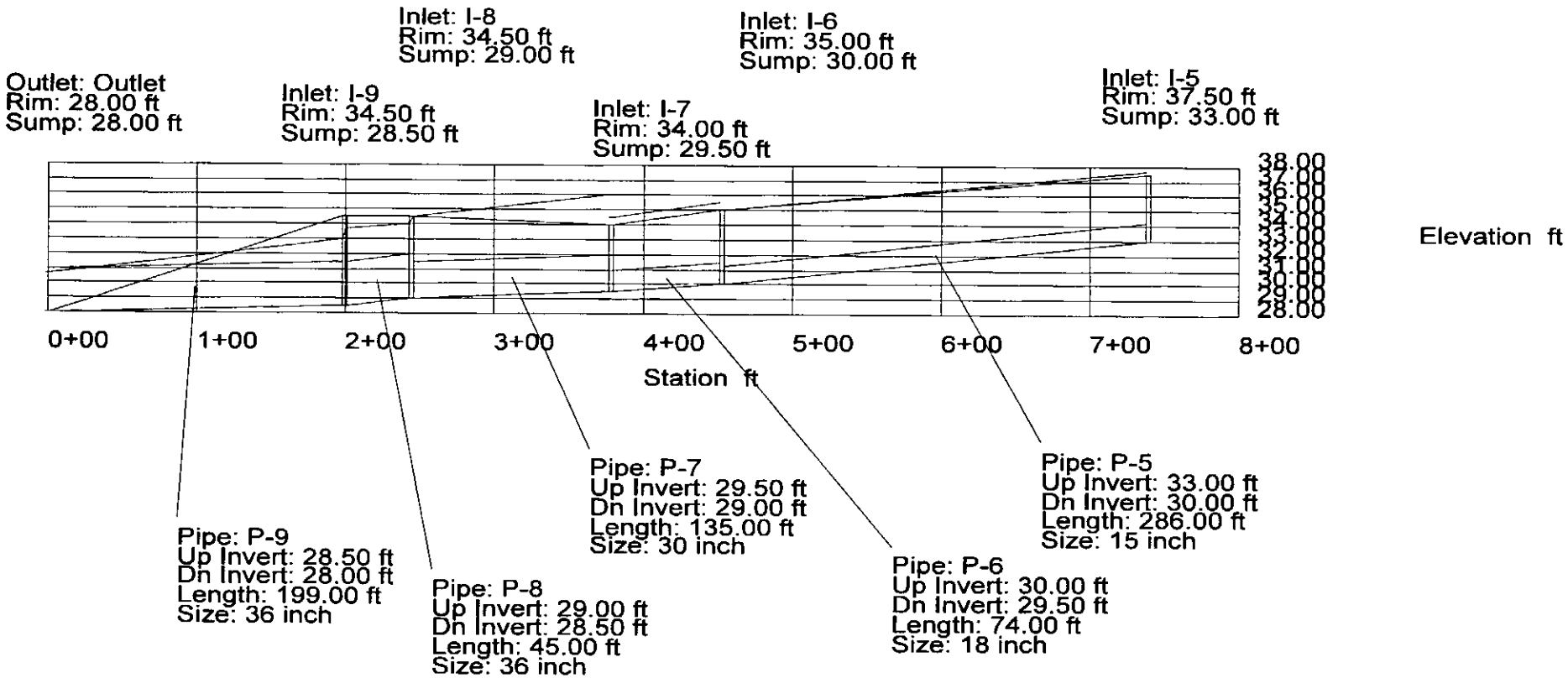

Inlet: I-13
Rim: 50.20 ft
Sump: 45.00 ft
Inlet: I-8
Rim: 55.40 ft
Sump: 50.00 ft
Junction: J-2
Rim: 43.00 ft
Sump: 36.00 ft
Outlet: Outlet
Rim: 40.00 ft
Sump: 35.50 ft
Inlet: I-18
Rim: 42.30 ft
Sump: 37.00 ft
Inlet: I-15
Rim: 47.00 ft
Sump: 43.00 ft
Inlet: I-14
Rim: 49.50 ft
Sump: 44.80 ft
Inlet: I-12
Rim: 54.00 ft
Sump: 49.00 ft
Inlet: I-11
Rim: 54.20 ft
Sump: 49.20 ft
Inlet: I-10
Rim: 53.00 ft
Sump: 49.50 ft
Inlet: I-9
Rim: 55.40 ft
Sump: 49.80 ft
56.00
54.00
52.00
50.00
48.00
46.00
44.00
42.00
40.00
38.00
36.00
34.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
Station ft
Pipe: P-19
Up Invert: 36.00 ft
Dn Invert: 35.50 ft
Length: 95.00 ft
Size: 48 inch
Pipe: P-18
Up Invert: 37.00 ft
Dn Invert: 36.00 ft
Length: 176.00 ft
Size: 48 inch
Pipe: P-17
Up Invert: 43.00 ft
Dn Invert: 37.00 ft
Length: 303.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 44.80 ft
Dn Invert: 43.00 ft
Length: 95.00 ft
Size: 36 inch
Pipe: P-14
Up Invert: 45.00 ft
Dn Invert: 44.80 ft
Length: 33.00 ft
Size: 36 inch
Pipe: P-13
Up Invert: 49.00 ft
Dn Invert: 45.00 ft
Length: 235.00 ft
Size: 36 inch
Pipe: P-12
Up Invert: 49.20 ft
Dn Invert: 49.00 ft
Length: 113.00 ft
Size: 24 inch
Pipe: P-11
Up Invert: 49.50 ft
Dn Invert: 49.20 ft
Length: 136.00 ft
Size: 24 inch
Pipe: P-10
Up Invert: 49.80 ft
Dn Invert: 49.50 ft
Length: 133.00 ft
Size: 18 inch
Pipe: P-9
Up Invert: 50.00 ft
Dn Invert: 49.80 ft
Length: 38.00 ft
Size: 15 inch

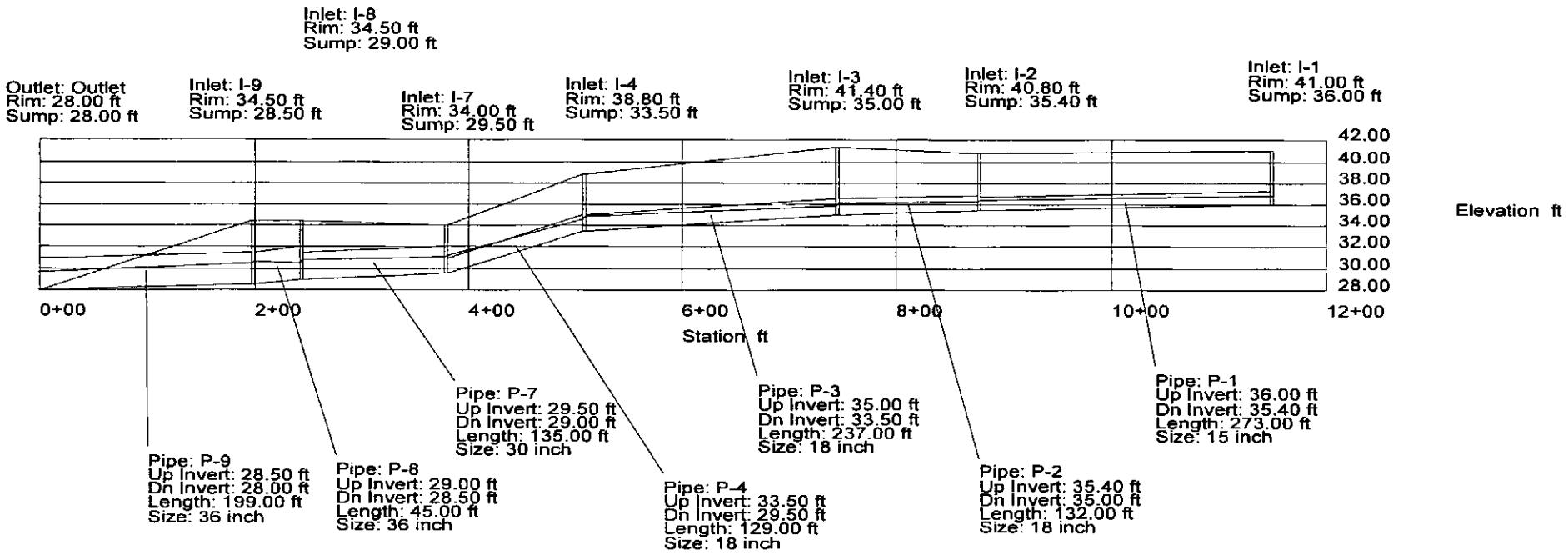

Junction: J-2
Rim: 43.00 ft
Sump: 38.00 ft
Outlet: Outlet
Rim: 40.00 ft
Sump: 35.50 ft
Inlet: I-18
Rim: 42.30 ft
Sump: 37.00 ft
Inlet: I-15
Rim: 47.00 ft
Sump: 43.00 ft
Inlet: I-13
Rim: 50.20 ft
Sump: 45.00 ft
Inlet: I-14
Rim: 49.50 ft
Sump: 44.80 ft
Inlet: I-12
Rim: 54.00 ft
Sump: 49.00 ft
Inlet: I-7
Rim: 57.00 ft
Sump: 50.60 ft
Inlet: I-6
Rim: 56.00 ft
Sump: 51.20 ft
Inlet: I-2
Rim: 60.00 ft
Sump: 51.60 ft
Junction: J-1
Rim: 58.00 ft
Sump: 51.90 ft
Inlet: I-1
Rim: 58.00 ft
Sump: 52.00 ft
60.00
55.00
50.00
45.00
40.00
35.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
18+00
20+00
Station ft
Pipe: P-19
Up Invert: 36.00 ft
Dn Invert: 35.50 ft
Length: 95.00 ft
Size: 48 inch
Pipe: P-18
Up Invert: 37.00 ft
Dn Invert: 36.00 ft
Length: 176.00 ft
Size: 48 inch
Pipe: P-17
Up Invert: 43.00 ft
Dn Invert: 37.00 ft
Length: 303.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 44.80 ft
Dn Invert: 43.00 ft
Length: 85.00 ft
Size: 36 inch
Pipe: P-14
Up Invert: 45.00 ft
Dn Invert: 44.80 ft
Length: 33.00 ft
Size: 36 inch
Pipe: P-13
Up Invert: 49.00 ft
Dn Invert: 45.00 ft
Length: 235.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 50.60 ft
Dn Invert: 49.00 ft
Length: 401.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 51.20 ft
Dn Invert: 50.60 ft
Length: 257.00 ft
Size: 36 inch
Pipe: P-3
Up Invert: 51.60 ft
Dn Invert: 51.20 ft
Length: 191.00 ft
Size: 36 inch
Pipe: P-2
Up Invert: 51.90 ft
Dn Invert: 51.60 ft
Length: 163.00 ft
Size: 36 inch
Pipe: P-1
Up Invert: 52.00 ft
Dn Invert: 51.90 ft
Length: 39.00 ft
Size: 36 inch

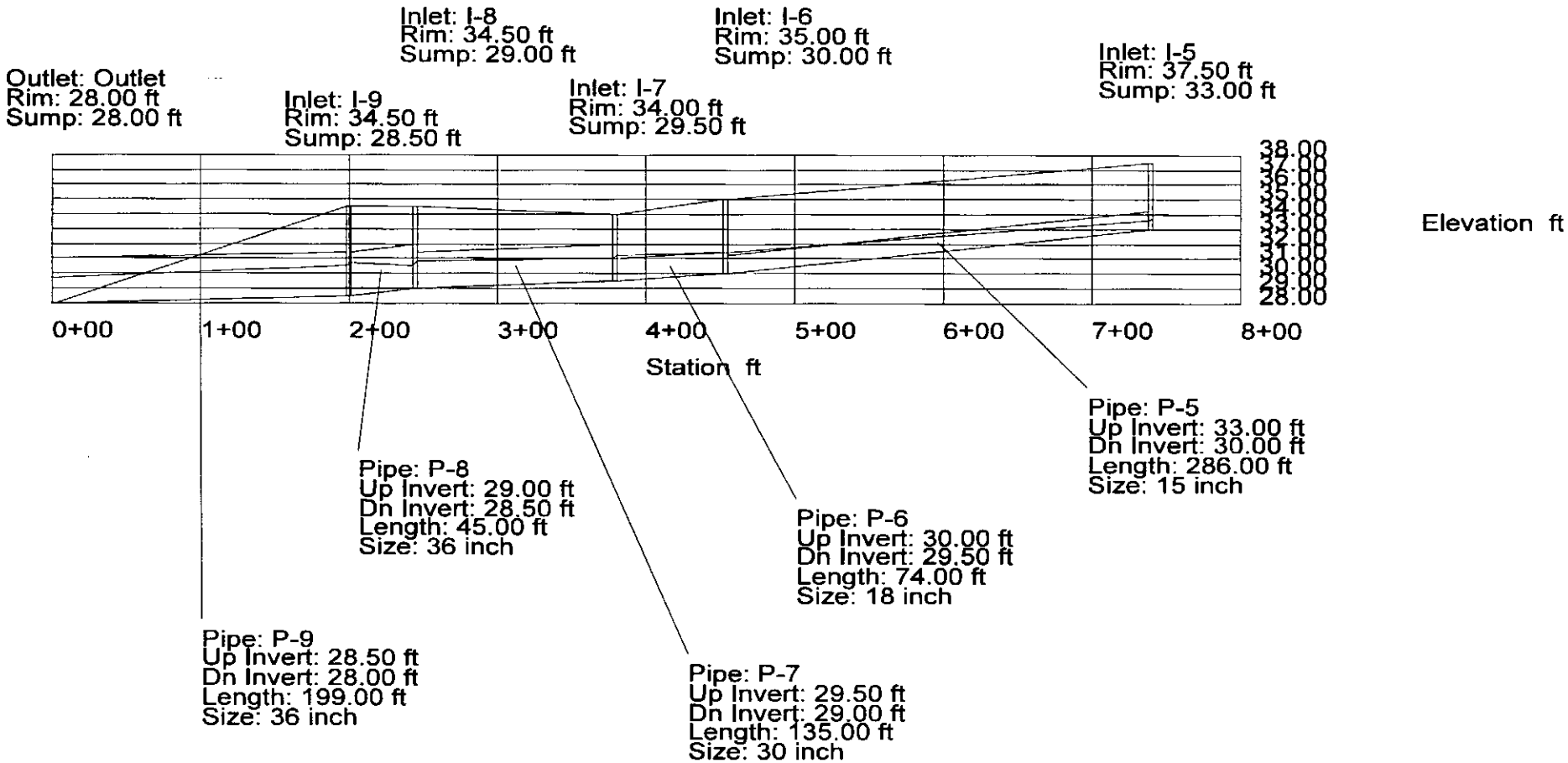

Outlet: Outlet
Rim: 40.00 ft
Sump: 35.50 ft
Junction: J-2
Rim: 43.00 ft
Sump: 36.00 ft
Inlet: I-18
Rim: 42.30 ft
Sump: 37.00 ft
Inlet: I-15
Rim: 47.00 ft
Sump: 43.00 ft
Inlet: I-13
Rim: 50.20 ft
Sump: 45.00 ft
Inlet: I-14
Rim: 49.50 ft
Sump: 44.80 ft
Inlet: I-12
Rim: 54.00 ft
Sump: 49.00 ft
Inlet: I-11
Rim: 54.20 ft
Sump: 49.20 ft
Inlet: I-10
Rim: 53.00 ft
Sump: 49.50 ft
Inlet: I-9
Rim: 55.40 ft
Sump: 49.80 ft
Inlet: I-8
Rim: 55.40 ft
Sump: 50.00 ft
56.00
54.00
52.00
50.00
48.00
46.00
44.00
42.00
40.00
38.00
36.00
34.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
Station ft
Pipe: P-19
Up Invert: 36.00 ft
Dn Invert: 35.50 ft
Length: 95.00 ft
Size: 48 inch
Pipe: P-18
Up Invert: 37.00 ft
Dn Invert: 36.00 ft
Length: 176.00 ft
Size: 48 inch
Pipe: P-17
Up Invert: 43.00 ft
Dn Invert: 37.00 ft
Length: 303.00 ft
Size: 42 inch
Pipe: P-15
Up Invert: 44.80 ft
Dn Invert: 43.00 ft
Length: 95.00 ft
Size: 36 inch
Pipe: P-14
Up Invert: 45.00 ft
Dn Invert: 44.80 ft
Length: 33.00 ft
Size: 36 inch
Pipe: P-13
Up Invert: 49.00 ft
Dn Invert: 45.00 ft
Length: 235.00 ft
Size: 36 inch
Pipe: P-12
Up Invert: 49.20 ft
Dn Invert: 49.00 ft
Length: 113.00 ft
Size: 24 inch
Pipe: P-11
Up Invert: 49.50 ft
Dn Invert: 49.20 ft
Length: 136.00 ft
Size: 24 inch
Pipe: P-10
Up Invert: 49.80 ft
Dn Invert: 49.50 ft
Length: 133.00 ft
Size: 18 inch
Pipe: P-9
Up Invert: 50.00 ft
Dn Invert: 49.80 ft
Length: 38.00 ft
Size: 15 inch

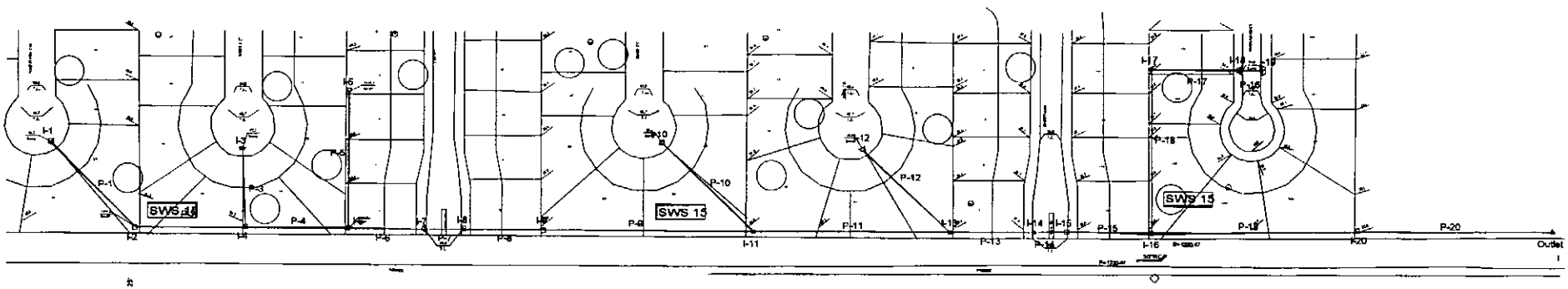

I-1
I-2
I-3
I-4
I-5
I-6
I-7
I-8
I-9
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
SWS 14
SWS 14
LIMUEL CT.
LIMUEL CT.
LIMUEL
WHEATLAND
RESERVE
Outlet
Sump
Sump
H.P.
H.P.
T.C.

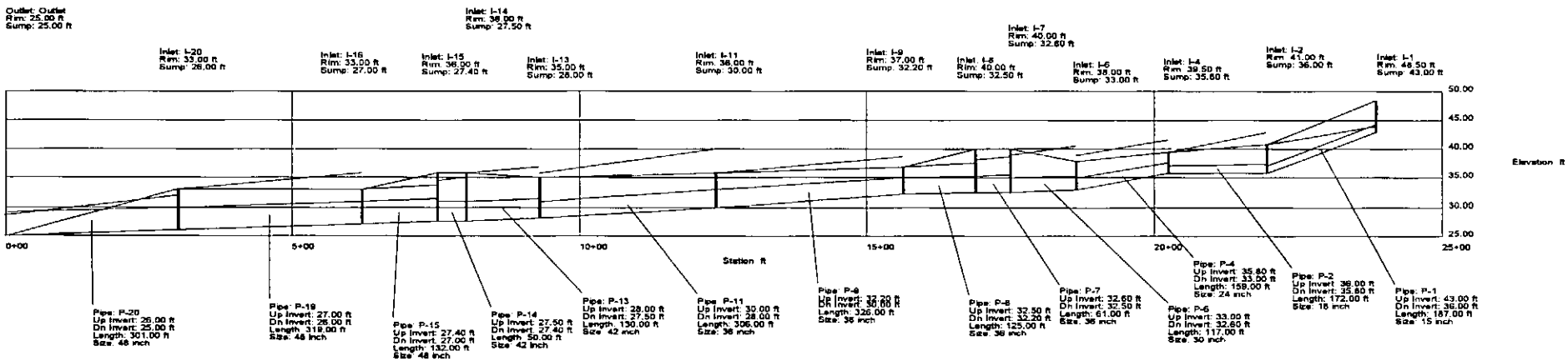

Outlet: Outlet
Rim: 28.00 ft
Sump: 28.00 ft
Inlet: I-9
Rim: 34.50 ft
Sump: 28.50 ft
Inlet: I-8
Rim: 34.50 ft
Sump: 29.00 ft
Inlet: I-7
Rim: 34.00 ft
Sump: 29.50 ft
Inlet: I-4
Rim: 38.80 ft
Sump: 33.50 ft
Inlet: I-3
Rim: 41.40 ft
Sump: 35.00 ft
Inlet: I-2
Rim: 40.80 ft
Sump: 35.40 ft
Inlet: I-1
Rim: 41.00 ft
Sump: 36.00 ft
42.00
40.00
38.00
36.00
34.00
32.00
30.00
28.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
Station ft
Pipe: P-9
Up Invert: 28.50 ft
Dn Invert: 28.00 ft
Length: 199.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 29.00 ft
Dn Invert: 28.50 ft
Length: 45.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 29.50 ft
Dn Invert: 29.00 ft
Length: 135.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 33.50 ft
Dn Invert: 29.50 ft
Length: 129.00 ft
Size: 18 inch
Pipe: P-3
Up Invert: 35.00 ft
Dn Invert: 33.50 ft
Length: 237.00 ft
Size: 18 inch
Pipe: P-2
Up Invert: 35.40 ft
Dn Invert: 35.00 ft
Length: 132.00 ft
Size: 18 inch
Pipe: P-1
Up Invert: 36.00 ft
Dn Invert: 35.40 ft
Length: 273.00 ft
Size: 15 inch

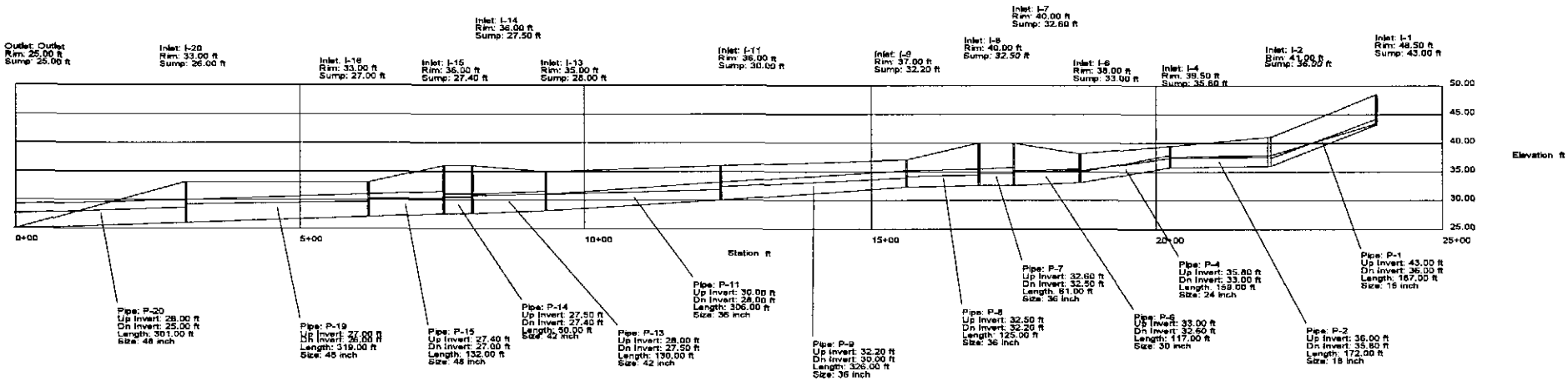

Inlet: I-8
Rim: 34.50 ft
Sump: 29.00 ft
Inlet: I-6
Rim: 35.00 ft
Sump: 30.00 ft
Outlet: Outlet
Rim: 28.00 ft
Sump: 28.00 ft
Inlet: I-9
Rim: 34.50 ft
Sump: 28.50 ft
Inlet: I-7
Rim: 34.00 ft
Sump: 29.50 ft
Inlet: I-5
Rim: 37.50 ft
Sump: 33.00 ft
38.00
37.00
36.00
35.00
34.00
33.00
32.00
31.00
30.00
29.00
28.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
Station ft
Pipe: P-9
Up Invert: 28.50 ft
Dn Invert: 28.00 ft
Length: 199.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 29.00 ft
Dn Invert: 28.50 ft
Length: 45.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 29.50 ft
Dn Invert: 29.00 ft
Length: 135.00 ft
Size: 30 inch
Pipe: P-6
Up Invert: 30.00 ft
Dn Invert: 29.50 ft
Length: 74.00 ft
Size: 18 inch
Pipe: P-5
Up Invert: 33.00 ft
Dn Invert: 30.00 ft
Length: 286.00 ft
Size: 15 inch


Inlet: I-8
Rim: 34.50 ft
Sump: 29.00 ft
Outlet: Outlet
Rim: 28.00 ft
Sump: 28.00 ft
Inlet: I-9
Rim: 34.50 ft
Sump: 28.50 ft
Inlet: I-7
Rim: 34.00 ft
Sump: 29.50 ft
Inlet: I-4
Rim: 38.80 ft
Sump: 33.50 ft
Inlet: I-3
Rim: 41.40 ft
Sump: 35.00 ft
Inlet: I-2
Rim: 40.80 ft
Sump: 35.40 ft
Inlet: I-1
Rim: 41.00 ft
Sump: 36.00 ft
42.00
40.00
38.00
36.00
34.00
32.00
30.00
28.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
Station ft
Pipe: P-9
Up Invert: 28.50 ft
Dn Invert: 28.00 ft
Length: 199.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 29.00 ft
Dn Invert: 28.50 ft
Length: 45.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 29.50 ft
Dn Invert: 29.00 ft
Length: 135.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 33.50 ft
Dn Invert: 29.50 ft
Length: 129.00 ft
Size: 18 inch
Pipe: P-3
Up Invert: 35.00 ft
Dn Invert: 33.50 ft
Length: 237.00 ft
Size: 18 inch
Pipe: P-2
Up Invert: 35.40 ft
Dn Invert: 35.00 ft
Length: 132.00 ft
Size: 18 inch
Pipe: P-1
Up Invert: 36.00 ft
Dn Invert: 35.40 ft
Length: 273.00 ft
Size: 15 inch


Outlet: Outlet
Rim: 28.00 ft
Sump: 28.00 ft
Inlet: I-9
Rim: 34.50 ft
Sump: 28.50 ft
Inlet: I-8
Rim: 34.50 ft
Sump: 29.00 ft
Inlet: I-7
Rim: 34.00 ft
Sump: 29.50 ft
Inlet: I-6
Rim: 35.00 ft
Sump: 30.00 ft
Inlet: I-5
Rim: 37.50 ft
Sump: 33.00 ft
38.00
37.00
36.00
35.00
34.00
33.00
32.00
31.00
30.00
29.00
28.00
Elevation ft
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
Station ft
Pipe: P-9
Up Invert: 28.50 ft
Dn Invert: 28.00 ft
Length: 199.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 29.00 ft
Dn Invert: 28.50 ft
Length: 45.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 29.50 ft
Dn Invert: 29.00 ft
Length: 135.00 ft
Size: 30 inch
Pipe: P-6
Up Invert: 30.00 ft
Dn Invert: 29.50 ft
Length: 74.00 ft
Size: 18 inch
Pipe: P-5
Up Invert: 33.00 ft
Dn Invert: 30.00 ft
Length: 286.00 ft
Size: 15 inch


SWS 14
SWS 15
SWS 15
I-1
I-2
I-3
I-4
I-5
I-6
I-7
I-8
I-9
I-10
I-11
I-12
I-13
I-14
I-15
I-16
I-17
I-18
I-19
I-20
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
P-10
P-11
P-12
P-13
P-14
P-15
P-16
P-17
P-18
P-19
P-20
Outlet

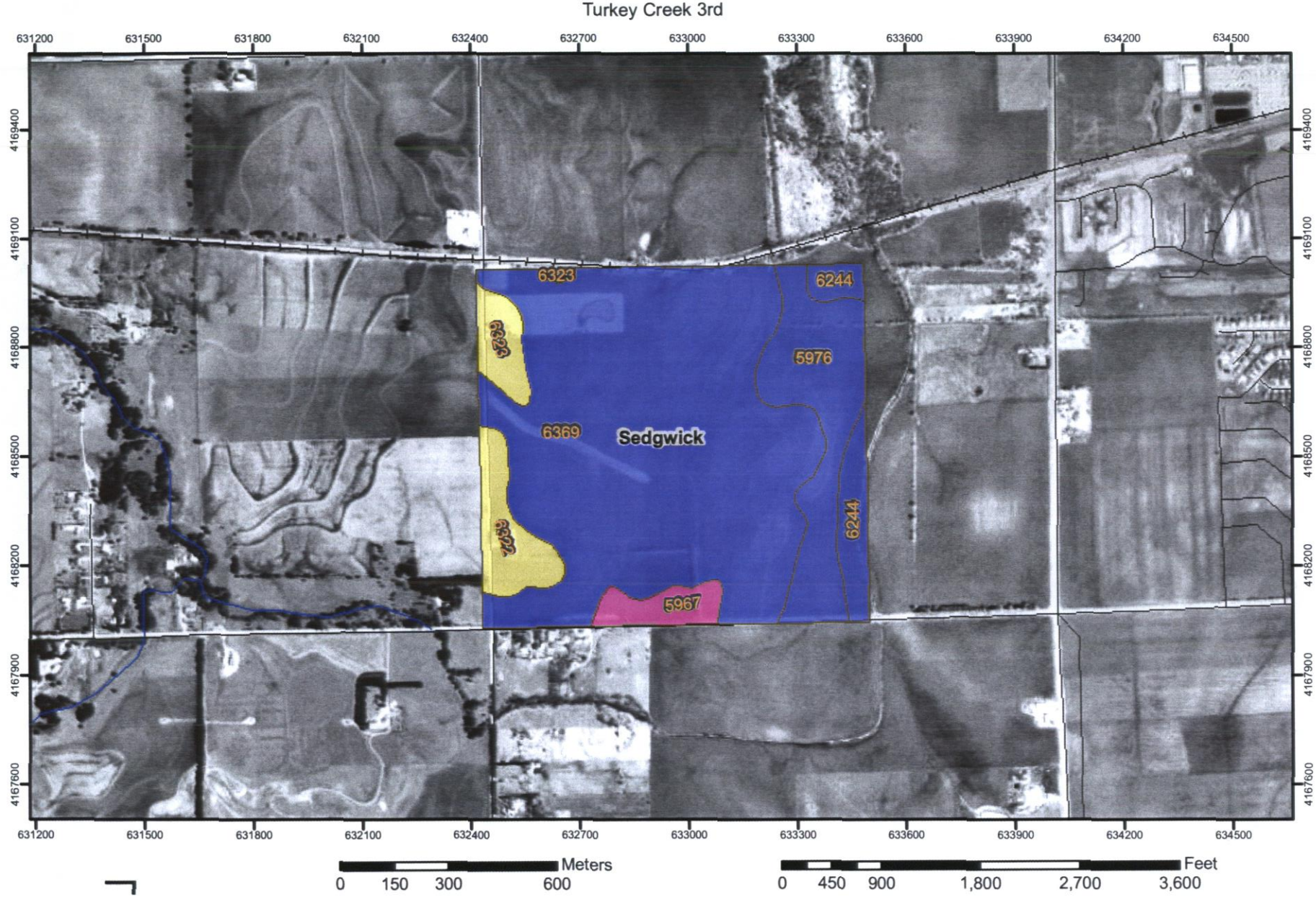

Outlet: Outlet
Rim: 25.00 ft
Sump: 25.00 ft
Inlet: I-20
Rim: 33.00 ft
Sump: 26.00 ft
Inlet: I-16
Rim: 33.00 ft
Sump: 27.00 ft
Inlet: I-15
Rim: 36.00 ft
Sump: 27.40 ft
Inlet: I-14
Rim: 36.00 ft
Sump: 27.50 ft
Inlet: I-13
Rim: 35.00 ft
Sump: 28.00 ft
Inlet: I-11
Rim: 36.00 ft
Sump: 30.00 ft
Inlet: I-9
Rim: 37.00 ft
Sump: 32.20 ft
Inlet: I-8
Rim: 40.00 ft
Sump: 32.50 ft
Inlet: I-7
Rim: 40.00 ft
Sump: 32.60 ft
Inlet: I-6
Rim: 38.00 ft
Sump: 33.00 ft
Inlet: I-4
Rim: 39.50 ft
Sump: 35.80 ft
Inlet: I-2
Rim: 41.00 ft
Sump: 36.00 ft
Inlet: I-1
Rim: 46.50 ft
Sump: 43.00 ft
50.00
45.00
40.00
35.00
30.00
25.00
Elevation ft
0+00
5+00
10+00
15+00
20+00
25+00
Station ft
Pipe: P-20
Up Invert: 26.00 ft
Dn Invert: 25.00 ft
Length: 301.00 ft
Size: 48 inch
Pipe: P-19
Up Invert: 27.00 ft
Dn Invert: 26.00 ft
Length: 319.00 ft
Size: 48 inch
Pipe: P-15
Up Invert: 27.40 ft
Dn Invert: 27.00 ft
Length: 132.00 ft
Size: 48 inch
Pipe: P-14
Up Invert: 27.50 ft
Dn Invert: 27.40 ft
Length: 50.00 ft
Size: 42 inch
Pipe: P-13
Up Invert: 28.00 ft
Dn Invert: 27.50 ft
Length: 130.00 ft
Size: 42 inch
Pipe: P-11
Up Invert: 30.00 ft
Dn Invert: 28.00 ft
Length: 306.00 ft
Size: 36 inch
Pipe: P-9
Up Invert: 32.20 ft
Dn Invert: 30.00 ft
Length: 326.00 ft
Size: 36 inch
Pipe: P-8
Up Invert: 32.50 ft
Dn Invert: 32.20 ft
Length: 125.00 ft
Size: 36 inch
Pipe: P-7
Up Invert: 32.60 ft
Dn Invert: 32.50 ft
Length: 61.00 ft
Size: 36 inch
Pipe: P-6
Up Invert: 33.00 ft
Dn Invert: 32.60 ft
Length: 117.00 ft
Size: 30 inch
Pipe: P-4
Up Invert: 35.80 ft
Dn Invert: 33.00 ft
Length: 159.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 36.00 ft
Dn Invert: 35.80 ft
Length: 172.00 ft
Size: 18 inch
Pipe: P-1
Up Invert: 43.00 ft
Dn Invert: 36.00 ft
Length: 187.00 ft
Size: 15 inch



APPENDIX B

Soil Survey

HYDROLOGIC GROUP RATING FOR SEDGWICK COUNTY, KANSAS



USDA Natural Resources Conservation Service

HYDROLOGIC GROUP RATING FOR SEDGWICK COUNTY, KANSAS

Turkey Creek 3rd

MAP LEGEND

Hydrologic Group

{Dominant Condition, <}

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available
- Soil Map Units
- Cities
- Detailed Counties
- Interstate Highways
- Roads
- Rails
- Water
- Hydrography
- Oceans

MAP INFORMATION

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov

Coordinate System: UTM Zone 14

Soil Survey Area: Sedgwick County, Kansas
Spatial Version of Data: 1
Soil Map Compilation Scale: 1:24000

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Tables - Hydrologic Group

Summary by Map Unit - Sedgwick County, Kansas

Soil Survey Area Map Unit Symbol	Map Unit Name	Rating	Total Acres in AOI	Percent of AOI
5967	Tabler silty clay loam, 0 to 1 percent slopes	D	8.3	3.2
5976	Vanoss silt loam, 0 to 1 percent slopes	B	37.5	14.4
6244	Elandco silt loam, rarely flooded	B	13.8	5.3
6322	Blanket silt loam, 0 to 1 percent slopes	C	13.9	5.3
6323	Blanket silt loam, 1 to 3 percent slopes	C	8.8	3.4
6369	Milan loam, 1 to 3 percent slopes	B	177.9	68.4

Description - Hydrologic Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are placed into four groups A, B, C, and D, and three dual classes, A/D, B/D, and C/D. Definitions of the classes are as follows:

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only soils that are rated D in their natural condition are assigned to dual classes.

Parameter Summary - Hydrologic Group

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie.

The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff:

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

APPENDIX C

PondPack

Table of Contents

MASTER DESIGN STORM SUMMARY

Default Network Design Storm File, ID SEDGWICK.RNQ Sedgwick24

Return Event	Total Depth in	Rainfall Type	RNF File	RNF ID
2y24h	3.5000	Synthetic Curve	SCSTYPES	TypeII 24hr
5y24h	4.5000	Synthetic Curve	SCSTYPES	TypeII 24hr
100y24	7.9000	Synthetic Curve	SCSTYPES	TypeII 24hr

ICPM CALCULATION TOLERANCES

Target Convergence= .000 cfs +/-
Max. Iterations = 35 loops
ICPM Time Step = .0500 hrs
Output Time Step = .0500 hrs
ICPM Ending Time = 35.0000 hrs

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
*COWSKIN	JCT	2	3.583		18.1000	1.43		
*COWSKIN	JCT	5	5.774		15.9500	2.79		
*COWSKIN	JCT	100	14.495		13.0000	17.77		
*CREEK	JCT	2	10.446		15.9500	8.71		
*CREEK	JCT	5	18.201		14.3000	18.68		
*CREEK	JCT	100	50.162		13.0500	79.91		
MIDDLE POND	POND	2	12.923		12.0500	116.17		
MIDDLE POND	POND	5	21.023		12.0500	198.29		
MIDDLE POND	POND	100	53.603		12.0500	529.14		
MIDDLE POND OUT	POND	2	10.446		15.9500	8.71	1334.29	5.834
MIDDLE POND OUT	POND	5	18.201		14.3000	18.68	1334.96	8.899
MIDDLE POND OUT	POND	100	50.162		13.0500	79.91	1337.52	21.697

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
NORTH POND IN	POND	2	3.725		12.0500	52.29		
NORTH POND IN	POND	5	5.958		12.0500	85.76		
NORTH POND IN	POND	100	14.763		12.0500	213.04		
NORTH POND OUT	POND	2	3.583		18.1000	1.43	1349.71	2.534
NORTH POND OUT	POND	5	5.774		15.9500	2.79	1350.07	3.867
NORTH POND OUT	POND	100	14.495		13.0000	17.77	1351.28	8.512
NORTHWES OFFSITE	AREA	2	.470		12.0500	5.86		
NORTHWES OFFSITE	AREA	5	.832		12.0500	11.43		
NORTHWES OFFSITE	AREA	100	2.384		12.0500	34.63		
NW RESIDENTIAL	AREA	2	3.255		12.0500	46.43		
NW RESIDENTIAL	AREA	5	5.126		12.0500	74.33		
NW RESIDENTIAL	AREA	100	12.379		12.0500	178.41		
RESIDENTIAL	AREA	2	6.401		12.0500	91.31		
RESIDENTIAL	AREA	5	10.081		12.0500	146.18		
RESIDENTIAL	AREA	100	24.346		12.0500	350.87		
SOUTH OFFSIT	AREA	2	.501		12.0500	6.25		
SOUTH OFFSIT	AREA	5	.887		12.0500	12.19		
SOUTH OFFSIT	AREA	100	2.542		12.0500	36.94		
SOUTH POND	POND	2	3.756		12.0500	52.68		
SOUTH POND	POND	5	6.013		12.0500	86.52		
SOUTH POND	POND	100	14.922		12.0500	215.35		
SOUTH POND OUT	POND	2	3.639		13.5000	3.98	1336.91	1.816
SOUTH POND OUT	POND	5	5.843		12.9000	8.57	1337.41	2.889
SOUTH POND OUT	POND	100	14.641		12.5000	35.00	1339.16	7.046
SOUTH RESIDENTIA	AREA	2	3.255		12.0500	46.43		
SOUTH RESIDENTIA	AREA	5	5.126		12.0500	74.33		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
SOUTH RESIDENTIA	AREA	100	12.379		12.0500	178.41		
WEST OFFSITE	AREA	2	2.882		12.1500	28.78		
WEST OFFSITE	AREA	5	5.099		12.1500	56.17		
WEST OFFSITE	AREA	100	14.617		12.1000	172.75		

File.... C:\HAESTAD\PPKW\RAINFALL\SEDGWICK.RNQ
Title...

JOB TITLE NOT SPECIFIED
Click Project Summary on the File Menu to enter title

DESIGN STORMS SUMMARY

Design Storm File,ID = SEDGWICK.RNQ Sedgwick24

Storm Tag Name = 2y24h

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 5y24h
Description: Sedgwick County 5-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 4.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100y24
Description: Sedgwick County 100-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 7.9000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

DESIGN STORMS SUMMARY

Design Storm File,ID = SEDGWICK.RNQ Sedgwick24

Storm Tag Name   = 2y24h

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency   = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 5y24h
Description: Sedgwick County 5-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency   = 5 yr
Total Rainfall Depth= 4.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 100y24
Description: Sedgwick County 100-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency   = 100 yr
Total Rainfall Depth= 7.9000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... F:\HYDRO\PROJECTS\TURKEY CREEK 3RD\PONDPACK\PONDS.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
1333.00	-----	4.4000	.0000	.000	.000
1334.00	-----	4.6000	13.4989	4.500	4.500
1335.00	-----	4.6000	13.8000	4.600	9.100
1336.00	-----	4.9000	14.2476	4.749	13.849
1337.00	-----	5.2000	15.1478	5.049	18.898
1338.00	-----	5.5000	16.0479	5.349	24.247
1339.00	-----	5.8000	16.9480	5.649	29.897
1340.00	-----	6.1000	17.8481	5.949	35.846

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... F:\HYDRO\PROJECTS\TURKEY CREEK 3RD\PONDPACK\PONDS.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
1349.00	-----	3.5000	.0000	.000	.000
1350.00	-----	3.7000	10.7986	3.600	3.600
1351.00	-----	3.9000	11.3987	3.800	7.399
1352.00	-----	4.2000	12.1472	4.049	11.448
1353.00	-----	4.5000	13.0474	4.349	15.797
1354.00	-----	4.8000	13.9476	4.649	20.447

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... F:\HYDRO\PROJECTS\TURKEY CREEK 3RD\PONDPACK\PONDS.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
1336.00	-----	2.0000	.0000	.000	.000
1337.00	-----	2.0000	6.0000	2.000	2.000
1338.00	-----	2.3000	6.4448	2.148	4.148
1339.00	-----	2.6000	7.3454	2.448	6.597
1340.00	-----	2.9000	8.2459	2.749	9.345
1341.00	-----	3.2000	9.1463	3.049	12.394
1342.00	-----	3.5000	10.0466	3.349	15.743

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

File.... F:\HYDRO\PROJECTS\TURKEY CREEK 3RD\PONDPACK\PONDS.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 1333.00 ft
Increment = .50 ft
Max. Elev.= 1340.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Culvert-Circular	CV	--->	TW	1333.000	1340.000
TW SETUP, DS Channel					

File.... F:\HYDRO\PROJECTS\TURKEY CREEK 3RD\PONDPACK\PONDS.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = CV
Structure Type = Culvert-Circular

No. Barrels	=	1
Barrel Diameter	=	4.0000 ft
Upstream Invert	=	1333.00 ft
Dnstream Invert	=	1327.00 ft
Horiz. Length	=	700.00 ft
Barrel Length	=	700.03 ft
Barrel Slope	=	.00857 ft/ft

OUTLET CONTROL DATA...

Mannings n	=	.0130
Ke	=	.5000 (forward entrance loss)
Kb	=	.004925 (per ft of full flow)
Kr	=	.5000 (reverse entrance loss)
HW Convergence	=	.001 +/- ft

INLET CONTROL DATA...

Equation form	=	1
Inlet Control K	=	.0098
Inlet Control M	=	2.0000
Inlet Control c	=	.03980
Inlet Control Y	=	.6700
T1 ratio (HW/D)	=	1.156
T2 ratio (HW/D)	=	1.303
Slope Factor	=	-.500

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...
At T1 Elev = 1337.62 ft ---> Flow = 87.96 cfs
At T2 Elev = 1338.21 ft ---> Flow = 100.53 cfs

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...

Maximum Iterations	=	30
Min. TW tolerance	=	.01 ft
Max. TW tolerance	=	.01 ft
Min. HW tolerance	=	.01 ft
Max. HW tolerance	=	.01 ft
Min. Q tolerance	=	.10 cfs
Max. Q tolerance	=	.10 cfs

Index of Starting Page Numbers for ID Names

APPENDIX D

Flowmaster

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Project File	f:\hydro\projects\turkey creek 3rd\flowmaster\mainchan.fm2
Worksheet	Turkey Creek 3rd Main Channel
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Channel Slope	0.005000	ft/ft
Left Side Slope	5.000000	H : V
Right Side Slope	5.000000	H : V
Bottom Width	5.00	ft
Discharge	250.00	cfs

Results		
Depth	2.78	ft
Flow Area	52.68	ft²
Wetted Perimeter	33.39	ft
Top Width	32.84	ft
Critical Depth	2.30	ft
Critical Slope	0.012112	ft/ft
Velocity	4.75	ft/s
Velocity Head	0.35	ft
Specific Energy	3.13	ft
Froude Number	0.66	
Flow is subcritical.		

Worksheet
Worksheet for Circular Channel

Project Description	
Project File	f:\hydro\projects\turkey creek 3rd\flowmaster\mainchan.fm2
Worksheet	Main Channel Culvert
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.010000	ft/ft
Diameter	48.00	in
Discharge	108.00	cfs

Results		
Depth	2.59	ft
Flow Area	8.61	ft^2
Wetted Perimeter	7.48	ft
Top Width	3.82	ft
Critical Depth	3.14	ft
Percent Full	64.73	
Critical Slope	0.006132	ft/ft
Velocity	12.55	ft/s
Velocity Head	2.45	ft
Specific Energy	5.04	ft
Froude Number	1.47	
Maximum Discharge	154.51	cfs
Full Flow Capacity	143.64	cfs
Full Flow Slope	0.005654	ft/ft
Flow is supercritical.		