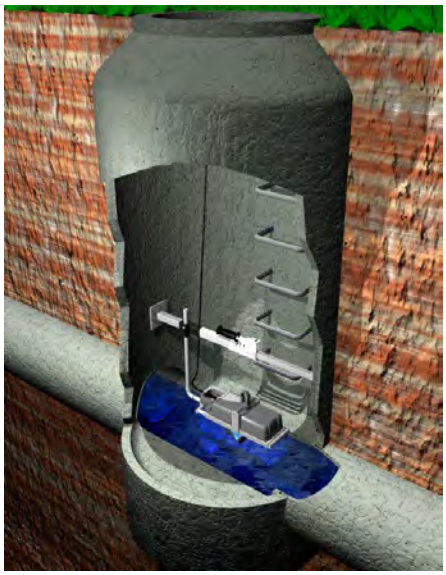
March 23, 2012

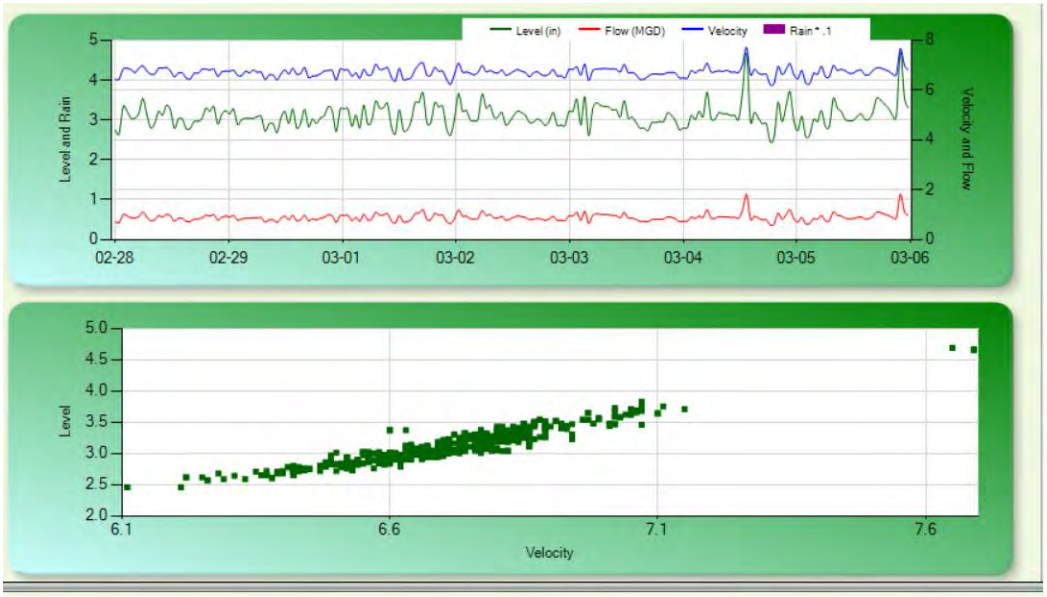
Flow Report

Newport Beach

Sites:

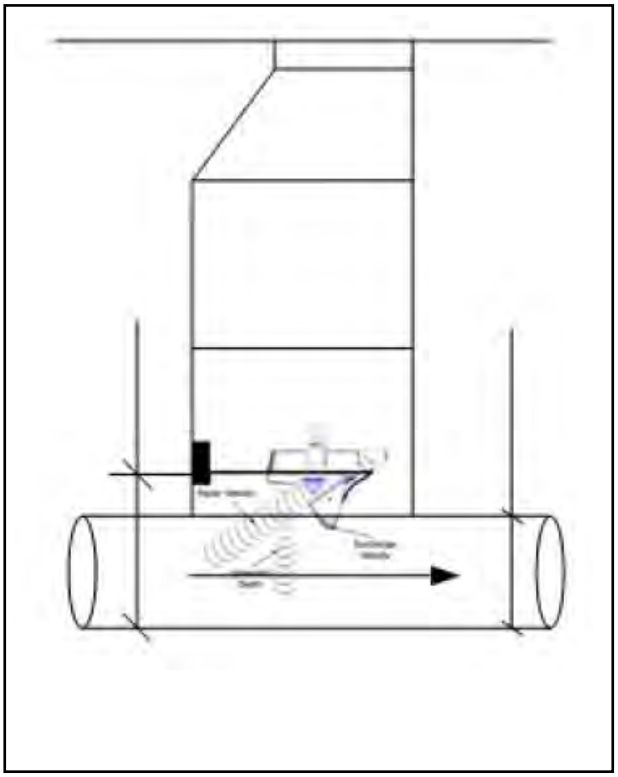
1. ***Von Karman***
2. ***Birch***





Meter Site Document

City	Newport Beach
Site Name	Von Karman
Site Location	Von Karman
Access	Gated ticket access



Manhole Depth	5'
Pipe Size (inch)	18 inches
Pipe Condition	good
Manhole Material	concrete

Hydraulics

Avg Velocity	Avg Measured Level	Multiplier
6.52	3 inches	.95

Gas

O2	H2S	CO	LEL
20.9%	0%	0%	0%

Notes

Traffic Safety

Meter Site Document

City	Newport Beach
Site Name	Von Karman
Site Location	Von Karman
Access	Gated ticket access

UTILITY SYSTEMS SCIENCE & SOFTWARE

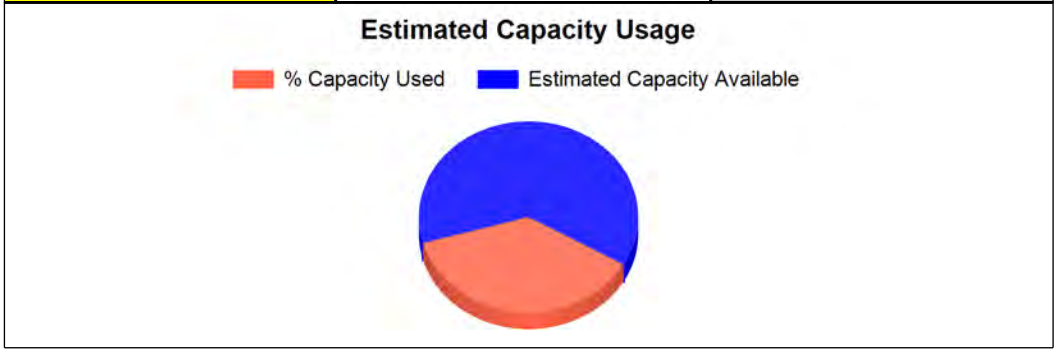
10979 San Diego Mission Road
San Diego, Ca 92108
619-546-4281 WORK
855.USCUBED TOLL FREE
714.542.1332 FAX

Temporary Flow Study

Newport Beach

Von Karman

Meter Start Date		From	2/23/2012 12:00:00 AM
Meter Stop Date		To	3/16/2012 12:00:00 AM
Velocity (fps)		Level (in)	Flow (mgd)
Average	6.721	3.136	0.901
Maximum	8.040	5.160	2.171
Minimum	6.120	2.460	0.573
Pipe Size		18.000	
Estimated Capacity (mgd)		5.829	
Capacity Used		37.24 %	
Sensor Type		Hach - Flodar	



Utility Systems, Science and Software

2101 E. 4th Street

Santa Ana, CA 92705

Utility Systems Science and Software

Report Date: 04/11/2012
Customer: US3
Site: Von Karman

Weekly Flow Statistics for Von Karman

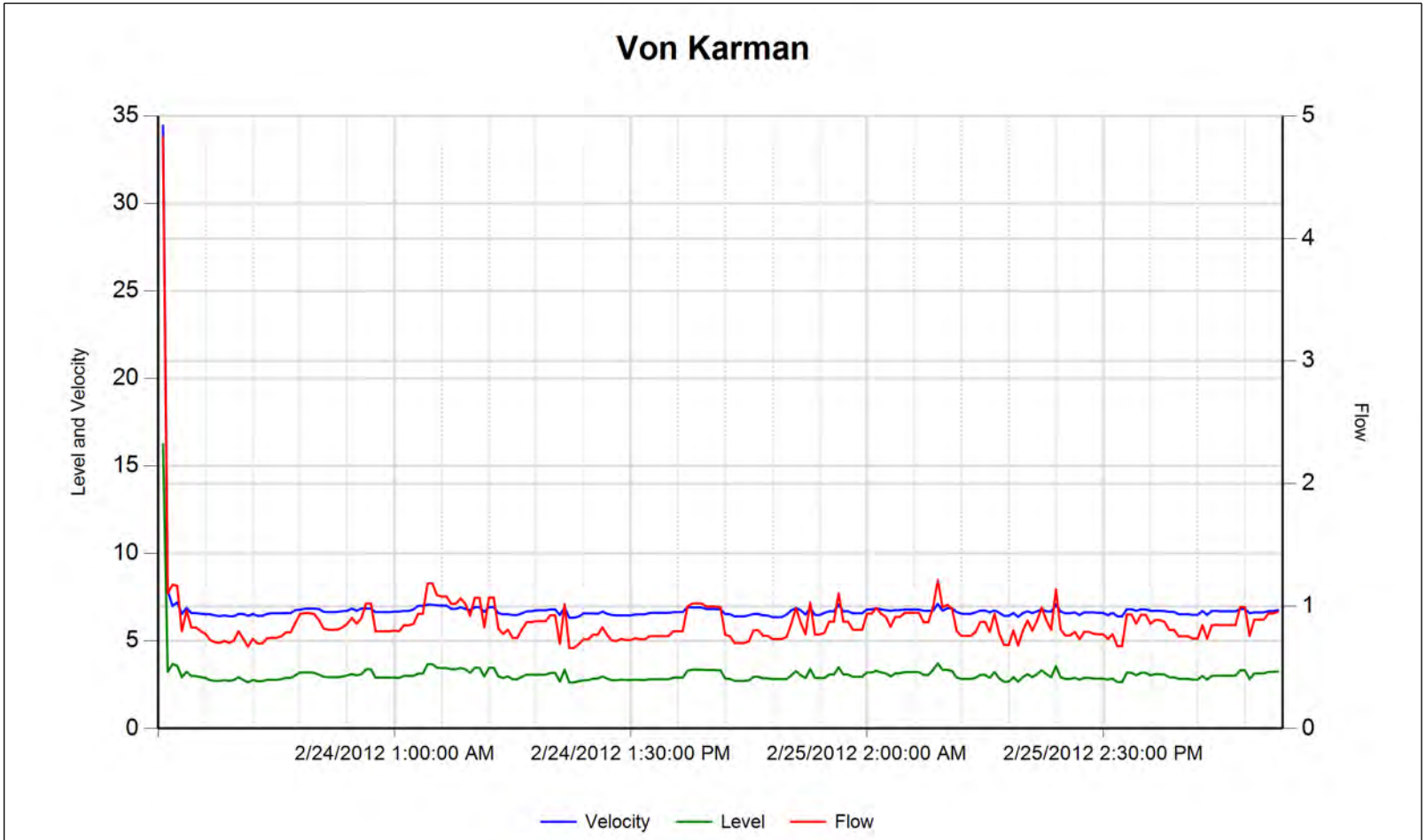
	Flow (GPM)			Velocity (FPS)			Level (inches)			
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gallons**
2/23/2012	588.06	815.23	464.09	6.71	7.88	6.42	3.01	3.68	2.64	846,812
2/24/2012	588.43	823.37	456.88	6.67	7.08	6.34	3.02	3.68	2.64	847,337
2/25/2012	593.76	842.09	467.02	6.69	7.13	6.38	3.04	3.72	2.66	855,010
2/26/2012	621.11	833.47	490.86	6.73	7.03	6.42	3.12	3.73	2.75	894,403
Week:	**597.84**	**842.09**	**456.88**	**6.70**	**7.88**	**6.34**	**3.05**	**3.73**	**2.64**	**3,443,561**
2/27/2012	629.35	1275.54	430.18	6.75	7.80	6.35	3.13	4.68	2.53	906,257
2/28/2012	598.38	766.83	465.92	6.71	6.97	6.43	3.05	3.54	2.65	861,664
2/29/2012	586.59	691.36	463.28	6.67	6.95	6.29	3.02	3.33	2.68	844,696
3/1/2012	632.08	823.37	444.03	6.72	7.08	6.23	3.16	3.68	2.62	910,191
3/2/2012	608.39	815.83	493.92	6.70	7.07	6.45	3.09	3.66	2.75	876,079
3/3/2012	604.51	842.39	444.38	6.70	7.16	6.34	3.07	3.71	2.59	870,501
3/4/2012	638.58	1251.63	398.02	6.75	7.70	6.12	3.16	4.66	2.46	919,551
Week:	**613.98**	**1275.54**	**398.02**	**6.71**	**7.80**	**6.12**	**3.10**	**4.68**	**2.46**	**6,188,938**
3/5/2012	659.53	1256.41	441.57	6.78	7.66	6.26	3.23	4.69	2.59	949,728
3/6/2012	621.34	838.55	467.74	6.74	7.11	6.42	3.12	3.72	2.66	894,733
3/7/2012	709.36	1276.47	473.93	6.87	7.69	6.40	3.36	4.73	2.69	1,021,475

Utility Systems Science and Software

Report Date: 04/11/2012
Customer: US3
Site: Von Karman

Weekly Flow Statistics for Von Karman

	Flow (GPM)			Velocity (FPS)			Level (inches)			
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gallons**
3/8/2012	633.87	877.85	482.37	6.73	7.13	6.41	3.17	3.83	2.72	912,770
3/9/2012	680.48	1240.25	484.19	6.80	7.63	6.40	3.30	4.66	2.73	979,897
3/10/2012	606.64	830.07	480.87	6.69	7.11	6.35	3.08	3.69	2.72	873,564
3/11/2012	638.77	1016.36	429.70	6.74	7.39	6.20	3.18	4.14	2.57	919,835
Week:	**650.00**	**1276.47**	**429.70**	**6.76**	**7.69**	**6.20**	**3.21**	**4.73**	**2.57**	**6,552,002**
3/12/2012	722.30	1507.35	518.05	6.85	8.04	6.49	3.39	5.16	2.83	1,040,115
3/13/2012	599.91	730.02	492.68	6.65	6.90	6.30	3.08	3.48	2.76	863,876
3/14/2012	601.59	744.70	474.84	6.64	6.91	6.31	3.09	3.50	2.72	866,295
3/15/2012	580.24	790.00	455.78	6.58	6.99	6.25	3.03	3.64	2.65	835,546
3/16/2012	235.87	765.85	0.00	2.67	6.90	0.00	1.23	3.58	0.00	339,659
3/17/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
3/18/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Week:	**391.42**	**1507.35**	**0.00**	**4.20**	**8.04**	**0.00**	**1.97**	**5.16**	**0.00**	**3,945,491**
3/19/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Week:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**



	Velocity (fps)	Level (in)	Flow (mgd)		
Average	6.685	3.029	0.850	**RainFall**	Inches
Maximum	7.885	3.720	1.213		
Minimum	6.340	2.640	0.658		

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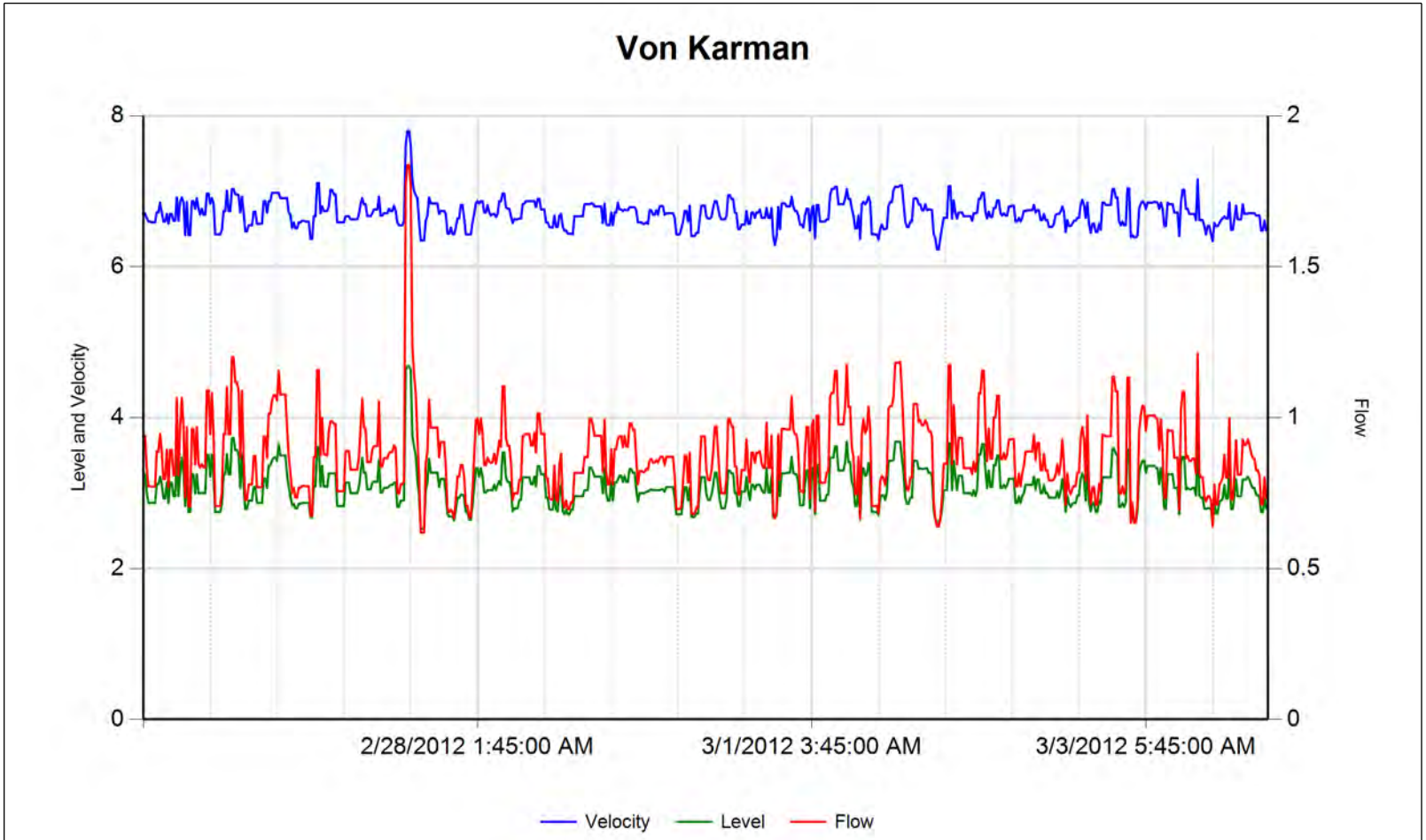

	Velocity (fps)	Level (in)	Flow (mgd)		
Average	6.710	3.094	0.881	**RainFall**	Inches
Maximum	7.800	4.680	1.837		
Minimum	6.230	2.530	0.619		

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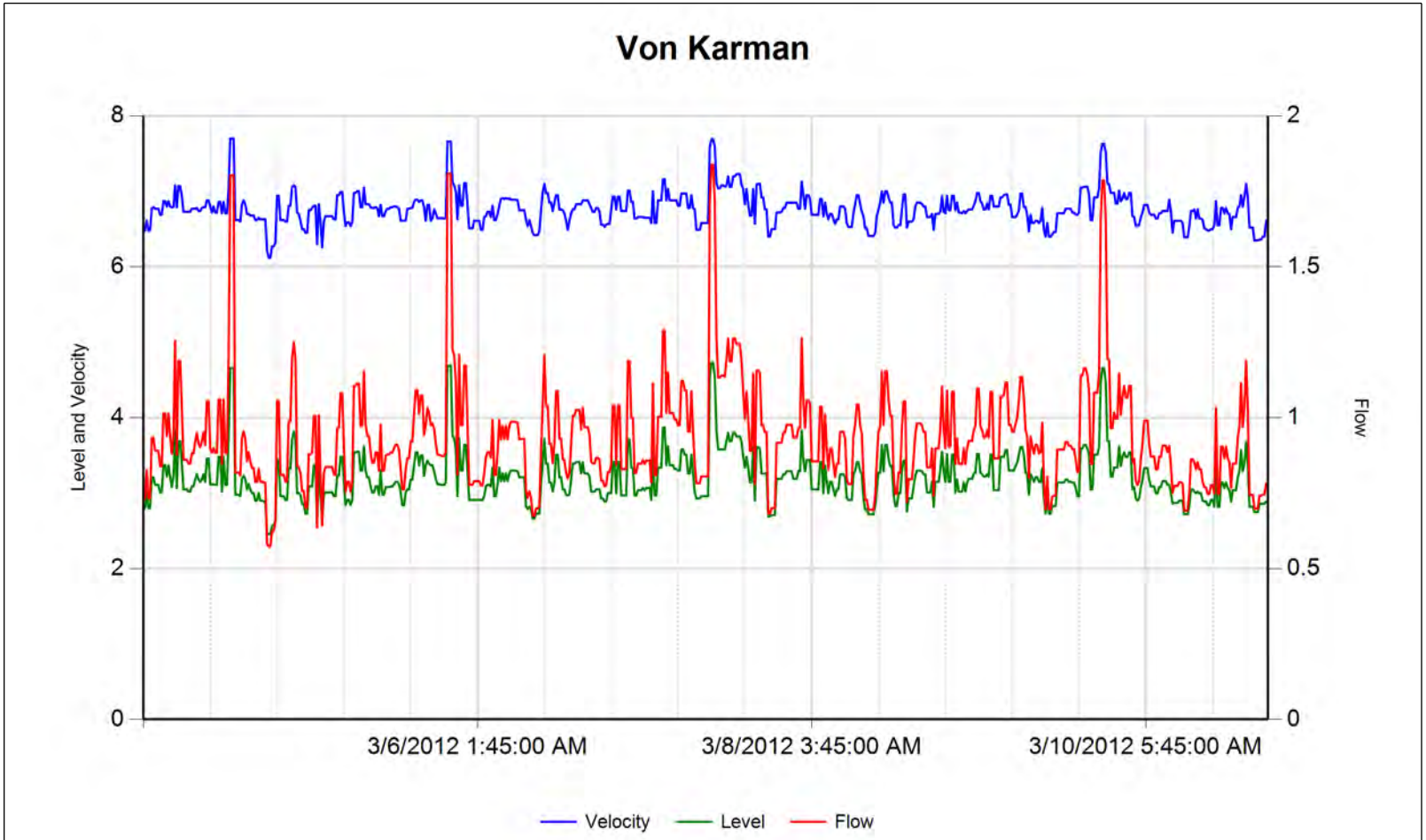

	Velocity (fps)	Level (in)	Flow (mgd)		
Average	6.767	3.203	0.936	**RainFall**	Inches
Maximum	7.700	4.730	1.838		
Minimum	6.120	2.460	0.573		

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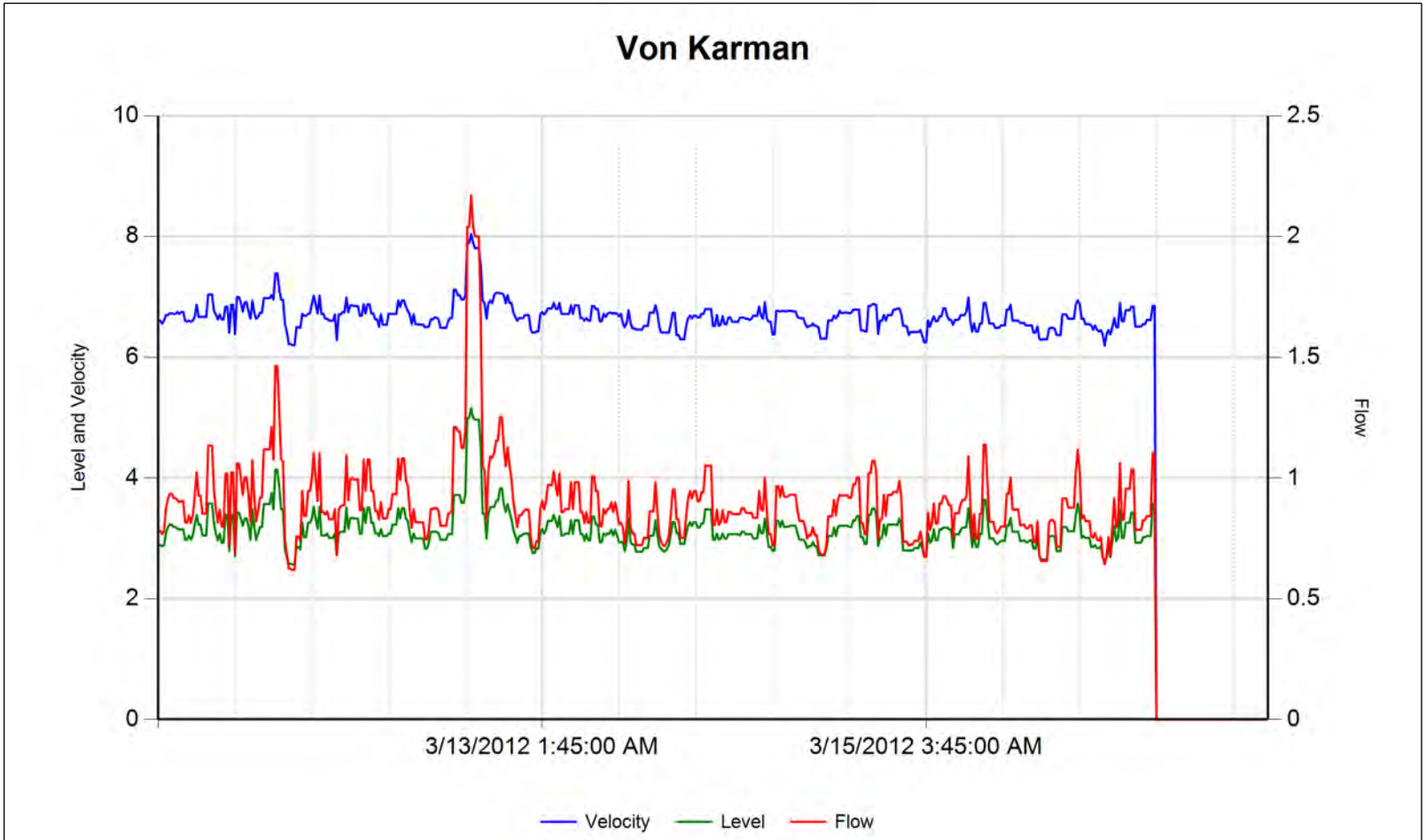

	Velocity (fps)	Level (in)	Flow (mgd)		
Average	6.011	2.828	0.809	**RainFall**	Inches
Maximum	8.040	5.160	2.171		
Minimum	0.000	0.000	0.000		

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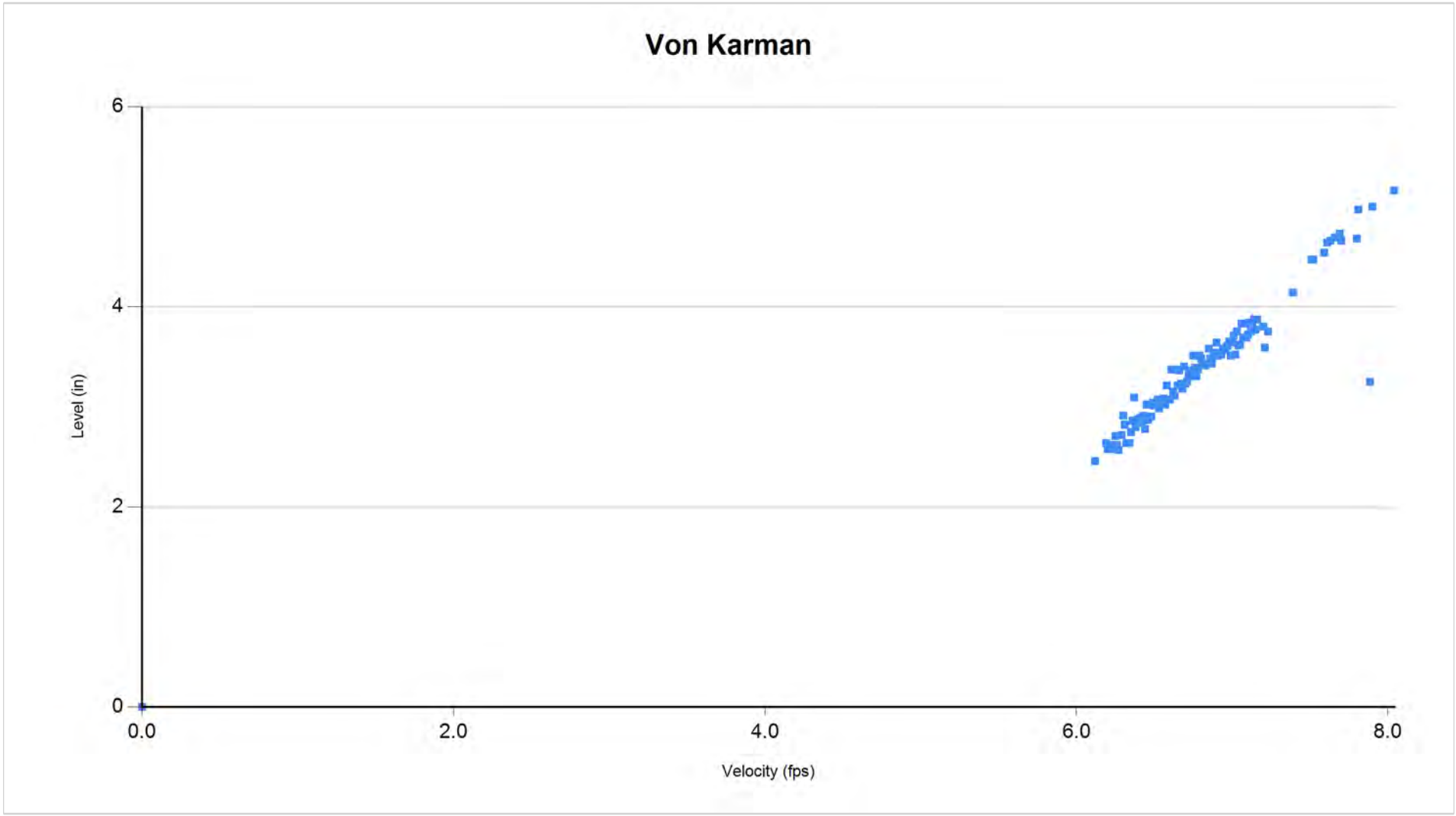

2/23/2012 thru 3/16/2012

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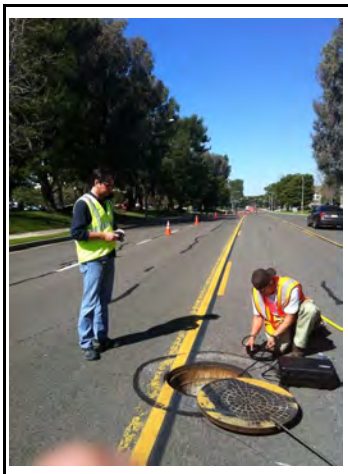
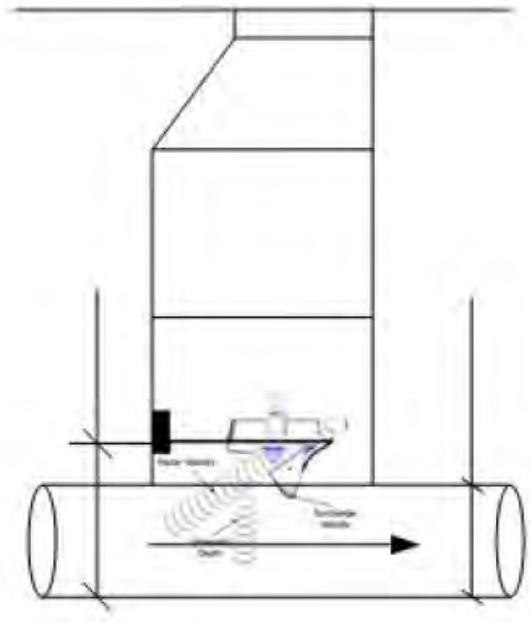
Meter Site Document

City	Newport Beach
Site Name	Birch
Site Location	Birch Street
Access	Center intersection





Manhole Depth	12'
Pipe Size (inch)	10 inches
Pipe Condition	good
Manhole Material	concrete

Hydraulics

Avg Velocity	Avg Measured Level	Multiplier
1.41 fps	1.25 inches	.80

Gas

O2	H2S	CO	LEL
20.9%	0%	0%	0%

Notes

Site was Jetted on 2/28. This drastically changed the flows of the site.

Traffic Safety

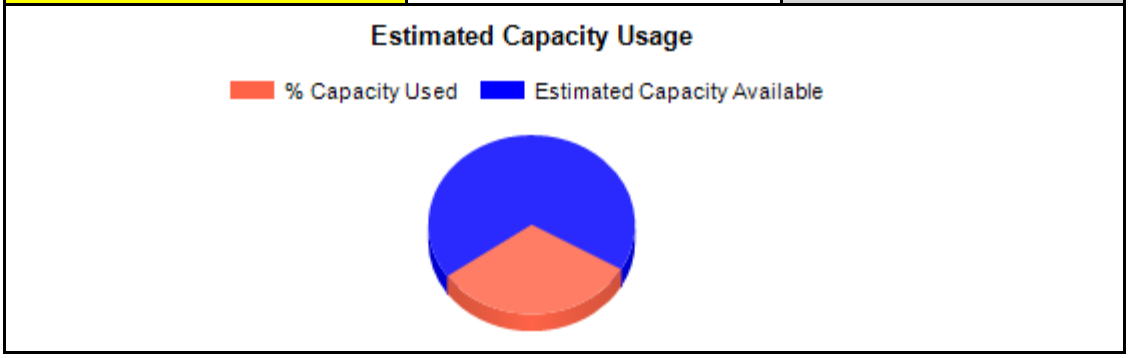
moderately high

Temporary Flow Study

Newport Beach

Birch

Meter Start Date		From	2/23/2012 12:00:00 AM
Meter Stop Date		To	3/16/2012 12:00:00 AM
Velocity (fps)		Level (in)	Flow (mgd)
Average	0.977	0.586	0.014
Maximum	7.690	2.220	0.213
Minimum	0.070	0.010	0.000
Pipe Size		10.000	
Estimated Capacity (mgd)		0.667	
Capacity Used		31.87 %	
Sensor Type		Hach - Flodar	



Utility Systems, Science and Software

2101 E. 4th Street

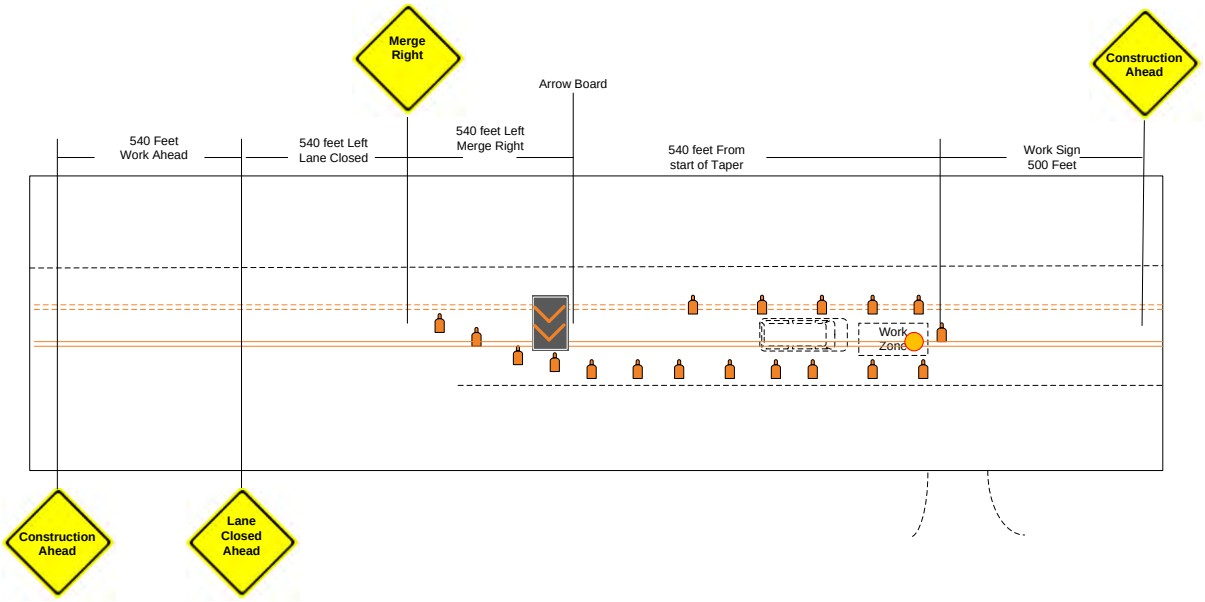
Santa Ana, CA 92705

Traffic Plan

Customer: Newport Beach

Estimated address . 4999 Birch Street

Site Name. Manhole MHM02



Lane Closure is Left Lane and the Center Lane, SE Bound Lanes.

Estimated Work Times is 10:00 AM

Advance Warning area is 540 Feet Taper plus work zone is 540 Feet.

Speed Limit is 45 MPH. Moderate Traffic

WZ = Work Zone

I flagman / Spotter will be used in conjunction to service crew.

Utility Systems Science and Software

Report Date: 04/11/2012
Customer: US3
Site: Birch

Weekly Flow Statistics for Birch

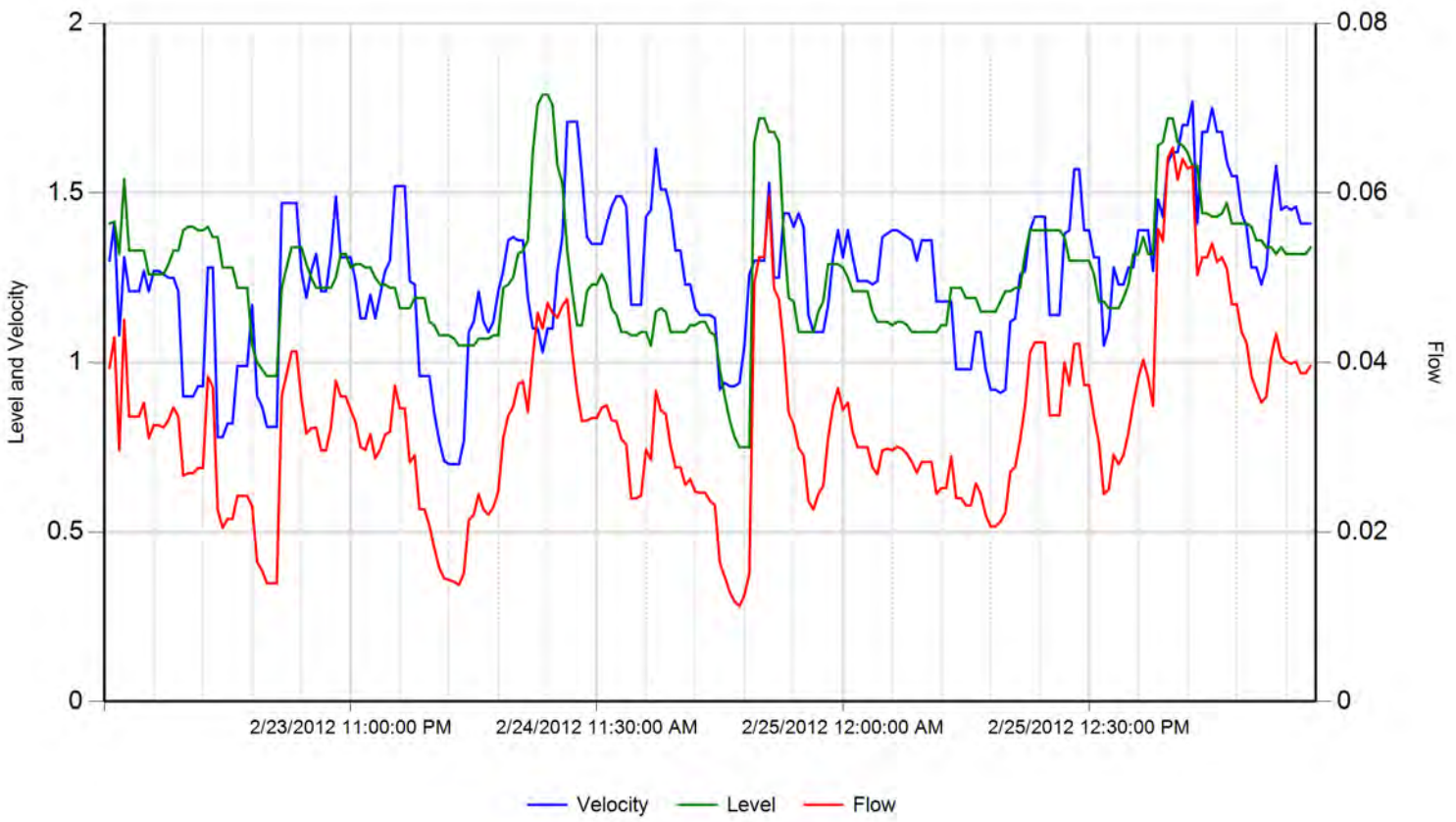
	Flow (GPM)			Velocity (FPS)			Level (inches)			
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gallons**
2/23/2012	21.07	31.27	9.70	1.15	1.49	0.78	1.27	1.54	0.96	30,337
2/24/2012	20.94	41.42	7.82	1.23	1.71	0.70	1.20	1.79	0.75	30,148
2/25/2012	25.38	45.37	14.36	1.34	1.77	0.91	1.30	1.72	1.09	36,541
2/26/2012	36.47	107.97	16.08	1.75	7.69	0.52	1.61	2.22	1.00	52,518
Week:	**25.96**	**107.97**	**7.82**	**1.37**	**7.69**	**0.52**	**1.35**	**2.22**	**0.75**	**149,544**
2/27/2012	22.02	147.66	0.01	1.80	7.33	0.09	0.75	1.37	0.05	31,703
2/28/2012	5.09	18.27	0.01	0.78	1.66	0.08	0.38	0.98	0.03	7,331
2/29/2012	5.49	22.07	0.01	0.81	1.76	0.20	0.40	1.09	0.03	7,902
3/1/2012	6.01	26.52	0.00	0.86	1.91	0.07	0.41	1.11	0.01	8,661
3/2/2012	4.46	16.91	0.01	0.77	1.51	0.09	0.36	0.93	0.03	6,417
3/3/2012	5.37	23.20	0.04	0.82	1.66	0.08	0.39	1.08	0.05	7,730
3/4/2012	6.72	24.80	0.01	0.92	1.85	0.21	0.45	1.14	0.03	9,672
Week:	**7.88**	**147.66**	**0.00**	**0.97**	**7.33**	**0.07**	**0.45**	**1.37**	**0.01**	**79,416**
3/5/2012	6.81	30.08	0.00	0.90	2.01	0.07	0.43	1.17	0.01	9,800
3/6/2012	5.04	19.13	0.01	0.81	1.59	0.09	0.38	0.98	0.03	7,260
3/7/2012	5.74	20.58	0.01	0.82	1.74	0.08	0.40	1.03	0.03	8,262

Utility Systems Science and Software

Report Date: 04/11/2012
Customer: US3
Site: Birch

Weekly Flow Statistics for Birch

	Flow (GPM)			Velocity (FPS)			Level (inches)			
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gallons**
3/8/2012	6.21	24.80	0.01	0.85	1.85	0.21	0.42	1.14	0.03	8,948
3/9/2012	6.80	30.08	0.06	0.89	2.01	0.26	0.43	1.17	0.06	9,792
3/10/2012	5.79	20.58	0.04	0.82	1.74	0.26	0.42	1.03	0.04	8,334
3/11/2012	6.29	24.80	0.03	0.85	1.85	0.21	0.45	1.14	0.04	9,056
Week:	**6.10**	**30.08**	**0.00**	**0.85**	**2.01**	**0.07**	**0.42**	**1.17**	**0.01**	**61,453**
3/12/2012	6.87	30.08	0.05	0.90	2.01	0.07	0.46	1.17	0.11	9,886
3/13/2012	4.56	16.91	0.02	0.81	1.51	0.20	0.39	0.93	0.03	6,573
3/14/2012	6.14	26.52	0.10	0.85	1.91	0.14	0.45	1.11	0.13	8,847
3/15/2012	5.53	18.27	0.15	0.85	1.66	0.10	0.46	0.98	0.14	7,961
3/16/2012	0.59	7.65	0.00	0.22	1.31	0.00	0.11	0.78	0.00	845
3/17/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
3/18/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Week:	**3.38**	**30.08**	**0.00**	**0.52**	**2.01**	**0.00**	**0.27**	**1.17**	**0.00**	**34,112**
3/19/2012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Week:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**



	Velocity (fps)	Level (in)	Flow (mgd)		
Average	1.255	1.255	0.033	**RainFall**	Inches
Maximum	1.770	1.790	0.065		
Minimum	0.700	0.750	0.011		

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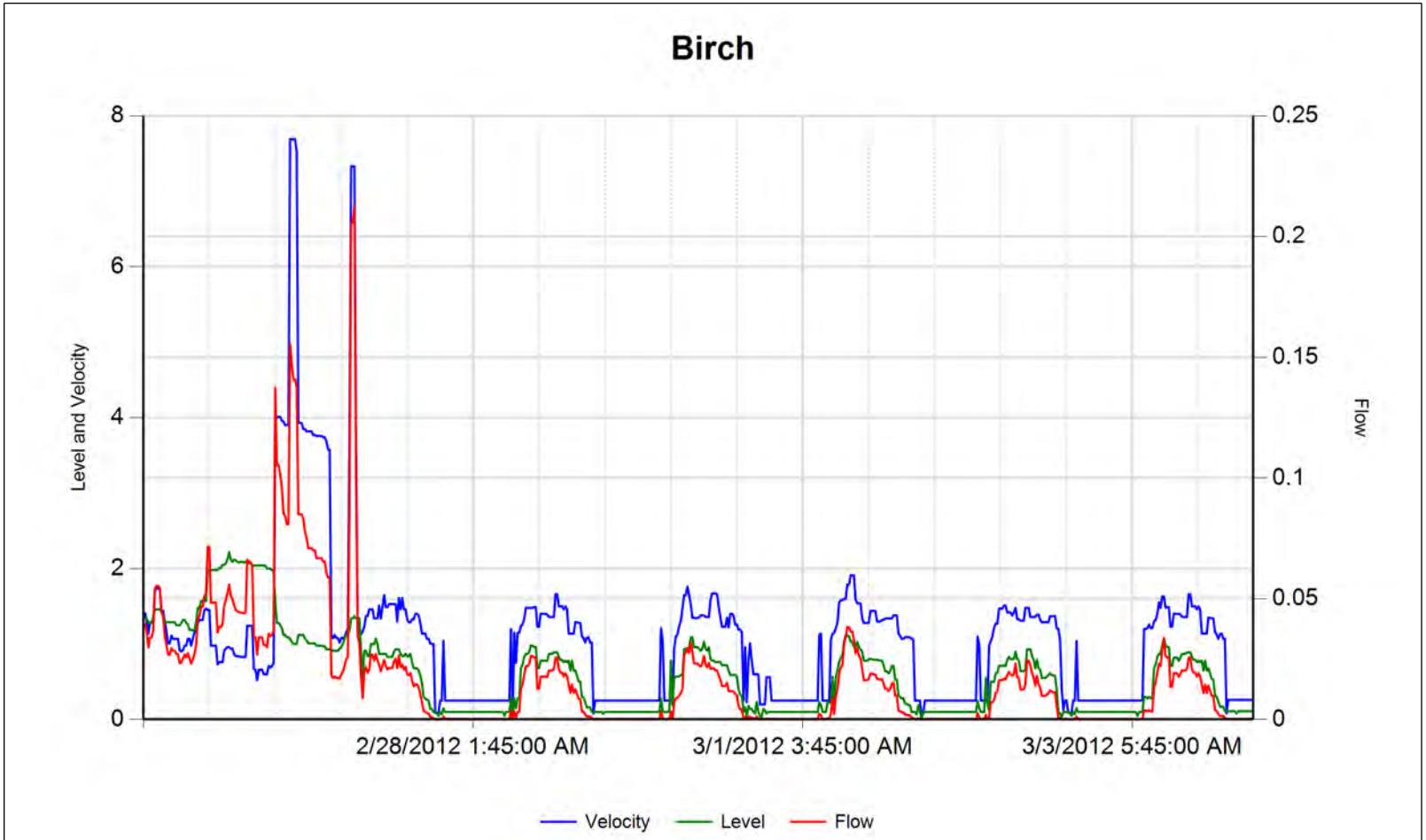
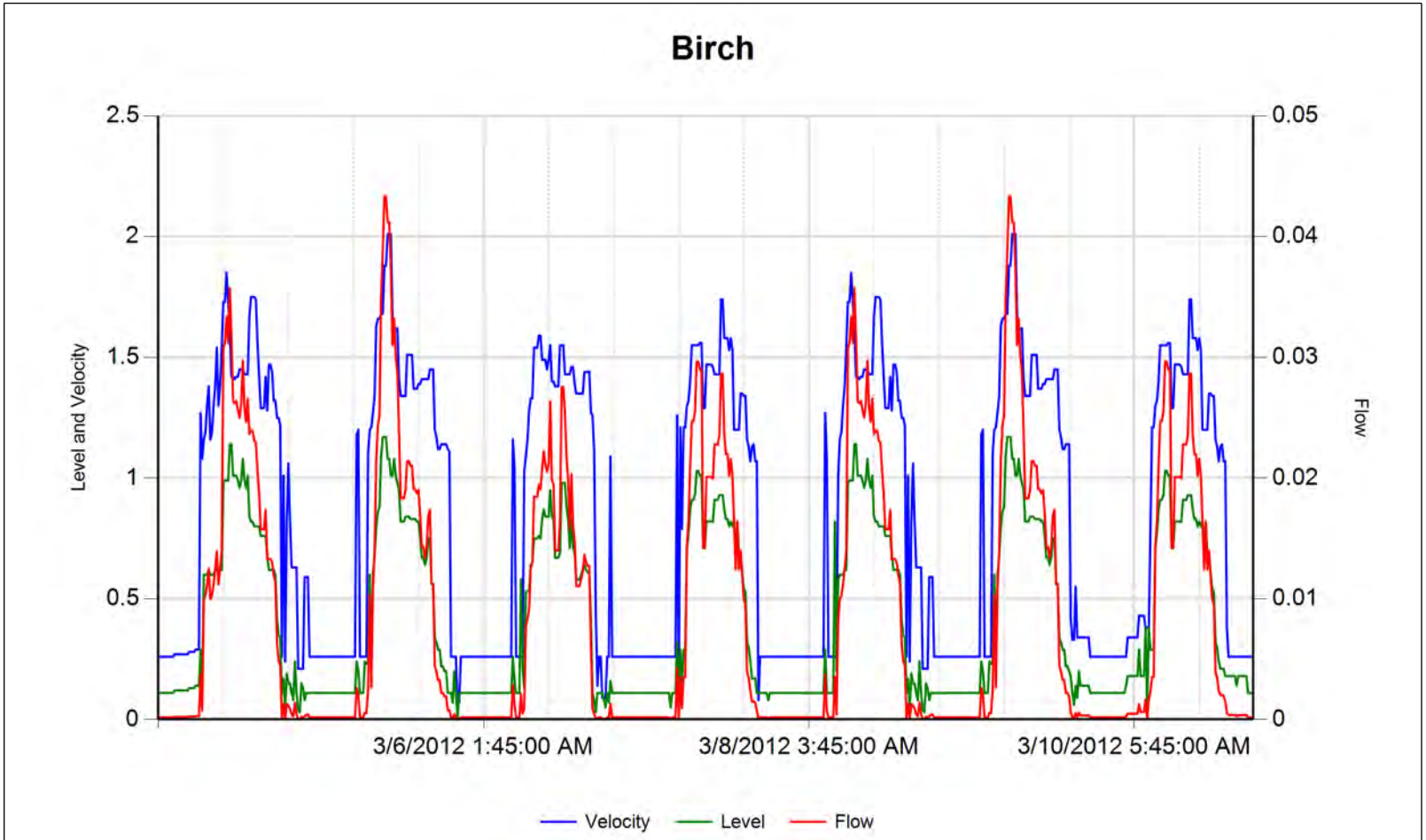


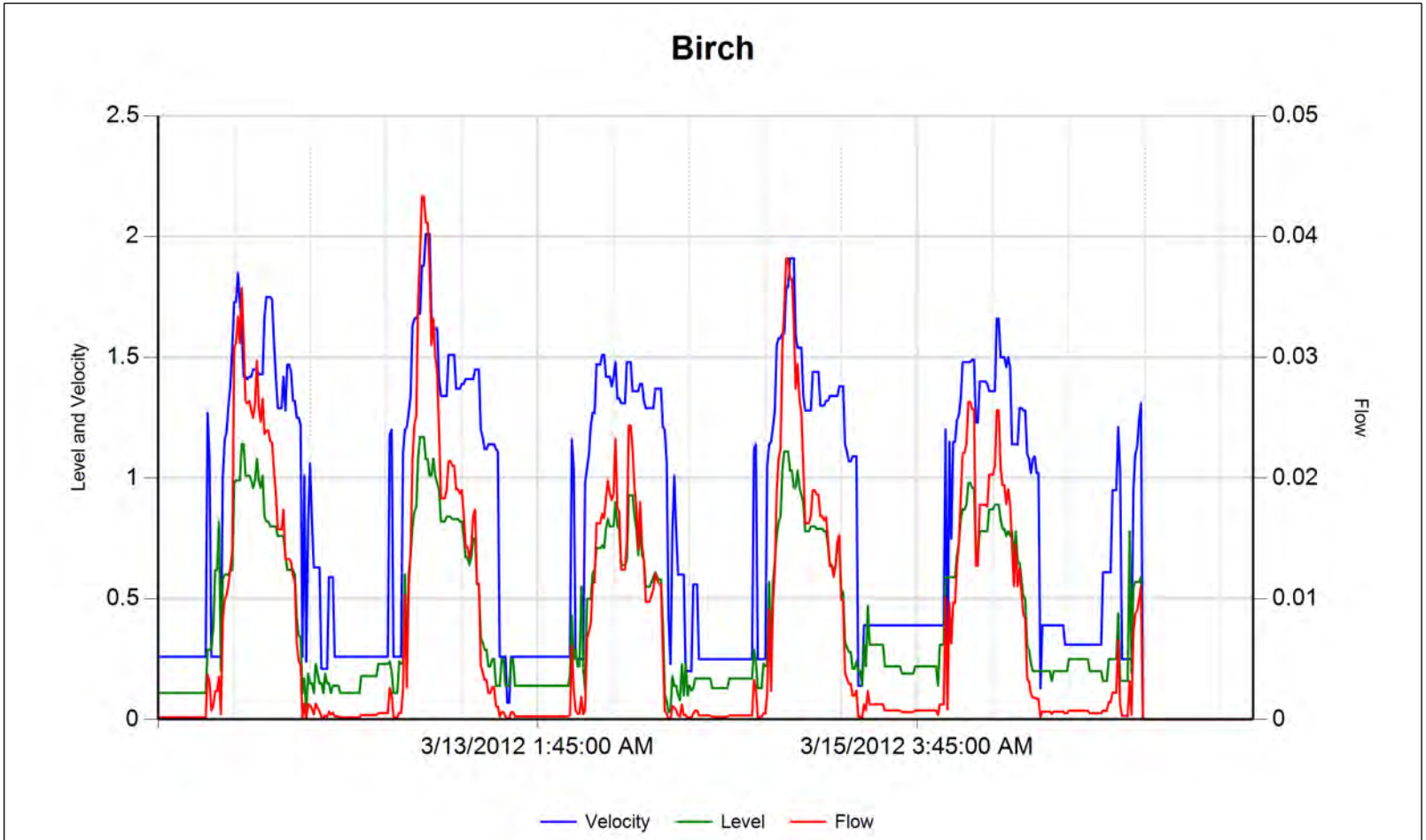
	Velocity (fps)	Level (in)	Flow (mgd)		
Average	1.084	0.613	0.017	**RainFall**	Inches
Maximum	7.690	2.220	0.213		
Minimum	0.070	0.010	0.000		

4/11/2012 2:44:17 PM



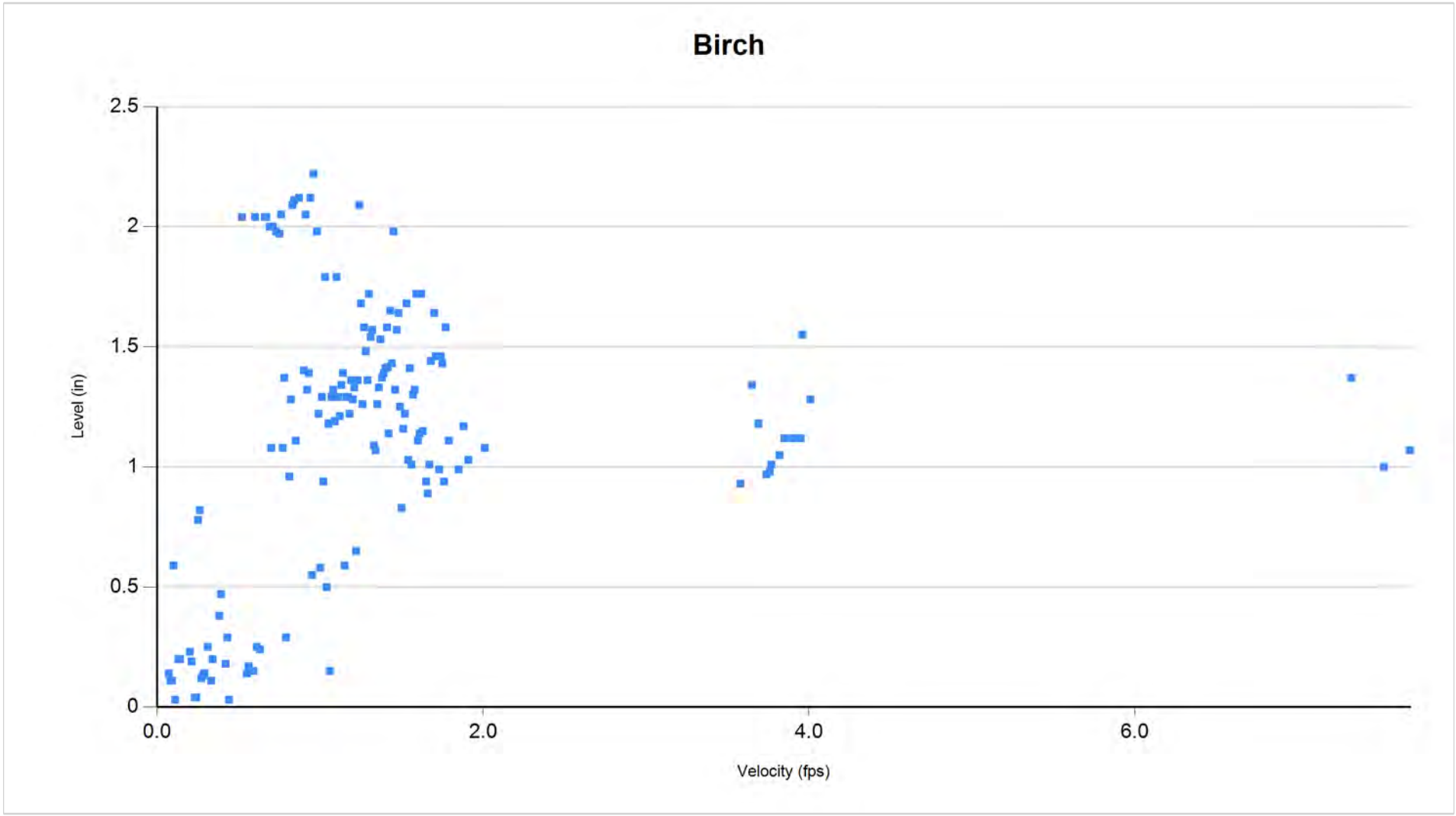
	Velocity (fps)	Level (in)	Flow (mgd)		
Average	0.859	0.419	0.009	**RainFall**	Inches
Maximum	2.010	1.170	0.043		
Minimum	0.070	0.010	0.000		

4/11/2012 2:44:17 PM



	Velocity (fps)	Level (in)	Flow (mgd)		
Average	0.746	0.385	0.007	**RainFall**	Inches
Maximum	2.010	1.170	0.043		
Minimum	0.000	-0.002	0.000		

4/11/2012 2:44:17 PM



2/23/2012 thru 3/16/2012

4/11/2012 2:44:17 PM

March 23, 2012

Who we are:

Utility Systems, Science and Software, Inc. (US^3), was founded in 2002 as a specialty technical engineering service company with its headquarters located in Santa Ana, California and Service and Engineering Facilities in San Diego, Sacramento.

The owners and management team are all professional and degreed engineers and have extensive experience in the application and implementation of Water/Waste Water and associated Process Control Projects. We are currently working in many facilities throughout the USA and are selectively guiding the growth of our business into markets and areas where we can provide the highest quality value of service to our clients.

US^3 supports Municipalities, Consulting Engineering firms and other water/waste water systems integrators by providing technical services for engineering, software programming, technical site maintenance and calibration site support work primarily in the Water and Waste Water industries.

Services Include:

- Sewer Monitoring
  - US3 installs and maintains Marsh-McBirney Meters for Sewer Monitoring. US3 will then interface the standard MM Meter for Real-time Web-Based Wireless Flow Monitoring using CDMA, GPRS/GSM, VHF/UHF/Trunk radio networks (including Motorola Networks). US3 provides the following:
  - Detailed Preliminary Investigation.
  - Validate Hydraulic Suitability,
  - Provide Detailed Site Data,
  - Install Meter to Exact Specifications,
- Interface Rain Gauge Instrumentation,
- Provide Communications to all instruments,
- Train Utility Engineers and Technicians how to access Web-Based Data,
- Provide complete Calibration and Maintenance Services.
- SSO Monitoring & Event Notification
- US3 provides simple, cost effective, wireless SSO/CSO Monitoring & Event Notification. This information will be sent to your cell phone, pager, work/home phone and/or email**.**

- **Flow Meter Maintenance**
    - US3 provides supplemental or dedicated maintenance Marsh-McBirney service for short-term or long-term requirements. Our highly trained and skilled technicians are experts in all phases of waste monitoring system maintenance
- **Sanitary System Evaluation Services**

US3 has experienced licensed civil engineers who can work with City or County personnel to develop a comprehensive SSES program.

US3 provides the procedures, equipment, and results of each activity performed during the investigation. US3 will develop a report to discuss the existing sanitary sewer collection system, identifies the system defects and problem areas, prioritizes and ranks the inflow/infiltration sewer segments, and details the recommended improvements. The report also includes a preliminary cost estimate associated with the selected rehabilitation methods to effectively reduce inflow/infiltration volumes and extend the useful life of the existing piping.

March 23, 2012

Flow Meter Used in your Flow Study

Flo-Dar incorporates a Doppler Radar Velocity Sensor and Ultrasonic Depth Transducer for use in Open Channel Applications. It is available with a Permanent Flo-Station. The Flo-Station is available with or without a display and is powered with 120/240 VAC, or 12 VDC. The Flo-Station requires Flo-Ware software, which is included on some models, and a customer supplied PC. Flo-Station with display shows flow rate, total flow, velocity and level. Both Flo-Station's have four outputs one each for level, velocity, flow rate, surcharge level, and a contact closure.

March 23, 2012

Flo-Dar Sensor Information:

Enclosure
Material: Polystyrene
Dimensions: 6.9" W x 16.65" L x 11.7" D
(17.5 cm x 42.3 cm x 29.7 cm)
Weight: 10.5 lbs. (4.8 kg)

Temperature
Operating Range: 14° F to 122°F
(-10° C to 50° C)
Storage Range: -40° F to 140° F
(-40° C to 60° C)

Velocity Measurement
Method: Radar
Range: 0.75 to 20 ft/s (0.23 m/s to 6.10 m/s)
Accuracy: ±0.5%; ±0.1 ft/s (±0.03 m/s)

Level Measurement
Method: Ultrasonic
Standard Operating Range:
0.25 to 60 in. (0.634 to 152.4 cm)
Optional Operating Range: 0 (0 cm) to 240" (6.1 m)
(with 18" dead band)
Temperature Compensated
Accuracy: ±0.1 in. (±0.25 cm)
1% Accuracy

Surcharge Conditions Level/Velocity
Level
Method: Piezo-resistive pressure transducer
Maximum Range: 138 inches (3.5 meters)
Velocity
Method: Electromagnetic
Range: -5 to +20 ft/s (-1.5 to +6.1 m/s)

Flow Station information:

Data Storage
64K (16K cycles of velocity/level data)

Local Terminal
RS232C at 19.2K baud

Timebase Accuracy: 1 second per day

Outputs: Four 4-20 mA outputs; system-isolated, up to 600Ý load. Each output is selectable between FLOW, LEVEL, VELOCITY OR SURCHARGE LEVEL.

Power Requirements

AC: 85-264 VAC, 47-63 Hz. 32 watts

DC: 12 VDC for Flo-Station without Display or Flo-Station with Display (Backlight Off)

180 mA (2.1 watts) with (1) 4-20 mA utilized.

Housing Material: ABS Plastic, NEMA 4

Dimensions: 10.2" W x 9.3" H x 4" D
(25.9 cm W x 23.6 cm H x 10.2 cm D)

Weight: 5 lbs.

Temperature Operating Range: 14° F to 122° F
(-10° C to 50° C)

Temperature Storage Range:

(without display) -40°F to 140°F (-40°C to 60°C)

(with display) 4°F to 140°F (-20°C to 60°C) w/Display

March 23, 2012

Site Information and location information

Summary Comments:

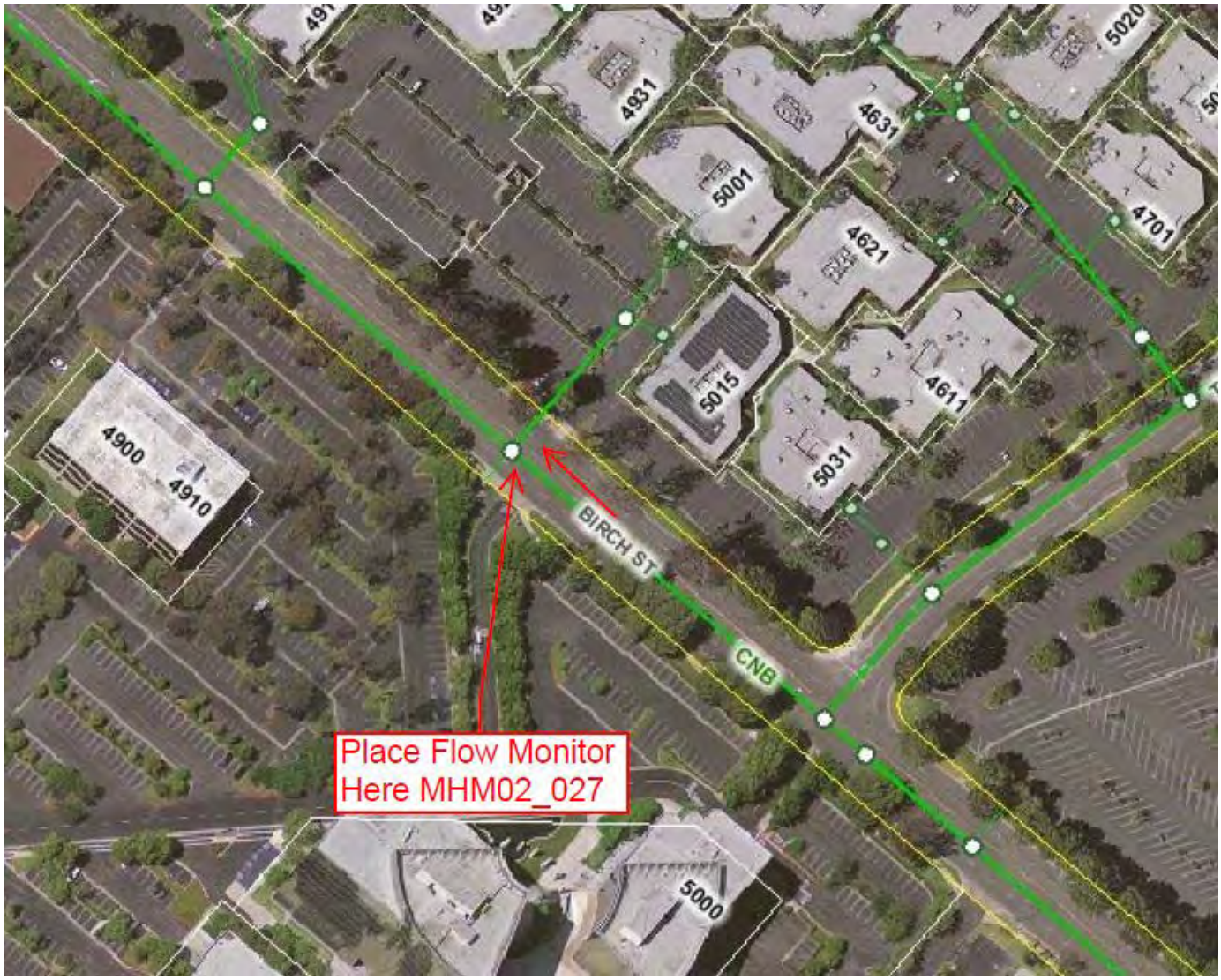
Location Birch

Comments:
This site looks like it was jetted during the Flow study. Data after the 2/28/2012 was significantly lower. Jetting of this line seems to have cleaned out sediment from the line. The flows are very predictable during work hours. Non working hours the flows are minimal.

Location Von Karman

Comments: Velocity is somewhat high but still within norms. This seems to react like an industrial type of Flow.

Birch Location



March 23, 2012

Von Karman Location


VON KARMAN AVE
CNB
CNB
PCL 1
PCL 2
PCL 2
PCL 1
PCL 1
PCL 2
4300
4220
Place Flow Monitor
Here MHM03_011
0
85ft