



**Coos County
Planning Department
Application to Develop in a
Special Flood Hazard Area**

Official Use Only

Fee _____
Receipt No. _____
Check No./Cash _____
Date _____
Received By _____
File No. _____

The undersigned hereby makes application for a permit to develop in a designated Special Flood Hazard Area ("floodplain"). The work to be performed is described below and in attachments hereto. The undersigned agrees that all such work shall be done in accordance with the requirements of the Coos County Comprehensive Plan, Coos County Zoning and Land Development Ordinance, and any other applicable Local, State, and Federal regulations. This application does not create liability on the part of the Coos County Planning Department or any officer or employee thereof for any flood damage that results from the reliance on this application or any decision made lawfully thereunder.

Owner(s): Oregon Department of Fish and Wildlife Telephone: (503) 947-6216
Address: 4034 Fairview Industrial Dr. SE
City/State: Salem, OR. Zip Code: 97302
Agent(s): Ryan McCormick Telephone: (503) 947-6216
Address: 4034 Fairview Industrial Dr. SE
City/State: Salem, OR. Zip Code: 97302
Township: 28S Section: 29 D
Range: 14W Tax Lot: _____
Situs Address: 55212 Fish hatchery Rd.
City/State: Bandon, OR. Zip Code: 97411

A. Description of Work (Complete for All Proposals):

1. Proposed Development Description:

- New Building Improvement to Existing Building
 Manufactured Structure Fill
 Other Precast Concrete Structure

2. Size and location of proposed development (a site plan must be attached):
10'-6" x 18'-8" CXT concrete precast dual ADA flushing single use restroom unit. (Ozark II)

3. Is the proposed development in a Special Flood Hazard Area (Zones A, AE, A1-A30, AH, AO, V, or VE)?

Yes Zone: A

No

4. Per the FIRM, what is the zone and panel number of the area of the proposed development?

Zone: A

Panel Number: 41011C0682F

5. Have any other Federal, State, or Local permits been obtained?

Yes - Copies of all permits must be attached.

No

6. Is the proposed development in an identified floodway?

Yes - A "No Rise Certification" with supporting data must be attached.

No

B. Complete for New Structures and Building Site:

1. Base Flood Elevation (BFE) at the site (complete one):

NGVD 29 _____ feet Source: Flood Plain Rise Analysis Report, Performed by River Design Group

NAVD 88 52.02 feet Source: _____

2. Required lowest floor elevation, including basement (complete one):

NGVD 29 _____ feet Source: _____

NAVD 88 53.01 feet Source: Coos County Plan Department

3. Number and area of flood openings (vents): 0

4. Enclosed area below BFE (in square feet): 0

C. Complete for Alterations, Additions, or Improvements to Existing Structures:

1. What is the estimated market value of the existing structure? Justification for the estimate must be attached and may include, but is not limited to, appraisals completed by private agencies or the County Assessor's office.
-

2. What is the cost of the proposed construction? Justification for the estimate must be attached. The estimate is required to include fair market value for any work provided by the property owner or without compensation.
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3. If the cost of the proposed construction equals or exceeds 50 percent of the market value of the structure, then the substantial improvement provisions shall apply.

D. Complete for Non-Residential Floodproofed Construction:

1. Type of floodproofing method:

No floodproofing is required for this project.

2. The required floodproofing elevation is (complete one):

NGVD 29 _____ feet Source: _____

NAVD 88 _____ feet Source: _____

3. Floodproofing certification by a registered engineer must be attached.

E. Complete for Land Divisions, Subdivisions, and Planned Unit Development:

1. Does the proposal contain 50 lots or 5 acres?

Yes - The plat or proposal must clearly identify base flood elevation.

No

2. Are the 100-year Floodplain and Floodway delineated on the site plan?

Yes

No

F. Authorization: All areas must be initialed by all applicant(s) prior to the Planning Department accepting any application.

I hereby attest that I am authorized to make the application for Application to Develop in a Special Flood Hazard Area and the statements within this application are true and correct to the best of my knowledge and belief. I affirm that this is a legally created tract, lot or parcel of land. I understand that I have the right to an attorney for verification as to the creation of the subject property. I understand that any action authorized by Coos County may be revoked if it is determined that the action was issued based upon false statements or misrepresentation.

Applicant

I understand it is the function of the Planning Department to impartially review my application and to address all issues affecting it regardless of whether the issues promote or hinder the approval of my application. In the event a public hearing is required to consider my application, I agree I bear the burden of proof. I understand that approval is not guaranteed and the applicant(s) bear the burden of proof to demonstrate compliance with the applicable review criteria.

Applicant

As applicant(s) I/we acknowledge that it is in my/our desire to submit this application and staff has not encouraged or discouraged the submittal of this application.

Applicant


Applicant(s) Original Signature

Applicant(s) Original Signature

4/22/2024
Date

Date

ARTICLE 5.6 NONCONFORMING

SECTION 5.6.100 NONCONFORMING USES:

The lawful use of any building, structure or land at the time of the enactment or amendment of this zoning ordinance may be continued. Alteration of any such use may be permitted subject to Sections 5.6.120 and 5.6.125. Alteration of any such use shall be permitted when necessary to comply with any lawful requirement for alteration in the use. Except as provided in ORS 215.215 (Reestablishment of nonfarm use), a county shall not place conditions upon the continuation or alteration of a use described under this Section when necessary to comply with state or local health or safety requirements, or to maintain in good repair the existing structures associated with the use. A change of ownership or occupancy shall be permitted.

As used in this Section, alteration of a nonconforming use includes:

1. A change in the use of no greater adverse impact to the neighborhood; and
2. A change in the structure or physical improvements of no greater adverse impact to the neighborhood.

SECTION 5.6.110 INTERRUPTION OR ABANDONMENT OF NONCONFORMING USES:

A non-conforming use or activity may not be resumed if it was subject to interruption or abandonment for more than one (1) year, unless the resumed use conforms to the requirements of zoning ordinances or regulations applicable at the time of the proposed resumption.

RESPONSE: The property has remained in its current use, without interruption, for more than one year.

SECTION 5.6.120 ALTERATIONS, REPAIRS OR VERIFICATION:

Alterations, repairs or verification of a nonconforming use requires filing an application for a conditional use (See CCZLDO Article 5.2). All such applications shall be subject to the provisions of Section 5.6.125 of this ordinance and consistent with the intent of ORS 215.130(5)-(8). Alteration of any nonconforming use shall be permitted when necessary to comply with any lawful requirement for alteration in the use. The County shall not condition an approval of a land use application when the alteration is necessary to comply with State or local health or safety requirements, or to maintain in good repair the existing structures associated with the use.

SECTION 5.6.125 CRITERIA FOR DECISION:

When evaluating a conditional use application for alteration or repair of a nonconforming use, the following criteria shall apply:

1. The change in the use will be of no greater adverse impact to the neighborhood.

RESPONSE: This project will not change the use of the property, thus will not adversely impact the neighborhood.

2. The change in a structure or physical improvements will cause no greater adverse impact to the neighborhood; and

RESPONSE: ODFW believes adding an additional restroom facility will not adversely impact the neighborhood. Providing additional public restroom facilities arguably improves the condition of the neighborhood. Additionally, proper floodplain development analysis will be performed to ensure flooding will not be increased to prevent negative impacts to the neighboring property owners.

3. Other provisions of this ordinance, such as property development standards, are met.

RESPONSE: All building code and county requirements to construct a new restroom at Bandon Hatchery will be met for the project.

For the purpose of verifying a nonconforming use, an applicant shall provide evidence establishing the existence, continuity, nature and extent of the nonconforming use for the 10-year period immediately preceding the date of the application, and that the nonconforming use was lawful at the time the zoning ordinance or regulation went into effect. Such evidence shall create a rebuttable presumption that the nonconforming use lawfully existed at the time the applicable zoning ordinance or regulation was adopted and has continued uninterrupted until the date of the application.

RESPONSE: Please see the attached Bandon HPMP 2023.pdf to establishing the existence, continuity, nature and extent of the nonconforming use.

BANDON HATCHERY



PROGRAM MANAGEMENT PLAN 2023

Bandon Hatchery

(Beaver Creek, Big Creek Pond, Blossom, Charleston, Cunningham Creek, Coquille, Eel Creek, Ferry Creek, Hodges, Laverne Park, Millicoma Pond, Morgan Creek, Noble Creek, Saunders, Sevenmile Creek, Tenmile and Woodward Creek Acclimation Sites)

INTRODUCTION

Bandon Hatchery is located one mile east of the City of Bandon. The site is at an elevation of approximately 98 feet above sea level, at latitude 43.1161 and longitude -124.3842. Total land area is 32.7 acres.

The hatchery water supply is obtained from two sources: Ferry Creek and Geiger Creek. Water from both sources is supplied by gravity. Starting on October 13, 2017, 3.5 cfs was transferred to the hatchery in which 2.5 was dedicated for fish production and 1 cfs for instream rights. This now gives the hatchery a combined total of 5.5 cfs.

The facility is staffed with 3.0 FTE's.

Rearing Facilities at Bandon Hatchery

Unit Type	Unit Length (ft)	Unit Width (ft)	Unit Depth (ft)	Unit Volume (ft ³)	Number Units	Total Volume (ft ³)	Construction Material	Age	Condition	Comment
Adult Holding Pond	80	20	3.25	5200	1	5200	concrete	1950	poor	spawning building built over first 20' of pond
Raceway	120	20	3.5	8400	1	8400	concrete	1950	fair	
Raceway	110	20	3.67	8074	1	8074	concrete	1950	fair	
Raceway	50	20	5.5	5500	1	5500	concrete	1937	poor	Has been rehabilitated to some degree for fish culture
Raceway	45	15	2.5	1688	1	1688	concrete	1950	good	
Raceway	100	20	3.5	7000	1	7000	concrete	1950	poor	used as acclimation ponds
Raceways	100	20	3.5	7000	2	14000	concrete	1958	good	
Troughs	16	3.2	2	102	2	205	concrete	1958	fair	
Troughs	16.75'	2.2	3	110.55	2	221.1	fiberglass	2018	excellent	
Troughs	16	2.5	1.33	53	4	213	fiberglass	1991	good	
Vertical incubators					448			2003	good	28 stacks of 16 trays

PURPOSE

Bandon Hatchery was constructed in 1925 and facility operations are funded by the State of Oregon. Various renovations have taken place since construction including an anadromous fish trapping facility, water intake on Ferry Creek and intake screens on Geiger Creek.

The facility is used for adult collection, egg incubation and rearing of both natural and hatchery Fall Chinook, Winter Steelhead and trophy-sized Rainbow Trout.

PROGRAM TYPE

The ODFW Hatchery Management Policy defines hatchery programs as either harvest or conservation programs. Harvest programs operate to enhance or maintain fisheries without impairing naturally reproducing populations. Conservation programs operate to maintain or increase the number of naturally produced fish without reducing the productivity of naturally reproducing populations.

Bandon Hatchery programs are harvest programs, used for the augmentation of fishing and harvest opportunities.

GOALS

Fall Chinook:

Coos River (37H) Stock:

1. To provide fish that are genetically and ecologically similar to wild populations, primarily for harvest, while minimizing any potential adverse impacts to the wild population of this species and other listed species.
2. To educate school students and public to increase awareness of salmonid biology, life history, and their habitat requirements, through the STEP component of the program.

Coquille River (44H) Stock:

1. To provide hatchery fish for recreational and commercial harvest that are genetically and ecologically similar to wild populations, while minimizing any potential adverse impacts to the wild population of this species or other species.
2. To increase student awareness of salmonid biology, life history, and their habitat requirements, through the educational component of the program.

Rainbow Trout: Produce trophy-sized triploid trout for Coos-Coquille-Tenmile and South Coast District standing water bodies to meet management objectives.

Winter Steelhead:

Coos River (37H) Stock: to provide fish primarily for angler harvest that are genetically and ecologically similar to wild populations to minimize any potential impacts to wild populations in the Coos River Basin.

Coquille River (44H) Stock: to provide fish primarily for angler harvest that are genetically and ecologically similar to wild populations to minimize any potential impacts to wild populations in the Coquille River Basin. 3,000 eyed eggs are designated for classroom incubation.

S. Fork Coquille River (144H) Stock: to provide fish primarily for angler harvest that are genetically and ecologically similar to wild populations to minimize any potential impacts to wild populations in the S. Fork Coquille River system. 2,000 eyed eggs are designated for classroom incubation.

Tenmile Lakes (88H) Stock: to provide fish primarily for angler harvest that are genetically and ecologically similar to wild populations to minimize any potential impacts to wild populations in the Tenmile Basin.

OBJECTIVES

Objective 1: Foster and sustain opportunities for sport, commercial, and tribal fishers consistent with the conservation of naturally produced native fish.

Fall Chinook:

Coos River (37H) Stock:

Provide 1,260,000 eyed eggs to STEP.

Provide 440,000 eyed eggs to Cole Rivers Hatchery

Produce 548,000 fingerlings (6,089 to 9,133 pounds) for acclimation and release at various sites in the Coos River System.

Coquille River (44H) Stock:

Provide 200,000 eyed eggs to Cole Rivers Hatchery.

Provide 5,500 eyed eggs to STEP. Plus 1,000 to STEP for classroom incubators.

Rainbow Trout:

Cape Cod Triploid (72T) Stock

Produce 3,000 trophy-sized trout (6,675 pounds) for release into 6 Coos-Coquille-Tenmile and South Coast District standing water bodies.

Winter Steelhead:

Coos River (37H) Stock:

Provide 175,000 eyed eggs to Cole Rivers Hatchery.

Provide 1,000 eyed eggs to STEP.

Coquille River (44H) Stock:

Provide 3,000 eyed eggs to STEP.

Produce 42,000 smolts (7,636 pounds) for release into N. Fork Coquille River.

Produce 3,000 smolts (545 pounds) for release into Ferry Creek.

Tenmile Lakes (88H) Stock:

Provide 30,000 eyed eggs to Cole Rivers Hatchery.

S. Fork Coquille River (144H) Stock:

Produce 70,000 smolts (12,727 pounds) for release into the S. Fork Coquille River system.

- Objective 2: Contribute toward the sustainability of naturally produced native fish populations through the responsible use of hatcheries and hatchery-produced fish.
- Objective 3: Maintain genetic resources of native fish populations spawned or reared in captivity.
- Objective 4: Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments by controlling egg and fish movements and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.
- Objective 5: Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.
- Objective 6: Communicate effectively with other fish producers, managers and the public.

CURRENT PRACTICES TO ACHIEVE OBJECTIVES

The sections that follow describe the current hatchery practices associated with anadromous fish production at this facility. Because ODFW hatcheries are managed to maximize use of the hatchery rearing space, hatchery operations are dynamic and subject to annual change depending upon statewide program needs.

The Native Fish Conservation Policy, the Fish Hatchery Management Policy, the Fish Health Management Policy, Coastal Multispecies Conservation and Management Plan, and Hatchery Genetic Management Plans provide guidelines for the management of wild and hatchery fish in Oregon. These policies describe the brood collection, rearing, release, and health management strategies currently used at this facility.

Objective 1: Foster and sustain opportunities for sport, commercial, and tribal fishers consistent with the conservation of naturally produced native fish.

Adult Collection

Fall Chinook:

Coos River (37) Stock – No adults are collected at the hatchery; collection sites are Morgan Creek and Noble Creek STEP facilities, and West Fork Millicoma Interpretive Center. The annual collection goal is 1,600 fish (800 pair). Adults arrive at collection sites between October and December. Peak spawning occurs during mid-November. Adults are collected for broodstock using traps, seines, and entanglement nets at several sites.

Coquille River (44) Stock - Adults are collected at the hatchery, at the Sevenmile Acclimation site and at two locations on the South Fork Coquille River system. The annual collection goal is 170 (85 pairs). Adults arrive at the hatchery and other collection sites between October and December. Peak spawning occurs during mid-November.

Rainbow Trout:

Cape Cod Triploid (72T) Stock - No adult brood stock is maintained at Bandon Hatchery; fish are received from Klamath Hatchery.

Winter Steelhead:

Coos River (37) Stock – Adults are collected by trapping at sites on the South Coos River, West Fork Millicoma River, and Tioga Creek, and by trapping and seining at the Millicoma Interpretive Center. Broodstock may also come from angler donations. The annual collection goal is 60 pairs (120 fish). Adults arrive at the collection sites between December and March. Peak spawning occurs in February. Adults are collected by trapping, netting, and angler donation.

Coquille River (44) Stock – Adults are collected at the hatchery and sites on the East Fork and the North Fork of Coquille River between late December and March. Peak spawning occurs in late January to coincide with the peak of the run. Adults are collected by trapping, netting, and angler donation. The annual collection goal is a minimum of 24 pairs (48 fish).

Tenmile Lakes (88) Stock – No adults are collected at the hatchery; broodstock is collected at Eel Lake Trap and Tenmile Lakes and transported to the hatchery. Adults arrive at collection sites between January and March. Peak spawning occurs in February. Adults are collected by trapping, netting, and angler donation. The annual collection goal is a minimum of 14 pairs (28 fish).

S. Fork Coquille River (144) Stock – Adults are not collected at the hatchery. Broodstock is collected at several netting sites on the South Fork Coquille River between December and

March. Peak spawning occurs in January to coincide with the peak of the run. Adults are collected by trapping, netting and angler donation. The annual collection goal is a minimum of 32 pairs (64 fish).

Objective 2: Contribute toward the sustainability of naturally produced native fish populations through the responsible use of hatcheries and hatchery-produced fish.

Rearing and Release Strategies

Rearing and release strategies are designed to limit the amount of ecological interactions occurring between hatchery and naturally produced fish. Fish are reared to sufficient size that smoltification occurs within nearly the entire population, which will reduce the retention time in downstream migration. Rearing on parent river water, or acclimation to parent river water for several weeks, is used to ensure strong homing to the hatchery, thus reducing the stray rate to natural populations. Various release strategies are used to ensure that fish migrate from the hatchery with least amount of interaction with native populations. The specific rearing and release strategies used at this hatchery are outlined below.

Fall Chinook:

Coos River (37H) Stock – Rear 205,000 fish to a size range of 60 - 90 fish/pound for transfer to Blossom Acclimation in early May for acclimation and release into Blossom Gulch in late May. All fish are adipose-clipped prior to transfer.

Rear 243,000 fish to a size range of 60 – 90 fish/pound for transfer to Morgan Creek Hatchery for acclimation; release on-station in late May. All fish are adipose-clipped and 30,000 are coded-wire tagged prior to transfer.

Rear 100,000 fish to a size range of 60 - 90 fish/pound for transfer to the Coquille Tribe in early May for release into Fourth Creek. All fish are adipose-clipped prior to transfer.

Rainbow Trout:

Cape Cod Triploid (72T) Stock – Rear 1,650 fish to a size of 0.5 fish/pound and 1,350 fish to a size of 0.4 fish/pound (trophy fish) for release into Coos-Coquille-Tenmile and South Coast District standing water bodies. None of the fish are marked.

Winter Steelhead:

Coos River (37H) Stock – Egg program only; see Cole Rivers Hatchery plan for details.

Coquille River (44H) Stock – Rear 42,000 fish to a size of 5.5 fish/pound; transfer to the Laverne Park for acclimation and release into the N. Fork Coquille River in late April. Most tend to hang around in the swimming hole, where volunteers feed them until they decide to migrate.

Rear 3,000 fish to a size of 5.5 fish/pound for release into Ferry Creek in early April. This group is released to generate “swim-in” broodstock for the hatchery steelhead program.

All groups are entirely marked with an adipose clip.

Tenmile Lakes (88H) Stock – Egg Program only; see Cole Rivers Hatchery plan for details.

S. Fork Coquille River (144H) Stock – Rear 40,000 fish to a size of 5.5 fish/pound; transfer to the Beaver Creek acclimation site for three-week acclimation; release into S. Fork Coquille River in late April. The entire group is marked with an adipose clip.

Rear 30,000 fish to a size of 5.5 fish/pound; transfer to Woodward Creek acclimation site for three-week period; release into Woodward Creek in late April. The entire group is marked with an adipose clip.

Objective 3: Maintain genetic resources of native fish populations spawned or reared in captivity.

Broodstock Selection and Spawning

Oregon's Native Fish Conservation Policy and Hatchery Genetic Management Plans outline broodstock selection and spawning protocols for some fish stocks. The following practices are currently being used at Bandon Hatchery:

Fall Chinook:

Coos River (37) Stock: Currently the broodstock program is comprised of a target of 30% wild fish, with hatchery fish making up the remainder. Adults are collected randomly throughout the run, without selection for any particular characteristics. Fish are spawned at a 1:1 male to female ratio, matching males and females of similar size in 50 mm length increments.

Coquille River (44) Stock: The broodstock program is comprised of a target of 30% wild fish, with hatchery fish making up the remainder. Returning adults are collected randomly throughout the run, without selection for any particular characteristics. Spawning is at a 1:1 male to female ratio. Only Coquille River stock is used for the program.

Rainbow Trout:

Cape Cod (72T) Stock: No broodstock is maintained at the hatchery.

Winter Steelhead:

Coos River (37) Stock: The broodstock program is comprised of a target of 30% wild fish, with hatchery fish making up the remainder. Adults are collected randomly throughout the run, without selection for any particular characteristics. Fish are spawned at a 1:1 male to female ratio; wild fish are mated only with wild fish. Only Coos stock is used for the program; any hatchery steelhead with marks identifying them as foreign stock are not used as broodstock.

Coquille River (44) Stock: The broodstock program is comprised of a minimum target of 30% wild fish, with hatchery fish making up the remainder. Adults are collected randomly throughout the run, without selection for any particular characteristics. Fish are spawned at a 1:1 male to female ratio. Only Coquille stock is used for the program; any hatchery steelhead with marks identifying them as foreign stock are not used as broodstock.

Tenmile Lakes (88) Stock: The broodstock program is comprised of a minimum target of 30% wild fish, with hatchery fish making up the remainder. Adults are collected randomly throughout the run, without selection for any particular characteristics. Fish are spawned at a 1:1 male to female ratio. Only Tenmile stock is used for the program; any hatchery steelhead with marks identifying them as foreign stock are not used as broodstock.

S. Fork Coquille River (144) Stock: The broodstock program is comprised of a minimum target of 30% wild fish, with hatchery fish making up the remainder. Adults are collected randomly throughout the run, without selection for any particular characteristics. Fish are spawned at a 1:1 male to female ratio. Only Coquille stock is used for the program; any hatchery steelhead with marks identifying them as foreign stock are not used as broodstock.

Objective 4: Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments by controlling egg and fish movements and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.

Fish Health Management Programs--All Stocks

ODFW has adopted a Fish Health Management Policy that describes measures that minimize the impact of fish diseases on the state's fish resources. The primary objective of fish health management programs at ODFW hatcheries is to produce healthy smolts that will contribute to the fishery and return sufficient numbers of adults to continue propagation of the stocks and provide supplementation if desired. Equally important is to prevent the introduction, amplification or spread of fish pathogens that might negatively affect the health of both hatchery and naturally reproducing stocks.

ODFW has implemented both disease control and disease prevention programs at all of its facilities to achieve these objectives. These programs include the following standard elements:

Disease Control (Reactive)

- Perform necropsies of diseased and dead fish to diagnose the cause of loss.
- Prescribe appropriate treatments and remedies to disease. This includes recommending modifications in fish culture practices, when appropriate, to alleviate disease-contributing factors.
- Apply a disease control policy as stated in the Oregon Administrative Rules which dictates how specific disease problems will be addressed and what restrictions may be placed on movements of diseased stocks.
- Conduct applied research on new and existing techniques to control disease epizootics.

Disease Prevention (Proactive)

- Routinely remove dead fish from each rearing container and notify ODFW Fish Pathology if losses are increasing. Monthly mortality records are submitted to Fish Pathology from each hatchery.
- Routinely perform examinations of live fish to assess health status and detect problems before they progress to clinical disease or mortality.
- Implement disease preventative strategies in all aspects of fish culture to produce a quality fish. This includes prescribing the optimal nutritional needs and environmental conditions in the hatchery rearing container based on historical disease events. It also involves the use of vaccines or antibiotics in order to avoid a disease problem.
- Use a disease prevention policy that restricts the introduction of stocks into a facility. This will help avoid new disease problems and fish pathogens not previously found at the site.
- Use sanitation procedures that prevent introduction of pathogens into and/or within a facility.
- Conduct applied research on new and existing disease prevention techniques.
- Utilize pond management strategies (e.g., Density Index and Flow Index guidelines) to help optimize the quality of the aquatic environment and minimize fish stress that can be conducive to infectious and noninfectious diseases. For example, a Density Index is used to estimate the maximum number of fish that can occupy a rearing unit based on the rearing

unit's size. A Flow Index is used to estimate the rearing unit's carrying capacity based on water flows.

Fish Health Activities at Bandon Hatchery

Health Monitoring

- All fish are given a health inspection no longer than 6 weeks before fish are released or transferred. This exam may be in conjunction with the routine monthly visit.
- Monthly health monitoring examinations of healthy and clinically diseased fish are conducted on each fish lot at the hatchery.
- Examinations for *Myxobolus cerebralis*, agent of whirling disease, are conducted annually on 60 fish held for a minimum of 180 days at the facility.
- At spawning, a minimum of 60 ovarian fluids and 60 kidney/spleen/pyloric caeca (based on a minimum sampling at the 5% incidence level) are examined for viral pathogens from each salmon lot. Lots with fewer spawned females are 100% sampled. If prespawning mortality is above normal, necropsies are conducted on dead adult fish for bacteria, parasites and other causes of death.
- Whenever abnormal behavior is reported or observed, or mortality exceeds 0.1% per day over five consecutive days in any rearing container, the fish pathologist will examine the affected fish, make a diagnosis and recommend the appropriate remedial or preventative measures.
- Reporting and control of specific fish pathogens are conducted in accordance with the Fish Health Management Policy. Results from each examination mentioned above are reported on the ODFW Fish Health or Virus Examination forms.

Fish and Egg Movements

- Movements of fish and eggs are conducted in accordance with the Fish Health Management Policy.

Therapeutic and Prophylactic Treatments

Only approved or permitted therapeutic agents are used for treatments:

- FDA labeled and approved for use on food fish
- Allowed by the FDA as an Investigational New Animal Drug
- Obtained by extra-label prescription from a veterinarian
- Allowed by the FDA as low regulatory priority or deferred regulatory status
- Approved by the FDA through USFWS for fish listed under the federal Endangered Species Act.

Sanitation

- All eggs brought to the facility are surface-disinfected or water-hardened in buffered iodophor.
- Disinfection footbaths (or other means of disinfection) are provided at the incubation facility's entrance and exit areas while embryos are incubating in the facility.
- All equipment (e.g., nets, tanks, rain gear, boots) is disinfected with iodophor between uses with different fish/egg lots or different rearing containers.

- Dead fish are disposed of promptly and in a manner that prevents introduction of disease agents to the waters of the state.
- Rearing units are cleaned on a regular basis.
- Rearing units are sanitized after removing fish and before introducing a new fish stock either by thorough cleaning and use of a disinfectant or by cleaning and leaving dry for an extended time.

Objective 5: Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.

Environmental Monitoring

Primarily, environmental monitoring is conducted at ODFW facilities to ensure these facilities meet the requirements of the National Pollution Discharge Elimination Permit administered by the Oregon Department of Environmental Quality. It is also used in managing fish health. On a short-term basis, monitoring helps identify when changes to hatchery practices are required. Long-term monitoring provides the ability to quantify water quality impacts resulting from changes in the watershed (e.g., logging, road building and urbanization). The following environmental parameters are currently monitored at all ODFW hatcheries:

- Total Suspended Solids (TSS) – measured quarterly during the month of highest production. Two composite samples are collected weekly, one during normal operations and one during cleaning. Some facilities may take more samples because of multiple outfalls.
- Settleable Solids (SS) – measured quarterly during the month of highest production. Two composite samples are collected weekly, one during normal operations and one during cleaning. Some facilities may take more samples because of multiple outfalls.
- pH – measured quarterly during normal operations.
- Water Temperatures – daily maximum and minimum water temperatures are measured within the hatchery. Temperature units are recorded for egg development in some hatcheries.
- Dissolved Oxygen (DO) – measured only when conditions warrant (e.g., periods of low flows and high temperatures).
- Air Temperatures – maximum and minimum temperatures are recorded daily at some stations, but there are no special monitoring requirements.
- Flow Logs – changes in water flows through the hatchery ponds are recorded whenever flows are altered for hatchery management activities (i.e., ponding of fish, splitting of fish lots, fish releases, etc.).

Objective 6: Communicate effectively with other fish producers, managers and the public.

Coordination/Communication within ODFW

Annual Fish Production Meetings: ODFW conducts meetings throughout the state to set annual fish production goals for all public hatcheries in Oregon. These meetings involve the participation of ODFW research, management and fish culture staff as well as representatives from applicable federal agencies and tribes.

Record Keeping: The following records are kept at all ODFW hatcheries:

- Anadromous Adult Transaction Report – details the collection and disposition of all adult fish handled at the facility.
- Mark Recovery Report – details sex, fish length and tag information from all marked adult fish that are captured.
- Egg and Fry Report – records all egg and fry movements, treatments, etc.
- Monthly Poned Report – updates hatchery operations from the previous month (i.e., current number of fish, size, transfers or releases, feed conversion, mortality, medication, etc.).
- Monthly Progress Report – document summarizing operational activities for the hatchery and all satellite facilities (e.g., fish culture, fish health, fish distribution, maintenance and safety).
- Fish Loss and Treatment Report – records disease problems and daily mortality.
- Fish Loss Report/Investigation – when 1,000 or more juveniles or 10 or more adult fish are accidentally lost in a single accident.
- Predator Mortality Report – documents any fish predators that may die at the hatchery facility.
- Fish Liberation Reports – details information regarding all fish releases (e.g., fish numbers, size, location, method of release, marks, etc.).
- Coded –Wire Tag Release Reports – record of all juvenile fish released with coded-wire tags.
- Length Frequency Record – details fish lengths of all anadromous fish released (based on a sample of the releases).
- Chemical use, waste discharge monitoring, purchasing, budget, hazardous materials, safety, vehicles, equipment, maintenance and alarm logs.
- Visitor Log – some facilities record the daily visitor use of the facility; however, this is not a requirement.

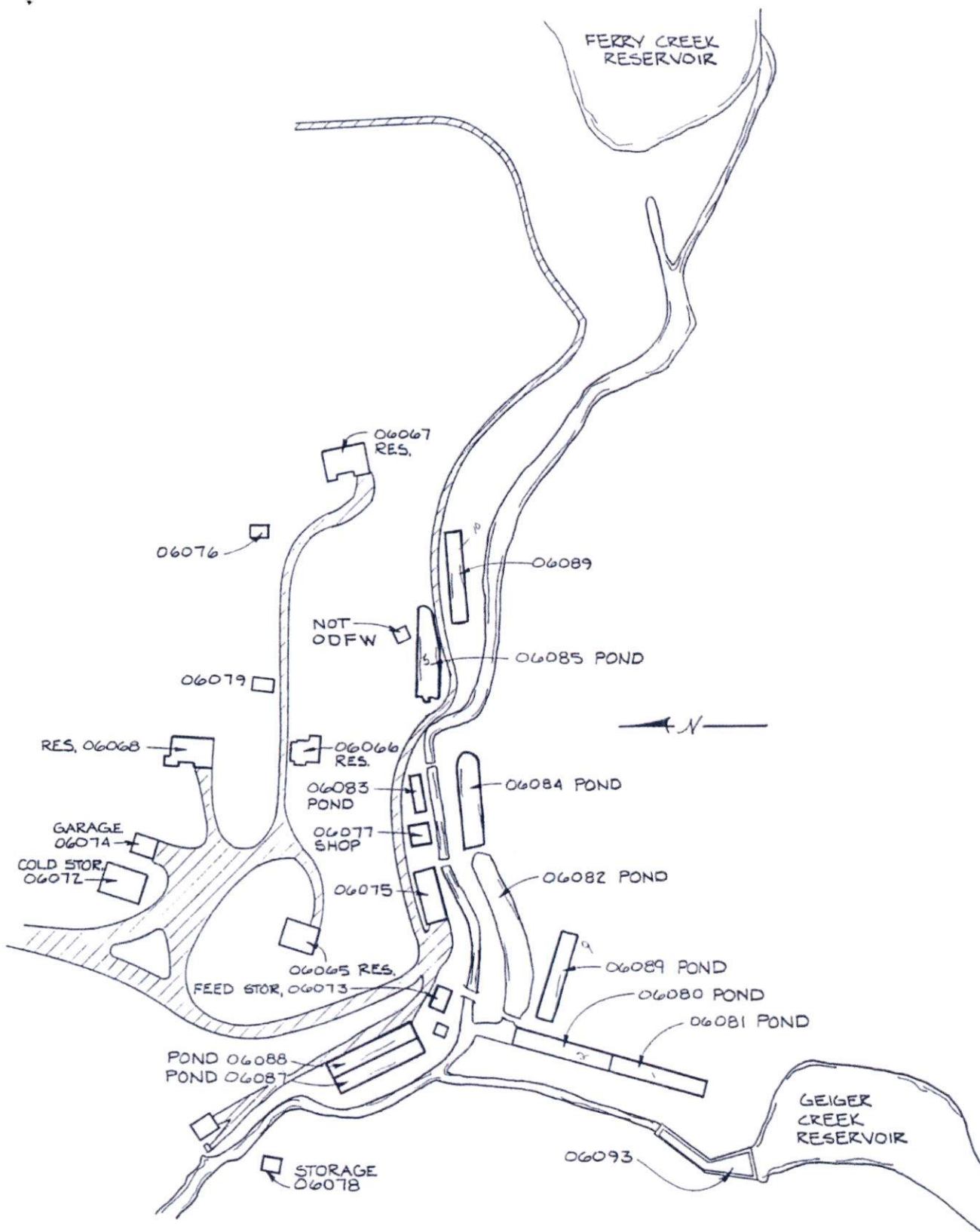
Hatchery Management System (HMS): Computerized system to collect, report, summarize and analyze hatchery production data. This system is a tool to be used in production control at all hatchery management levels.

Interagency Coordination Communication

Pacific Northwest Fish Health Protection Committee (PNFHPC): This group is comprised of representatives from U.S. and Canadian fish management agencies, tribes, universities, and private fish operations. The groups meets twice a year to monitor regional fish health policies and to discuss current fish health issues in the Pacific Northwest.

Communication with the General Public

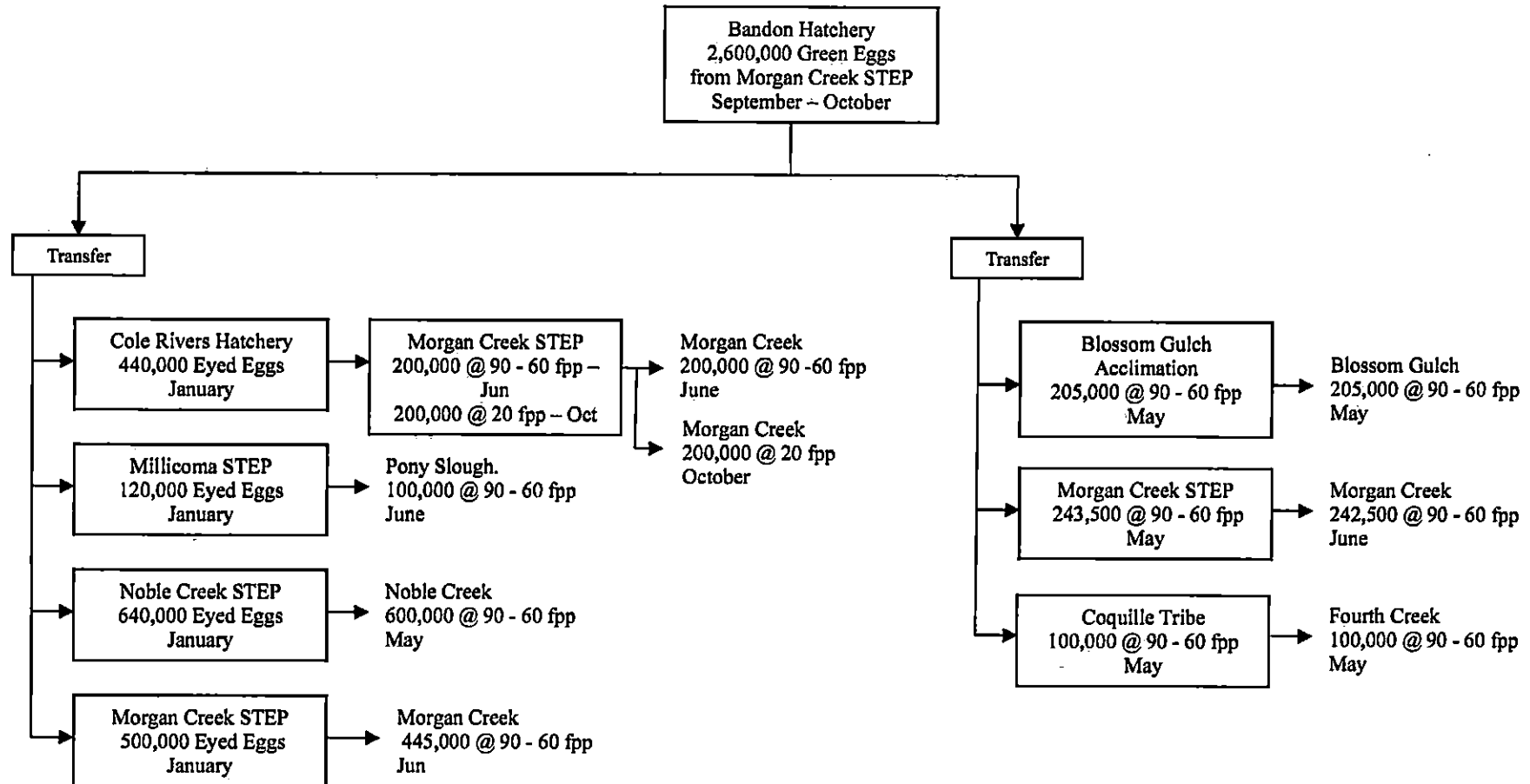
Bandon Hatchery receives approximately 3,000 visitors each year.



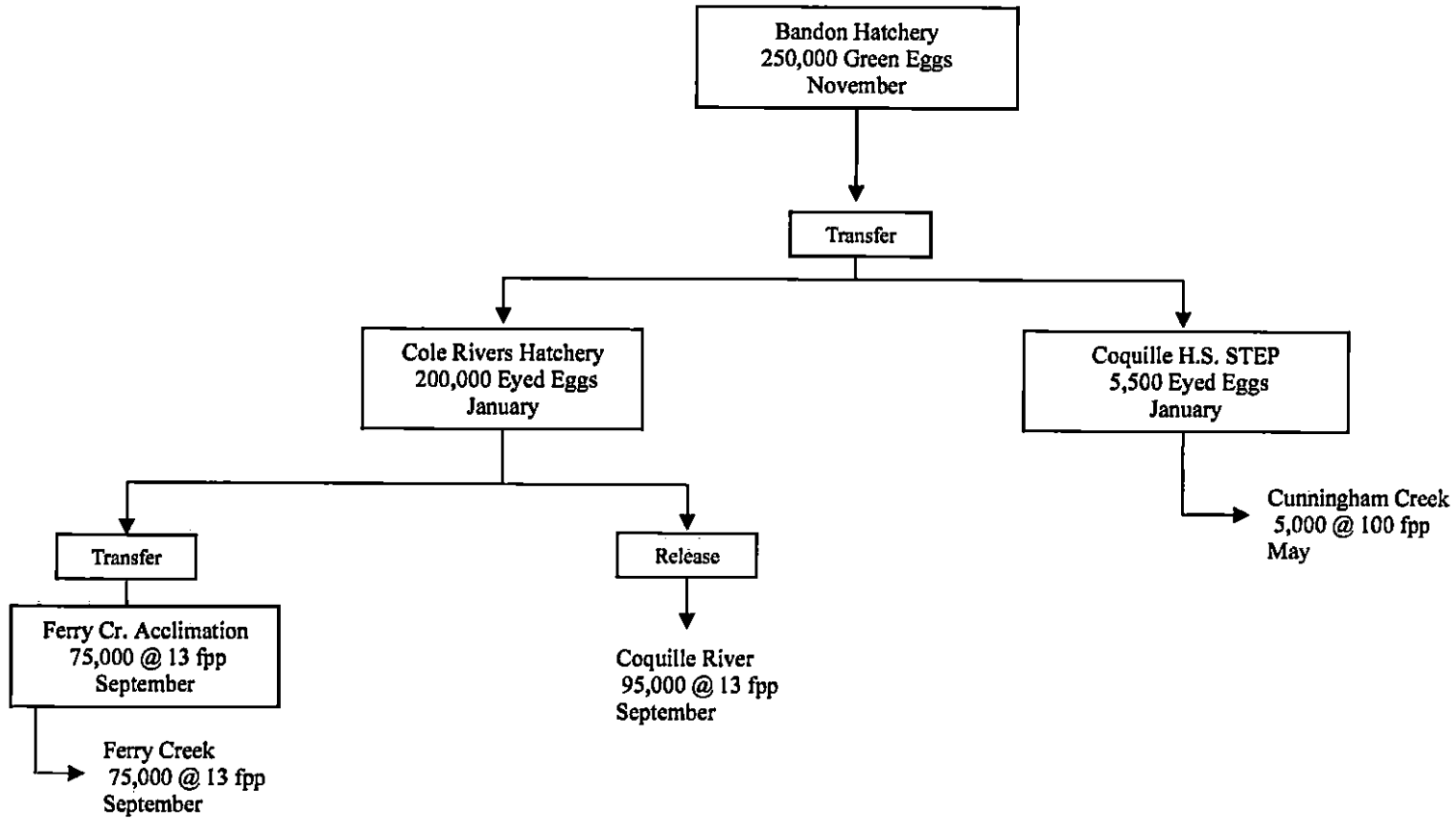
BANDON HATCHERY

LAND - PARCEL A (06061)	DAM (06094)	LANDSCAPING (06102)
" " B (06062)	PIPELINE (06095)	STOR. TANK (06103)
" " C (06063)	RETAINING WALL (06096)	SEWAGE DISPOSAL (06104)
PUMP HOUSE (06076)	LIGHTS (06105)	ROADS & CULVERTS (06106)
STORAGE SHED (06079)	CANAL (06097)	
DAM & PIPELINE (06090)	POND(HAT. BLDG.) (06098)	
DAM (06091)	" " (06099)	
RETAINING WALL (06092)	PIPE (06100)	
DAM & PIPELINE (06093)	FLAGPOLE (06101)	
STORAGE SHED - SEARS (06064)		
SPAWNING SHED (06070)		

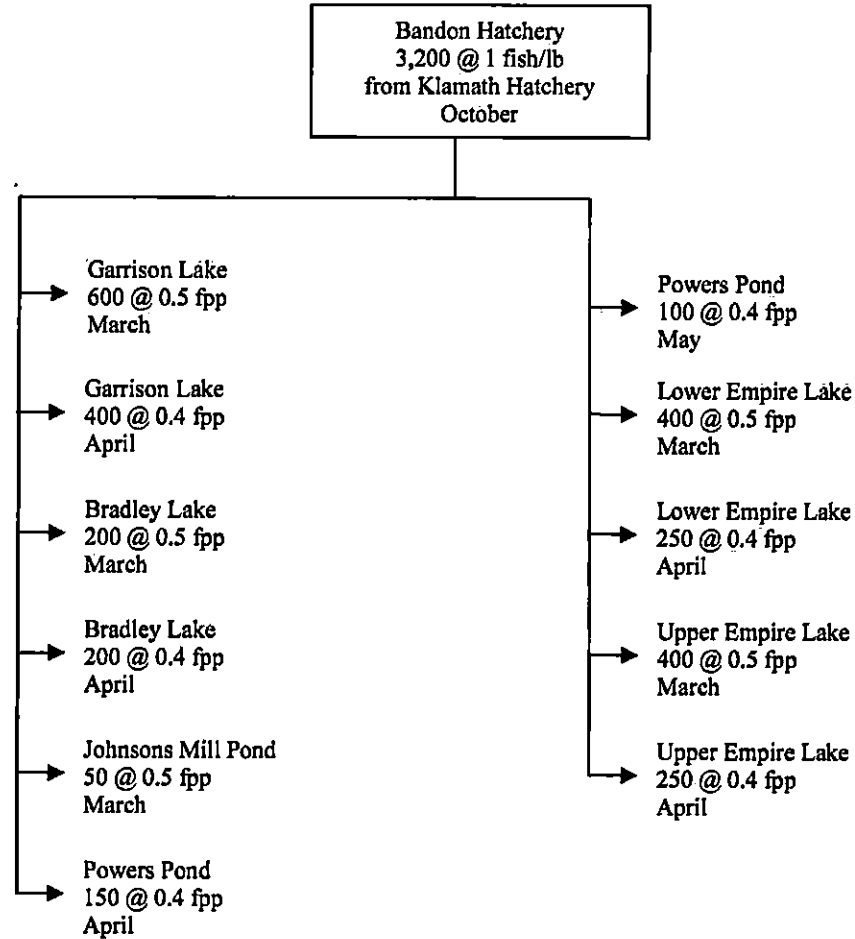
Bandon Hatchery Fall Chinook Salmon – Stock 37H (Coos River)



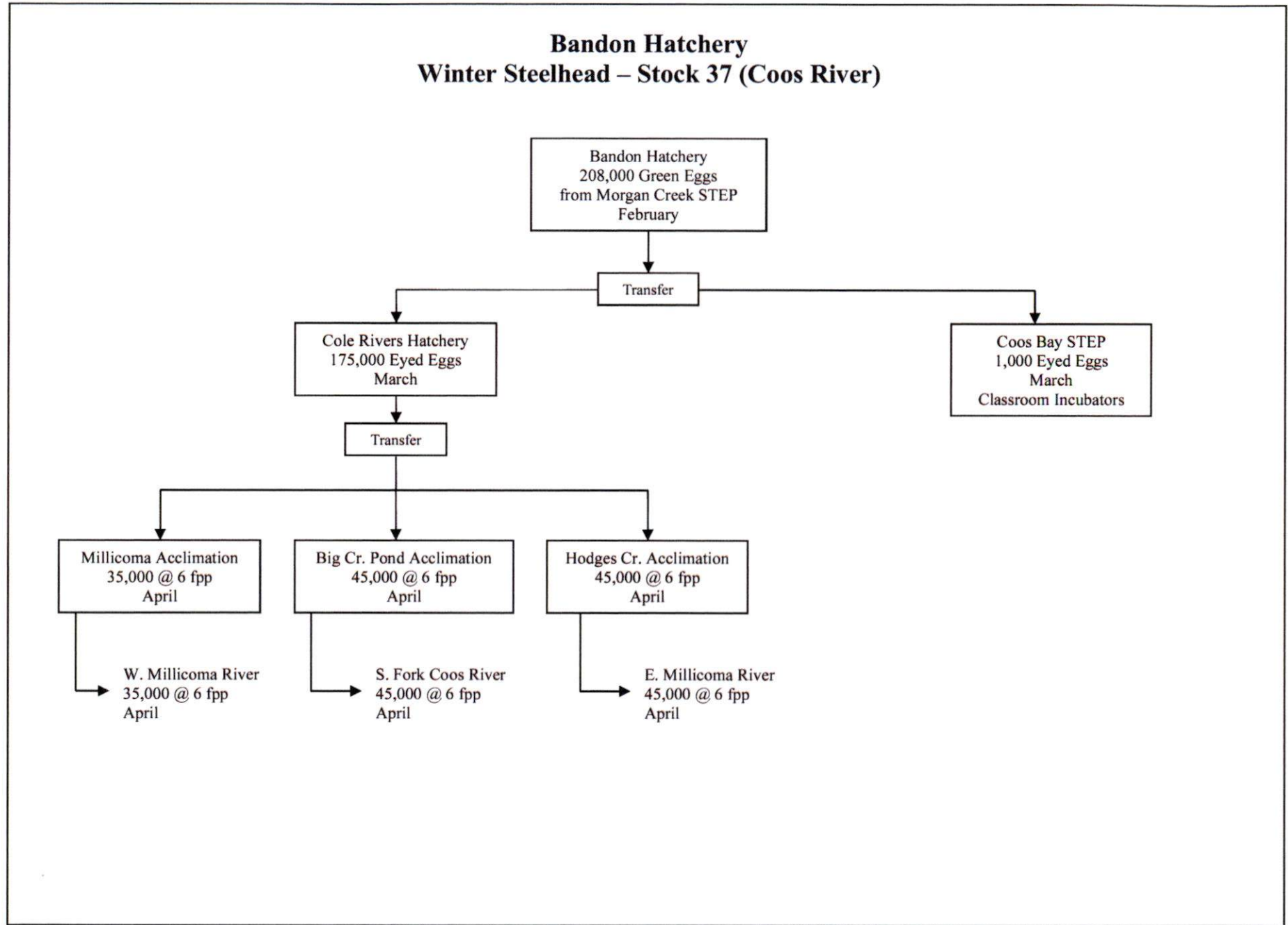
Bandon Hatchery Fall Chinook Salmon – Stock 44H (Coquille River)



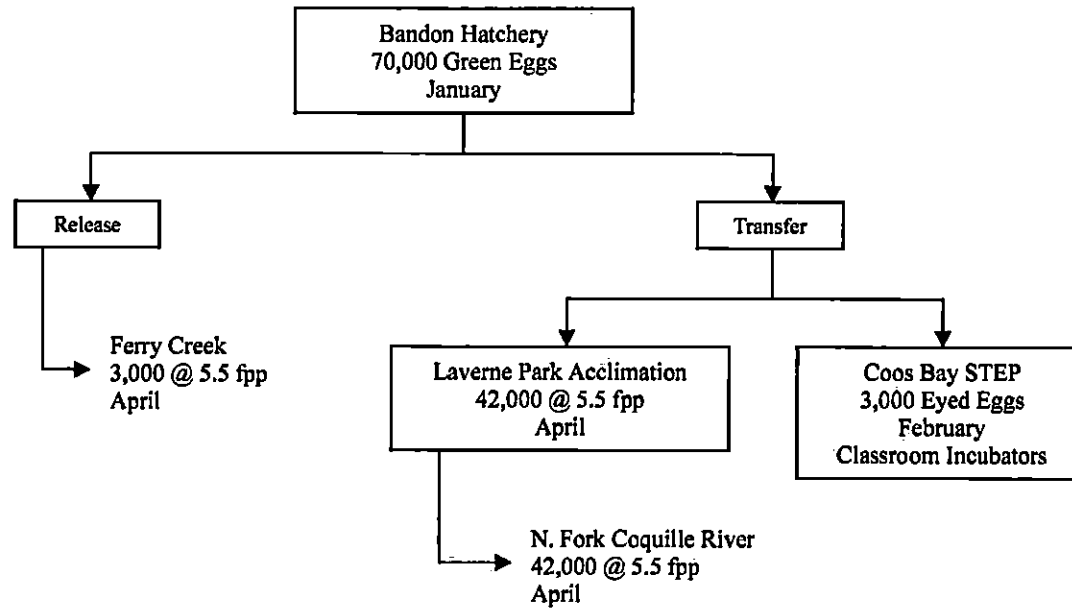
Bandon Hatchery Rainbow Trout – Stock 72T (Cape Cod Triploid)



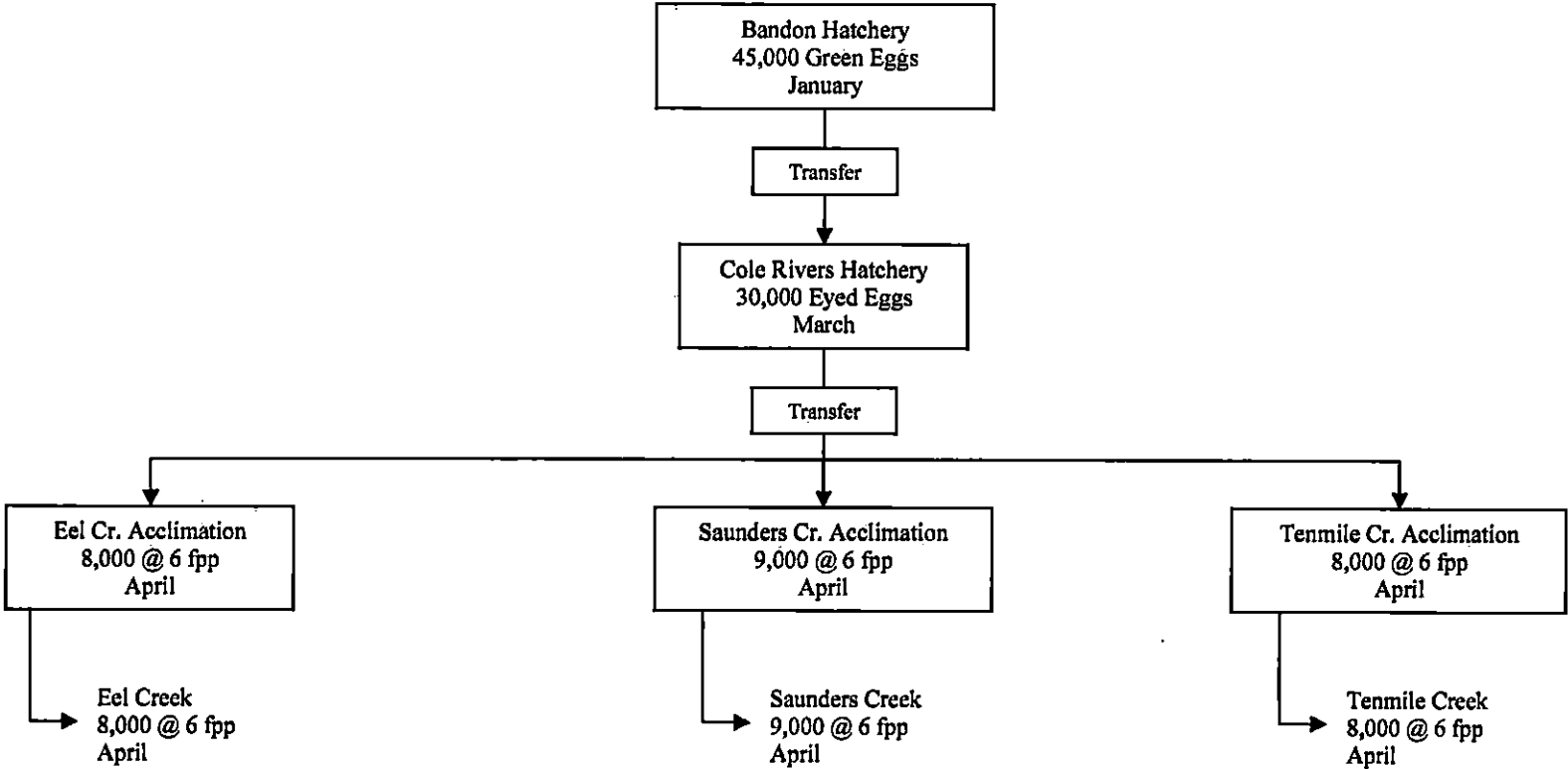
Bandon Hatchery Winter Steelhead – Stock 37 (Coos River)



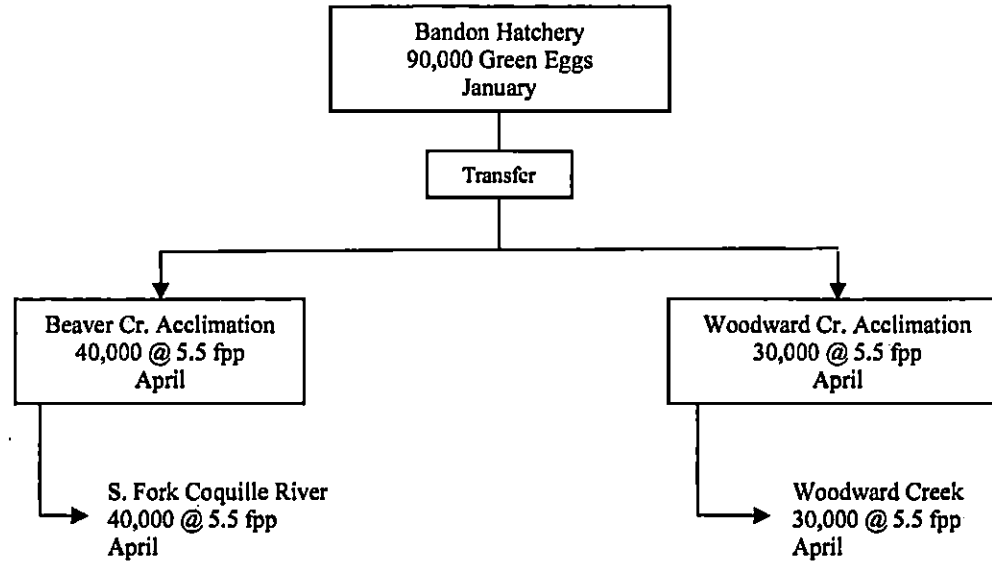
Bandon Hatchery Winter Steelhead – Stock 44 (Coquille River)



**Bandon Hatchery
Winter Steelhead – Stock 88 (Tenmile Lakes)**



Bandon Hatchery
Winter Steelhead – Stock 144 (S. Fork Coquille River)



January 23, 2024

Mr. Ryan McCormick, PE
Oregon Department Fish and Wildlife Engineering, Fish Division
4034 Fairview Industrial Dr SE
Salem, Oregon 97302

Subject: Floodplain Permitting for Bandon Hatchery Restroom Facility, using revised restroom location from December 2023

Dear Mr. McCormick,

River Design Group, Inc. (RDG) prepared a rise analysis for the Bandon Hatchery Restroom Facility (Project) along Ferry Creek near Bandon, Oregon (Figure 1). The Project is located at the Bandon Fish Hatchery, on property owned by the Oregon Department of Fish and Wildlife within an area mapped Zone A on FIRM community panel 41011C0682F (Figure 2).

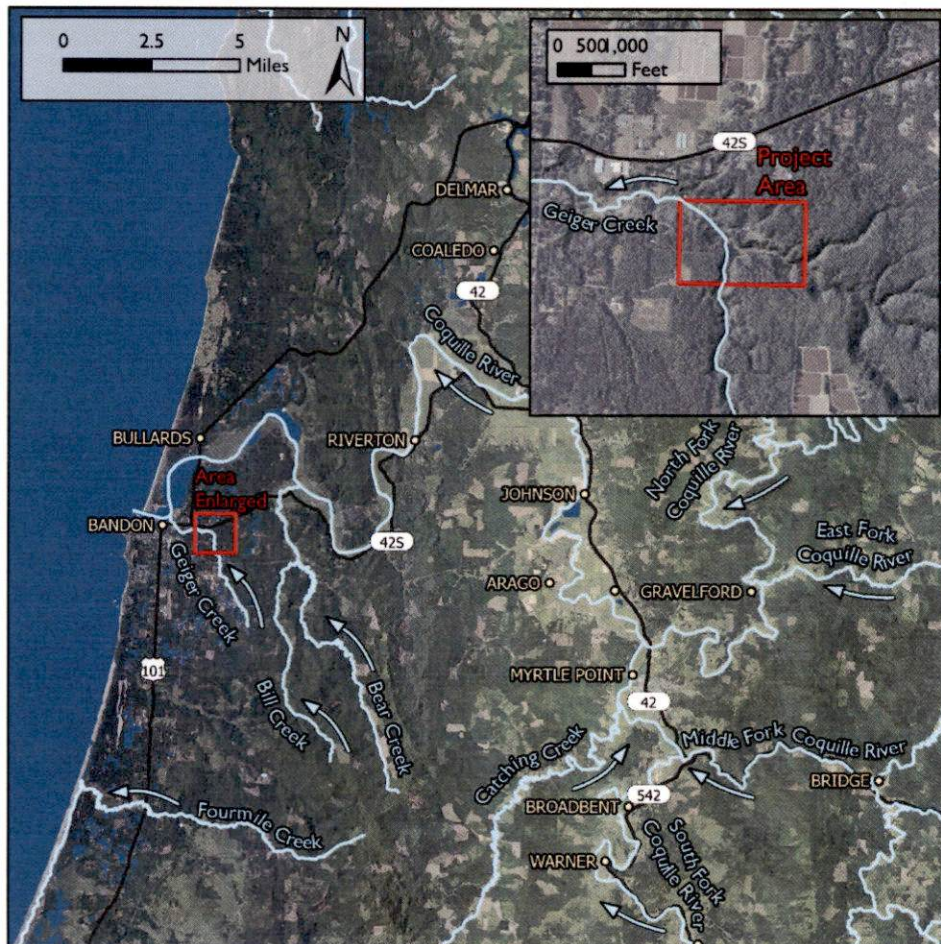


Figure 1. Bandon Hatchery Project location and vicinity map.

The project location within a Zone A Special Flood Hazard Area (SFHA) indicates an area likely inundated by the base flood, but without established elevations. Inclusion in this hazard mapping makes the project subject to provisions in the Coos County Floodplain Overlay Zone (Coos County Zoning Section 4.11). A floodway is not defined for the project location on in the Coos County Flood Insurance Study (FIRM 41011C0682F, FIS 41011CV001C).

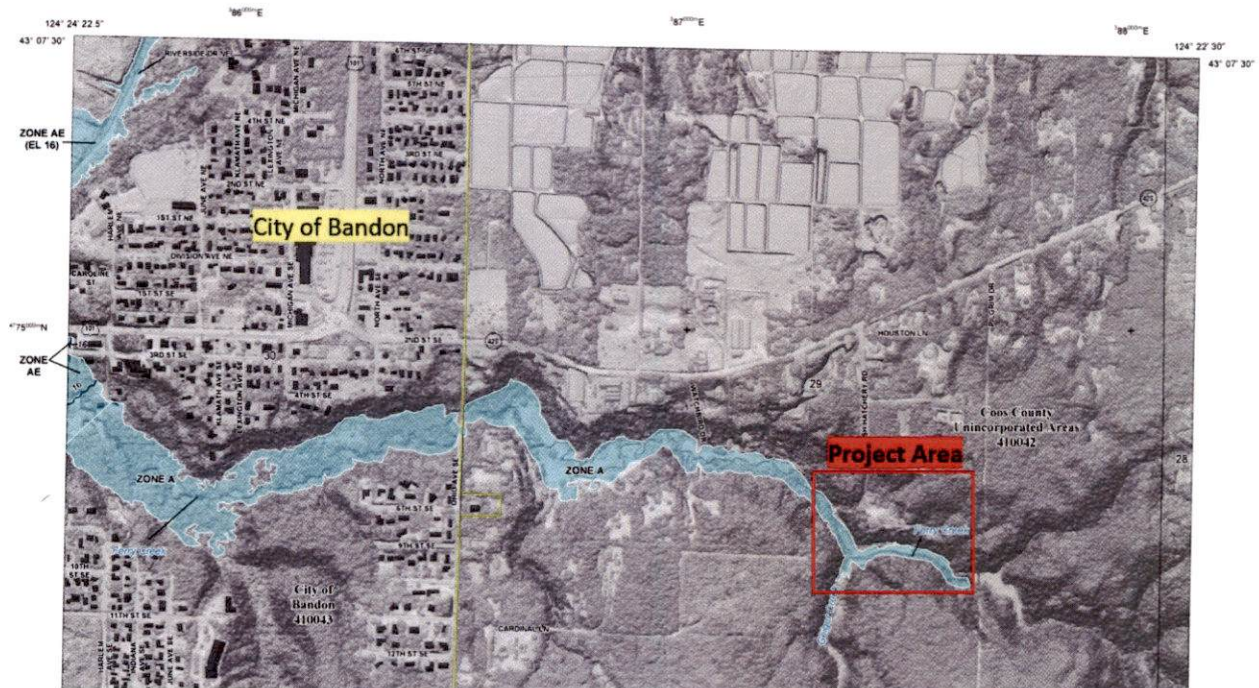


Figure 2. Portion of FEMA Flood Insurance Rate Map #41011C0682F (FIRM) showing location of the Project Area in red, and mapped Zone A Special Flood Hazard Area (blue shading). This project is at the upstream extent of flood hazard mapping, and the upstream extent of mapping is entirely within property owned by ODFW.

RDG filed an information request with the FEMA Engineering Library for the effective model used to develop hazard mapping at the project site. An effective model for Ferry Creek exists but is located at the confluence of the Coquille River and Ferry creek, approximately 30 feet in elevation lower than the project site. The effective model does not cover the project area. The effective model is included in Appendix A. Although the effective model does not cover the project area, it is still useful to compare base flood discharge and modeled roughness values between the effective study and this rise study.

This Project is intended to comply with provisions in the County Floodplain overlay zone. The Project is a non-residential structure appurtenant to the channel in purpose and function as the hatchery facility is water-dependent and located adjacent to the hatchery water source on Ferry Creek. Water dependent uses are permitted within flood hazard areas by a variance procedure in County Code provided that certain conditions are met, including a demonstration of no rise in base flood beyond specified values. For this area, the proposed projects combined with any existing and proposed development cannot produce a rise exceeding 1 foot at any point in the community per County Code 4.11.252. The following information is meant to

demonstrate that the project complies with the code with a pre-project / with-project comparison of hydraulic model results showing no adverse effect. A previous study of this location was completed in August 2023, and this effort evaluates a revised geometry with the bathroom placed in a location approximately 50 feet upstream from the initially studied location. The revised geometry is presented in the hydraulic model and in Appendix B. This memorandum is intended to accompany the floodplain development permit.

Project Description and Purpose

The Oregon Department Fish and Wildlife (ODFW) Engineering Fish Division is working with the ODFW Bandon Hatchery to install the proposed Restroom Facility. The facility is currently serviced by portable restrooms (porta potties), which have been used for sanitary purposes at the hatchery for several decades. Sanitary facilities at the hatchery are used by hatchery staff and by the public visiting the hatchery. The proposed Restroom facility will improve conditions for both staff and public visitors and help with ADA compliance at the facility.

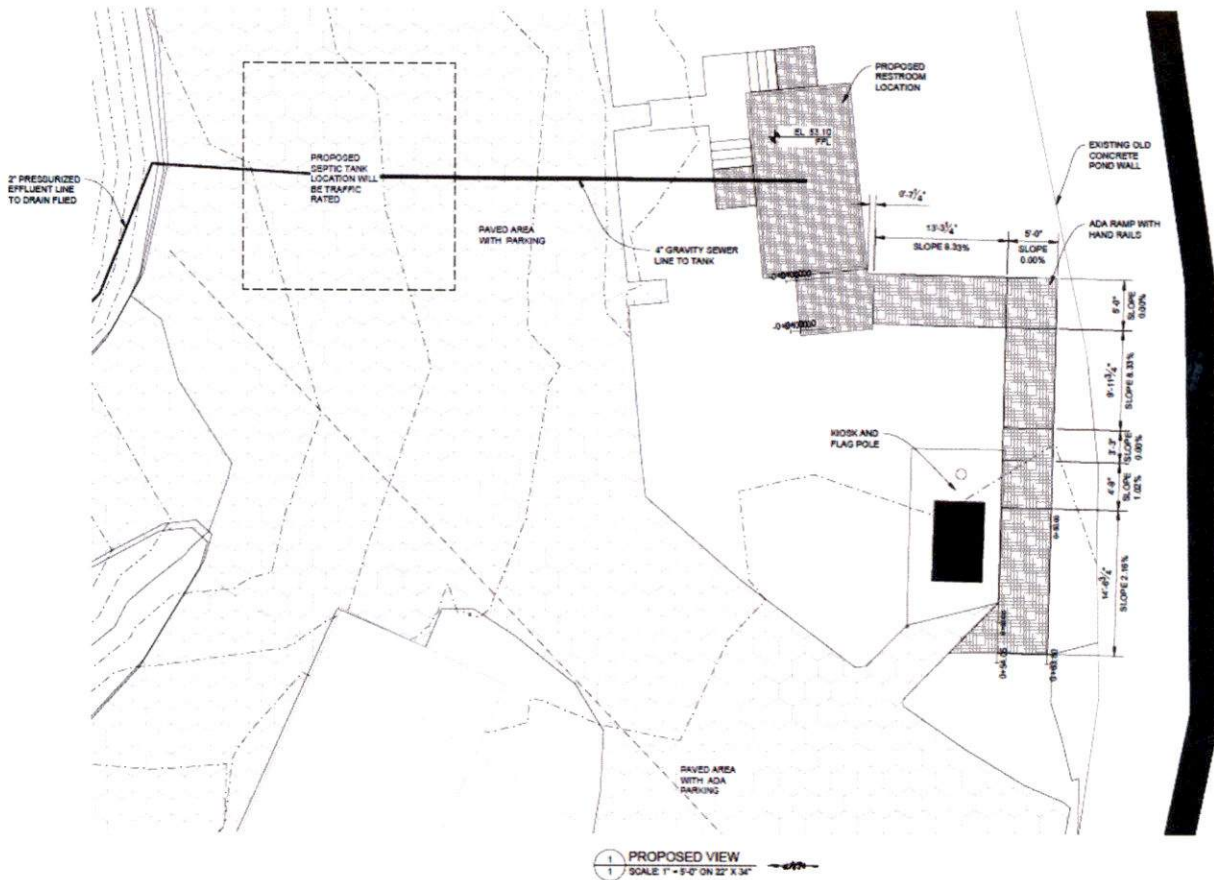


Figure 3. Proposed Restroom facility layout from ODFW, revised in December 2023. This layout was used to evaluate rise effects for the project site.

The proposed project layout and site plan from the ODFW is included in Appendix B. The general layout of the project includes a restroom building located within the existing hatchery facility. The restroom building would be plumbed to a small vault-type septic tank, and septage would be pumped uphill to a leachfield located outside of the floodplain.

100-YR Base Flood Rise Analysis

This effort used a series of hydraulic models to identify and isolate changes in water surface elevation independent and attributable to the Project. Impacts of the proposed project on base flood water surface elevations (WSELs) were evaluated by comparing a hydraulic model representing existing conditions (EG) with a model representing with-project conditions (FG). The models cover the same extent of Ferry Creek beginning 400 feet downstream of the Project, through the Project footprint, and extending 450 ft upstream from the Project. Figure 4 provides an overview of the hydraulic model depicting the cross-section layout.

Because the effective model for Ferry Creek doesn't cover the project area, this rise analysis followed methods outlined in "No Rise Floodway Analysis Requirements" (FEMA, 2013), "Managing Floodplain Development in Approximate Zone A Areas" (FEMA, 1995), and standard practice. This methodology uses a series of hydraulic models developed to evaluate specific changes in water surface profiles between the pre- and with-project conditions, isolating potential effects of the proposed project. This Zone A reach does not have established base flood elevations and there are not any existing detailed hydraulic modeling studies or approximate methods available for determining base flood elevations.



Figure 4. Plan view of hydraulic model geometry showing cross-section locations (green), Ferry Creek centerline (blue), existing infrastructure (grey), existing buildings, and proposed Restroom Facility boundary (red), overlain on aerial map. Water flows from right to left on the figure.

Hydrology

Base flood discharge for Ferry Creek is documented in the Coos County FIS, but only for the confluence of Ferry Creek with the Coquille River. Base flood discharge values on Ferry Creek are also presented in the effective model for the same location, which represents a larger drainage area than the project site. Therefore, base flood values were developed for the project site using methods consistent with FEMA guidance for Zone A floodplains (FEMA, 1995). Base flood discharge on Ferry Creek and Geiger Creek was developed using regression equations for ungauged tributaries in western Oregon (Cooper, 2005). Base flood discharge values using this method are provided in Table 1. For comparison, discharge values provided in the FIS indicate 980 cfs in Ferry Creek at the confluence with the Coquille River, which is a larger value corresponding to a larger drainage area than the project site. A base discharge value of 883 cfs was used to evaluate rise effects on Ferry Creek through the project site below the Geiger Creek confluence. A base flood value of 372 cfs was used for Ferry Creek upstream from the Geiger Creek confluence.

Table 1. Hydrology – Base flood summary

Flow locations	Recurrence	Discharge (cfs)	Notes
Ferry Creek above Geiger Creek (RS 863)	100-year RI -Base Flood	372	Base Flood
Ferry Creek below Geiger Creek (RS 351)	100-year RI -Base Flood	883	Base Flood

Hydraulic Model Geometry

The existing condition (EG) hydraulic model was developed from ground geometry comprised of LiDAR and on-ground RTK GPS survey at project locations and hatchery infrastructure. Hatchery infrastructure and topography were surveyed on April 25, 2023. The general domain of the model is shown in Figure 4 and extends 850 ft along Ferry Creek. Cross sections were placed within this domain at a spacing of approximately 60 ft – 120 ft. A closer section spacing was used in the Project area to evaluate the proposed Restroom Facility. Base flood discharge data (Table 1) were input into the hydraulic model for analysis. The model produced a baseline set of conditions from which project effects can be evaluated. By sampling the terrain from LiDAR, floodplain and channel changes that may have occurred since the effective mapping are incorporated into the baseline conditions to look at cumulative rise.



Figure 5. Existing conditions on Ferry Creek downstream of the Project site. Channel substrate is gravel and silt/clay with extensive vegetation on banks and bars. The right overbank is maintained in grass and the left overbank is a forested hillslope. Hatchery infrastructure is present on the right bank and floodplain, and within the channel of Ferry Creek.

Three pieces of hatchery infrastructure were incorporated into the model, including the existing pedestrian foot bridge (Figure 6), the existing hatchery weir and footbridge (Figure 7), and the existing downstream bar grate (Figures 8).



Figure 6. Existing conditions of the upstream footbridge (Station 483.5 ft)



Figure 7. Existing conditions of the weir and footbridge (Station 423.5 ft). The proposed project is immediately upstream from the weir on the floodplain north of Ferry Creek.



Figure 8. Existing conditions of the downstream bar grate and crossing (Station 211.5 ft). The bar grate is skewed approximately 60 degrees to the channel.

A with-project / finished ground (FG) hydraulic model was developed to incorporate the Restroom Facility as a blocked obstruction in HEC-RAS. The FG model represents the as-designed Restroom Facility structure within the project area and represents unaltered portions of ground upstream and downstream from the project area. The Restroom Facility footprint polygon was taken from the .dwg file supplied by ODFW.

Boundary Conditions, Roughness, and Calibration

A normal depth boundary condition at the downstream extent of the reach was used for both models with a slope set to the adjacent reach slope of 0.002 ft/ft. Roughness values for Ferry Creek were not presented in the Coos County FIS but are contained in the HEC-2 effective model for downstream reaches. Roughness values were assigned based on the degree of channel and form roughness and vegetation present in different regions of the study area, with values ranging from 0.038-0.12. Roughness selection used methods outlined in "Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Floodplains" (USGS 1983). Roughness values are also in general conformance with roughness values used to study Ferry Creek in downstream reaches (Appendix A) and standard practice.

Results

Water surface elevations (WSELs) from the with-project model were compared to WSELs from the existing conditions (pre-project) model to isolate any rise impacts to base flood water surface elevations attributable to the project. The proposed conditions inundation boundary is represented in Figure 9. A comparison of WSELs shows no rise in WSEL at the proposed project site and immediately upstream (Figure 10). The modeled rise is within the permissible rise allowed under county code. A comparison of existing conditions (EG) and proposed conditions (FG) water surface elevations is shown below in Table 3. We did not see a rise attributable to the proposed project.



Figure 9. Proposed conditions inundation boundary for project coincides with existing conditions modeled inundation at the base flood, with no lateral increase in flooding due to proposed project. The proposed facility is within the floodplain fringe and elevated above the base flood WSEL. A section view through the proposed facility is shown in Figure 10.

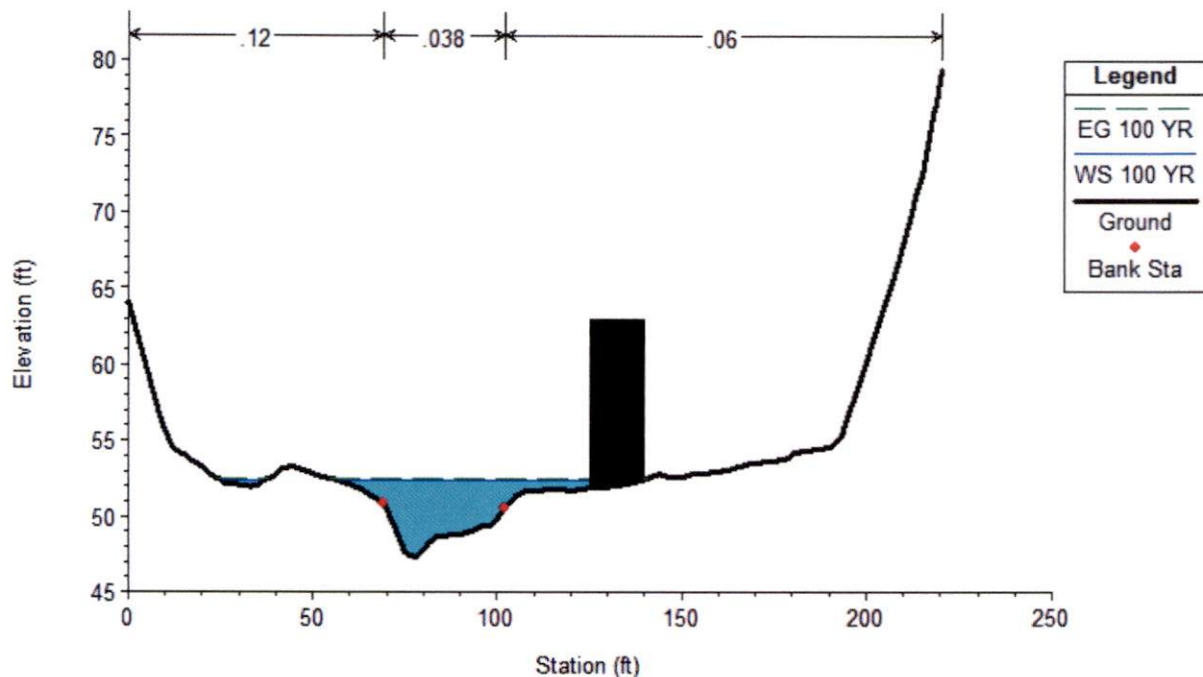


Figure 10. Cross section 569 through the proposed Project on Ferry Creek. The blocked obstruction represents the proposed Restroom Facility.

Table 3. Comparison of Modeled Base Flood Water Surface Elevations and Net Rise

Station (ft)	EG WSEL (ft, NAVD88)	FG WSEL (ft, NAVD88)	Change (ft)	Placemark
863	52.83	52.83	0	Upstream model extent
746	52.57	52.57	0	
569	52.34	52.34	0	Proposed Restroom Facility
555	52.33	52.33	0	Proposed Restroom Facility
511	52.31	52.31	0	
484	52.24	52.24	0	
483.5	52.24	52.24	0	Existing footbridge
424	52.04	52.04	0	
423.5	52.04	52.04	0	Existing weir
413	52.02	52.02	0	
351	51.96	51.96	0	
330	51.97	51.97	0	
263	51.95	51.95	0	
213	51.77	51.77	0	
211.5	51.77	51.77	0	Existing bar grate crossing
165	49.85	49.85	0	
71	48.13	48.13	0	
9	47.37	47.37	0	Downstream model extent

Summary

This letter conveys assurance that the proposed project does not produce a rise in base flood exceeding the allowable rise in County Code 4.11.25. All materials proposed for the project in the floodplain are designed to be resistant to flood damage, comprised of precast concrete and ballasted against flotation. Additionally, the upstream extent of mapped inundation, including this project area, are solely within property owned by ODFW.

If I may answer any questions or be of further assistance, please do not hesitate to contact me.

Respectfully,



Chris Smith, P.E., CFM
Water Resources Engineer



RENEWAL 6/30/24

References

Cooper, R. M., 2005, Estimation of Peak Discharges for Rural, Unregulated Streams in Western Oregon: U. S. Geological Survey Scientific Investigations Report 2005-5116

Coos County, 1985. Coos County Zoning and Land Development Ordinance.

FEMA, 2018. Flood Insurance Study for Coos County, Oregon, and Unincorporated Areas.

FEMA, 1980. Effective model for Ferry Creek in Bandon, Oregon, HEC-2 data file

FEMA. 1995. Managing Floodplain Development in Approximate Zone A Areas.

FEMA. 2013. Procedure for “No-Rise” Certification for Proposed Developments in the Regulatory Floodway. Bothell, WA.

United States Army Corps of Engineers (USACE). 2022. Hydrologic Engineering Center River Analysis System. (6.3.1).

USGS. 1983. Guide for Selecting Manning’s Roughness Coefficients for Natural Channels and Floodplains.

FLOOD INSURANCE STUDY
 10-YEAR EVENT
 FERRY GREEN

EGGS QUANTITY (BREED)

Station	10-YEAR EVENT	EGGS QUANTITY (BREED)
11	10	0.00290
12	1	
13	2	
14	3	
15	4	
16	5	
17	6	
18	7	
19	8	
20	9	
21	10	
22	11	
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WATER SURFACE PROFILES
 VERSION OF NOVEMBER 1978
 UPDATED APRIL 1980

RUN DATE 8-FEB-82 TIME 08:34

8-FEB-82 08:34

 HED2 RELEASE DATED NOV 78 UPDATED APRIL 1980
 ERROR CORR - 01/02/03/04
 MODIFICATION - 50/51/52/53/54

T1 FLOOD INSURANCE STUDY COOS COUNTY, OREGON
 T2 10-YEAR EVENT
 T3 FERRY CREEK

STRT	INR	NINV	INVR	XSECV	XSECH	FN	ALLIC	IBW	CHNH	MSEL	FR
10.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	0.000
11.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12.000	39.000	4.000	-3.000	42.000	2.000	1.000	53.000	21.000	22.000	14.000	0.000
13.000	5.000	0.000	36.000	16.000	17.000	48.000	43.000	13.000	14.000	0.000	0.000
14.000	25.000	26.000	7.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

***** SAMPLE GAUGES FOR SUMMARY PRINTOUT *****

XHOB CDFD RDTEN BNC BWF BAREA SS ELCHU ELCHD
 1E 1E

9.00 2.84 0.00 5.34 0.00 5.99 0.55 0.00 0.00 0.00 1.30
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.50
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 66.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 57.07

9.50 ELREA= 9.50 ELREA=

*PRG 2
 *SECND 5.00
 *CHV 0.200 CEHV= 0.500

SEEDS BEHNS GDBR QTH QROB ADRB ACHT ED ABELN
 SLOPE XTDRB XEIH XHOB XHOB XHOB XHOB XHOB XHOB
 TIME XTDRB XEIH XHOB XHOB XHOB XHOB XHOB XHOB
 ENDST TOPDIT CORAR RIN KNE ICNT ACHT ED ABELN
 BANK FEBY QDPS ELHIN SSIA

0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

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0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

*XSECD 30.000
PRESSURE AND WEIR FLOW

EGFRS	EGLWC	H3	QWEIR	QFA	AREA	TRAPEZOID AREA	ELLC	ELRD
10.66	9.64	0.08	43	811	78	77	8.20	10.00

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SECD D	DEPTH DLOB	CASE DCH	CRINS DROB	WSELY ALOB	EF ACH	HW ARDB	HL VDL	DESS TNA	BANK ELEV LEFT/RIGHT
TIME	VLOB	VCH	VRDB	XNL	XRCH	XNR	MTN	ELMIN	STW
SLOPE	XLOB	XLCH	XLOBR	ATRIAL	100	EDONT	COBAR	TORUA	ENDST

3495 OVERRANK AREA ASSUMED NON-EFFECTIVE TELLER 10.00 ELREA 10.00

30.00	5.31	5.01	0.00	0.00	10.33	0.32	0.32	0.00	5.50
8901	0	870	0	0	77	0	0	0	6.00
0.03	0.00	2121	0.00	0.070	0.040	0.070	0.035	0.70	38.50
0.000089	30.	70.	50.		0	0	0.00	11.15	52.00

*XSECD 35.000

3301 NO CHANGES MORE THAN 1000S

35.00	9.54	10.89	0.00	0.00	10.85	0.01	0.18	0.39	7.40
8901	641	1754	73	989	138	149	18	5	8.40
0.18	0.57	1.15	0.37	0.070	0.040	0.070	0.037	1.30	33.54
0.000120	330.	350.	260.	3	0	0	0.00	486.42	519.92

DCHV= 0.100 CEHV= 0.300

*XSECD 40.000

40.00	9.09	10.89	0.00	0.00	10.90	0.01	0.04	0.00	7.90
8901	641	194	55	989	138	149	18	5	8.40
0.23	0.65	1.40	0.37	0.070	0.040	0.070	0.038	1.80	36.58
0.000184	300.	330.	300.	2	0	0	0.00	463.92	500.50

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 WFL RELEASE DATED NOV 78 UPDATED APRIL 1980
 DATE CORR - 01-02-03,04
 MODIFICATION - 3,51,52,53,54

FLOOD INSURANCE STUDY
 100-YEAR EVENT
 COOS COUNTY, OREGON

T3 FERRY CREEK

J1	ICHECK	INO	NINV	XDIR	SIRJ	NETRLO	NUXUS	B	USEL	TD
	-10.	4.	0.	0.	0.002700	0.00	0.0	0.	5.000	0.000
J2	NPROF	IFLOT	PREVS	XSECV	XSECH	FN	BLLOC	TRU	CHNH	YTRADE
	5.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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PAGE 1

SECD	DEPTH	CHSEL	CRING	WSELK	EL	HU	HL	OLDS	BANK	ELEV
0	QLOB	QCH	ORDB	ALOB	ACH	AROB	VOL	INA	LEFT	RIGHT
TIME	VLOB	VCH	URDB	XNL	YNCH	XNF	WTN	ELH3	SRM	
SLOPE	XLORL	XLCH	XLDBR	ETRIAL	LOC	ICONT	CORAR	TOPWD	ENDST	

NPROF 3

CCHV= 0.300 CCHV 0.800
#SECD= 5.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELREA= 9.30 ELREA= 9.30

5.00	8.29	5.79	0.00	0.00	6.48	0.47	0.00	0.00	1.30	
980.	0.	980.	0.	0.	147.	0.	0.	0.	8.50	
0.00	0.00	6.66	0.00	0.060	0.035	0.060	0.000	-2.50	66.00	
0.002216	0.	0.	0.	0.	0.	0.	0.00	21.08	87.08	

SPECIAL BRIDGE

SR	XK	XKOR	COFD	ADLEN	BNE	BMP	BAREA	SB	ELCHU	ELCHD
0.90	1.50	2.50	0.00	20.00	0.10	222.50	0.00	2.40	2.50	

*SECD 10.00
CLASS A LOW FLOW

3420 BRIDGE W.S.= 5.84 BRIDGE VELOCITY=, 5.94 CALCULATED CHANNEL AREA=, 164.

SECD	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD
					AREA	AREA		
10.00	6.51	0.01	0.0	980.	223.	223.	8.80	9.60

3420 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELREA= 9.60 ELREA= 10.40

10.00	8.26	5.80	0.00	0.00	6.51	0.71	0.03	0.00	1.40
980.	0.	980.	0.	0.	145.	0.	0.	0.	8.60
0.00	0.00	6.75	0.00	0.060	0.035	0.060	0.035	-2.40	66.00
0.002216	0.	70.	70.	0	0	0	0.00	21.07	87.07
10.00	5.94	6.64	0.00	0.00	7.09	0.44	0.50	0.08	8.60
980.	0.	980.	0.	0.	183.	0.	1.	0.	8.70
0.00	0.00	5.34	0.00	0.060	0.035	0.060	0.035	-2.30	57.31

 HEC2 RELEASE DATED NOV 76 UPDATED APR 1980
 ERROR CORR - 01/02/03/04
 MODIFICATION - 50,51,52,53,54

NOTE: ASTERISK (*) AT LEFT OF CROSS SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FERRY CREEK
 SUMMARY PRINTOUT

SECTNO	ALCH	TOTWTL	ZI	ELAVG	ORGNB	CNSBL	SSTA	STEHL	STHRC	ENDRS	QZ
5.000	0.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
5.000	0.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
5.000	0.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
5.000	0.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
10.000	70.00	21.00	6.13	-1.30	0.00	5.10	66.00	66.00	67.00	67.00	30.20
10.000	70.00	21.00	6.13	-1.30	0.00	5.10	66.00	66.00	67.00	67.00	30.20
10.000	70.00	21.00	6.13	-1.30	0.00	5.10	66.00	66.00	67.00	67.00	30.20
10.000	70.00	21.00	6.13	-1.30	0.00	5.10	66.00	66.00	67.00	67.00	30.20
12.000	200.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
12.000	200.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
12.000	200.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
12.000	200.00	22.00	5.25	0.00	0.00	4.05	66.00	66.00	67.00	67.00	23.14
13.000	190.00	19.51	5.65	-2.20	0.00	5.29	50.00	50.00	69.60	69.58	23.14
13.000	190.00	19.54	7.11	-2.20	0.00	6.57	50.00	50.00	69.60	69.57	26.64
13.000	190.00	19.55	7.61	-2.20	0.00	7.03	50.00	50.00	69.60	69.57	27.60
13.000	190.00	19.57	8.86	-2.20	0.00	8.17	50.00	50.00	69.60	69.58	30.15
15.000	50.00	19.51	5.65	-2.20	0.00	5.25	50.00	50.00	69.60	69.55	23.10
15.000	50.00	19.54	7.11	-2.20	0.00	6.58	50.00	50.00	69.60	69.57	26.59
15.000	50.00	19.56	8.03	-2.20	0.00	7.51	50.00	50.00	69.60	69.58	23.66
15.000	50.00	19.59	9.71	-2.20	0.00	9.14	50.00	50.00	69.60	69.59	23.18
18.000	70.00	18.48	6.13	-1.30	0.00	5.27	33.00	33.00	53.00	51.52	64.73
18.000	70.00	19.98	7.60	-1.30	0.00	6.52	33.00	33.00	53.00	53.00	59.48
18.000	70.00	19.99	8.43	-1.30	0.00	7.56	33.00	33.00	53.00	53.00	45.04
18.000	70.00	20.00	10.05	-1.30	0.00	8.19	33.00	33.00	53.00	53.00	34.47
20.000	80.00	16.90	6.64	-0.30	0.00	5.29	33.00	33.00	53.00	49.95	118.35
20.000	80.00	19.08	8.07	-0.30	0.00	6.64	33.00	33.00	53.00	52.11	101.76
20.000	80.00	19.98	8.78	-0.30	0.00	7.57	33.00	33.00	53.00	53.00	74.32
20.000	80.00	20.00	10.73	-0.30	0.00	9.76	33.00	33.00	53.00	53.00	41.16

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SECD	ALCH	TOPWIN	ELFIN	CLAS	RUBEL	SESTAT	STCHL	STCHN	ENDST	OV'S
28,000	110.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	79.82
28,000	110.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	102.15
28,000	110.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	91.73
28,000	110.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	12.37
30,000	70.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	162.39
30,000	70.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	80.89
30,000	70.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	14.08
30,000	70.00	13.10	0.30	0.00	0.00	38.90	38.90	52.00	52.00	11.13
35,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	110.77
35,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	1.67
35,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	1.20
35,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	21.38
35,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	0.93
40,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	7.37
40,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	1.93
40,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	1.61
40,000	350.00	362.88	0.30	0.00	0.00	38.90	38.90	52.00	52.00	1.33

B-FAB-82 08:34

FERRY CREEK
SUMMARY PRINTOUT

SECD	TKKLN	TKXCHN	SECD	ALCH	RUBEL	GRUB	AREA	VCHN	VOL
5,000	60.00	35.00	60.00	640.00	0.00	0.00	111.41	5.74	0.00
5,000	60.00	35.00	60.00	890.00	0.00	0.00	137.75	6.46	0.00
5,000	60.00	35.00	60.00	980.00	0.00	0.00	147.24	6.66	0.00
5,000	60.00	35.00	60.00	1220.00	0.00	0.00	170.15	7.17	0.00
10,000	60.00	35.00	60.00	640.00	0.00	0.00	109.41	5.85	0.18
10,000	60.00	35.00	60.00	890.00	0.00	0.00	135.78	6.55	0.22
10,000	60.00	35.00	60.00	980.00	0.00	0.00	145.28	6.75	0.24
10,000	60.00	35.00	60.00	1220.00	0.00	0.00	168.22	7.25	0.27
15,000	60.00	35.00	60.00	640.00	0.00	0.00	132.24	4.84	0.73
15,000	60.00	35.00	60.00	890.00	0.00	0.00	169.47	5.25	0.92
15,000	60.00	35.00	60.00	980.00	0.00	0.00	183.36	5.34	0.99
15,000	60.00	35.00	60.00	1220.00	0.00	0.00	219.37	5.56	1.16
20,000	60.00	35.00	60.00	640.00	0.00	0.00	125.65	5.09	1.29
20,000	60.00	35.00	60.00	890.00	0.00	0.00	151.57	5.87	1.62
20,000	60.00	35.00	60.00	980.00	0.00	0.00	160.58	6.10	1.74
20,000	60.00	35.00	60.00	1220.00	0.00	0.00	182.83	6.67	2.04
25,000	60.00	35.00	60.00	640.00	0.00	0.00	135.72	5.09	1.44
25,000	60.00	35.00	60.00	890.00	0.00	0.00	151.68	5.87	1.79
25,000	60.00	35.00	60.00	980.00	0.00	0.00	169.98	5.77	1.93
25,000	60.00	35.00	60.00	1220.00	0.00	0.00	201.82	6.04	2.26

18.000	60.00	35.00	60.00	640.00	0.00	640.00	0.00	85.91	7.45	1.61
18.000	60.00	35.00	60.00	890.00	0.00	890.00	0.00	112.23	7.93	2.01
18.000	60.00	35.00	60.00	980.00	0.00	980.00	0.00	130.86	7.49	2.17
18.000	60.00	35.00	60.00	1220.00	0.00	1220.00	0.00	163.43	7.47	2.55
20.000	40.00	35.00	40.00	640.00	0.00	640.00	0.00	68.54	8.34	1.75
20.000	40.00	35.00	40.00	890.00	0.00	890.00	0.00	92.87	9.58	2.20
20.000	40.00	35.00	40.00	980.00	0.00	980.00	0.00	111.14	8.82	2.39
20.000	40.00	35.00	40.00	1220.00	0.00	1220.00	0.00	154.99	7.87	2.85
28.000	40.00	35.00	40.00	640.00	0.00	640.00	0.00	68.73	8.31	1.92
28.000	40.00	35.00	40.00	890.00	0.00	890.00	0.00	93.15	10.70	2.42
28.000	40.00	35.00	40.00	980.00	0.00	980.00	0.00	90.59	10.77	2.65
28.000	40.00	35.00	40.00	1220.00	59.64	626.92	503.42	395.28	4.94	3.54
30.000	70.00	40.00	70.00	640.00	0.00	640.00	0.00	64.32	9.95	2.03
30.000	70.00	40.00	70.00	890.00	0.00	890.00	0.00	96.62	9.21	2.56
* 30.000	70.00	40.00	70.00	980.00	5.01	813.15	161.85	210.99	7.40	2.87
30.000	70.00	40.00	70.00	1220.00	77.15	733.38	407.54	413.73	5.73	3.03

8-Feb-82 08:34

SECNO	KXXNL	CXNHL	KXNLR	D	QDBR	QCH	QDBB	AREA	VBH	UUL
35.000	70.00	40.00	70.00	640.00	823.29	207.06	8.66	711.95	1.91	4.99
35.000	70.00	40.00	70.00	890.00	431.25	175.24	73.30	1494.92	1.19	5.47
35.000	70.00	40.00	70.00	980.00	764.89	124.98	90.23	1599.40	1.22	5.31
35.000	70.00	40.00	70.00	1220.00	840.74	197.25	15.49	2040.89	1.18	14.50
40.000	70.00	40.00	70.00	640.00	400.32	235.48	4.49	595.86	1.31	9.56
40.000	70.00	40.00	70.00	890.00	410.69	173.12	55.39	1276.28	1.40	18.11
40.000	70.00	40.00	70.00	980.00	704.41	203.38	70.23	1378.17	1.33	15.86
40.000	70.00	40.00	70.00	1220.00	871.61	243.98	134.41	1807.25	1.37	28.26

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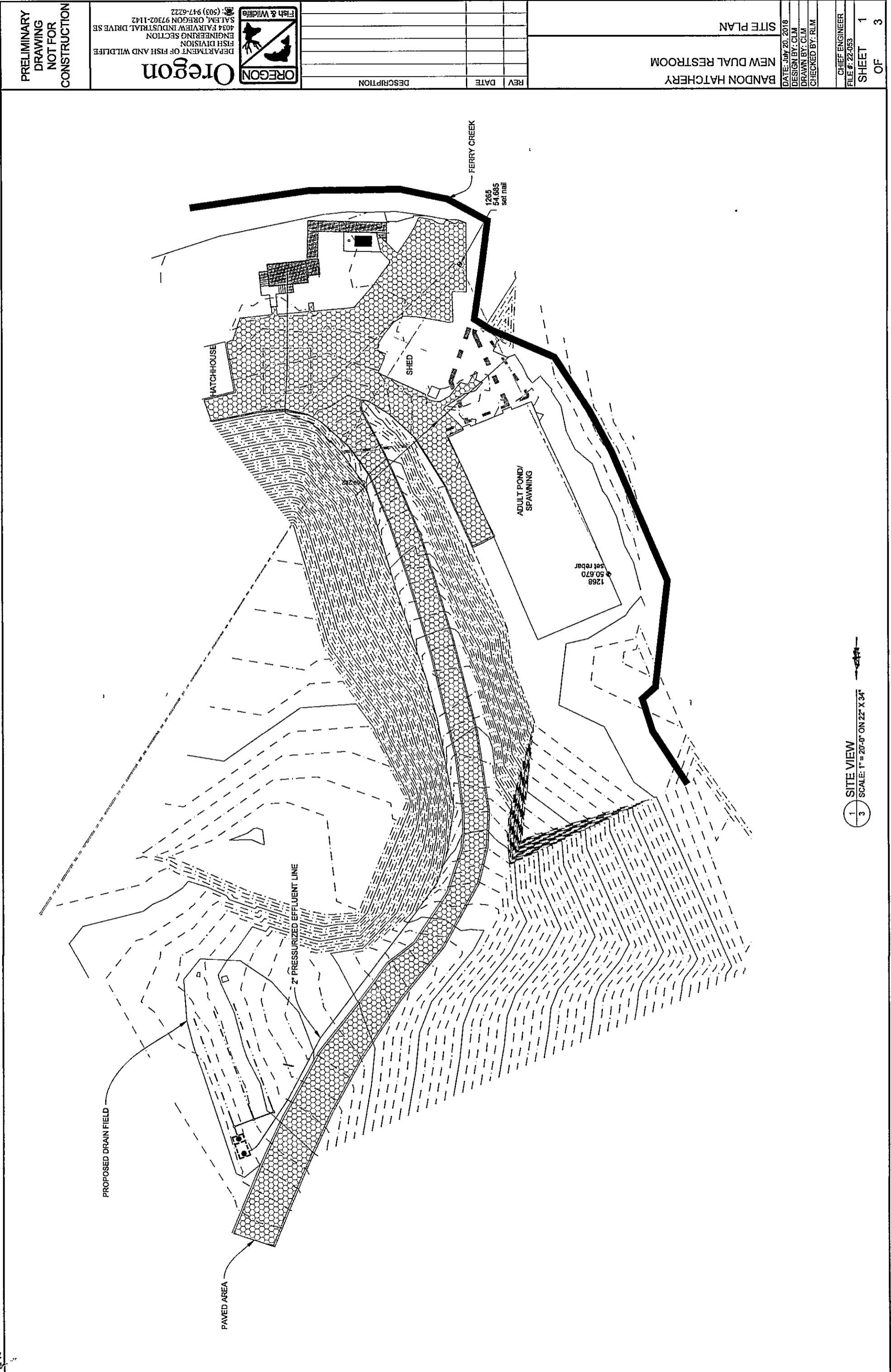
SUMMARY OF ERRORS

SECTION SECNO= 30.000 PROFILE= 3 WSEL ASSUMED BASED ON MIN DIFF
 SECTION SECNO= 30.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL

08:34

 RELEASE DATED NOV 76 UPDATED APR 1980
 FBI - 1:03:03:04
 FBI - 50:51:52:53:54

1 SITE VIEW
3 SCALE: 1" = 20'-0" ON 22" X 34"



CHIEF ENGINEER
FILE # 22-053
SHEET 1
OF 3

CHECKED BY: RLM
DRAWN BY: CLM
DESIGN BY: CLM
DATE: July 20, 2018

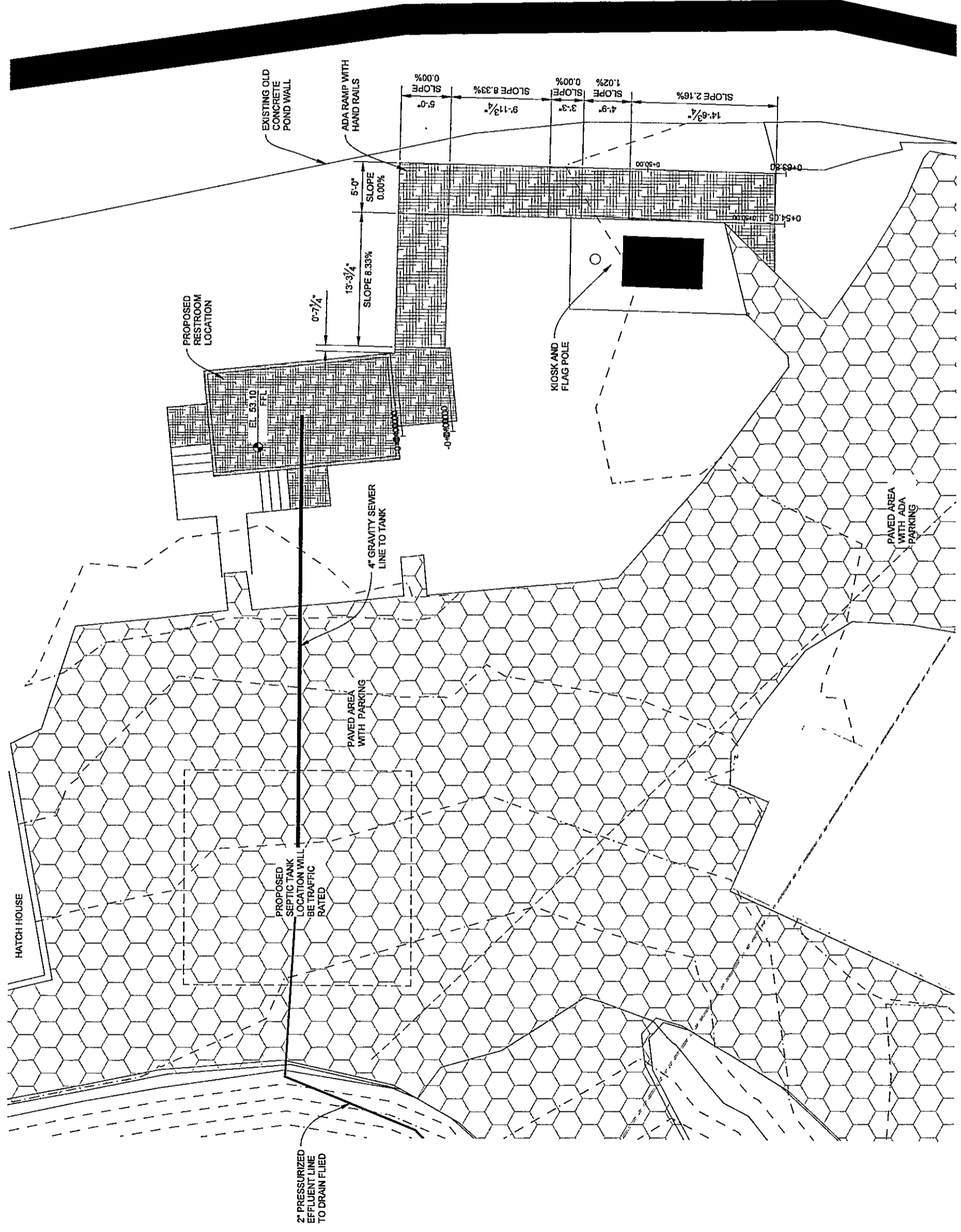
SITE PLAN
NEW DUAL RESTROOM
BANDON HATCHERY

REV	DATE	DESCRIPTION



Oregon
 DEPARTMENT OF FISH AND WILDLIFE
 FISH DIVISION
 ENGINEERING SECTION
 4034 FAIRVIEW INDUSTRIAL DRIVE SE
 SALEM, OREGON 97302-1142
 (503) 947-6222

PRELIMINARY
 DRAWING
 NOT FOR
 CONSTRUCTION



1 PROPOSED VIEW
 1 SCALE: 1" = 5'-0" ON 22" X 34"

BANDON HATCHERY
 NEW DUAL RESTROOM
 SITE PLAN

DATE: December 1, 2023
 DESIGN BY: CLM
 DRAWN BY: CLM
 CHECKED BY: RLM

CHIEF ENGINEER
 FILE #: 22-053
 SHEET 2
 OF 3

Oregon
 DEPARTMENT OF FISH AND WILDLIFE
 FISH DIVISION
 ENGINEERING SECTION
 4034 FAIRVIEW INDUSTRIAL DRIVE SE
 SALEM, OREGON 97302-1142
 (503) 947-6222

PRELIMINARY
 DRAWING
 NOT FOR
 CONSTRUCTION

REV	DATE	DESCRIPTION



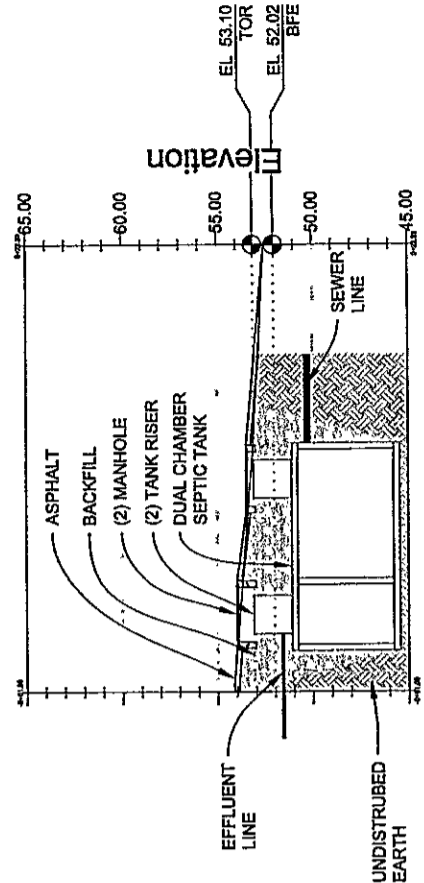
REGISTRATION DATE: 12/24/2021
 L. M. MUCKENBACH
 No. 83065
 State of Oregon
 Expires July 12, 2024



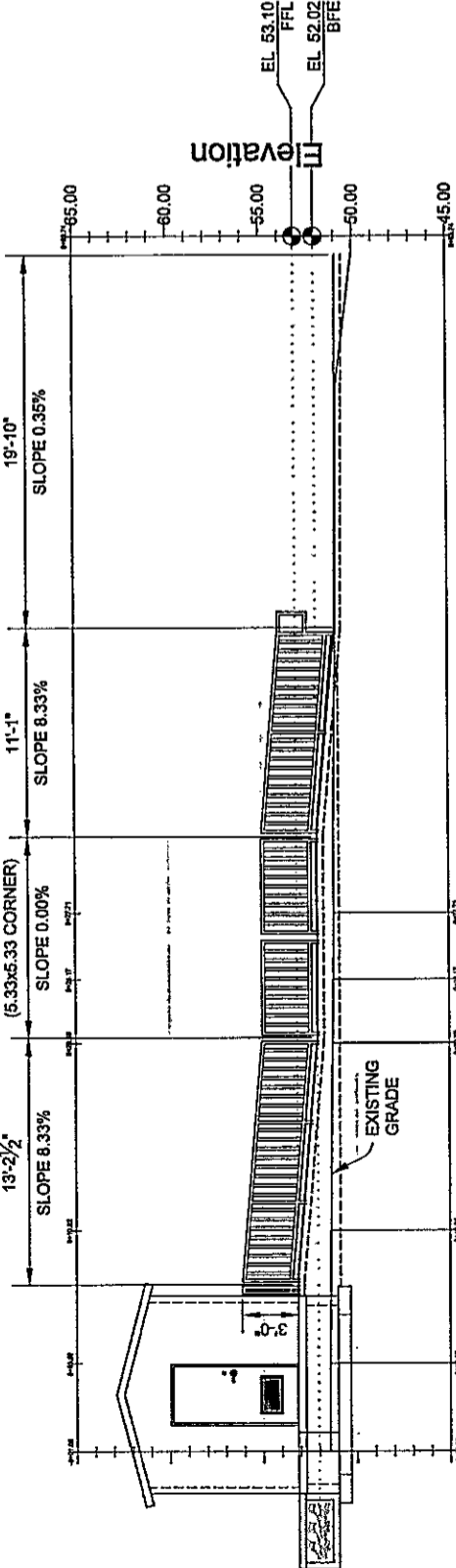
REV	DATE	DESCRIPTION

BANDON HATCHERY
NEW DUAL RESTROOM
PROFILE VIEWS AND DETAIL

DATE: March 13, 2024
 DESIGN BY: CLM
 DRAWN BY: CLM
 CHECKED BY: RLM
 CHIEF ENGINEER
 FILE #: 22-053
SHEET 3
OF 3

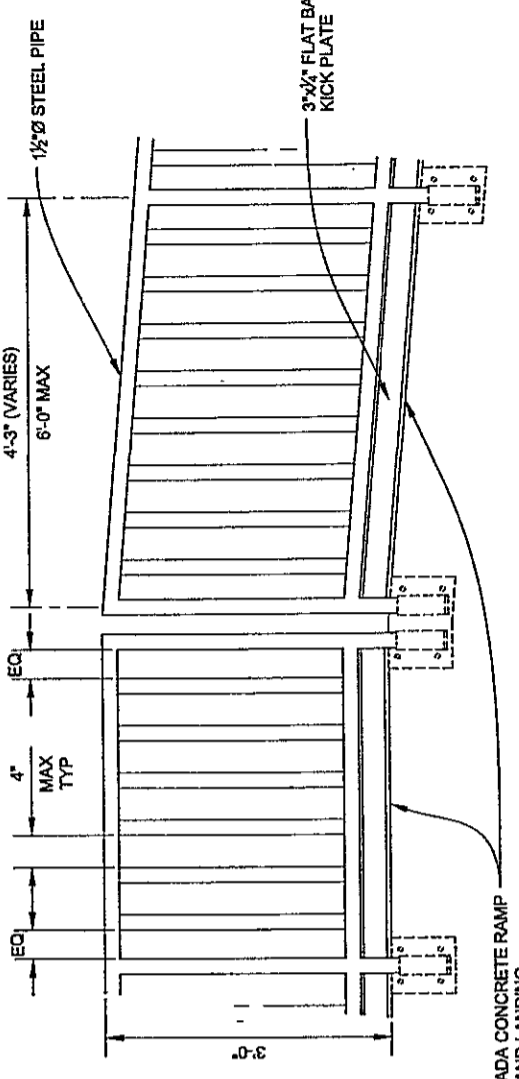


3 SEPTIC TANK
 SCALE: HORIZ: 1" = 5'-0" ON 22" X 34"
 VERT: 1" = 5'-0" ON 22" X 34"

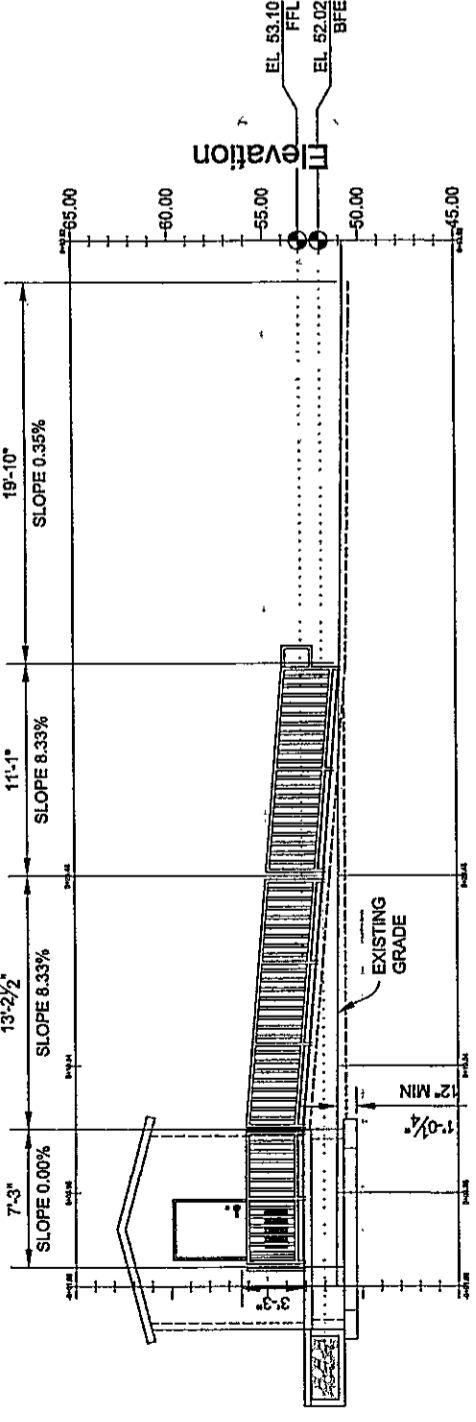


1 BACK SIDE ADA RAMP
 SCALE: HORIZ: 1" = 5'-0" ON 22" X 34"
 VERT: 1" = 5'-0" ON 22" X 34"

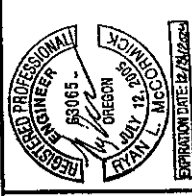
ABBREVIATIONS:
 BFE = BASE FLOOD ELEVATION
 FFL = FINISHED FLOOR ELEVATION
 TOR = TOP OF RISER ELEVATION



4 ADA RAMP HANDRAIL, TYP
 SCALE: 1" = 1'-0" ON 22" X 34"



2 FRONT SIDE ADA RAMP
 SCALE: HORIZ: 1" = 5'-0" ON 22" X 34"
 VERT: 1" = 5'-0" ON 22" X 34"



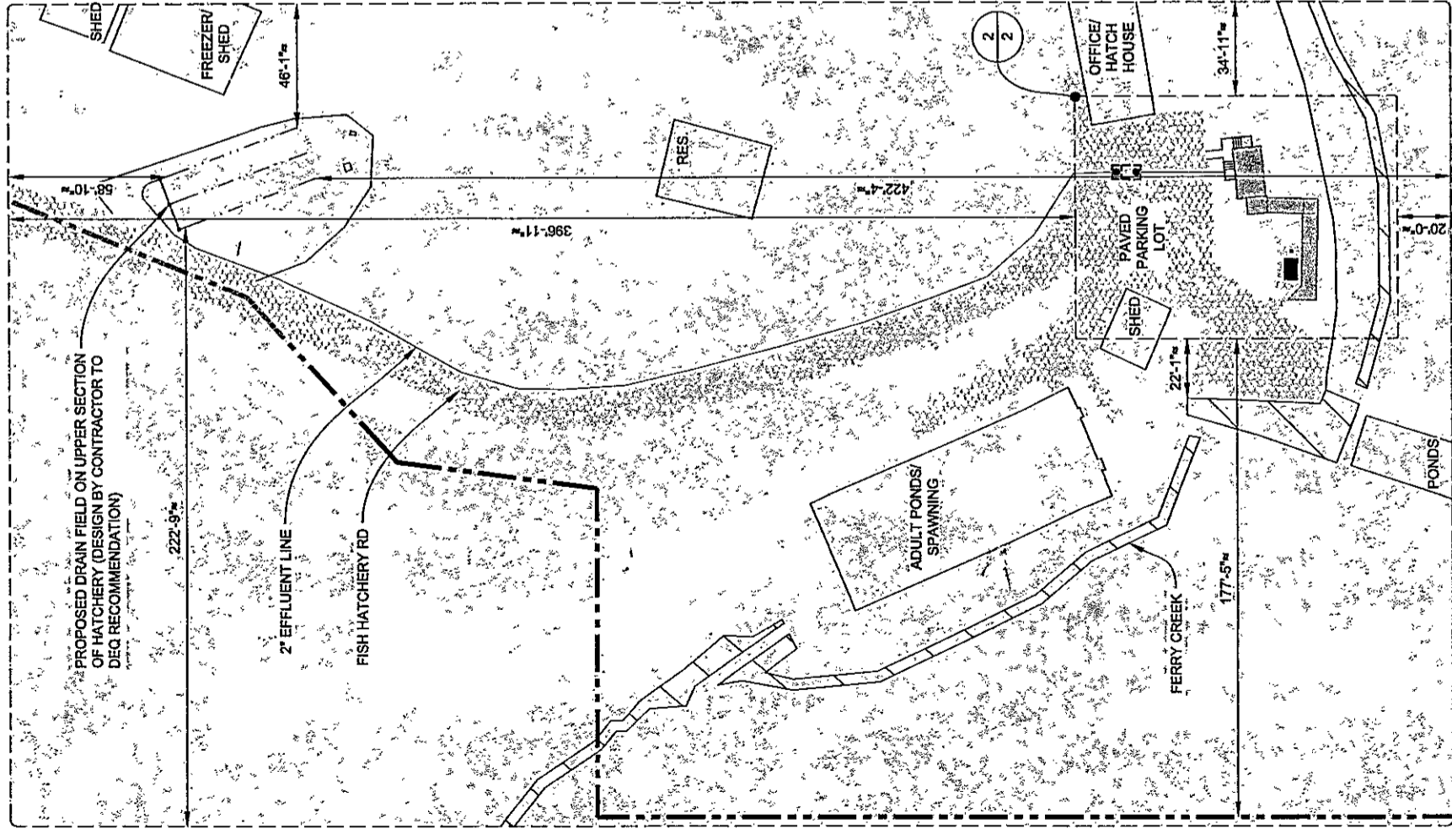
DEPARTMENT OF FISH AND WILDLIFE
 FISH DIVISION
 ENGINEERING SECTION
 4034 FAIRVIEW INDUSTRIAL DRIVE SE
 SALEM, OREGON 97302-1142
 (503) 947-6222



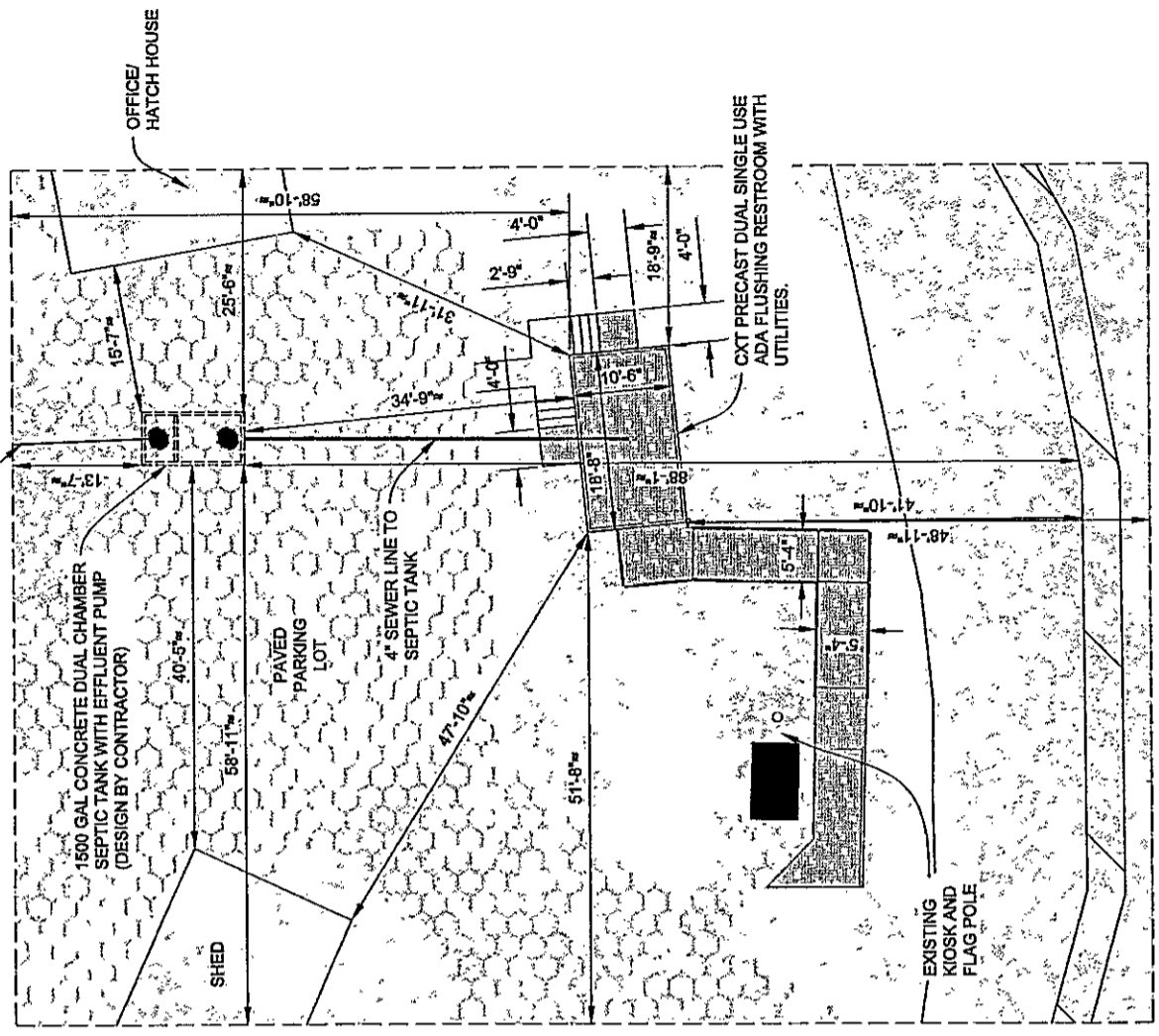
REV	DATE	DESCRIPTION

BANDON HATCHERY
 NEW DUAL RESTROOM
 ENLARGE SITE PLANS

DATE: March 13, 2024
 DESIGN BY: CLM
 DRAWN BY: CLM
 CHECKED BY: RLM
 CHIEF ENGINEER
 FILE #: 22-053
 SHEET 2 OF 3



1 ENLARGED SITE PLAN
 2 SCALE: 1" = 100'-0" ON 22" X 34"



2 ENLARGED SITE PLAN
 2 SCALE: 1" = 100'-0" ON 22" X 34"

BANDON HATCHERY NEW DUAL RESTROOM

55212 FISH HATCHERY ROAD
BANDON, OR, 97411

GENERAL INFORMATION

OWNER: OREGON DEPARTMENT FISH AND WILDLIFE
4034 FAIRVIEW INDUSTRIAL DRIVE ST
SALEM, OR 97302

COUNTY: COOS

TAX INFO: SEC 29 T28S R14W W M
LOT 1100

FACILITY MANAGER

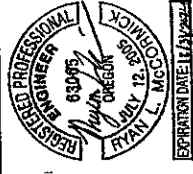
HATCHERY MANAGER
BANDON HATCHERY
OREGON DEPARTMENT OF FISH AND WILDLIFE
55212 FISH HATCHERY ROAD, BANDON, OR, 97411
TEL: (541)347-4278
EMAIL: david.s.welch@odfw.oregon.gov

PROJECT MANAGER

OWNER'S AUTHORIZED REPRESENTATIVE
CHARLES MORALES - ENGINEERING TECHNICIAN
OREGON DEPARTMENT OF FISH AND WILDLIFE
4034 FAIRVIEW INDUSTRIAL DR. SE, SALEM, OR 97302
TEL: (503) 947-6210
EMAIL: charles.l.morales@odfw.oregon.gov

SCOPE OF WORK

- TO INSTALL A NEW PRECAST CONCRETE DOUBLE SINGLE USER ADA ACCESSIBLE FLUSH RESTROOMS UNIT FOR THE PUBLIC AND STAFF TO REPLACE THE EXISTING PORTABLE UNITS.
- CONSTRUCT STEM WALL WITH UTILITIES CONNECTION, FOR THE INSTALLATION OF A CONCRETE UNIT NEXT TO THE PARKING LOT AND HATCH HOUSE WITH AN ADA RAMP, LANDING AND HANDRAILS FOR ONE STALL, STAIRS TO THE OTHER STALL AND UTILITY/SUPPLY ROOM.
 - THE CONTRACTOR SHALL DESIGN AND INSTALL THE DEQ SPECIFIED SIZED SEPTIC TANK WITH AN EFFLUENT PUMP AND LINE TO DRAIN FIELD.
 - THE CONTRACTOR SHALL DESIGN AND INSTALL THE DEQ SPECIFIED LINER FEET OF DRAIN LINE.



OREGON
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FISH DIVISION
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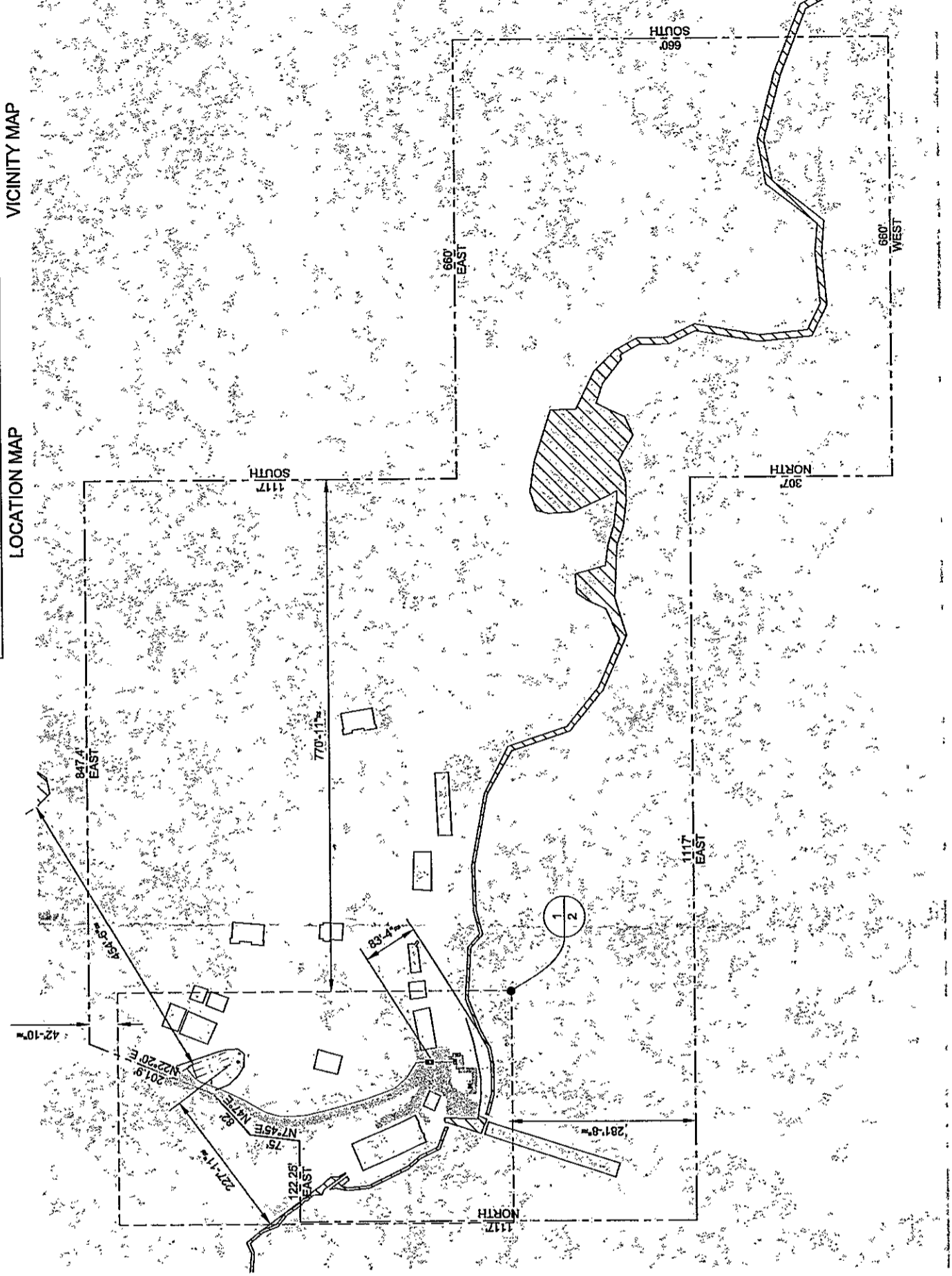
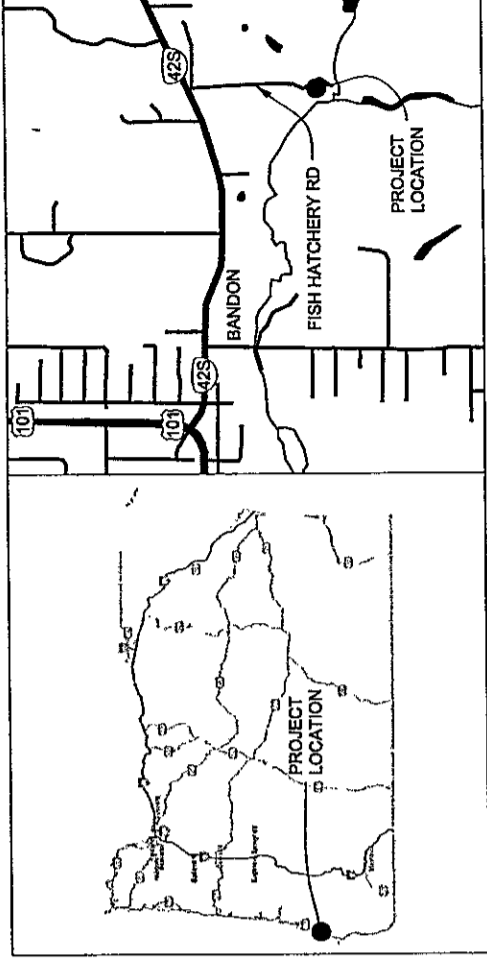
REV	DATE	DESCRIPTION

BANDON HATCHERY
NEW DUAL RESTROOM

TITLE, SITE PLAN, NOTES AND MAP

DATE: March 13, 2024
DESIGN BY: CLM
DRAWN BY: CLM
CHECKED BY: RLM

CHIEF ENGINEER
FILE #: 22-053
SHEET 1
OF 3



1 SITE PLAN
1 SCALE: 1" = 100'-0" ON 22" X 34"