



COUNCIL PUBLIC FORUM

Wednesday, October 01, 2025 at 6:00 PM

COUNCIL MEMBERS:

Mayor Jennifer Massey
Council President Jessica Chilton
Councilor Mark Gundersen
Councilor Russell Hubbard
Councilor Brandon Sundeen

LOCATION & CONTACT:

HYBRID: Council Chambers & Zoom (details below)

Website | www.sthelensoregon.gov

Email | kpayne@sthelensoregon.gov

Phone | 503-397-6272

Fax | 503-397-4016

AGENDA

OPEN PUBLIC FORUM

TOPIC

1. Presentation of Viewpoint from Community Members Arthur Leskowich & Stephen Topaz on Future Potential Use of Wastewater Treatment Secondary Lagoon

CLOSE PUBLIC FORUM

VIRTUAL MEETING DETAILS

Join: <https://us02web.zoom.us/j/83104922620?pwd=Ps1GhFe6kFmArP3mU0UIFASpsk8Oox.1>

Passcode: 834587

Phone one-tap: +13462487799

The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for persons with disabilities should be made at least 48 hours before the meeting to City Hall at 503-397-6272.

Be a part of the vision and get involved...volunteer for a City Board or Commission! For more information or for an application, go to www.sthelensoregon.gov or call 503-366-8217.

STATUS OF WASTEWATER LAGOON REPURPOSING


WHERE ARE WE GOING FROM HERE?

Steve Topaz and
Art Leskowich
October 2, 2025

Item 1.

ST. HELENS WATERFRONT RECLAMATION PROJECT

The sustainable solution to the Portland Harbor cleanup

<h4>PROJECT DESCRIPTION AND OPPORTUNITY</h4> <p>The City of St. Helens is positioning itself to redevelop its waterfront to provide more public access and amenities, to create economic opportunities, and to do so with the least amount of fiscal impact on the City's resources. To that end, the City is proposing to fill in a portion or all of its wastewater treatment plant lagoon to create usable land, develop continuity between adjacent parcels, and provide the opportunity for significant redevelopment on the waterfront.</p> <p>The lagoon is over 10 times larger than what is needed now or in the future. Using the site as a commercially-viable sediment and soil disposal facility will generate revenue to cover future redevelopment costs and could be used to support other City services. A market analysis report indicates there is a strong demand for a non-hazardous sediment disposal facility in the region, and shows repurposing the lagoon for sediment disposal and confinement is the most sustainable, lowest cost option for the Portland Harbor Superfund Site.</p>	<h4>THIS SAFE SOLUTION IS:</h4> <ul style="list-style-type: none">• Cost Effective• Community Building• Predictable & Achievable• Protective of the Environment 
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HOW DID WE GET HERE FINANCIALLY (FUNDING)?

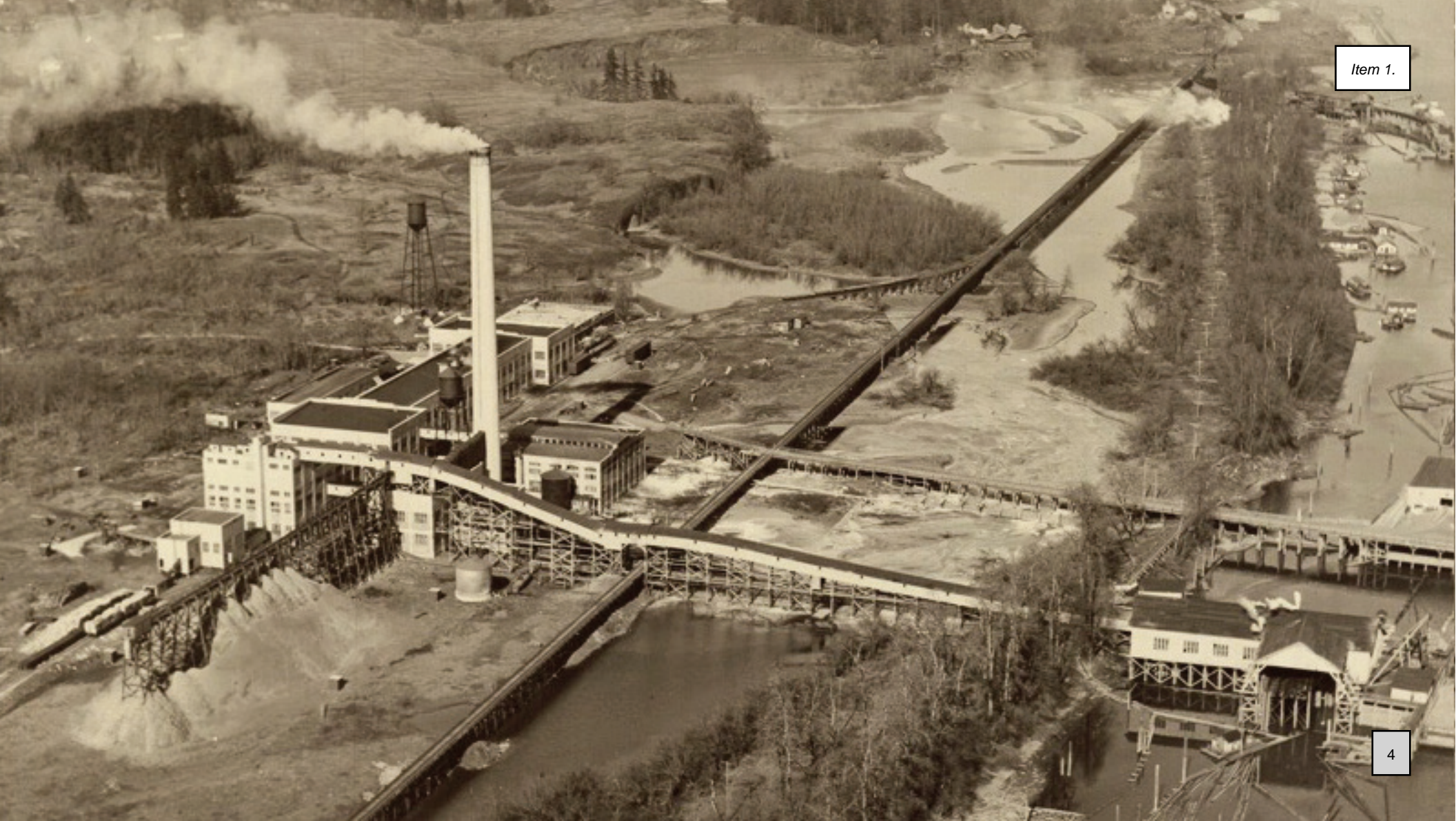
Item 1.

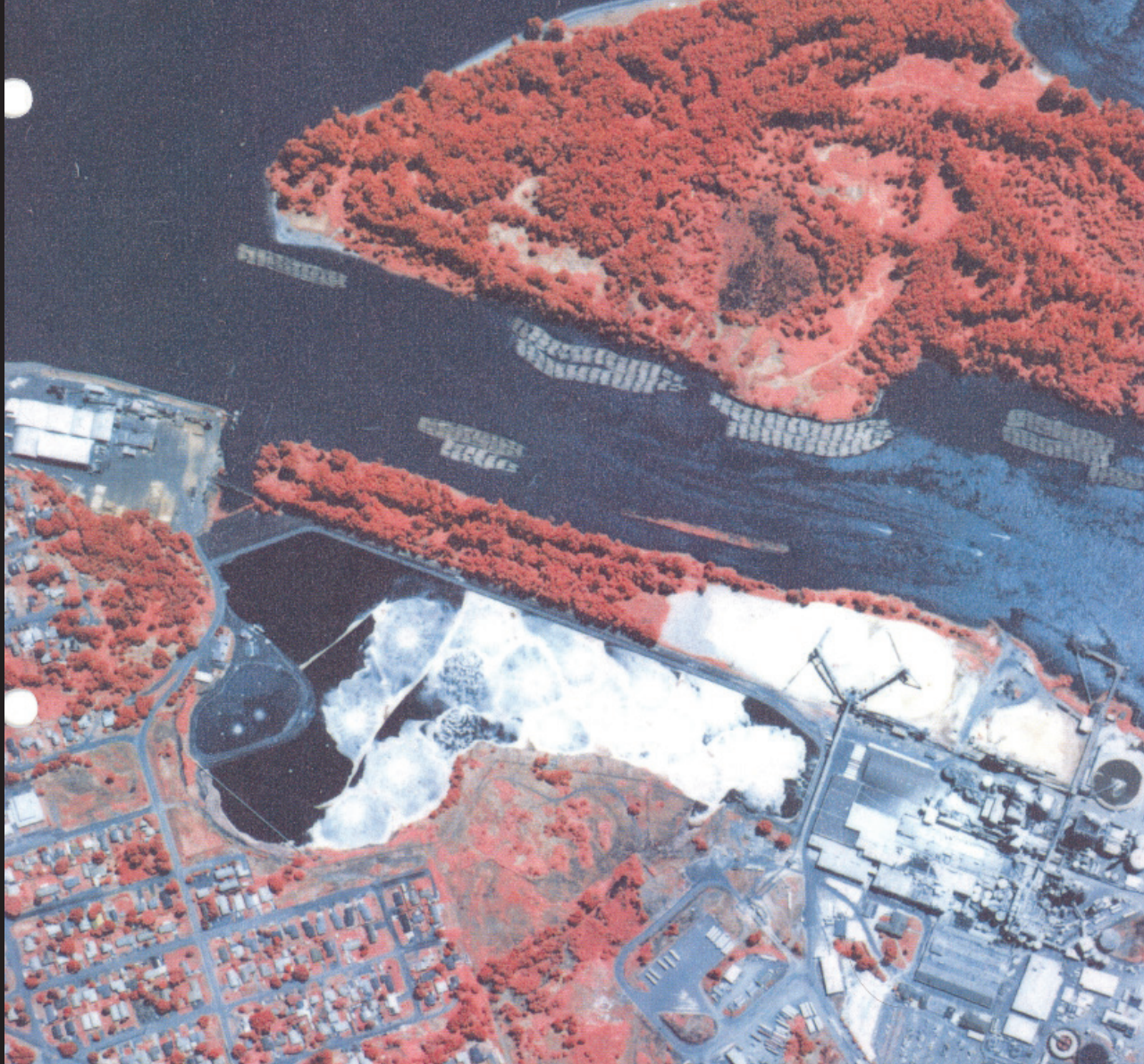
House Bill 2950 introduced by Brad Witt (Feb 16 2017) asked for 1.54.Million to fund waterfront redevelopment. (Did not pass)

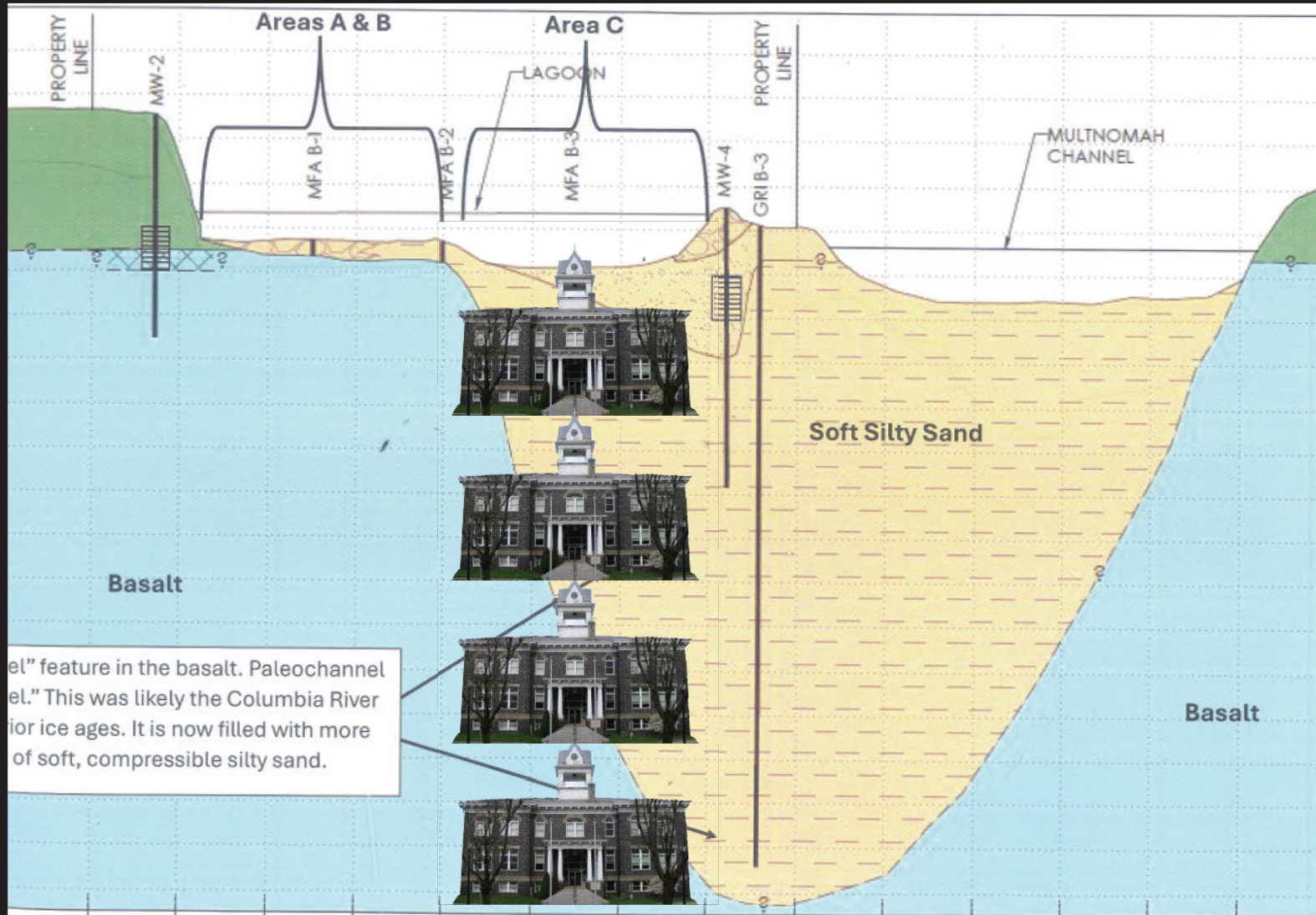
Other funding via State and Federal sources approximately \$1.5 Million
{City Ordinance modified to remove need for bidding below \$500K}

Current funding in the budget for \$400K for Permitting the landfill. What happens if the Permit process is not pursued?

Item 1.









Water Field Sampling Data Sheet

Client Name:	St. Helens	Sample Location:	MW-3
Project #:	M0830.03.006	Staff:	C. Schweitzer
Project Name:	St. Helens Lagoon Phase 1B	Sampling Date:	2/14/2023
Sampling Event:	Q1 2023	Sample Name:	MW3-20230214-GW-35
Sub Area:		Sample Depth:	~35
FSDS QA:	K. Crossley		
Easting:		Northing:	TOC:

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Pore Volume
2/14/2023	9:20			15.60			

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (L)	WLE (ft)	Flowrate (l/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	9:40	2.00	-	0.25	7.00	14.5	478.2	2.79	-87.2	7.07
	9:43	2.75	15.78	0.25	6.89	14.2	538.3	0.92	-109.4	5.81
	9:46	3.50	15.78	0.25	6.89	14.3	535.6	0.67	-117.2	0.05
	9:56	6.00	15.78	0.25	6.95	14.5	478.0	0.58	-113.7	0.02
	9:59	6.75	15.79	0.25	6.98	14.1	460.0	0.75	-115.8	0.02
	10:02	7.50	15.80	0.25	7.01	14.2	459.8	0.75	-115.9	0.02

Final Field Parameters	10:05	8.25	15.80	0.25	7.02	14.3	458.1	0.70	-125.4	0.02
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Purge and Sample Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump

(7) Other (specify)

Water Quality Observations:

clear; colorless; slightly effervescent

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	# of Bottles	Filtered (Yes/No)
(2) Peristaltic Pump	Groundwater	10:05	VOA-Glass	5	No
			Amber-Glass	11	No
			White Poly	3	No
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	No
			Red Dissolved Poly		
			Total Bottles	20	

Sample Type: Groundwater, Surfacewater, Stormwater, Process Water, Grab Sample, Field Blank, or Other (specify).

General Sampling Comments

DUP collected here: MW3-20230214-GW-35-DUP
Screened from 25.0 - 45.0 feet
Final DTW: 15.79

Signature

Cody Schweitzer



MAUL
FOSTER
ALONG

Well Development Form

Item 1.

Project No. 0830.03-04	Date 7/25/19 + 7/26/19
Site Location: St. Helens, OR	Well: MW-3
Name: Phase I Lagoon Repurposing	Initial DTB: 45.65' Final DTB: 45.63'
Development Method: Surge block, water pump	Initial DTW: 10.11' Final DTW: 17.46'
Total Water Removed 49 gal	Pore Volume: 35.54 x 0.163 = 5.79
Water Contained	Casing Diameter: 2" (6" borehole)
Estimated Specific Capacity	Meter No. PDX water 1, YSI 1, turbidity meter 1

Time	Cum. Vol Removed	Turbidity NTU	pH	Conductivity (uS/cm)	Temp °C	DO (mg/L)	Bh	Comments
1435	1.5	OR	6.11	731	23.0	0.12	1058.9	Surge E 44'
1453	3	OR	6.74	688	21.8	0.06	1045.6	Surge E 43'
1516	5	OR	6.72	675	21.4	0.11	1050.0	Surge E 42'
1536	7.5	OR	6.84	678	22.3	0.11	1049.0	Surge E 41'
1558	10	OR	6.87	670	22.7	0.07	1052.7	Surge E 40'
1615	12	OR	6.69	645	23.0	0.06	1052.1	Surge E 39'
1633	14	OR	6.86	645	23.9	0.05	1048.4	Surge E 38'
1650	15	OR	6.74	649	23.6	0.06	1054.1	Surge E 37'
1709	17	OR	6.71	649	23.9	0.05	1054.9	Surge E 36'
0901	18.5	OR	5.98	678	19.7	0.49	1090.0	Surge E 35'
0923	22	OR	6.69	580.2	18.4	0.86	1072.3	Surge E 34'
0940	25	OR	6.76	580	18.4	0.82	1083.0	Surge E 33'
1006	27	OR	6.93	600	19.3	0.38	1072.6	Surge E 32'
1024	29	OR	7.07	561	19.1	0.36	1070.6	Surge E 31'
1043	32	OR	6.94	582	19.4	0.25	1076.3	Surge E 30'
1104	34.5	OR	6.93	613	20.4	0.20	1075.1	Surge E 29'
1119	36.5	OR	6.87	625	22.0	0.15	1075.8	Surge E 28'
1137	39	OR	6.88	648	24.2	0.12	1067.7	Surge E 27'
1157	40	OR	6.92	633	25.9	0.21	1062.4	Surge E 26'
1210	41.5	OR	7.05	617	26.8	0.15	1057.3	Surge E 25'

HT 1111

7/25 1745 E. Curtis off site
7/26 0900 E. Curtis on site

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax: (360) 906-1

Item 1.

Water Field Sampling Data Sheet

Client Name	City of St. Helens	Sample Location	MW-3				
Project #	0830.03.04-02	Sampler	EMC & JRM				
Project Name	St. Helens Lagoon	Sampling Date	8/6/2019				
Sampling Event		Sample Name	MW-3-20190806-GW-35				
Sub Area		Sample Depth	35				
FSDS QA:		Easting		Northing		TOC	

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/l Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
				17.36			

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(5) Inertia Pump	1:50:00 PM	1.5	0.15	6.83	67.2	714	0.05	-132.9	287.9
	1:55:00 PM	2	0.15	6.89	66.9	691	0.04	-136.9	38.41
	2:00:00 PM	2.2	0.15	6.92	66.5	684	0.03	-139.7	70.76
	2:05:00 PM	2.2	0.15	6.93	66.8	677	0.02	-140.9	15.6
	2:10:00 PM	2.4	0.15	6.94	67.1	673	0.02	-142.1	15.24
	2:13:00 PM	2.4	0.15	6.95	66.8	670	0.01	-142.5	15.12
Final Field Parameters									

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Turbidity would not settle and continued to jump around. Eventually did settle and quite jumping.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(5) Inertia Pump	Groundwater	2:25:00 PM	VOA-Glass		
			Amber Glass		
			White Poly	1	Yes
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	Yes
			Red Dissolved Poly		
			Total Bottles	2	

General Sampling Comments

Page: 2/3

Final DTW: 17.50' bgs

COLUMBIA RIVER– AT ST HELENS

State: Oregon

County: Columbia

Latitude: 45 52' 49" North

Longitude: 122 47' 45" West

Elevation: 1 ft or 1.47 ft or 1.47 m = 4.76 ft above sea level

Record Stage: 27.1 ft Date of Record: June 14, 1948

Action Stage: 14.5 ft

Flood Stage: 15.5 ft

Moderate Flood Stage: 18 ft

Major Flood Stage: 21 ft

Bottom of lagoon is 9.0 ft below sea level or 12.76 ft below sea level



Item 1.



Google Earth historic snip circa 1990



City of St. Helens
COUNCIL WORK SESSION AGENDA
Wednesday, July 15, 2020
Via Zoom

See meeting options below

City Council Members
 Mayor Rick Scholl
 Council President Doug Morten
 Councilor Keith Locke
 Councilor Ginny Carlson
 Councilor Stephen R. Topaz

Item 1.

Welcome!

All persons planning to address the Council, please sign-in at the back of the room. When invited to provide comment regarding items not on tonight's agenda, please raise your hand to be recognized, walk to the table in the front of the room, and state your name only. You are not required to give your address when speaking to the City Council. If you wish to address a specific item on the agenda, you should make your request known to the Mayor as soon as possible before the item comes up. The Council has the authority to grant or deny your request. Agenda times and order of items are estimated and are subject to change without notice.

1. 1:00 P.M. - Call Work Session to Order
2. Visitor Comments - *Limited to five (5) minutes per speaker*
3. Discussion Topics – *The Council will take a 10-minute break around 3:00 P.M.*
 - a. Annual Report from Parks & Trails Commission
 - b. **Presentation by Wilsonville Concrete Products** [See at 34 minutes mark](#)
 - c. Review LOC's List of Legislative Priorities - *John*
 - d. Strategic Workplan Review - *Rachael*
 - e. Municipal Court Semi-Annual Report - *Matt*
 - f. Judge & Prosecutor Semi-Annual Reports – *Amy & Sam*
 - g. Finance Semi-Annual Report - *Matt*
 - h. Building Semi-Annual Report – *Mike*
 - i. Review Proposed Building Department Fee Changes - *Mike*
 - j. City Administrator Report – *John*
4. Other Business
5. Adjourn

Executive Session:

Following the conclusion of the Council Work Session, an Executive Session is scheduled to take place to discuss:

- **Real Property Transactions**, under **ORS 192.660(2)(e)**; and
- **Consult with Counsel/Potential Litigation**, under **ORS 192.660(2)(h)**.

Representatives of the news media, staff, and other persons as approved, shall be allowed to attend the Executive Session. All other members of the audience are asked to leave the Council Chambers.



Project Status



Work Accomplished

- Conducted engineering study of existing dock structures
- Updated DSL lease
- Prepared and ready to execute moorage lease agreement

Next Steps

- Moving WCP fleet to St. Helens (as soon as lease is signed)
- Services and parcelization for industrial river frontage.
- Building vibrant marine ecosystem by attracting peers and partners

Front Page News!

KNOWN CONTAMINANTS ALONG THE WATERFRONT

Dioxane /Furans = > 100 to 500 x Exceedance

PAH's = Petroleum Products

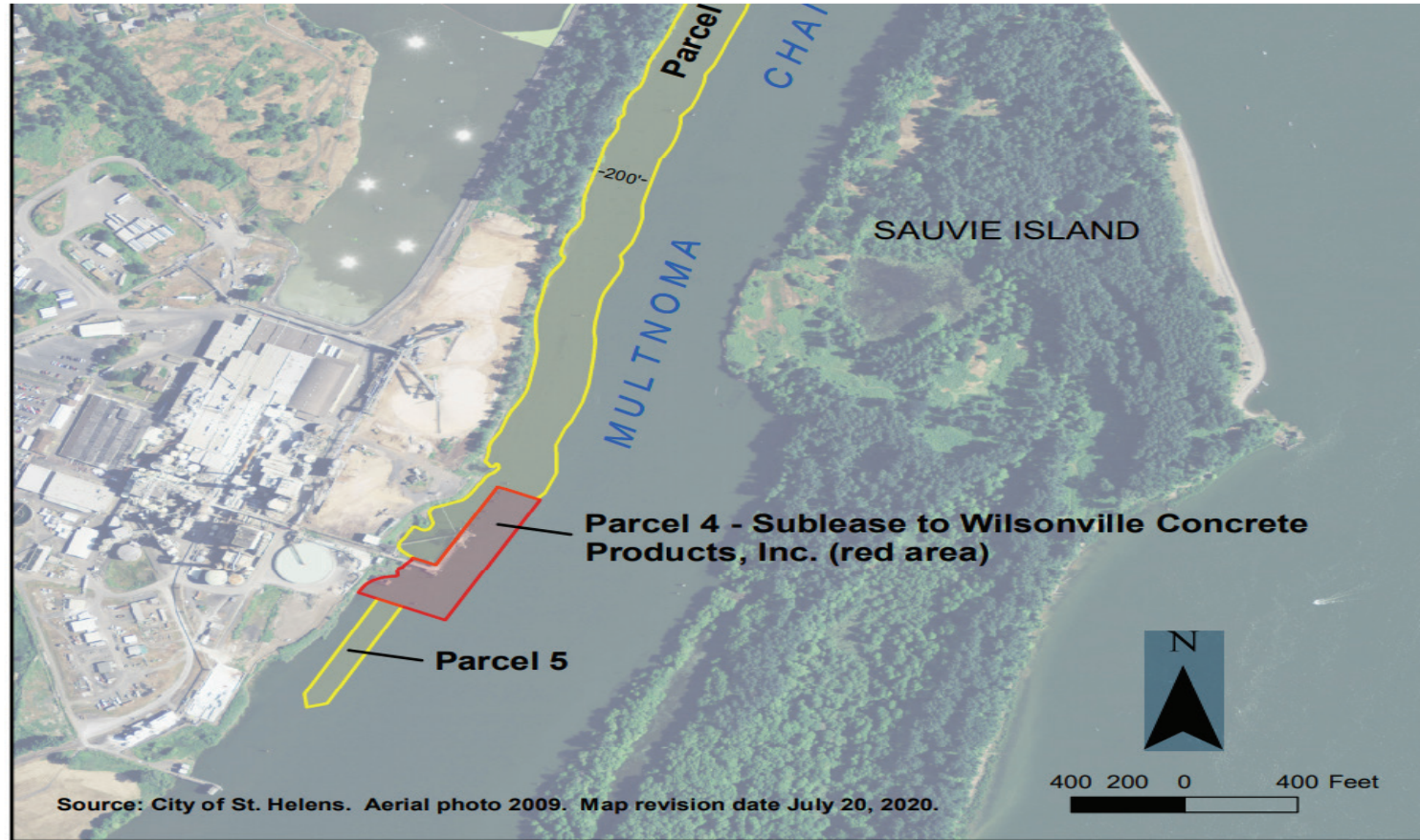
PCB's= > 1000 x Exceedance



PFAS /PFOS= Testing confirms presence in the Lagoon

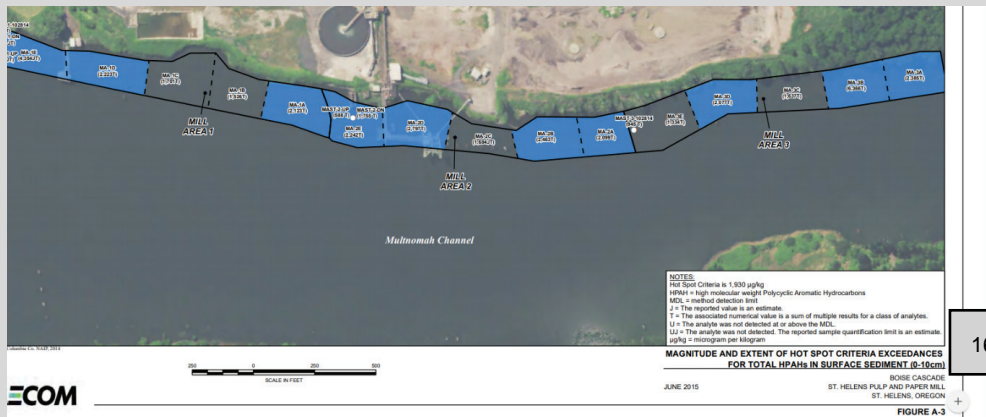
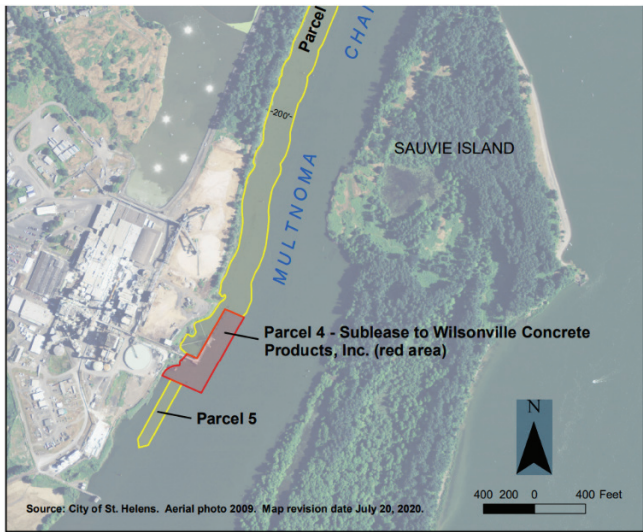
PROPOSED WCP MOORAGE

Item 1.



PROPOSED WCP MOORAGE

Item 1.



NO PRETREATMENT PROGRAM FOR AFFF

Item 1.

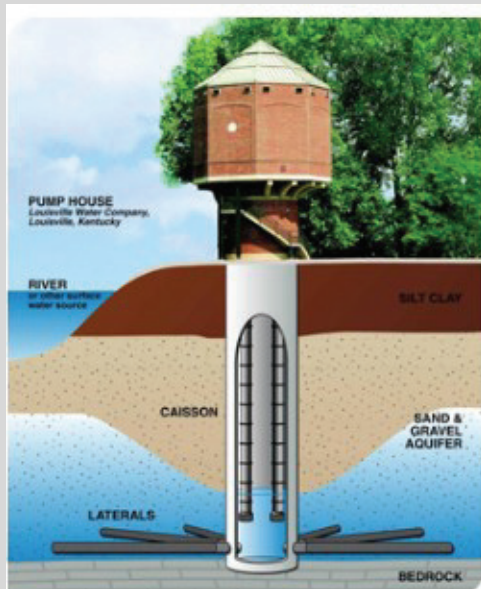


PFOS/PFAS found in Lagoon

HOW SUSTAINABLE IS OUR WATER SYSTEM?

Item 1.

Water Source The St. Helens Water Department supplies the city with water from a water treatment facility located in Columbia City. There are **two wells on the banks of the Columbia River in Columbia City** that supply water to the treatment plant. **There is also one Ground Well located near Scappoose Bay Marina. The Scappoose Bay well only operates during emergencies.** The water treatment facility is a membrane plant that works by running water through a series of synthetic filters that **capture sediment, germs and organisms.** During the summer months when usage is higher, the City produces about **2 million gallons of water per day.**



Incidence Rate Report for Oregon by County

All Cancer Sites (All Stages[^]), 2017-2021

All Races (includes Hispanic), Both Sexes, All Ages

Sorted by Rate

County	2023 Rural-Urban Continuum Codes ^Φ	Age-Adjusted Incidence Rate [†] cases per 100,000 (95% Confidence Interval)	CI*Rank ^Δ (95% Confidence Interval)	Average Annual Count	Recent Trend	Recent 5-Year Trend [‡] in Incidence Rates (95% Confidence Interval)
Oregon ⁶	N/A	417.9 (415.4, 420.4)	N/A	22,522	falling	-2.8 (-3.8, -1.3)
US (SEER+NPCR) ¹	N/A	444.4 (444.1, 444.7)	N/A	1,744,459	falling	-0.5 (-0.7, -0.3)
Clatsop County ⁶	Rural	480.0 (454.0, 507.2)	1 (1, 8)	297	stable	0.1 (-0.6, 0.7)
Columbia County ⁶	Urban	464.7 (442.0, 488.4)	2 (1, 12)	341	stable	-0.5 (-1.2, 0.3)
Crook County ⁶	Urban	462.1 (429.8, 496.4)	3 (1, 17)	180	stable	-7.5 (-14.8, 0.0)
Josephine County ⁶	Urban	459.6 (442.8, 477.0)	4 (1, 11)	679	stable	-0.5 (-1.1, 0.0)
Multnomah County ⁶	Urban	457.4 (450.9, 463.9)	5 (1, 8)	4,034	falling	-0.4 (-0.7, -0.1)
Marion County ⁶	Urban	444.6 (435.2, 454.1)	6 (3, 13)	1,786	falling	-0.5 (-1.0, -0.1)
Klamath County ⁶	Rural	440.5 (421.2, 460.7)	7 (2, 19)	438	stable	-0.5 (-1.1, 0.1)
Clackamas County ⁶	Urban	439.4 (431.3, 447.5)	8 (5, 14)	2,432	falling	-2.6 (-4.7, -0.6)
Yamhill County ⁶	Urban	434.4 (418.4, 450.9)	9 (4, 19)	588	stable	-0.5 (-1.0, 0.0)
Jackson County ⁶	Urban	433.8 (423.2, 444.6)	10 (5, 17)	1,423	falling	-1.0 (-1.4, -0.7)
Wheeler County ⁶	Rural	433.6 (308.5, 603.6)	11 (1, 36)	12	stable	0.2 (-2.6, 3.2)
Hood River County ⁶	Rural	427.3 (393.7, 463.2)	12 (2, 28)	126	stable	-0.7 (-1.7, 0.3)
Wasco County ⁶	Rural	425.7 (395.0, 458.2)	13 (2, 27)	160	stable	-1.1 (-2.3, 0.1)
Polk County ⁶	Urban	422.3 (404.5, 440.6)	14 (6, 23)	457	falling	-1.9 (-4.7, -1.0)
Lake County ⁶	Rural	421.7 (370.9, 478.5)	15 (1, 31)	58	falling	-1.8 (-3.1, -0.5)
Coos County ⁶	Rural	418.3 (399.8, 437.6)	16 (6, 25)	461	falling	-1.4 (-2.0, -0.8)
Washington County ⁶	Urban	416.0 (408.8, 423.2)	17 (11, 22)	2,671	falling	-0.4 (-0.7, -0.2)
Deschutes County ⁶	Urban	414.5 (403.3, 426.0)	18 (11, 24)	1,128	falling	-1.2 (-1.7, -0.7)
Linn County ⁶	Urban	412.5 (398.4, 426.9)	19 (10, 25)	699	falling	-0.8 (-1.3, -0.4)
Union County ⁶	Rural	400.1 (369.8, 432.4)	20 (8, 30)	145	stable	-7.3 (-18.1, 0.3)
Jefferson County ⁶	Urban	399.0 (367.5, 432.6)	21 (7, 31)	131	stable	0.7 (-0.6, 2.0)
Douglas County ⁶	Rural	398.2 (384.0, 412.9)	22 (15, 28)	712	falling	-1.0 (-1.7, -0.3)
Tillamook County ⁶	Rural	395.3 (367.3, 425.1)	23 (9, 31)	181	falling	-0.8 (-1.6, -0.1)
Morrow County ⁶	Rural	394.3 (348.7, 444.4)	24 (3, 33)	58	stable	-1.1 (-2.6, 0.3)
Curry County ⁶	Rural	389.4 (360.1, 421.0)	25 (10, 31)	187	falling	-1.4 (-2.7, -0.1)
Lincoln County ⁶	Rural	387.6 (367.4, 408.9)	26 (15, 30)	357	falling	-1.3 (-1.7, -0.8)
Wallowa County ⁶	Rural	385.9 (334.1, 444.8)	27 (2, 34)	51	stable	-1.2 (-3.0, 0.6)
Umatilla County ⁶	Rural	384.3 (366.3, 403.0)	28 (18, 31)	357	falling	-4.5 (-9.4, -1.1)
Grant County ⁶	Rural	362.1 (312.3, 418.9)	29 (9, 35)	49	stable	-0.8 (-2.4, 0.7)
Malheur County ⁶	Rural	350.4 (323.5, 379.1)	30 (23, 34)	131	stable	-1.4 (-3.2, 0.3)
Harney County ⁶	Rural	339.2 (291.1, 394.1)	31 (16, 36)	41	stable	9.4 (-1.7, 17.7)
Benton County ⁶	Urban	336.5 (320.6, 353.2)	32 (28, 35)	367	falling	-2.4 (-6.5, -1.8)
Sherman County ⁶	Rural	323.2 (231.4, 444.4)	33 (2, 36)	10	stable	-0.1 (-3.6, 3.6)
Lane County ⁶	Urban	322.6 (315.4, 330.0)	34 (30, 35)	1,657	falling	-13.1 (-17.5, -8.4)
Baker County ⁶	Rural	298.0 (266.8, 332.3)	35 (30, 36)	81	falling	-2.2 (-4.5, -0.2)
Gilliam County ⁶	Rural	226.4 (157.4, 322.9)	36 (30, 36)	8	stable	-20.3 (-56.0, 1.4)



TRANSPORT DATA

Destination	material vol	material wt	years to move	months/year dig	total months	months to unload	vol/truck	vol/barge	tons/truck	tons/barge
Hillsburo	8.4 Mcy	11.05Mtons	10	4	40	40	15yd		19.74	
St. Helens	8.4 Mcy	11.05 Mtons	10	4	40	40		1415		1862
Destination	distance one w	distance rou	Vehicle/trip	total trips	trips/month	Trips/day	Time/trip	cost /hr	\$ total cost transport	\$
Hillsburo	23	46 mil	1	560,000	14,000	700	2.5 hr	150	210,000,000	
St. Helens	24	48 mil	5	1187	30	1.5	2hr	3,864	9,173,136	
							3		\$252,000,000	
need 58.3 trucks/hr to be loaded										
for 2.5 hour round trip 146 truck will be needed										
travel miles	25,760,000									
fuel needed	3,220,000 gal			State tax \$	1,094,800					
fuel cost	12,558,000									
Time to load or unload a truck			1.02 mins							

NUMBERS FOR THE TOXIC WASTE AND COOLING LAGOON

**Portland Waste volume 4.3 (40)million cubic yards toxic river bottom
Value to St. Helens \$120 million, or \$28 per cubic yard**

Details of Cooling Lagoon.

Surface area 23 acres, depth 30 feet volume 1,113,200cubic yards 222,417,360 gallons

Sludge depth 8 feet volume 296,858 cubic yards

Frogmore Slough fill 640,000 cubic yards

Because of membrane failure the minimum amount of toxic waste in the present lagoon
Is 936,858 cubic yards. Maximum (embankment materials) 2,050,058 cubic yards. A ratio of sludge of 6.9% sludge
to toxic Portland Waste.

Costs

Labor costs for a 30 men crew to move material, \$2.4 million per year or \$48 million for twenty-year project.

Cost of moving contaminated material and replacing with mixed Toxic waste @ \$10.00per cubic yard \$52,368,580

Cost of 2000 feet of caissons @ \$400 per foot for a 40 depth \$800,000

Cost of removing present membrane 1,001,880 square feet @ 1pound per square foot unknown??

Cost of replacement membrane at \$10 per square foot \$10,018,800

Received money \$120,000,000

Expenses \$111,187,380

Profit \$8,812,620 or \$440,631 per year

This does not include equipment costs, insurance, or overtime

OREGON HISTORY: TAKING STOCK

Governor Tom McCall pressed environmental reforms in Oregon.

In 1962 Thomas Lawson McCall, a journalist, caught the state's attention with a television documentary, "Pollution in Paradise." In his clipped, forceful narration and with compelling photography, McCall showed what had happened to the Willamette River. Sewage, industrial wastes, garbage, abandoned docks and warehouses, tires, and hulks of automobiles befouled a once pristine, fish-filled stream. Between 1850 and 1920 the Willamette had served as western Oregon's artery of commerce and transportation. Use had bred abuse and, almost without seeing it, Oregonians had transformed the stream into an open sewer.

SUMMARY OF REPORT ON CONDITION OF GROUND UNDER LAGOON

This section summarizes the geotechnical investigation conducted to assess the physical properties of subsurface soils at the site. The complete geotechnical investigation report is provided in Appendix H. Based on the borings completed for this investigation and review of existing subsurface information, the eastern portion of the lagoon near the existing containment levee is underlain by a variable thickness of sand, in turn underlain by a significant thickness of compressible, alluvial silt. The alluvial soils are underlain by basalt, and the depth to basalt varies significantly across the site and ranges from exposed basalt outcrops at the ground surface west of the lagoon to more than 200 feet bgs at one portion of the east side of the site. Our preliminary studies indicate that the loose to medium-dense sand and silt below the groundwater level have the potential to liquefy or strain soften during a code-based seismic event. Without mitigation, the loss of soil strength would result in seismically induced settlement and a risk of lateral spreading displacements. Ground improvement could be used to sufficiently improve the seismic stability of the proposed embankment during a code-based seismic event. The native alluvial silt soils are highly compressible, and the placement of new fill could result in significant total and differential short-term (primary) and long-term (secondary) settlements; these will need to be considered as part of the planning and design process and incorporated into any permanent improvements on the site. Depending on placement and compaction methods for new fills in the lagoon, additional settlement and slope stability of the fill soils could also be a geotechnical design consideration. In a subsequent feasibility study, options identification/optimization, and fill augmentation should be assessed to address both fill settlement and slope stability, as well as the seismic stability noted above.

LIMITATIONS

The services undertaken in completing this work plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This work plan is solely for the use and information of our client unless otherwise noted. Any reliance on this work plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this work plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this work plan.

QUESTIONIES FOR THE CITY:

Who is in charge?

In addition to John Walsh, who from the administration is involved in this project?

QUESTIONIES FOR THE CITY:

Who on the city council is the
designated project lead?

QUESTIONIES FOR THE CITY:

Which members of the planning board
are working on this project?