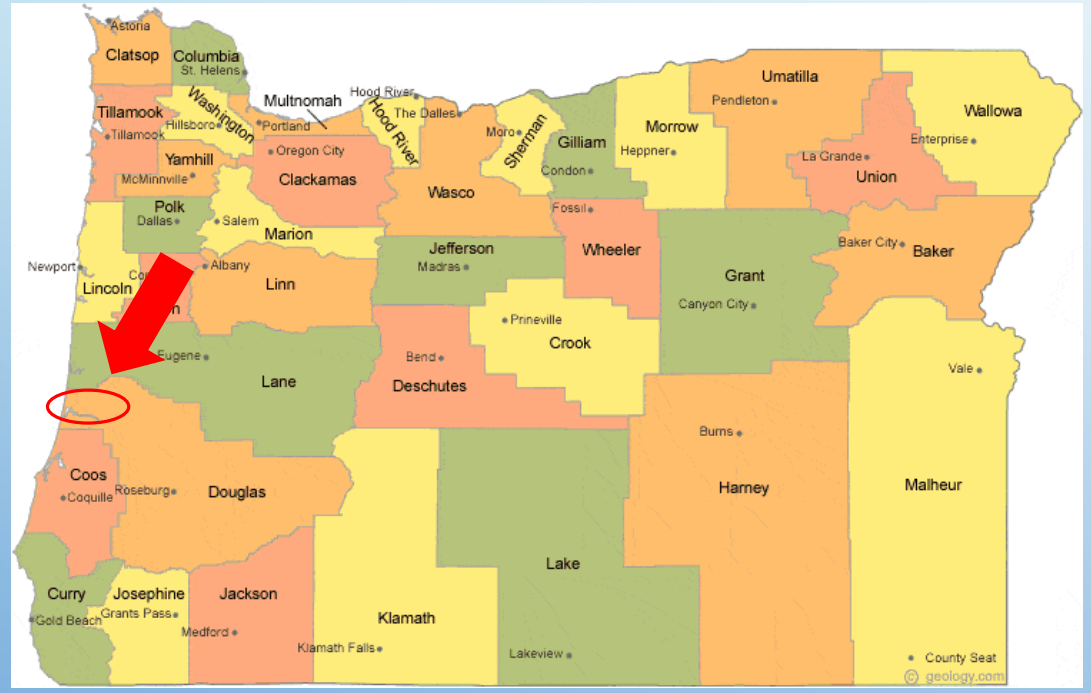
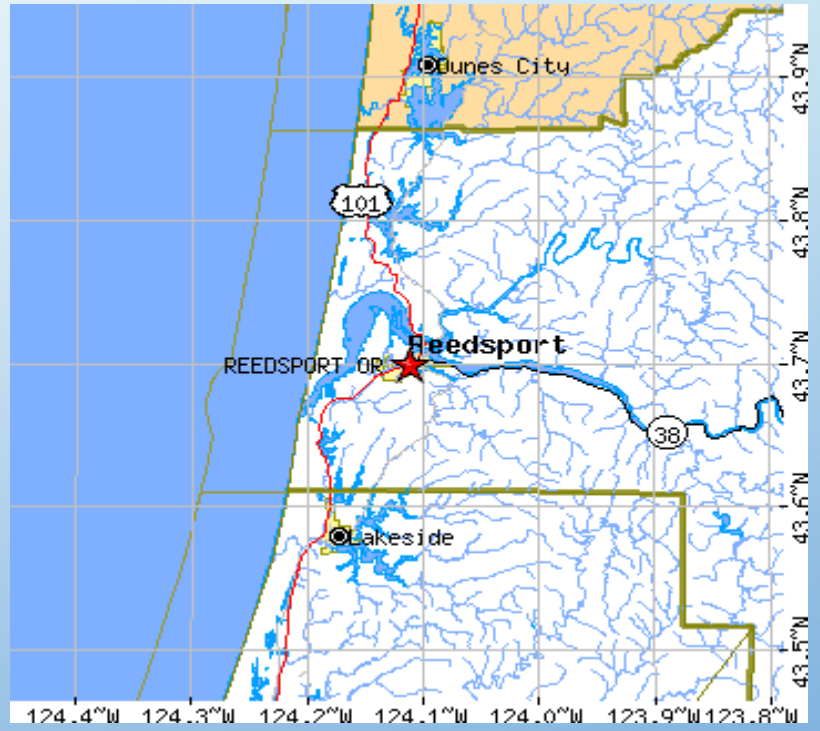
HIGHWAY INFRASTRUCTURE & BUSINESS DEVELOPMENT PROJECT

CITY OF REEDSPORT

ENCOURAGING SAFE AND THRIVING COMMUNITIES IN OREGON

LOCATION


Astoria
Clatsop
Columbia
St. Helens
Tillamook
Washington
Multnomah
Portland
Hood River
The Dalles
Hillsboro
Oregon City
Yamhill
McMinnville
Clackamas
Wasco
Moro
Sherman
Gilliam
Morrow
Heppner
Condon
Umatilla
Pendleton
La Grande
Union
Wallowa
Enterprise
Polk
Dallas
Salem
Marion
Fossil
Jefferson
Madras
Wheeler
Baker City
Baker
Grant
Canyon City
Newport
Albany
Linn
Lincoln
Prineville
Crook
Eugene
Bend
Lane
Deschutes
Vale
Burns
Harney
Malheur
Coos
Coquille
Roseburg
Douglas
Lake
Curry
Josephine
Jackson
Gold Beach
Grants Pass
Medford
Klamath
Klamath Falls
Lakeview
County Seat
© geology.com


Dunes City
101
REEDSPORT OR
Reedsport
38
Lakeside
43.9°N
43.8°N
43.7°N
43.6°N
43.5°N
124.4°W
124.3°W
124.2°W
124.1°W
124.0°W
123.9°W
123.8°W

WHY?

PROTECT THE PUBLIC AND THE ASSETS OF THE STATE

CFR 44 SECTION 65.10

FEMA

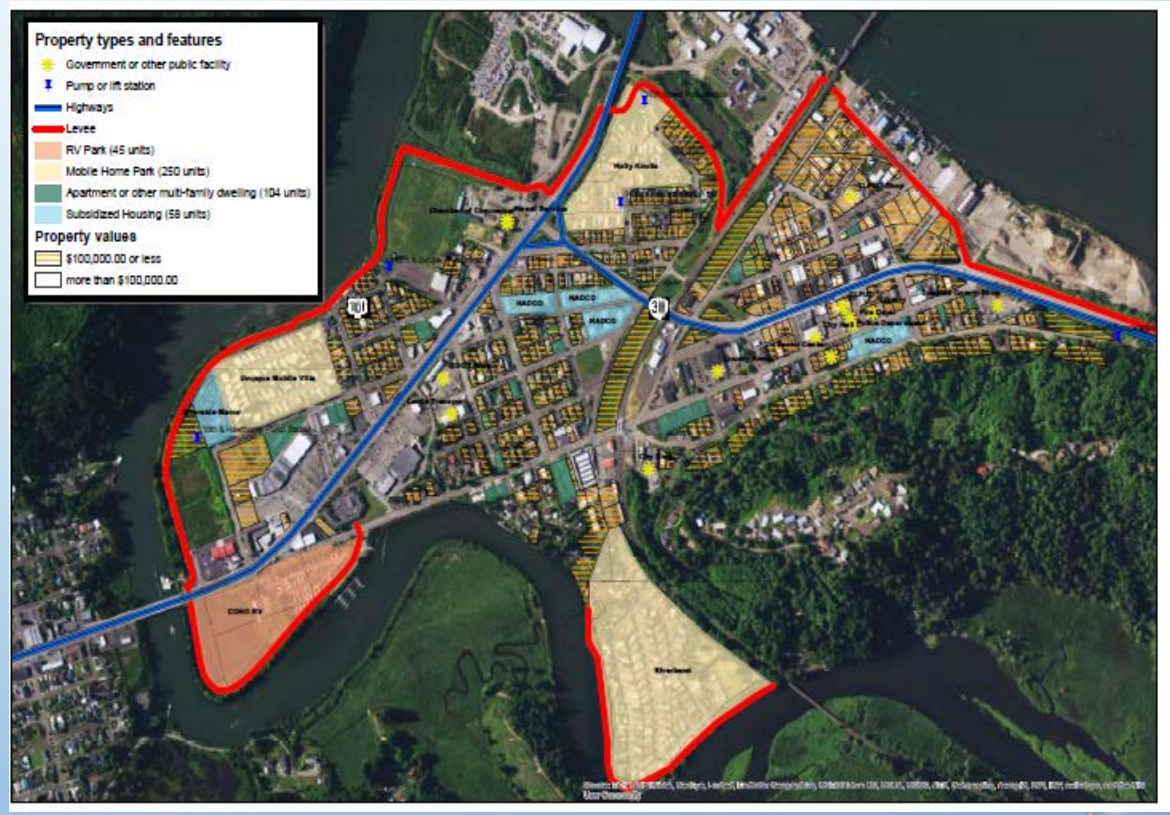
US Army Corps of Engineers®

CFR 44 SECTION 65.10

- FREEBOARD
- CLOSURES
- EMBANKMENT PROTECTION
- EMBANKMENT & FOUNDATION STABILITY
- SETTLEMENT
- INTERIOR DRAINAGE
- OTHER CRITERIA

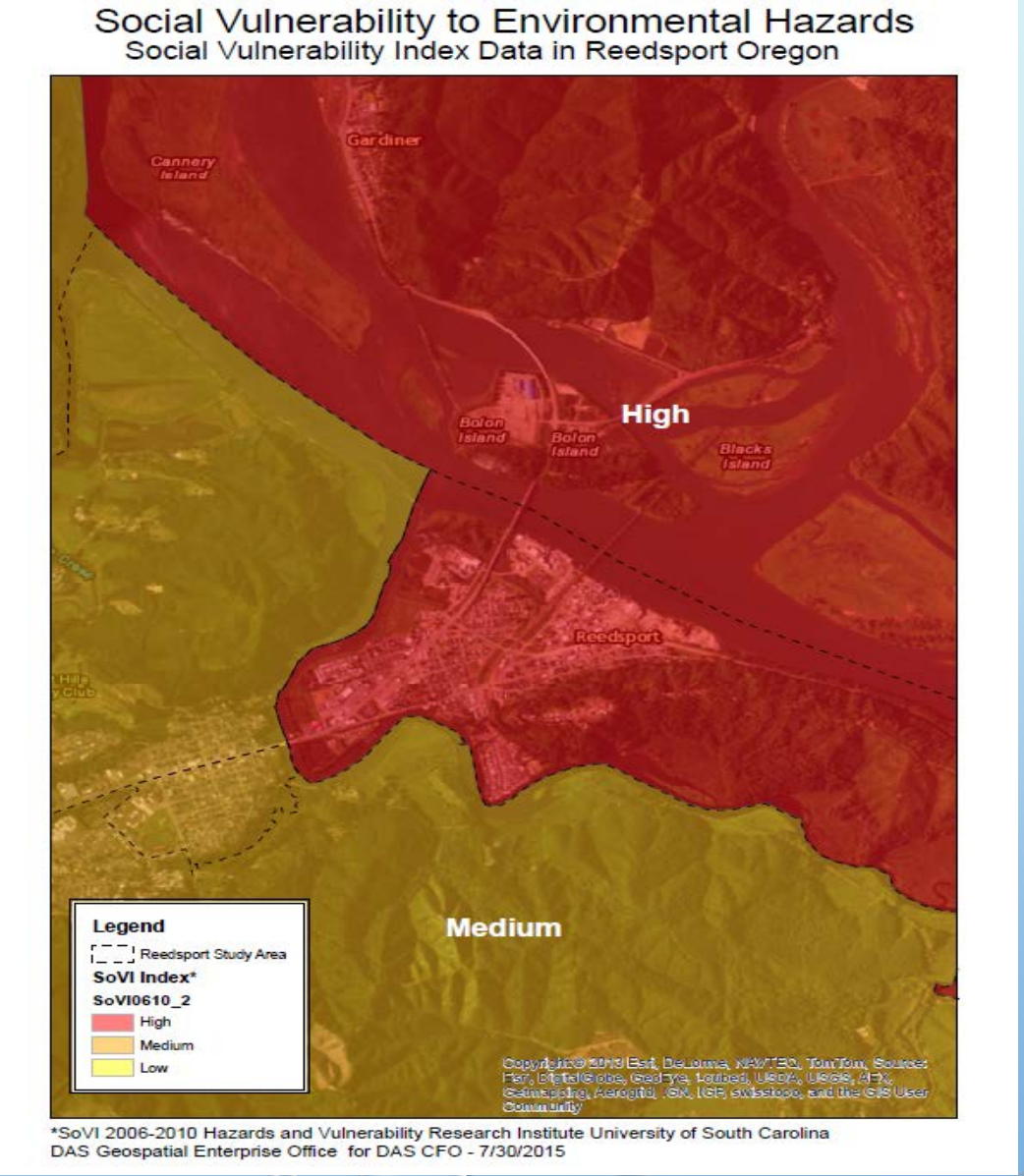
PROJECT AREA

- CONTAINS
  - ✓ APPROXIMATELY 400 LOW INCOME HOUSING UNITS (I.E., HUD HOUSING, APARTMENTS AND MH PARKS)
  - ✓ APPROXIMATELY 250 LOW INCOME SINGLE FAMILY DWELLINGS
  - ✓ ALL WESTERN DOUGLAS COUNTY FEDERAL, STATE AND LOCAL ASSETS (E.G., USFS, STATE POLICE, ODOT YARD, COUNTY OFFICES, COUNTY YARD, CITY HALL, CITY YARD, REEDSPORT LIBRARY.
  - ✓ ALL WESTERN DOUGLAS COUNTY FUEL AND FOOD DISTRIBUTION NETWORKS
  - ✓ 4450 FEET OF HIGHWAY 101
  - ✓ 4854 FEET OF HIGHWAY 38
  - ✓ 4537 FEET OF RAILROAD



SOCIAL VULNERABILITY

- HIGH IN THE PROJECT AREA



POVERTY AND UNEMPLOYMENT

- EXTREMELY HIGH UNEMPLOYMENT
- EXTREMELY HIGH POVERTY

WHAT TO EXPECT AFTER LEVEE FAILURE

- GOETTEL & ASSOCIATES, INC
  - 3 MONTH HIGHWAY CLOSURE
  - $30,000,000 DAMAGE
  - 1,100 LMI RESIDENTS HOMELESS
  - LOSS OF AREA FOOD AND FUEL SYSTEMS

WHAT HAS BEEN DONE SO FAR?

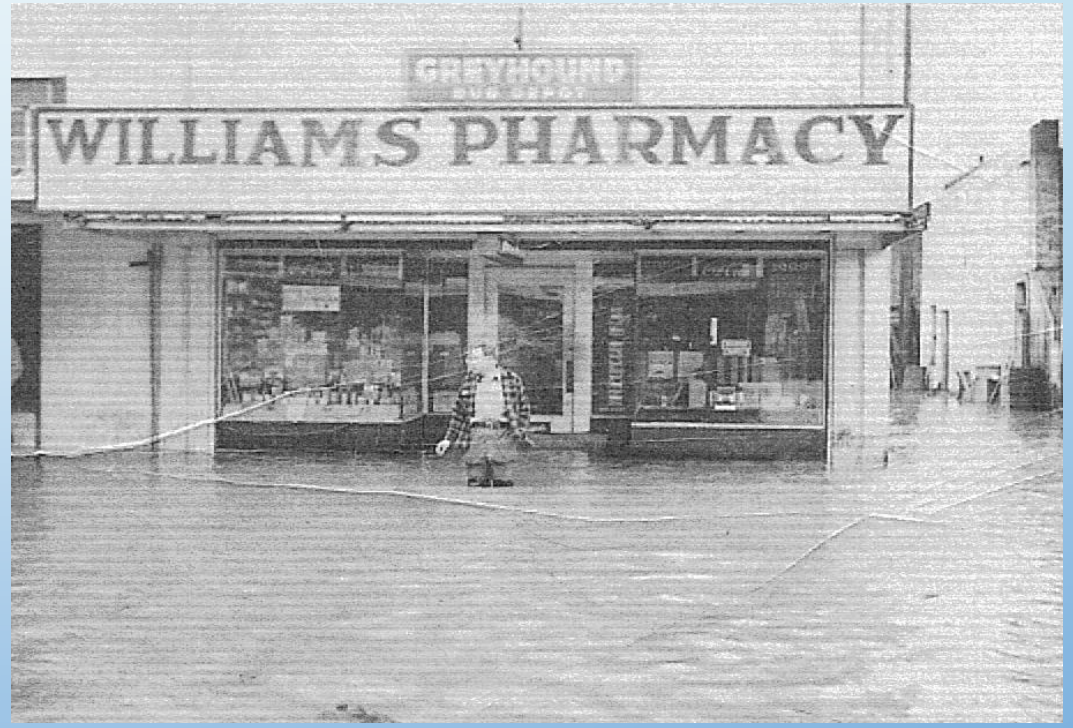
- PRELIMINARY ENGINEERING ASSESSMENT
- HYDROLOGY/HYDRAULICS
- BATHYMETRY
- GEOTECHNICAL ANALYSIS
- PRELIMINARY INTERIOR DRAINAGE

PARTNERS

- URBAN RENEWAL DISTRICT…….$300,000
- FEMA……$225,000
- IFA……$50,000
- CITY OF REEDSPORT……$295,000

RESULTS OF THE CURRENT EFFORT

- INCREASE EARTHEN LEVEE SECTIONS
- REPLACE OR UPGRADE ASSOCIATED INFRASTRUCTURE
- FORTIFY AREAS SURROUNDING STATE HIGHWAY INFRASTRUCTURE
- REPLACE SHEET PILE
- COST OF $4,179,000



FINANCIAL PICTURE

- REVENUE FOR LEVEE PROJECT
  - STORMWATER……$20,000
  - STREETS……...$30,000
    - TOTAL……..$50,000
- DEBT SERVICE
  - TERM 20YR
  - 5%
    - TOTAL DEBT SERVICE CAPABILITY……$625,000

CITY ENGINEER

JOHN WELLS, PE

Technical Memorandum
City of Reedsport, Oregon
Reedsport Levee Improvements

To:	Oregon State Legislative Assembly
By:	John Wells, PE, Anderson Perry & Associates, Inc.
RE:	Supplemental Information for the Proposed Reedsport Levee Improvements Projects
Date:	February 23, 2017

The City of Reedsport has requested $4,179,000 in legislative appropriation to support levee work in the Reedsport area for local residences, businesses, and regional transportation infrastructure (see the vicinity map in Figure 1). This memorandum provides additional information regarding the critically needed improvements for Reedsport's flood reduction system.

Background Information

The Reedsport levee system (shown on Figure 2) was designed and installed over 45 years ago by the U.S. Army Corps of Engineers (USACE) to provide flood reduction to the City's lowland residents and the historic commercial district, which includes the region's only supermarkets; gas stations; local, state, and federal administrative offices; and law enforcement. U.S. Highway 101 and State Highway 38 also benefit from the levee system. Without this levee, nearly half of Reedsport would be uninhabitable, and U.S. Highway 101 and State Highway 38 could be inundated by up to 6 feet of water during major floods.

Existing Levee Conditions

In 2016, Reedsport was a cooperating technical partner with the Federal Emergency Management Agency and produced a Bathymetry, Hydrology, and Hydraulics Report as well as updated flood mapping data for the Umpqua River and Scholfield Creek in the Reedsport area. When compared to the existing physical topography, this hydraulic data indicates the levee system is insufficient for preventing overtopping during the 1 percent chance annual recurrence flood (100-year flood). Specific weak points along the levee were identified as U.S. Highway 101's Scholfield Creek Bridge, U.S. Highway 101's Umpqua River Bridge approach, the levee sheet pile wall, and various other levee segments as shown in red on Figure 3.

The most immediate concerns are the levee's weak points along U.S. Highway 101. Under the existing conditions, if a significant flood scenario occurs, sandbags would need to be placed across the roadway on the east side of the Scholfield Creek Bridge to prevent flooding. The highway would be closed, and there would be no transportation access on U.S. Highway 101 through Reedsport.

Initial conversations were held with the Oregon Department of Transportation (ODOT) to evaluate options for mitigating the levee's weak points along U.S. Highway 101. In our understanding, ODOT ultimately intends to replace the Scholfield Creek Bridge, but contingency plans need to be in place until bridge replacement occurs. A temporary plan using sheet pile and bridge flashing is considered the best solution for a short-term basis.

Proposed Improvements

This funding would assist the City and ODOT with constructing the temporary improvements along U.S. Highway 101, as well as raising critically low levee segments, installing new sheet pile wall, and

improving the community's interior stormwater drainage pump systems. The proposed upgrades to the Reedsport levee are divided into the following three projects:

1. **Levee Raising Project**
   - Raise critically low levee segments (shown in red on Figure 3).
   - Raise the levee to meet original USACE elevations.
   - Temporarily connect the levee to U.S. Highway 101 and meet the 100-year flood requirements using bridge flashing and sheet pile.

2. **Levee Sheet Pile Wall Project**
   - Install 800 feet of new sheet pile behind the existing sheet pile wall, increasing the wall depth from 11 to 40 feet.
   - Salvage existing sheet pile wall or connect to the new wall.

3. **Interior Drainage Improvement Project**
   - Increase 7th, 12th, and 16th Streets pump stations resiliency.
   - Install new pump station electrical panels meeting current code.
   - Install a portable generator.
   - Install a portable high flow pump.
   - Install supervisory control and data acquisition.

These projects would reduce flood risk to residential, commercial, and transportation infrastructure for flood events up to the 100-year recurrence flood. Preliminary engineer's estimates for each project are attached. The requested funds would be distributed as follows:

Levee Raising Project	$2,051,000
Levee Sheet Pile Wall Project	$1,266,000
Interior Drainage Improvement Project	$862,000
Total	**4,179,000**

Schedule

The City has completed initial levee investigations and a Bathymetry, Hydrology, and Hydraulics Report. A Geotechnical Report is currently underway and scheduled to be complete in mid-April. The requested funding would be for the design and construction of the proposed three projects, with construction tentatively scheduled for 2018.

Figures

Figure 1 – Location and Vicinity Maps
Figure 2 – Levee Location
Figure 3 – Freeboard Elevation Evaluation

Attachments

Preliminary Engineer's Estimates

RENEWS: 6-30-2018

anderson perry & associates, inc.

CITY OF REEDSPORT, OREGON
LEVEE RAISING PROJECT
PRELIMINARY ENGINEER'S ESTIMATE
February 23, 2017

NO.	ITEM	UNIT	UNIT PRICE	QTY	TOTAL PRICE
Preparation					
1	Mobilization	LS	$ 40,000	All Req'd	$ 40,000
2	Clearing and Grubbing, Incl. Borrow Site	ACRE	800	17	13,600
3	Removal of Structures and Obstructions	LS	12,000	All Req'd	12,000
Grading					
4	Common Borrow, Incl. Haul	CY	13	51,000	663,000
5	Embankment Compaction	CY	6	51,000	306,000
Bridge Temporary Flood Improvements					
6	Sheet Pile	SF	34	4,200	142,800
7	Concrete Cap	LF	65	105	6,825
8	Bridge Rail Plates	SF	50	180	9,000
9	Wall Backfill and Grading	CY	45	375	16,875
Traffic					
10	Project Temporary Traffic Control	LS	30,000	All Req'd	30,000
Other					
11	Erosion/Water Pollution Control	LS	50,000	All Req'd	50,000
12	Levee Hydroseeding	ACRE	1,800	10	18,000
13	Reclaiming Borrow Site, Incl. Hydroseeding	ACRE	2,500	17	42,500
14	Surveying	LS	30,000	All Req'd	30,000
15	SPCC Plan	LS	1,000	All Req'd	1,000
16	Compaction Testing	LS	30,000	All Req'd	30,000
				Subtotal (Rounded)	**$ 1,412,000**
				Contingency	**$ 283,000**
				Design Engineering and Environmental Report	**$ 184,000**
				Construction Engineering	**$ 155,000**
				Stormwater and Other Permits	**$ 17,000**
				TOTAL ESTIMATE	**$ 2,051,000**

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CITY OF REEDSPORT, OREGON
LEVEE SHEET PILE WALL PROJECT
PRELIMINARY ENGINEER'S ESTIMATE
February 23, 2017

NO.	ITEM	UNIT	UNIT PRICE	QTY	TOTAL PRICE
Preparation					
1	Mobilization	LS	$ 63,000	All Req'd	$ 63,000
2	Removal of Structures and Obstructions	LS	6,300	All Req'd	6,300
3	Construction Access	LS	5,250	All Req'd	5,250
4	Oregon Stormwater 1200 C Permit	LS	8,400	All Req'd	8,400
Structure					
5	Sheet Pile	SF	36	21,000	749,700
Earthwork					
6	Finish Grading	LS	8,400	All Req'd	8,400
Other					
7	Landscape Restoration	LS	5,250	All Req'd	5,250
				Subtotal (Rounded)	**$ 847,000**
				Contingency	**$ 170,000**
				Design Engineering and Environmental Documentation	**$ 160,000**
				Construction Engineering	**$ 89,000**
				TOTAL ESTIMATE	**$ 1,266,000**

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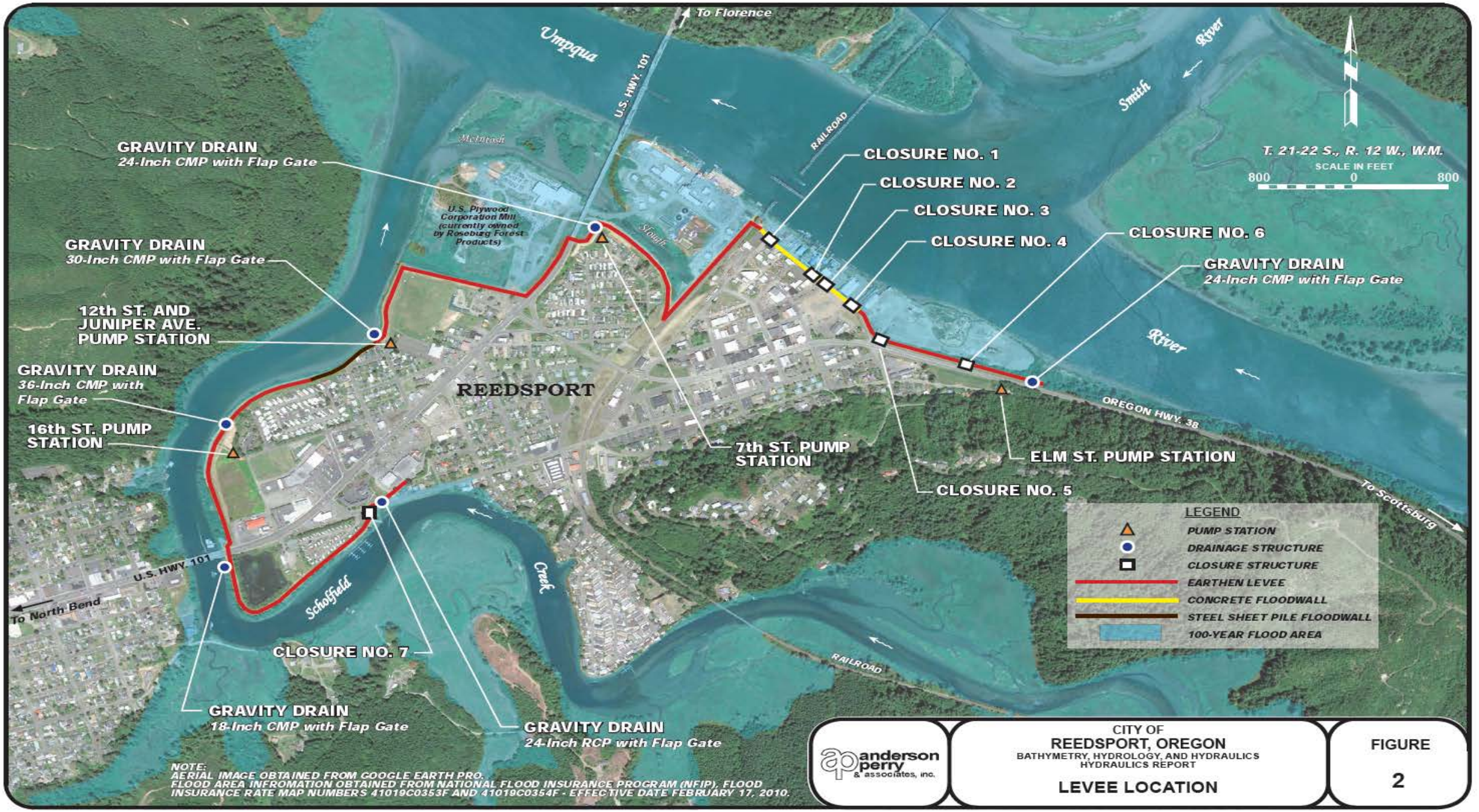
CITY OF REEDSPORT, OREGON
INTERIOR DRAINAGE IMPROVEMENT PROJECT
PRELIMINARY ENGINEER'S ESTIMATE
February 23, 2017

7th, 12th, and 16th Streets Pump Stations

NO.	ITEM	UNIT	UNIT PRICE	QTY	TOTAL PRICE
Electrical Upgrades					
1	Meter Base with CT	EA	$ 1,700	3	$ 5,100
2	Main Breaker	EA	3,900	3	11,700
3	Manual Transfer Switch	EA	6,500	3	19,500
4	Duplex Pump Control Panel	EA	75,000	3	225,000
5	SCADA-RTU M800, Incl. Installation and Setup	EA	3,700	3	11,100
6	Central Lincoln PUD Upgrade Fees	LS	41,000	All Req'd	41,000
Equipment for Shared Use by All Pump Stations					
7	Portable Generator	LS	120000	All Req'd	120,000
8	Portable Diesel High Flow Pump	LS	150,000	All Req'd	150,000
9	Pump Station Access Improvements	LS	17,000	All Req'd	17,000
				Subtotal (Rounded)	**$ 600,000**
				Contingency	**$ 120,000**
				Design Engineering	**$ 85,000**
				Construction Assistance	**$ 57,000**
				TOTAL ESTIMATE	**$ 862,000**



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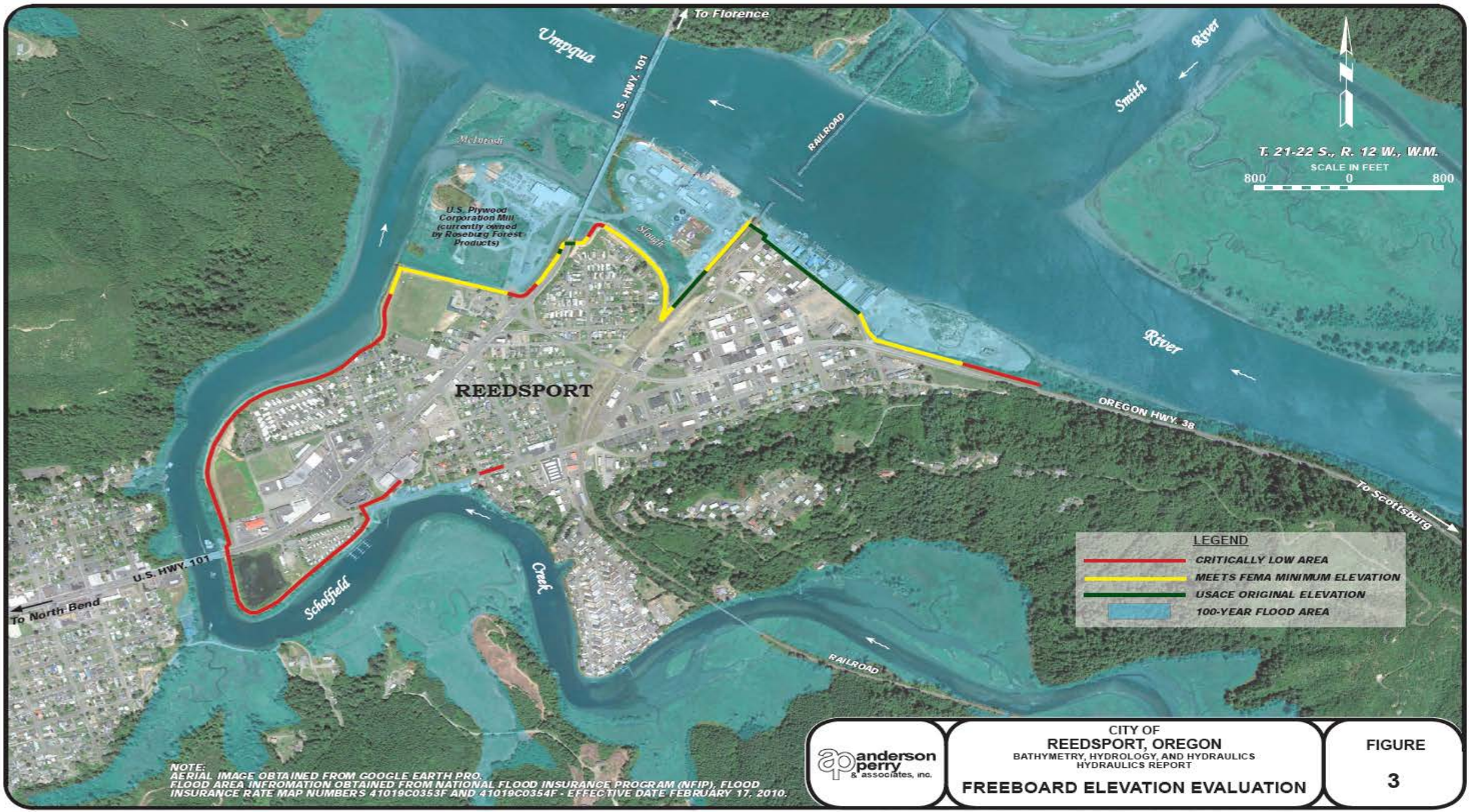
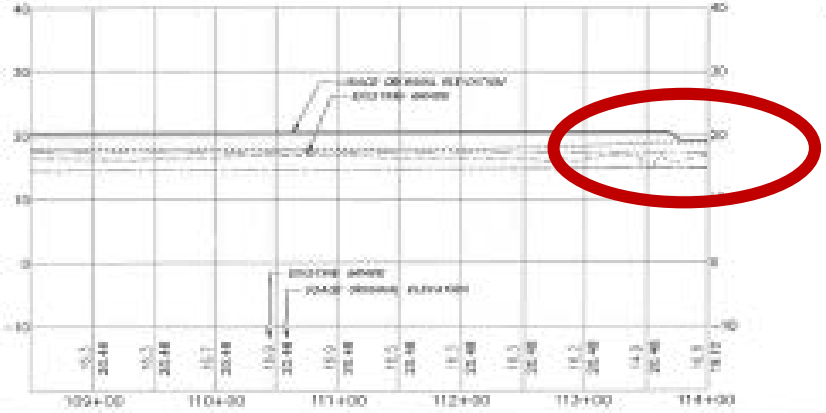
CITY OF
REEDSPORT, OREGON
BATHYMETRY, HYDROLOGY, AND HYDRAULICS HYDRAULICS REPORT

LEVEE LOCATION

FIGURE
2


To Florence
Umpqua
U.S. HWY. 101
RAILROAD
Smith River
Mcdonald
U.S. Plywood Corporation Mill (currently owned by Roseburg Forest Products)
Slough
REEDSPORT
River
OREGON HWY. 38
To Scottsburg
U.S. HWY. 101
To North Bend
Schofield Creek
RAILROAD
T. 21-22 S., R. 12 W., W.M.
SCALE IN FEET
800 0 800
LEGEND
CRITICALLY LOW AREA
MEETS FEMA MINIMUM ELEVATION
USACE ORIGINAL ELEVATION
100-YEAR FLOOD AREA
NOTE:
AERIAL IMAGE OBTAINED FROM GOOGLE EARTH PRO.
FLOOD AREA INFROMATION OBTAINED FROM NATIONAL FLOOD INSURANCE PROGRAM (NFIP), FLOOD INSURANCE RATE MAP NUMBERS 41019C0353F AND 41019C0354F - EFFECTIVE DATE FEBRUARY 17, 2010.
anderson perry & associates, inc.
CITY OF
REEDSPORT, OREGON
BATHYMETRY, HYDROLOGY, AND HYDRAULICS
HYDRAULICS REPORT
FREEBOARD ELEVATION EVALUATION
FIGURE
3



NOTES:

1. FLOOD ELEVATIONS ESTIMATED FROM FEMA DOUGLAS COUNTY, OREGON, FLOOD INSURANCE STUDY (FIS) EFFECTIVE FEBRUARY 17, 2010. THE 100 YEAR FLOOD ELEVATIONS WERE INTERPOLATED FROM EXISTING FIS DATA.
2. VERTICAL DATUM NAVD 88. EXISTING USACE AS-CONSTRUCTED PLANS CONVERTED FROM MSL 1947 ADJ WITH CONVERSION FACTOR OF -1.8 FEET.
3. HORIZONTAL DATUM OREGON STATE PLANE, SOUTH, INTERNATIONAL FEET.

THIS DRAWING HAS BEEN REDUCED 50%. ADJUST SCALE ACCORDINGLY. GRAPHICAL SCALE SHOWN IS ACCURATE.

PRELIMINARY

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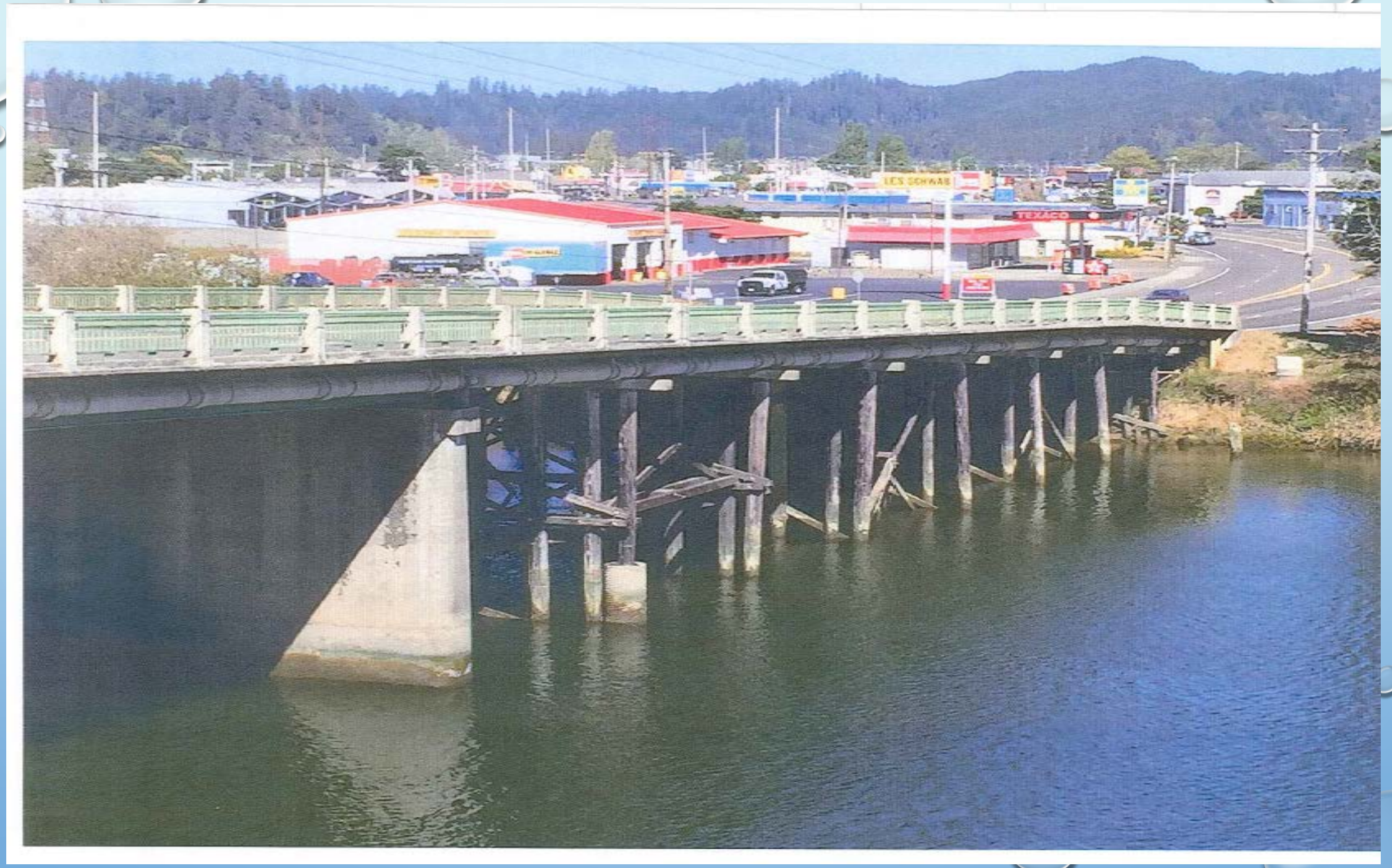
CITY OF REEDSPORT
FEMA CERTIFICATION
2015

PLAN AND PROFILE 108+00 TO 114+00

SHEET
C-108


LES SCHWAB
TEXACO

REQUEST

- $4,179,000 TO SUPPORT LEVEE WORK IN THE REEDSPORT AREA FOR LOCAL RESIDENCE, BUSINESSES AND REGIONAL TRANSPORTATION INFRASTRUCTURE.

STATE RETURN ON INVESTMENT

- AVOID DAMAGE AND CLOSURE TO STATE HIGHWAYS FROM NATURAL DISASTERS
- RETAINS EXISTING LABOR FORCE BY PROTECTING ECONOMIC HUB OF WESTERN DOUGLAS COUNTY
- AVOIDS APPROXIMATELY $1.5 MILLION IN FEMA FLOOD INSURANCE PREMIUMS

QUESTIONS?