



TIRZ 17 BOARD MEETING

Tropical Storm Imelda - Event Summary

September 24, 2019



Presentation Outline

- Event Summary
- W140-01-00 (Briar Branch)
Channel Improvement Project
- Infrastructure Performance

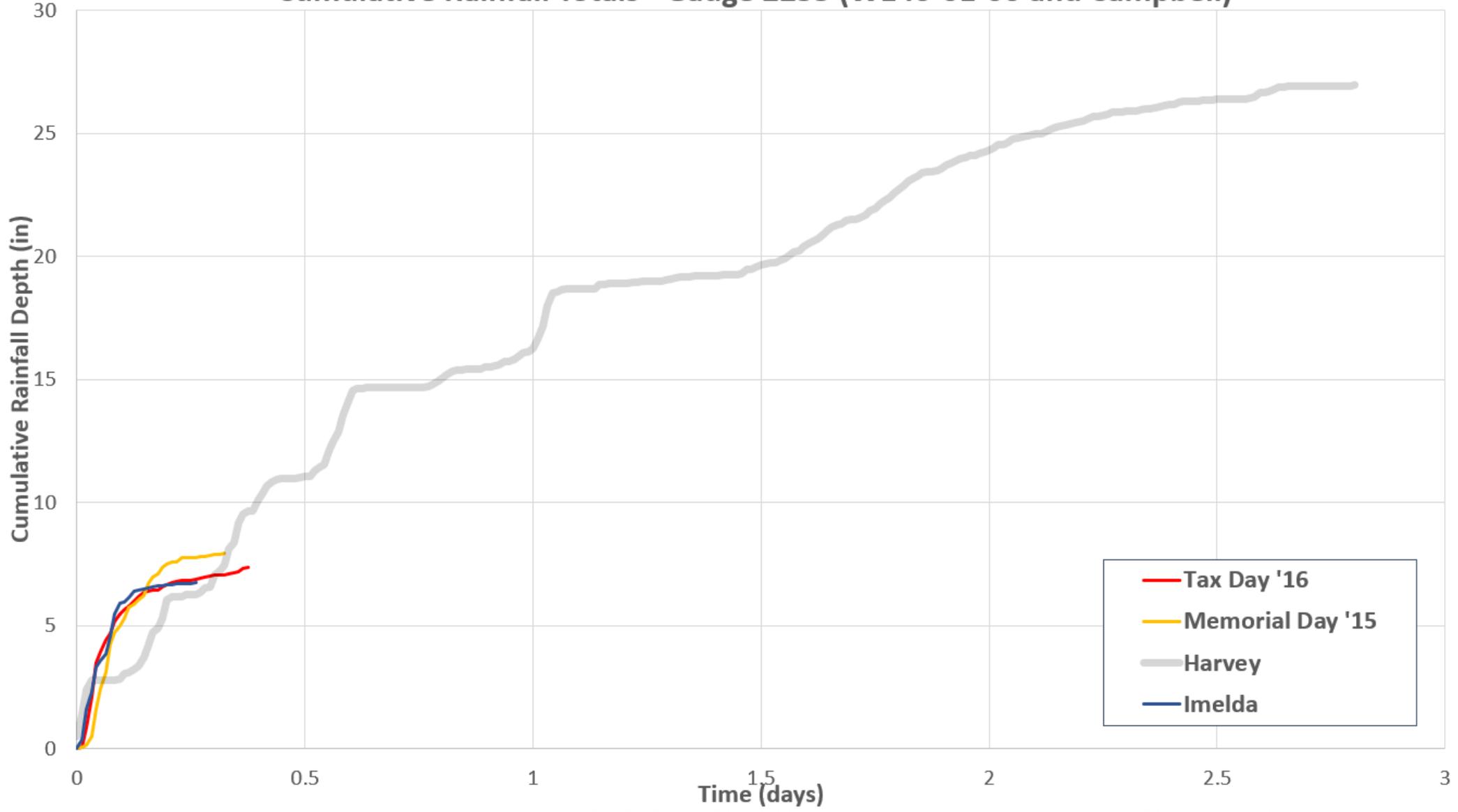




TS Imelda Summary

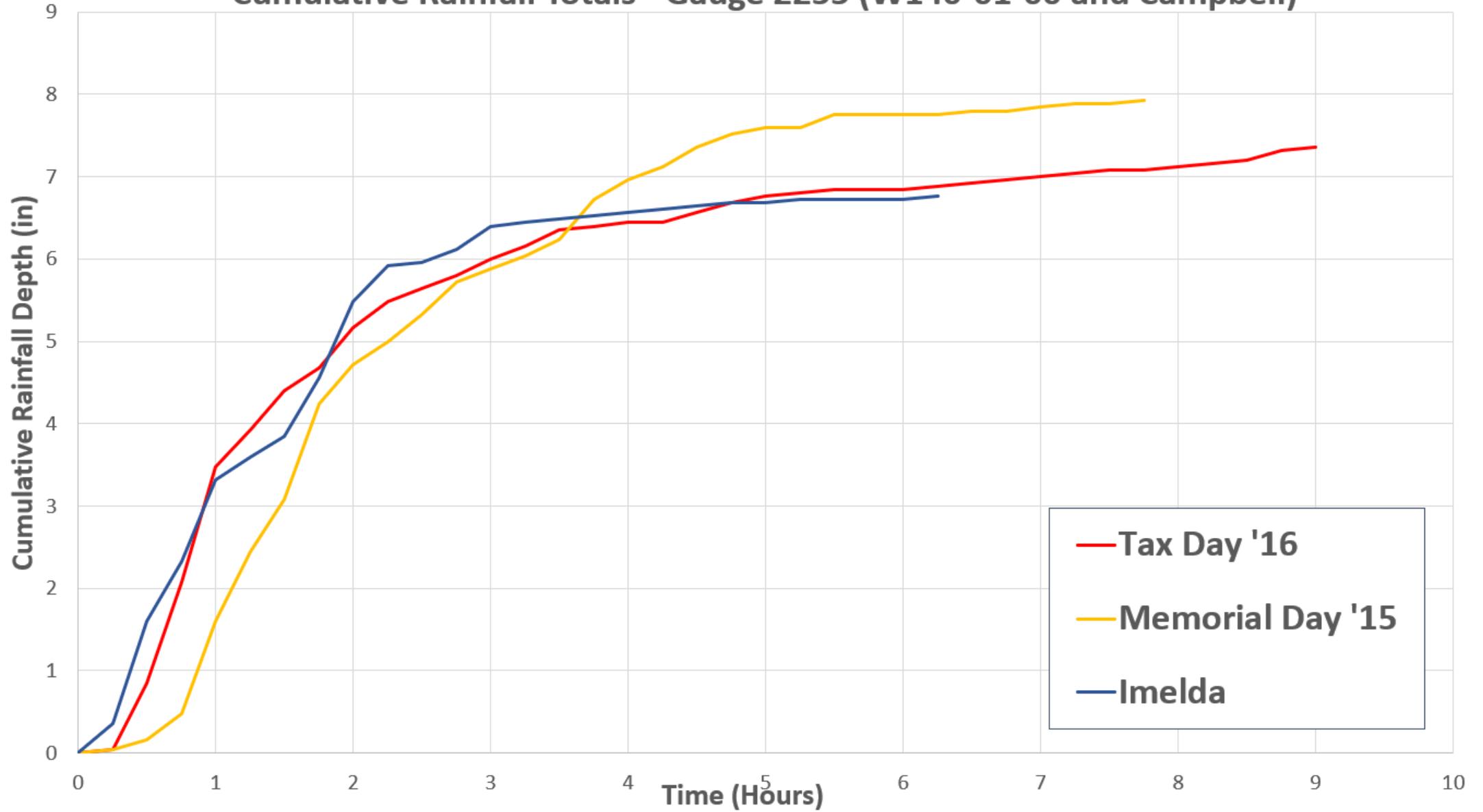
- Date/Time: Mid-Day of Sept. 19th
- 25-100 year event
 - 6" in 2 hours
 - 7" in 3 hours
- 3rd day of rainfall – 1" on the 7th

Cumulative Rainfall Totals - Gauge 2255 (W140-01-00 and Campbell)



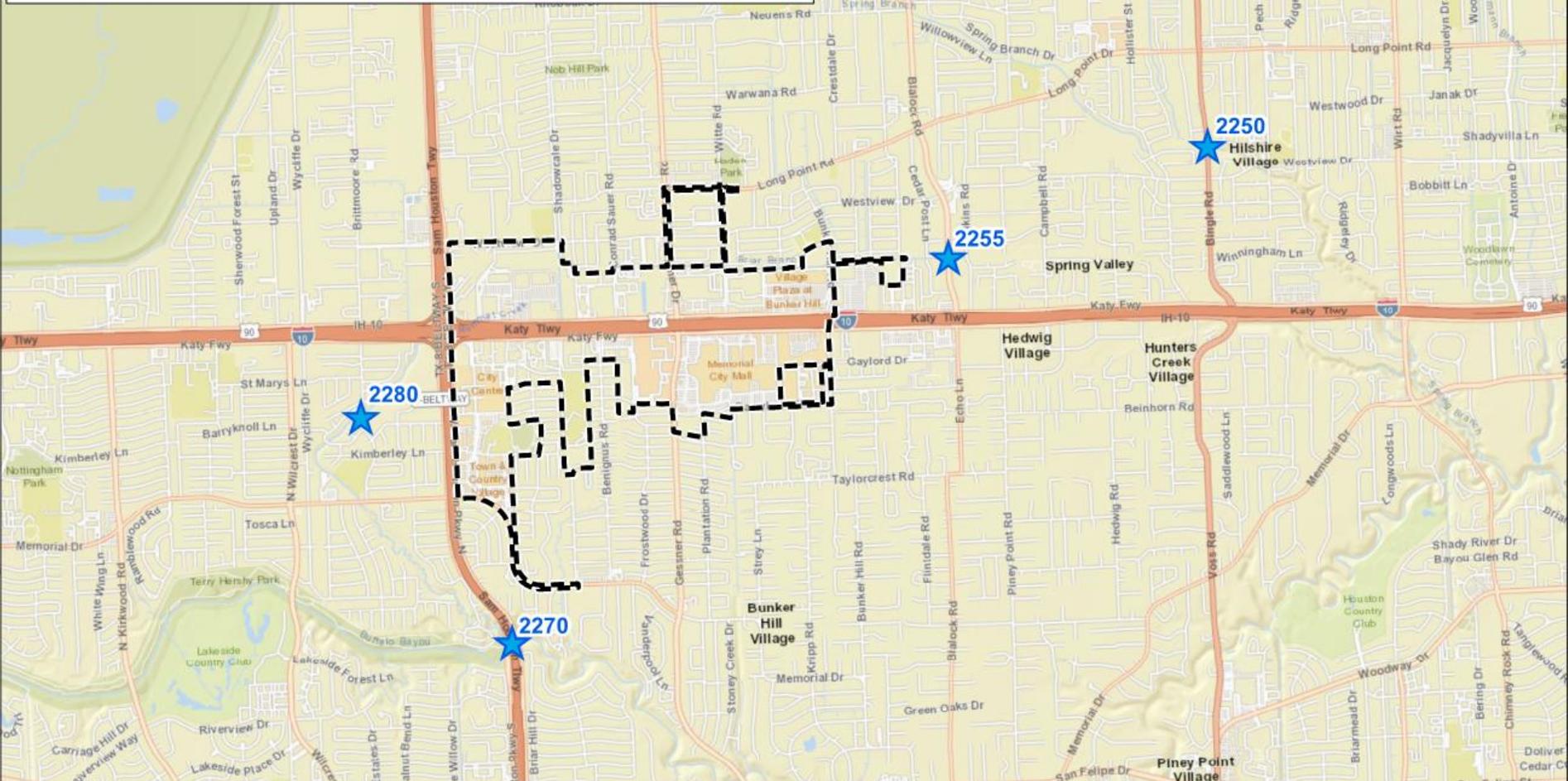
Event Magnitude

Cumulative Rainfall Totals - Gauge 2255 (W140-01-00 and Campbell)



Tropical Storm Imelda September 19, 2019									
Gauge #	Duration (hr)								
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day
2250	0.48	1.28	2.16	3.68	6.04	6.68	7.08	7.08	7.92
2255	0.48	1.24	2.08	3.48	5.76	6.40	6.72	6.76	7.44
2270	0.48	1.32	2.12	2.52	4.28	5.52	6.00	6.00	7.40
2280	0.40	1.08	1.52	2.12	3.80	4.92	5.36	5.36	6.12

- 2-year
- 5-year
- 10-year
- 25-year
- 50-year
- 100-year
- 500-year



May 9, 2019									
Gauge #	Duration (hr)								
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day
2250	0.40	1.00	1.80	2.12	3.44	4.28	5.24	5.84	5.88
2255	0.36	1.00	1.76	2.00	3.44	3.88	4.56	5.16	5.20
2270	0.32	0.64	0.92	1.28	2.12	2.80	3.48	4.08	4.12
2280	0.36	0.92	1.72	2.12	2.96	3.96	4.36	4.92	4.96

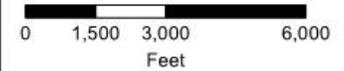
- 2-year
- 5-year
- 10-year
- 25-year
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**SEPTEMBER 19, 2019
RAINFALL EVENT
ANALYSIS**
ESTIMATED RETURN
PERIOD BASED ON
EFFECTIVE RAINFALL

Legend

-  Gauge Locations
-  TIRZ 17 Boundary



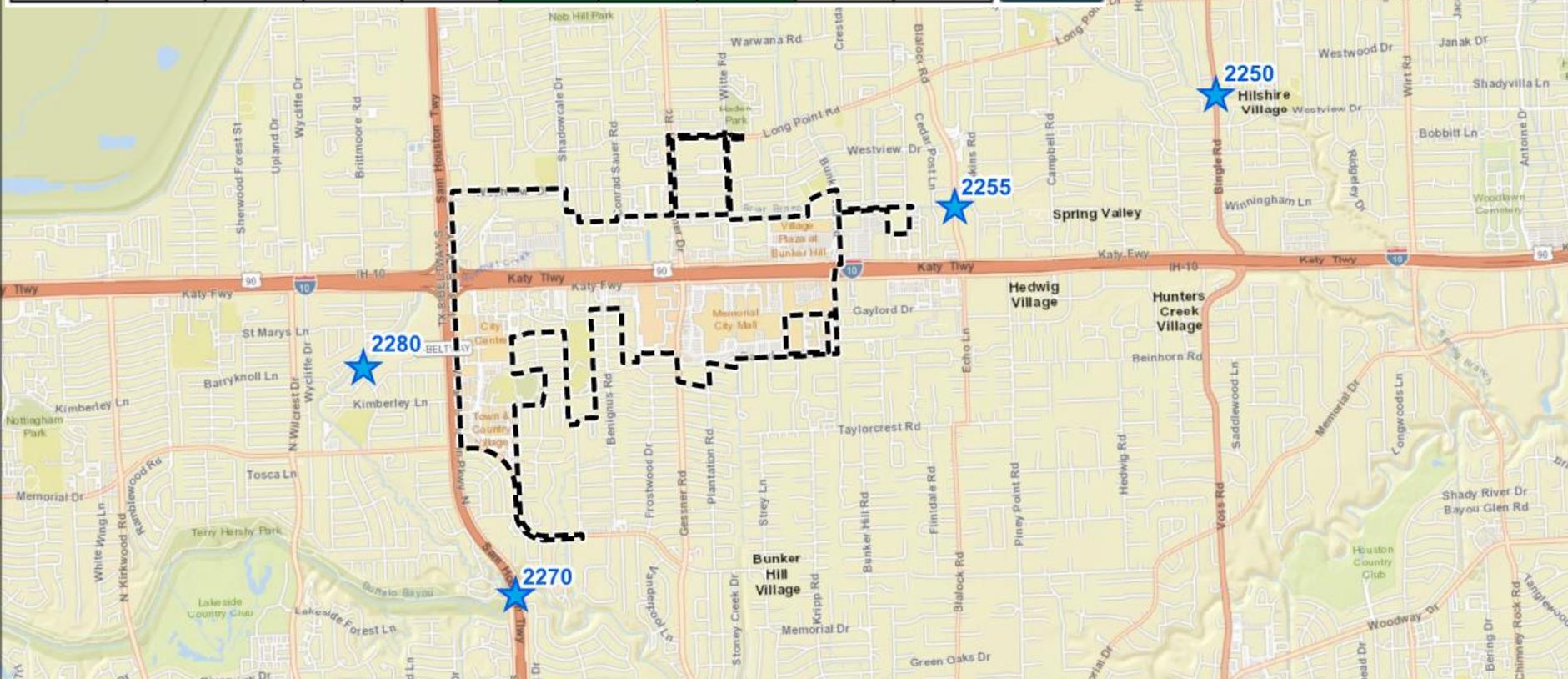
Map data sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (India), Swisstopo, Mapbox, Microsoft, Swire, IGN, CNIGS, (c) OpenStreetMap contributors, and the GIS User Community

Return Period and Probability

Region 2--Brays, Buffalo, Greens, Hunting, Luce, West Fork San Jacinto, and WhiteOak											
Period	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	2-day	4-day
2-year	0.7	1.1	1.5	2.0	2.3	2.6	3.1	3.7	4.4	5.0	5.8
5-year	0.8	1.4	1.8	2.5	3.1	3.5	4.3	5.1	6.2	7.1	8.1
10-year	0.9	1.5	2.1	2.9	3.6	4.1	5.1	6.2	7.6	8.6	9.8
25-year	1.0	1.7	2.4	3.4	4.3	5.0	6.4	7.8	9.6	10.8	12.1
50-year	1.1	1.9	2.7	3.8	5.0	5.8	7.6	9.2	11.3	12.5	14.0
100-year	1.2	2.1	3.0	4.3	5.7	6.7	8.9	10.8	13.2	14.5	15.9
500-year	1.4	2.6	3.8	5.5	7.6	9.2	12.8	15.5	18.9	20.0	21.1

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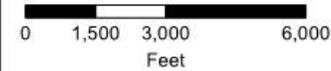


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Hurricane Harvey												
Gauge #	Duration (hr)											
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	2-day	4-day	
2255	0.40	1.10	2.00	2.80		4.10	6.80	11.70	16.50	24.80	30.40	
2270	0.50	1.20	2.30	3.90		5.70	10.40	14.20	18.60	29.40	36.90	

Tax Day 2016										
Gauge #	Duration (hr)									
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	
2255	0.72	1.52	2.84	4.08		6.16	6.88	7.48	8.28	
2270	0.80	1.74	2.92	4.44		7.64	8.32	8.80	9.84	

Memorial Day 2015										
Gauge #	Duration (hr)									
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	
2255	0.60	1.20	2.00	3.80	5.40	6.40	7.80	7.80	9.00	
2270	0.60	1.40	2.40	4.30	7.00	8.30	10.10	10.20	11.50	

April 2009										
Gauge #	Duration (hr)									
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	
2255	0.00	0.10	1.10	3.20		5.00	5.00	7.70	8.20	
2270	0.00	0.50	2.00	4.04		7.00	7.20	9.00	9.50	



Event Magnitude

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2255	0.40	1.10	2.00	2.80		4.10	6.80	11.70	16.50	24.80	30.40	
2270	0.50	1.20	2.30	3.90		5.70	10.40	14.20	18.60	29.40	36.90	

Tax Day 2016										
Gauge #	Duration (hr)									
	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	
2255	0.72	1.52	2.84	4.08		6.16	6.88	7.48	8.28	
2270	0.80	1.74	2.92	4.44		7.64	8.32	8.80	9.84	

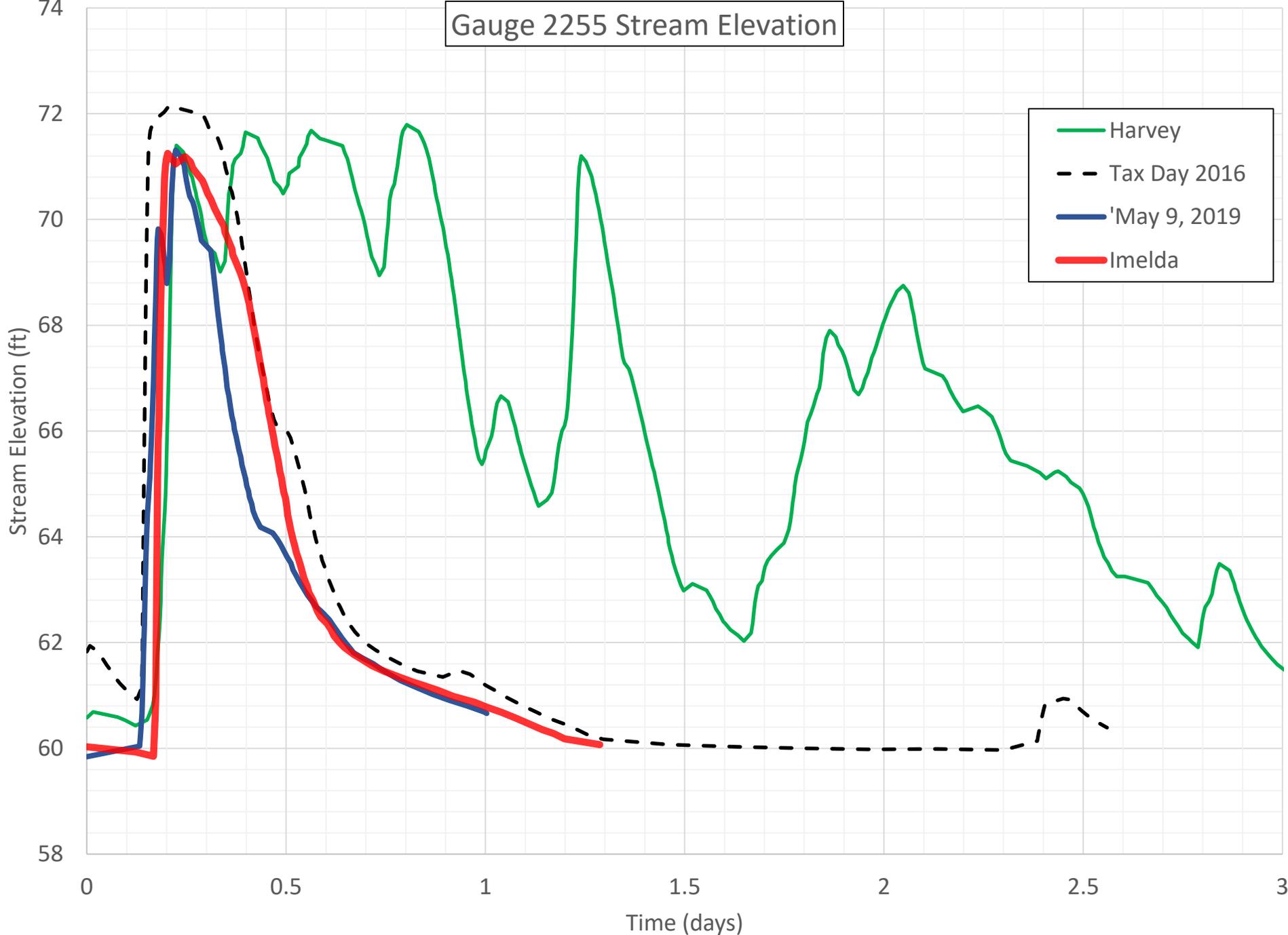
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2270	0.00	0.50	2.00	4.04		7.00	7.20	9.00	9.50	



Event Magnitude

Gauge 2255 Stream Elevation



Briar Branch at Bingle

- Short Duration High Intensity Event





W140-01-00 Briar Branch Construction

- Prep for Event:
 - Removed loss items from the channel
 - Stabilized banks as much as possible to prevent erosion and potential failures
 - Ensured no restrictions caused by construction Multiple
 - Removed debris from channel



W140-01-00 Briar Branch Construction

- Post Event:
 - Removed Debris
 - Collected Highwater Marks



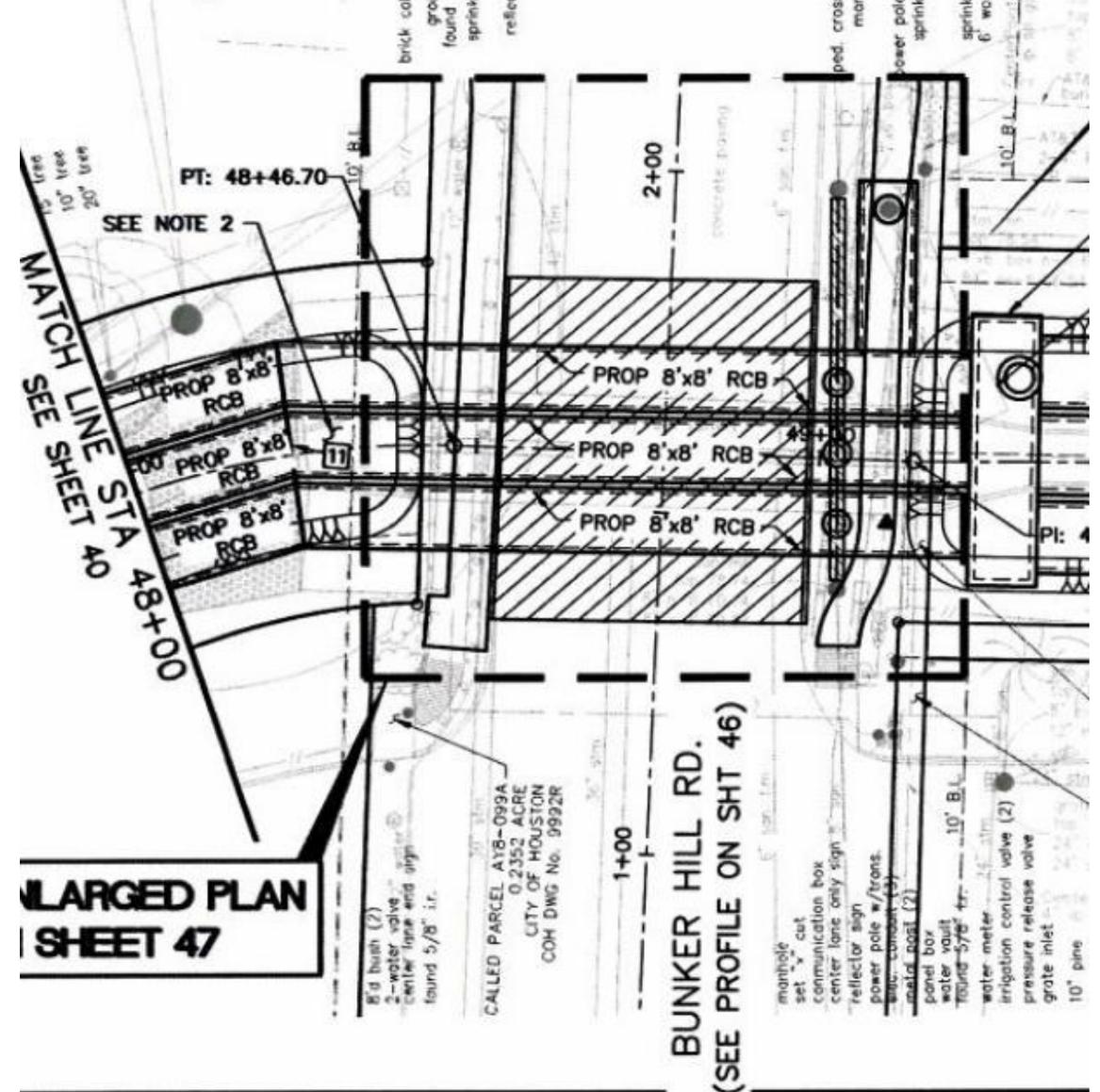
CROSSING AT BUNKER HILL

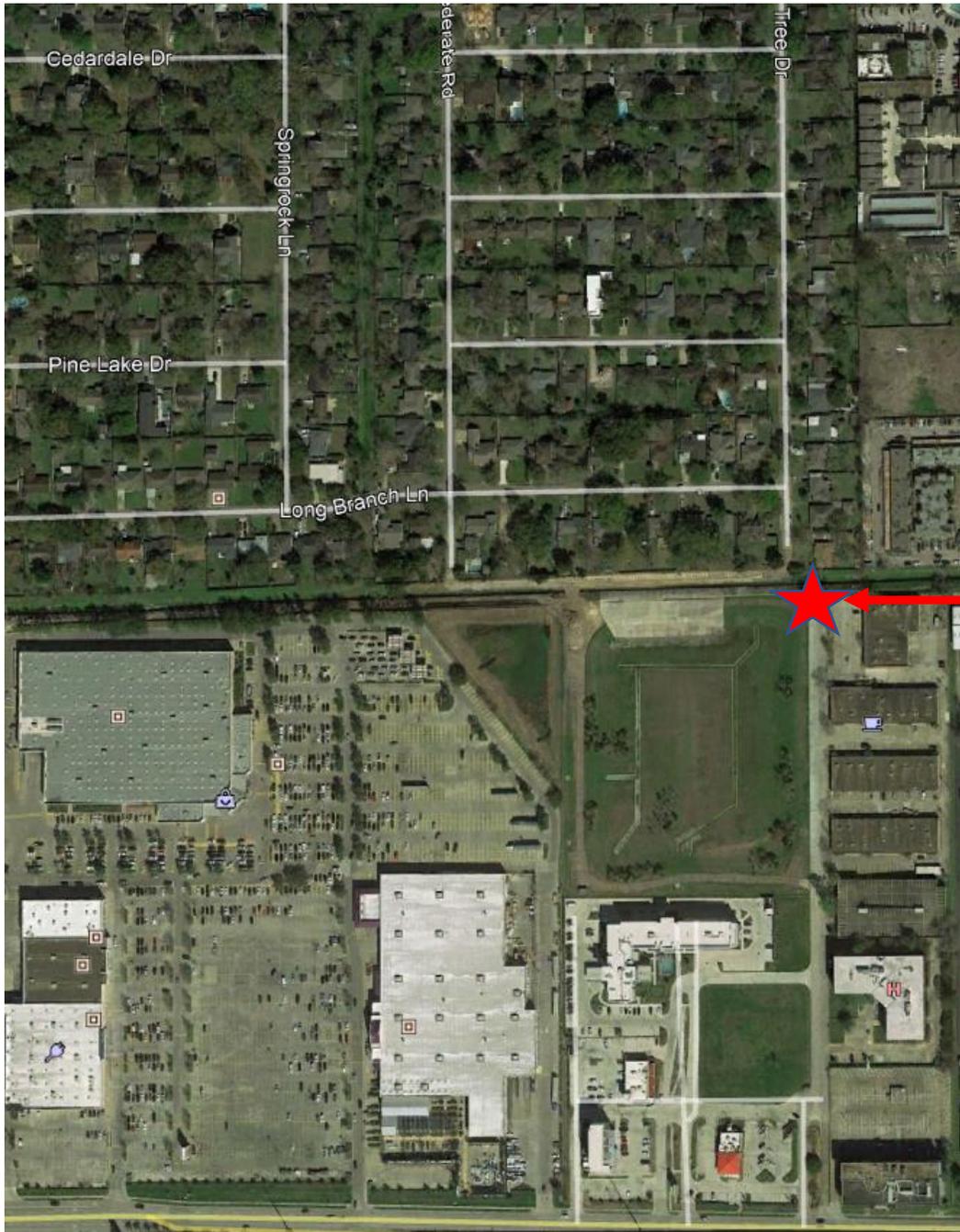


CROSSING AT BUNKER HILL

Flow Area:

- Bridge (pre-project):
 - $2-7' \times 7' = 98 \text{ SF}$
- Enclosed Boxes (current):
 - $3-8' \times 8' = 192 \text{ SF}$





Picture Location







W140-01-00 Basin (11:16 AM Thursday)

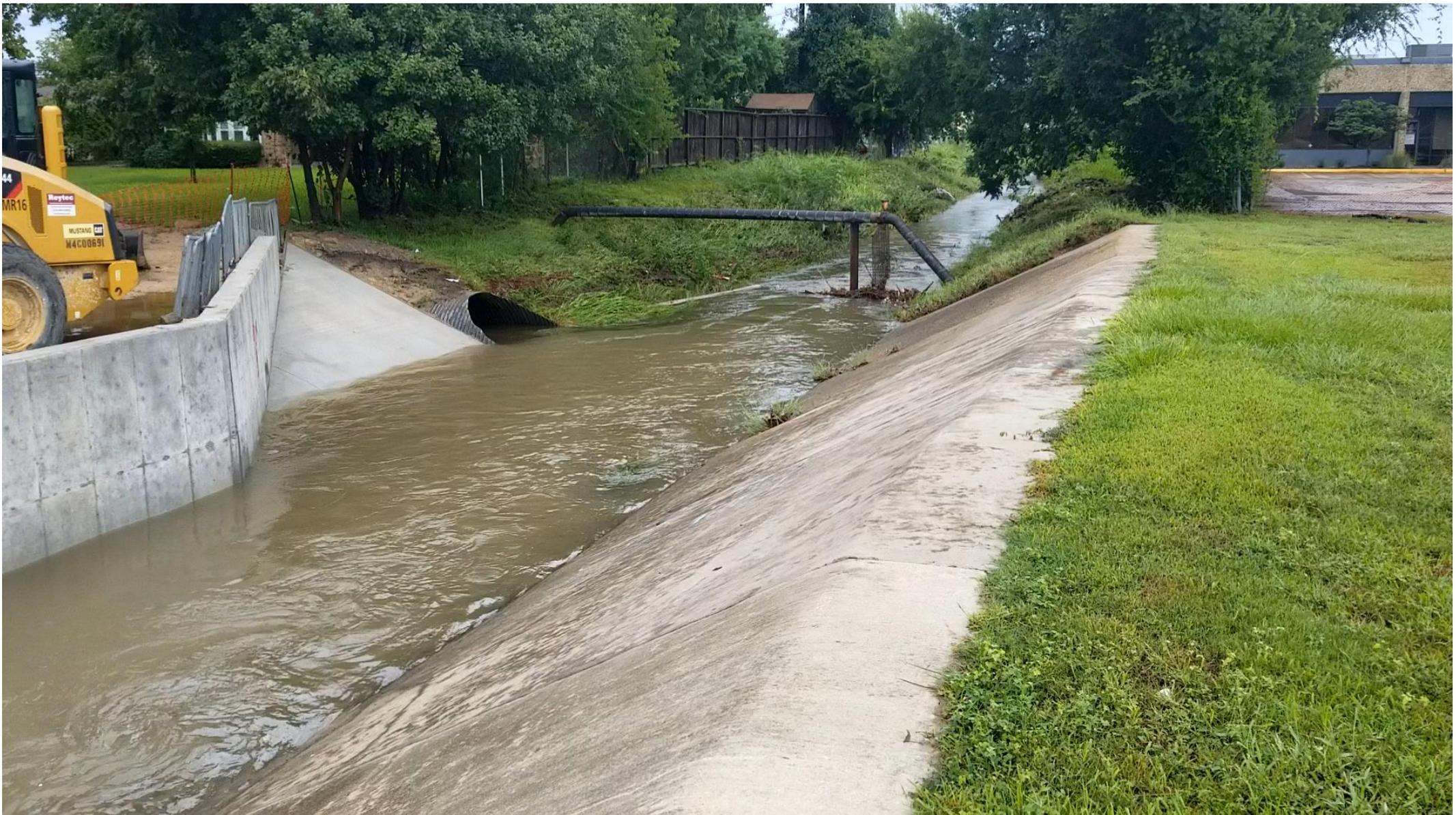




W140-01-00 Basin (5:50 PM)







W140-01-00 Basin (Video)



W140-01-05 (Behind Spring Rock)



W140-01-05 (Behind Spring Rock)









Lumpkin Detention





Mathewson Detention





QUESTIONS