

# **Appendix B – Hydraulic Model**

**Flow Monitoring Manholes**

**Flow Monitor Event Charts**

**Basin Model Capacities Summaries**

**Basins 1-11 Diurnal**

**Basins 1-12 Build Out Input Maps**

## Chapter 4: Sewer Flow Monitoring Manholes

Basin	MH	Approximate Address	Slope In	Slope Out	Dia. In	Dia. Out	Material In	Material Out	MH size	MH depth	Comments
1	322	Intersection of 172nd Ave NE and NE 130th St	0.44%	0.38%	10	10	PVC	PVC	48	10.9	Located in West Shoulder of major Residential street at cul-de-sac entrance, minimum Traffic Control. (MH had been paved over, but will be cleared)
3	913	12805 141st Ave NE Kirkland, Washington	0.32%	0.45%	8	8	PVC	PVC	48	16.3	Located on east side of small industrial road, narrow. Traffic control cones required.
4	574	14030 NE 145th St, Woodinville, WA 98072 Located in Winery Parking lot	0.27%	0.27%	10	10	PVC	PVC	48	19.6	Between parking lot and abandoned asphalt trail. East side. No traffic control needed.
5	167	15800 Redmond-Woodinville Rd NE, Woodinville, WA 98072 Located in Lumber Yard or business park	0.26%	0.54%	12	12	HDPE	PVC	48	8.4	Located on private property in lumber yard. No traffic control required.
6	80	17220 127th Pl NE, Woodinville, Washington	1.16%	1.45%	8	8	CONC	DI	48	15.2	Located in FOG line of collector road, some traffic control required, cones to move traffic lanes to east.
7	92	Apartments south of NE 171st St Woodinville, Washington	0.55%	0.40%	15	15	CONC	CONC	48	15.9	Located adjacent to drainage swale in apartment building parking lot. No traffic control required.
8	45	13324 NE 175th St Woodinville, Washington	1.25%	1.32%	10	10	CONC	CONC	48	15.9	Located in Sidewalk on south side of road
9	979	13990 NE Mill Pl, Woodinville, Washington	1.27%	1.13%	12	12	PVC	PVC	48	13.2	Located in center landscape island, minimal traffic control required.
10	27	18199 Woodinville Snohomish Rd, Woodinville, Washington	0.83%	0.80%	15	15	CONC	CONC	48	11.2	Located back of east sidewalk in gravel parking. No traffic control required.
11	6C	19501 Woodinville Snohomish Rd, Woodinville, WA 98072	0.67%	0.69%	10	10	PVC	PVC	48	15.0	located adjacent to SW corner of large intersection. <b>Alternate Location</b>
12	295A	19532 136th Ave NE, Woodinville, Washington	0.75%	0.77%	12	12	PVC	PVC	48	13.3	Located behind jersey barrier, on freeway ramp. Minimal traffic control required.

Fig 4-3 basin 1

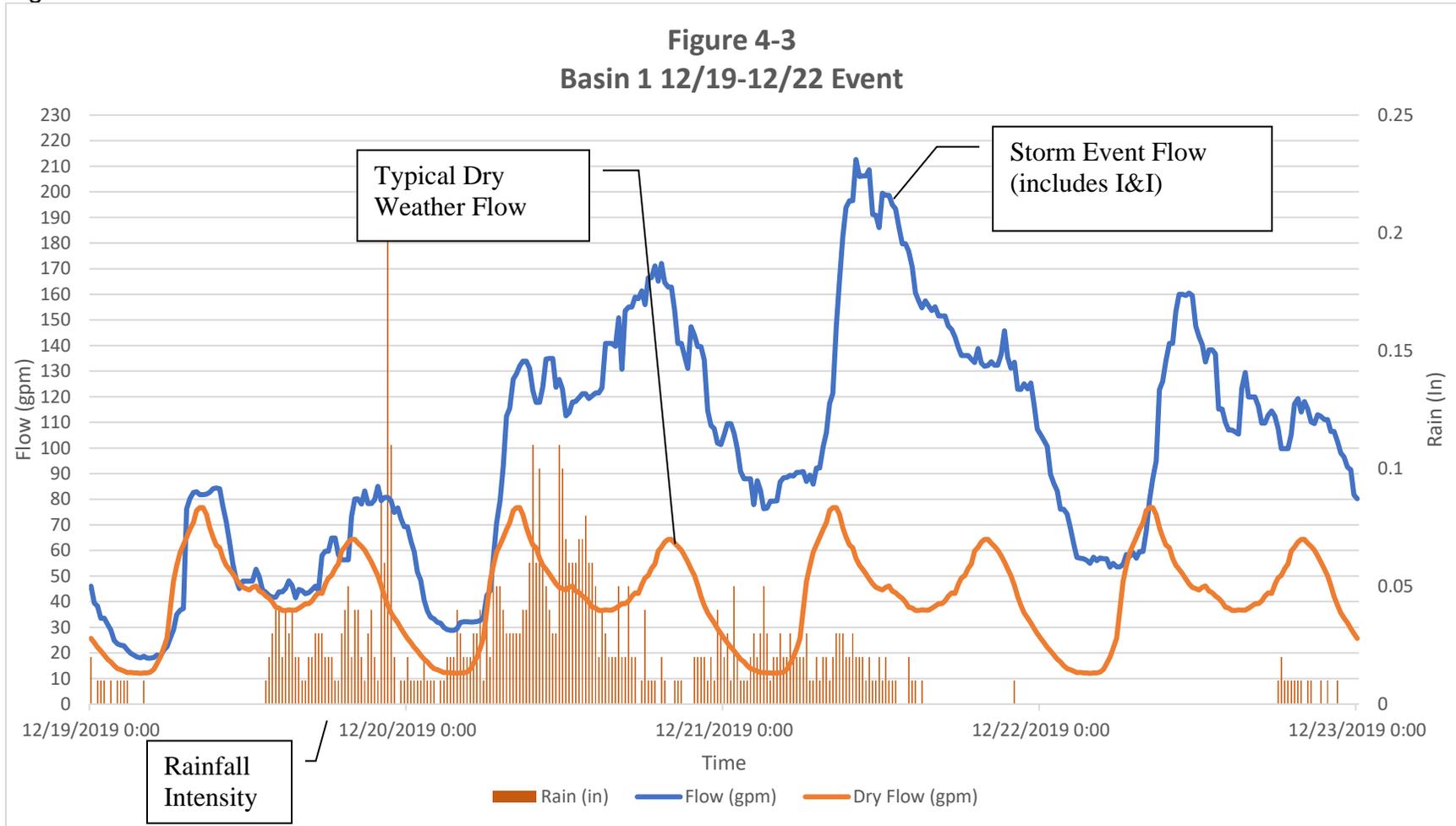


fig 4-4 basin 3

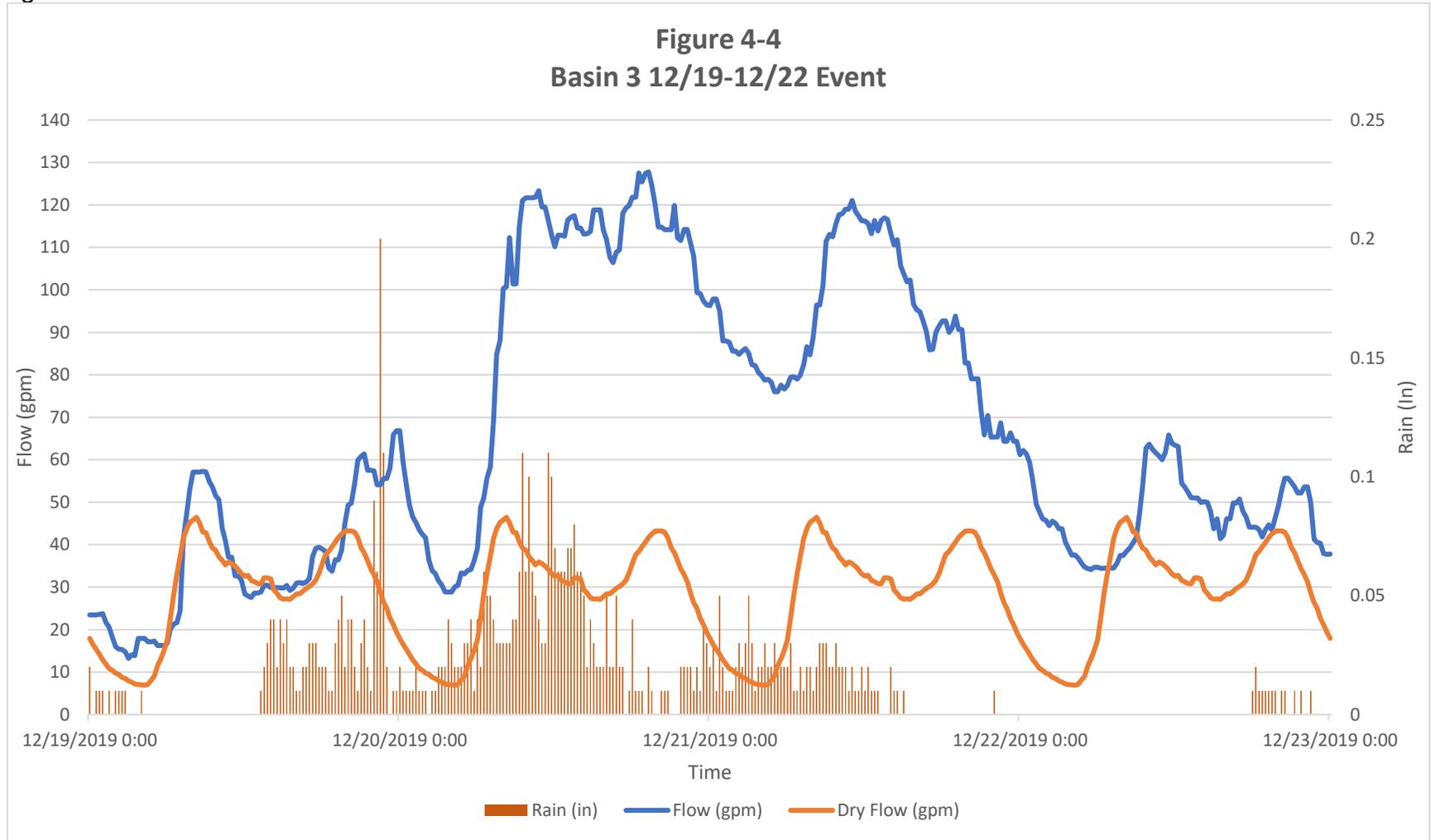


Fig 4-5 basin 4

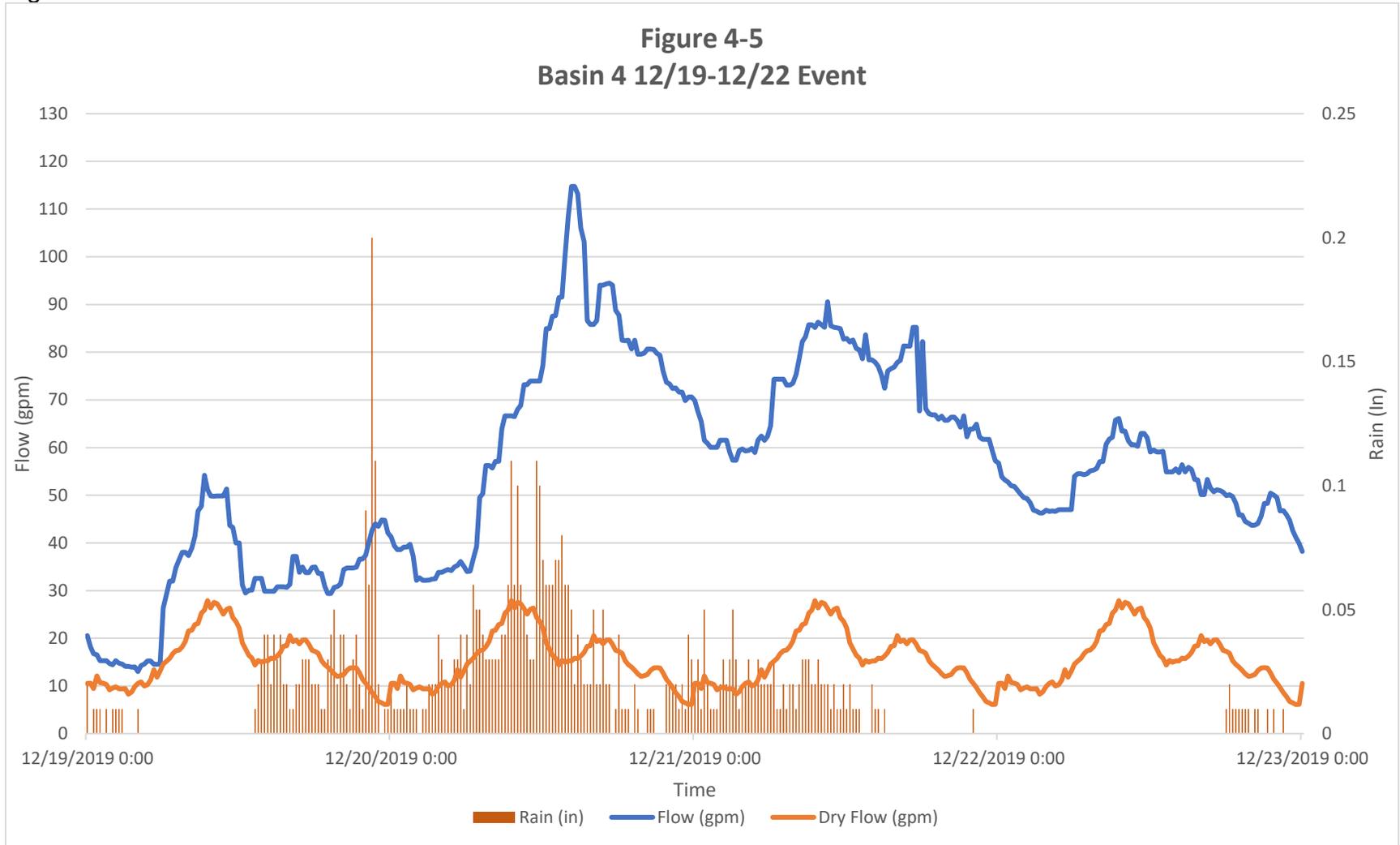


Fig 4-6 basin 5

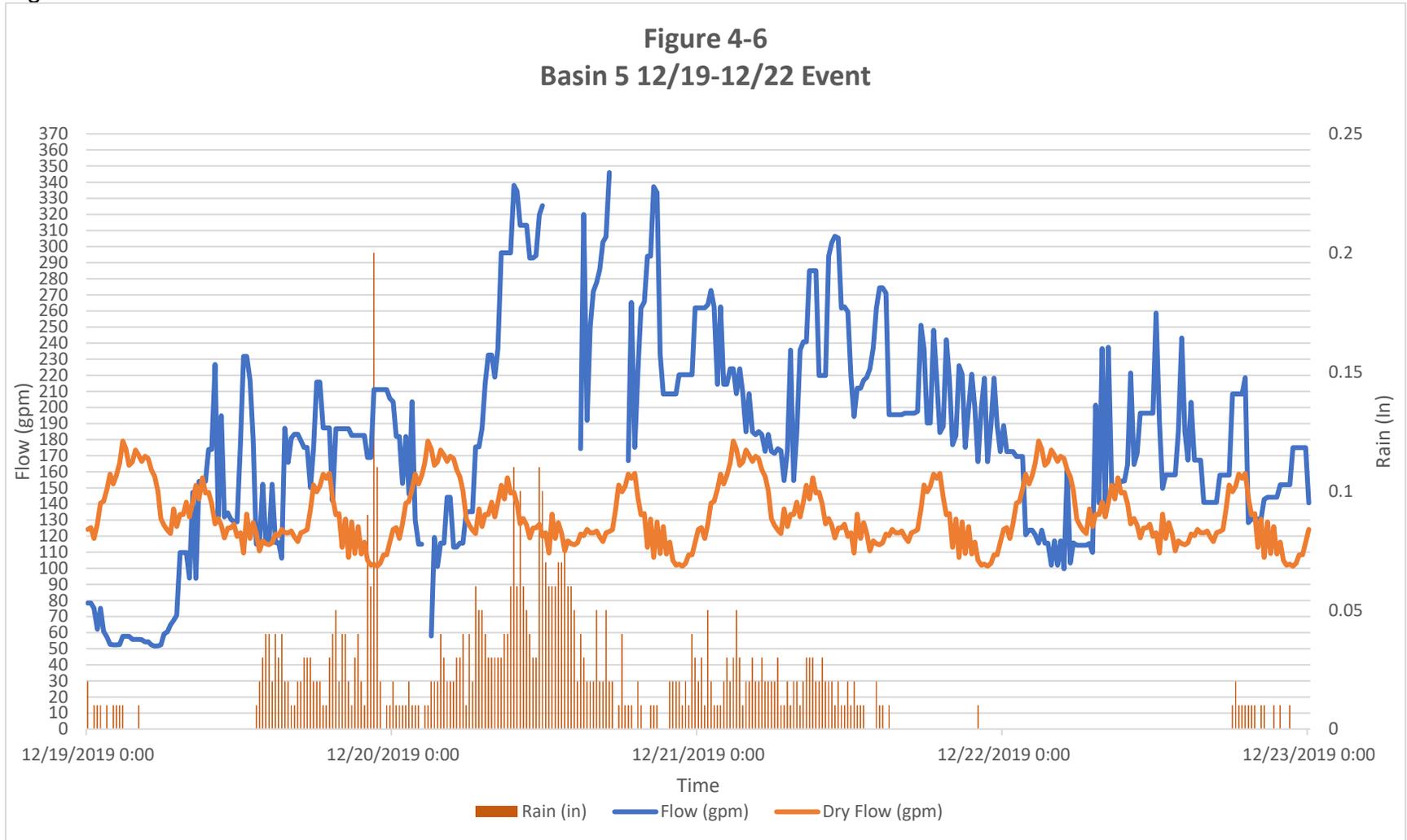


Fig 4-7 basin 6

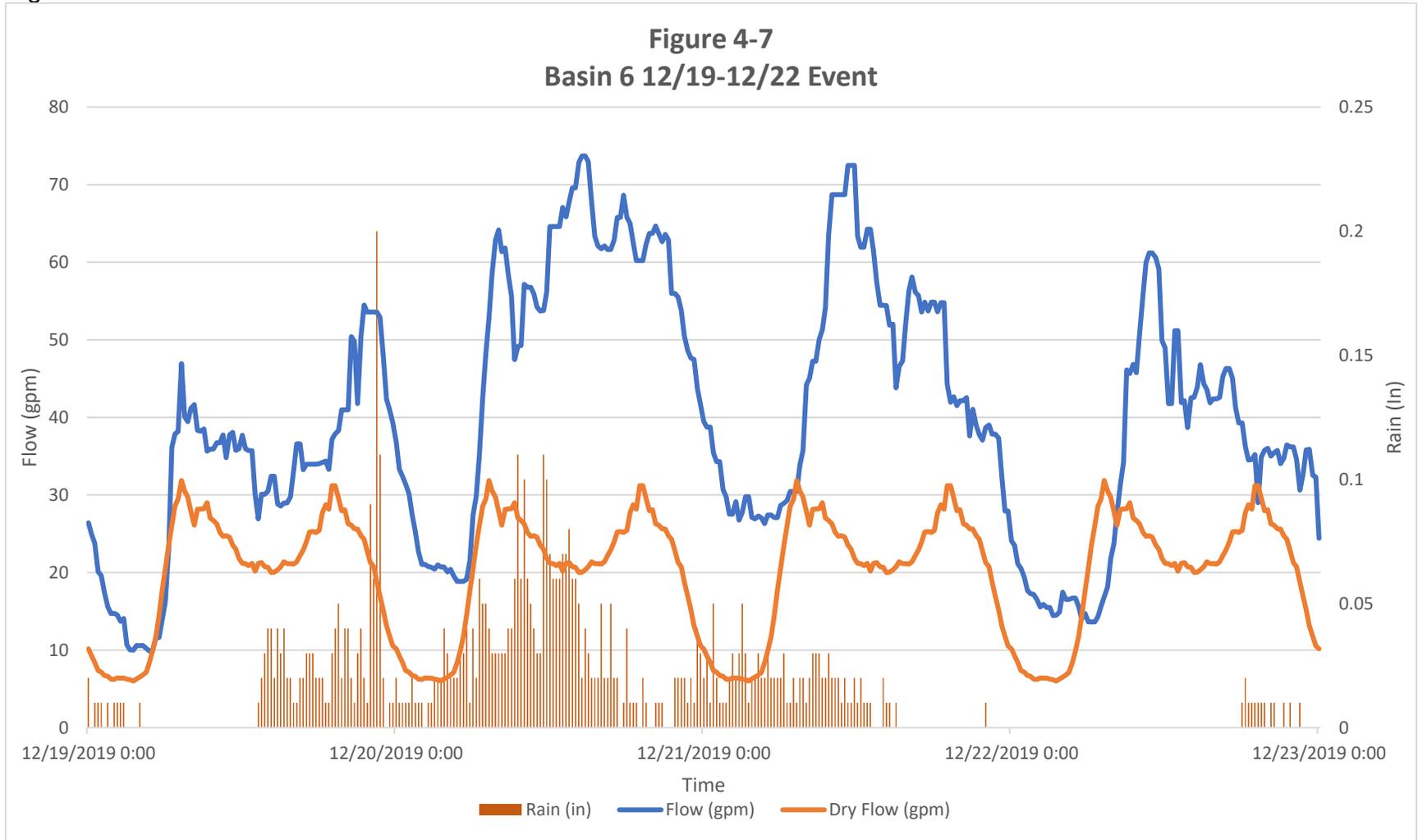


Fig 4-8 basin 7

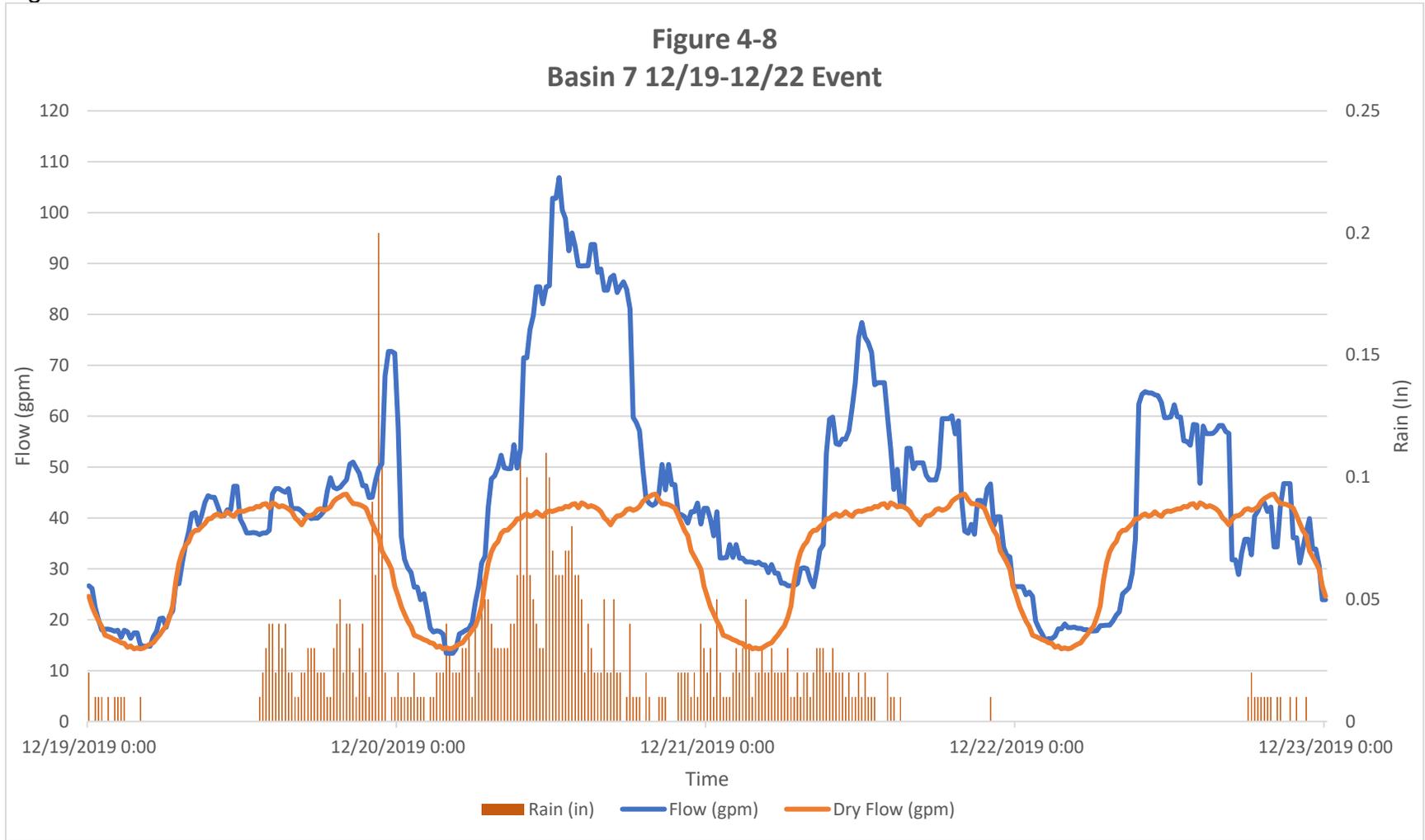


Fig 4-9 basin 8

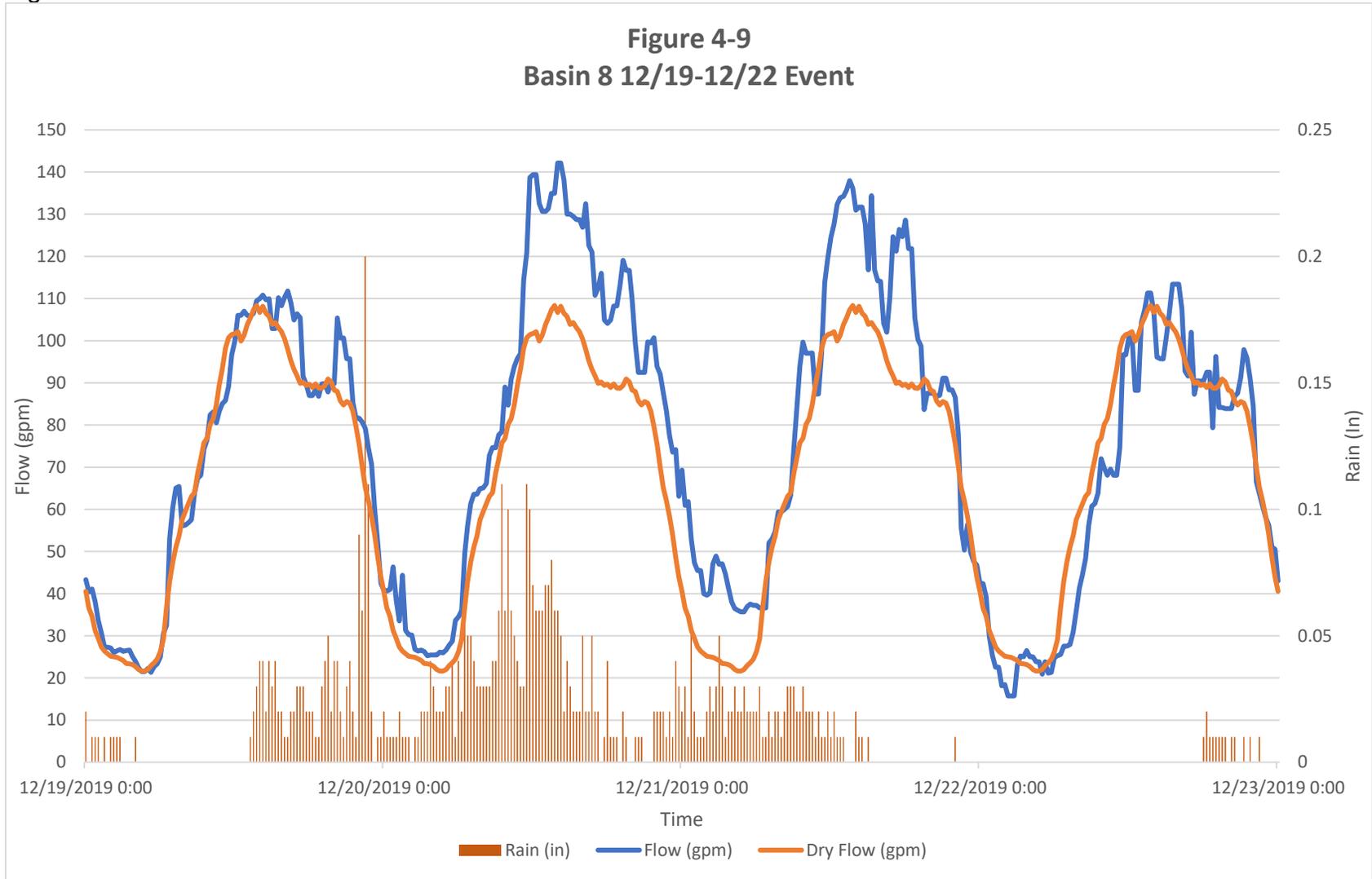


Fig 4-10 basin 9

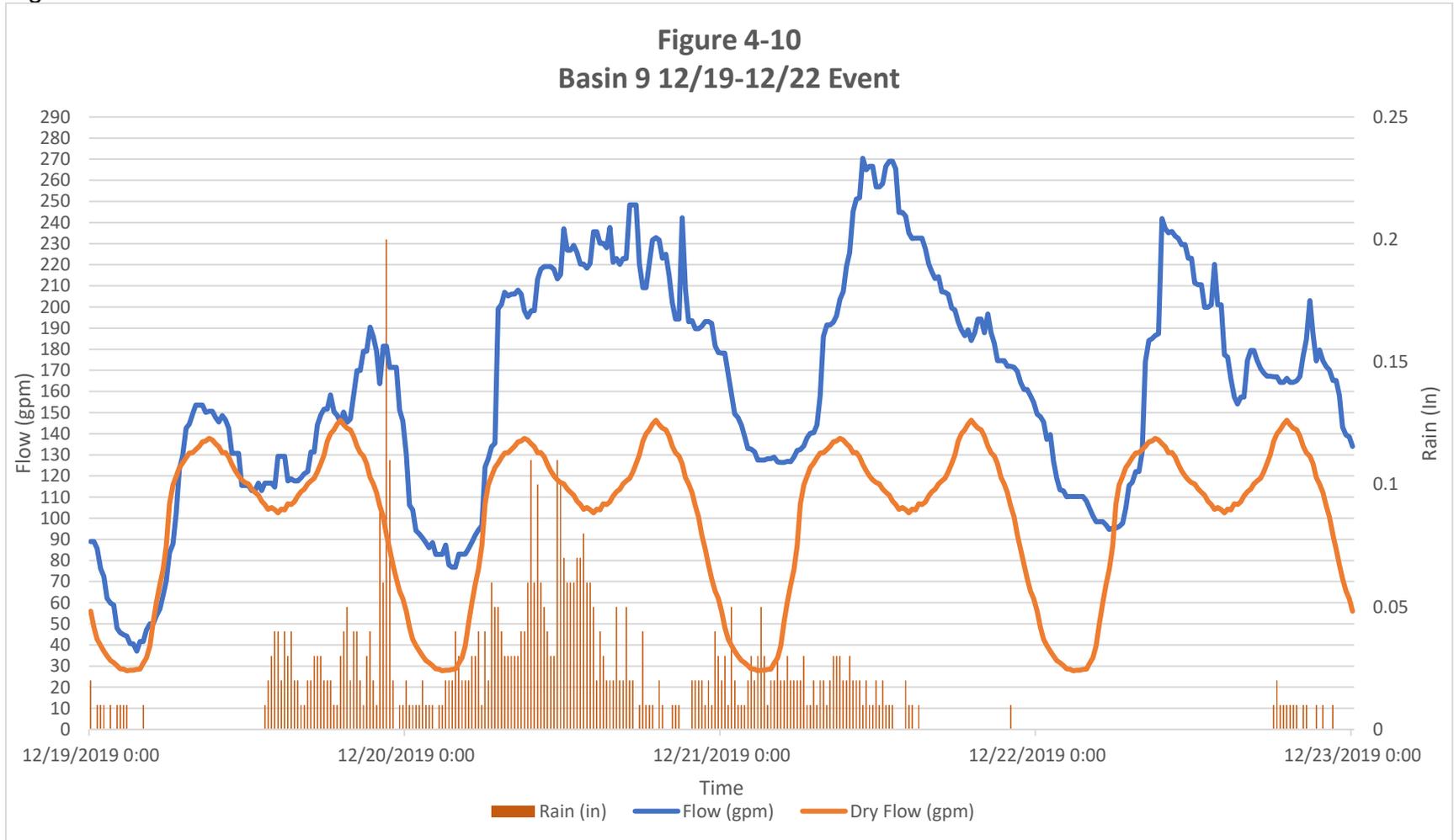


Fig 4-11 basin 10

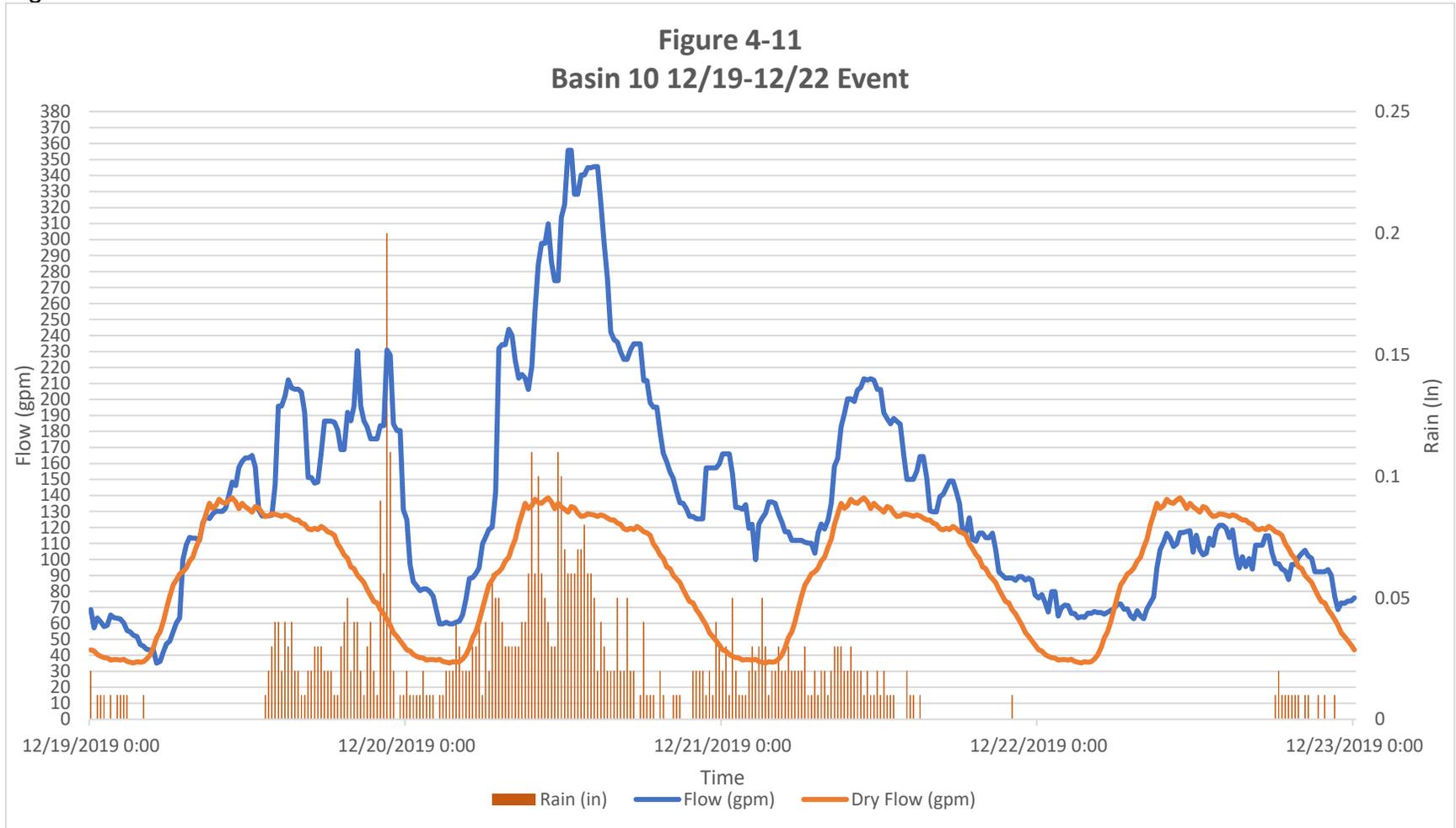
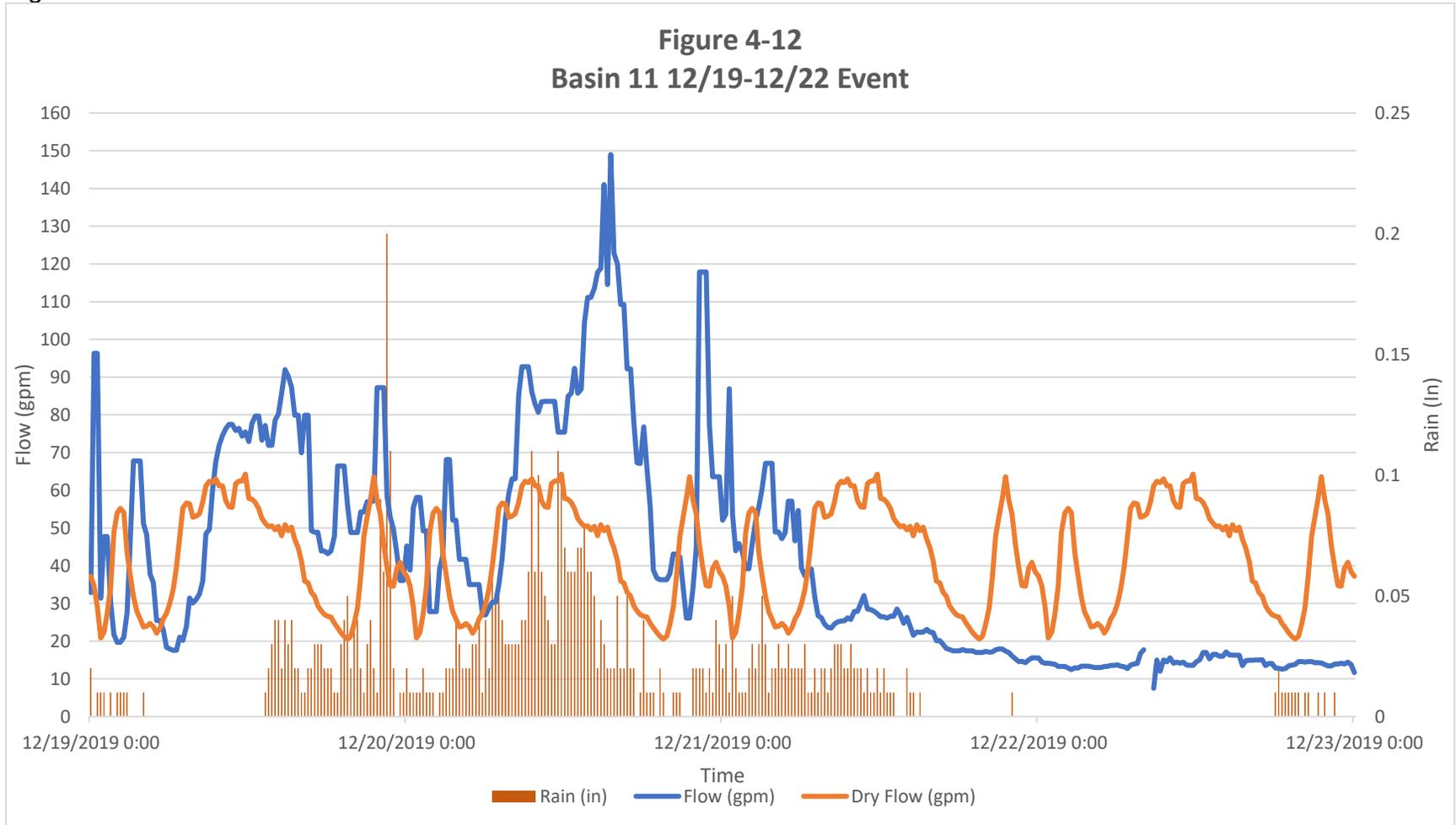


Fig 4-12 basin 11



D

BASIN	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO Total Flow (cfs)	BO q/Q	BO Rev. Dia.	BO Rev. q/Q
<b>1a</b>	NO capacity deficiencies found.										
<b>2a</b>	NO capacity deficiencies found.										
<b>3a</b>	919	918	8	177	0.006	0.06	5.6%	1.08	94.7%	10	52.2%
	918	917	8	398	0.005	0.12	12.0%	1.36	138.1%	10	76.2%
	917	916	8	402	0.006	0.12	11.0%	1.36	126.6%	10	69.8%
	916	915	8	399	0.004	0.12	13.1%	1.36	151.2%	12	51.3%
	915	914	8	413	0.004	0.12	13.3%	1.36	152.8%	12	51.8%
	914	913	8	390	0.003	0.12	14.7%	1.36	169.5%	12	57.5%
	913	0912B	8	222	0.004	0.12	12.3%	1.36	142.3%	12	48.3%
	0912B	1066	8	192	0.002	0.16	27.7%	1.58	274.3%	15	51.3%
	1066	0912A	8	32	0.004	0.16	17.4%	1.58	172.0%	15	32.2%
	0912A	912	8	32	0.006	0.16	14.4%	1.58	142.3%	15	26.6%
	912	911	8	347	0.003	0.16	19.1%	1.58	188.9%	15	35.3%
	911	910	8	63	0.009	0.16	12.0%	1.58	119.0%	15	22.3%
	910	909	8	23	0.009	0.16	11.6%	1.58	115.3%	15	21.6%
	909	908	8	243	0.016	0.16	8.8%	1.58	87.3%	15	16.3%
	908	907	8	86	0.015	0.16	9.1%	1.58	89.9%	15	16.8%
	907	906	8	207	0.082	0.16	3.9%	1.58	38.4%	15	7.2%
<b>4a</b>	NO capacity deficiencies found.										
<b>5a</b>	934	679	8	352	0.009	0.53	39.6%	1.18	88.3%	12	30.0%
	679	235	8	14	0.107	0.53	11.3%	1.18	25.2%	12	8.5%
	235	234	8	272	0.009	0.53	38.1%	1.18	85.1%	12	28.8%
<b>6a</b>	78	0077A	8	4	0.006	0.49	45.9%	1.04	97.1%	10	53.6%
<b>7b</b>	NO capacity deficiencies found.										
<b>8b</b>	134	133	8	247	0.004	0	0.0%	0.78	82.6%	10	45.6%
	132	127	8	212	0.004	0.168	6.4%	1.472	166.3%	12	56.4%
	326	125	8	204	0.017	0.168	4.9%	1.472	78.2%	10	43.1%
	125	124	8	300	0.036	0.168	3.4%	1.472	54.4%	10	30.0%

D

BASIN	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO Total Flow (cfs)	BO q/Q	BO Rev. Dia.	BO Rev. q/Q
9ab	124	0062A	8	88	0.026	0.261	6.2%	2.4	103.1%	12	35.0%
	0062A	62	8	80	0.069	0.261	3.8%	2.4	63.8%	12	21.6%
	62	61	8	350	0.023	0.261	6.6%	2.4	109.7%	12	37.2%
	61	60	10	286	0.044	0.342	2.1%	3.203	59.0%	12	36.3%
	60	58	10	50	0.011	0.399	5.0%	3.81	141.3%	15	47.9%
	58	57	10	177	0.010	0.399	5.2%	3.81	146.4%	15	49.7%
	57	55	10	259	0.010	0.399	5.2%	3.81	145.8%	15	49.4%
	55	54	10	198	0.010	0.521	6.7%	4.417	168.3%	15	57.1%
	54	52	10	172	0.006	0.521	5.3%	4.417	216.0%	15	73.3%
	52	50	10	133	0.005	0.521	5.7%	4.417	230.4%	15	78.2%
	50	49	10	149	0.006	0.521	5.4%	4.417	219.5%	15	74.4%
	49	47	10	119	0.005	0.521	6.0%	4.417	242.0%	18	50.5%
	47	46	10	341	0.007	0.521	4.9%	5.024	225.6%	18	47.1%
	46	45	10	210	0.013	0.521	3.7%	5.024	173.0%	18	36.1%
	45	44	10	159	0.013	0.521	3.6%	5.024	168.7%	18	35.2%
	44	18	10	300	0.007	0.521	4.9%	5.024	226.0%	18	47.1%
	18	17	15	273	0.009	0.624	5.3%	6.052	83.2%	18	51.1%
	17	0016A	15	22	0.039	0.624	2.5%	6.052	39.9%	18	24.6%
	0016A	16	15	199	0.009	0.624	5.3%	6.052	83.2%	18	51.1%
	16	14	18	181	0.010	0.624	4.9%	6.052	47.9%	18	47.9%
	14	13	18	90	0.004	0.624	7.5%	6.052	72.9%	18	72.9%
	13	12	18	209	0.004	0.624	5.6%	6.052	81.8%	21	54.2%
	12	W11A04	18	91	0.003	0.624	6.2%	6.052	91.1%	21	60.4%
	459	65	8	166	0.021	0.44	20.9%	2.80	134.3%	12.00	45.6%
	65	981	8	91	0.021	0.44	21.1%	2.80	135.4%	12.00	45.9%
	981	980	12	86	0.017	0.55	10.1%	3.69	67.8%	15.00	37.4%
	980	979	12	183	0.013	0.55	11.6%	3.69	77.5%	15.00	42.7%
	979	978	12	267	0.011	0.55	12.3%	3.69	82.3%	15.00	45.4%

D

BASIN	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO Total Flow (cfs)	BO q/Q	BO Rev. Dia.	BO Rev. q/Q
	978	977	12	332	0.012	0.55	11.9%	3.69	79.7%	15.00	44.0%
	977	976	12	352	0.013	0.55	11.3%	3.69	75.7%	15.00	41.8%

**10a** NO capacity deficiencies found.

**11a** NO capacity deficiencies found.

**12a** NO capacity deficiencies found.

(b) basins used a PF of 4

(a) basins used a PF of 4

(ab) basins used a PF of 4 in CBD areas, all else PF of 3

# WWD - Basin 1

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
108	402	403	8	400	0.021	0.12	5.5%	0.21	10.1%
94	403	404	8	402	0.029	0.15	6.3%	0.28	11.5%
95	404	405	8	215	0.047	0.15	4.9%	0.28	8.9%
96	405	406	8	315	0.029	0.15	6.2%	0.28	11.4%
90	406	0314A	8	238	0.028	0.15	6.3%	0.28	11.6%
91	0314A	0313A	8	333	0.020	0.15	7.4%	0.28	13.6%
92	0313A	0312A	8	331	0.024	0.15	6.9%	0.28	12.6%
93	0312A	0311A	8	311	0.005	0.20	19.5%	0.37	35.8%
87	0311A	0310A	8	244	0.003	0.20	26.0%	0.37	47.7%
88	0310A	0309A	8	238	0.006	0.20	18.4%	0.37	33.7%
89	0309A	0308A	8	407	0.005	0.20	20.8%	0.37	38.2%
64	0308A	0307A	8	400	0.026	0.30	12.9%	0.54	23.6%
65	0307A	0306A	8	413	0.013	0.30	17.8%	0.54	32.7%
66	0306A	272	8	173	0.012	0.30	18.6%	0.54	34.1%
63	272	271	8	251	0.039	0.34	12.1%	0.63	22.4%
47	271	270	8	132	0.013	0.62	38.1%	1.14	69.9%
162	270	268	8	143	0.047	0.62	19.9%	1.14	36.6%
155	268	267	10	200	0.005	0.62	35.2%	1.14	64.6%
156	267	325	10	277	0.005	0.62	34.9%	1.14	64.1%
157	325	324	10	324	0.026	0.62	14.7%	1.14	27.0%
173	324	323	10	324	0.040	0.62	11.9%	1.14	21.9%
170	323	322	10	334	0.004	0.62	35.9%	1.14	65.9%
171	322	321	10	361	0.004	0.68	43.0%	1.26	79.1%
172	321	320	10	360	0.027	0.68	16.0%	1.26	29.3%
169	320	319	10	398	0.028	0.68	15.8%	1.26	29.1%

# WWD - Basin 1

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
175	319	318	12	102	0.005	0.89	28.6%	1.46	47.1%
176	318	317	12	388	0.005	0.89	29.9%	1.46	49.3%
177	317	316	12	398	0.007	0.89	24.9%	1.46	41.1%
178	316	315	10	397	0.064	0.89	13.5%	1.46	22.2%
179	315	314	10	301	0.019	0.89	24.6%	1.46	40.5%
180	314	313	10	346	0.029	0.89	20.2%	1.46	33.3%
181	313	312	10	288	0.069	0.89	13.0%	1.47	21.4%
182	312	311	10	227	0.100	0.89	10.9%	1.47	17.9%
183	311	310	10	402	0.107	0.89	10.5%	1.47	17.3%
184	310	309	10	193	0.107	0.89	10.5%	1.47	17.3%
185	309	308	10	207	0.098	0.90	11.0%	1.47	18.1%
186	308	307	10	158	0.181	0.90	8.1%	1.47	13.3%
187	307	306	10	152	0.082	0.90	12.1%	1.47	19.8%
188	306	305	10	286	0.034	0.90	18.6%	1.47	30.5%
189	305	304	10	404	0.022	0.90	23.5%	1.47	38.6%
190	304	303	10	400	0.015	0.90	28.6%	1.47	46.9%
191	303	302	10	366	0.011	0.90	33.9%	1.48	55.4%
192	302	301	10	404	0.011	0.90	33.0%	1.48	54.0%
193	301	0300A	10	170	0.013	0.90	55.9%	1.48	50.4%
194	0300A	300	10	61	0.061	0.90	14.2%	1.48	23.1%
195	300	299	12	400	0.005	0.91	31.1%	1.48	50.8%
196	299	298	12	399	0.005	0.91	30.2%	1.48	49.2%
197	298	297	12	400	0.005	0.91	31.9%	1.48	52.0%
198	297	296	15	400	0.002	0.91	25.0%	1.48	40.8%
1196	296	295	15	399	0.004	0.91	18.8%	1.48	30.6%

# WWD - Basin 1

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
1198	295	294	15	409	0.002	0.91	28.2%	1.48	46.0%
1261	294	W11153	15	35	0.002	0.91	27.7%	1.49	45.1%
133	380	379	8	182	0.078	0.12	2.9%	0.22	5.4%
111	379	0379A	8	329	0.044	0.12	4.0%	0.22	7.2%
112	0379A	291	8	255	0.024	0.12	5.3%	0.22	9.7%
113	291	290	8	258	0.004	0.12	13.1%	0.22	23.9%
114	290	289	8	274	0.027	0.12	5.0%	0.22	9.1%
115	289	288	8	307	0.016	0.12	6.5%	0.22	11.8%
48	288	287	8	197	0.013	0.15	9.1%	0.27	16.8%
49	287	286	8	147	0.013	0.15	9.1%	0.27	16.8%
50	286	285	8	89	0.013	0.15	9.1%	0.27	16.8%
51	285	277	8	361	0.004	0.15	15.8%	0.27	29.1%
52	277	276	8	175	0.026	0.22	9.5%	0.40	17.4%
163	276	275	8	102	0.056	0.22	6.4%	0.40	11.8%
53	275	274	8	316	0.025	0.22	9.7%	0.40	17.8%
54	274	271	8	284	0.006	0.28	24.5%	0.51	44.8%
58	278	277	8	252	0.031	0.07	2.7%	0.13	5.0%
62	273	272	8	289	0.048	0.05	1.5%	0.09	2.7%
82	329	0308A	8	192	0.003	0.10	11.8%	0.18	21.8%

## WWD - Basin 2

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: Basin consists of Sunrise LS and was not modeled

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q

### WWD - Basin 3

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: N 3 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q	BO 3 Rev. Dia.	BO 3 Rev. q/Q
1384	1507	1338B	10	386	0.176	0.05	0.4%	0.26	2.3%	10	0.023
1385	1338B	1338A	8	151	0.018	0.05	2.4%	0.26	13.3%	8	0.133
1386	1338A	1338	8	167	0.053	0.05	1.4%	0.26	7.7%	8	0.077
1387	1338	922	8	38	0.191	0.05	0.7%	0.26	4.1%	8	0.041
615	922	921	8	107	0.062	0.06	1.8%	0.36	10.1%	8	0.101
616	921	920	8	226	0.259	0.06	0.9%	0.36	5.0%	8	0.05
617	920	919	8	19	0.009	0.06	4.7%	0.36	26.5%	8	0.265
618	919	918	8	177	0.006	0.06	5.6%	0.36	31.7%	8	0.317
610	918	917	8	398	0.005	0.12	12.0%	0.64	65.3%	8	0.653
611	917	916	8	402	0.006	0.12	11.0%	0.64	59.8%	8	0.598
612	916	915	8	399	0.004	0.12	13.1%	0.64	71.5%	8	0.715
607	915	914	8	413	0.004	0.12	13.3%	0.64	72.2%	8	0.722
608	914	913	8	390	0.003	0.12	14.7%	0.64	80.1%	8	0.801
609	913	0912B	8	222	0.004	0.12	12.3%	0.64	67.3%	8	0.673
631	0912B	1066	8	192	0.002	0.16	27.7%	0.86	149.4%	10	0.824
632	1066	0912A	8	32	0.004	0.16	17.4%	0.86	93.7%	10	0.517
633	0912A	912	8	32	0.006	0.16	14.4%	0.86	77.5%	10	0.427
1193	912	911	8	347	0.003	0.16	19.1%	0.86	102.9%	10	0.568
1192	911	910	8	63	0.009	0.16	12.0%	0.86	64.8%	8	0.648
1195	910	909	8	23	0.009	0.16	11.6%	0.86	62.8%	8	0.628
1194	909	908	8	243	0.016	0.16	8.8%	0.86	47.5%	8	0.475
1189	908	907	8	86	0.015	0.16	9.1%	0.86	49.0%	8	0.49
1190	907	906	8	207	0.082	0.16	3.9%	0.86	20.9%	8	0.209
1388	0982A	922	8	713	0.187	0.02	0.3%	0.11	1.7%	8	0.017

### WWD - Basin 3

Sewer Hydraulic Capacity Model

Run Date: 2/3/2021

Results: 15 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	BO 3 Total Flow (cfs)	BO 3 q/Q	BO 3 Rev. Dia.	BO 3 Rev. q/Q
1547	1496	1499	8	243	0.015	0.32	18.5%	8	18.5%
1548	1499	1500	8	25	0.173	0.32	5.4%	8	5.4%
1549	1500	1503	8	203	0.010	0.32	22.9%	8	22.9%
1543	1503	1504	8	42	0.009	0.32	23.9%	8	23.9%
1544	1504	1505	8	151	0.065	0.32	8.7%	8	8.7%
1545	1505	1506	8	152	0.019	0.42	21.3%	8	21.3%
1546	1506	1507	8	259	0.291	0.42	5.5%	8	5.5%
1384	1507	1338B	10	386	0.176	0.97	8.9%	10	8.9%
1385	1338B	1338A	8	151	0.018	0.97	50.9%	8	50.9%
1386	1338A	1338	8	167	0.053	0.97	29.4%	8	29.4%
1387	1338	922	8	38	0.191	0.97	15.5%	8	15.5%
615	922	921	8	107	0.062	1.08	30.2%	8	30.2%
616	921	920	8	226	0.259	1.08	14.8%	8	14.8%
617	920	919	8	19	0.009	1.08	79.2%	8	79.2%
618	919	918	8	177	0.006	1.08	94.7%	10	52.2%
610	918	917	8	398	0.005	1.36	138.1%	10	76.2%
611	917	916	8	402	0.006	1.36	126.6%	10	69.8%
612	916	915	8	399	0.004	1.36	151.2%	12	51.3%
607	915	914	8	413	0.004	1.36	152.8%	12	51.8%
608	914	913	8	390	0.003	1.36	169.5%	12	57.5%
609	913	0912B	8	222	0.004	1.36	142.3%	12	48.3%
631	0912B	1066	8	192	0.002	1.58	274.3%	15	51.3%
632	1066	0912A	8	32	0.004	1.58	172.0%	15	32.2%
633	0912A	912	8	32	0.006	1.58	142.3%	15	26.6%
1193	912	911	8	347	0.003	1.58	188.9%	15	35.3%
1192	911	910	8	63	0.009	1.58	119.0%	15	22.3%

### WWD - Basin 3

Sewer Hydraulic Capacity Model

Run Date: 2/3/2021

Results: 15 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	BO 3 Total Flow (cfs)	BO 3 q/Q	BO 3 Rev. Dia.	BO 3 Rev. q/Q
1195	910	909	8	23	0.009	1.58	115.3%	15	21.6%
1194	909	908	8	243	0.016	1.58	87.3%	15	16.3%
1189	908	907	8	86	0.015	1.58	89.9%	15	16.8%
1190	907	906	8	207	0.082	1.58	38.4%	15	7.2%
1388	0982A	922	8	713	0.187	0.11	1.7%	8	1.7%
1369	1345	1344	8	1553	0.001	0.40	72.1%	8	72.1%
1370	1344	1343	8	154	0.065	0.40	10.9%	8	10.9%
1371	1343	1341	8	372	0.120	0.40	8.0%	8	8.0%
1376	1341	1340	8	201	0.035	0.40	14.8%	8	14.8%
1373	1340	1339	8	111	0.155	0.55	9.8%	8	9.8%
1531	1339	1507	10	178	0.516	0.55	3.0%	10	3.0%

## WWD - Basin 4

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
681	594	582	8	204	0.037	0.00	0.4%	0.09	3.4%
687	582	581	8	143	0.194	0.47	0.6%	0.30	4.8%
688	581	580	8	140	0.308	0.47	0.5%	0.30	3.8%
689	580	579	8	181	0.198	0.30	0.6%	0.30	4.8%
1213	579	578	10	305	0.006	0.30	1.9%	0.30	15.6%
1214	578	576	10	400	0.005	0.47	2.0%	0.30	16.9%
1216	576	1279	10	336	0.050	0.47	0.9%	0.47	8.0%
1207	1279	575	10	40	0.044	0.67	0.0%	0.47	8.5%
1211	575	574	10	391	0.003	0.20	4.1%	0.47	34.2%
1212	574	573	10	401	0.003	0.67	4.2%	0.47	35.0%
1340	573	1117	14	60	0.001	0.67	2.4%	0.47	20.1%
1392	1117	1116	14	260	0.003	0.67	2.4%	0.67	20.2%
1393	1116	1115	14	43	0.000	0.85	8.2%	0.67	68.6%
1341	1115	571	16	124	0.001	0.09	3.3%	0.67	27.2%
649	571	570	16	299	0.004	0.21	1.4%	0.67	11.4%
650	570	1051	16	120	0.003	0.30	2.2%	0.85	18.1%
691	1051	569	16	281	0.013	0.30	1.0%	0.85	8.1%
690	569	568	14	13	0.037	0.30	0.8%	0.85	6.9%
1391	1118	1117	10	47	0.021	0.85	0.6%	0.20	5.4%
686	583	582	8	123	0.122	0.85	0.5%	0.21	4.2%

## WWD - Basin 5

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: 2 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO3 Total Flow (cfs)	BO3 q/Q	BO 3 Revised Diameter	BO 3 Revised q/Q
736	1165	1161	8	117	0.010	0.27	18.5%	0.60	41.3%	8.00	41.3%
1596	1161	1160	8	93	0.014	0.27	15.6%	0.60	34.7%	8.00	34.7%
737	1160	1159	8	335	0.029	0.27	11.0%	0.60	24.5%	8.00	24.5%
738	1159	1158	8	285	0.020	0.27	13.2%	0.60	29.4%	8.00	29.4%
739	1158	1157	8	184	0.005	0.31	31.4%	0.69	69.8%	8.00	69.8%
741	1157	1156	8	75	0.019	0.31	15.9%	0.69	35.3%	8.00	35.3%
1528	1156	1155A	8	96	0.066	0.31	8.5%	0.69	18.8%	8.00	18.8%
742	1155A	1155	8	114	0.069	0.31	8.3%	0.69	18.4%	8.00	18.4%
743	1155	1154	8	109	0.146	0.31	5.7%	0.69	12.6%	8.00	12.6%
744	1154	962	8	175	0.145	0.31	5.7%	0.69	12.7%	8.00	12.7%
1524	962	961	8	301	0.178	0.33	5.5%	0.73	12.2%	8.00	12.2%
701	961	960	8	143	0.050	0.33	10.3%	0.73	22.9%	8.00	22.9%
1525	960	959	8	281	0.116	0.33	6.8%	0.73	15.0%	8.00	15.0%
702	959	958	8	294	0.005	0.33	32.2%	0.73	71.6%	8.00	71.6%
703	958	957	8	94	0.065	0.33	9.0%	0.73	20.1%	8.00	20.1%
705	957	956	8	246	0.068	0.33	8.8%	0.73	19.6%	8.00	19.6%
706	956	955	8	79	0.100	0.39	8.5%	0.86	19.0%	8.00	19.0%
707	955	954	8	198	0.114	0.39	8.0%	0.86	17.8%	8.00	17.8%
708	954	953	8	102	0.110	0.39	8.1%	0.86	18.2%	8.00	18.2%
709	953	952	8	78	0.120	0.39	7.8%	0.86	17.4%	8.00	17.4%
710	952	951	8	167	0.037	0.39	14.1%	0.86	31.4%	8.00	31.4%
712	951	939	8	165	0.264	0.39	5.3%	0.86	11.7%	8.00	11.7%
724	939	938	8	108	0.258	0.42	5.7%	0.92	12.7%	8.00	12.7%
748	938	937	8	70	0.151	0.42	7.4%	0.92	16.6%	8.00	16.6%
749	937	936	8	294	0.033	0.42	15.8%	0.92	35.2%	8.00	35.2%

## WWD - Basin 5

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: 2 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO3 Total Flow (cfs)	BO3 q/Q	BO 3 Revised Diameter	BO 3 Revised q/Q
750	936	935	8	95	0.017	0.42	21.9%	0.92	48.8%	8.00	48.8%
751	935	934	8	18	0.019	0.42	21.0%	0.92	46.8%	8.00	46.8%
753	934	679	8	352	0.009	0.53	39.6%	1.18	88.3%	12.00	30.0%
754	679	235	8	14	0.107	0.53	11.3%	1.18	25.2%	12.00	8.5%
698	235	234	8	272	0.009	0.53	38.1%	1.18	85.1%	12.00	28.8%
699	234	233	12	266	0.003	0.53	22.1%	1.18	49.2%	12.00	49.2%
700	233	0232A	12	338	0.005	0.53	18.2%	1.18	40.5%	12.00	40.5%
1520	0232A	0169A	12	162	0.008	0.53	14.3%	1.18	31.8%	12.00	31.8%
1521	0169A	0168A	12	30	0.008	0.53	13.7%	1.18	30.5%	12.00	30.5%
692	0168A	168	12	325	0.004	0.53	19.2%	1.18	42.8%	12.00	42.8%
693	168	0167A	12	201	0.003	0.58	26.7%	1.29	59.6%	12.00	59.6%
1523	0167A	167	12	149	0.005	0.58	18.7%	1.29	41.7%	12.00	41.7%
694	167	0159A	12	339	0.004	0.58	23.1%	1.29	51.6%	12.00	51.6%
1517	0159A	0158B	12	11	0.013	0.58	12.2%	1.29	27.2%	12.00	27.2%
734	0158B	158	14	185	0.005	0.58	13.5%	1.29	30.0%	14.00	30.0%
759	158	0158A	10	11	0.031	0.58	12.8%	1.29	28.4%	10.00	28.4%
1518	159	0158B	10	8	0.002	0.00	0.0%	0.00	0.0%	10.00	0.0%
731	965	962	8	289	0.144	0.02	0.3%	0.04	0.8%	8.00	0.8%

## WWD - Basin 6

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: 2 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q	BO 3 Rev. Dia.	BO 3 Rev. q/Q
819	496	495	8	405	0.047	0.15	4.9%	0.32	10.3%	8.00	10.3%
818	495	493	8	218	0.031	0.20	7.9%	0.42	16.7%	8.00	16.7%
812	493	492	8	280	0.004	0.20	22.4%	0.42	47.3%	8.00	47.3%
813	492	491	8	103	0.008	0.20	15.8%	0.42	33.3%	8.00	33.3%
814	491	453	8	261	0.030	0.20	8.1%	0.42	17.1%	8.00	17.1%
810	453	445	8	243	0.040	0.29	10.1%	0.61	21.3%	8.00	21.3%
791	445	444	8	264	0.067	0.29	7.8%	0.61	16.5%	8.00	16.5%
792	444	443	8	190	0.073	0.38	9.8%	0.80	20.7%	8.00	20.7%
793	443	442	8	210	0.065	0.38	10.3%	0.80	21.8%	8.00	21.8%
1062	442	1060	8	295	0.110	0.38	8.0%	0.80	16.9%	8.00	16.9%
1063	1060	1058	8	41	0.109	0.38	8.0%	0.80	16.9%	8.00	16.9%
1060	1058	441	8	49	0.108	0.38	8.0%	0.80	16.9%	8.00	16.9%
777	441	440	8	304	0.108	0.38	8.0%	0.80	16.9%	8.00	16.9%
778	440	439	8	286	0.112	0.38	7.9%	0.80	16.6%	8.00	16.6%
779	439	438	8	239	0.076	0.38	9.5%	0.80	20.2%	8.00	20.2%
780	438	82	8	196	0.069	0.42	11.1%	0.88	23.4%	8.00	23.4%
768	82	81	8	401	0.045	0.42	13.8%	0.88	29.1%	8.00	29.1%
769	81	80	8	248	0.012	0.42	27.0%	0.88	57.2%	8.00	57.2%
770	80	79	8	211	0.015	0.42	24.2%	0.88	51.1%	8.00	51.1%
771	79	0078A	8	82	0.109	0.44	9.3%	0.93	19.6%	8.00	19.6%
772	0078A	78	8	80	0.105	0.44	9.4%	0.93	20.0%	8.00	20.0%
877	78	0077A	8	4	0.006	0.49	45.9%	1.04	97.1%	10.00	53.6%
858	0077A	1037	8	131	0.096	0.49	11.1%	1.04	23.6%	8.00	23.6%
1431	1037	77	8	97	0.011	0.49	33.6%	1.04	71.0%	8.00	71.0%
859	77	110	8	194	0.033	0.49	18.8%	1.04	39.8%	8.00	39.8%

## WWD - Basin 6

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: 2 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q	BO 3 Rev. Dia.	BO 3 Rev. q/Q
873	110	69	8	22	0.026	0.53	22.9%	1.08	46.4%	8.00	46.4%
6969	69	W11101A	8	105	0.005	0.60	60.3%				
1120	70	69	8	289	0.003	0.04	4.2%	0.03	3.8%	8.00	3.8%
762	0535A	534	8	161	0.066	0.00	0.0%	0.00	0.0%	8.00	0.0%
775	83	78	8	301	0.014	0.03	1.9%	0.07	4.0%	8.00	4.0%
790	86	78	8	199	0.013	0.02	1.5%	0.05	3.2%	8.00	3.2%
822	511	453	8	221	0.094	0.09	2.0%	0.19	4.4%	8.00	4.4%
860	111	110	8	262	0.005	0.04	3.9%	0.04	3.6%	8.00	3.6%
862	534	79	8	37	0.057	0.00	0.0%	0.00	0.0%	8.00	0.0%

## WWD - Basin 7

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
880	0992B	118	10	18	0.014	0.06	2.1%	0.89	29.3%
887	118	117	15	254	0.009	0.06	0.9%	0.89	12.5%
888	117	101	15	48	0.005	0.06	1.1%	0.90	15.8%
889	101	100	15	189	0.006	0.06	1.1%	0.90	15.1%
896	100	99	15	159	0.006	0.06	1.1%	0.90	15.4%
1515	99	1520	15	195	0.006	0.06	1.1%	0.90	15.8%
1684	1520	1519	16	83	0.002	0.09	2.0%	1.24	28.4%
1683	1519	95	21	115	0.003	0.12	1.2%	1.68	16.4%
897	95	94	15	182	0.005	0.12	2.1%	1.68	30.3%
908	94	93	15	334	0.005	0.14	2.5%	1.97	35.0%
909	93	92	15	401	0.005	0.17	3.0%	2.39	42.2%
910	92	91	15	383	0.004	0.17	3.5%	2.39	49.6%
1152	91	90	15	230	0.010	0.17	2.2%	2.40	32.1%
1153	90	W11111	15	44	0.116	0.17	0.6%	2.40	9.2%
1686	1540	1541	12	42	0.003	0.01	0.4%	0.14	6.0%
899	1541	103	8	148	0.005	0.01	1.0%	0.14	13.8%
898	103	94	8	123	0.012	0.01	0.6%	0.14	9.1%
1465	1434	1519	8	107	0.005	0.03	3.0%	0.44	43.1%
1475	1443	94	8	43	0.019	0.01	0.5%	0.15	7.4%

# WWD - Basin 8

Sewer Hydraulic Capacity Model

Run Date: 2/14/2022

Results: N 21 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 4 Total Flow (cfs)	BO 4 q/Q	BO 4 Rev. Dia.	BO 4 Rev. q/Q
283	140	139	8	204	0.024	0	0.0%	0.78	35.0%	8	35.0%
284	139	138	8	196	0.025	0	0.0%	0.78	34.3%	8	34.3%
285	138	137	8	185	0.039	0	0.0%	0.78	27.6%	8	27.6%
286	137	136	8	190	0.107	0	0.0%	0.78	16.7%	8	16.7%
287	136	135	8	199	0.086	0	0.0%	0.78	18.6%	8	18.6%
288	135	134	8	369	0.195	0	0.0%	0.78	12.3%	8	12.3%
289	134	133	8	247	0.004	0	0.0%	0.78	82.6%	10	45.6%
277	133	132	8	193	0.098	0.168	3.8%	1.472	32.9%	8	32.9%
278	132	127	8	212	0.004	0.168	6.4%	1.472	166.3%	12	56.4%
304	127	126	8	94	0.114	0.168	3.5%	1.472	30.4%	8	30.4%
305	126	326	8	24	0.839	0.168	1.3%	1.472	11.2%	8	11.2%
303	326	125	8	204	0.017	0.168	4.9%	1.472	78.2%	10	43.1%
274	125	124	8	300	0.036	0.168	3.4%	1.472	54.4%	10	30.0%
219	124	0062A	8	88	0.026	0.261	6.2%	2.4	103.1%	12	35.0%
220	0062A	62	8	80	0.069	0.261	3.8%	2.4	63.8%	12	21.6%
221	62	61	8	350	0.023	0.261	6.6%	2.4	109.7%	12	37.2%
239	61	60	10	286	0.044	0.342	2.1%	3.203	59.0%	12	36.3%
275	60	58	10	50	0.011	0.399	5.0%	3.81	141.3%	15	47.9%
240	58	57	10	177	0.010	0.399	5.2%	3.81	146.4%	15	49.7%
241	57	55	10	259	0.010	0.399	5.2%	3.81	145.8%	15	49.4%
231	55	54	10	198	0.010	0.521	6.7%	4.417	168.3%	15	57.1%
232	54	52	10	172	0.006	0.521	5.3%	4.417	216.0%	15	73.3%
233	52	50	10	133	0.005	0.521	5.7%	4.417	230.4%	15	78.2%
234	50	49	10	149	0.006	0.521	5.4%	4.417	219.5%	15	74.4%
235	49	47	10	119	0.005	0.521	6.0%	4.417	242.0%	18	50.5%

# WWD - Basin 8

Sewer Hydraulic Capacity Model

Run Date: 2/14/2022

Results: N 21 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 4 Total Flow (cfs)	BO 4 q/Q	BO 4 Rev. Dia.	BO 4 Rev. q/Q
236	47	46	10	341	0.007	0.521	4.9%	5.024	225.6%	18	47.1%
237	46	45	10	210	0.013	0.521	3.7%	5.024	173.0%	18	36.1%
238	45	44	10	159	0.013	0.521	3.6%	5.024	168.7%	18	35.2%
230	44	18	10	300	0.007	0.521	4.9%	5.024	226.0%	18	47.1%
227	18	17	15	273	0.009	0.624	5.3%	6.052	83.2%	18	51.1%
228	17	0016A	15	22	0.039	0.624	2.5%	6.052	39.9%	18	24.6%
229	0016A	16	15	199	0.009	0.624	5.3%	6.052	83.2%	18	51.1%
413	16	14	18	181	0.010	0.624	4.9%	6.052	47.9%	18	47.9%
414	14	13	18	90	0.004	0.624	7.5%	6.052	72.9%	18	72.9%
415	13	12	18	209	0.004	0.624	5.6%	6.052	81.8%	21	54.2%
416	12	W11A04	18	91	0.003	0.624	6.2%	6.052	91.1%	21	60.4%
308	185	183	8	295	0.004	0	0.0%	0	0.0%	8	0.0%
307	183	126	8	158	0.007	0	0.0%	0	0.0%	8	0.0%
1500	981	1323	8	152	0.018	0	0.0%	0	0.0%	8	0.0%
218	1323	64	8	157	0.012	0	0.0%	0	0.0%	8	0.0%
216	64	0063A	8	187	0.011	0	0.0%	0	0.0%	8	0.0%
276	0063A	63	8	152	-0.035	0	0.0%	0	0.0%	8	0.0%
217	63	61	8	41	0.015	0	0.0%	0	0.0%	8	0.0%
242	976	25	15	227	0.013	0	0.0%	0	0.0%	15	0.0%
248	25	24	15	274	0.008	0	0.0%	0.266	4.0%	15	4.0%
249	24	23	15	253	0.007	0	0.0%	0.266	4.1%	15	4.1%
223	23	22	15	260	0.007	0	0.0%	0.266	4.1%	15	4.1%
224	22	21	15	350	0.008	0	0.0%	0.266	3.8%	15	3.8%
247	21	20	15	279	0.008	0	0.0%	0.487	7.1%	15	7.1%
225	20	0019A	15	295	0.007	0	0.0%	0.487	7.4%	15	7.4%

## WWD - Basin 8

Sewer Hydraulic Capacity Model

Run Date: 2/14/2022

Results: N 21 Links identified over BO capacity

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 4 Total Flow (cfs)	BO 4 q/Q	BO 4 Rev. Dia.	BO 4 Rev. q/Q
226	0019A	19	15	101	0.007	0	0.0%	0.487	7.7%	15	7.7%
222	19	18	15	419	0.024	0.104	0.9%	1.028	8.6%	15	8.6%
261	0322A	61	8	104	0.006	0.08	7.0%	0.803	69.7%	8	69.7%

Note: Pipes listed as zero flow are used in a different modelling scenario. Their tributary loadings are included on downstream mains.

## WWD - Basin 9

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: 2 Links identified over BO capacity 5 links at borderline

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 4 Total Flow (cfs)	BO 4 q/Q	BO 4 Rev. Dia.	BO 4 Rev. q/Q
377	197	196	8	98	0.023	0.04	2.0%	0.34	15.4%	8.00	15.4%
378	196	195	8	160	0.109	0.04	0.9%	0.34	7.1%	8.00	7.1%
380	195	193	8	94	0.069	0.06	1.5%	0.43	11.5%	8.00	11.5%
381	193	192	8	82	0.090	0.06	1.3%	0.43	10.1%	8.00	10.1%
382	192	191	8	216	0.007	0.06	4.7%	0.43	37.0%	8.00	37.0%
383	191	190	8	201	0.017	0.07	3.6%	0.52	27.6%	8.00	27.6%
459	190	189	8	162	0.096	0.08	1.9%	0.65	14.5%	8.00	14.5%
460	189	188	8	236	0.013	0.08	5.2%	0.65	40.1%	8.00	40.1%
461	188	187	8	98	0.207	0.08	1.3%	0.65	9.9%	8.00	9.9%
458	187	185	8	208	0.108	0.08	1.8%	0.65	13.7%	8.00	13.7%
420	185	990	10	97	0.004	0.11	6.9%	0.89	53.9%	10.00	53.9%
429	990	989	10	79	0.004	0.11	6.9%	0.89	53.9%	10.00	53.9%
428	989	988	10	126	0.004	0.11	6.9%	0.89	53.9%	10.00	53.9%
427	988	987	10	39	0.004	0.11	6.9%	0.89	53.9%	10.00	53.9%
426	987	986	10	163	0.008	0.11	4.8%	0.89	37.3%	10.00	37.3%
425	986	985	10	184	0.074	0.11	1.6%	0.89	12.6%	10.00	12.6%
424	985	984	10	181	0.042	0.11	2.1%	0.89	16.6%	10.00	16.6%
423	984	983	10	206	0.042	0.11	2.1%	0.89	16.6%	10.00	16.6%
421	983	982	10	56	0.033	0.11	2.4%	0.89	18.8%	10.00	18.8%
422	982	981	10	154	0.047	0.11	2.0%	0.89	15.8%	10.00	15.8%
419	981	980	12	86	0.017	0.55	10.1%	3.69	67.8%	15.00	37.4%
418	980	979	12	183	0.013	0.55	11.6%	3.69	77.5%	15.00	42.7%
417	979	978	12	267	0.011	0.55	12.3%	3.69	82.3%	15.00	45.4%
432	978	977	12	332	0.012	0.55	11.9%	3.69	79.7%	15.00	44.0%
431	977	976	12	352	0.013	0.55	11.3%	3.69	75.7%	15.00	41.8%

## WWD - Basin 9

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: 2 Links identified over BO capacity 5 links at borderline

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 4 Total Flow (cfs)	BO 4 q/Q	BO 4 Rev. Dia.	BO 4 Rev. q/Q
430	976	W11A10A	18	159	0.040	0.55	2.2%	3.69	14.9%	18.00	14.9%
1529	459	65	8	166	0.021	0.44	20.9%	2.80	134.3%	12.00	45.6%
1499	65	981	8	91	0.021	0.44	21.1%	2.80	135.4%	12.00	45.9%
379	239	195	8	310	0.003	0.01	1.5%	0.10	11.5%	8.00	11.5%
389	201	190	8	138	0.060	0.02	0.4%	0.12	3.5%	8.00	3.5%
597	209	185	8	229	0.171	0.03	0.5%	0.24	4.1%	8.00	4.1%

# WWD - Basin 10

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
1508	1472	1471	8	144	0.007	0.00	0.0%	0.00	0.0%
1509	1471	1470	8	174	0.023	0.00	0.0%	0.00	0.0%
1503	1470	1469	8	101	0.007	0.00	0.0%	0.00	0.0%
1504	1469	1468	8	251	0.013	0.00	0.0%	0.00	0.0%
1505	1468	1467	8	138	0.028	0.00	0.0%	0.00	0.0%
1506	1467	1466	8	108	0.031	0.00	0.0%	0.00	0.0%
1507	1466	1330	8	25	16.749	0.00	0.0%	0.00	0.0%
1447	1330	1329	8	185	0.049	0.00	0.0%	0.00	0.0%
1448	1329	1328	8	250	0.035	0.00	0.0%	0.00	0.0%
1444	1328	1328A	8	46	0.020	0.00	0.0%	0.00	0.0%
1445	1328A	1327	8	122	0.065	0.00	0.0%	0.00	0.0%
1446	1327	840	8	17	0.066	0.04	1.0%	0.10	2.6%
1496	840	1101	8	74	0.071	0.04	1.0%	0.10	2.5%
933	1101	839	8	84	0.072	0.09	2.2%	0.21	5.5%
934	839	838	8	96	0.070	0.09	2.3%	0.21	5.6%
935	838	837	8	297	0.072	0.09	2.2%	0.21	5.5%
936	837	836	8	300	0.084	0.09	2.1%	0.21	5.1%
942	836	835	8	300	0.083	0.09	2.1%	0.21	5.1%
1039	835	1050A	8	46	0.007	0.09	7.1%	0.21	17.6%
943	1050A	1050	8	162	0.094	0.09	1.9%	0.21	4.8%
944	1050	1049	8	115	0.035	0.09	3.2%	0.21	7.9%
945	1049	613	8	173	0.093	0.14	3.1%	0.34	7.7%
947	613	466	8	129	0.079	0.14	3.4%	0.34	8.4%
948	466	465	8	137	0.060	0.14	3.9%	0.34	9.6%
937	465	464	8	108	0.086	0.14	3.2%	0.34	8.0%
938	464	0463A	8	284	0.060	0.14	3.9%	0.34	9.6%

# WWD - Basin 10

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
939	0463A	782	8	69	0.045	0.14	4.5%	0.34	11.1%
940	782	757	8	14	0.059	0.14	3.9%	0.34	9.7%
941	757	1080	8	129	0.020	0.14	6.7%	0.34	16.6%
986	1080	756	8	48	0.025	0.18	7.9%	0.44	19.5%
987	756	463	8	16	0.045	0.18	5.8%	0.44	14.4%
988	463	175	8	270	0.027	0.18	7.6%	0.44	18.7%
989	175	174	8	143	0.027	0.18	7.6%	0.44	18.7%
999	174	173	8	259	0.045	0.27	8.8%	0.66	21.8%
1000	173	821	8	170	0.066	0.27	7.3%	0.66	18.1%
1001	821	822	8	134	0.060	0.27	7.6%	0.66	18.9%
1013	822	36	8	249	0.057	0.45	13.1%	1.11	32.2%
1014	36	35	8	390	0.053	0.45	13.7%	1.11	33.7%
926	35	0034A	8	407	0.033	0.45	17.1%	1.11	42.3%
913	0034A	34	8	137	0.044	0.45	15.0%	1.11	37.0%
914	34	33	8	162	0.046	0.45	14.7%	1.11	36.2%
923	33	32	15	245	0.011	0.50	6.2%	1.24	15.3%
1038	32	31	15	290	0.008	0.50	7.4%	1.24	18.2%
924	31	30	15	400	0.007	0.50	7.9%	1.24	19.4%
925	30	29	15	400	0.026	0.50	4.1%	1.24	10.1%
921	29	28	15	301	0.019	0.65	6.1%	1.61	15.2%
927	28	27	15	375	0.008	0.80	11.5%	2.23	32.1%
922	27	26	15	400	0.008	0.80	11.7%	2.23	32.6%
1009	1004	1003	8	214	0.011	0.00	0.0%	0.00	0.0%
1010	1003	1002	8	321	0.020	0.00	0.0%	0.00	0.0%
1011	1002	1001	8	298	0.059	0.00	0.0%	0.00	0.0%
1005	1001	1000	8	152	0.102	0.00	0.0%	0.00	0.0%

# WWD - Basin 10

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
1006	1000	999	8	231	0.104	0.00	0.0%	0.00	0.0%
1007	999	1036	8	62	0.155	0.00	0.0%	0.00	0.0%
1008	1036	998	8	250	0.031	0.00	0.0%	0.00	0.0%
993	998	41	8	196	0.006	0.00	0.0%	0.00	0.0%
996	41	39	8	152	0.050	0.14	4.3%	0.34	10.7%
997	39	176	8	288	0.045	0.14	4.6%	0.34	11.4%
998	176	38	8	114	0.036	0.18	6.6%	0.44	16.2%
1004	38	37	8	179	0.011	0.18	11.8%	0.44	29.2%
1003	37	822	8	51	0.048	0.18	5.7%	0.44	14.0%
961	524	523	8	351	0.046	0.05	1.7%	0.13	4.1%
962	523	522	8	228	0.030	0.05	2.1%	0.13	5.1%
1283	522	1273	8	110	0.197	0.15	2.3%	0.36	5.7%
1282	1273	1272	8	11	0.112	0.15	3.1%	0.36	7.6%
1281	1272	1271	8	119	0.152	0.15	2.6%	0.36	6.5%
1280	1271	1270	8	100	0.082	0.15	3.6%	0.36	8.9%
1279	1270	520	8	81	0.008	0.15	11.4%	0.36	28.4%
912	520	29	8	55	0.060	0.15	4.2%	0.36	10.4%
951	527	522	8	322	0.040	0.10	3.4%	0.24	8.3%
985	1081	1080	8	122	0.010	0.04	2.9%	0.10	7.1%
932	1102	1101	8	105	0.097	0.05	1.1%	0.12	2.6%
917	0035A	33	8	428	0.008	0.06	4.4%	0.14	10.9%
1023	0263B	0263A	8	453	0.126	0.00	0.0%	0.00	0.0%
1024	0263A	263	8	149	0.003	0.00	0.0%	0.00	0.0%
1025	263	262	8	329	0.005	0.00	0.0%	0.00	0.0%
1019	262	229	8	267	0.006	0.00	0.0%	0.00	0.0%
1020	229	228	8	212	0.008	0.00	0.0%	0.00	0.0%

## WWD - Basin 10

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
1021	228	40	8	206	0.020	0.00	0.0%	0.00	0.0%
1022	40	41	8	302	0.011	0.00	0.0%	0.00	0.0%

Note: Pipes listed as zero flow are used in a different modelling scenario. Their tributary loadings are included on

## WWD - Basin 11

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
520	361	360	8	396	0.041	0.10	3.4%	0.24	8.4%
1254	360	889	8	178	0.087	0.16	3.9%	0.40	9.6%
1255	889	359	8	69	0.083	0.19	4.5%	0.46	11.2%
526	359	10	8	194	0.036	0.19	6.9%	0.46	17.1%
543	10	9	8	323	0.027	0.21	9.1%	0.53	22.5%
544	9	8	8	401	0.020	0.21	10.5%	0.53	26.0%
545	8	7	10	298	0.009	0.21	8.4%	0.53	20.9%
546	7	0006C	10	372	0.007	0.21	10.0%	0.53	24.9%
342	0006C	0006B	10	391	0.007	0.23	10.8%	0.57	26.7%
337	0006B	1485	10	217	0.009	0.23	9.7%	0.57	24.0%
1532	1485	0006A	10	105	0.009	0.23	9.5%	0.57	23.6%
345	890	889	8	355	0.007	0.02	2.0%	0.06	5.1%
519	551	360	8	67	0.017	0.06	3.4%	0.16	8.5%

## WWD - Basin 12

Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
319	693	692	8	162	0.019	0.05	2.4%	0.17	8.5%
324	692	691	8	369	0.019	0.05	2.4%	0.17	8.5%
325	691	690	8	244	0.043	0.05	1.6%	0.17	5.7%
591	690	689	8	400	0.005	0.05	4.7%	0.17	16.9%
573	689	688	8	399	0.004	0.05	5.1%	0.17	18.2%
574	688	1364	8	178	0.106	0.05	1.0%	0.17	3.6%
1402	1364	1365	12	37	0.019	0.05	0.8%	0.17	2.9%
1401	1365	1363	12	122	0.021	0.07	1.2%	0.26	4.3%
1400	1363	1362	12	24	0.014	0.07	1.5%	0.26	5.3%
569	1362	686	8	150	0.029	0.07	3.0%	0.26	10.8%
570	686	747	8	89	0.056	0.07	2.2%	0.26	7.8%
571	747	685	8	194	0.053	0.15	4.5%	0.53	16.0%
572	685	684	8	126	0.079	0.15	3.7%	0.53	13.1%
548	684	0303A	8	221	0.066	0.15	4.0%	0.53	14.4%
1101	0303A	1186	8	59	0.048	0.15	4.7%	0.53	16.9%
549	1186	0302A	8	175	0.044	0.16	5.2%	0.56	18.4%
550	0302A	0301A	8	344	0.037	0.16	5.6%	0.56	20.1%
551	0301A	0300B	8	270	0.027	0.22	9.2%	0.77	32.7%
552	0300B	0299A	8	179	0.058	0.22	6.2%	0.77	22.2%
336	0299A	0298A	8	103	0.074	0.22	5.5%	0.77	19.7%
592	0298A	0297A	8	267	0.037	0.34	12.3%	1.22	44.0%
593	0297A	0296A	8	107	0.055	0.34	10.2%	1.22	36.3%
595	0296A	0295A	12	152	0.008	0.34	9.3%	1.22	33.2%
596	0295A	0294A	12	303	0.008	0.34	9.2%	1.22	32.9%
1256	0294A	W11A19A	12	292	0.009	0.34	8.4%	1.22	29.9%

## WWD - Basin 12

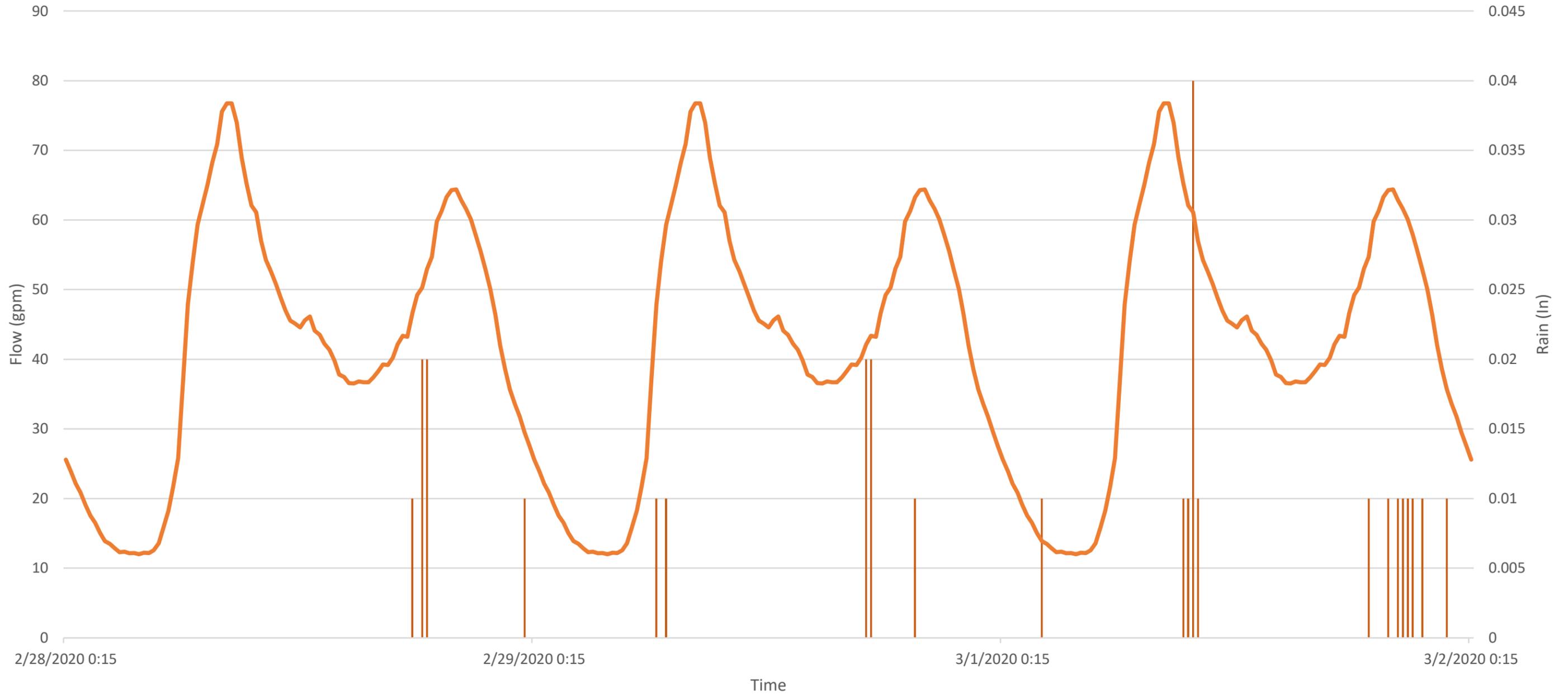
Sewer Hydraulic Capacity Model

Run Date: 8/10/2021

Results: No issues identified

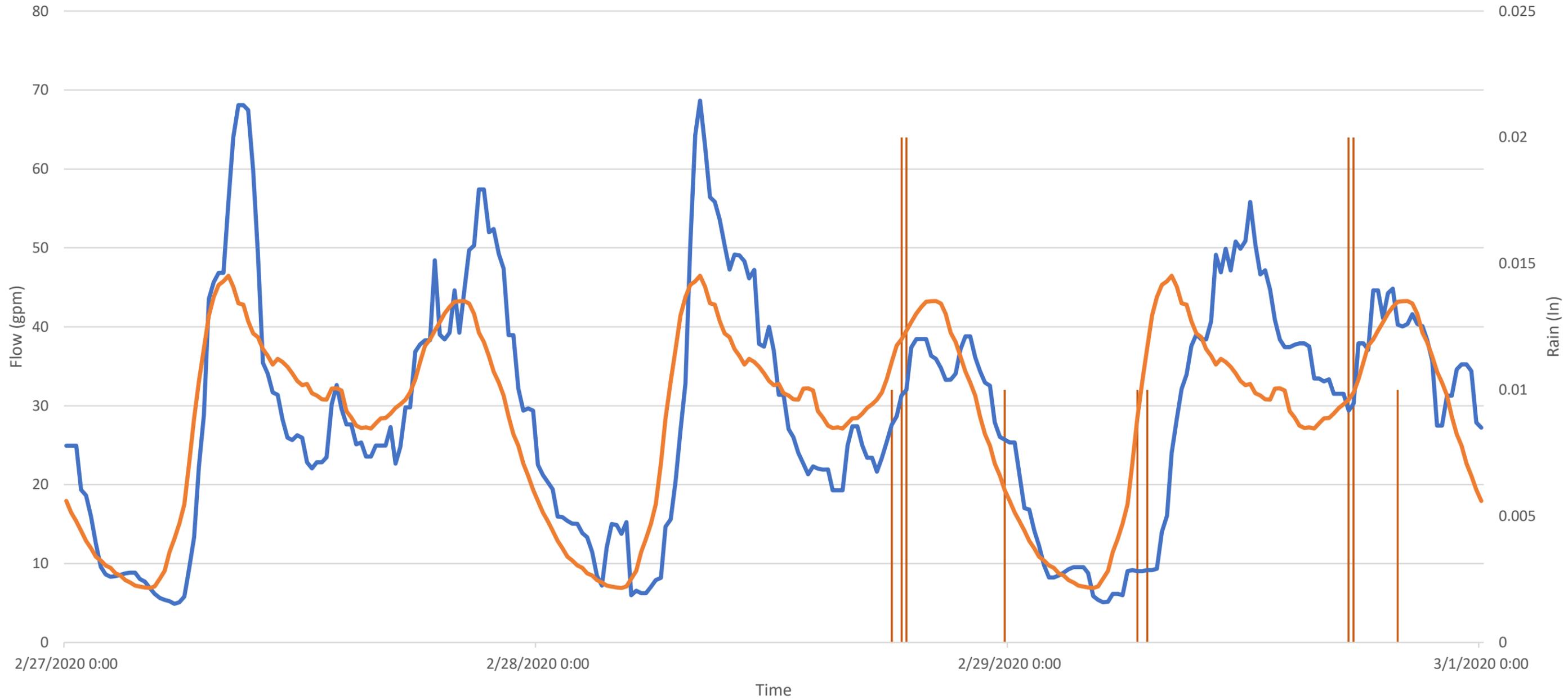
FID	From MH	To MH	Dia. (in)	Length (ft)	Slope	Present Day Total Flow (cfs)	Present Day q/Q	BO 3 Total Flow (cfs)	BO 3 q/Q
444	1174	1173	8	129	0.004	0.02	2.6%	0.08	9.3%
445	1173	1172	8	75	0.004	0.02	2.5%	0.08	8.9%
440	1171	1170	8	365	0.022	0.02	1.1%	0.08	4.0%
446	1172	1171	8	47	0.018	0.02	1.2%	0.08	4.4%
438	1170	1169	8	144	0.004	0.08	8.5%	0.27	30.4%
439	1169	1168	8	400	0.006	0.11	10.2%	0.41	36.5%
436	1168	1167	8	398	0.041	0.11	3.9%	0.41	14.1%
437	1167	1166	8	275	0.018	0.11	5.9%	0.41	21.0%
433	1166	0298A	8	29	0.149	0.11	2.1%	0.41	7.4%
1048	1197	1196	8	149	0.045	0.05	1.7%	0.19	6.2%
1049	1196	1195	8	169	0.100	0.05	1.2%	0.19	4.1%
1050	1195	1223	8	16	0.030	0.05	2.1%	0.19	7.6%
1053	1223	1194	8	128	0.044	0.05	1.8%	0.19	6.3%
1054	1194	1170	8	53	0.009	0.05	3.9%	0.19	14.0%
1100	1187	1186	8	39	0.006	0.01	0.7%	0.03	2.5%
1302	P008A	P005	8	216	0.084	0.06	1.4%	0.21	5.1%
1303	P005	P003	8	417	0.013	0.06	3.6%	0.21	12.8%
1304	P003	0301A	8	48	0.134	0.06	1.1%	0.21	4.1%
335	749	748	8	178	0.065	0.07	2.0%	0.26	7.2%
568	748	747	8	42	0.035	0.07	2.8%	0.26	9.9%
434	863	0298A	8	92	0.074	0.01	0.3%	0.04	1.0%

### Basin 1 2/27-3/1



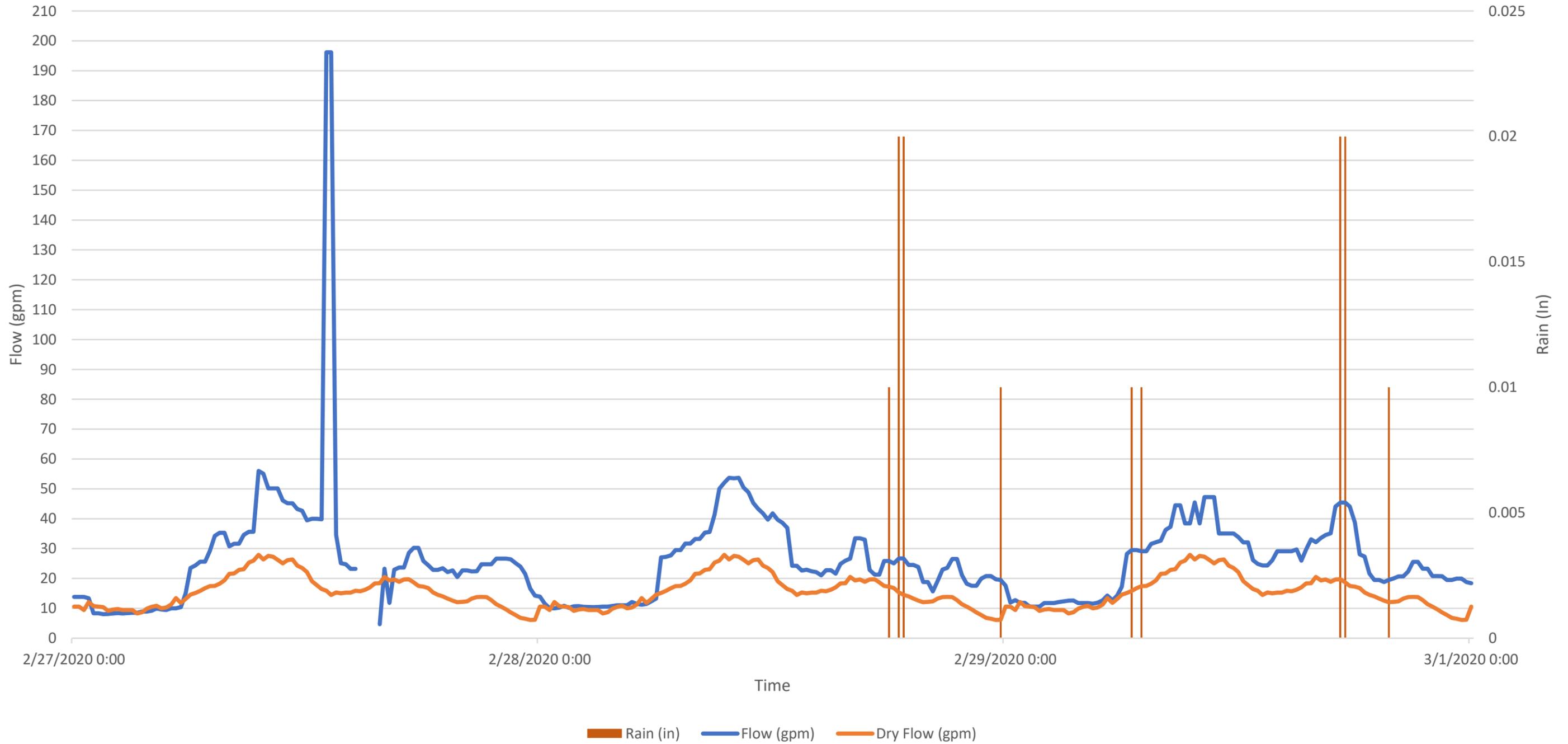
■ Rain (in) ■ Flow (gpm) ■ Dry Flow (gpm)

Basin 3 2/27-3/1

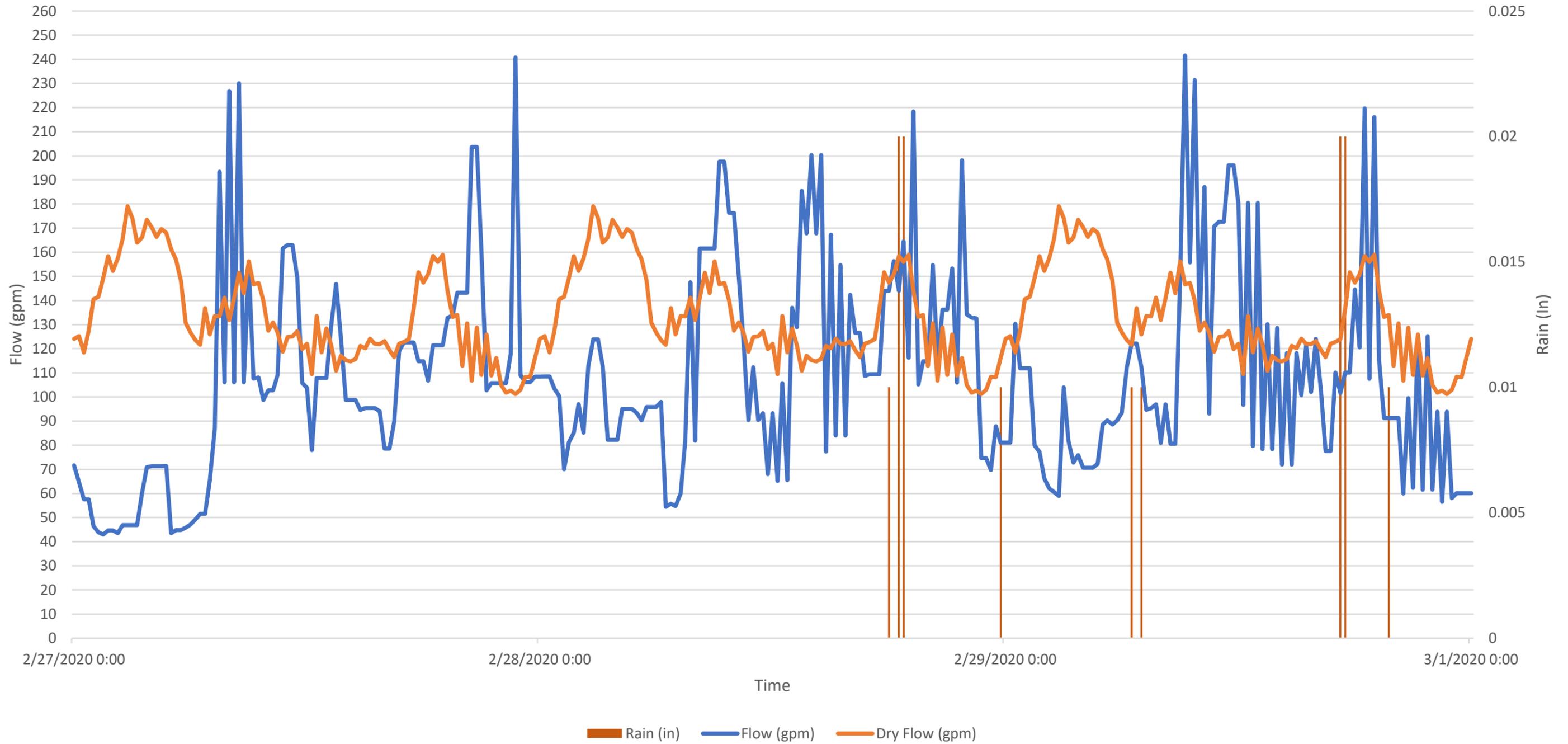


■ Rain (in) ■ Flow (gpm) ■ Dry Flow (gpm)

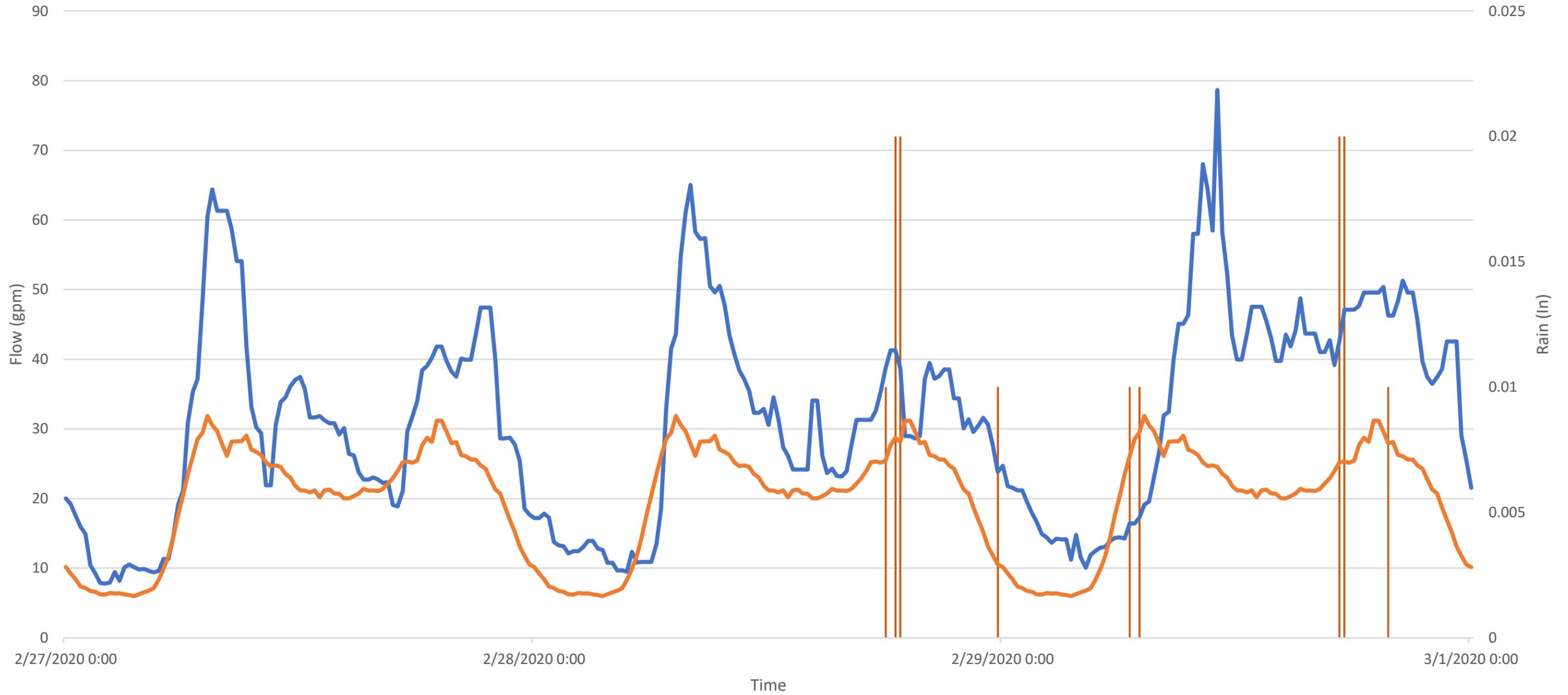
### Basin 4 2/27-3/1



Basin 5 2/27-3/1

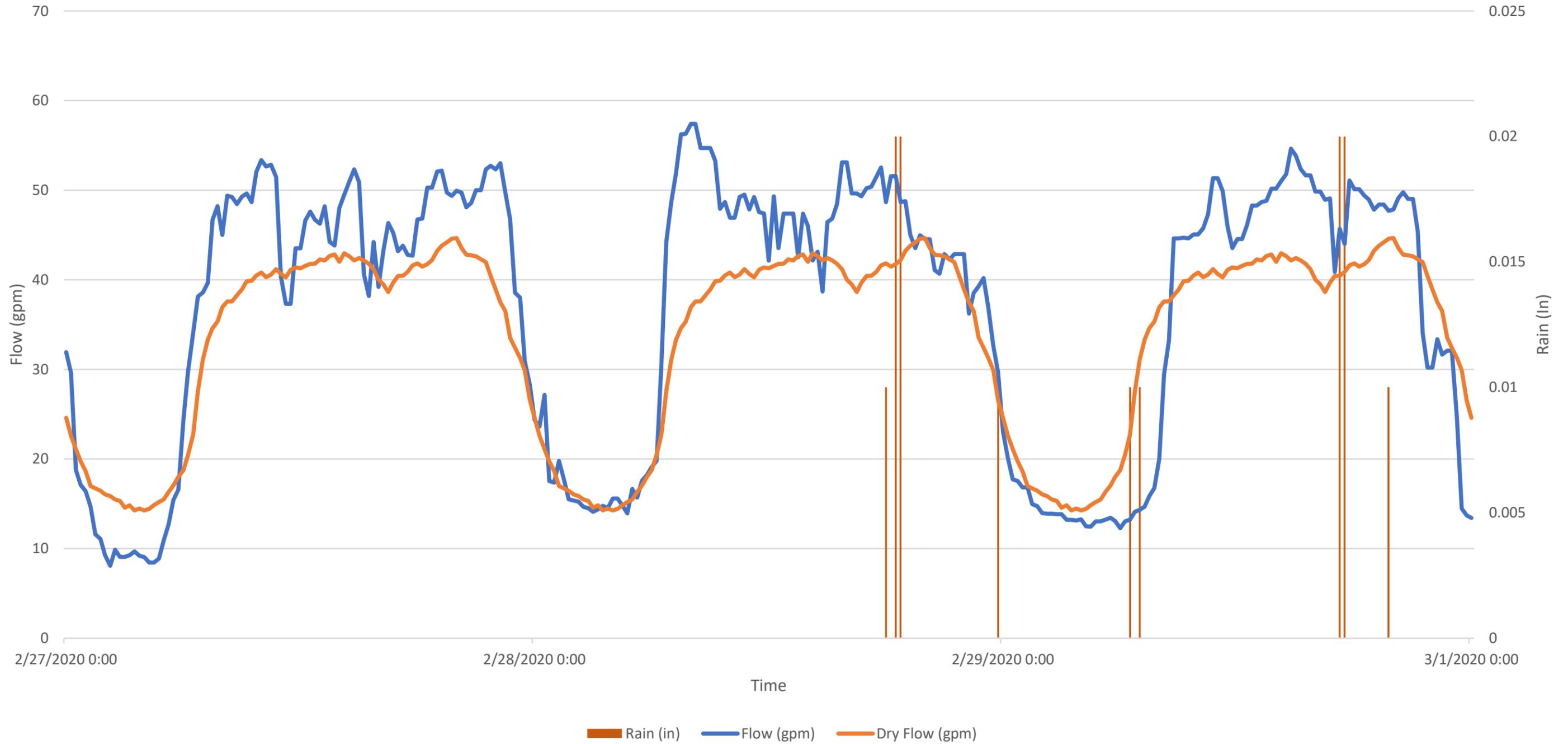


Basin 6 2/27-3/1

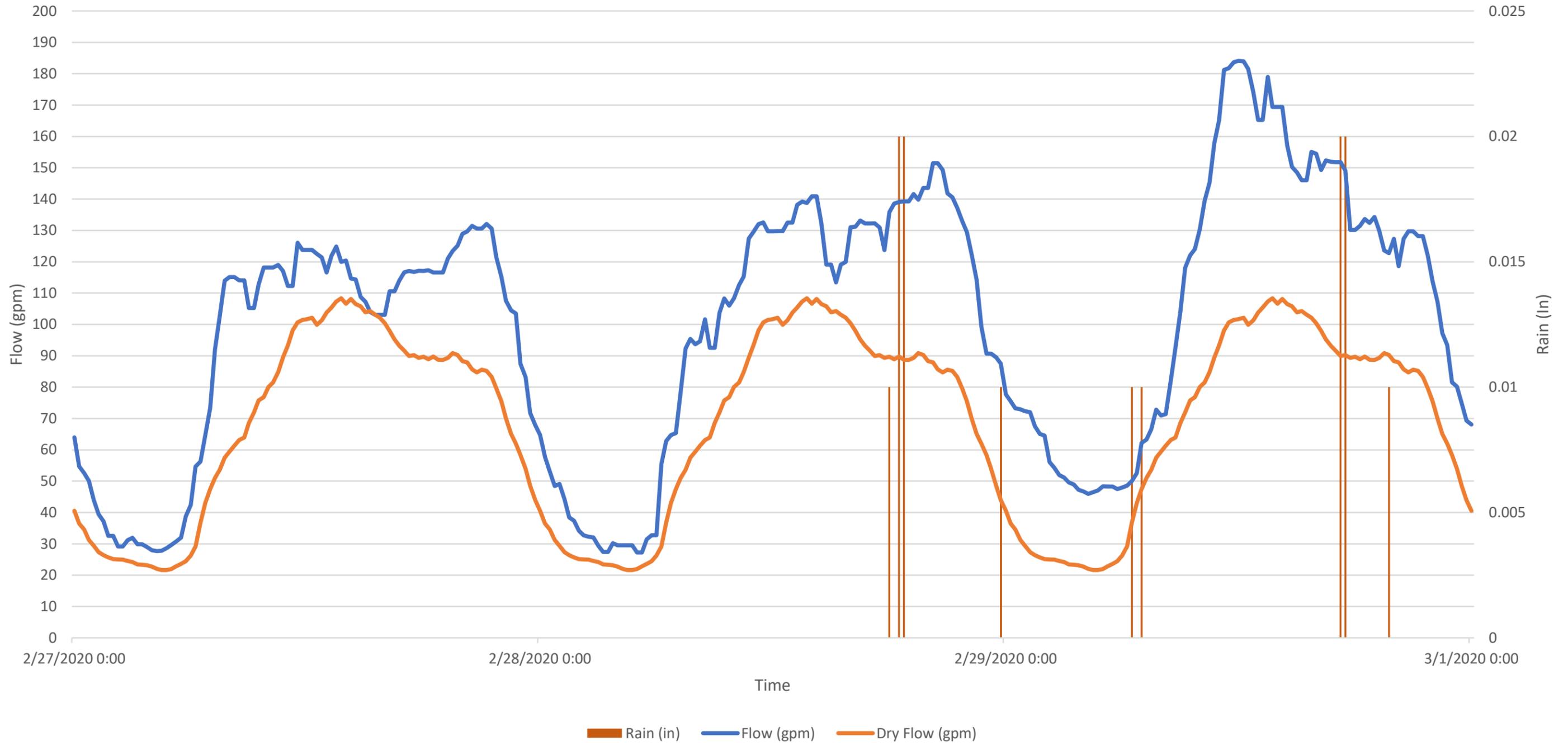


■ Rain (in) ■ Flow (gpm) ■ Dry Flow (gpm)

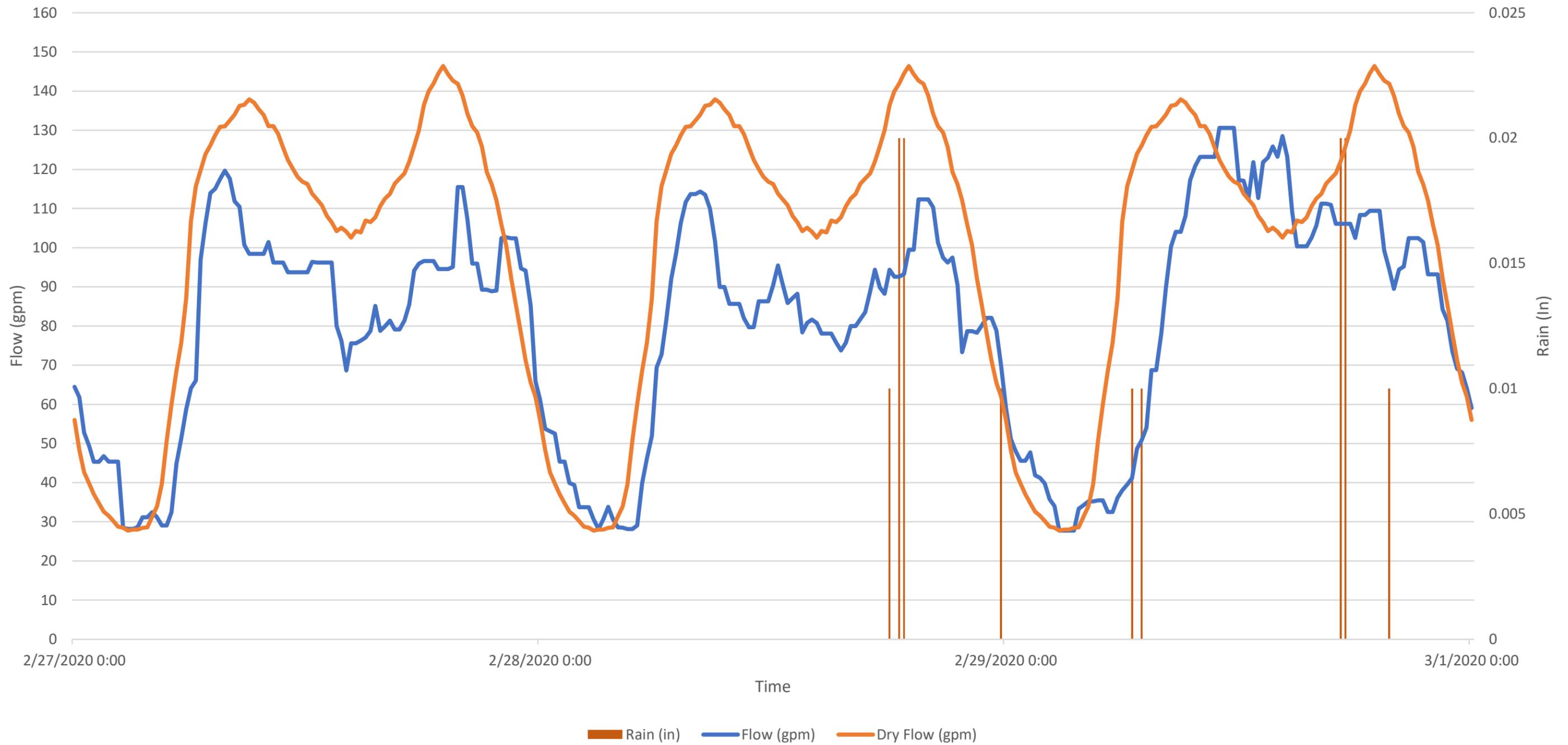
### Basin 7 2/27-3/1



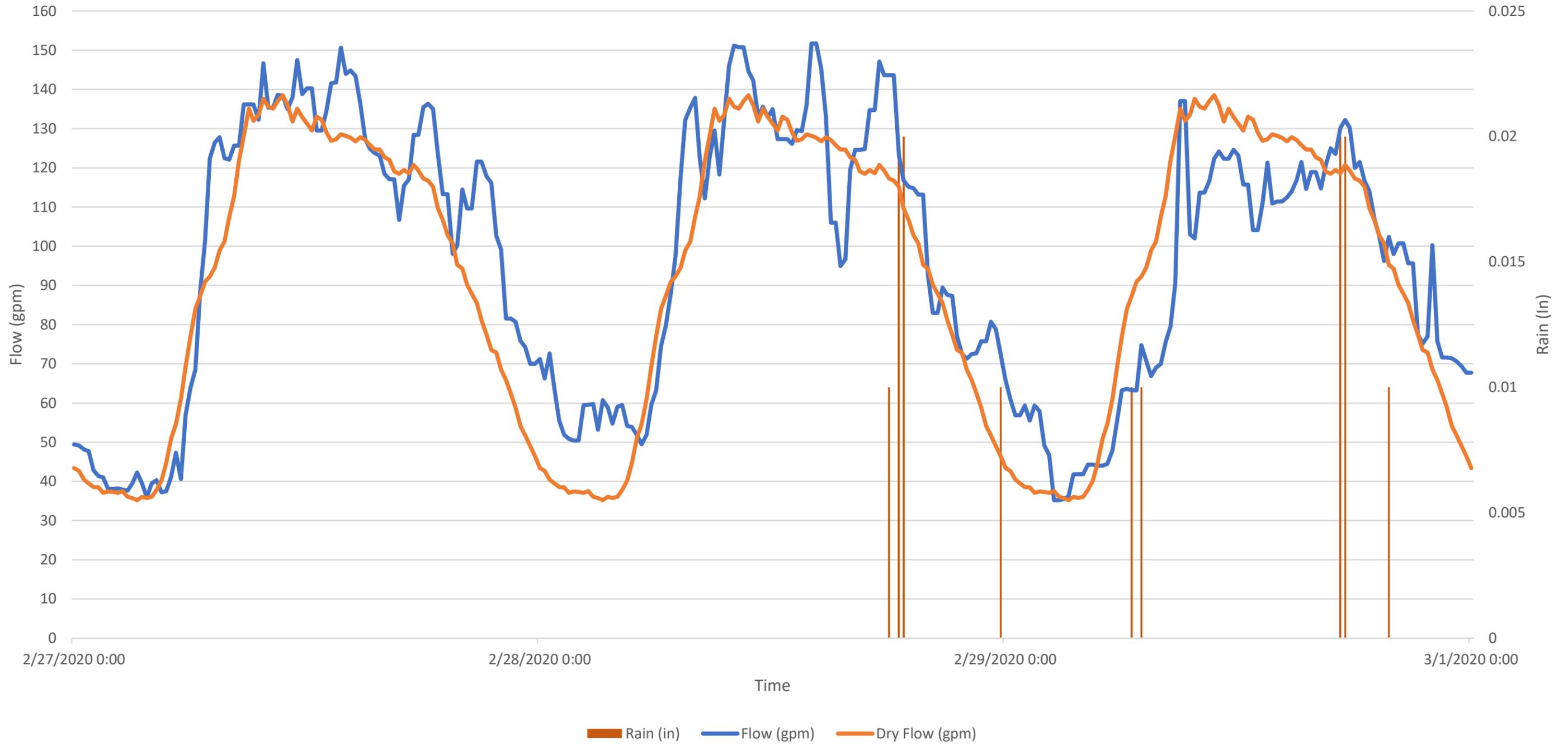
### Basin 8 2/27-3/1



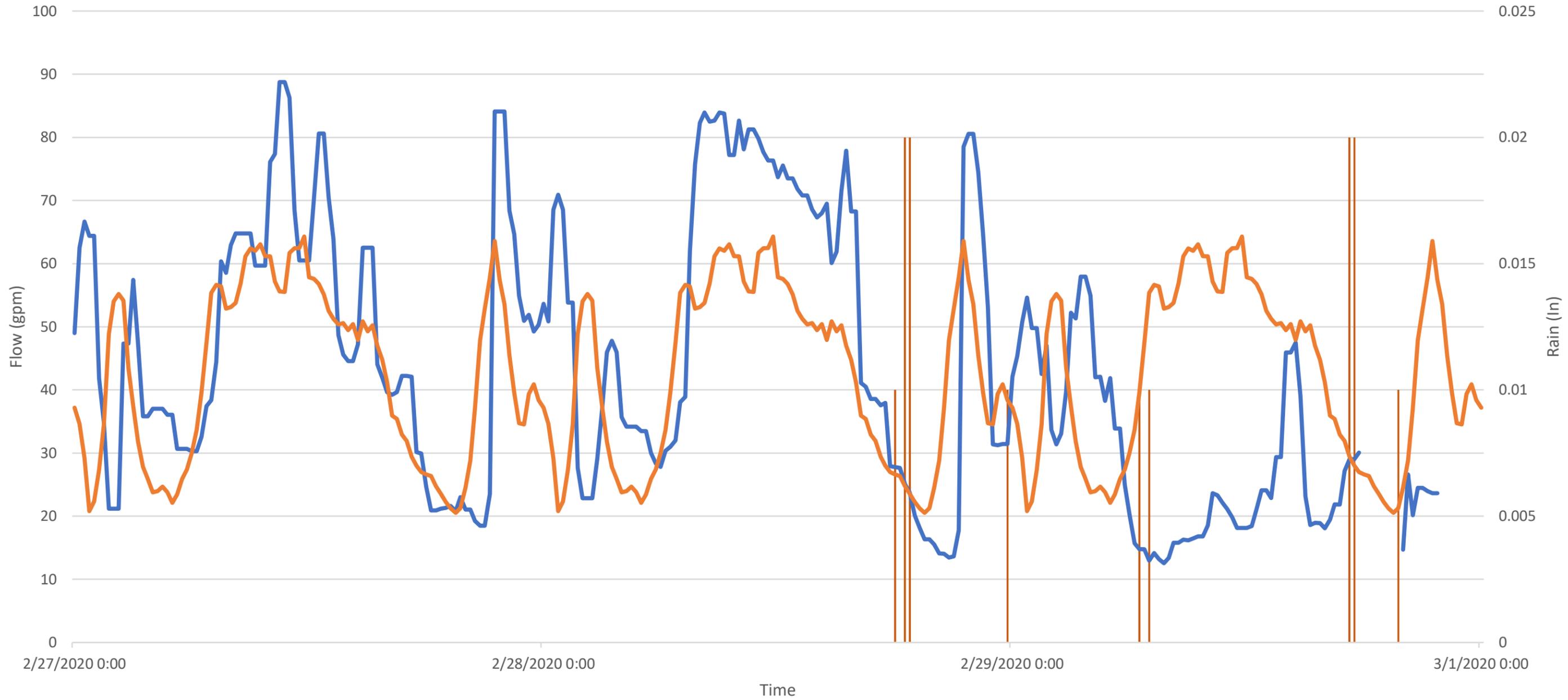
Basin 9 2/27-3/1



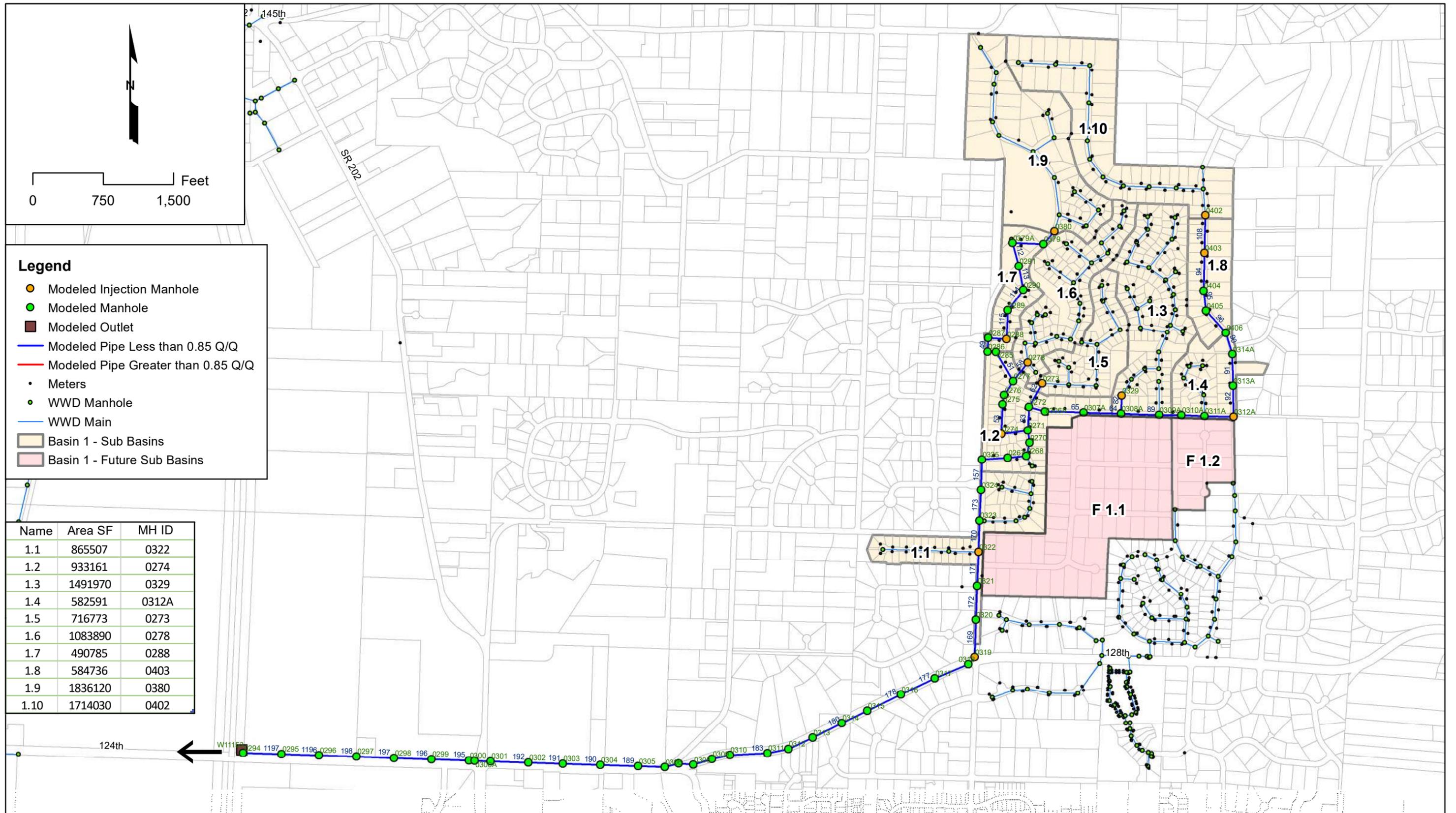
Basin 10 2/27-3/1



Basin 11 2/27-3/1

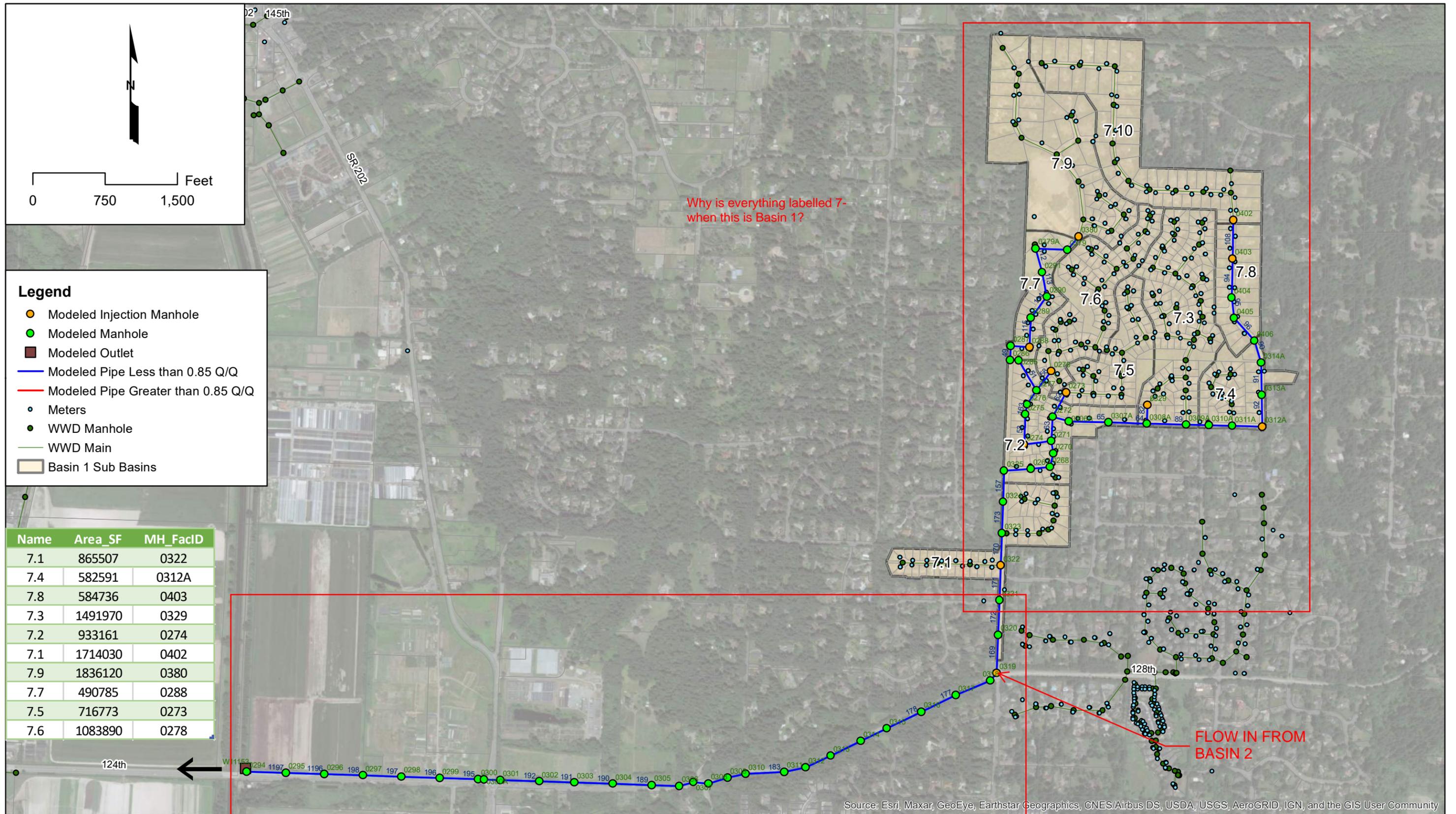


■ Rain (in) ■ Flow (gpm) ■ Dry Flow (gpm)



## Basin 1 - Build Out by Zoning

FIGURE 5-2.1



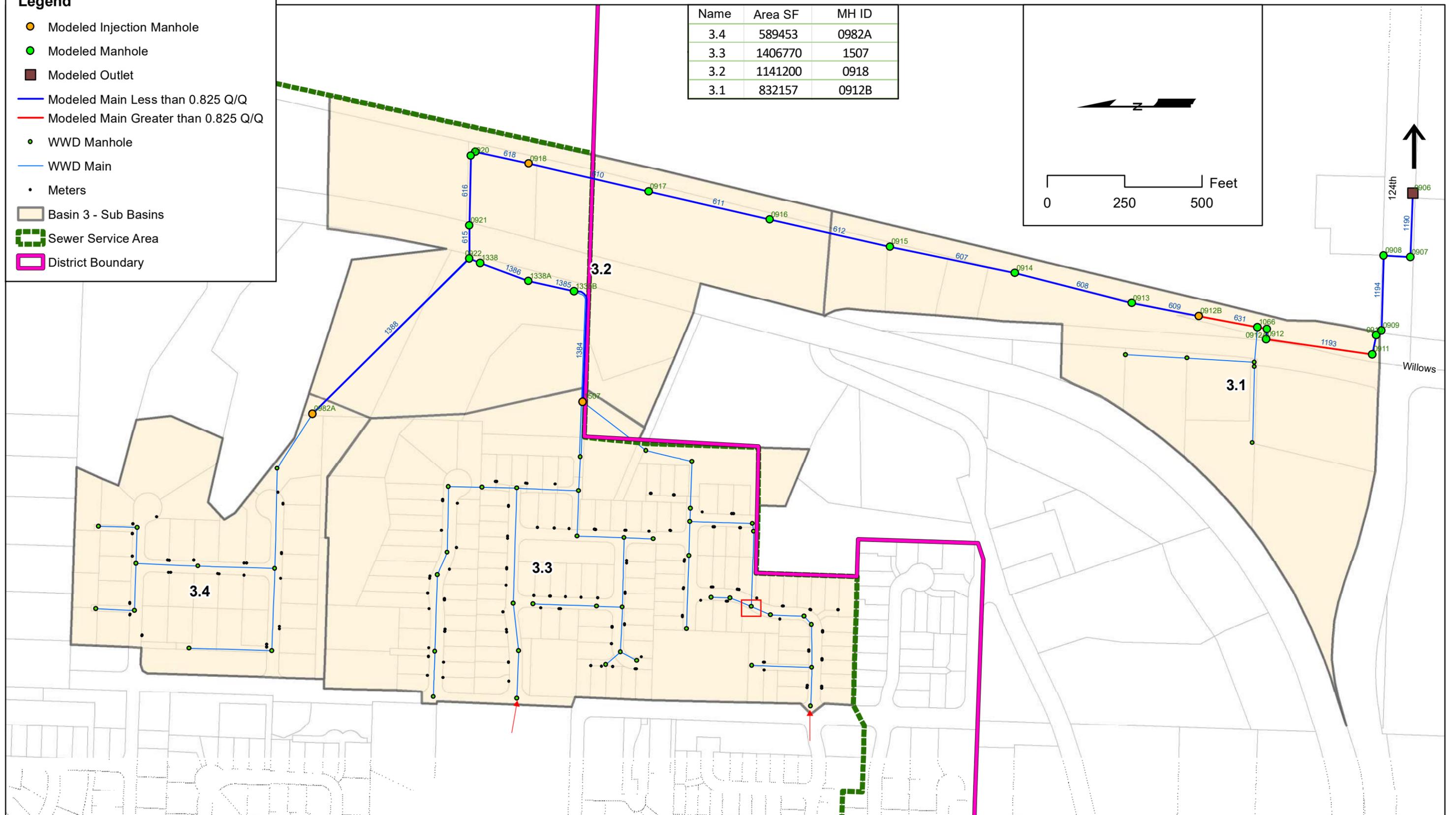
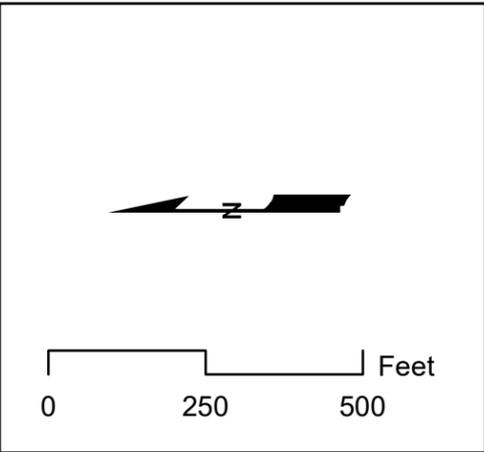
## Basin 1 - Build Out by Zoning

FIGURE 5-2.1

**Legend**

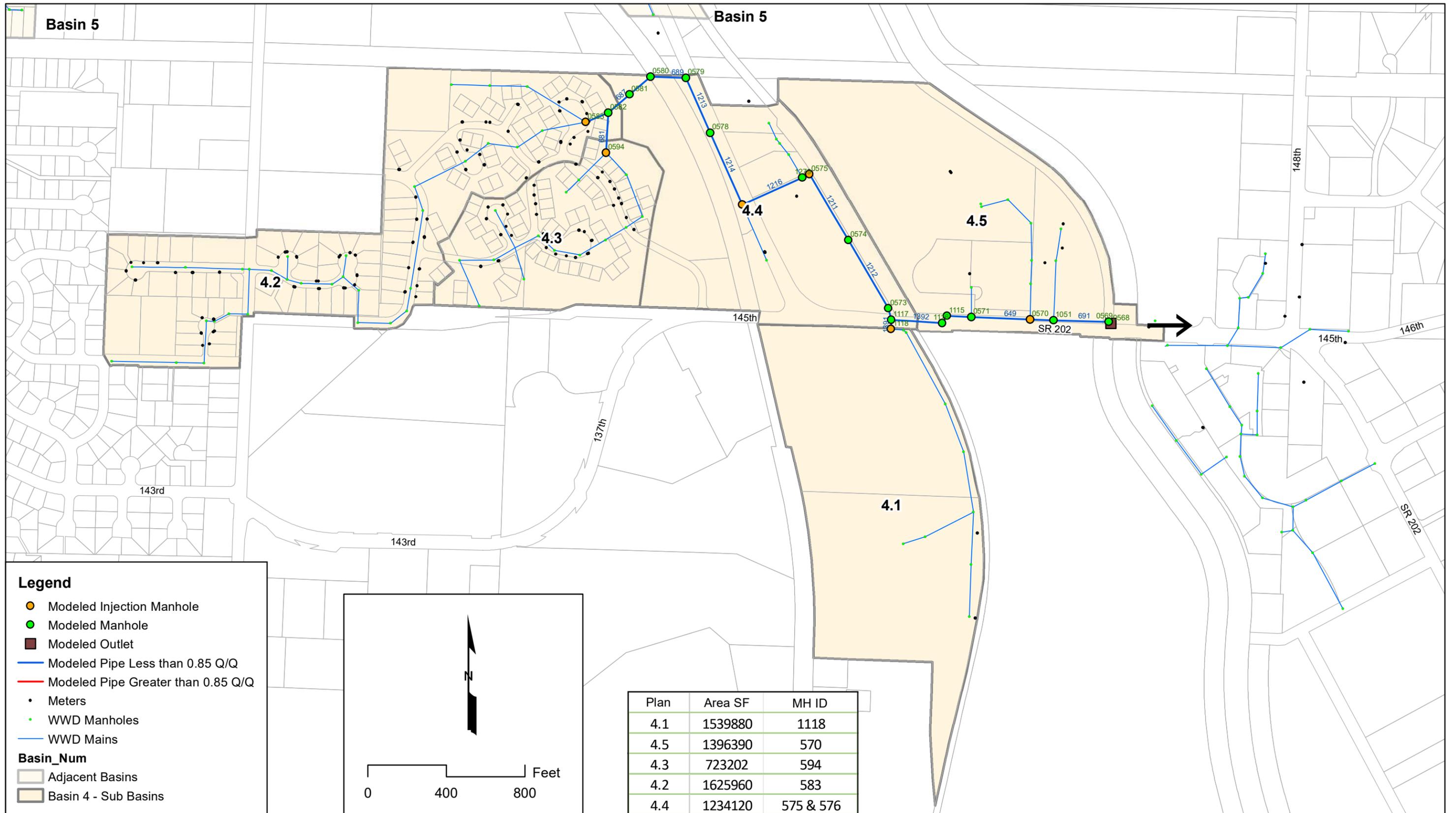
- Modeled Injection Manhole
- Modeled Manhole
- Modeled Outlet
- Modeled Main Less than 0.825 Q/Q
- Modeled Main Greater than 0.825 Q/Q
- WWD Manhole
- WWD Main
- Meters
- Basin 3 - Sub Basins
- Sewer Service Area
- District Boundary

Name	Area SF	MH ID
3.4	589453	0982A
3.3	1406770	1507
3.2	1141200	0918
3.1	832157	0912B



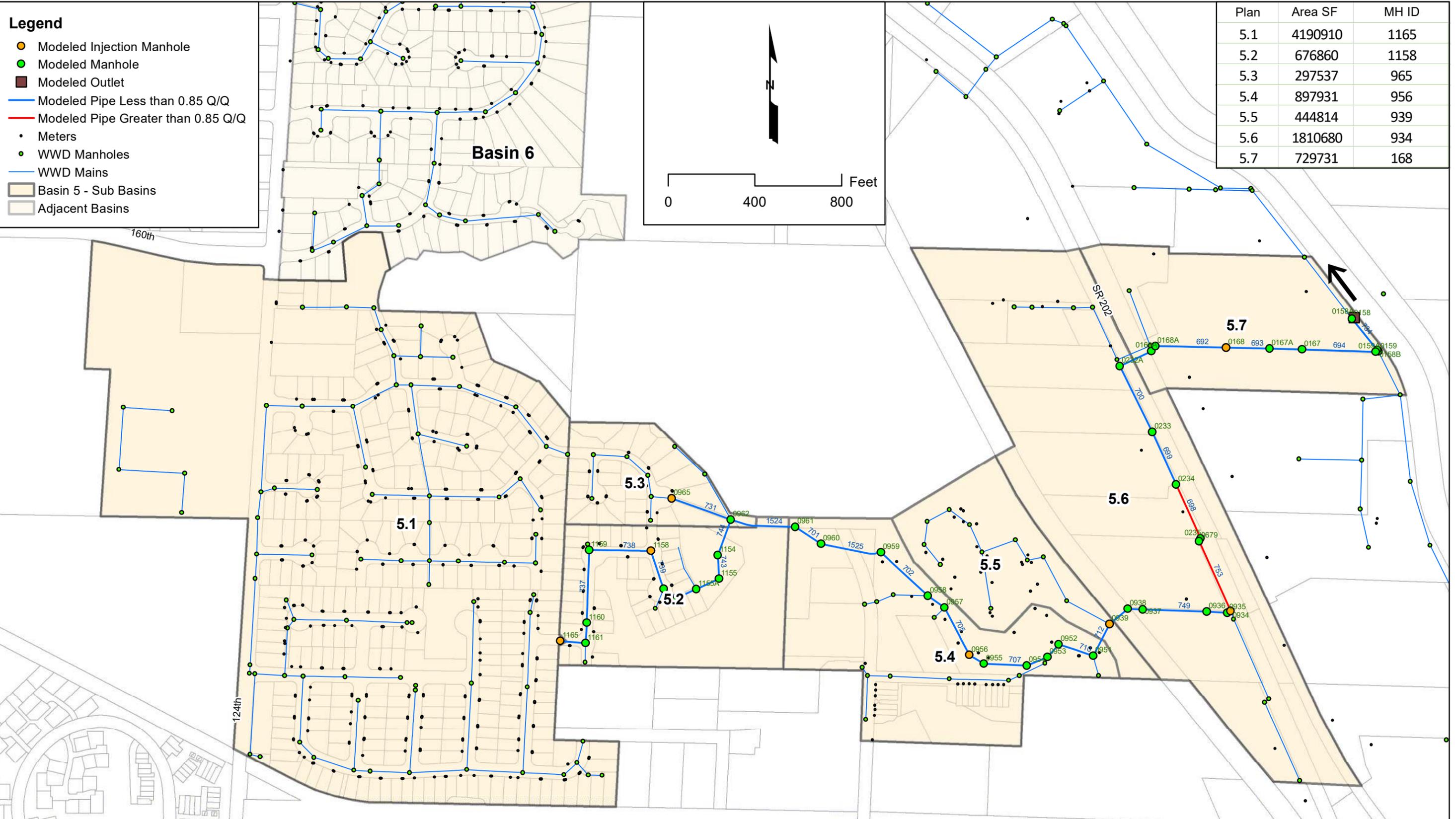
**Basin 3 - Build Out by Zoning**

**FIGURE 5-2.2**



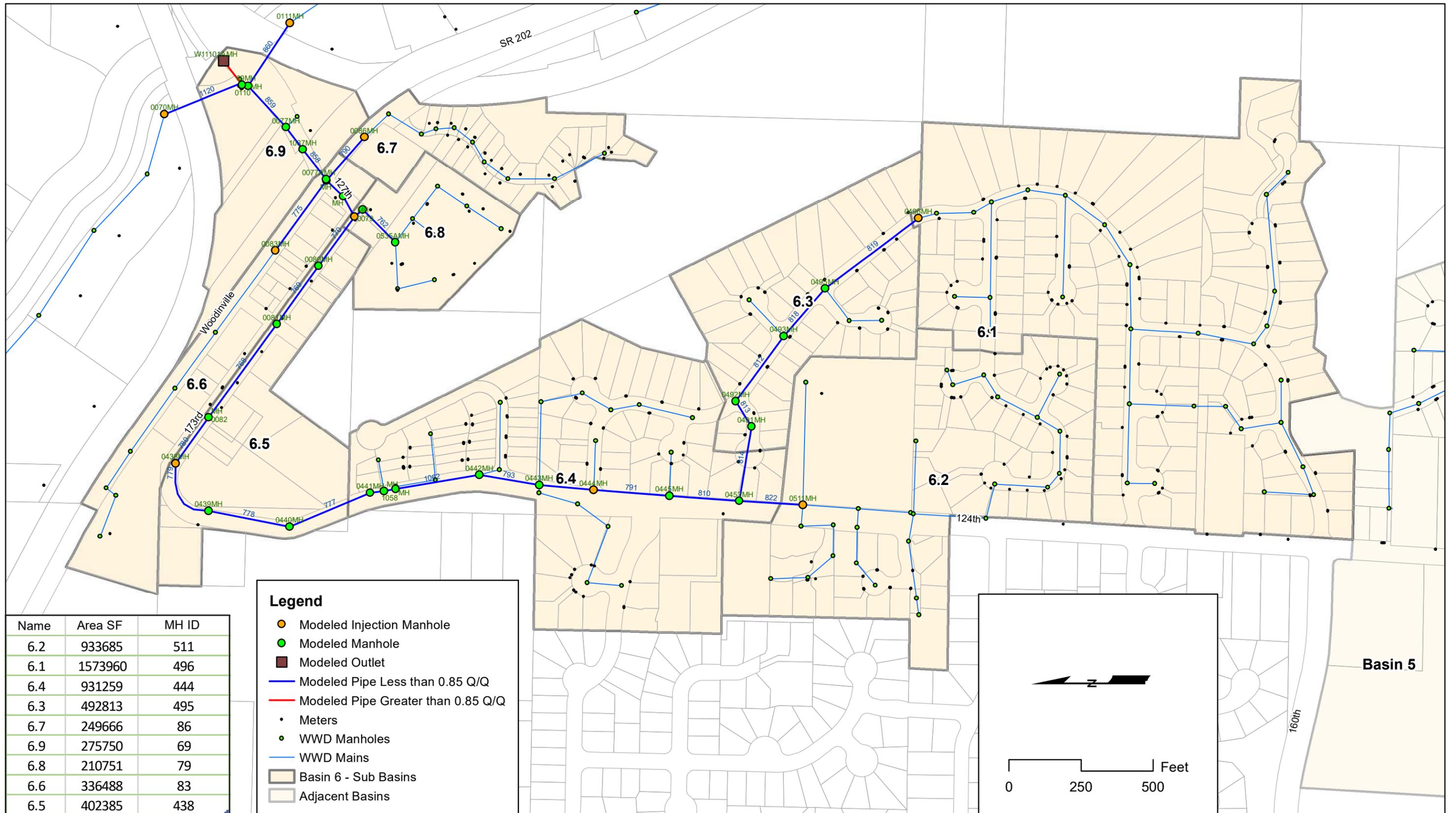
## Basin 4 - Build Out by Zoning

FIGURE 5-2.3



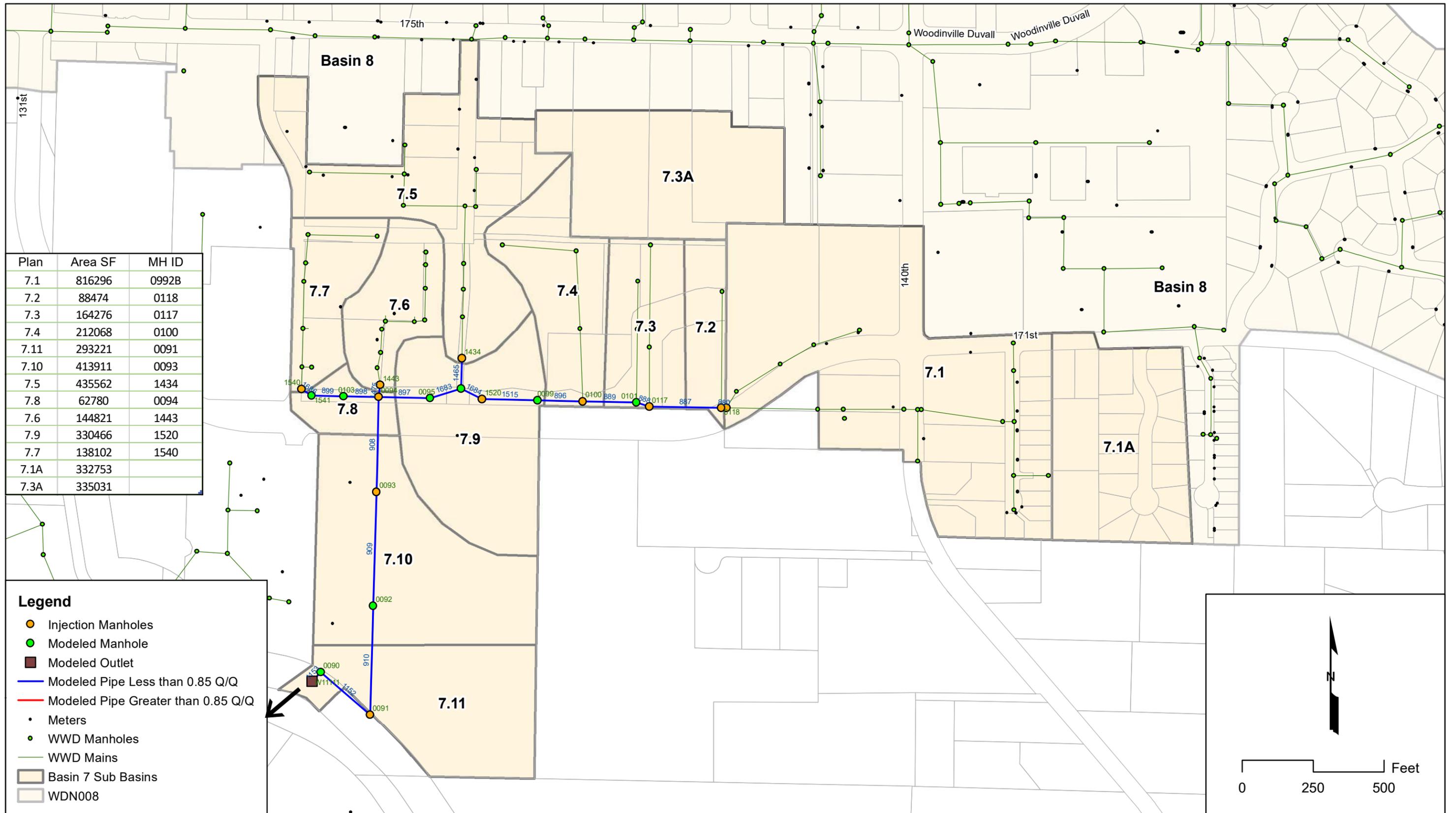
### Basin 5 - Build Out by Zoning

FIGURE 5-2.4



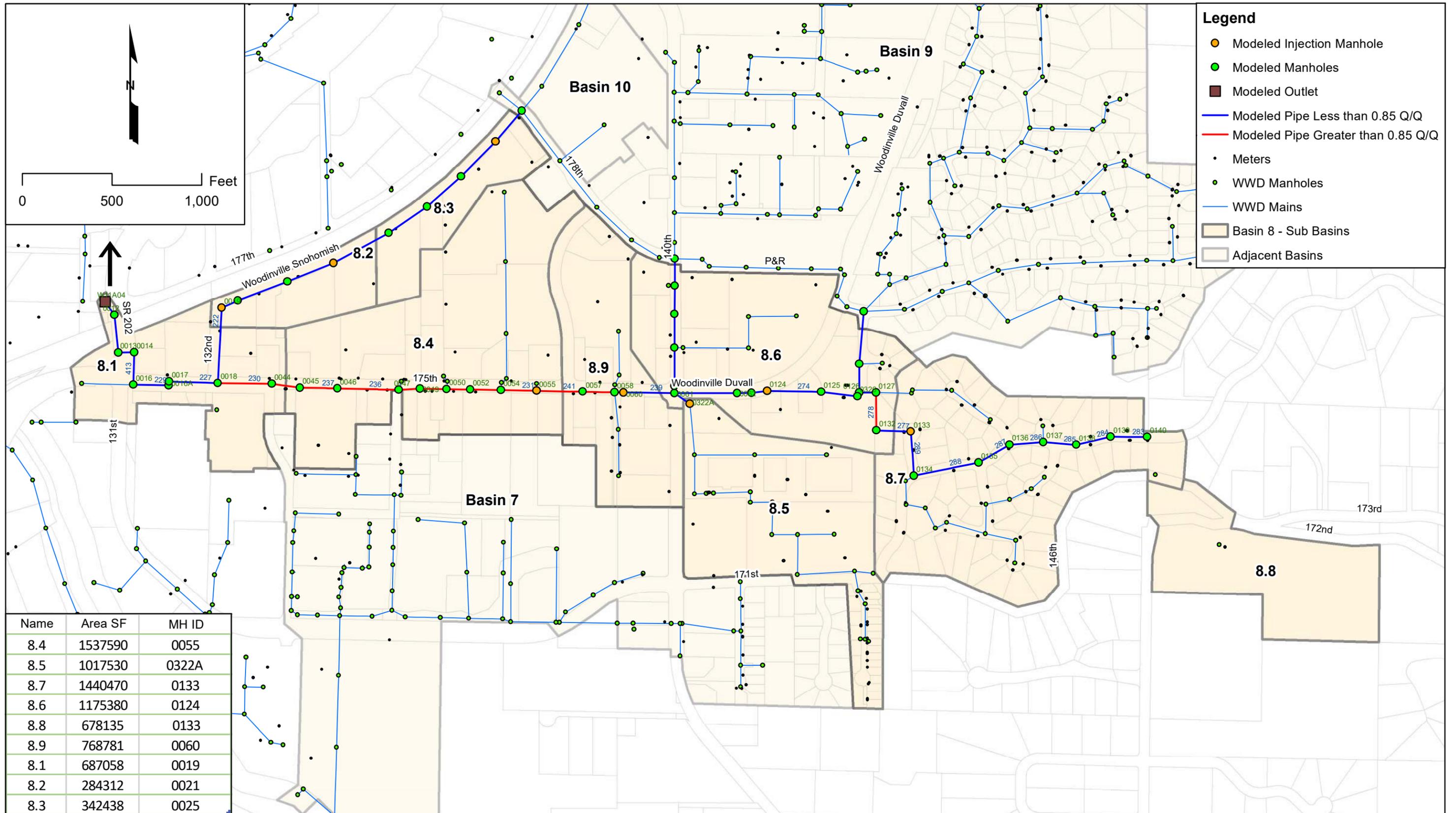
## Basin 6 - Build Out by Zoning

FIGURE 5-2.5



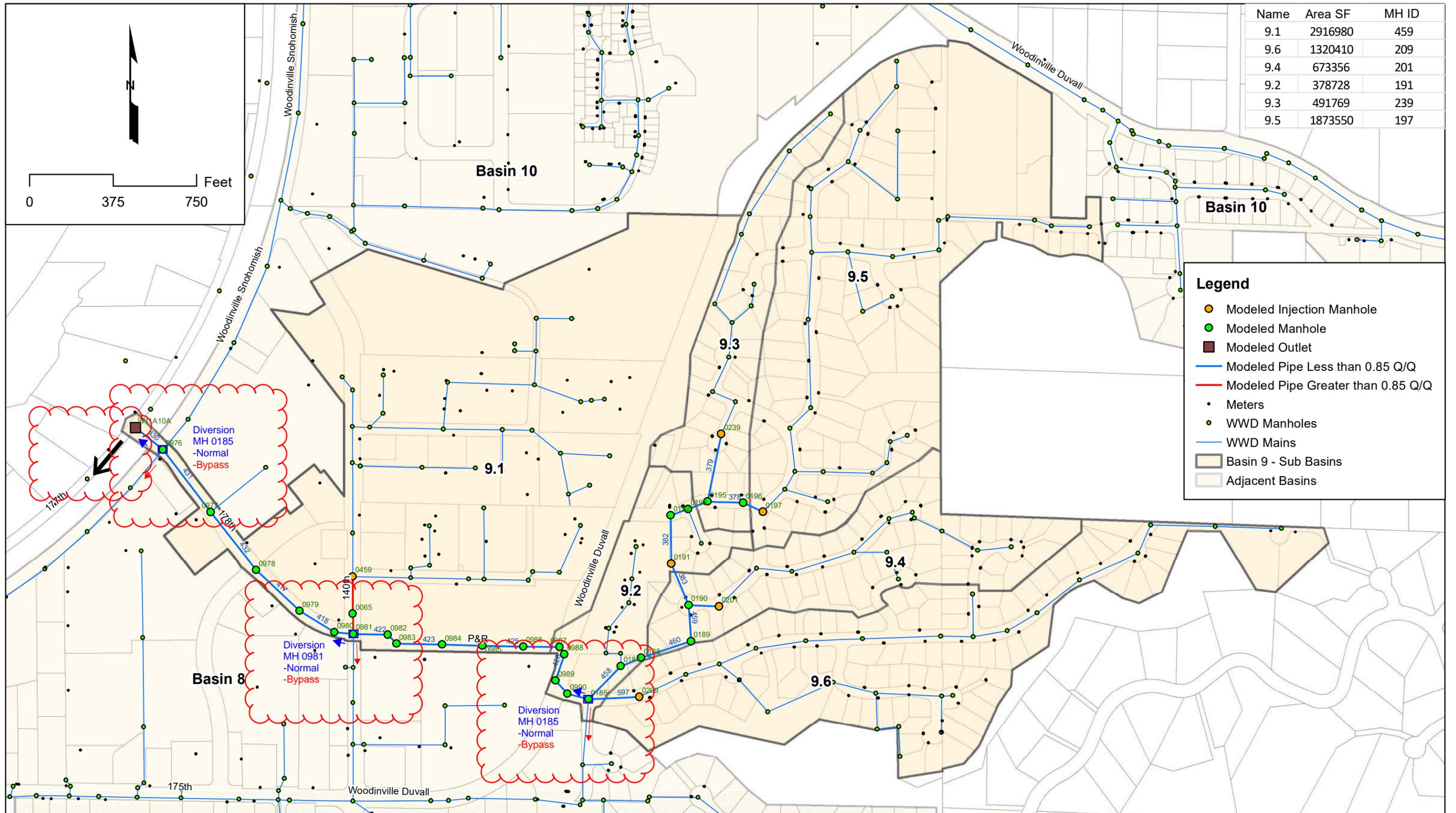
**Basin 4 - Build Out by Zoning**

**FIGURE 5-2.6**



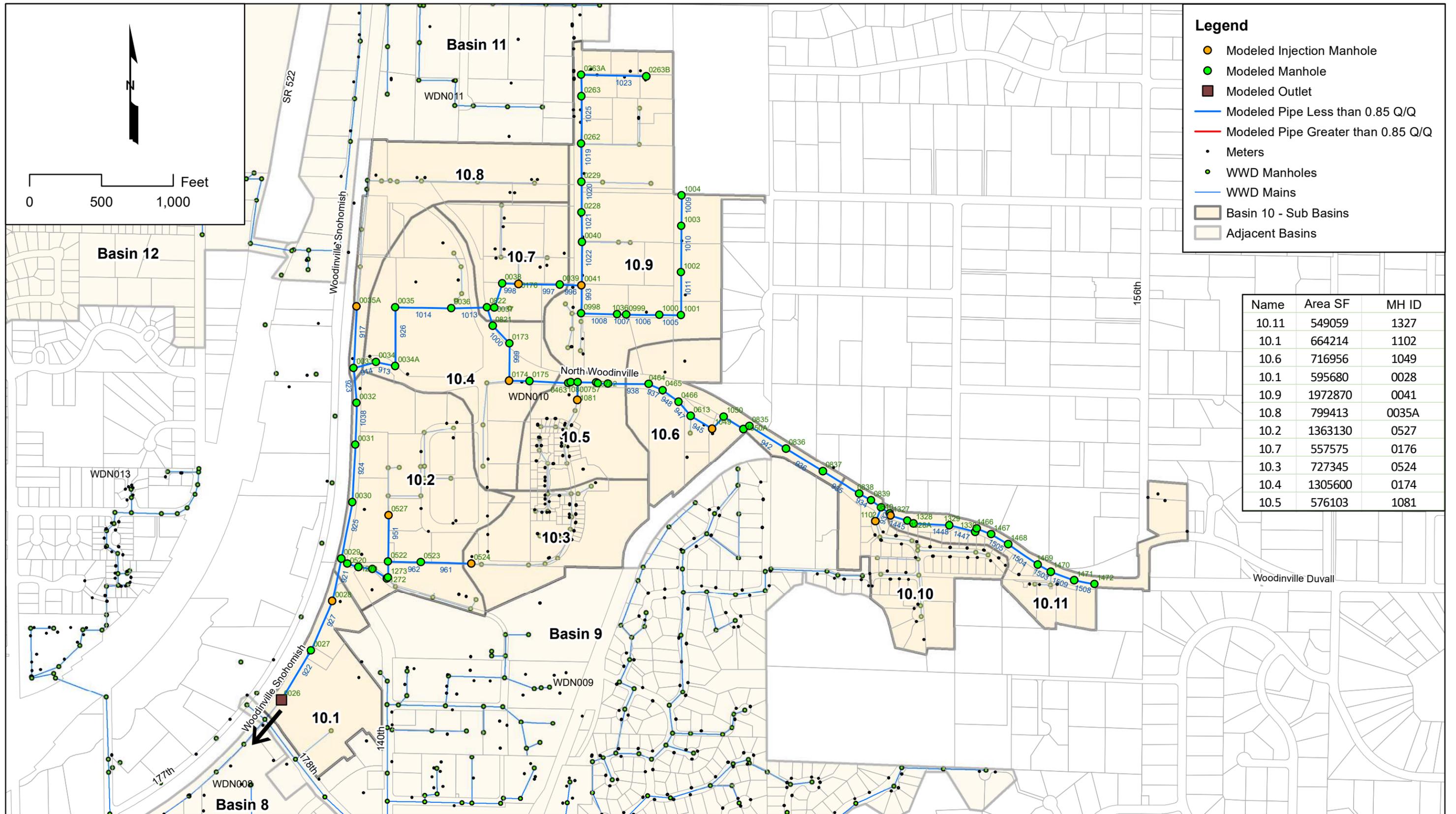
### Basin 8 - Build Out by Zoning

FIGURE 5-2.7



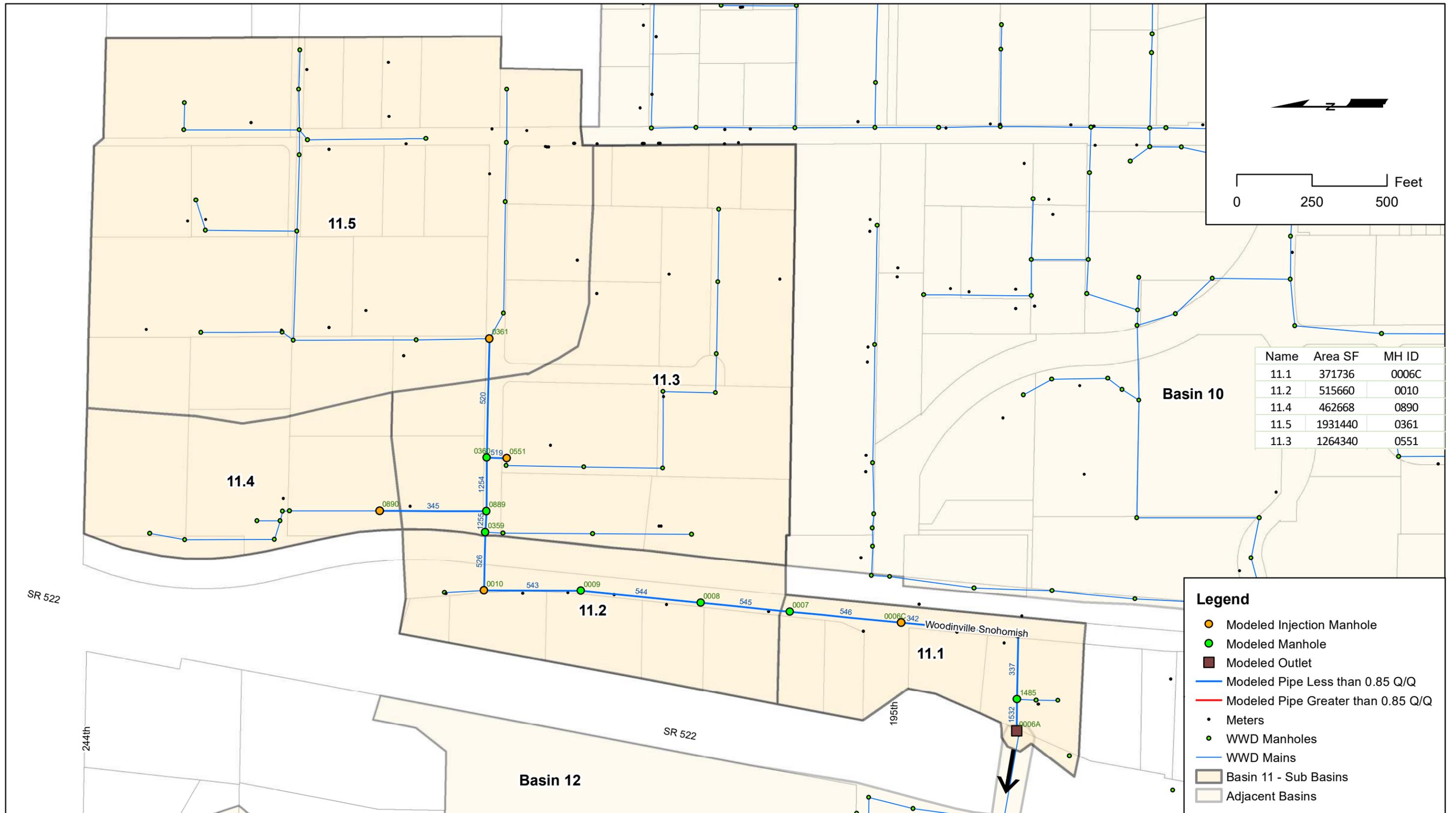
### Basin 9 - Build Out by Zoning

FIGURE 5-2.8



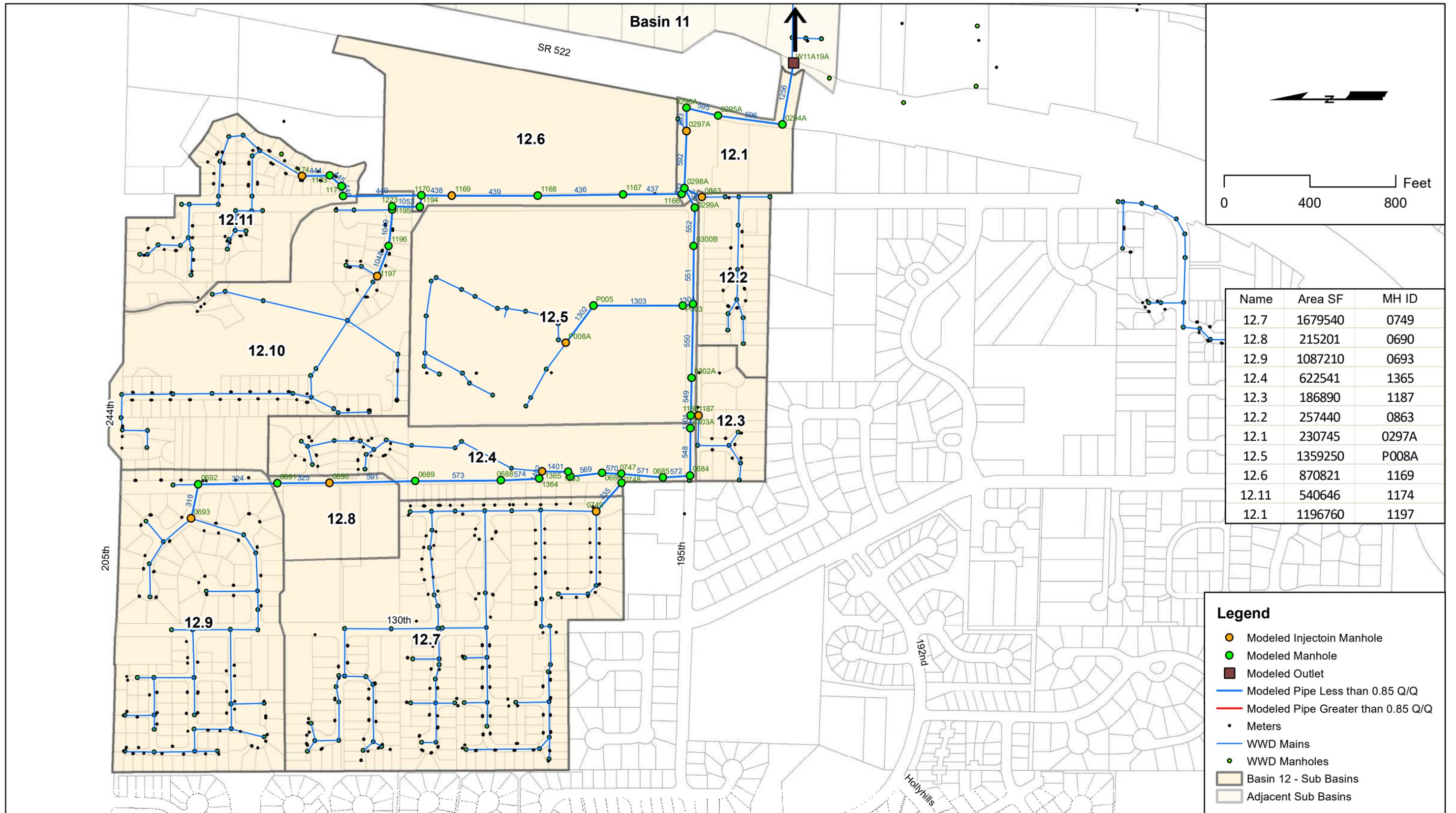
**Basin 10 - Build Out by Zoning**

**FIGURE 5-2.9**



## Basin 11 - Build Out by Zoning

FIGURE 5-2.10



## Basin 12 - Build Out by Zoning

FIGURE 5-2.11