Fry Creek Restoration & Flood Reduction

City of Aberdeen

Project Partner:

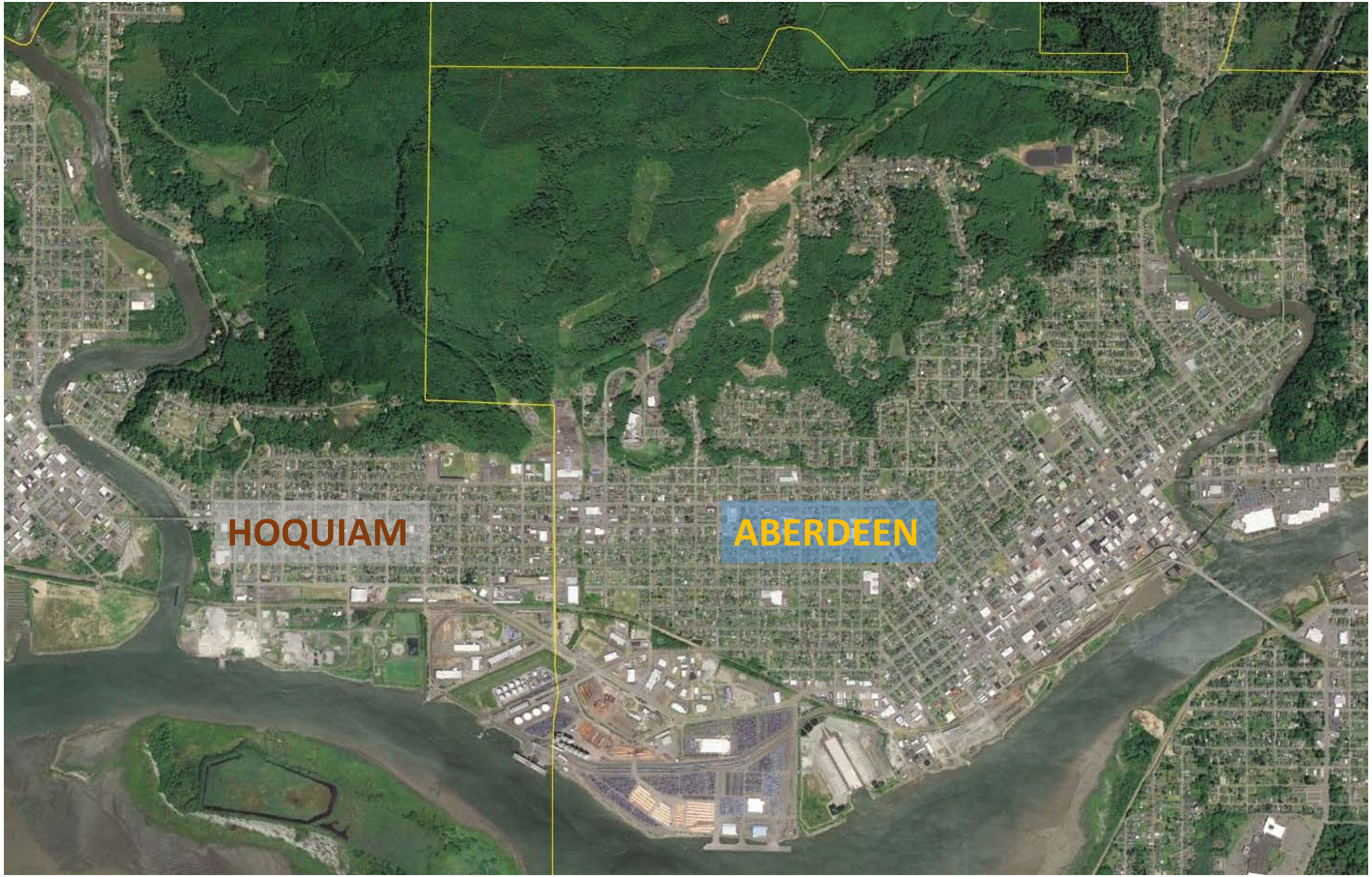
- City of Hoquiam

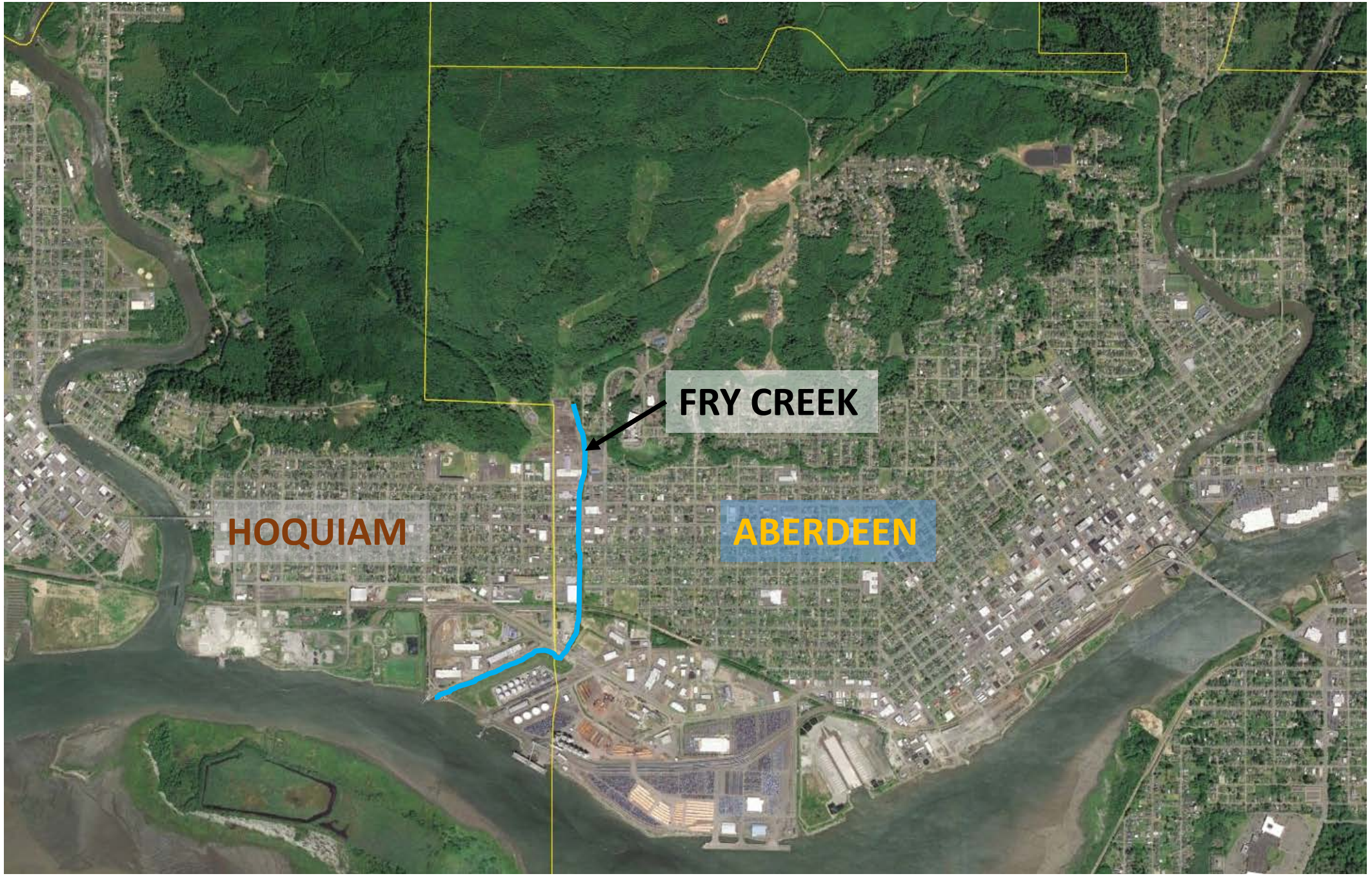
Funding:

- Chehalis River Basin Flood Authority
- Washington Coast Restoration Initiative

Design Team:

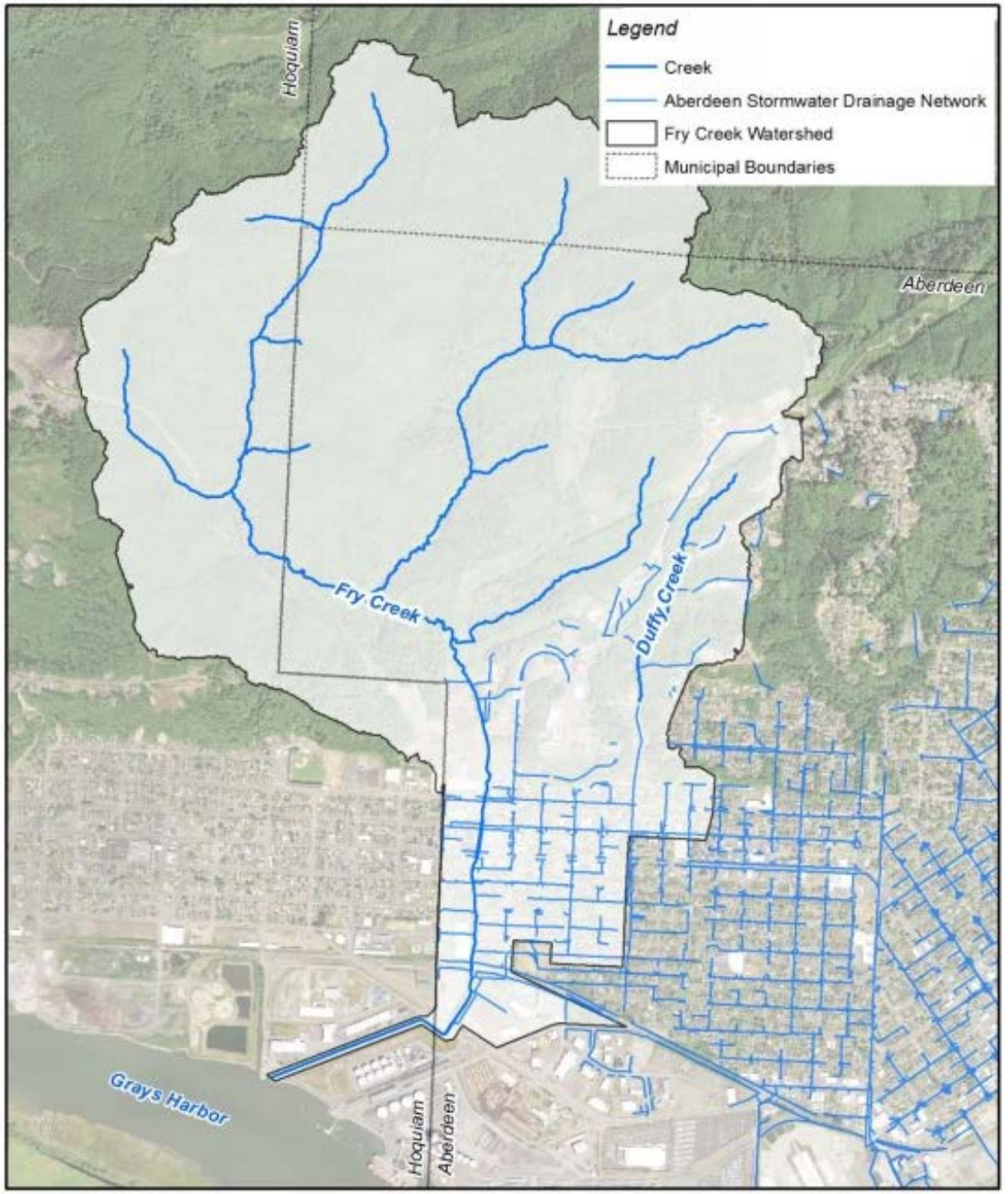
- Maul, Foster, & Alongi
- Forterra
- KPFF Consulting Engineers
- Watershed Science & Engineering


HOQUIAM
ABERDEEN

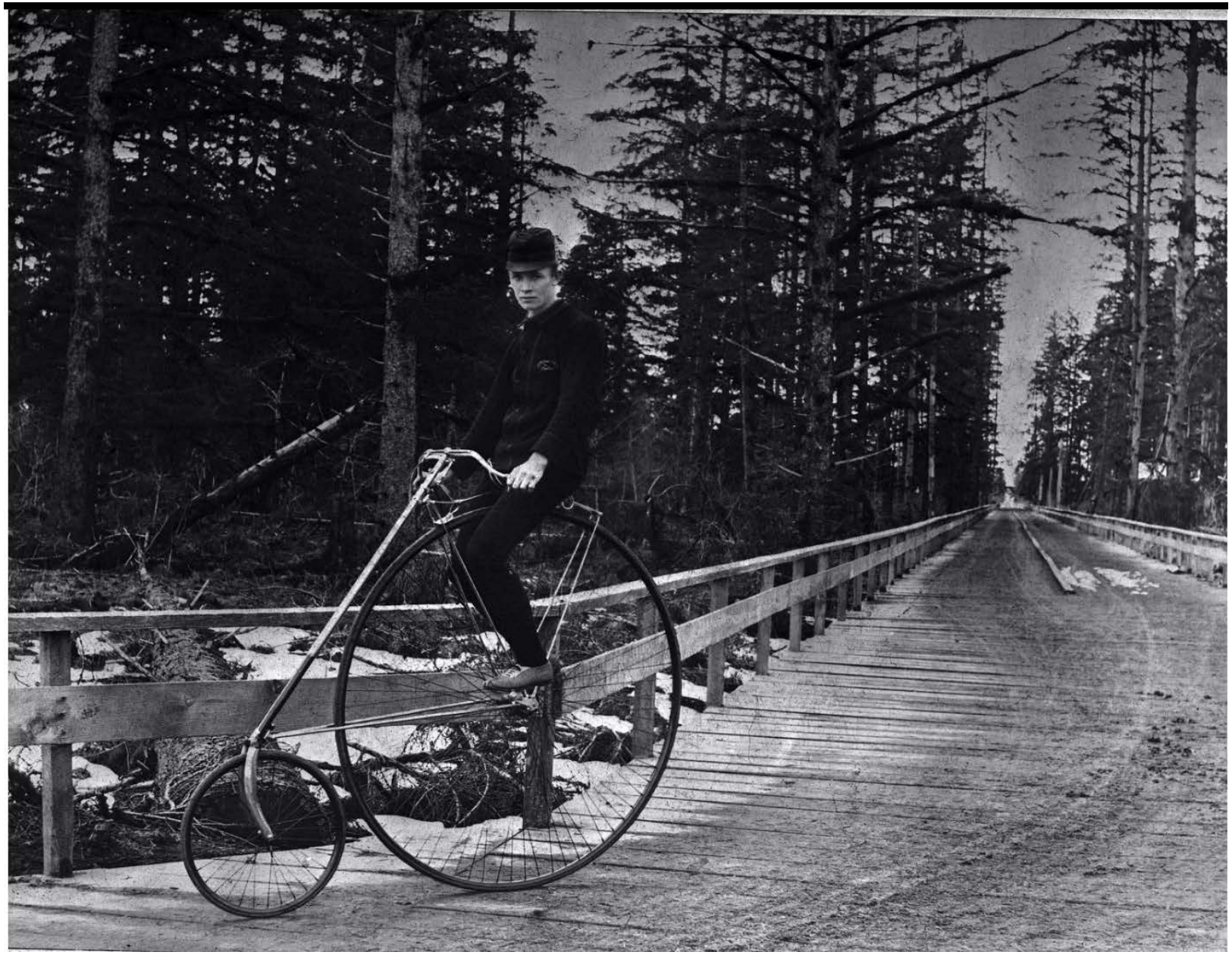

FRY CREEK
HOQUIAM
ABERDEEN

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
3-1	**Land Conservation in Upper Watershed**	**MED**
3-2	**Fry Creek Restoration and Flood Reduction**	**MED**
3-3	**West End Play Field** Flood control feature	**MED**

The Goals

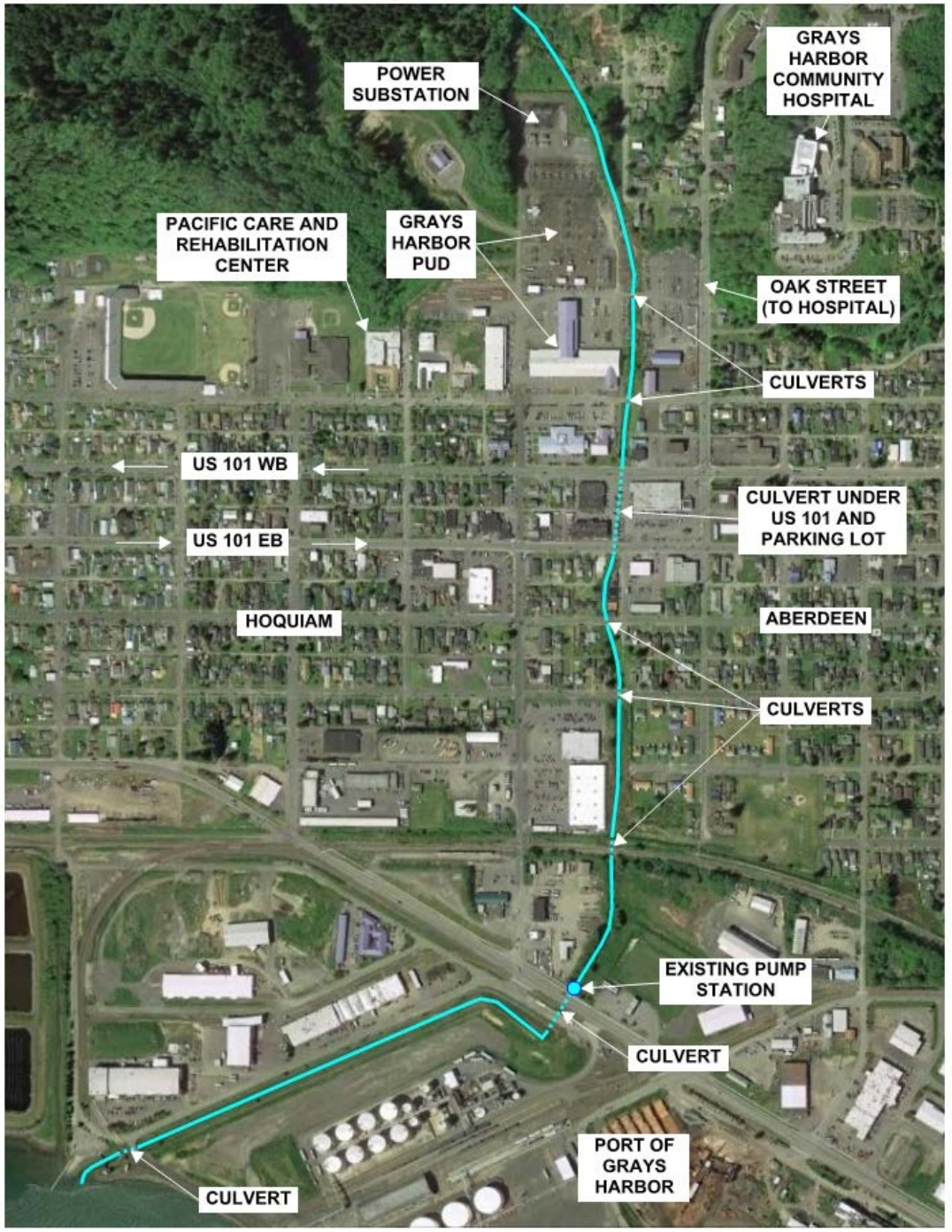
- Reduce flooding
- Restore habitat
- Improve public open space

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
• 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
• 8/2017	Prelim design report complete, first phase identified
• 12/2017	Final design of first phase underway, $2.215 million in WCRI funding available 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

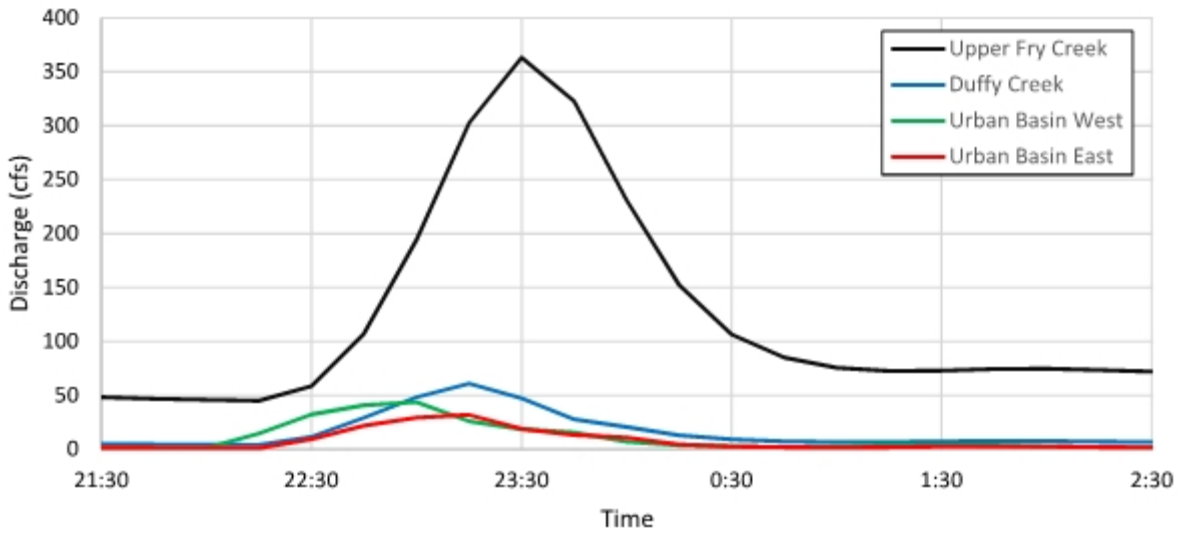
1. Surveying & Modeling
2. Advisory Committee & Public Outreach
3. Identification of Options, Preliminary Design, & Phasing Decision
4. Final Design
5. Construct First Phase
6. Construct Future Phases

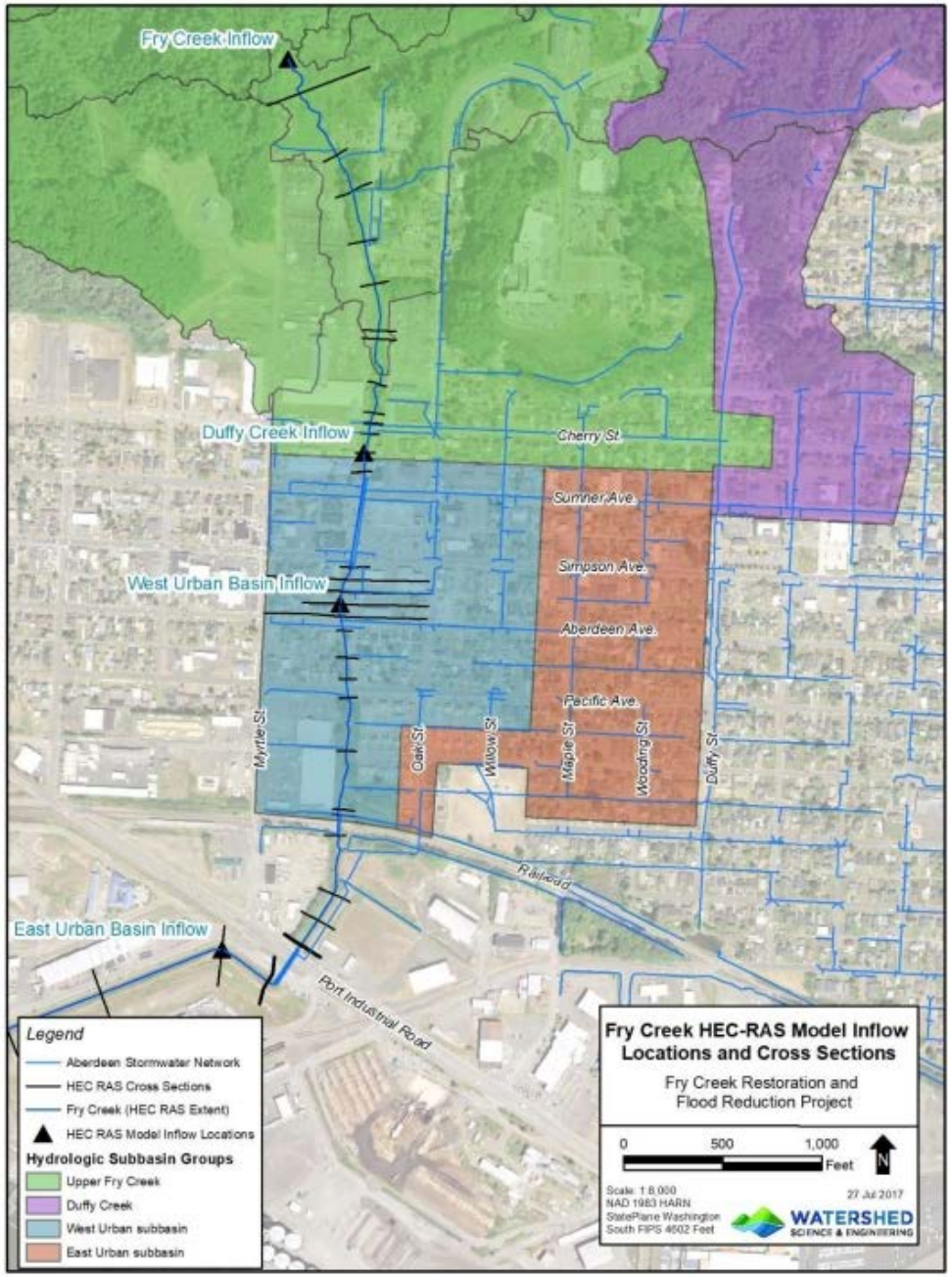
Design Process

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

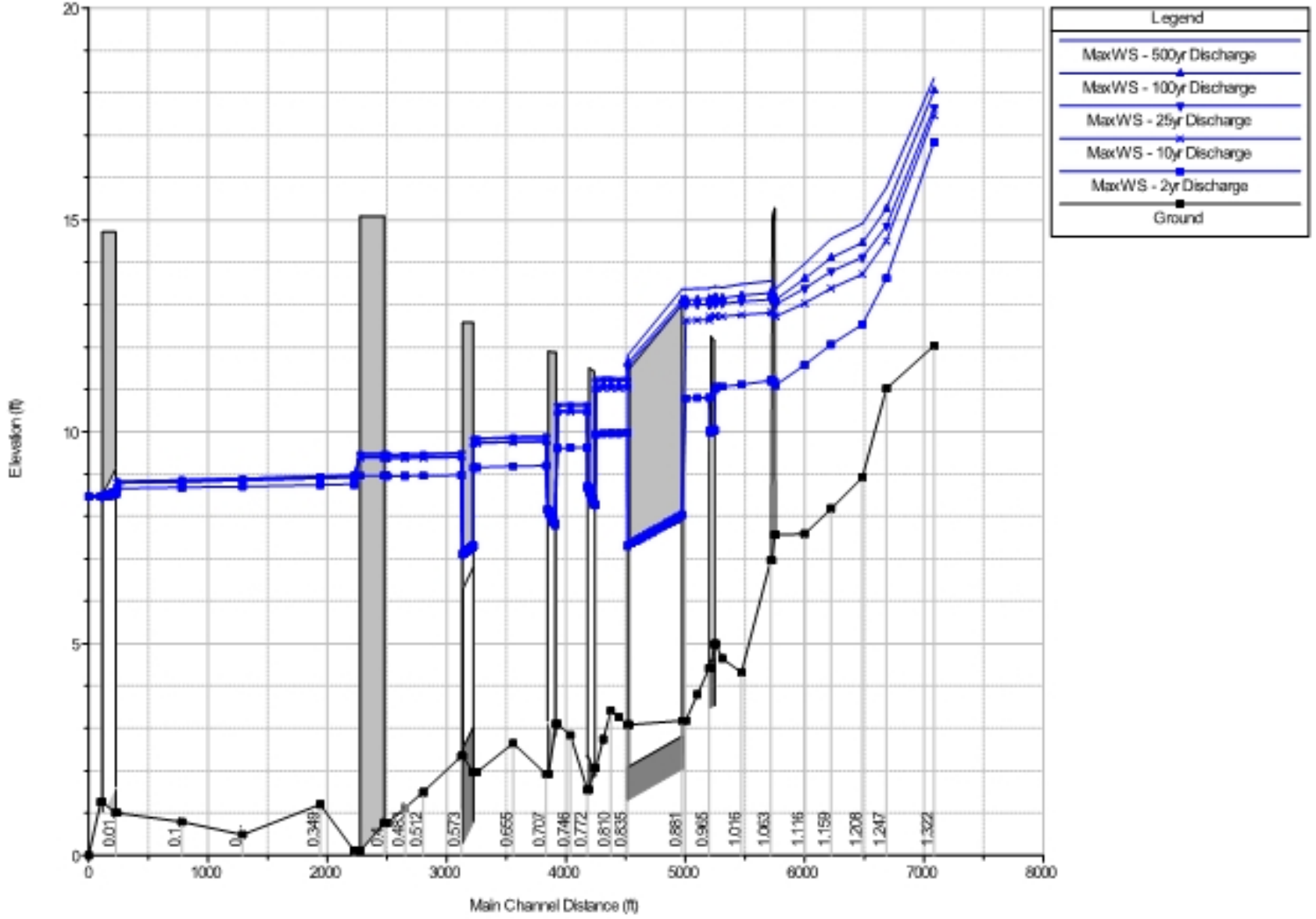


Figure 6. Maximum modeled water surface elevations for 2-, 10-, 25-, 100-, and 500-year discharge in Fry Creek. The tidal boundary condition used for all runs was mean higher high water (MHHW).

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

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

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:

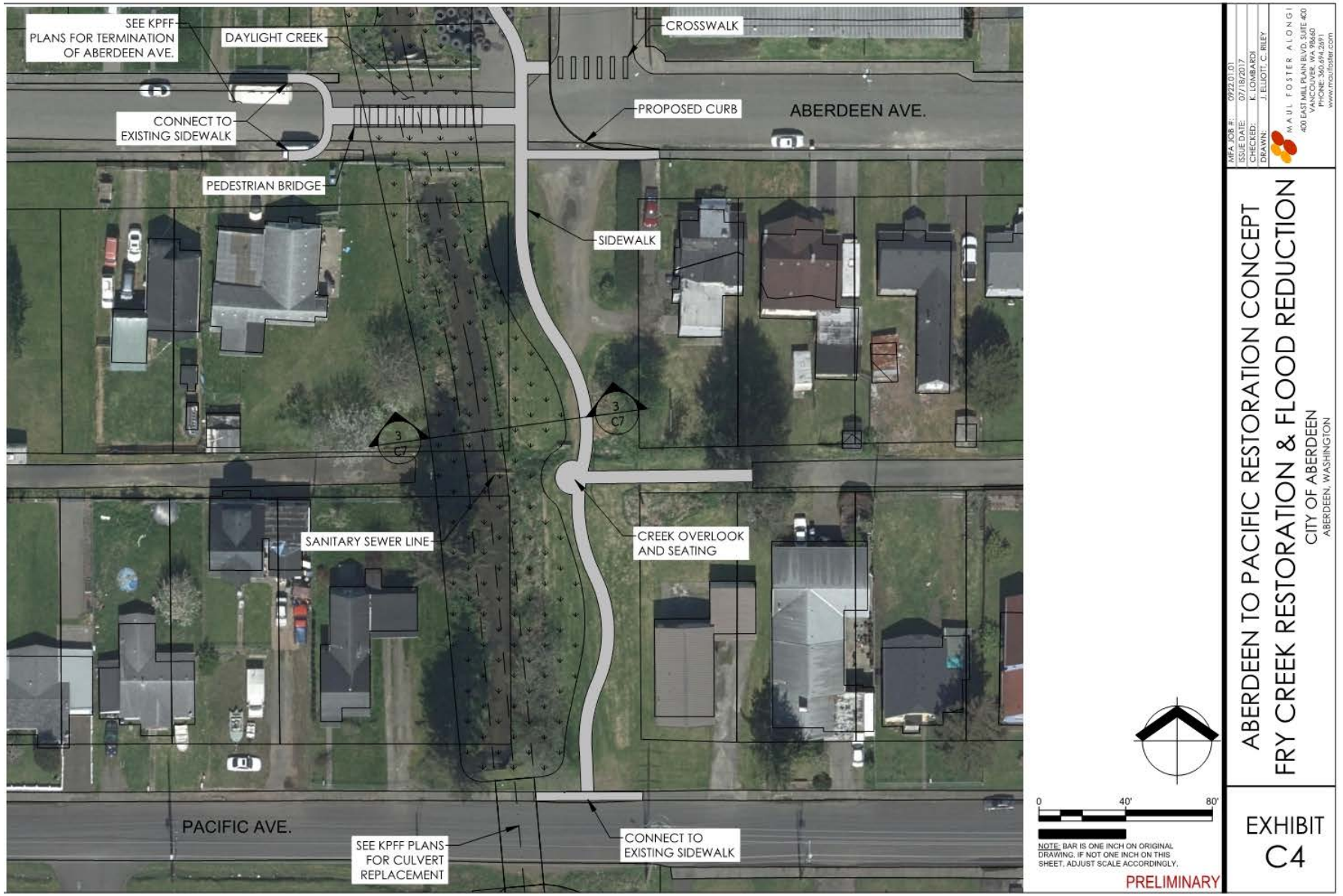
Shaded cells indicate the portion of the Fry Creek channel where improvements have been included in that model.

NAVD = National Geodetic Vertical Datum 1983.

PLUS IT FITS OUR CONSTRUCTION BUDGET!

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

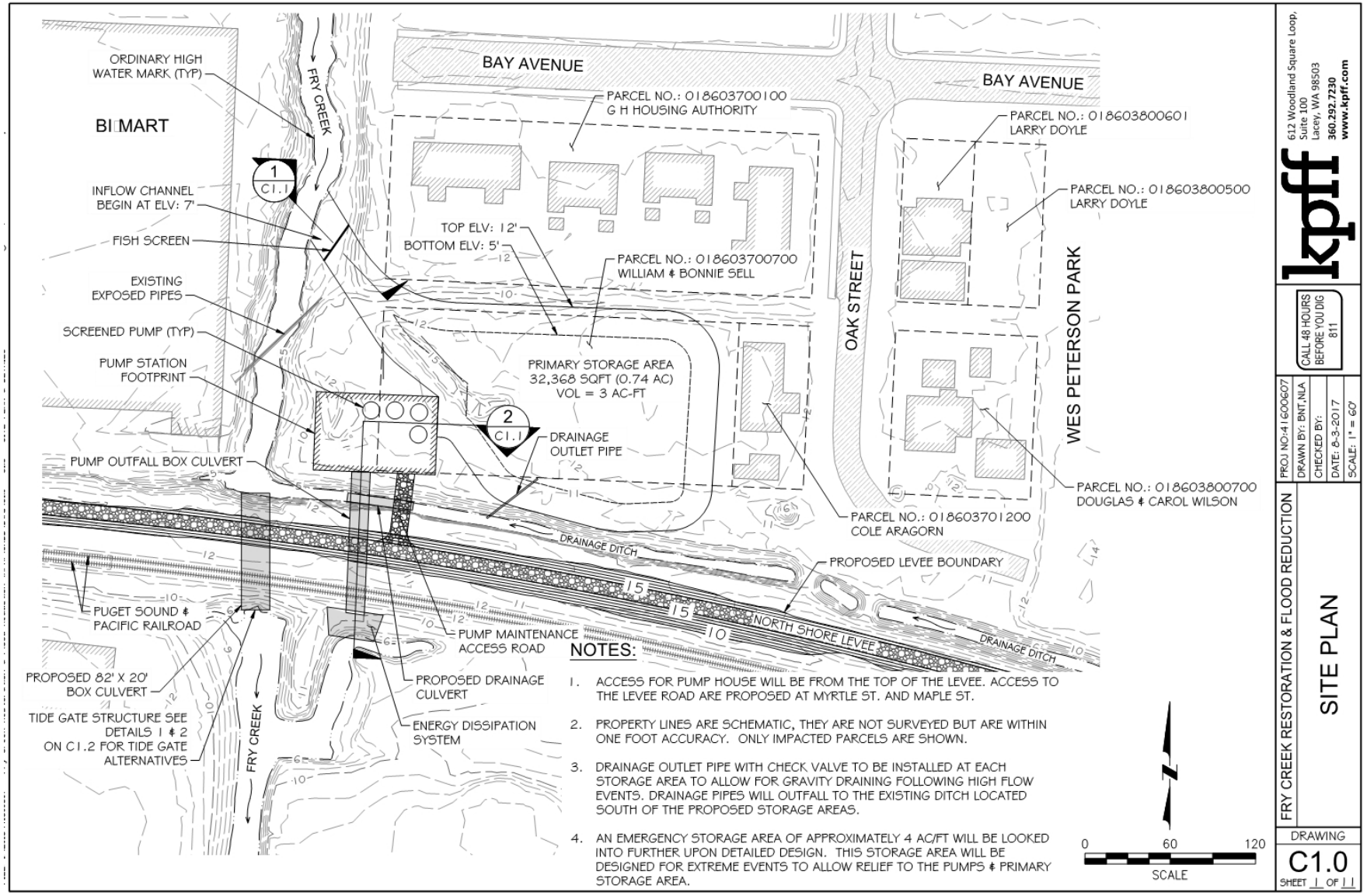
3. Identification of Options, Preliminary Design, & Phasing Decision



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

North Shore Levee Coordination:

Future Pump Station



Thank You

Kris Koski, PE

City Engineer

City of Aberdeen

(360) 537-3218

kkoski@aberdeenwa.gov

www.ezview.wa.gov/aberdeenfloodrelief

Fry Creek at Aberdeen Avenue: current condition.

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