

# Fry Creek Restoration & Flood Reduction

*City of Aberdeen*

Project Partner:

- City of Hoquiam

Funding:

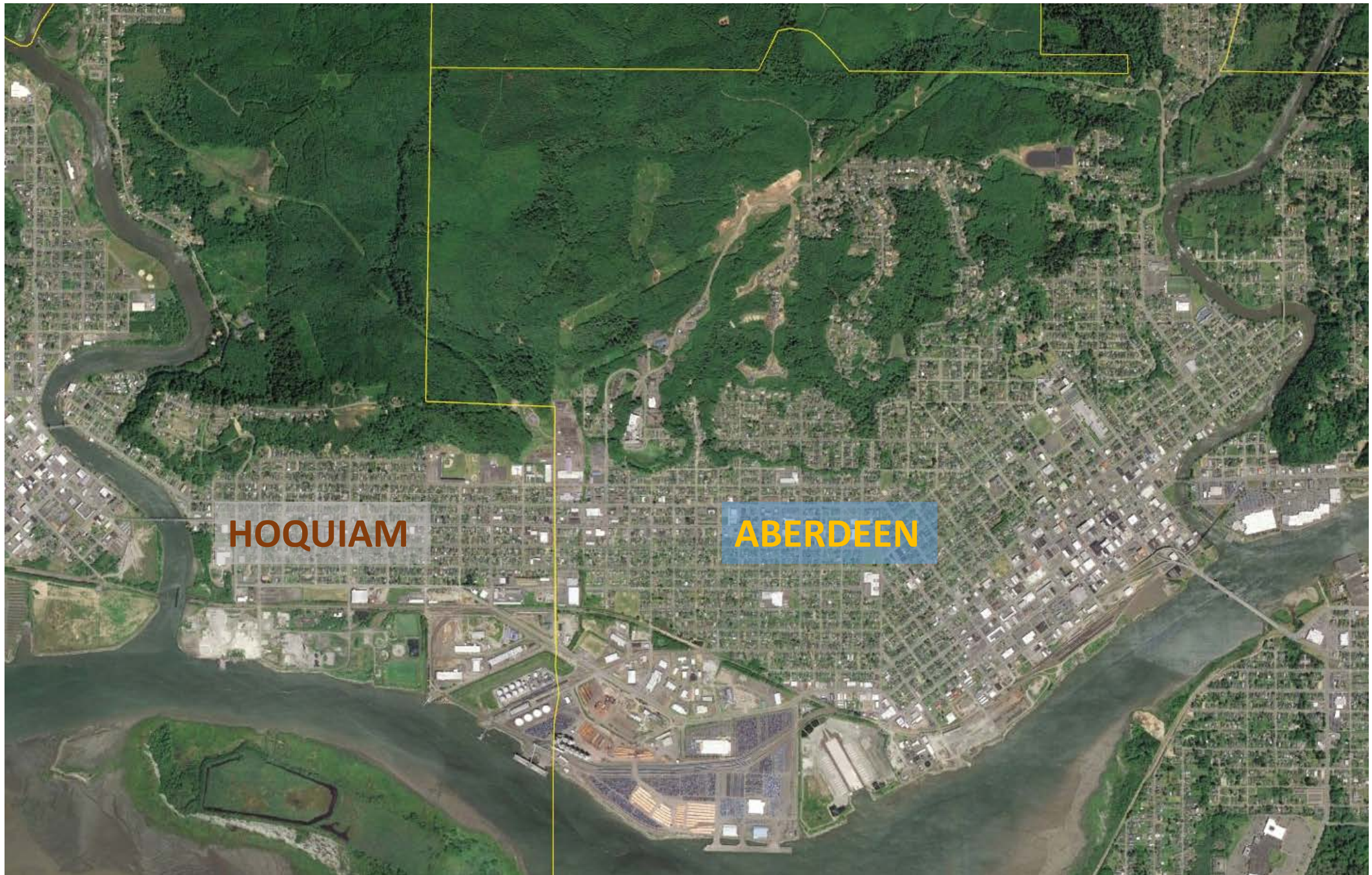
- Chehalis River Basin Flood Authority
- Washington Coast Restoration Initiative

Design Team:

- Maul, Foster, & Alongi
- Forterra
- KPFF Consulting Engineers
- Watershed Science & Engineering



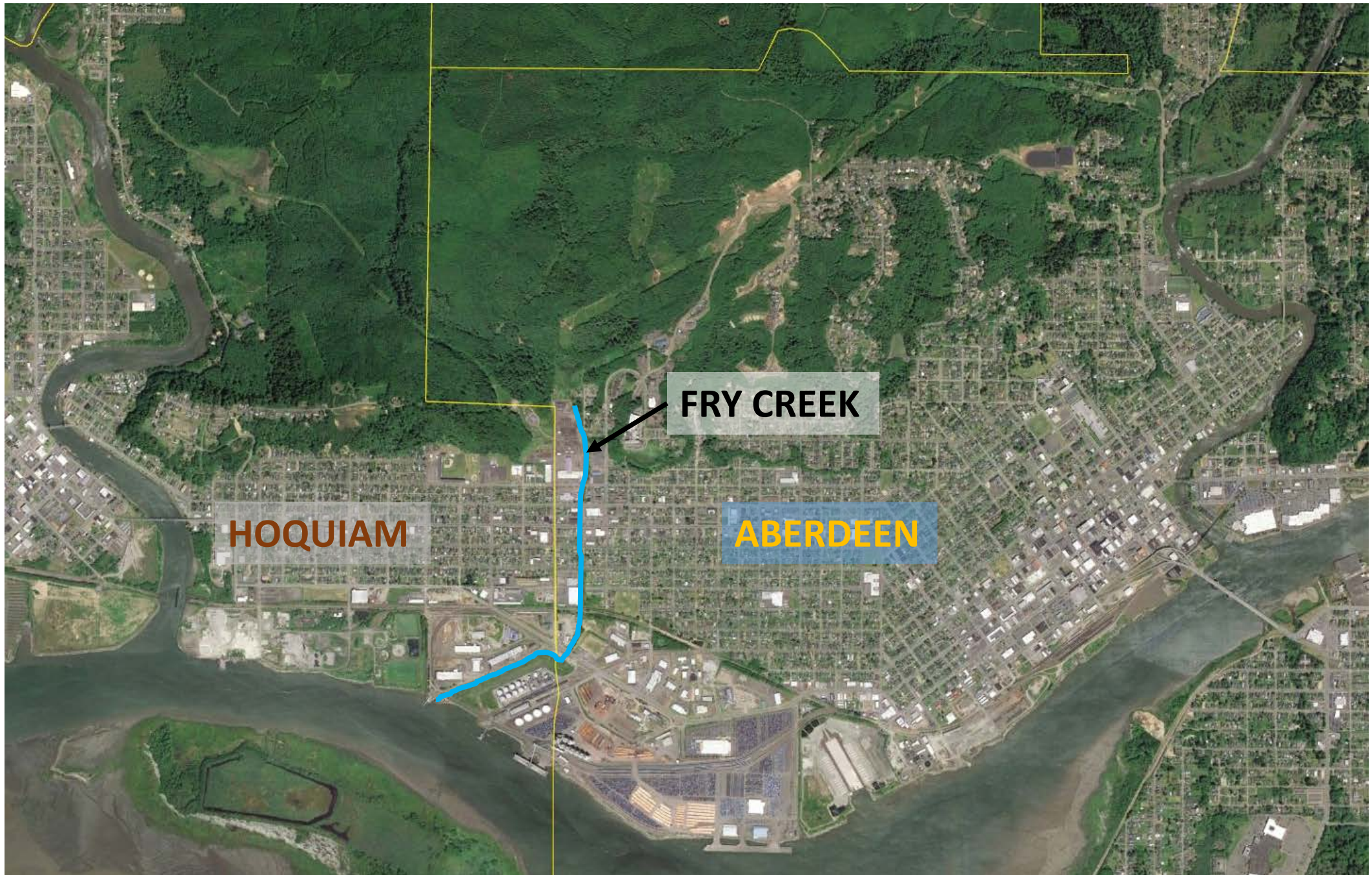




HOQUIAM

ABERDEEN





HOQUIAM

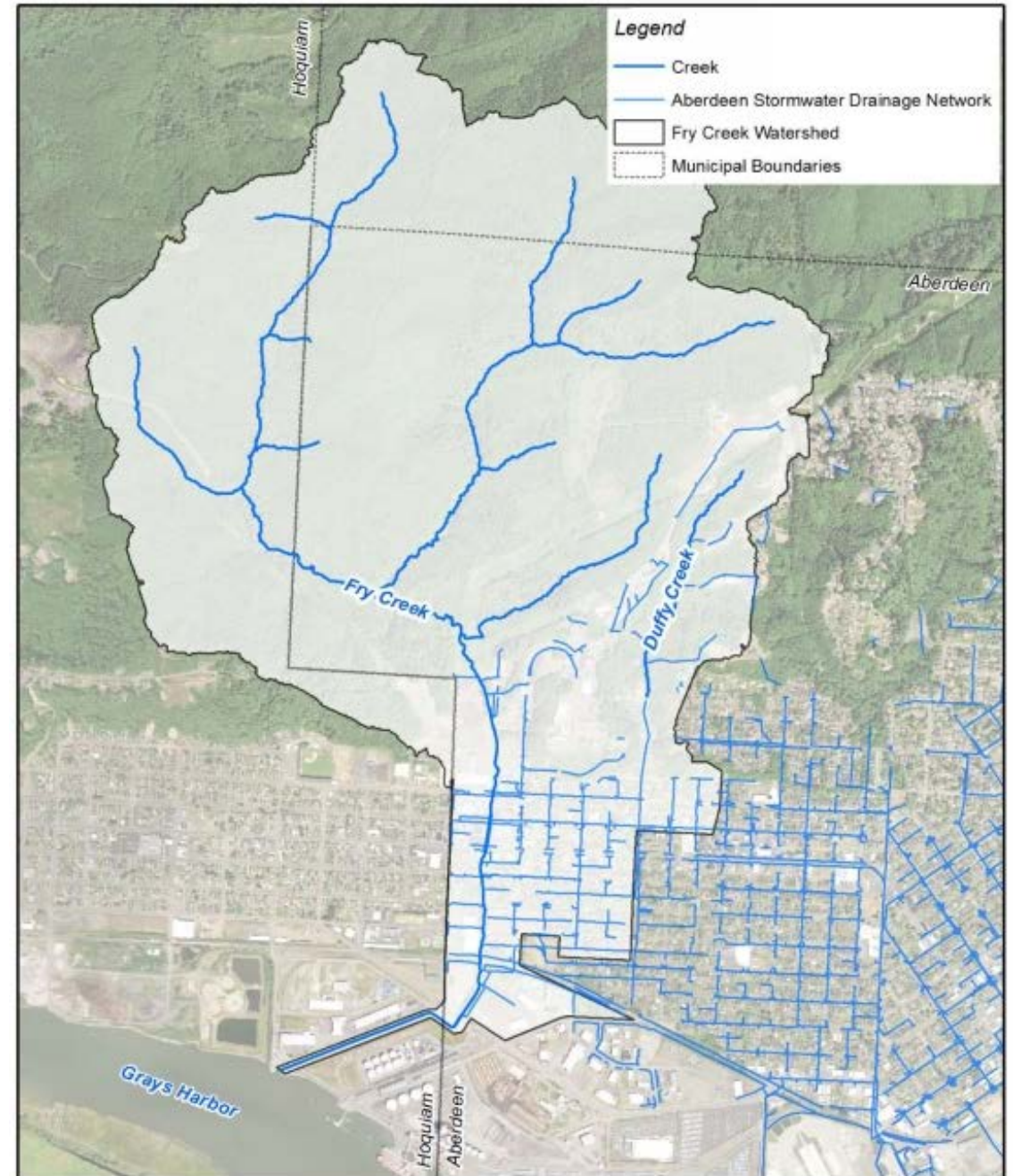
ABERDEEN

FRY CREEK



# Fry Creek Basin

- Fry Creek
- Duffy Creek via piped connection
- City stormwater system



Conditions  
in 1893...





Conditions  
in 1962...





Conditions  
in 2017...







1962



2017



# TimberWorks Master Plan

## Focus Area 3: Fry Creek

Project	Cost
<b>3-1</b> Land Conservation in Upper Watershed	MED
<b>3-2</b> Fry Creek Restoration and Flood Reduction	MED
<b>3-3</b> West End Play Field Flood control feature	MED





# The Vision

- Reduce flooding
- Restore habitat
- Improve public open space





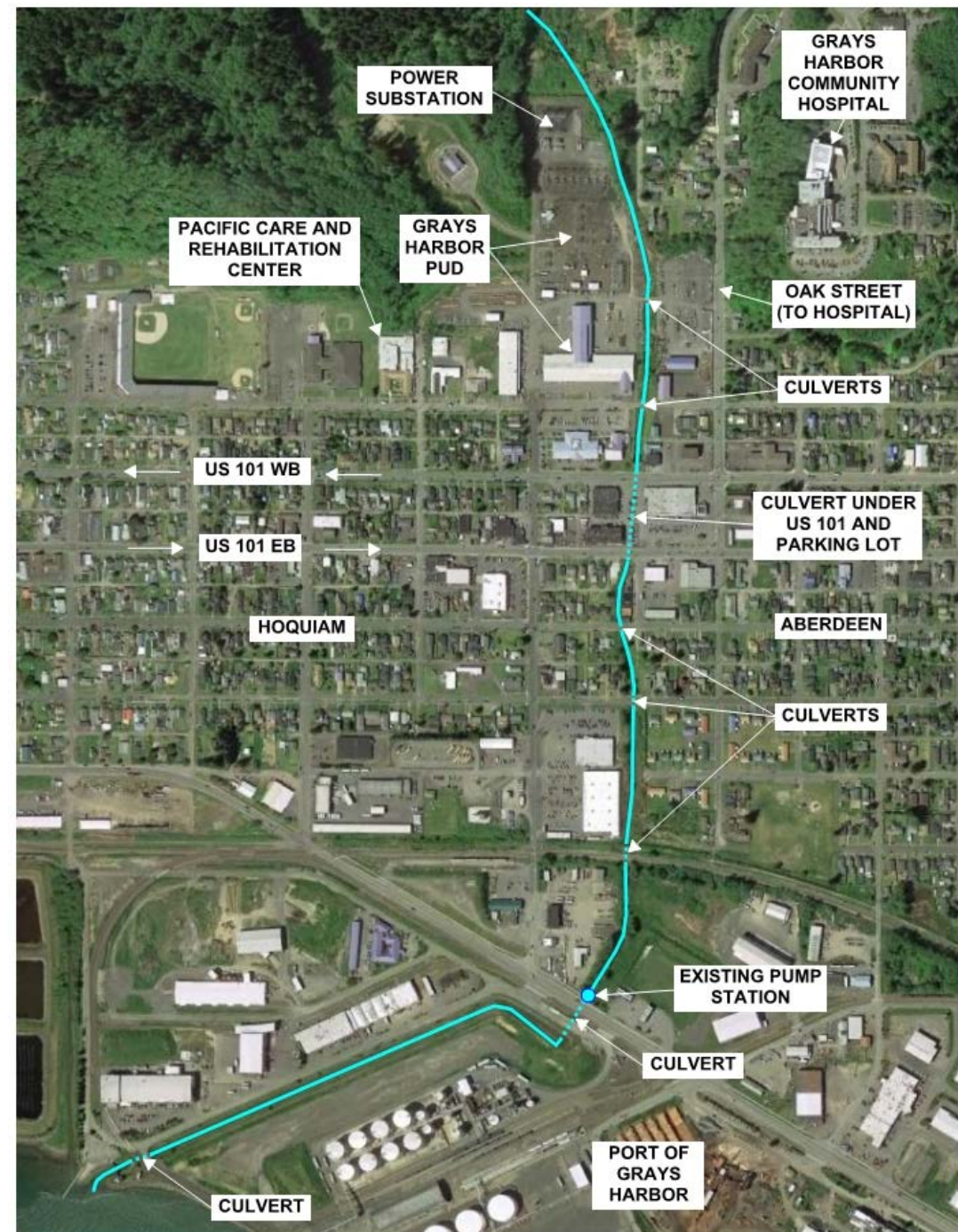
# Fry Creek Project History

- Early 2016 Identified in the early stages of the TimberWorks Master Plan
- 4/2016 Awarded \$150K by Flood Authority for design
- 4/2016 Met Garrett Dalan (The Nature Conservancy) at CBP meeting, learned about WCRI
- 5/2016 Applied for WCRI funding
- 9/2016 Ranked by WCRI for 2017-2019 funding
- 10/2016 Awarded additional \$350K by Flood Authority for design
- 12/2016 Surveying and design began
- Present Design underway, \$2.215 million in WCRI funding pending passage of a capital budget



# Fry Creek Corridor

- Urban environment
- Constricted channel
- Culvert constrictions
- Degraded habitat





## Fry Creek Issues: Constricted channel, culvert constrictions, degraded habitat



**FRY CREEK - CONSTRICTED CHANNEL**



**FRY CREEK - CULVERT CONSTRICTIONS**



**FRY CREEK - CULVERT CONSTRICTIONS**



**FRY CREEK - CONSTRICTED CHANNEL**



**FRY CREEK - CULVERT CONSTRICTIONS**



**FRY CREEK - CULVERT CONSTRICTIONS**



# Design Process

1. Surveying & Modeling
2. Advisory Committee & Public Outreach
3. Identification of Options, Preliminary Design, & Phasing Decision
4. Final Design
5. Construct First Phase
6. Construct Future Phases



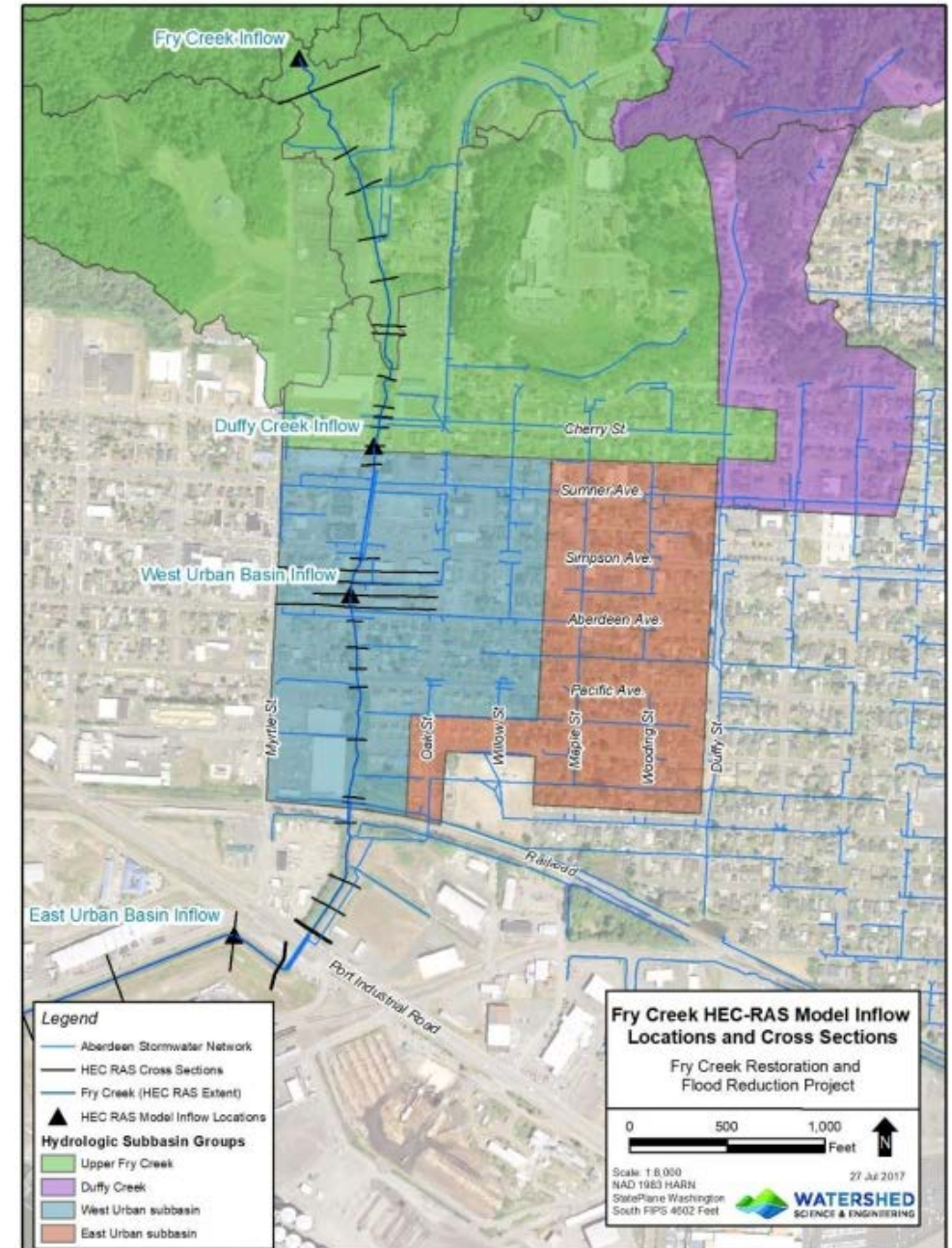
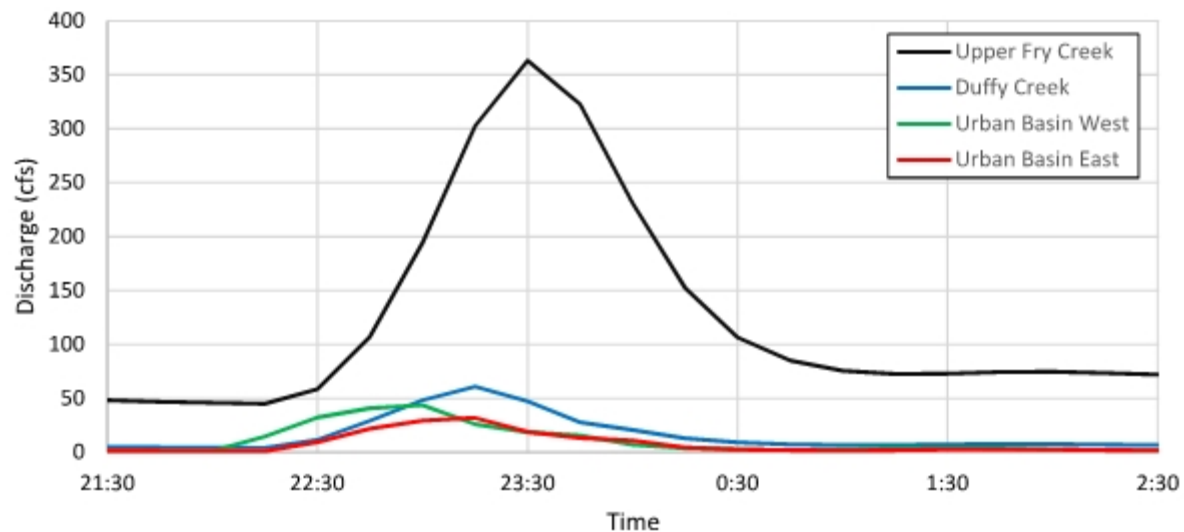
# Design Process

1. Surveying & Modeling
2. Advisory Committee & Public Outreach
3. Identification of Options, Preliminary Design, & Phasing Decision
4. Final Design  We are here.
5. Construct First Phase
6. Construct Future Phases



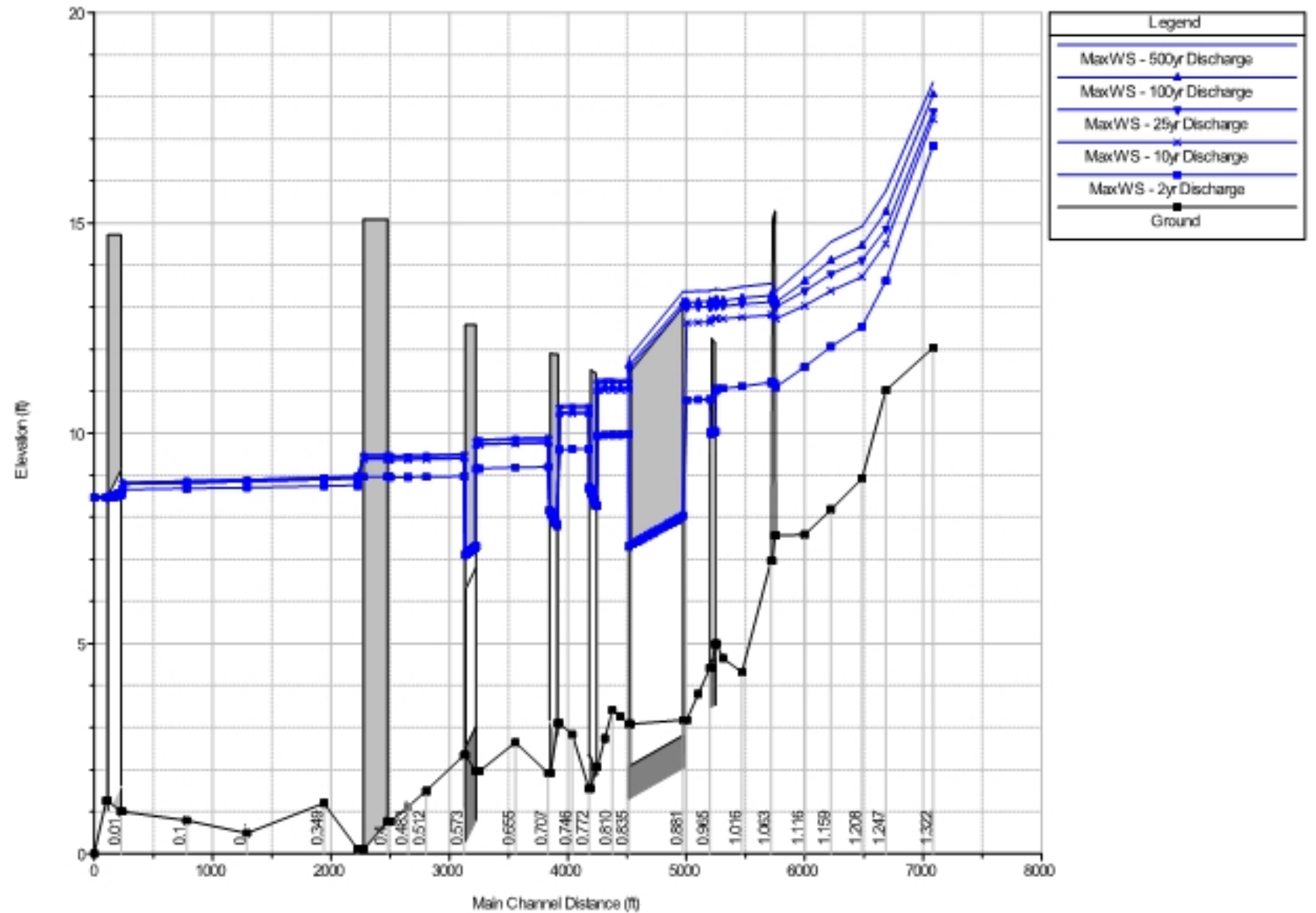
# 1. Surveying & Modeling

Subbasin Group	2- year Discharge (cfs)	10- year Discharge (cfs)	25- year Discharge (cfs)	100- year Discharge (cfs)	500- year Discharge (cfs)
Upper Fry Creek	151	250	297	363	439
Duffy Creek	31	48	56	67	78
Urban Basin West	32	44	49	56	62
Urban Basin East	22	31	35	40	45





# 1. Surveying & Modeling



**Figure 6. Maximum modeled water surface elevations for 2-, 10-, 25-, 100-, and 500-year discharge in Fry Creek. The tidal boundary condition used for all runs was mean higher high water (MHHW).**



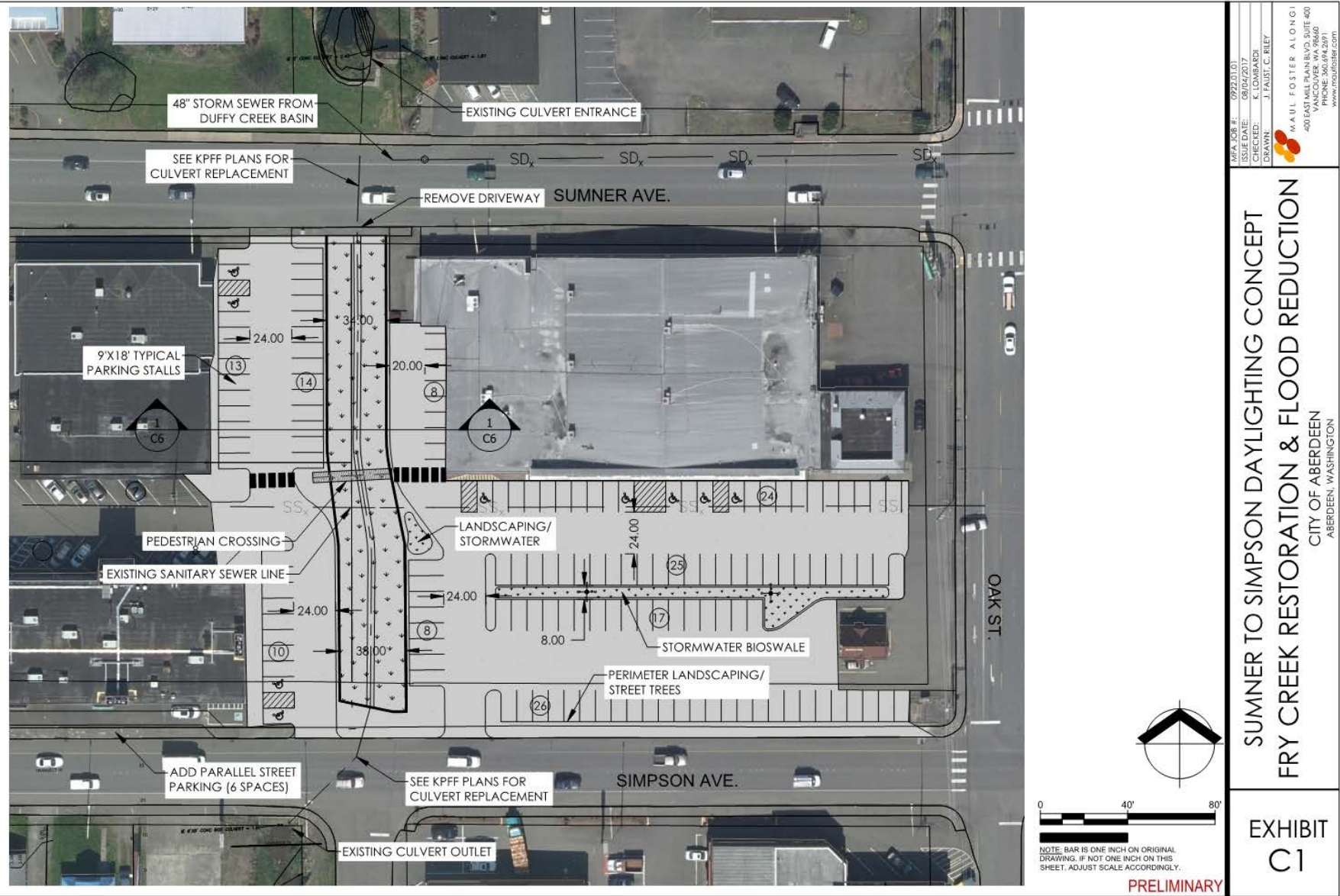
## 2. Stakeholder & Public Outreach

- Advisory Committee
  - Grays Harbor PUD
  - WDFW
  - Grays Harbor College Fisheries
  - Grays Harbor Conservation District
  - Property Owner Kathi Hoder
  - Port of Grays Harbor
- 4/2017 – Initial advisory committee meeting & public open house
- 7/2017 – Follow-up advisory committee meeting & public open house



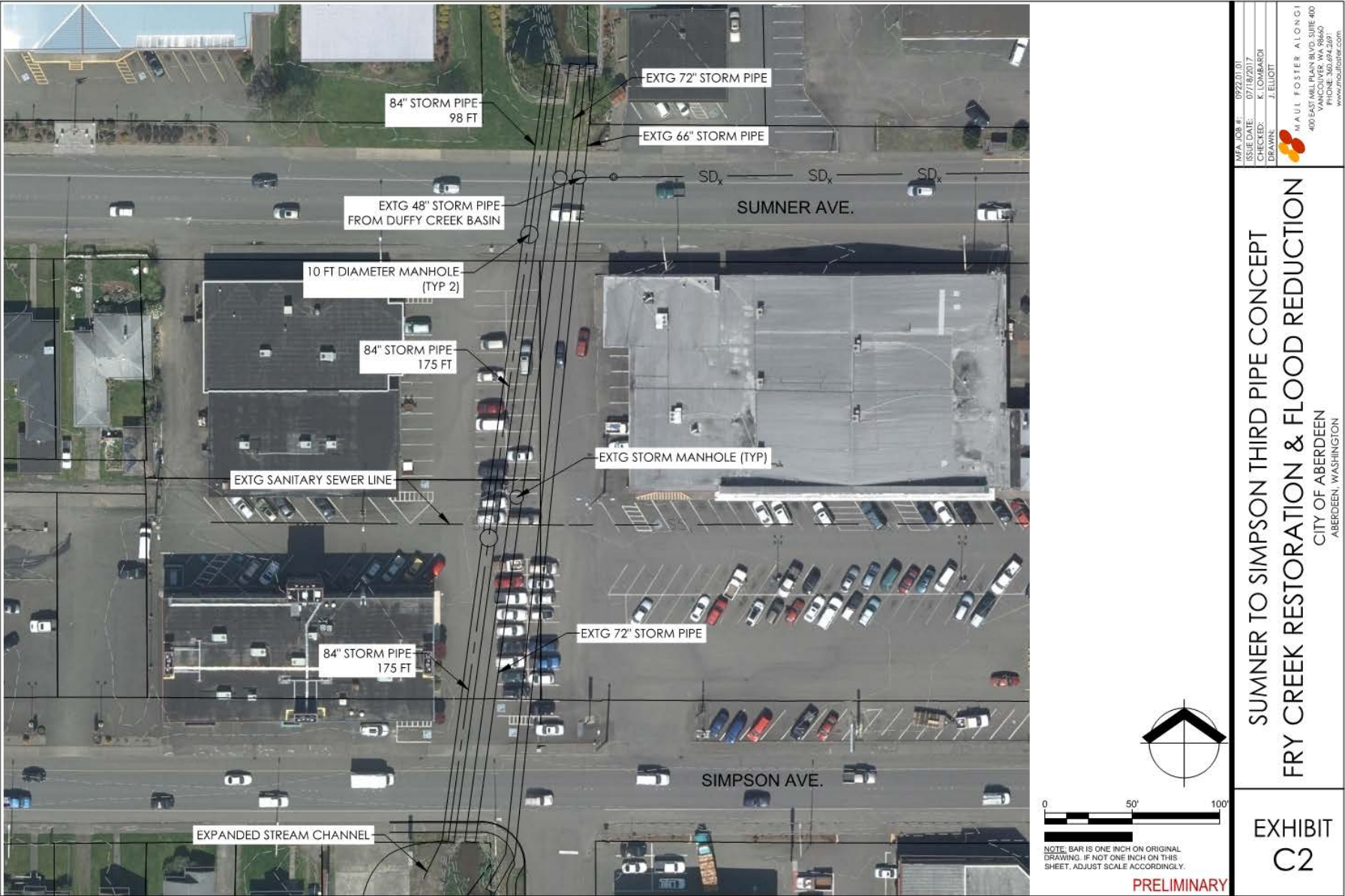
*Community members discuss flooding issues at open house.*

# 3. Identification of Options, Preliminary Design, & Phasing Decision





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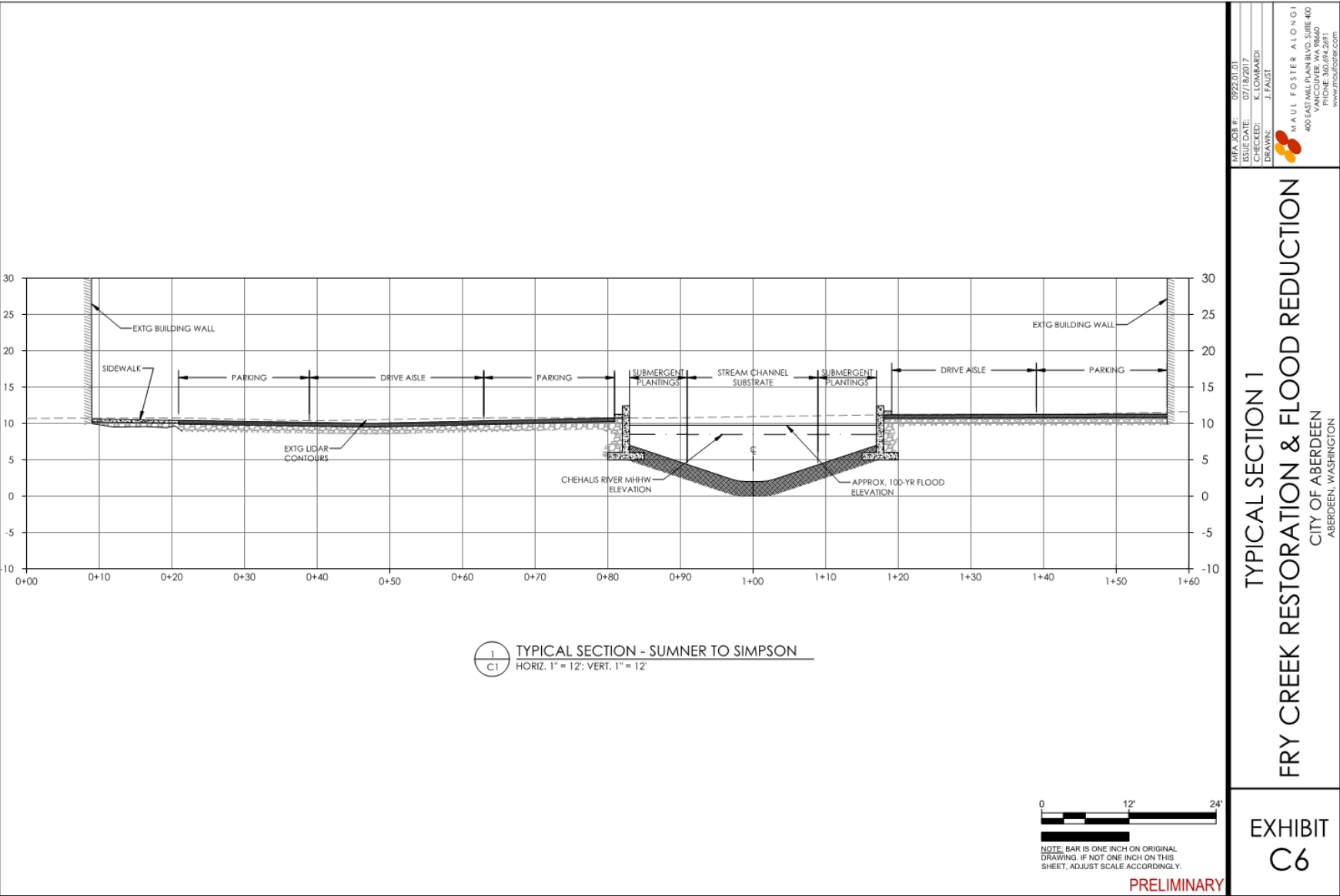




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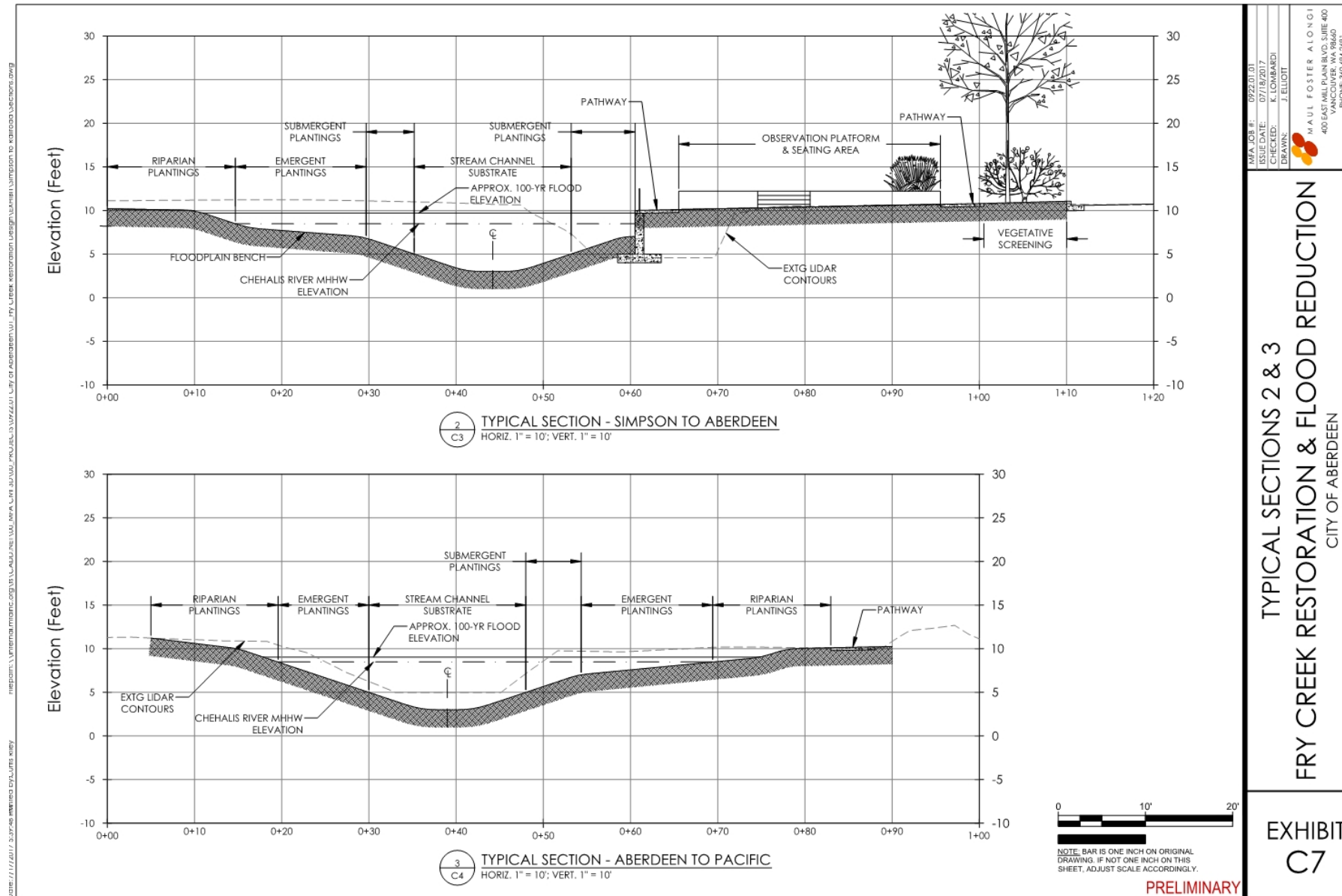


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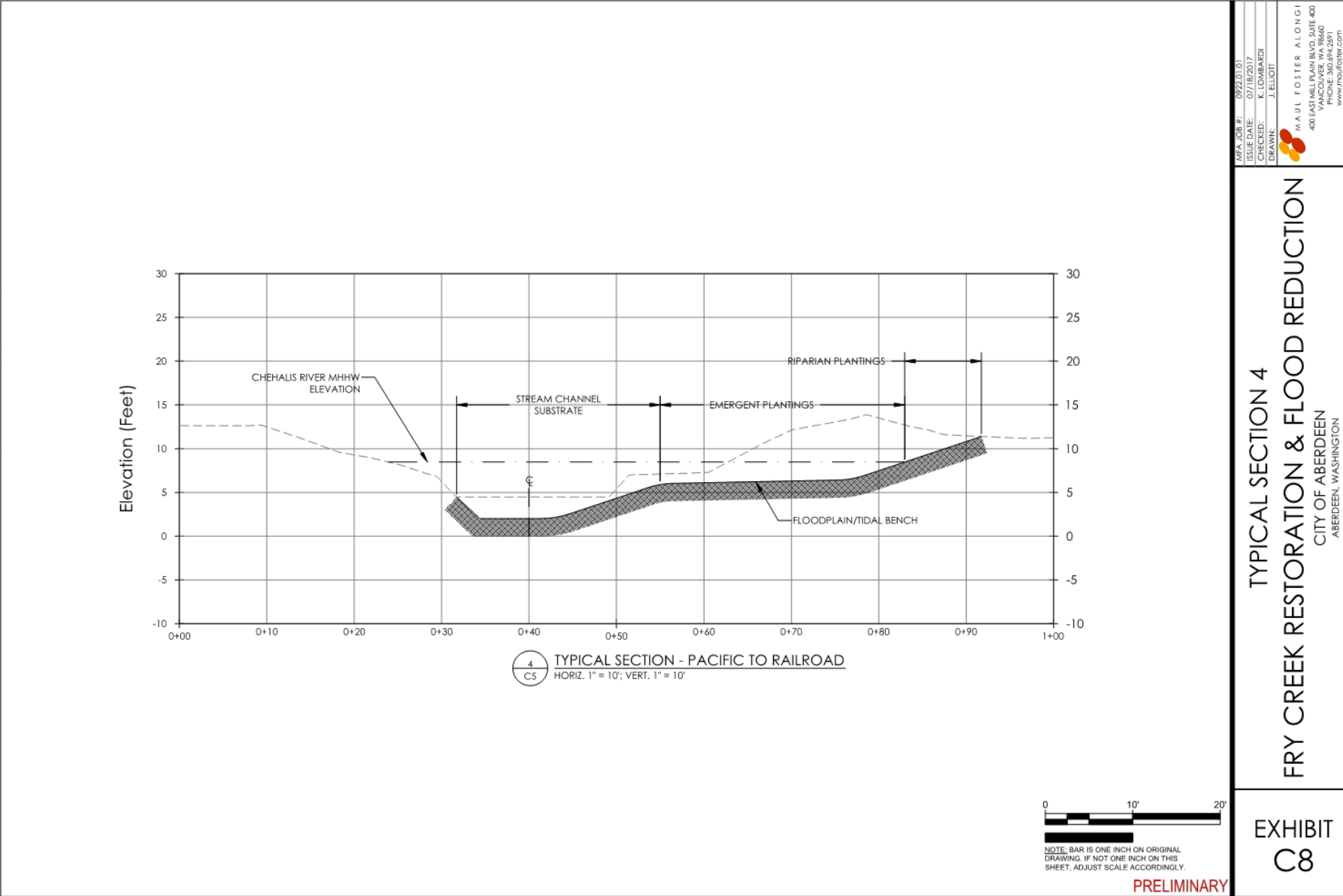




### 3. Identification of Options, Preliminary Design, & Phasing Decision



# 3. Identification of Options, Preliminary Design, & Phasing Decision





### 3. Identification of Options, Preliminary Design, & Phasing Decision

**Table 3-1**  
**Fry Creek Water Surface Elevations and Flood Volumes**  
**Fry Creek Restoration and Flood Reduction Project**  
**Aberdeen, Washington**

Station	Existing Conditions—Water Surface Elevation (feet NAVD)						Levee Pump Station—Water Surface Elevation (feet NAVD)					
	Baseline	Cherry Only	Sumner Simpson Only	Aberdeen Only	Aberdeen & Pacific	Pacific Only	Baseline	Cherry Only	Sumner Simpson Only	Aberdeen Only	Aberdeen & Pacific	Pacific Only
Above Cherry	13.34	13.35	12.63	13.31	13.24	13.31	13.24	13.24	12.55	13.19	12.99	13.14
Below Cherry	13.31	13.32	12.00	13.28	13.21	13.28	13.22	13.22	11.72	13.17	12.92	13.10
Above Sumner	13.29	13.30	11.93	13.26	13.19	13.26	13.19	13.19	11.63	13.14	12.87	13.07
Below Simpson	11.29	11.30	11.81	11.10	10.73	11.08	10.81	10.81	11.41	10.29	9.27	10.13
Above Aberdeen	11.27	11.28	11.81	11.07	10.66	11.04	10.72	10.73	11.34	10.13	8.92	9.96
Below Aberdeen	10.67	10.67	11.24	11.05	10.65	10.31	9.75	9.76	10.13	10.09	8.86	8.76
Above Pacific	10.65	10.66	11.22	11.05	10.63	10.29	9.67	9.67	10.06	10.02	8.60	8.52
Below Pacific	9.89	9.90	10.44	10.15	10.58	10.26	8.42	8.42	8.51	8.50	8.58	8.51

Flooding Location	Existing Conditions—Flooding "out of system" (acre-feet)						Levee Pump Station—Flooding "out of system" (acre-feet)					
	No Change	Baseline	Sumner Simpson Only	Aberdeen Only	Aberdeen & Pacific Only	Pacific Only	Baseline	Cherry Only	Sumner Simpson Only	Aberdeen Only	Aberdeen & Pacific Only	Pacific Only
Cherry West	8.16	7.96	1.23	7.5	6.38	7.44	6.59	6.42	0.71	5.35	3.37	4.96
Cherry East	0.51	0.50	0.10	0.47	0.40	0.47	0.42	0.41	0.06	0.34	0.22	0.32
Myrtle	2.11	2.22	8.76	0.69	0	0.55	0	0	2.23	0	0	0
Sum	10.78	10.68	10.09	8.66	6.78	8.46	7.01	6.83	3.00	5.69	3.59	5.28

NOTES:

Shaded cells indicate the portion of the Fry Creek channel where improvements have been included in that model.

NAVD = National Geodetic Vertical Datum 1983.

### 3. Identification of Options, Preliminary Design, & Phasing Decision

**BEST OPTION TO:**

1. SIGNIFICANTLY REDUCE FLOODING
2. IMPROVE HABITAT
3. IMPROVE PUBLIC SPACE

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Below Aberdeen	10.67	10.67	11.24	11.05	10.65	10.31	9.75	9.76	10.13	10.09	8.86	8.76
Above Pacific	10.65	10.66	11.22	11.05	10.63	10.29	9.67	9.67	10.06	10.02	8.60	8.52
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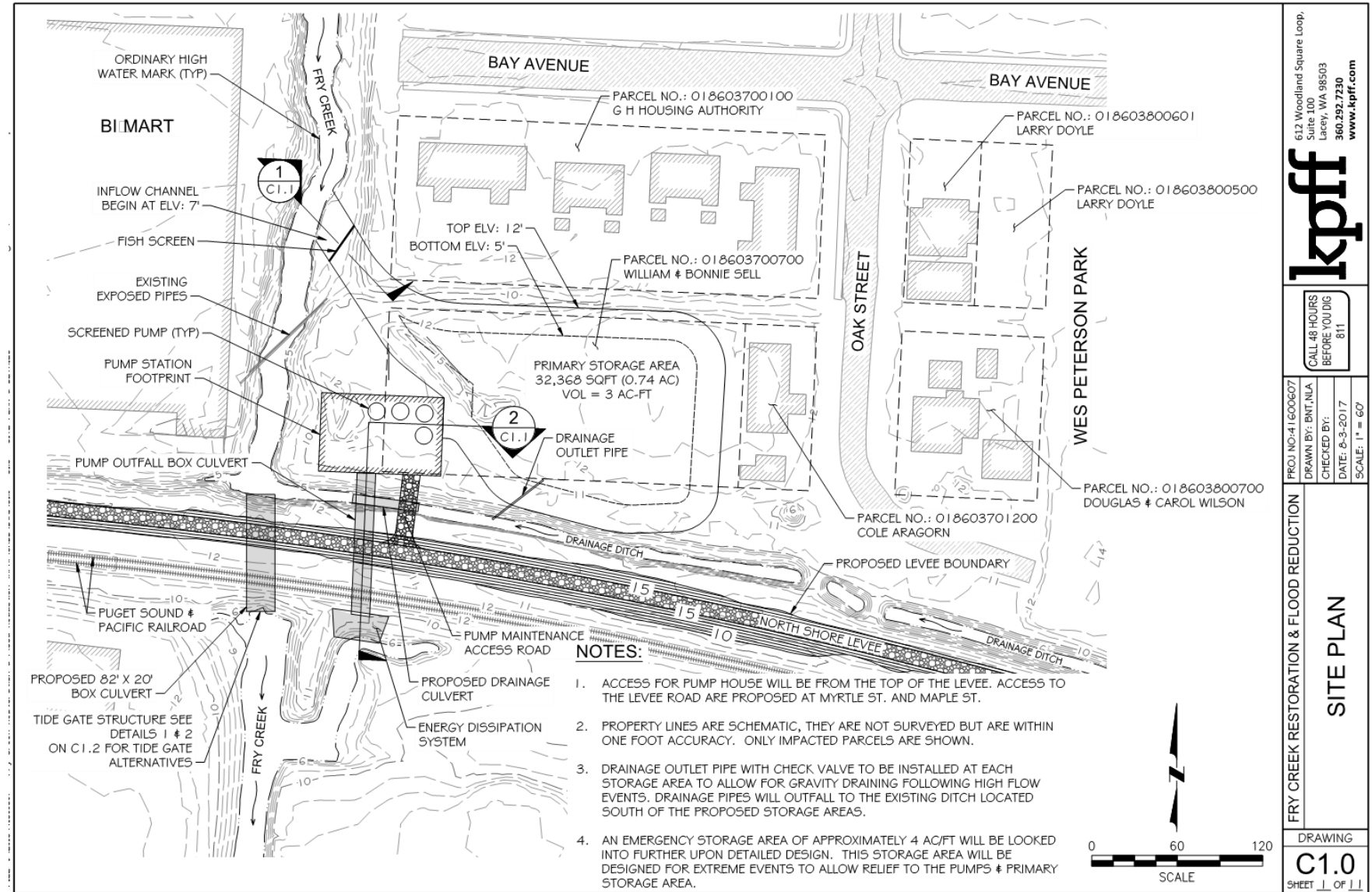
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**PLUS IT FITS OUR CONSTRUCTION BUDGET!**



# North Shore Levee Coordination: Future Pump Station



# Thank You

Kris Koski, PE

City Engineer

City of Aberdeen

(360) 537-3218

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*Fry Creek at Aberdeen Avenue: current condition.*



*Fry Creek: Illustrated future condition including larger culvert, larger floodplain, and public access.*