



City of Tacoma

Questions and Answers

Cowlitz Trout Hatchery Remodel RFQ/P Specification No. **PG23-0211F**

All interested parties had the opportunity to submit questions in writing by email to Ryan Foster, Senior Buyer by date questions were due. The answers to the questions received are provided below and posted to the City's website at www.TacomaPurchasing.org. Navigate to [Current Contracting Opportunities / Services Solicitations](#), and then click *Questions and Answers* for this Specification. This information IS NOT considered an addendum. Respondents should consider this information when submitting their proposals.

Question 1: Will there be historical or archeological investigations for the vendor to perform?

Answer 1: No, there will not be investigations completed by the selected consultant. Tacoma Power has two (2) on-call services contracts for Historical and Archeological services, please review the advertisement technical specifications section for full details. The selected consultants will provide support services for this effort such as and not limited to the Area of Potential Effects (APE) and Historical Mitigation efforts.

Question 2: Do you have any lessons learned that you can share from the Salmon Hatchery Remodel that we could look at for the Trout Hatchery?

Answer 2: Tacoma Power went with an elaborate reuse system for the incubation room; the design was not successful, and it was abandoned.

- i. Lesson Learned: Keep the systems straight forward. We would like to avoid highly automated and complicated systems. We prefer systems that we can easily manage from both maintenance and operations.

Question 3: Who designed the specifications for the Salmon Hatchery?

Answer 3: The consultant designed the specifications, but Tacoma Power provided the specifications for equipment recommendations.

Question 4: Are the original staff involved with the Master Plan available to meet to discuss the original 2018 Master Plan?

Answer 4: No, the original staff have left the organization and the ones with partial involvement are here today and/or have contributed to the new scope of work in the advertised technical specifications.

Question 5: Did you have established criteria that you were going to apply from the master plan for circular system, similar to what you have for a linear system?

Answer 5: No. We do not.



City of Tacoma

Questions and Answers

Question 6: Is the consultant going to complete the discharge permit?

Answer 6: Tacoma Power Natural Resources will be the lead on all regulatory and local permitting and sole point of contact to our outside agency partners. The selected consultant will participate in supporting efforts, please refer to the scope of work in the advertisement and technical specifications.

Question 7: How often do you dredge the intake at the Trout Hatchery?

Answer 7: We do not dredge the intake for the Trout Hatchery located at the Cowlitz River.

Question 8: Are there any other fish screens than the ones located at the intake?

Answer 8: No, the only screens are rotating screens located at the intake facility for the Trout Hatchery.

Question 9: How many pounds of ozone do you produce per day at the ozone facility for the Trout Hatchery?

Answer 9: About 450 pounds per day.

Question 10: Who will determine the scope of ADA compliance requirements for this project?

Answer 10: We will take the consultants recommendations. We understand we cannot bring the total facility into ADA compliance. Tacoma Power will decide on the scope of recommendations. Please refer to the scope of work in the advertisement and technical specifications.

Question 11: Are any of the fish transfers done automatically from the incubation troughs?

Answer 11: No, they are done manually.

Question 12: Have you discussed minimizing fish production during construction?

Answer 12: Minimizing production is not an option.

Question 13: This question was taken at the location of outfalls, near the rearing lakes and abatement pond regarding the channel outfall to both Blue Creek and the Cowlitz River. Is the ditch (Conveyance System) flat?

Answer 13: No, it slopes towards Blue Creek.

Question 14: What kind of accuracy are you looking for when counting fish for release at the trout hatchery?

Answer 14: We currently have about 97% precision in our counting estimates and would expect to maintain that or better.



City of Tacoma

Questions and Answers

Question 15: Are you looking for more versatility in the rearing lakes?

Answer 15: Yes, at least some amount of versality is desirable.

PWR 09107 Cowlitz Trout Hatchery Pre-Proposal Meeting Sign in Sheet 9/27/2023

10:00 AM – 2:00 PM

	Firm Name	Participant (Guest & Staff)	Email	Phone Number
1	TPU	ERIC SHORBLUM		210005
2	TPU	MARIAHNE ZUKOWSKI		216804
3	TPU	Ashley Jacobsen		
4	Schnabel	Joe Vargo	jvargo@Schnabel-eng.com	464-942-7462
5	Schnabel	Bryant Charlo	bcharlo@Schnabel-eng.com	208-331-9736
6	CONTOUR ENG	STEVE WOODS	STEVE.WOODS@CONTOURENG.COM	253-857-5457
7	McMillen Inc	JEFF A. HEINDEL	heinidel@mcmillen.com	208-810-9317
8	McMillen Inc	Lu Vo	Vo@mcmillen.com	208-918-9591
9	TPU	Sam Gibbons		
10	HDR	MARK HASSEBROCK	MARK.HASSEBROCK@HDRINC.COM	360-535-3845
11	WSP	Bob Willis	Robert.Willis@WSP.COM	503-780-9542
12	Peak measure	Drew MacMichael	drew@peakmeasure.com	360-951-6157
13	Lynda Wade			
14	Schnabel Eng.	Lynda Wade	lwade@Schnabel-eng.com	970-973-9253
15	Mathieu Beauchamp	WSP	mathieu.beauchamp@wsp.com	206-818-4954
16	JASON HILL	FSP/WORKS	jason.hill@fspworks.com	253-225-9932
17	JACOBS	John D. NELSON	John.NELSON1@Jacobs.com	760-209-3543
18	ELCON ASSOCIATES	DAN SHOOK	DSHOCK@elcon.com	253-381-8742
19	FSP Engineers	ERIC ORTON	Eric.Orton@FSPENGINEERS.COM	253-732-8209
20	TPU	Matt Plach	mplach@tpu.com	207618
21	TPU	SETH DOULL	sdoull@cityoftacoma.org	(253) 405-5947
22				
23				



PWR-09107
Cowlitz Trout Hatchery Remodel
(CTH)
Pre-proposal Meeting

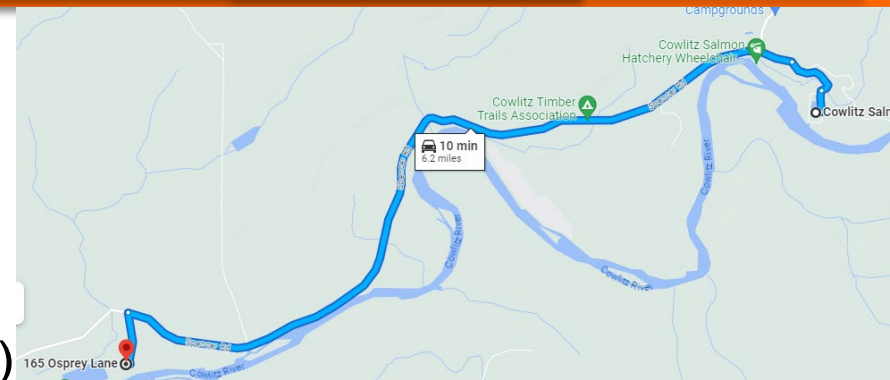
September 27, 2023

Agenda Pre-Proposal 9/27/23

Housekeeping: Sign in please

10:00 AM – 11:45 AM

- **10:00 AM Safety Briefing (Eric)**
- **10:05 AM Welcome & Introductions (All)**
- **10:20 AM Purpose and Importance (Matt B)**
- **10:30 AM Overview of the Scope (Maryanne)**
- **Staff run through slides for interactive questions (Maryanne/Seth/Eric)**
- **Formal Questions and Answers Posts 10/4/23**



11:45 AM – 12:30 PM Travel to Trout Hatchery and Break

12:30 PM – 2 PM (Announcement Formalities)

- **Tour Trout Hatchery Facility 165 Osprey Lane, Toledo WA**

Directions: Head north on Salmon Ln toward barrier dam, turn right onto Barrier Dam Ln., turn left at the 1st cross street onto Spenser Rd, turn left onto Osprey Ln. Turn right designation on the right.

RFQ/P Calendar of Events

- **Proposal Shortlist Interviews In Person at TPU**
- **TPU staff needs to coordinate presentation protocols with IT prior to Interviews. Outside laptops permitted to hook into TV or Projector only via a display cable, no City WiFi, but may log in as a guest.**

The anticipated schedule of events concerning this RFQ/P is as follows:

Publish and issue RFQ/P:	9/20/2023
Pre-Proposal Meeting	9/27/2023
Pre-Submittal Questions:	9/27/2023
Response to Questions:	10/4/2023
Submittal Due Date:	10/24/2023
Submittal Evaluated:	November 2023
Interviews/presentations, on or about:	11/08/2023
Award Recommendation:	November 2023
Public Utility Board/City Council Approval:	February 2024


RFQ/P Submittal Check List

SUBMITTAL CHECK LIST

This checklist identifies items to be included with your submittal. Any submittal received without these required items may be deemed non-responsive and not be considered for award.

Submittals must be received by the City of Tacoma Purchasing Division by the date and time specified in the Request for Proposal page.



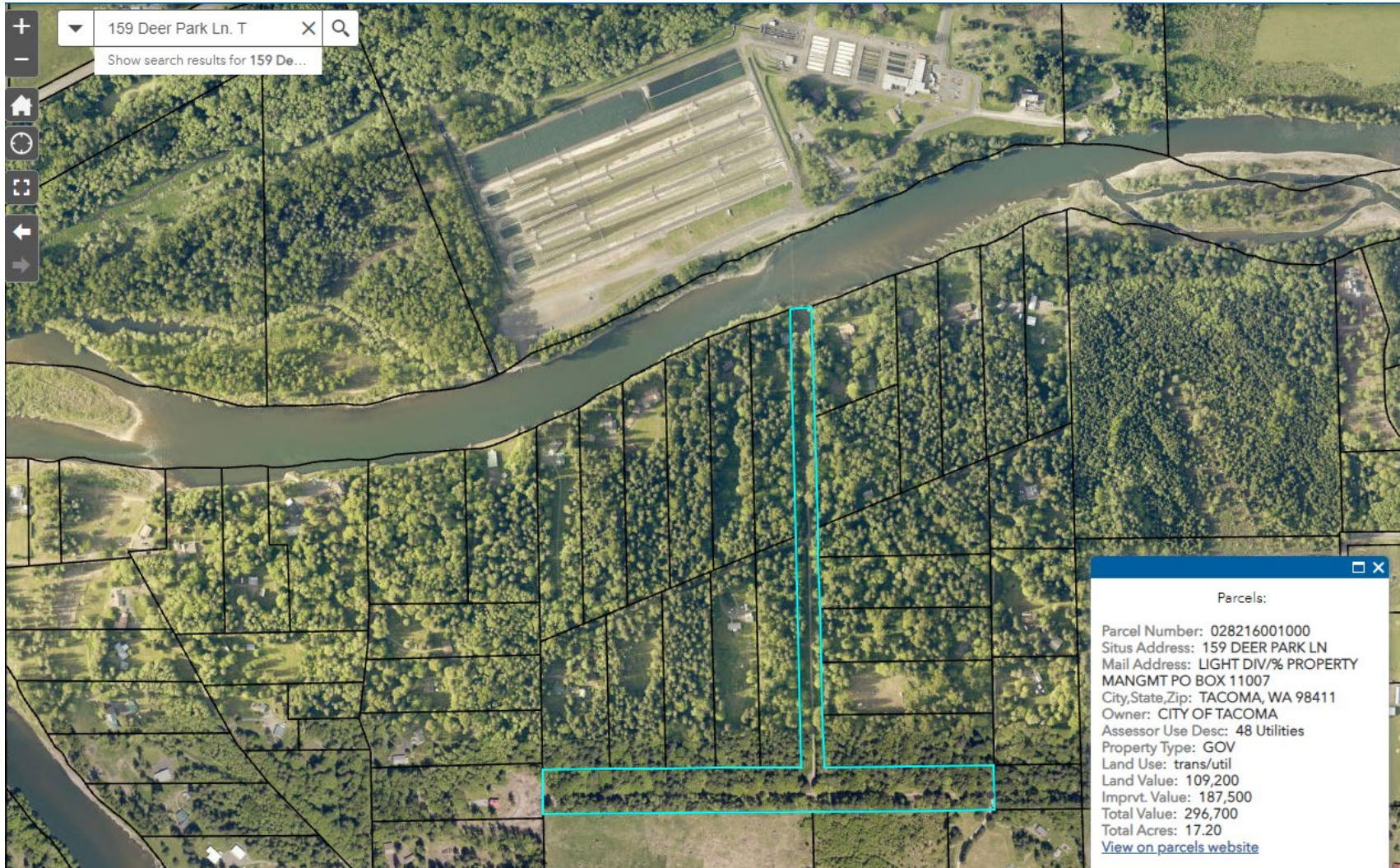
The following items make up your submittal package:	
One electronic copy sent by email and four (4) copies sent by mail of your complete submittal package. Maximum file size: 35 MB. Multiple emails may be sent for each submittal.	
Signature Page (Appendix B)	
Record of Prior Contracts (Appendix B)	
Content To Be Submitted (Section 10)	
After award, the following documents will be executed:	
Services Contract	
Certificate of Insurance and related endorsements if required	

Cowlitz Trout Hatchery



Cowlitz Trout Hatchery South Wells

159 Deer Park Ln. Toledo *Visit Requires Staff with Key Access



Consultant Scope - Outline

- **Project Management Plan**
 - ☐ TPU Partnering Charter/Kick Off
 - ☐ Coordination with TPU Surveyors
 - ☐ and Utility Locate Services (GPR)
 - ☐ Public Outreach (support)
 - ☐ and Internal Communication Plans (partner)
 - ☐ Master Project Schedule
 - ☐ Roles and Responsibilities Matrix
 - ☐ QA/QC Plan
 - ☐ Workshops for Alternative Development Plans
 - ☐ Risk Register
 - ☐ Review HCRAPP
- **Environmental**
 - ☐ 106 Permitting (support, APE, and Historical Mitigation)
 - ☐ Permitting Environmental and Local Agency & Report (Scoping)
- **Tacoma Power Survey Coordination**



Consultant Scope - Outline

- Master Hydrology & Hydraulic Report and Hydraulic Grade Line & 3D Model

- ☐ Update Bioprogramming Report & Model

- ☐ Rebuild Existing Ozone Plant and New Ozone increase 20 CFS justification

- ☐ Groundwater Rehabilitation Study

- ☐ Incubation

- ☐ Outdoor Rearing – Circular Tank Farm

- ☐ M & E (Monitor/Evaluate) Fish Transfer Facility

- ☐ Rearing Pond 4 and Pollution Abatement Pond

- ☐ Rearing Ponds 1, 2, and 3

- ☐ Water Rights

- ☐ Climate Change Water Level & Temperature Change

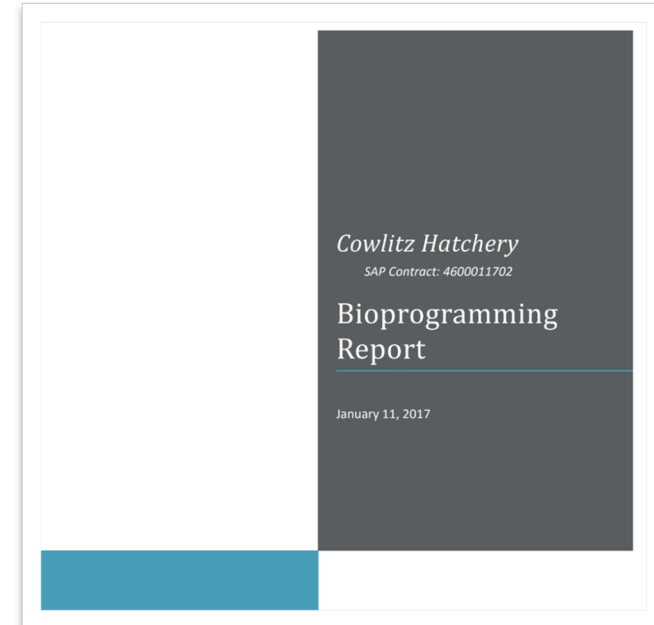
- ☐ Intake

- ☐ Head Tank

- ☐ Site Process Piping & Civil Site Improvements

- ☐ Adult Fish Handling Facility

- ☐ Outlet Modifications Cowlitz - Blue Creek (Alternatives)



Consultant Scope - Outline

(Continued)

- Electrical and Instruments/Controls Systems
- Hatchery/Office Building
- Living Quarters Site Residences Remodels
- Storage
- 10% Full Plan Set
- Basis of Design Memos
- Phasing and Constructability
- Maintaining Operations Plans and Supporting Technical Reports and Plan Sheets
 - ☐ Interim / Permanent Hydraulic Systems
 - ☐ Interim / Permanent Electrical & SCADA
 - ☐ Interim to Permanent M & E (Monitor/Evaluate) Transfer Facility (Fish Transfer)
 - ☐ Construction and Master Build Out Circulation Plan
(Delivery/Operations/Maintenance/Staff/Visitors/Residents)



Consultant Scope - Outline

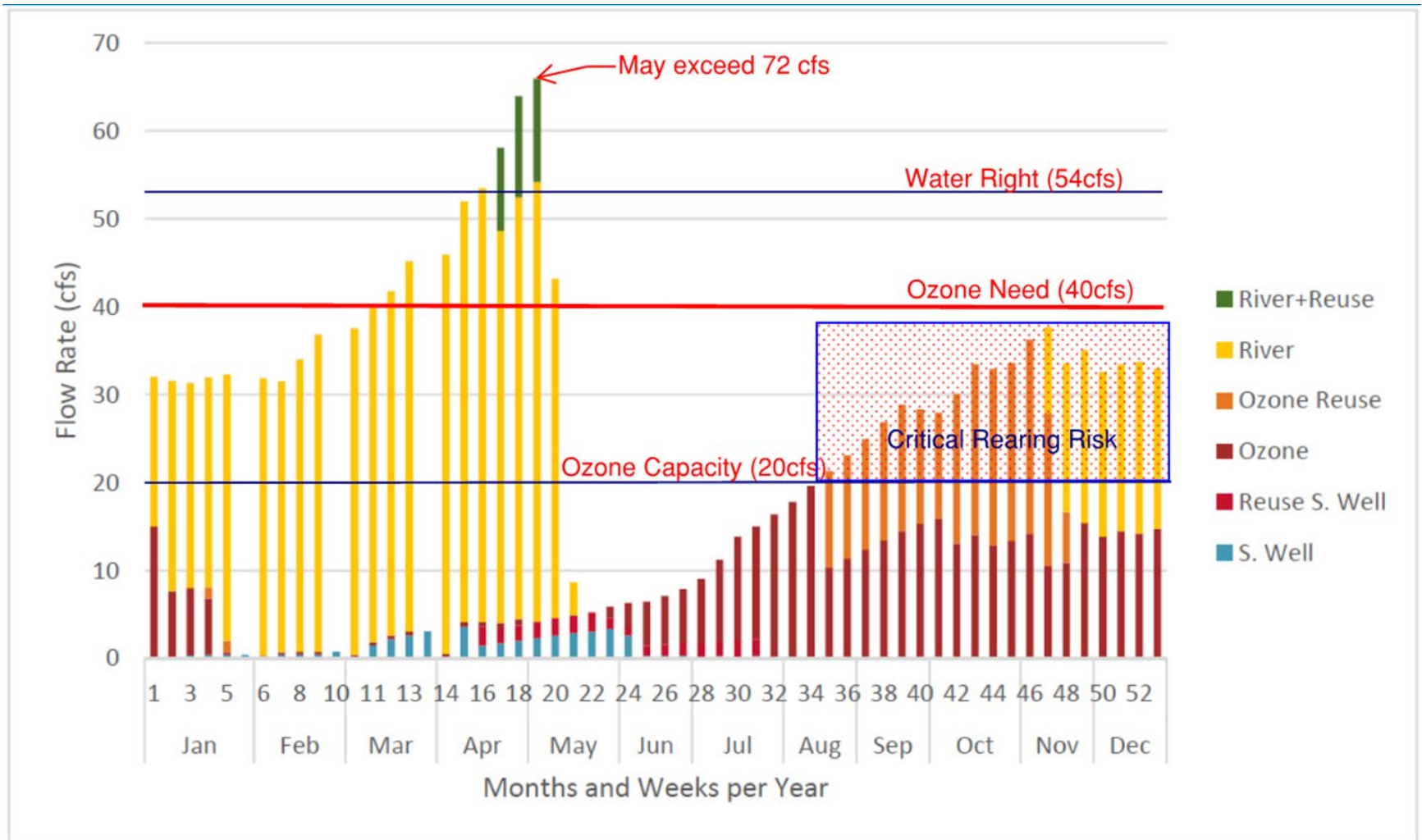
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- **Full Opinion of Probable Construction Costs 10% Design level including:**

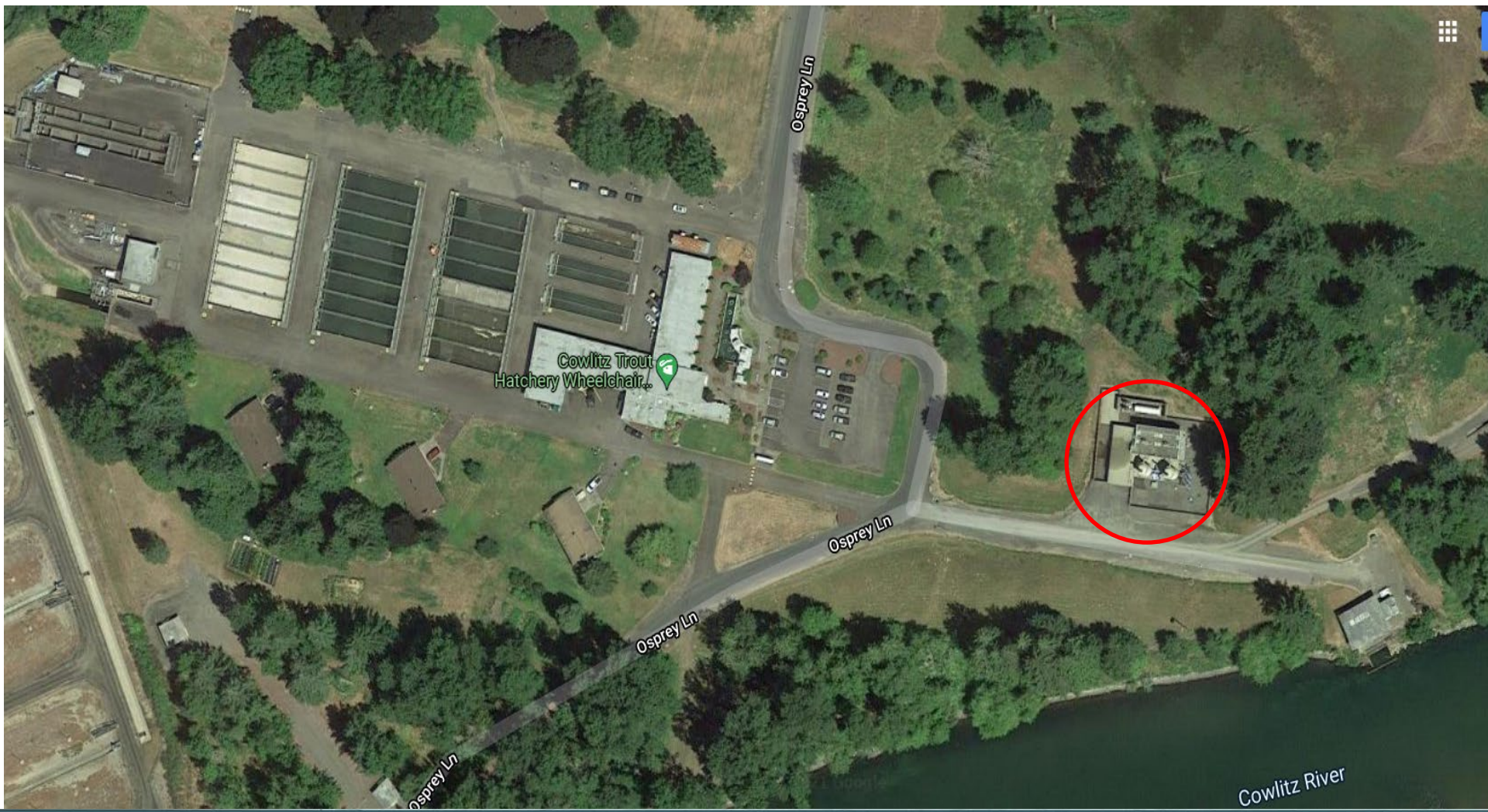
- ☐ TPU Construction Labor Forecast Assumptions
- ☐ Construction Management Break Down and Forecast Assumptions
- ☐ Specialty Inspections
- ☐ Interim Staffing Forecast Assumptions for Phasing
- ☐ Specialty Testing Assumptions
- ☐ Permitting Costs Assumptions
- ☐ Water Rights Costs Assumptions
- ☐ Risk Assessments
- ☐ Construction Price Indexing (CPI) for Appropriate Build Out Phasing (annual)
- ☐ Costs incurred for interim stages and phasing.



Previous Bioprogramming



Ozone Plant



Update Bioprogramming Report & Model

Revisions to Master Plan Report Implementation

☐ Rebuild Existing Ozone Plant and New Ozone increase 20 CFS justification

- ☐ Revisit: Gain more information to make informed decisions
- ☐ Perform Alternative Analysis – Benefit/Cost vs. Fish Health

1. No change today, increase in long range future
2. Increase capacity today with this program/project
3. Provide interim system plans for future increase

☐ Evaluation Report and Plans should include:

1. If increase in capacity: evaluate contact basin size

Notes:

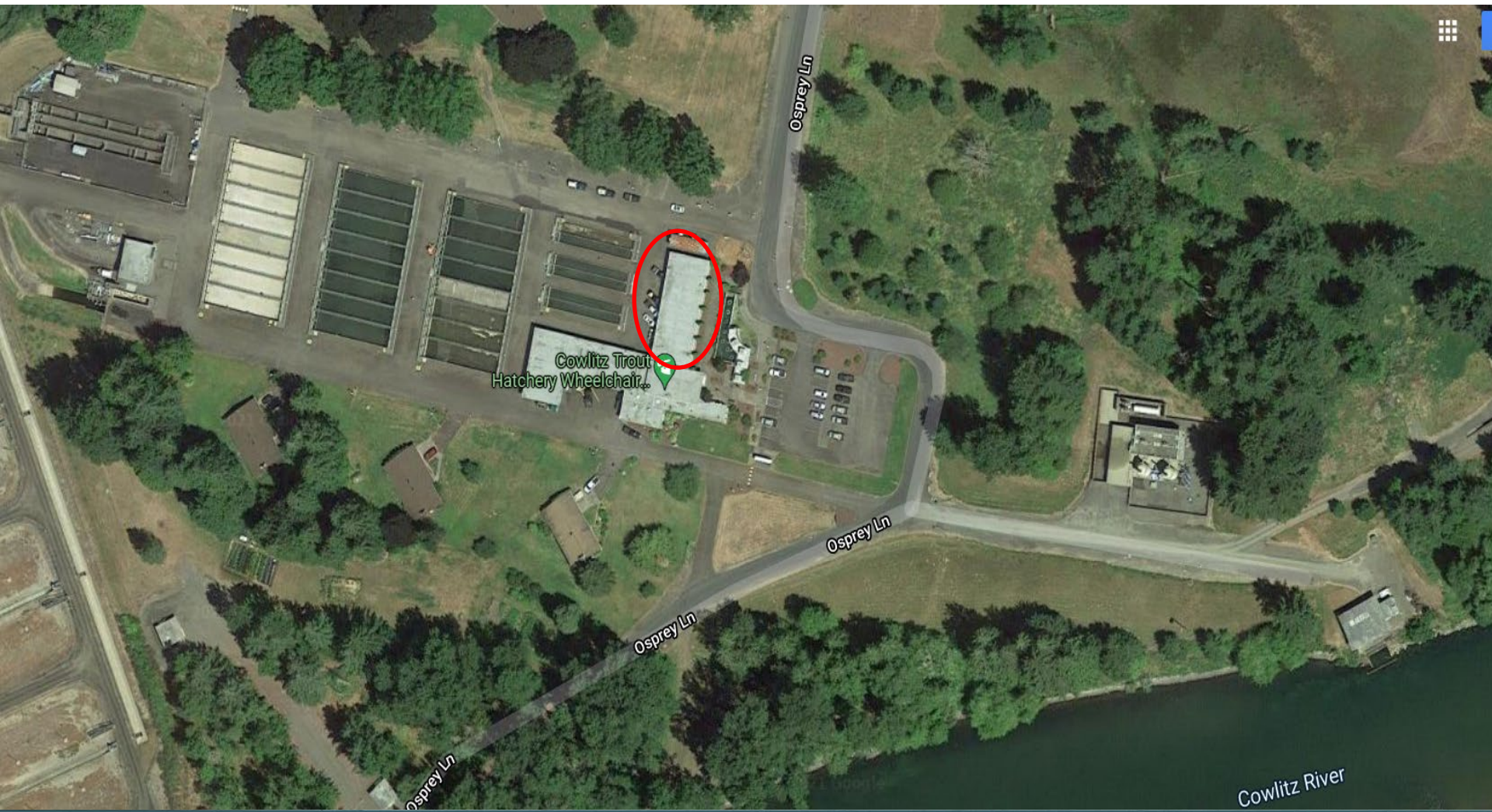
Upgraded the facility in 2020/21

Changes will require air quality permit and mitigation plan

No air-conditioning & ventilation needed to existing building



Incubation



Update Bioprogramming Report & Model

Revisions to Master Plan Report Implementation

☐ Incubation (Update Report/Systemwide Hydraulic Report/Water Rights) Bioprogramming

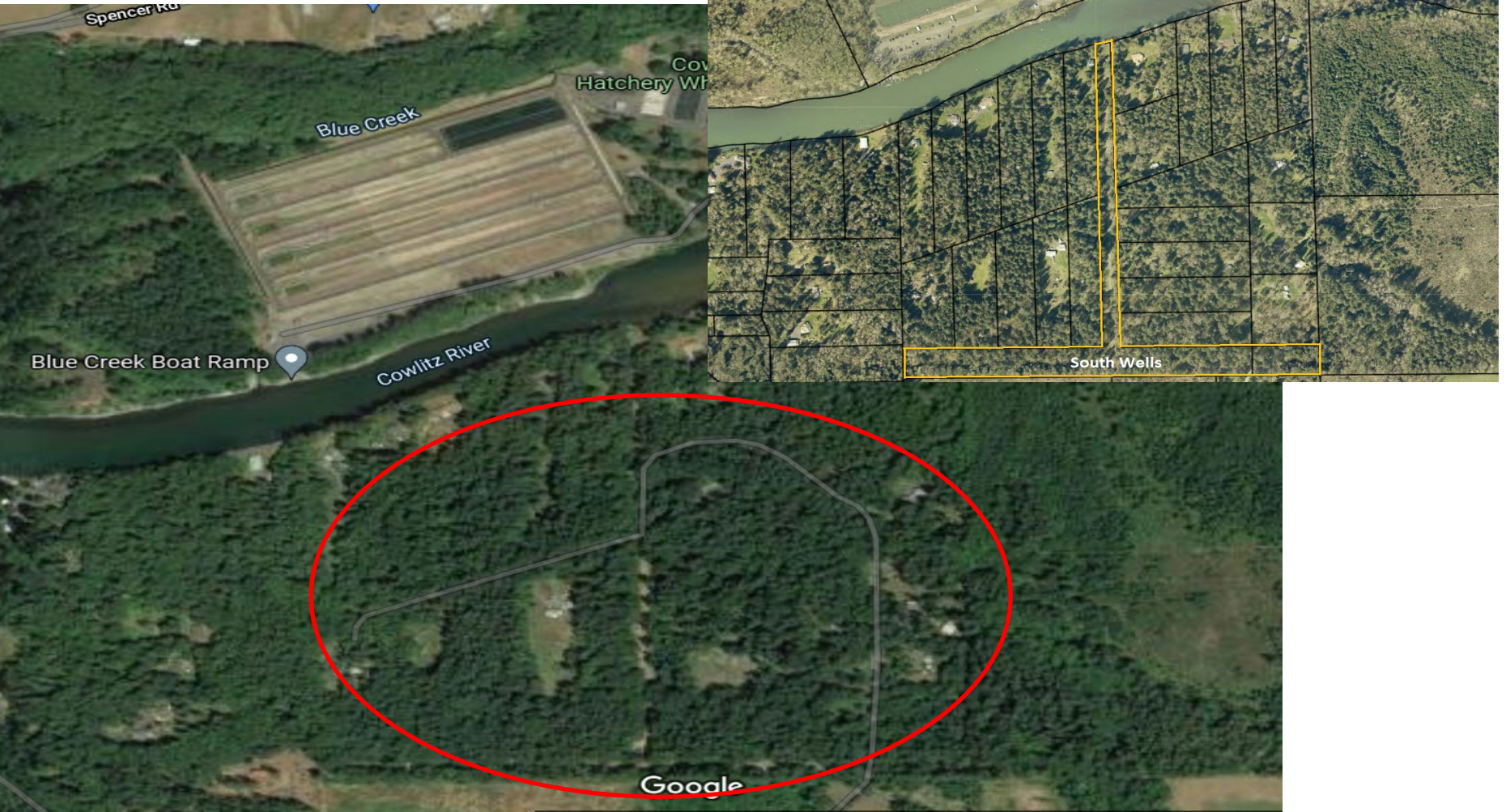
- ☐ Re-evaluate and revisit for flow and ozone

Recommendations from Master Plan

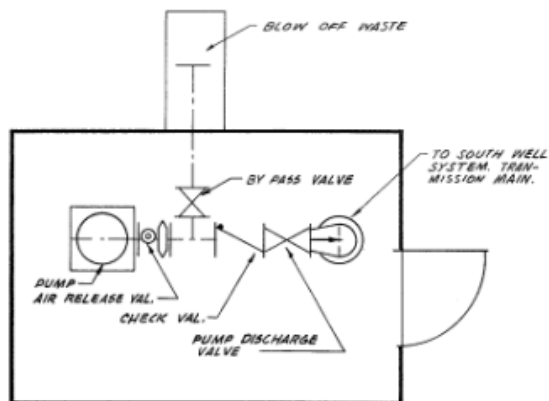
- ☐ Isolations rooms for incubation
- ☐ (3) Isolation areas in tank room
- ☐ Curtains to separate isolation areas
- ☐ Determine need for chilled water system
(500 gpm delta T of 4 degrees F)
- ☐ Water channeled through head troughs above rearing units
- ☐ Ozonated River Water as emergency water supply
- ☐ Provide ozonated river water to the building as an emergency water supply
- ☐ Provide provisions to disinfect the groundwater if needed in the future
- ☐ Some combination of heath stacks and bulk incubators for flexibility
- ☐ Deep troughs of varying size and/or with divisibility
- ☐ Provide proper floor slope and drainage to keep working surface as dry as possible
- ☐ Provide drains out of trough floors



Groundwater (wells)

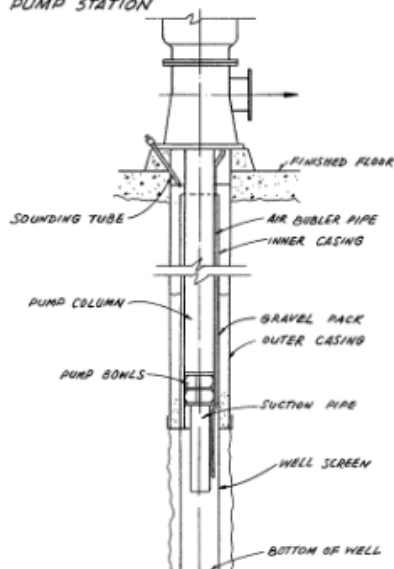


Groundwater (wells)



PLAN
TYPICAL SOUTH WELL PUMP STATION

WELL #	PUMP NO.	PUMP DISCHARGE VALVE NO.	PUMP BY PASS VALVE NO.
5-1	S-01	S-BP1	S-BP1
5-2	S-02	S-BP2	S-BP2
5-3	S-03	S-BP3	S-BP3
5-4	S-04	S-BP4	S-BP4
5-5	S-05	S-BP5	S-BP5
5-6	S-06	S-BP6	S-BP6
5-7	S-07	S-BP7	S-BP7
5-8	S-08	S-BP8	S-BP8
5-9	S-09	S-BP9	S-BP9

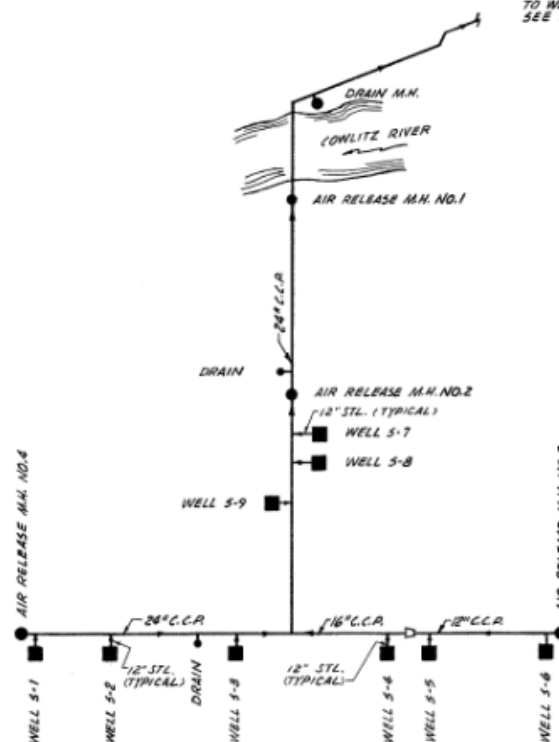


TYPICAL WELL SECTION (N.B. SCALE)

TABLE I
WELL SCHEDULE

WELL NO.	OUTER CASING DIAMETER	INNER CASING DIAMETER	WELL SCREEN DIAMETER	SUCTION PIPE DIAMETER	SUCTION PIPE LENGTH	ELEV. TOP OF SOUNDING TUBE	TOP ELEV. EXISTING 10" CASING	ELEV. BOTTOM PUMP BOWLS	ELEV. STATIC W.S.	ELEV. DRAWDOWN W.S.	ELEV. BOTTOM OF WELL	PUMP DISCHARGE HEAD	PUMP CAPACITY G.P.M.	HORSE POWER
5-1	18" I.D.	10" I.D.	10" I.D.	5"	9'-0"	164.7	163.0 ±	144.35	147.77	143.61	133.50	63.00	500	10
5-2	18" I.D.	10" I.D.	10" I.D.	5"	4'-8 1/2"	161.5	160.2 ±	144.81	148.00	144.74	136.02	61.00	400	10
5-3	18" I.D.	10" I.D.	10" I.D.	4"	6'-0"	164.8	164.3 ±	141.20	148.32	141.42	133.32	64.00	250	7 1/2
5-4	18" I.D.	10" I.D.	10" I.D.	6"	10'-0"	165.1	161.2 ±	144.66	148.63	144.55	128.48	65.00	900	20
5-5	18" I.D.	10" I.D.	10" I.D.	5"	3'-4"	166.4	164.5 ±	146.64	149.06	146.82	141.38	61.00	350	7 1/2
5-6	18" I.D.	10" I.D.	10" I.D.	6"	10'-0"	166.0	164.7 ±	141.90	150.40	142.98	125.80	67.00	800	20
5-7	18" I.D.	10" I.D.	8 3/8" I.D.	5"	4'-7"	171.2	171.0 ±	150.22	156.89	150.61	142.59	55.00	450	10
5-8	NONE	10" I.D.	8 3/8" I.D.	6"	10'-0"	170.2	169.6 ±	150.95	158.07	153.97	132.47	53.00	900	20
5-9	18" I.D.	10" I.D.	10" I.D.	5"	5'-0"	170.3	168.9 ±	149.05	155.09	150.29	142.29	55.00	450	10

TO WATER CONTROL STRUCTURE
SEE DWG. 51



FZ-8014

REVISIONS

DATE: C.E.M.

BY: L.A.N.

DATE: DEC. 1968

SCALE: NONE

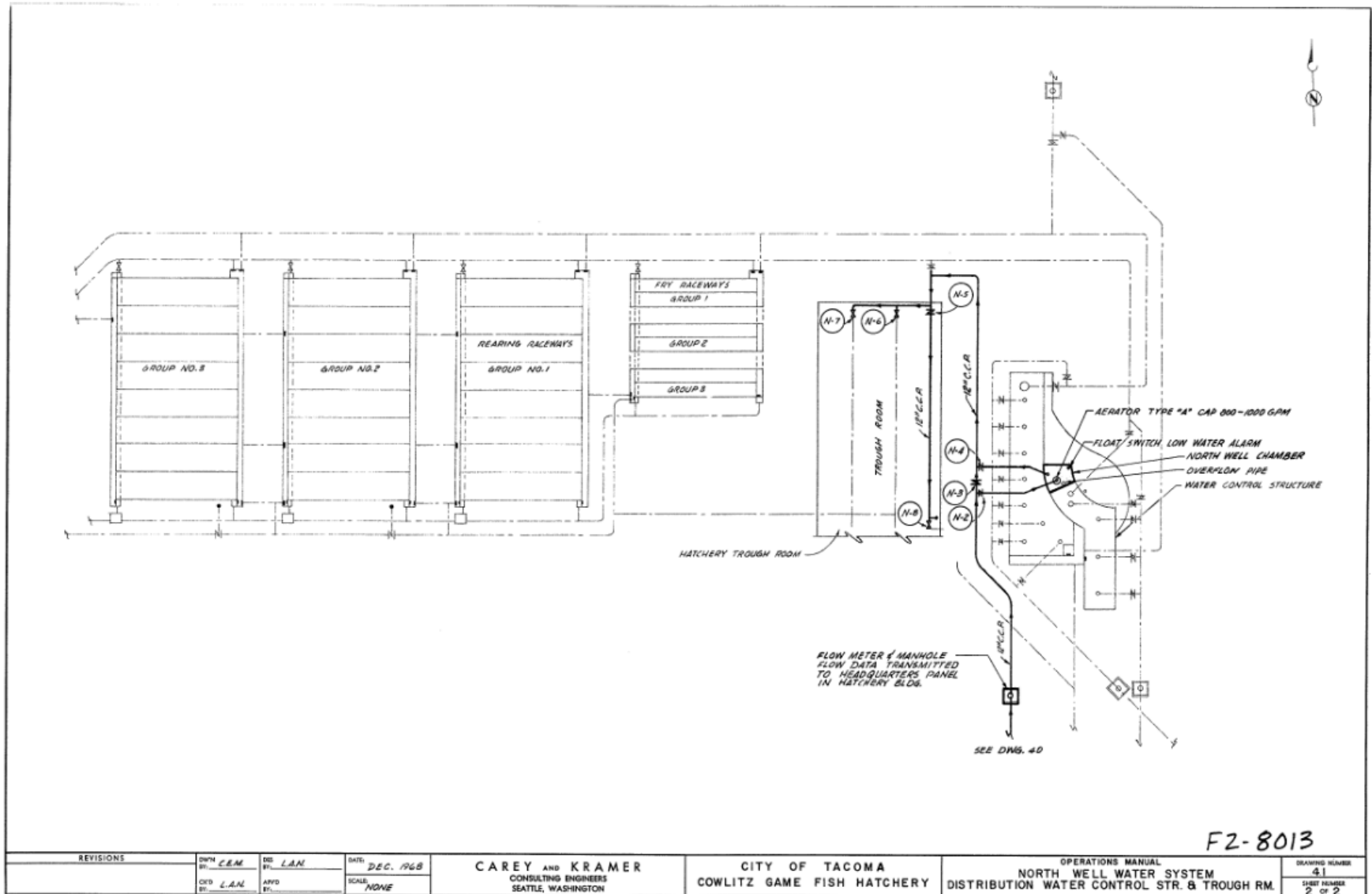
CAREY AND KRAMER
CONSULTING ENGINEERS
SEATTLE, WASHINGTON

CITY OF TACOMA
COWLITZ GAME FISH HATCHERY

OPERATIONS MANUAL
SOUTH WELL WATER SYSTEM
PUMP STATION & SUPPLY PIPELINE

DRAWING NUMBER
50
SHEET NUMBER
1 OF 3

North Well System



Update Bioprogramming Report & Model

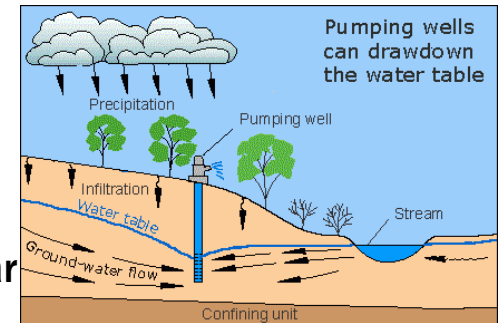
Master Plan Report Implementation – see additions

☐ Groundwater Rehabilitation Study

- ☐ Includes re-use, groundwater recharge, well evaluations
- ☐ Part of the Bioprogramming Report and Master Hydraulic Report
- ☐ Assessment: (Past North/South Wells for incubation and early rear
 - ☐ North Wells not producing any water for hatchery
 - ☐ Presence of iron & bacteria
 - ☐ South Wells Dwindling in capacity since 1966
 - ☐ At time of report maintaining 1440 gpm

☐ Looking forward:

- ☐ Bio secure groundwater source for incubation and early rearing
- ☐ Comprehensive groundwater North and South Well Field hydro geologic assessment and complete the most current baseline of current operations
- ☐ From this baseline, develop a plan providing level of certainty developing and maintaining the groundwater rights for the hatchery



Update Bioprogramming Report & Model

Continued: Groundwater study

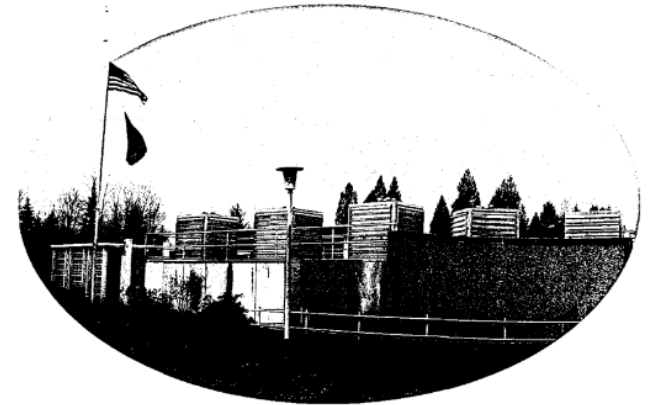
- ☐ This study includes the following:
 - ☐ Baseline assessment
 - ☐ Rehabilitation of existing wells
 - ☐ Drilling new wells
 - ☐ Developing controls for well pumps
 - ☐ Developing a demand sequence
 - ☐ Replacement of Existing Pumps

- ☐ Notes:

- ☐ Part of the overall Hydrology/Hydraulic Report
- ☐ Part of the Bioprogramming Report
- ☐ Should be part of ground reuse infiltration aquifer recharge program
- ☐ Part of the overarching interim and permanent SCADA/electrical plans
- ☐ Part of construction phasing plan

Cowlitz River Project

Trout Hatchery South Wells

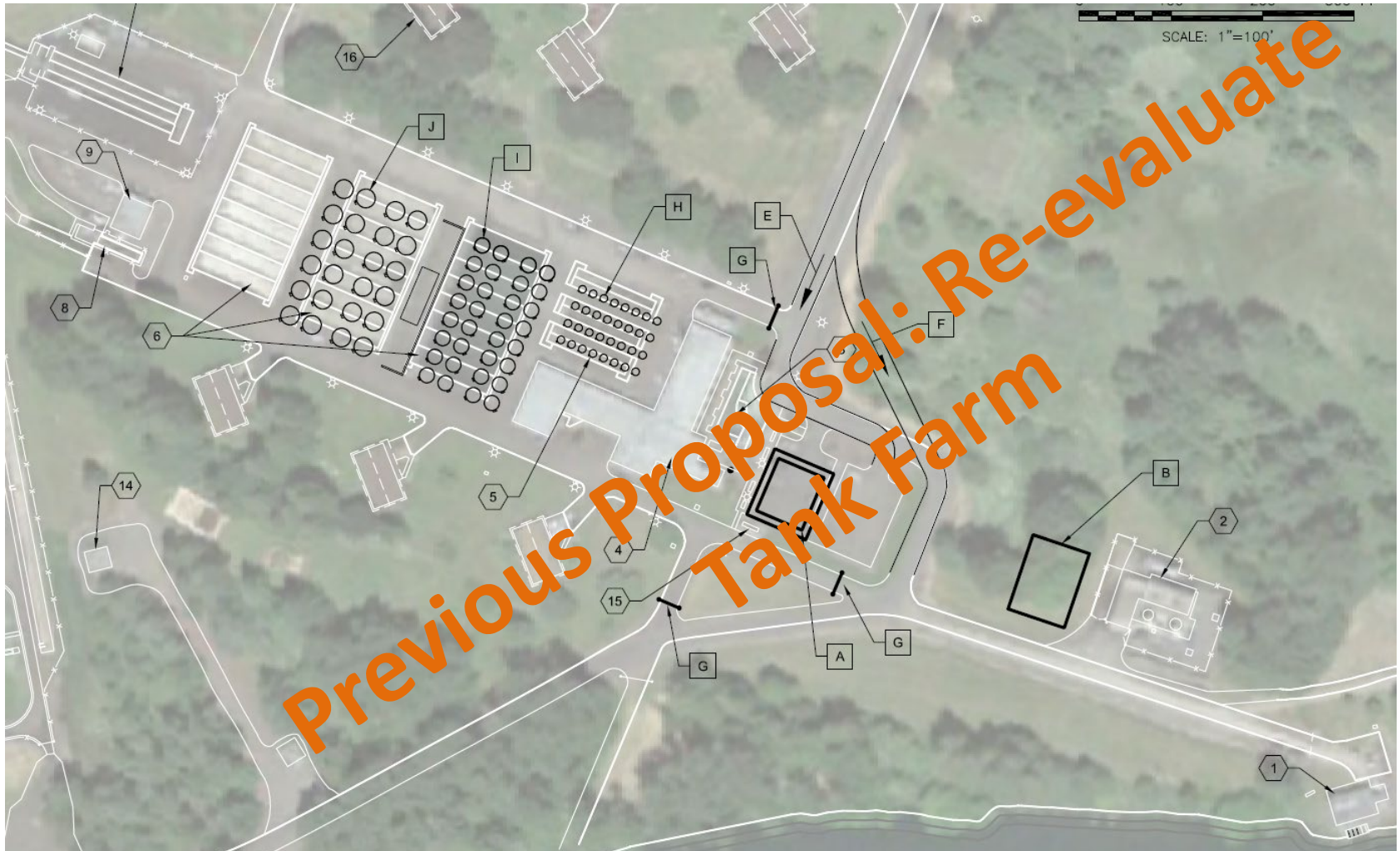


Prepared by
Alan Lentz
Mechanical Engineering Tech
February 26, 2003

Early Rearing (raceways)



Previous Circular Tank Farm



Update Bioprogramming Report & Model

Revisions to Master Plan Report Implementation

☐ Outdoor Rearing – Circular Tank Farm

- ☐ Incubation Room: Re-assess Previous Work
- ☐ Re-evaluate entire system and zones
- ☐ Dedicate re-use lines in Hydraulic Report

Recommendations from Master Plan (Revisit)

- ☐ F-Series would be replaced by thirty-two 8-foot-diameter fiberglass tanks (Zone 1)
- ☐ A-Series would be replaced by thirty-two 16-foot-diameter fiberglass tanks (Zone 1)
- ☐ B-Series would be replaced by twenty-four 20-foot-diameter fiberglass tanks (Zone 2)
- ☐ C-Series would not be needed and can be demolished
- ☐ Eight and 16-foot-diameter tanks would receive first-pass treated surface water (Zone 1)
- ☐ Zone 2 would receive first-pass water from the addition of the new ozone plant
- ☐ Sixteen- and 20-foot tanks would be plumbed with fish release piping to the monitor and evaluation transfer facility.

Fish Transfer



Update Bioprogramming Report & Model

Revisions to Master Plan Report Implementation

☐ M & E (Monitor/Evaluate) Fish Transfer Facility

Update current operations and interim during construction.

There are (2) components to this task see RFQ/P

- ☐ Major Consultant Task: Revisit this Operation and Submit a proposal for a plan to transport the fish through the facility and moving fish plan from incubation – release methodologies.
- ☐ Address: fish storage (including overlap populations) during construction and operations
- ☐ Reference 2018 Master Plan for Workshop Notes Appendix C, D, and E

Recommendations from Master Plan to **Revisit**

- ☐ Early rearing troughs in the incubation room: Cam-Lok type fittings to allow water-to-water transfer of fish to the 8-foot diameter fiberglass rearing tanks
- ☐ 8-foot-diameter fiberglass rearing tanks: fitted with inlet and outlet Cam- Lok type fitting to allow water-to-water transfer of fish to the 16- and 20-foot-diameter fiberglass tanks
- ☐ The 16- and 20-foot-diameter fiberglass tank: fitted with inlet Cam-lok type fitting to accept water-to-water transfer of fish from the 8-foot-diameter fiberglass tanks
- ☐ The 16- and 20-foot-diameter fiberglass tank: incorporate secondary fish release side box drain, which would allow water-to-water transfer from the tanks to the monitoring and evaluation fish transfer station
- ☐ Elevation of the 8-, 16-, and 20-foot tanks set to allow for gravity transfer of fish
- ☐ Tagging trailer hook-ups at the monitoring and evaluation facility
- ☐ Monitoring and evaluation fish transfer station: gravity-fed or pumped to rearing lakes.

Rearing Lakes



Update Bioprogramming Report & Model

Revisions to Master Plan Report Implementation

☐ Rearing Pond 4 and Pollution Abatement Pond

☐ Rearing Ponds 1, 2, 3

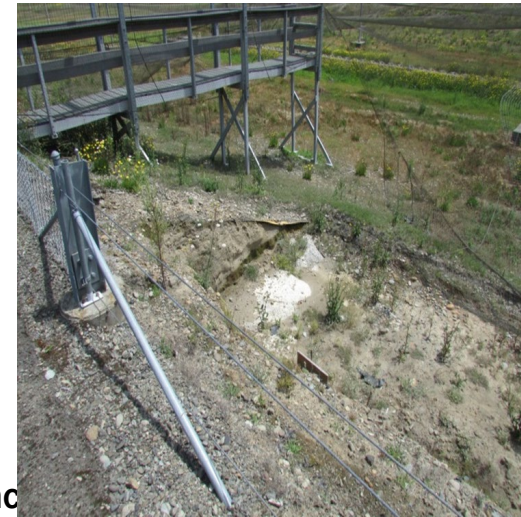
- ☐ Re-Visit decision as a Pilot Study and all recommendations selected
- ☐ Revisit assumptions for all ponds with Alternative Analysis
- ☐ Predation prevention plan
- ☐ Provide cost/benefit
- ☐ New alternatives with intentional decision taking steps
- ☐ Assess how ponds should be segregated at full build out
- ☐ Assess phasing and construction interim plans
- ☐ Include in Hydrology/Hydraulic Report and Bioprogramming
- ☐ Update and provide 3D models for visual training and ongoing operations and maintenance

Staff Notes - Add:

- Active rotation screens, outlet/inlet-docks, trams, enclosures fencing, netting to fence kettles, waste management plan (divers?) and a release channel to Cowlitz in lieu of Blue Creek
- Ability to remove/insert fish counters (rotation), do not need all ponds at once
- Fish Counter Rotation: (2) total and move, whole system needs evaluation by a biologist - Add all rearing pond bio analysis to scope



Pollution Abatement



Rearing Lakes

Update Bioprogramming Report & Model

Revisions to Master Plan Report Implementation

❑ Water Rights

[Water rights - Washington State Department of Ecology](#) & new legislation [Water Right Transfers, Water Banking, and Trust Legislative Report](#)

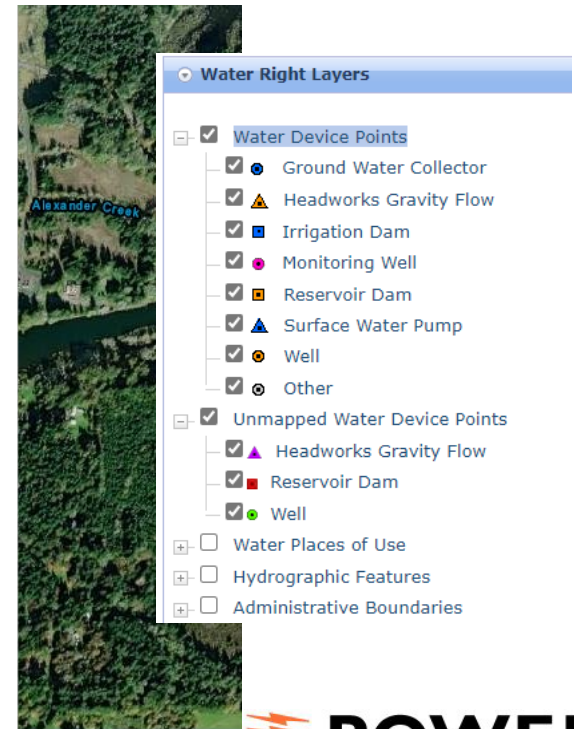
- ❑ Consultant will assess changes in Bioprogramming, Ozone Alternatives, Rearing and Abatement Ponds, Alternative review of outfall to Cowlitz River (re-visit Blue Creek), Groundwater Rehabilitation Study, and Hydrology/Hydraulic Report to re-access Water Rights needs and Mitigation

2.1 Water Supply

The original facility design utilized three sources of water that included the Cowlitz River, Blue Creek and wells (North Well Field & South Well Field). The current facility operation utilizes Cowlitz River and the South Well Field. Original water rights included:

- Cowlitz River – 56 cfs
- South Well Field – 10.8 cfs
- North Well Field (not utilized) – 1.9 cfs
- Blue Creek (not utilized) – 18 cfs

The two primary sources of water for production at the facility in 2016 were the Cowlitz River and the South Well Field. Current flows utilized by these two sources were 50 cfs and 3.2 cfs respectively. Blue Creek is not utilized as a water supply to the facility and the North Well Field has been abandoned due to the presence of iron and iron bacteria. Raw river water can be treated with an on-site ozonation system but is limited to treating 20 cfs of the 50 cfs due to the limitations of the ozone system capacity. At peak water demand, the facility receives a combination of well water, treated ozone water and untreated river water. In addition, water is serially reused between raceways through a gravity based overflow system. Water delivered to the raceways series can be reused in a variety of flow scenarios depending on the timing and demand required. For example, well water delivered to F-Series and then can be serially reused into A-Series. Similarly, ozone treated water can be utilized in A-Series and serially reused in B-Series or C-Series. The percentage of reused water differs each month based on water demand within each series.



Intake Structure



Hydrology/Hydraulic Report - Intake

Revisions to Master Plan Report Implementation

- ❑ Intake (based on alternatives selected entering flows may change from **64 cfs (+/-)**).

Consultant Scope (Report and Design):

- ❑ Removal of the existing intake screens, generator, supply pumps, piping, valves, and gates.
- ❑ Installation of a new inclined flat panel screen system at the intake entrance bay flush with the existing inclined walls.
- ❑ Screens NOAA compliant with sufficient surface area to increase the withdrawal capacity **64 cfs (+/-)**. (to be reverified)
- ❑ TPU/Consultant site visits assess Operations/Maintenance
- ❑ Installation of new water supply pumps with **64 cfs** capacity to match the withdrawal capacity of the screens
- ❑ The pumps variable frequency drives to allow flow adjustment



Hydrology/Hydraulic Report - Intake

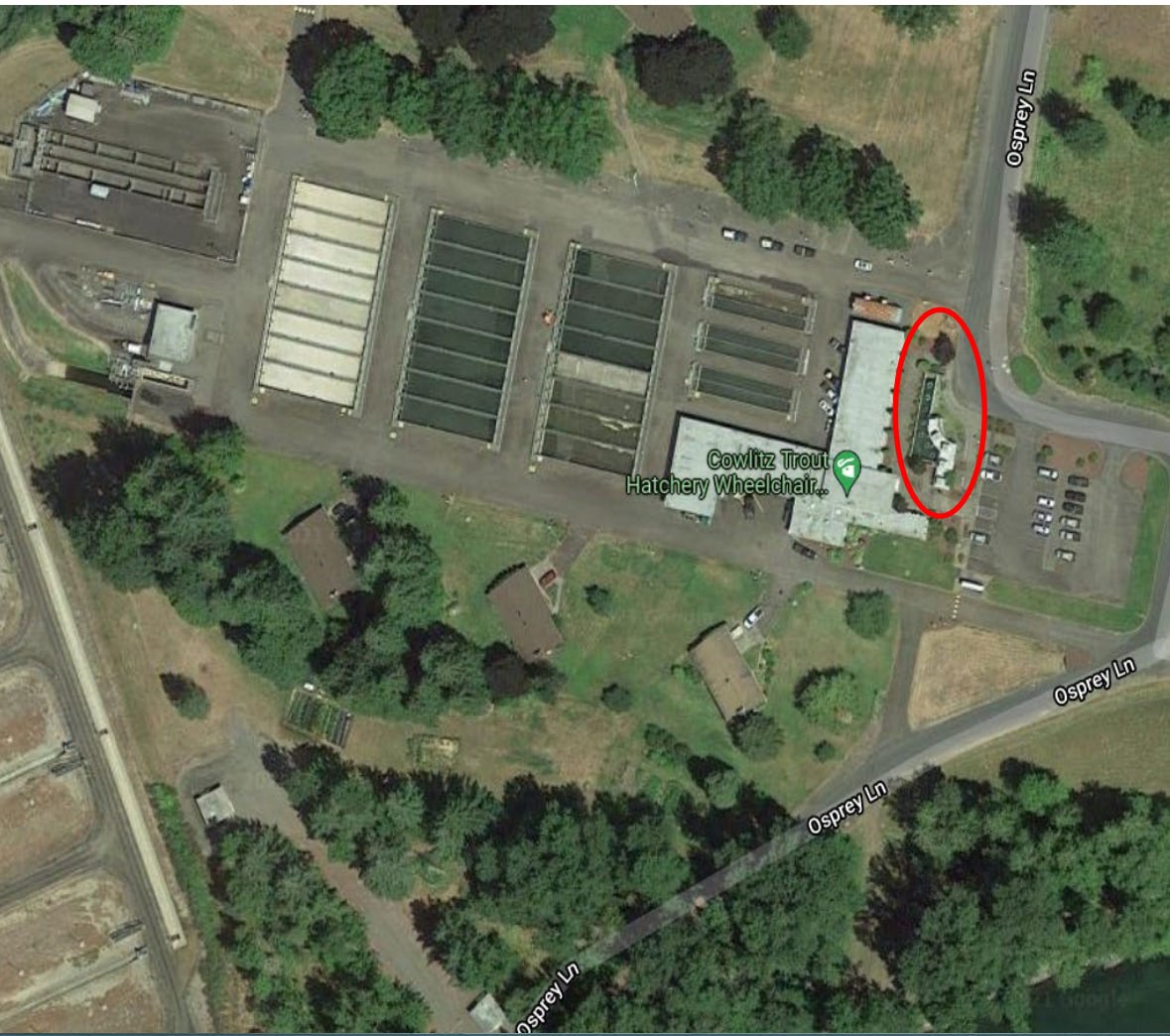
Continued: Intake

Consultant Scope (Report and Design):

- ☐ Installation of an air backwash cleaning system for the new screens with a split manifold for low water operation
- ☐ Installation of a new backup generator capacity to support equipment needs for the intake and pumping modifications
- ☐ Provision for safe access for manual cleaning and inspection of screens
- ☐ Segmentation of the intake bays into two chambers or bays so that each side can be isolated
- ☐ Addition of isolation/bypass valve or gate between water intake bays
- ☐ Installation of a jib crane for screen removal
- ☐ Provision of improved sheer log and debris boom
- ☐ Installation of flow meters for the supply pumps



Water Control Structure



Hydrology/Hydraulic Report – Head Tank

☐ Head Tank (Affected by revisions to Master Plan)

- Based on Bioprogramming alternatives entering flows may change from **64 cfs (+/-)**
- Base on results of Ozone alternatives/Rearing and Abatement Ponds
- Dependent on groundwater study
- ☐ Rely on a **64 cfs** surface water withdrawal **(to be reverified)**
- ☐ Provide a multi-chamber-surface water head tank for raw and treated surface water
- ☐ The ability to gas balance **40 cfs ozonized surface water and 24 cfs** of raw surface water **(to be reverified)**
- ☐ Ability to overflow unused treated river water into the raw river water chamber
- ☐ Ability to gas balance **0 to 1800** gallons per minute (gpm) groundwater with future provisions for ultraviolet disinfection **(to be reverified)**
- ☐ Enclose the structure for bio-security
- ☐ Operating water surface capable of running heath stacks and head troughs in the incubation room along with future flexibility **(to be reverified)**
- ☐ Provide pressure transducer and VFD level control to increase operational efficiency
- ☐ Ground water cell may be moved closer to hatchery and may not be part of the surface water head tank **(to be reverified)**



Process Piping



Civil and conveyance channels



Hydrology/Hydraulic Report

☐ Site Process Piping & Civil Site Improvements

(Affected by revisions to Master Plan and new Alternatives Evaluation)

• Problem Statements:

- ☐ Surface water distribution system: most of the valves no longer work or have seized
- ☐ Valves are buried and unable to be serviced or replaced
- ☐ Ground settlement and pipe failures past useful life
- ☐ Existing system can not supply first pass surface water to rearing vessels limited hydraulic capacity
- ☐ Abandon all and provide new
- ☐ Current facility with new and retrofitted impervious surfaces upgrade to SWMMWW

Consultant Scope (Report and Design):

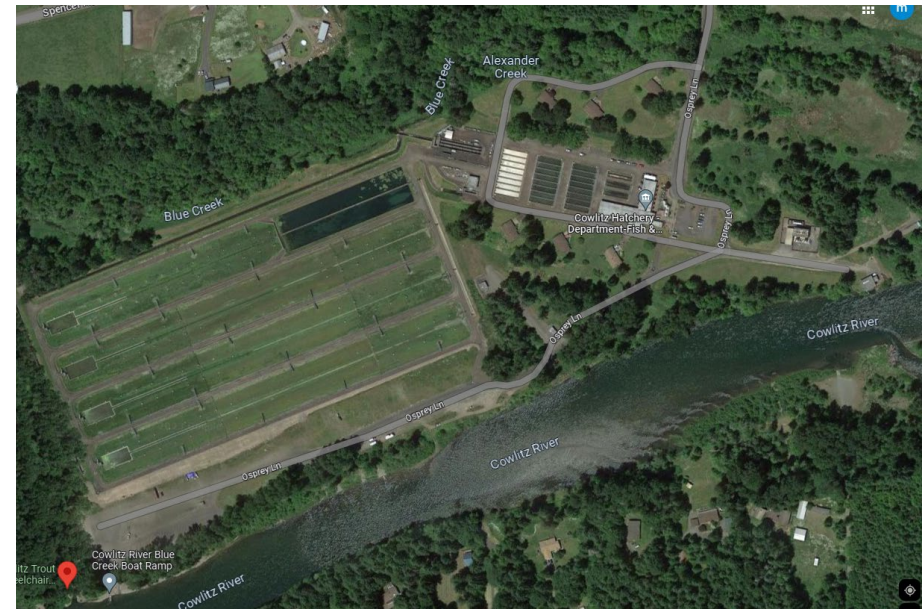
- ☐ Design 50-year+ operational life
- ☐ The treated water supply line design hydraulic capacity of **40 cfs (needs reverification)**
- ☐ The raw water pipe would have a hydraulic capacity of **64 cfs (+/-)** to match the selected capacity of the intake **(needs reverification)**
- ☐ All water routed to head tank
- ☐ All **8-, 16-, and 20-foot fiberglass tanks** would be able to receive either first-pass raw or ozonated river water **(needs reverification)**

Hydrology/Hydraulic Report

☐ Site Process Piping & Civil Site Improvements

Staff Notes:

- ☐ The hatchery facility floods when Blue Creek rises from heavy rains causing extensive clean-up efforts and reduced operations
- ☐ The potable water system needs rehabilitation and is inadequate for facility
- ☐ Managing public traffic will help with bio security risks
- ☐ New circulation plan for the total site to include public boat traffic for total site
- ☐ Implement greater signage, gates, and fencing allow greater circulation separation and bio-security from public vehicles
- ☐ Stormwater Management Plan
- ☐ Surface water system rehabilitation
- ☐ Revisit Blue Creek assumptions
- ☐ Include master building out for future hatchery building for circulation, delivery, function etc.



Adult Handling



Hydrology/Hydraulic Report - AFHF

☐ Adult Fish Handling Facility (AFHF)

Staff Notes:

- Add scope, tie into hydraulic report, plumbing in and tie in feasibility to existing facility
- This needs the full hydraulic model of intake through facility to outfalls. (through to canal)

Moving Forward:

- Selected alternative: Leave this facility as is for now too many unknowns
- Revisit in future: Identify necessary infrastructure upgrade in a few years once the program has evolved is the path forward in the future



Outlet Structures



Hydrology/Hydraulic Report

☐ Outlet Modifications Cowlitz - **Alternatives**

Staff Notes:

- ☐ WDFW (Discussions in TPU Partnering Charter)
- ☐ Access concern for future dredging
- ☐ Cowlitz River back flow issues
- ☐ Increase pond elevation or emergency bypass pumps?
- ☐ Double fish screening
- ☐ Alternative evaluation for Blue Creek
- ☐ Potential other Discharge upstream Cowlitz

Assessment:

- ☐ Current hatchery outlet configuration allows the site to drain to Blue Creek and to the Cowlitz River
- ☐ Future programmatic goals: Alternative evaluation Blue Creek/Cowlitz River
- ☐ However, to satisfy the concern of relocating the ADA fishing location, the decant water from the pollution abatement pond would be directed to the existing Cowlitz River outfall



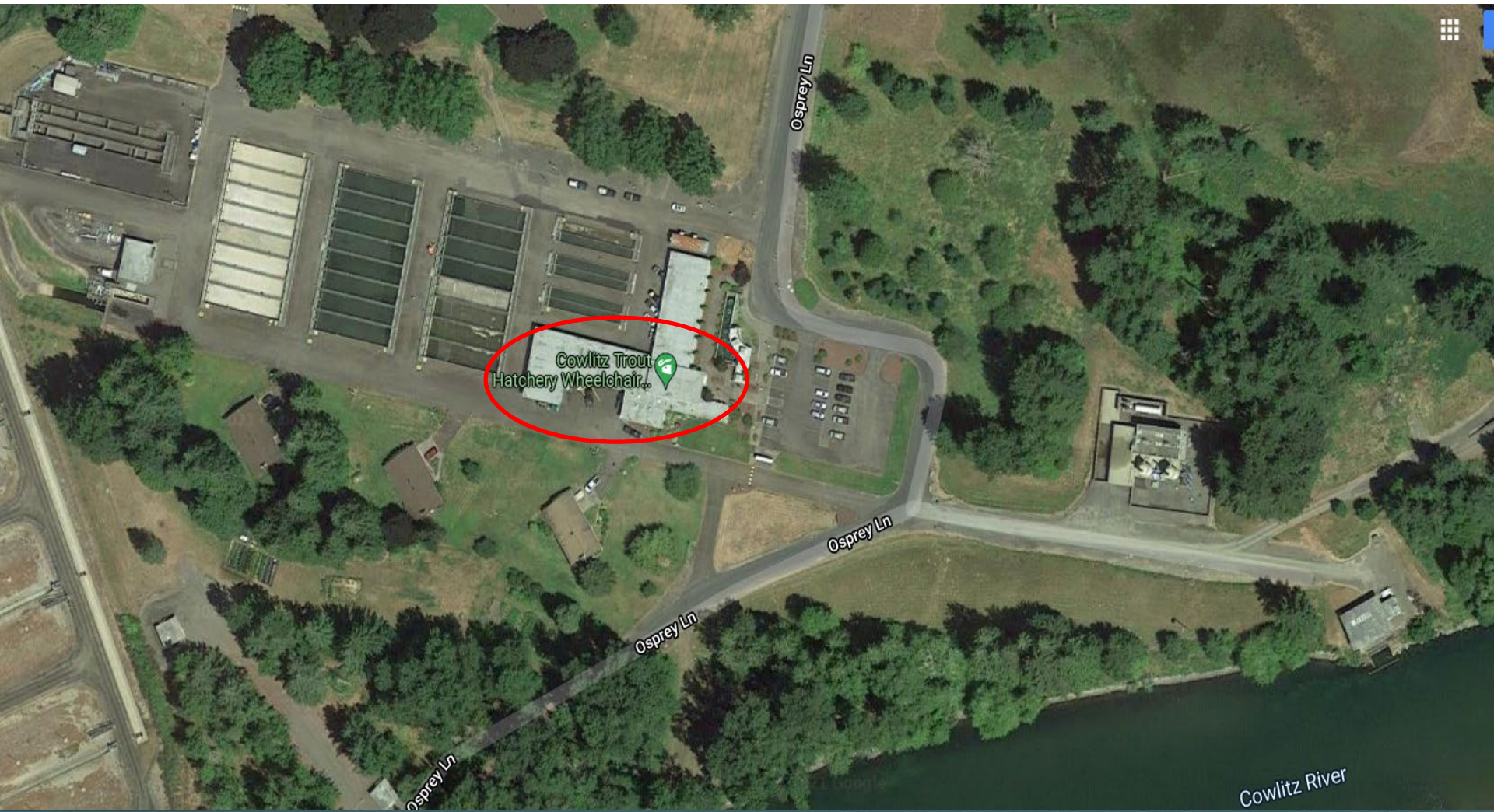
Electrical and SCADA

- **Electrical and Instrument/Controls “Consultant” PLC/Network “TPU”**
10% Design Consultant Scope: Evaluate, Design Interim Systems, Design Permanent Systems (Full Facility Build Out)
 - ❑ Primary power hatchery complex 12.5 kV/7.2 overhead line running parallel to the main access road
 - ❑ Initial Facility Assessment (Appendix F of Master Plan): power system to the site and the main switchgear functional with some upgrades that occurred in 1989
 - ❑ However, modernization of the hatchery complex would require several new distribution lines, which would need to be routed to modernized facilities
 - ❑ This would require extensive coordination keeping existing systems in operation during the phased approach to full build-out

The Consultant shall include design for all Electrical and Instrumentation required to support the changes required by the other tasks in this proposal. The Consultant shall provide a 10% design for electrical modifications required and proposed instrumentation at each system. All programming of Programmable Logic Controllers (PLCs) and Human Machine Interfaces (HMI's) will be done internally by Tacoma Power.



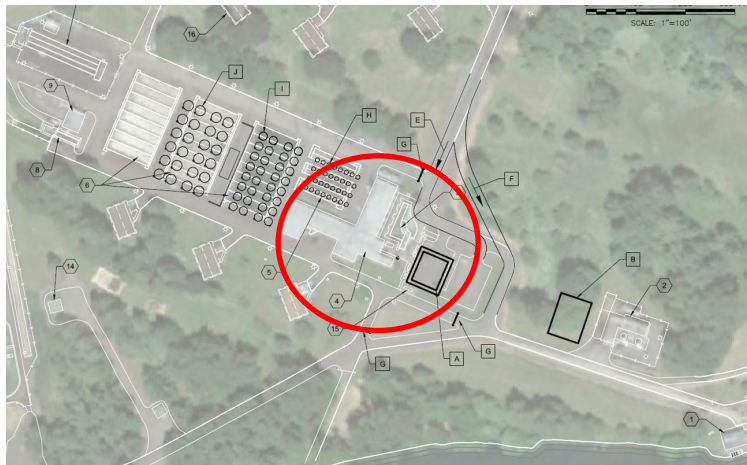
Office Building



Hatchery/Office Building

- Hatchery/Office Building

- ☐ Recommend Deviation from Master Plan
- ☐ Recommend Consultant Task as a Tech Memo
Benefit/Cost New vs. Remodel
Site new location in in master circulation plan
Cost out 10 years in master plan for implementation
- ☐ Include all ADA from parking, entrance and through the building
- ☐ No Alternative Analysis, just Tech Memo on recommendation justification



Living Quarters Site Residences

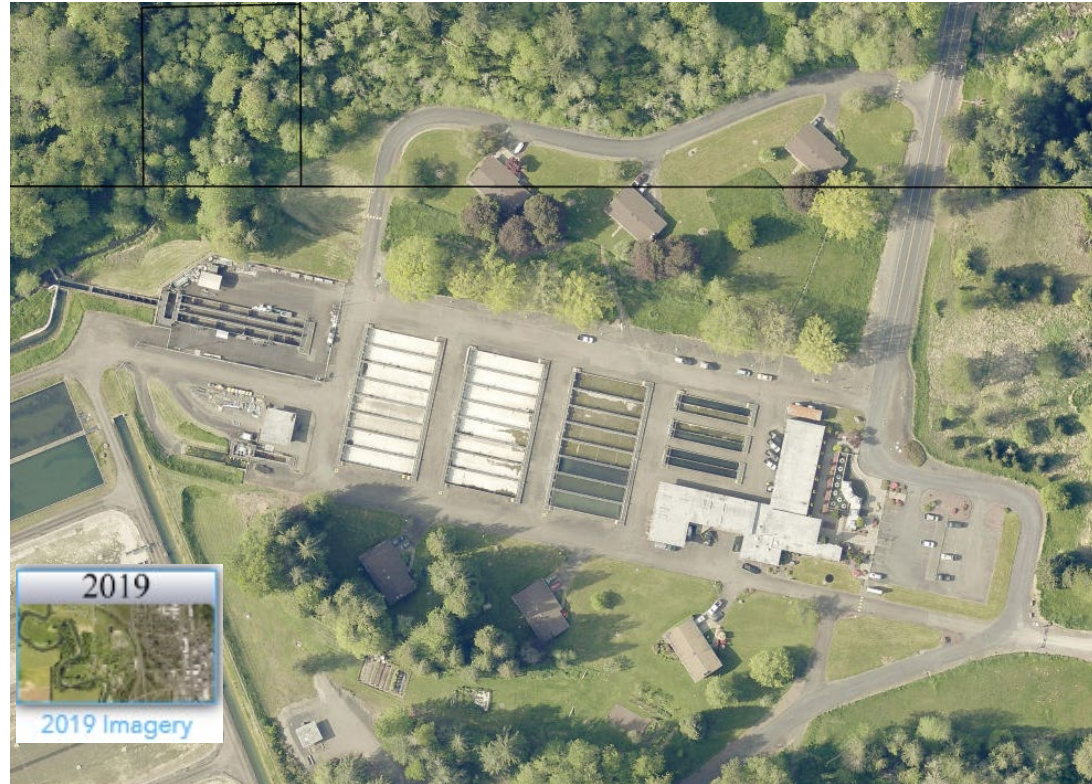
- Living Quarters Site Residences
(Remodels)

“Kitchens/Windows”

Evaluate Operations Assumptions

50 years ago, from today 1973

- ☐ Residence #1 1960
- ☐ Residence #2 1966
- ☐ Residence #3 1966
- ☐ Residence #4 1977
- ☐ Residence #5 1977
- ☐ Residence #6 1977
- ☐ Detailed Structures Water Tanks
1967



[Parcel number 028206000000 \(lewiscountywa.gov\)](https://www.lewiscountywa.gov/assessor/028206000000)

[Link to Lewis County Assessor for \(6\) Residences](#)

Storage

- Storage (no change)
 - ☐ Heated storage facilities are lacking at the facility
 - ☐ Master plan proposes two storage facilities.
 - ☐ One to be located near the intake and ozone plant
 - ☐ One located near the large outdoor rearing ponds.
 - ☐ Storage facility located near the ozone plant: ability to store critical spares and equipment for facilities maintenance
 - ☐ Storage facility near the ponds would accommodate equipment storage such as boats, trucks, and portable fish transfer equipment.
 - ☐ Ponds storage facility would house feed for the distribution to the large ponds
 - ☐ Pre-engineered metal buildings, insulated and ventilated, equipped with heat, lighting, and welding outlets

