

Use of Ultrasound to Determine Sex of Fish Collected For Broodstock

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Background

- There has always been error sexing the fish collected for broodstock.
- Grande Ronde – early collection due to stream temperature.
- Same person making the call for 20+ years
- Usually the error was consistently Male changing to Female (always had a few extra females).
- Last two years the error switched to Female changing to Male (now we are short of our egg goal).

Let's Try Ultrasound

- Has been used other places, new to us.
- Didn't want to spend a lot of money on equipment that wouldn't work for us.
- Quick search of Amazon.



- I picked the DAWEI
 - Under \$600.
 - Went cheap in case it didn't work out.
 - Small unit
 - Battery operated
 - Water resistant
 - You can store images on the device.

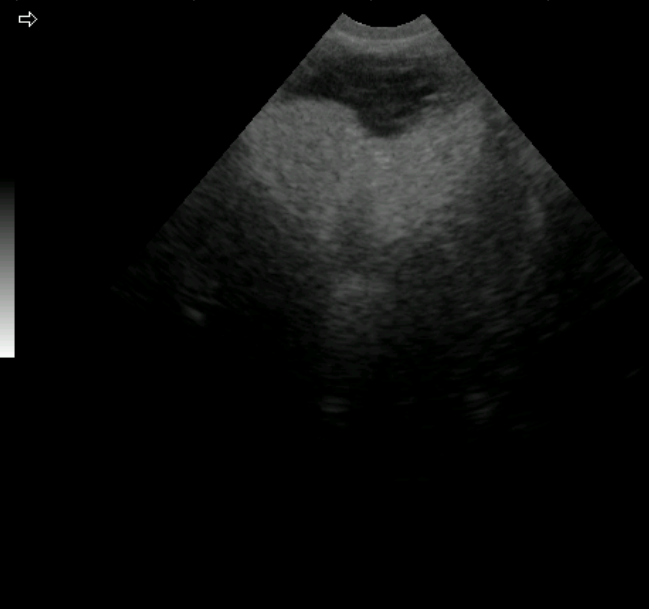




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205

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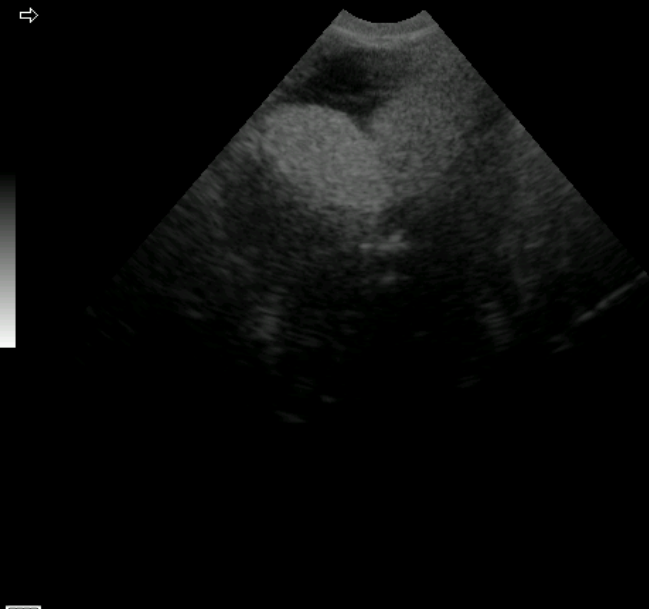


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205

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205

Results

- Broodstock: 177 adult fish scanned at the trap.
 - The sex of the fish was called out before using the ultrasound machine.
 - Fish was PIT tagged (another talk on Thursday)
 - Sex was verified during spawning at hatchery
 - We had 100% accuracy using Ultrasound.
- Before ultrasound use at the trap (initial guess):
- 160 fish were guessed correctly verified by ultrasound (90.4%)
- 17 fish were missed.
 - 11 were initially called female were male
 - 6 were initially called male were female
- Had we not been using ultrasound we would have been short 5 females from our goal.

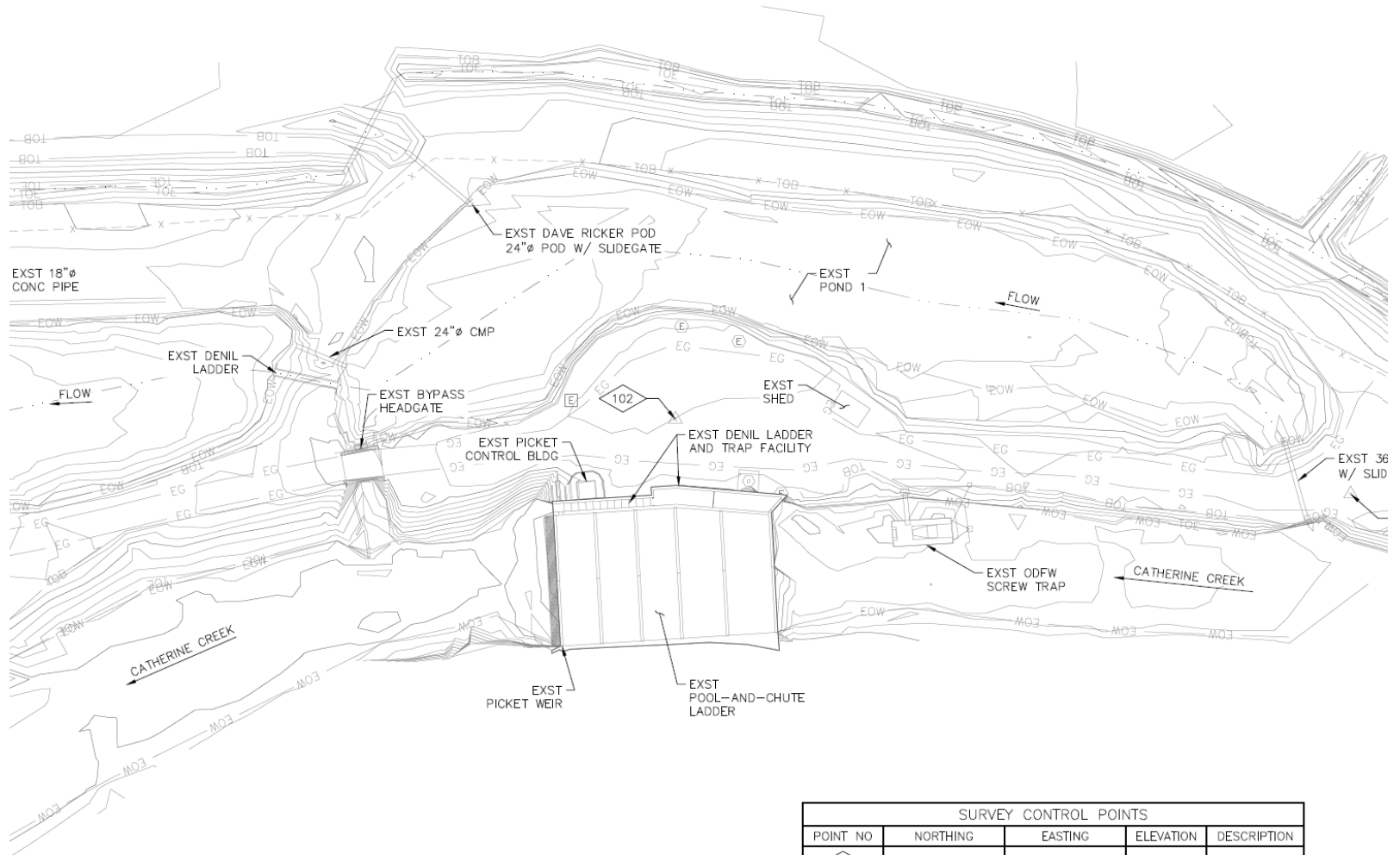
Recommendations

- Reasonable price.
- Unit performed well.
 - Didn't work as well in the very cold water/air temperatures.
- Was easy to use. Some technical stuff but not necessary for our use.
- We used a standard probe location site on the fish to make all the pictures consistent from fish to fish.
- We bought another one for our other trapping location on Catherine Creek.

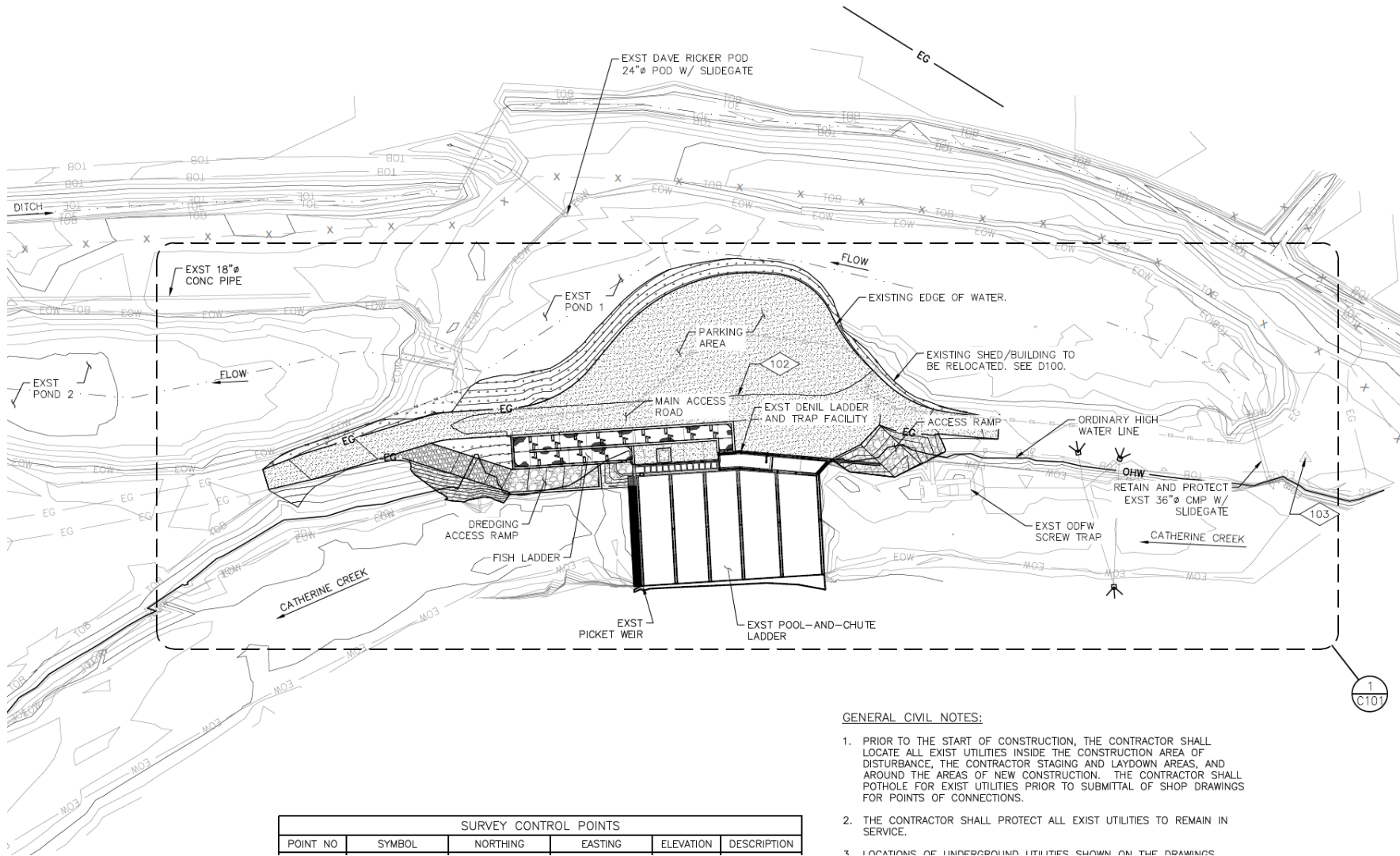
Catherine Creek Adult Ladder Build

- Site was built in 2000. Added ladder and trap to existing fishway.
- New requirements for ladders, decided to upgrade existing ladder.
- During design planning we didn't want to lose the capability to trap fish during construction.
- Thought outside the box to develop a ladder design that could keep existing trap and ladder as backup if new ladder didn't work as desired.
- Just put out for construction bids.





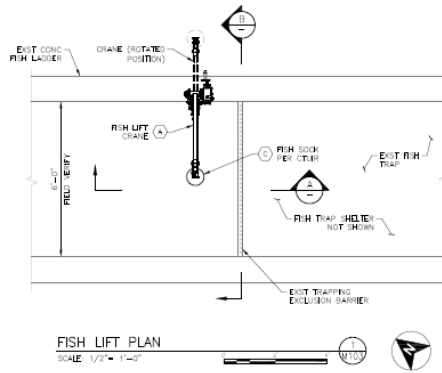
SURVEY CONTROL POINTS				
POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
101	567456.7390	8890275.6460	2893.9080	CPTP
102	567105.0680	8890727.9130	2902.2470	CPCGP



GENERAL CIVIL NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXIST UTILITIES INSIDE THE CONSTRUCTION AREA OF DISTURBANCE, THE CONTRACTOR STAGING AND LAYDOWN AREAS, AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXIST UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR POINTS OF CONNECTIONS.
2. THE CONTRACTOR SHALL PROTECT ALL EXIST UTILITIES TO REMAIN IN SERVICE.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS

SURVEY CONTROL POINTS				
POINT NO	SYMBOL	NORTHING	EASTING	ELEVATION
				DESCRIPTION

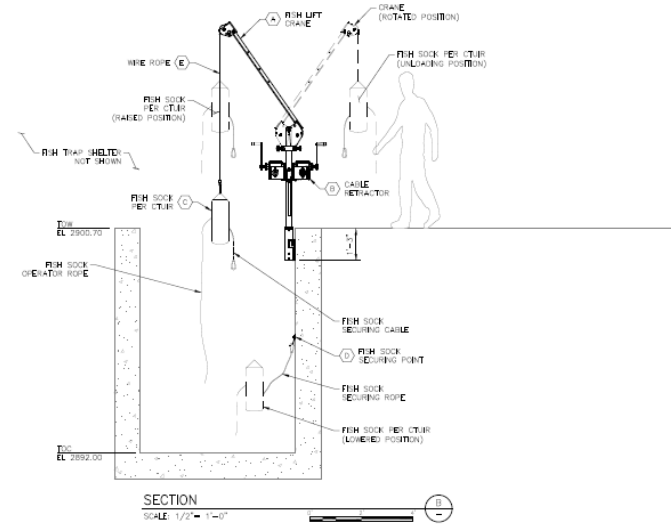
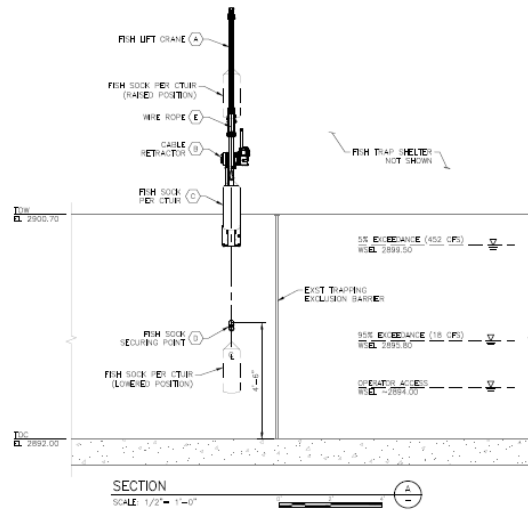


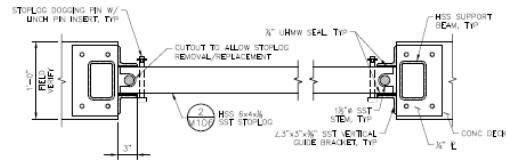
OPERATION PROCEDURE:

1. THE RETRACTOR WILL HOLD THE FISH SOCK AT A PRE-EXTENDED HEIGHT.
2. THE OPERATOR WILL LOWER THE SOCK VIA A ROPE INTO THE FISHING AREA.
3. THE OPERATOR WILL SECURE THE SOCK TO THE HALL AS THEY LEAVE THE FISHING AREA.
4. THE SOCK WILL THEN BE RELEASED AND IT WILL RETURN TO ITS PRE-EXTENDED HEIGHT.
5. ANOTHER OPERATOR WILL SWING THE CRANE AROUND AND UNLOAD THE FISH.

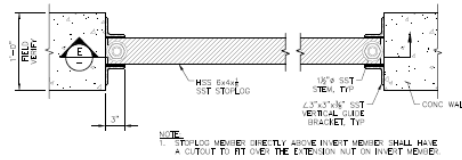
SHEET KEY NOTES:

- A. FISH LIFT CRANE: SHALL MOUNTED ROTATING CRANE. CRANE SHALL HAVE A 30-FOOT SPAN AND A 500-POUND CAPACITY. INSTALL THEN SPAN-WAY DAVIT CRANE WITH WALL MOUNT SHACKLE APPROXIMATELY EQUAL. FISH CRANE PER OWNER'S REQUEST.
- B. CABLE SPRING RETRACTOR: RETRACTOR SHALL BE CONSTRUCTED OF THICKNESS STEEL, ALUMINUM AND HAVE A CAPACITY OF 40 POUNDS. INSTALL WITH A 3/32" DIA. 1/2" DIA. GRAVITY BALANCE OR APPROVED EQUIVALENT.
- C. FISH SOCK: SUPPLIED BY OWNER.
- D. FISH SOCK SECURING POINT: SHALL WITH ROTATING D-RING AND/OR TIE-A. EXPOSED BOLT HEADS SHALL BE COVERED WITH ROUNDED SAFETY-DEAL BOLT CAP OR APPROVED EQUIVALENT.
- E. WIRE ROPE: 3/4" STEEL WIRE ROPE 6x26 CONSTRUCTION.

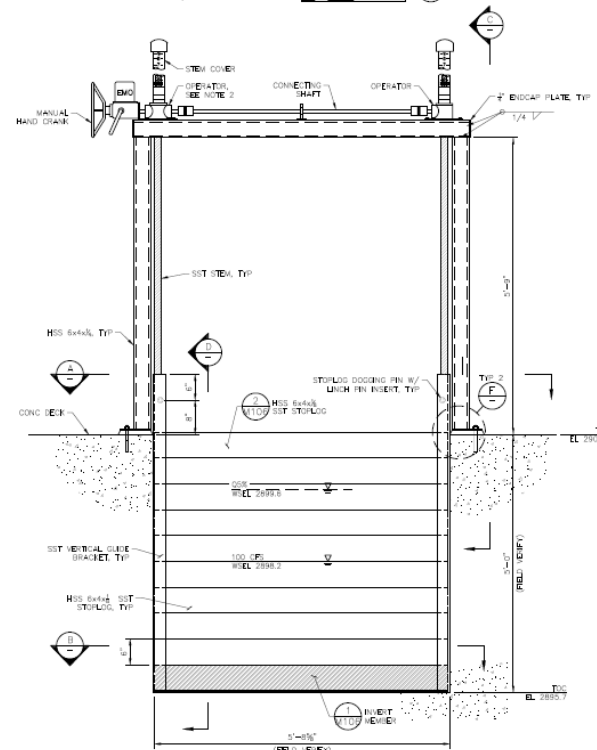




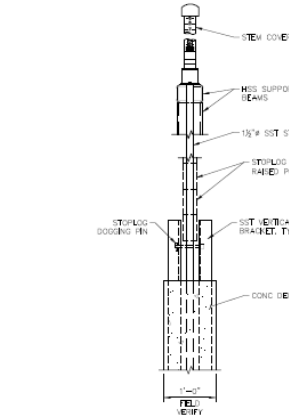
SECTION
SCALE: 1 1/2" = 1'-0"



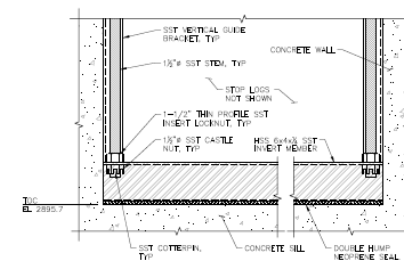
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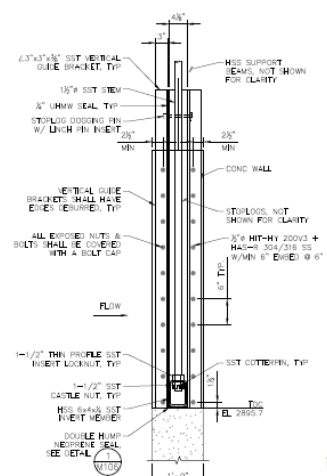
EXIT / HYDRAULIC CONTROL GATE DETAIL
SCALE: 1" = 1'-0"



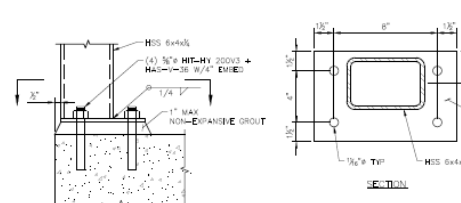
SECTION
SCALE: 1" = 1'-0"



SECTION
SCALE: 1 1/2" = 1'-0"



SECTION
SCALE: 1" = 1'-0"



DETAIL
SCALE: 1" = 1'-0"

SHORT NOTES:

1. CONTRACTOR TO FIELD VERIFY EXISTING CONCRETE DIMENSIONS AND CONTACT ENGINEER ON DISCREPANCIES.
2. CONTRACTOR SHALL USE LATEST DRAWINGS AS A BASIS OF DESIGN AND REFER TO DATE SPECIFICATIONS FOR FINAL FABRICATION OF HYDRAULIC CONTROL GATE.
3. CONTRACTOR TO SUBMIT GATE MEMBER PER REQUIREMENTS BELOW:
 - LIFTING MECHANISM SHALL HAVE 1000 POUND CAPACITY PER LIFTING STEM.
 - GATE LIFTING SPEED SHALL BE 0.5 FT/SEC.
 - GATE OPERATION W/ EXIST.
 - MANUAL LIFTING OVERSIE.

OPERATION PROCEDURE:

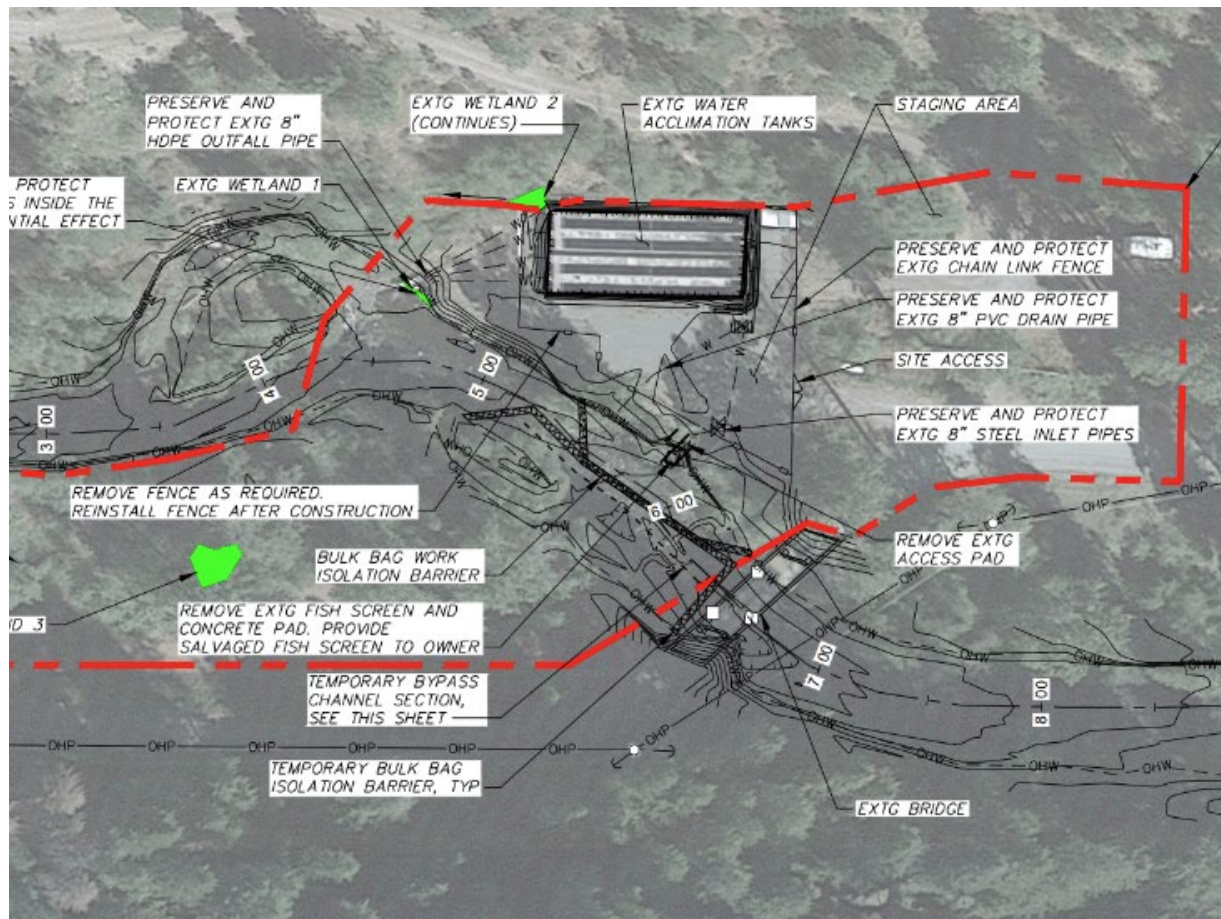
1. THE ELECTRIC MOTOR WILL DRIVE THE OPERATORS AND THE OPERATORS WILL RAISE THE STOPLOGS VIA AN INVERT MEMBER.
2. THE STOPLOG DOCKING PINS WILL BE USED TO SUSPEND STOPLOGS ABOVE THE WATER SURFACE. THE STOPLOGS THAT ARE NOT SUSPENDED WILL BE LIFTED TO CONTROL WATER FLOW THROUGH THE GATE.
3. THE STOPLOG DOCKING PINS ALLOW THE USER TO SELECT THE NUMBER OF STOPLOGS THAT WILL BE LIFTED TO CONTROL THE FLOW OF WATER.



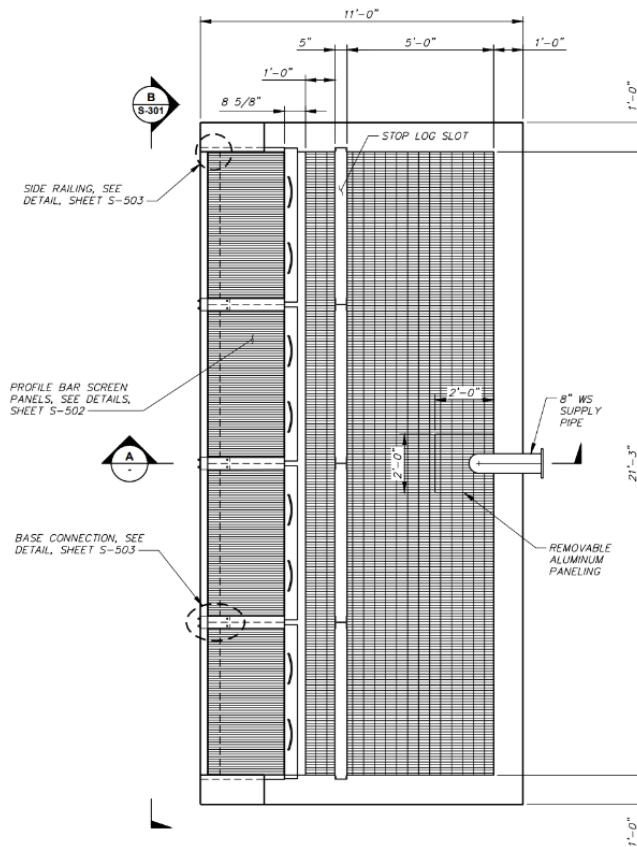
Catherine Creek Juvenile Acclimation Water Intake Structure

- Site was built in 2000.
- Intake structure was designed for use at Catherine Creek.
- For some reason it was never built.
- We have used screened pump boxes located in the creek.
- Jen Krajcik was able to secure some funds to design (and possible construction) a new water intake for the acclimation site.
- Hopefully to address:
 - Sediment loading around the pump box
 - Safety of staff installing the pump
- Still in the design phase (60%).



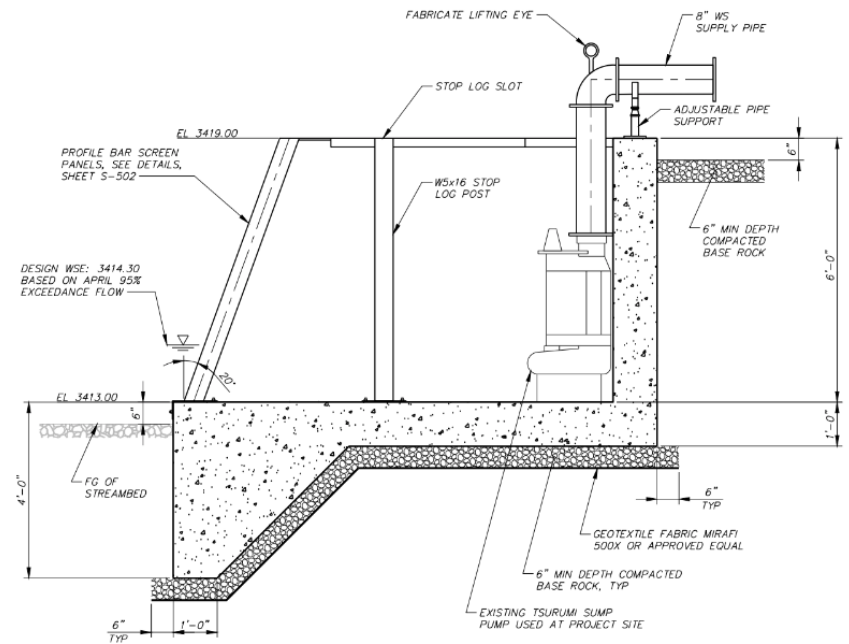






PLAN

1. PROVIDE CONSTRUCTION, CONTRACTION, AND EXPANSION JOINTS AS REQUIRED, SEE TECHNICAL SPECIFICATIONS.
2. SEE CONCRETE FINISH REQUIREMENTS IN TECHNICAL SPECIFICATIONS.
3. BACKFILL MATERIAL SHALL BE GENERAL BACKFILL/FILL MATERIAL. SEE TECHNICAL SPECIFICATIONS.
4. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED, SEE TECHNICAL SPECIFICATIONS, UNLESS OTHERWISE CALLED OUT OTHERWISE.
5. CONTRACTOR SHALL SHOP FABRICATE AND HOT DIP GALVANIZE ALL FABRICATED METAL WORK UNLESS SPECIFICALLY STATED OTHERWISE. ALL FASTENERS SHALL BE 304 SS. COAT ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR MASONRY.



SECTION