

Lower Dungeness River Restoration 65% Design

**Community Meeting
June 27, 2018**

Clallam County - Cathy Lear, Ross Tyler

Consultants:

Dave Cline PE, Shannon & Wilson Inc.

Scott Johnson PE, HDR Inc.

Jenna Scholz, ICF International

Meeting Agenda

- Greetings from County Leadership
- Presenter Introductions / Roles
- Meeting Ground Rules
- Project General Update
- Site Design Plan Overview
- Levee Realignment, Flooding and Drainage
- Towne Road Relocation, Intersection
- Habitat Restoration
- Trails, Parking Areas
- Question & Answer

Greetings from County Leadership

- Mark Ozias – Clallam County Board of Commissioners
- Mary Ellen Windborn – Clallam County Dept. of Community Development

Presenters & Roles

- Cathy Lear – Project Manger Clallam County
- Ross Tyler, PE – Road Engineer Clallam County
- Dave Cline, PE – Project Manager Shannon & Wilson
- Scott Johnson, PE – Road Engineer, HDR Engineering Inc.
- Jenna Scholz – Outreach Coordinator, ICF International

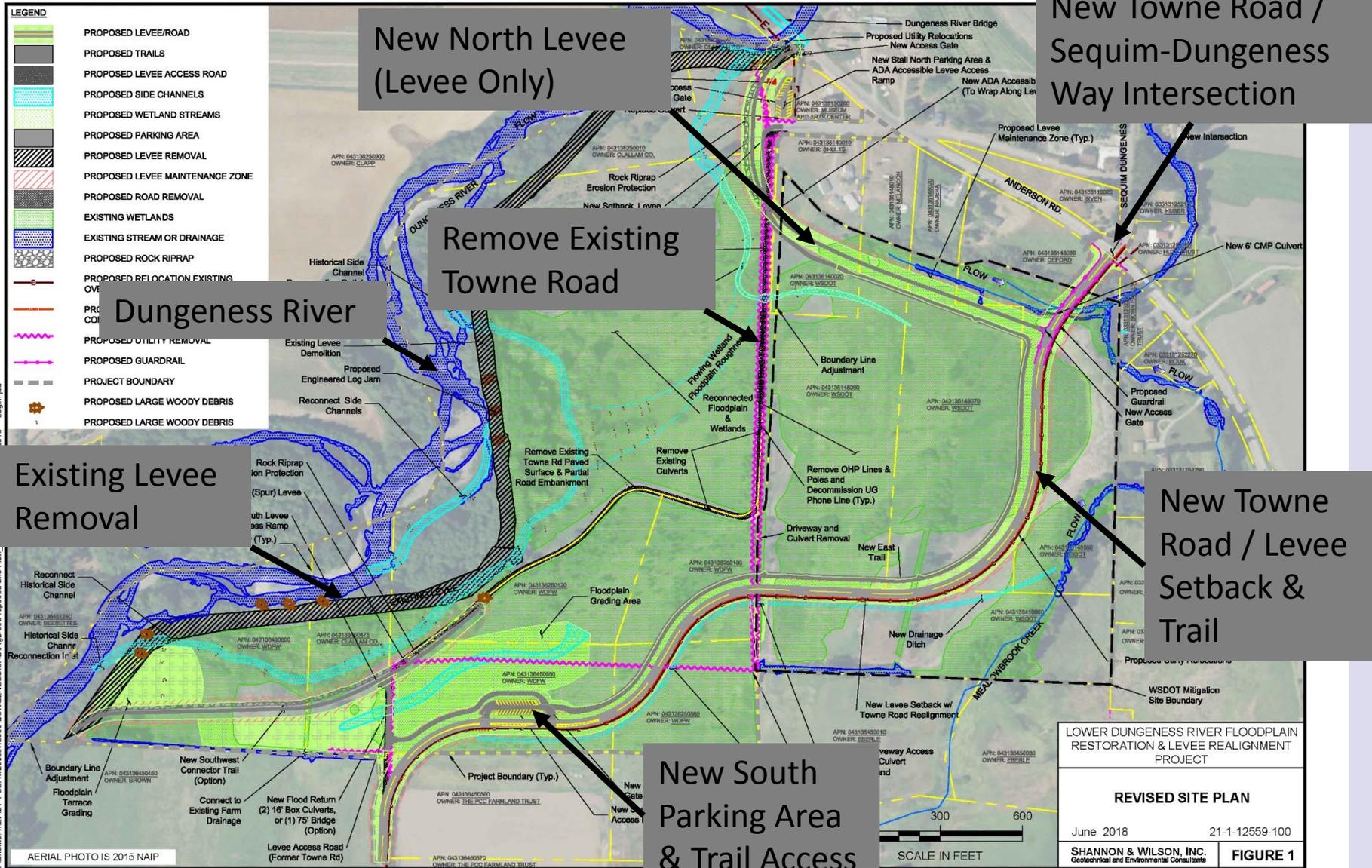
Meeting Ground Rules

- Be respectful
- Be factual
- Hold your questions to the end of the presentation
- State your name and question clearly
- Follow up with detailed or technical questions at the information stations after the presentation

Project General Update

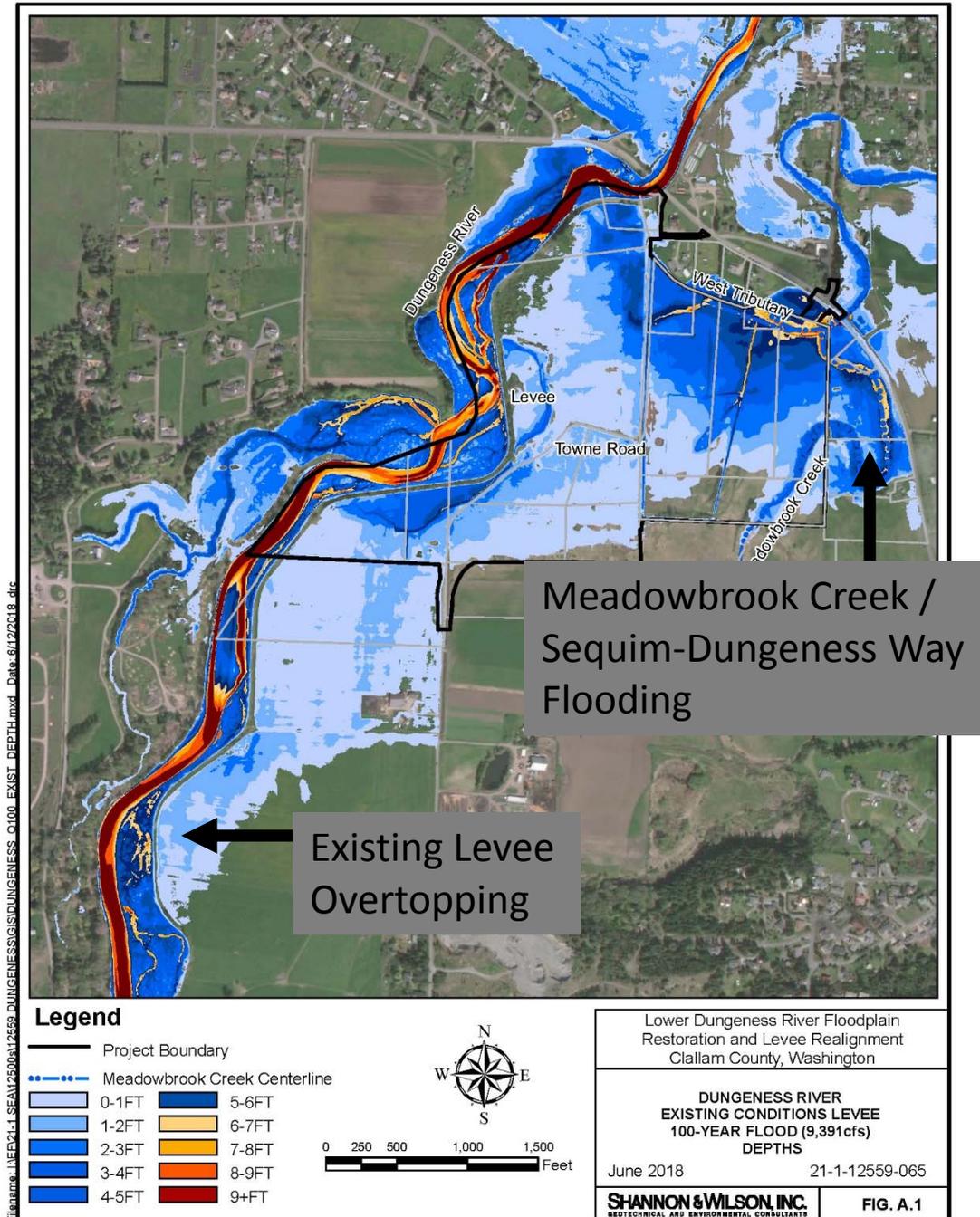
- Completed 65% Designs
- Submitted Federal, State and Local Permits
- Variety of Public Notices will be coming
- Final Design and Permit Awards – Winter 2019
- Construction Advertise – Spring 2019
- Construction Start – Summer 2019
- Construction Completion – Summer 2021

Current - Site 65% Design Plan



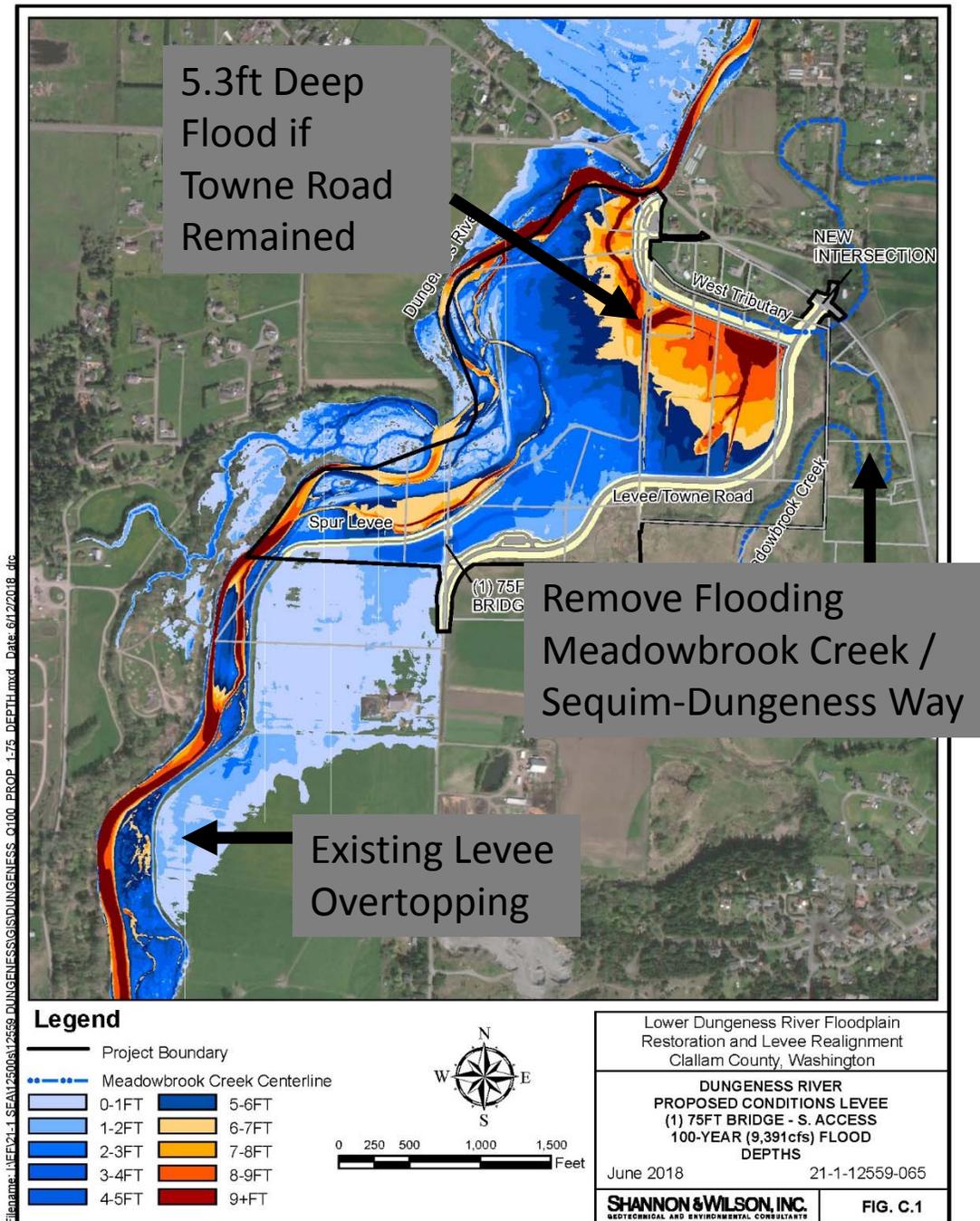
Existing Flood Conditions

- 100-YR flood depths
- Levee overtopping
- Flooding along Meadowbrook Creek, Sequim-Dungeness Way, 3-Crabs



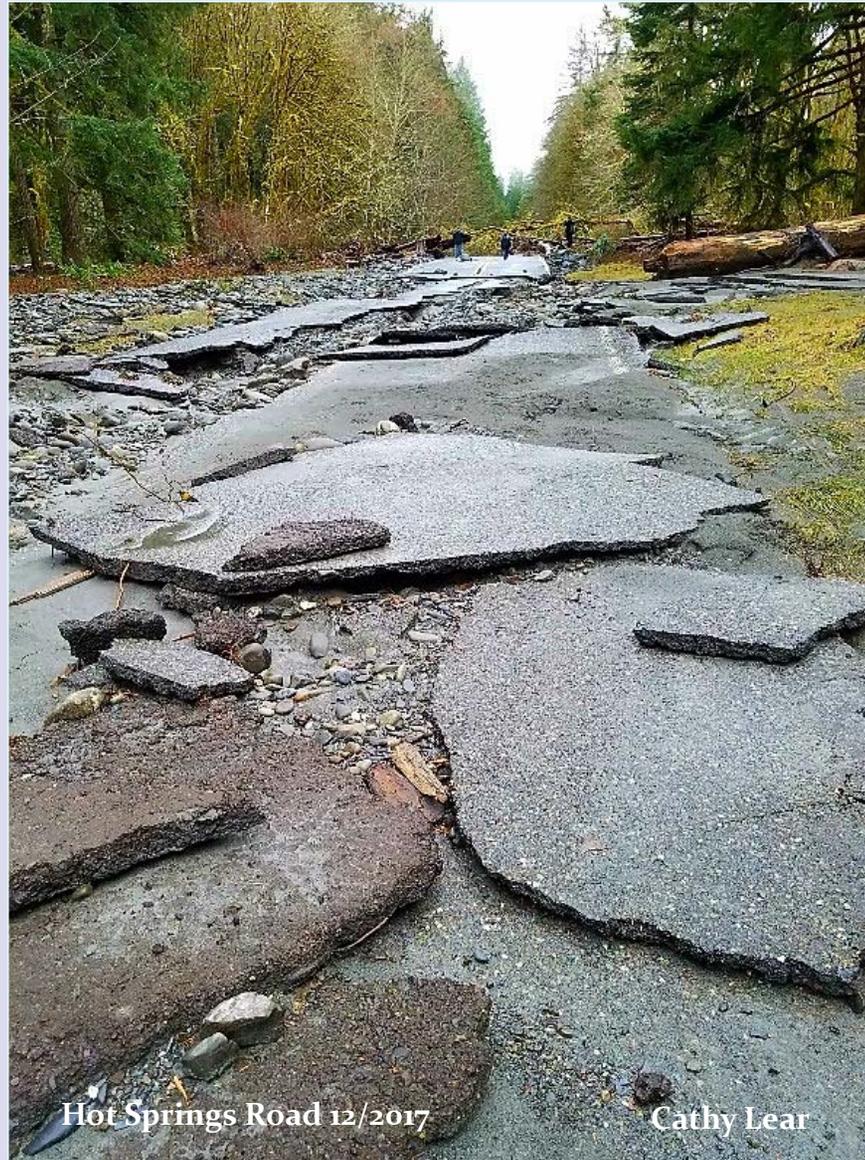
Project Flood Conditions

- 100-YR flood depths
- Levee overtopping
- Removes flooding along Meadowbrook Creek, Sequim-Dungeness Way, 3-Crabs
- Levee contains 100-YR, 200-YR and 500-YR annual flood events



Project Plan Development

Road Flood Damage Nov. 2017 – Elwha River Dam Removal

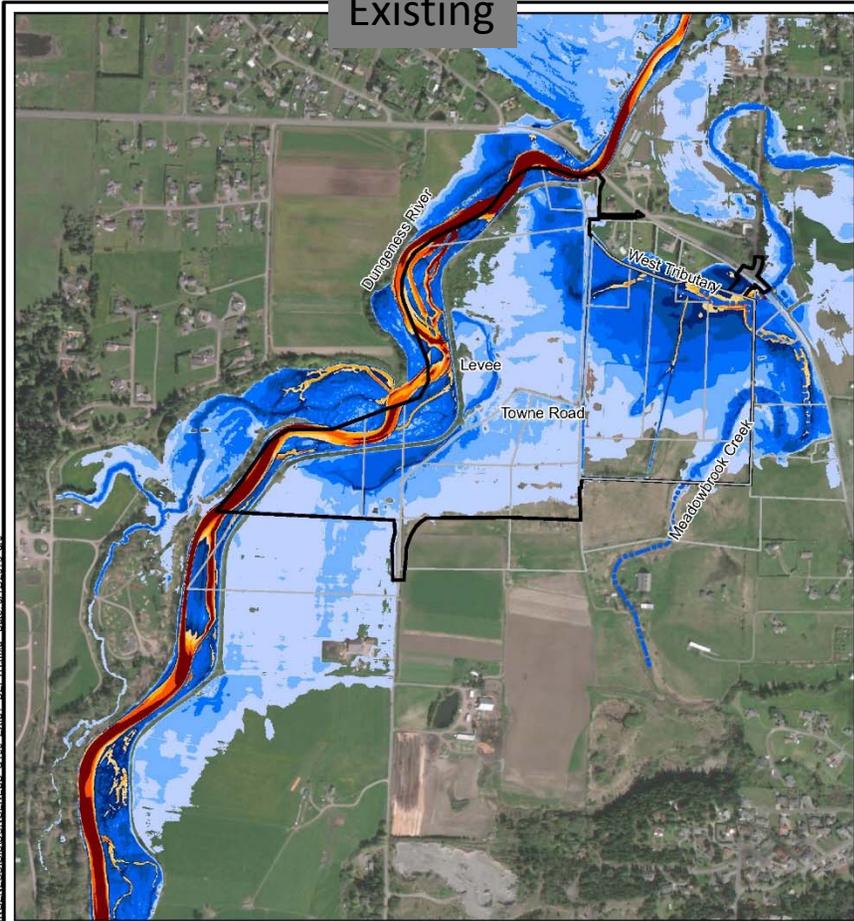


Hot Springs Road 12/2017

Cathy Lear

Existing & Proposed Flood Conditions

Existing



Legend

- Project Boundary
- Meadowbrook Creek Centerline
- 0-1FT
- 1-2FT
- 2-3FT
- 3-4FT
- 4-5FT
- 5-6FT
- 6-7FT
- 7-8FT
- 8-9FT
- 9+FT



Lower Dungeness River Floodplain Restoration and Levee Realignment Clallam County, Washington

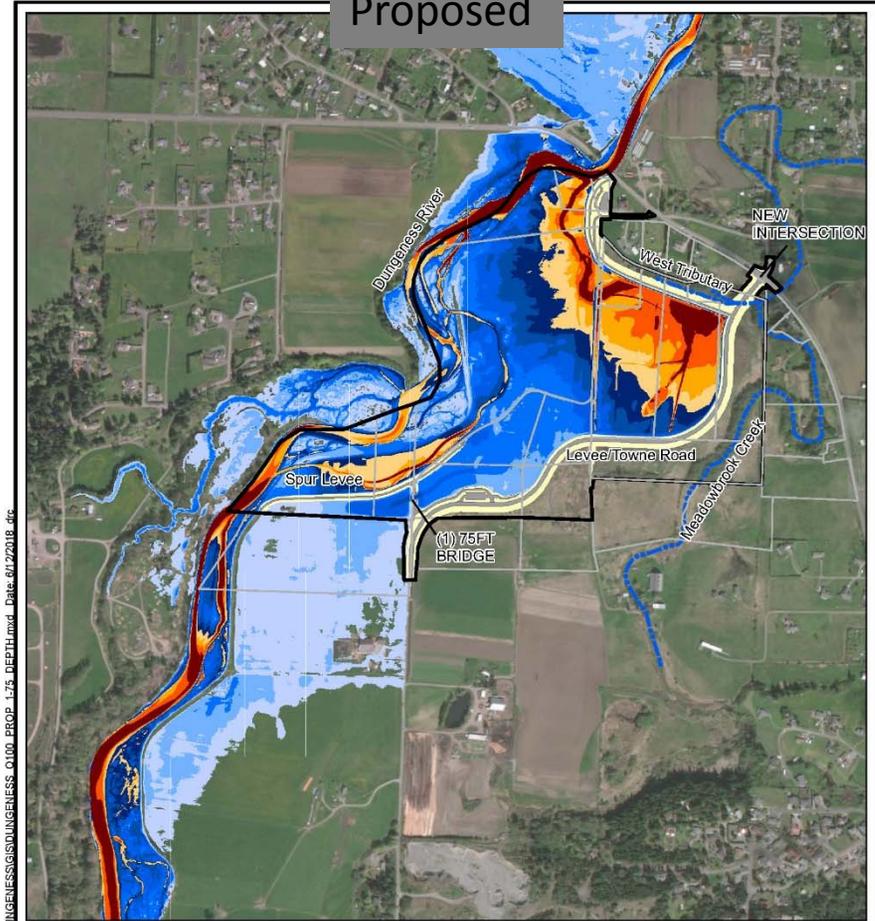
DUNGENESS RIVER EXISTING CONDITIONS LEVEE 100-YEAR FLOOD (9,391cfs) DEPTHS

June 2018 21-1-12559-065

SHANNON & WILSON, INC.
REGISTERED PROFESSIONAL ENGINEERS

FIG. A.1

Proposed



Legend

- Project Boundary
- Meadowbrook Creek Centerline
- 0-1FT
- 1-2FT
- 2-3FT
- 3-4FT
- 4-5FT
- 5-6FT
- 6-7FT
- 7-8FT
- 8-9FT
- 9+FT



Lower Dungeness River Floodplain Restoration and Levee Realignment Clallam County, Washington

DUNGENESS RIVER PROPOSED CONDITIONS LEVEE (1) 75FT BRIDGE - S. ACCESS 100-YEAR FLOOD (9,391cfs) DEPTHS

June 2018 21-1-12559-065

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REGISTERED PROFESSIONAL ENGINEERS

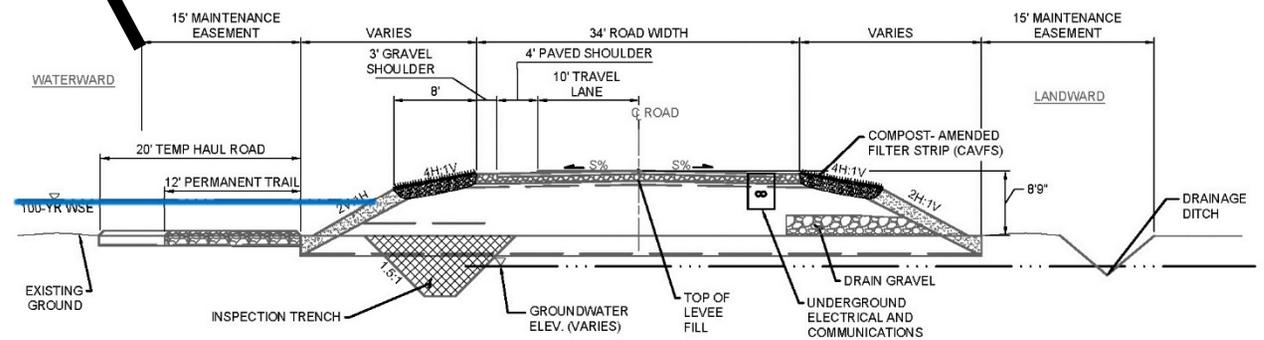
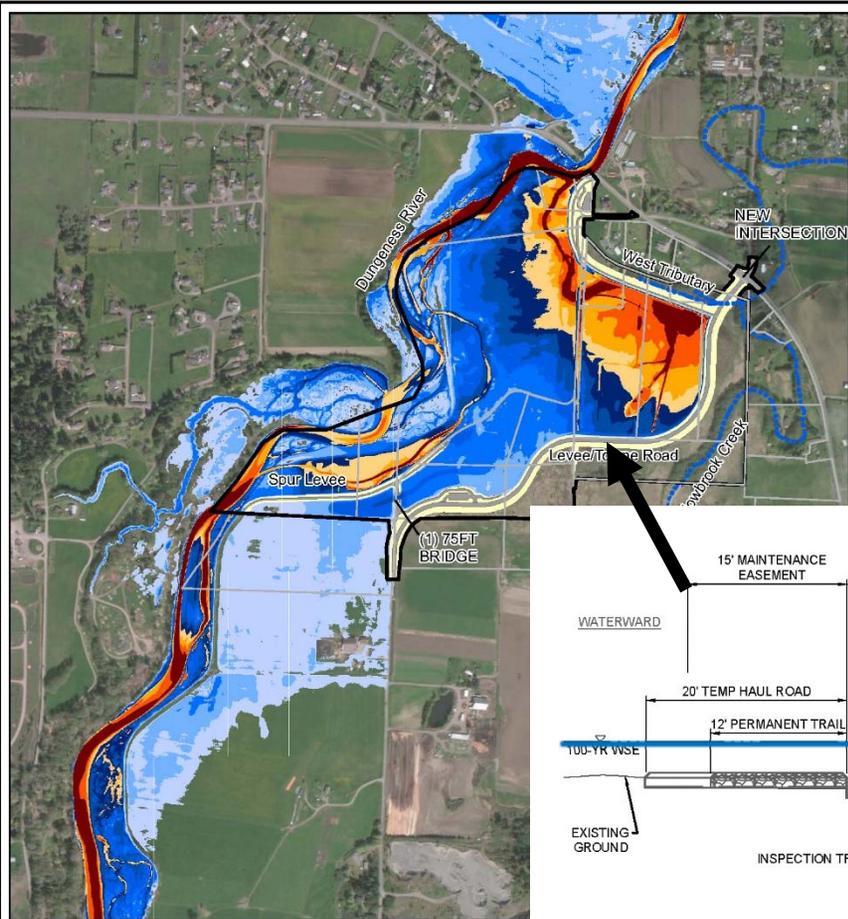
FIG. C.1

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Levee Design Sections – Current 65% Design Plan

- 100-YR flood 5ft-6ft deep
- Levee / road height 8ft to 10ft above ground



B TOWNE ROAD AND LEVEE RELOCATION TYPICAL CROSS SECTION
SCALE: N.T.S.

Legend

- Project Boundary
- Meadowbrook Creek Centerline
- 0-1FT
- 1-2FT
- 2-3FT
- 3-4FT
- 4-5FT
- 5-6FT
- 6-7FT
- 7-8FT
- 8-9FT
- 9+FT



0 250 500 1,000 1,500
Feet

PROPOSED CONDITIONS LEVEE
(1) 75FT BRIDGE - S. ACCESS
100-YEAR (9.991cfs) FLOOD
DEPTHS

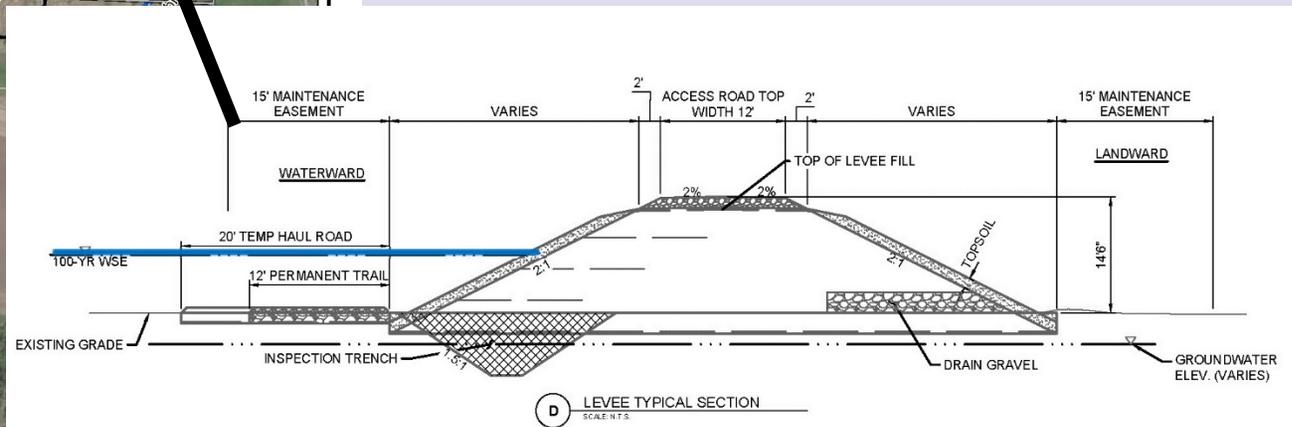
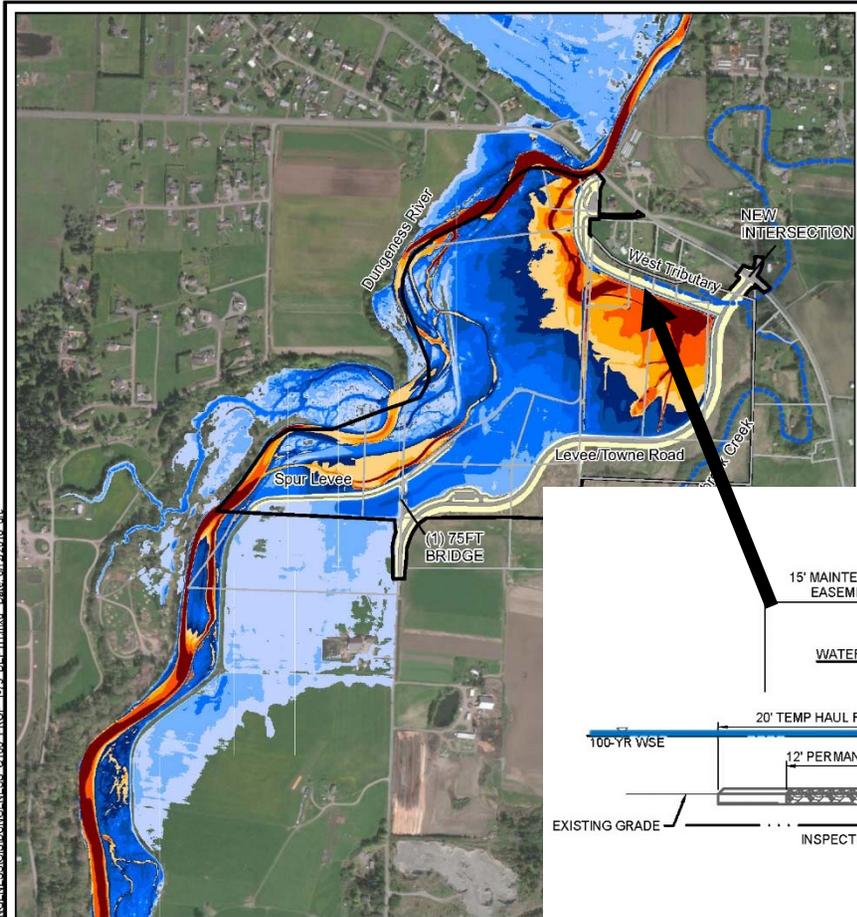
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FIG. C.1

Levee Design Sections – Current 65% Design Plan

- 100-YR flood 8ft-10ft deep
- Levee / road height 12ft to 15ft above ground



Legend

—	Project Boundary
—	Meadowbrook Creek Centerline
0-1FT	5-6FT
1-2FT	6-7FT
2-3FT	7-8FT
3-4FT	8-9FT
4-5FT	9+FT



0 250 500 1,000 1,500 Feet

DUNGENESS RIVER
PROPOSED CONDITIONS LEVEE
(1) 75FT BRIDGE - S. ACCESS
100-YEAR (9,391cfs) FLOOD
DEPTHS

June 2018 21-1-12559-065

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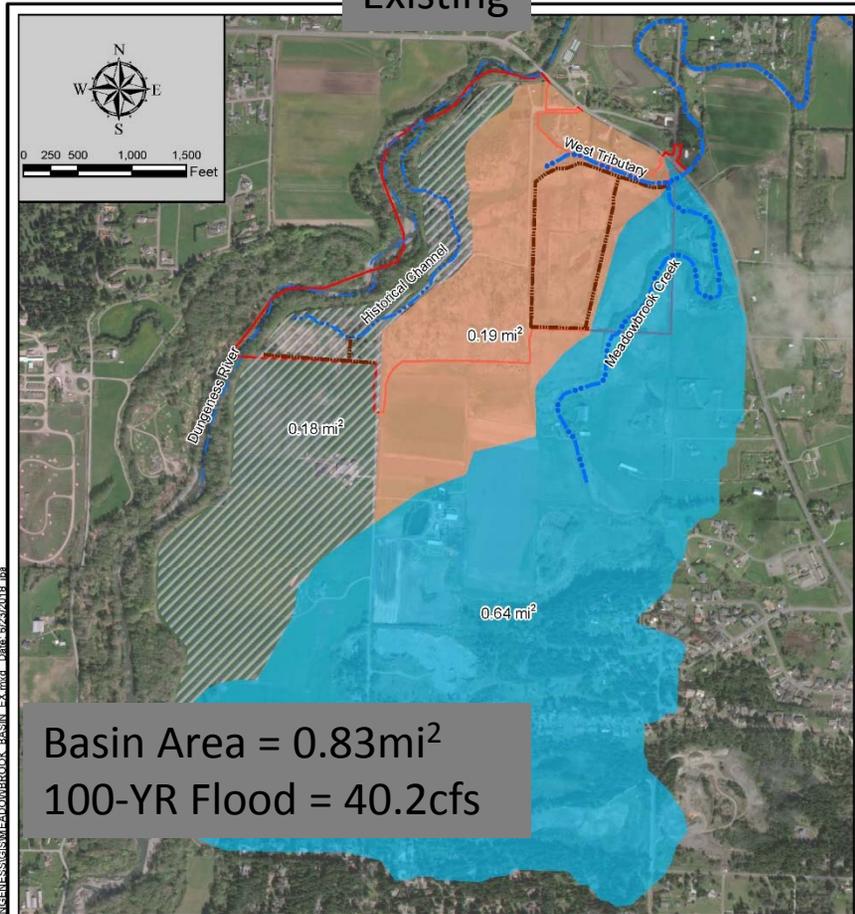
FIG. C.1

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Meadowbrook Drainage Conditions (Drainage Basins)

Existing

Proposed



Basin Area = 0.83mi²
100-YR Flood = 40.2cfs

Legend

- Project Boundary
 - - - Channel Centerline
 - Drainage Ditch
 - ▲ Culvert
- Drainage Basins**
- Meadowbrook Creek
 - West Tributary
 - Dungeness River

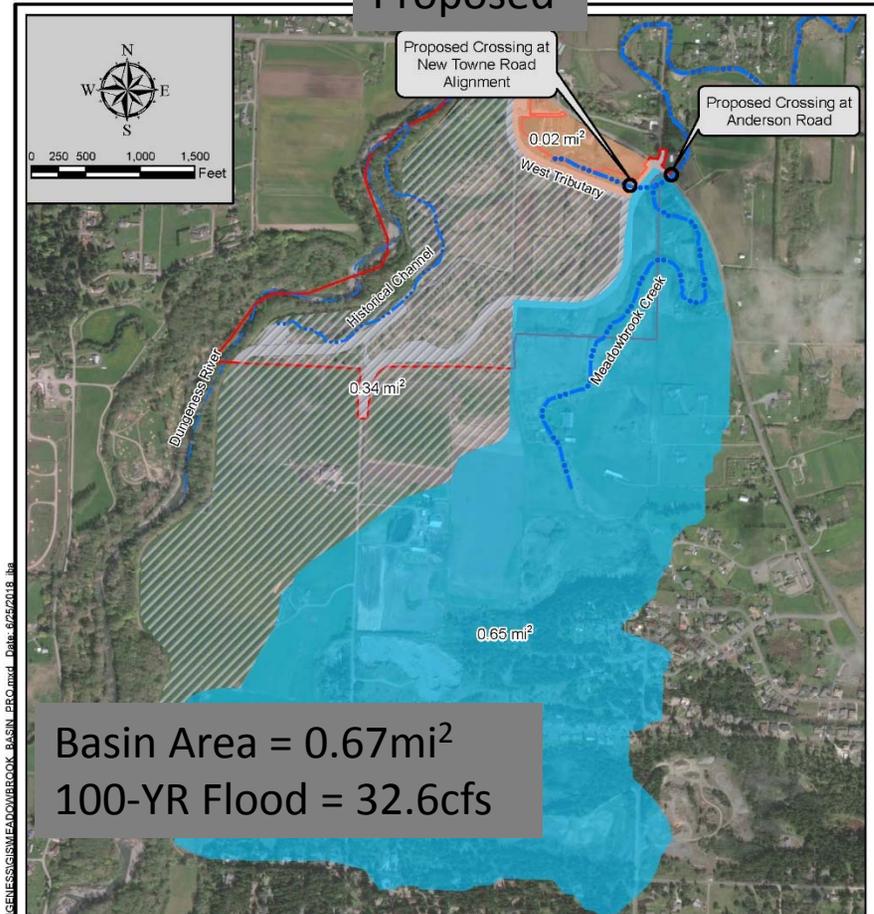
Lower Dungeness River Floodplain
Restoration and Levee Realignment
Clallam County, Washington

**MEADOWBROOK CREEK &
WEST TRIBUTARY
DRAINAGE AREAS - EXISTING**

June 2018 21-1-12559-701

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FIG. 1



Basin Area = 0.67mi²
100-YR Flood = 32.6cfs

Legend

- Project Boundary
 - - - Channel Centerline
- Drainage Basins**
- Dungeness River
 - Meadowbrook Creek (0.65 mi²)
 - West Tributary (0.02 mi²)
- Total to Anderson Road Crossing = 0.67 mi²

Lower Dungeness River Floodplain
Restoration and Levee Realignment
Clallam County, Washington

**MEADOWBROOK CREEK &
WEST TRIBUTARY
DRAINAGE AREAS - PROPOSED**

June 2018 21-1-12559-701

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FIG. 2

Filename: \\SERVER\1\SEA\12500\12559_DUNGENESS\GIS\MEADOWBROOK_BASIN_EX.mxd Date: 6/26/2018 10:48:00 AM

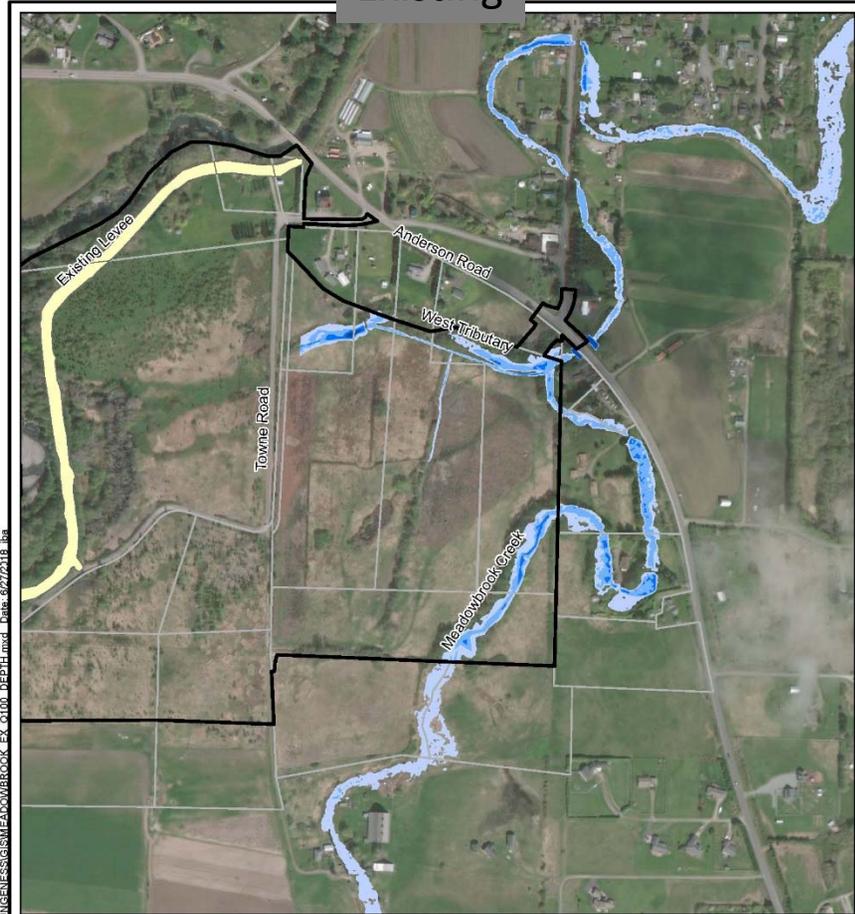
Filename: \\SERVER\1\SEA\12500\12559_DUNGENESS\GIS\MEADOWBROOK_BASIN_PRO.mxd Date: 6/25/2018 10:48:00 AM

SOURCE: Basin areas approximated from TOPAZ basin delineation tool applied to a 2016 LIDAR survey from PSLC and the USGS 10-meter National Elevation Dataset.

SOURCE: Basin areas approximated from TOPAZ basin delineation tool applied to a 2016 LIDAR survey from PSLC and the USGS 10-meter National Elevation Dataset.

Meadowbrook Drainage Conditions (Flood Inundation)

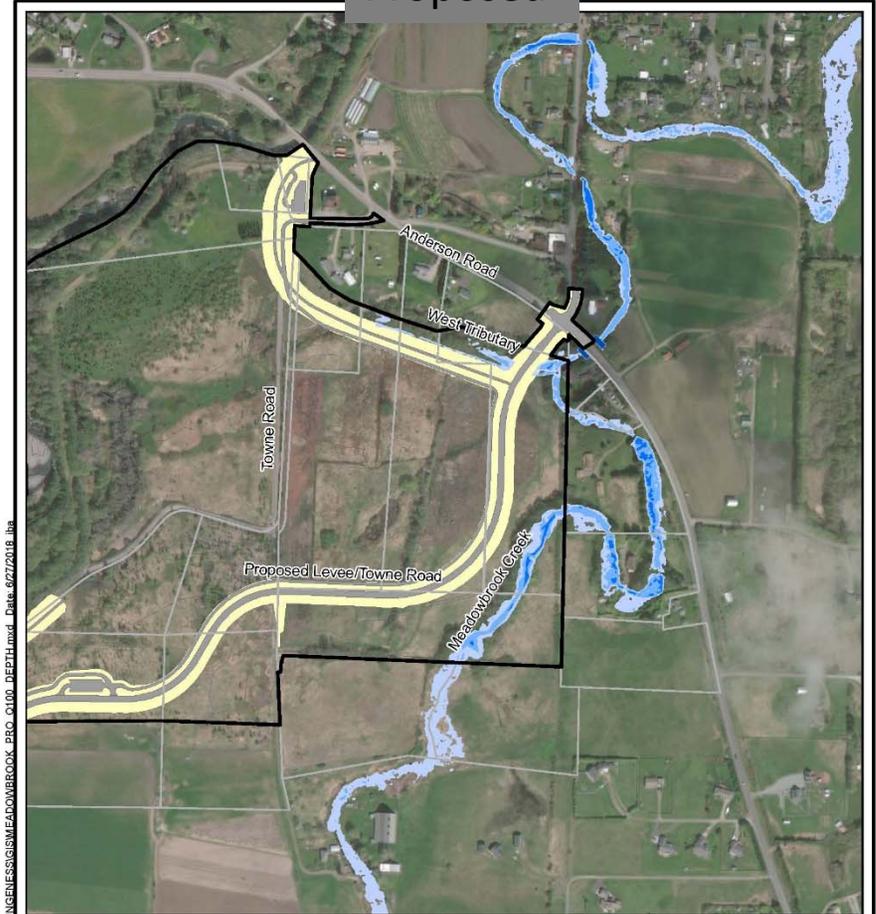
Existing



- Legend**
- Project Boundary
 - Inundation Depth**
 - 0-1FT
 - 1-2FT
 - 2-3FT
 - 3-4FT
 - >4FT

Basin Area = 0.83mi²
 100-YR Flood = 40.2cfs
 Seepage (Q₁₀₀) = 0.1cfs

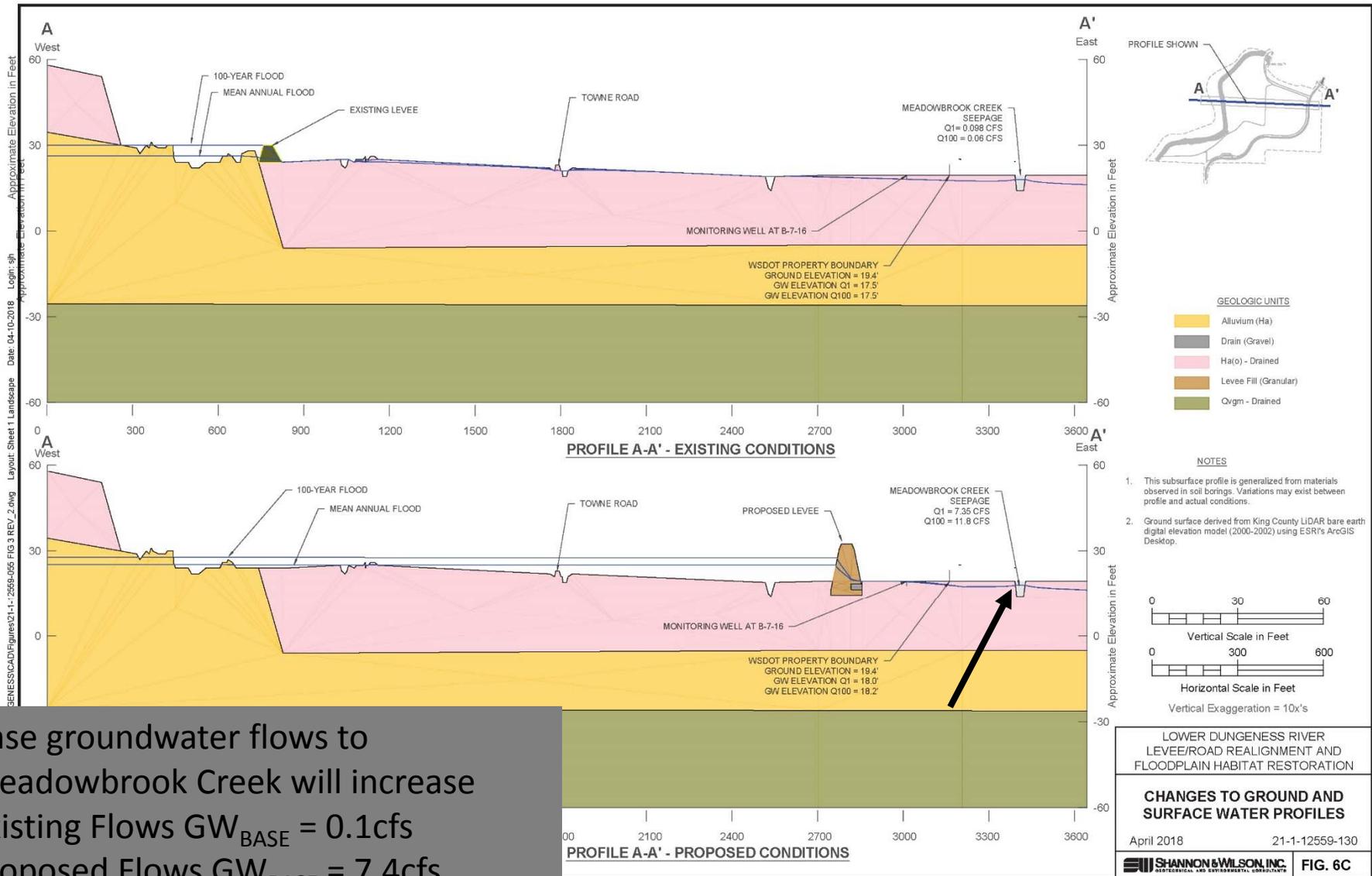
Proposed



- Legend**
- Project Boundary
 - Inundation Depth**
 - 0-1FT
 - 1-2FT
 - 2-3FT
 - 3-4FT
 - >4FT

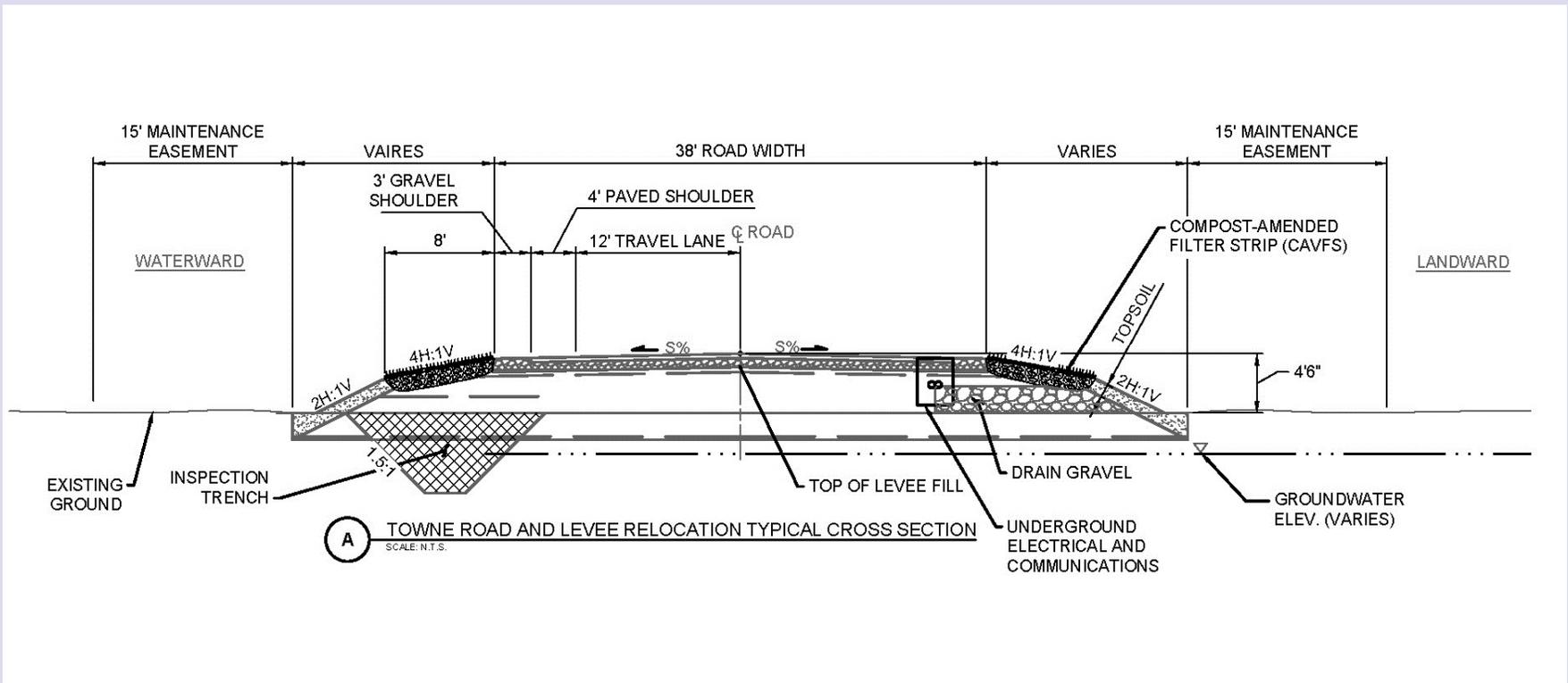
Basin Area = 0.67mi²
 100-YR Flood = 32.6cfs
 Seepage (Q₁₀₀) = 11.8cfs

Meadowbrook Creek Drainage (Groundwater Recharge / Seepage)



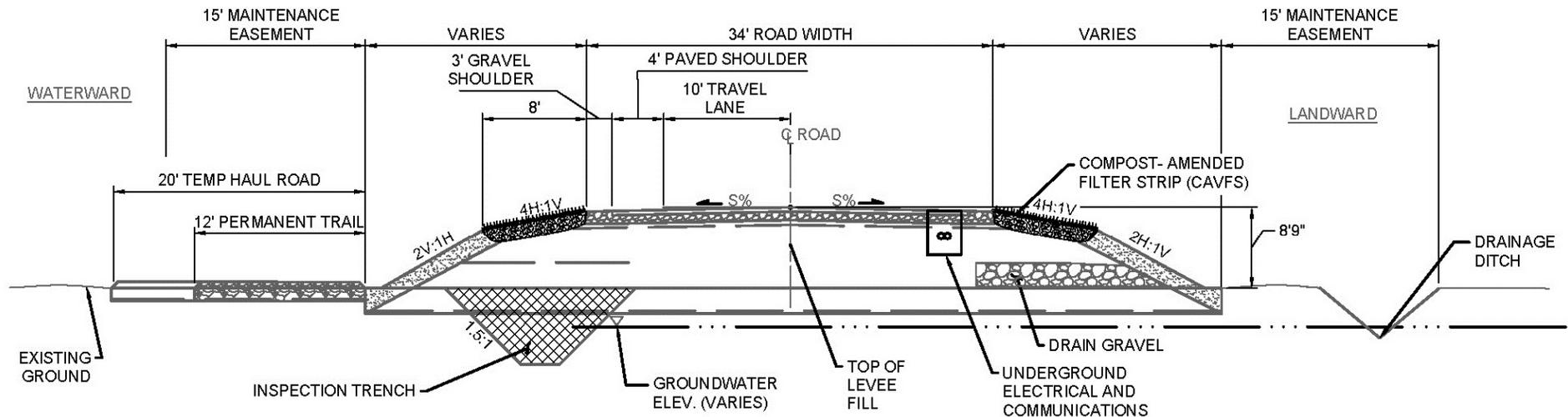
Base groundwater flows to
Meadowbrook Creek will increase
Existing Flows $GW_{BASE} = 0.1\text{cfs}$
Proposed Flows $GW_{BASE} = 7.4\text{cfs}$

New Towne Road Section - A



- 38ft road width
- 4ft to 6ft height from ground
- 12ft Travel Lane (curve)
- 4ft paved shoulder w/ 3ft gravel shoulder
- 4H:1V sideslope transition to 2H:1V sideslope

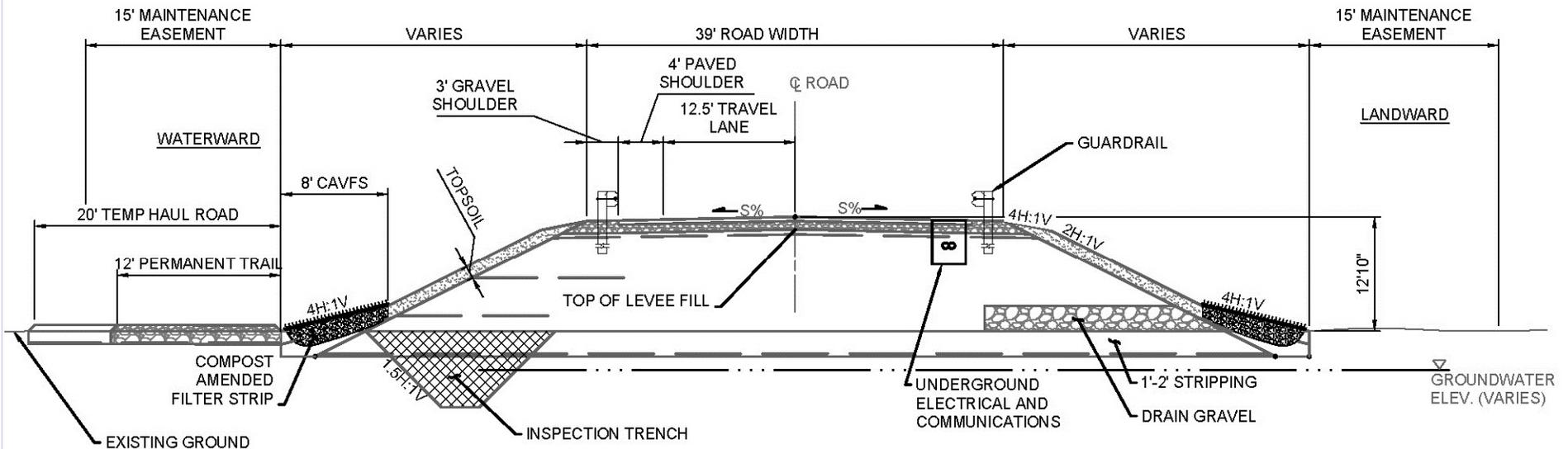
New Towne Road Section - B



B TOWNE ROAD AND LEVEE RELOCATION TYPICAL CROSS SECTION
SCALE: N.T.S.

- 34ft road width
- 8ft to 10ft height from ground
- 10ft Travel Lane (straight)
- 4ft paved shoulder w/ 3ft gravel shoulder
- 4H:1V sideslope transition to 2H:1V sideslope

New Towne Road Section - C



C TOWNE ROAD AND LEVEE RELOCATION TYPICAL CROSS SECTION
SCALE: N.T.S.

- 39ft road width, 33ft travel lane between guardrails
- 12ft to 15ft height from ground
- 12.5ft Travel Lane (straight)
- 4ft paved shoulder, 3ft gravel shoulder w/ guardrail
- 2H:1V sideslope

New Towne Road / Sequim Dungeness Way Intersection

- Three intersection options considered
- 2-way stop
- 2-way stop with left turn pockets
- Roundabout

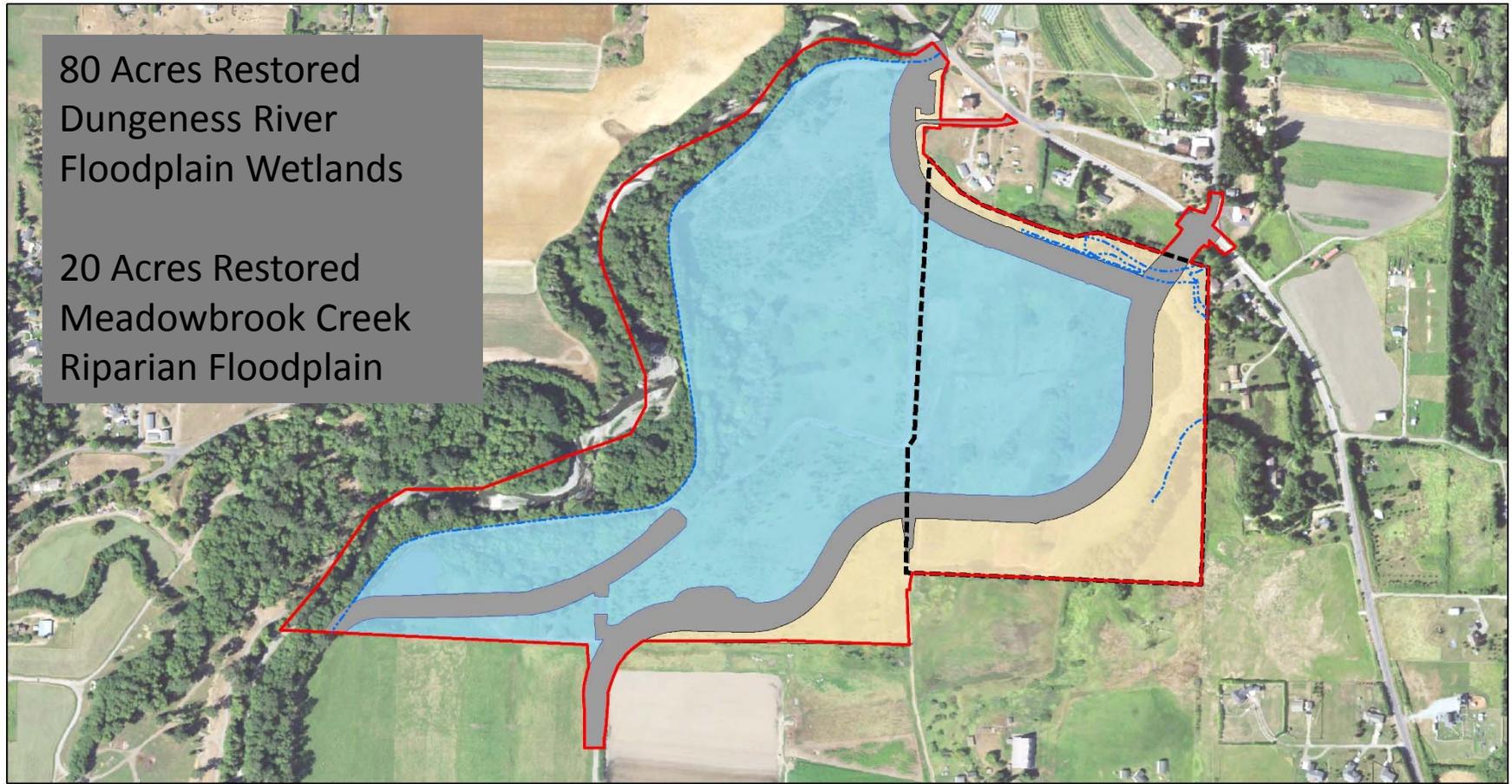
Existing Location



Proposed Location



Future Floodplain Wetland Habitat Types

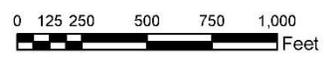


80 Acres Restored
Dungeness River
Floodplain Wetlands

20 Acres Restored
Meadowbrook Creek
Riparian Floodplain

Legend

- WSDOT Mitigation Boundary
- Project Boundary
- Proposed Permanent Fill
- Floodplain Restoration Area - 80 Acres
- Landward of Floodplain Restoration Area - 22 Acres



Lower Dungeness River Floodplain
Restoration and Levee Realignment
Clallam County, Washington

FLOODPLAIN RESTORATION AREA

June 2018 21-1-12559-130

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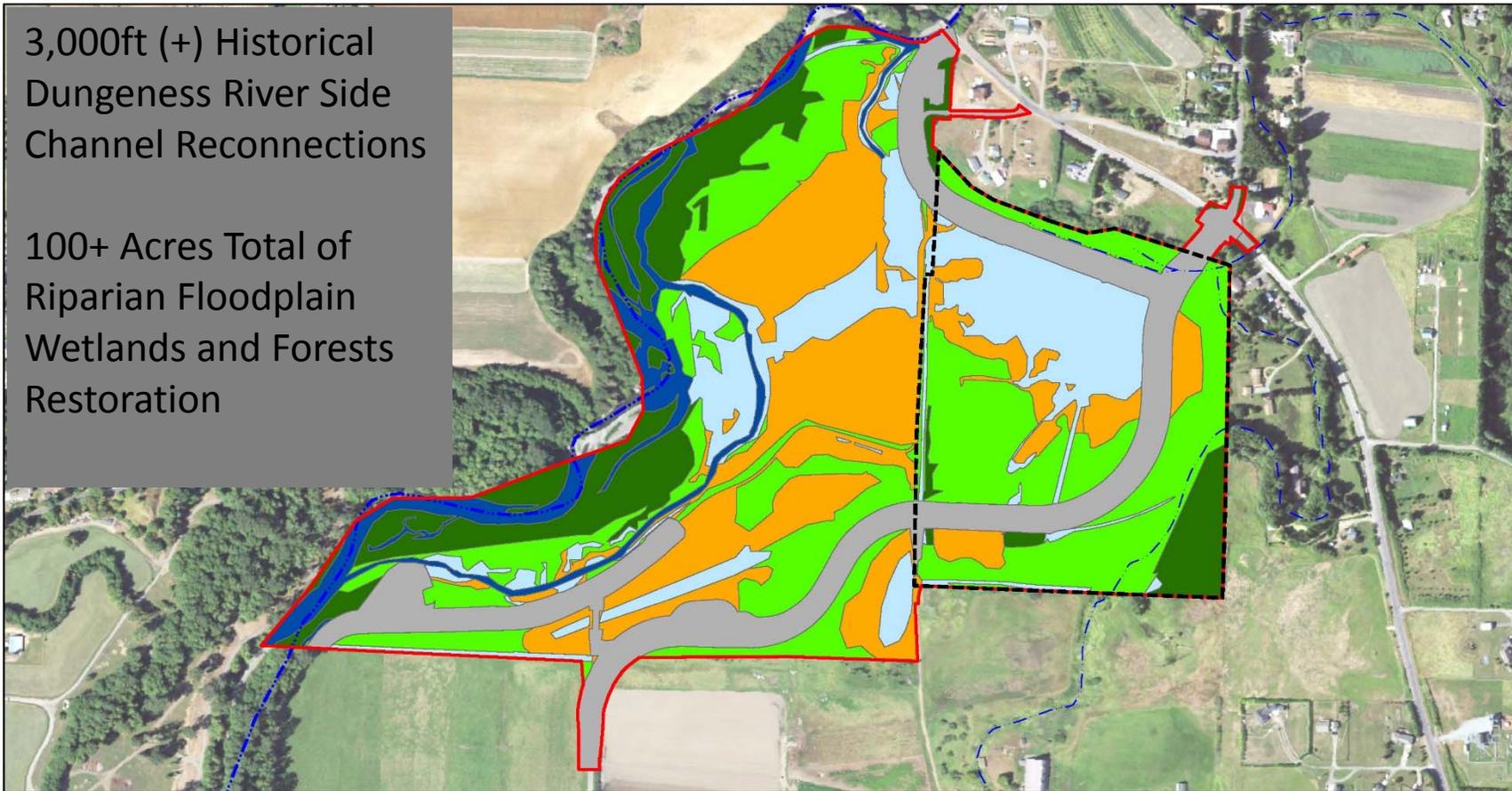
FIG. X

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Future Floodplain Wetland Habitat Types

3,000ft (+) Historical
Dungeness River Side
Channel Reconnections

100+ Acres Total of
Riparian Floodplain
Wetlands and Forests
Restoration



Legend

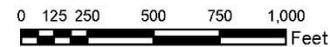
Future Habitat Area

- Upland Forest
- Wetland Forest
- Wetland Shrub
- Wetland Emergent
- Stream Channel Complex

Wetland Hydroperiod

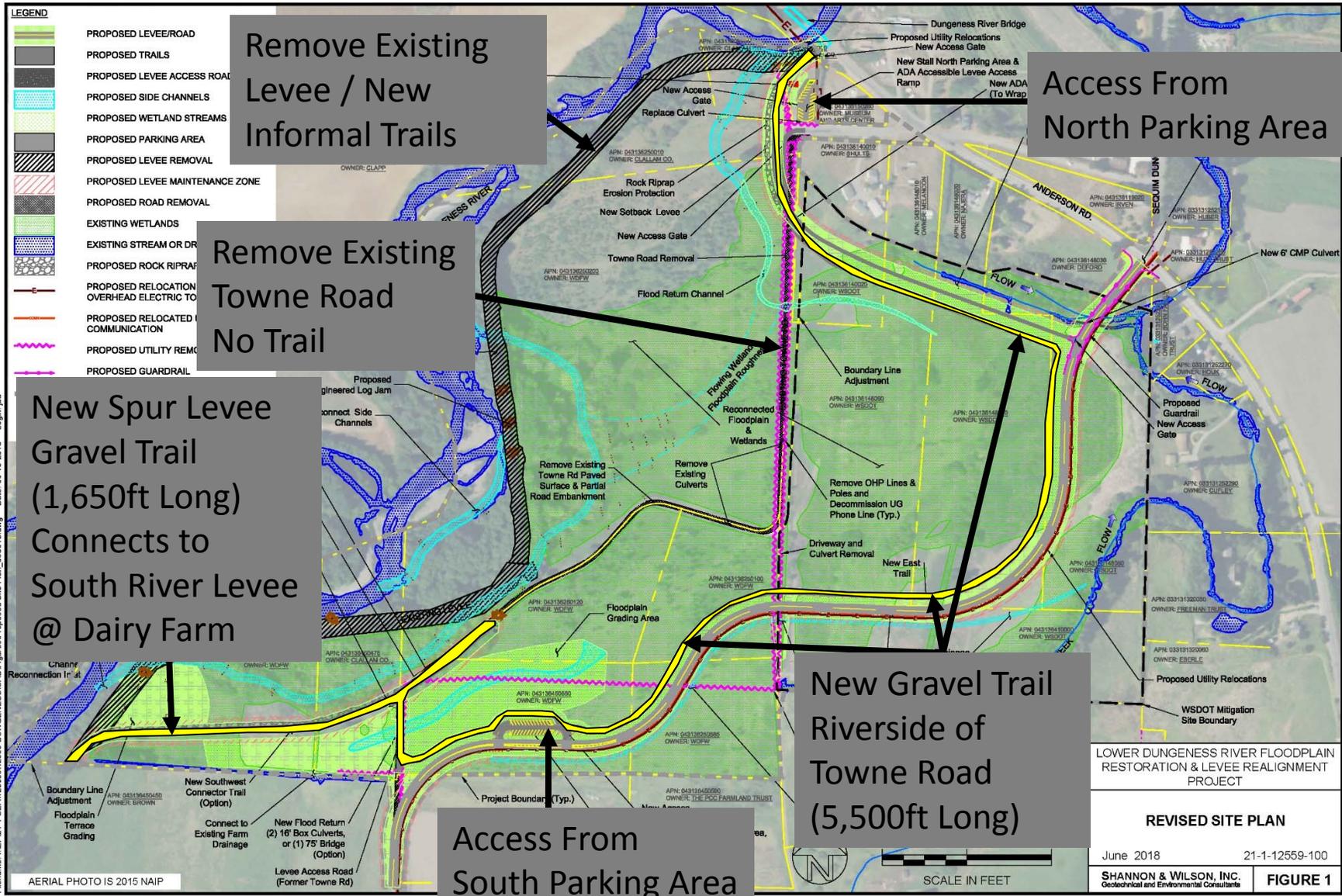
- Upland
- Occasionally Flooded
- Seasonally Flooded
- Seasonally Flooded
- Stream

- Project Boundary
- WSDOT Mitigation Site Boundary
- Dungeness River Centerline
- Meadowbrook Creek Centerline
- Proposed Roads & Embankments



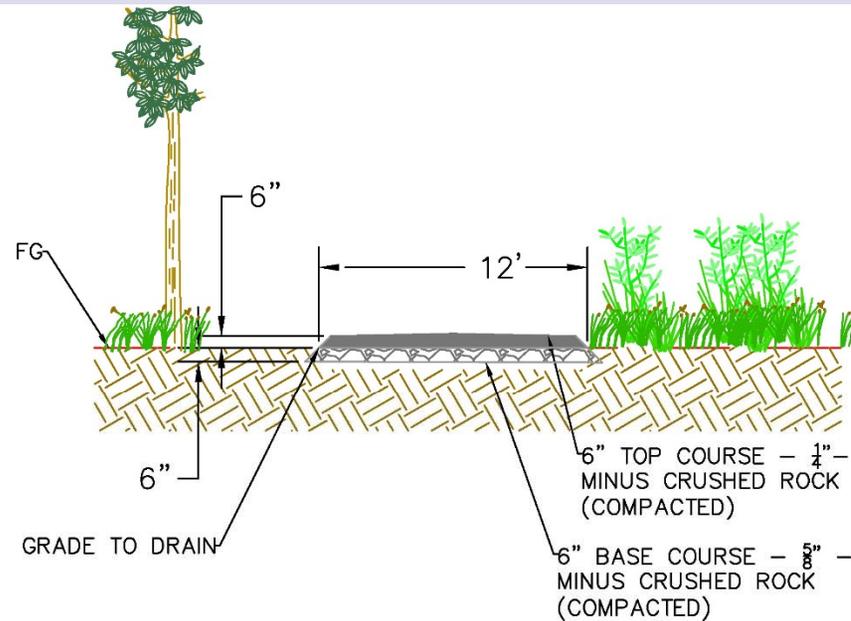
Lower Dungeness River Floodplain Restoration and Levee Realignment Clallam County, Washington	
WETLAND HYDROPERIOD AND FUTURE HABITAT AREAS	
April 2018	21-1-12559-130
SHANNON & WILSON, INC. <small>PHOTOGRAMMETRY AND ENVIRONMENTAL CONSULTANTS</small>	
FIG. 6C	

Future Trails & Parking Areas



Filename: \\ERP\21-1-SEAN\12559\12559 DUNGENESS\CAD\Figures\Proposed Site Plan_05/01/18.dwg Date: 05-19-2018 Login: jba

Future Trails



CRUSHED ROCK SURFACING

N.T.S

- 12ft Wide Trail
- Crushed Rock (Gravel) Surface
- Follows Towne Road
- Access from North and South Parking Areas
- Connects to Existing South Levee Near Dairy

Project Permit Information Sources

- Clallam County Permit No. SHR 2018-00004
- http://websrv2.clallam.net/tm_bin/tmw_cmd.pl?tmw_cmd=StatusViewCase&shl_caseno=SHR2018-00004&projectcasetag=Y

Questions & Answers – Thank You!

