

BONNEVILLE PIT FEASIBILITY STUDY

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FFDRWG
01 August 2019



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Alternatives:

1. ITS Fixed Gate – Flat plate
2. ITS Fixed Gate – Pass-through
3. ITS Auto Gate – Flat plate
4. ITS Outfall Chute – Pass-through
5. Extend ITS Channel – Excluded
6. Extend ITS Channel – Excluded
7. Spillway Flat Plate (Bay 1 or 18) – Flat plate
8. B2CC – Pass-through
9. JBS Outfall Piers – Fin array
10. JBS Barge – Fin array

Constraints:

- ▶ Must fit within the existing infrastructure
- ▶ Must not hinder fish passage
- ▶ Must not affect hydraulics such that dam safety and integrity are affected, nor operations required for safety, passing debris, or routine maintenance
- ▶ Must be based on technology that exists or will exist by construction



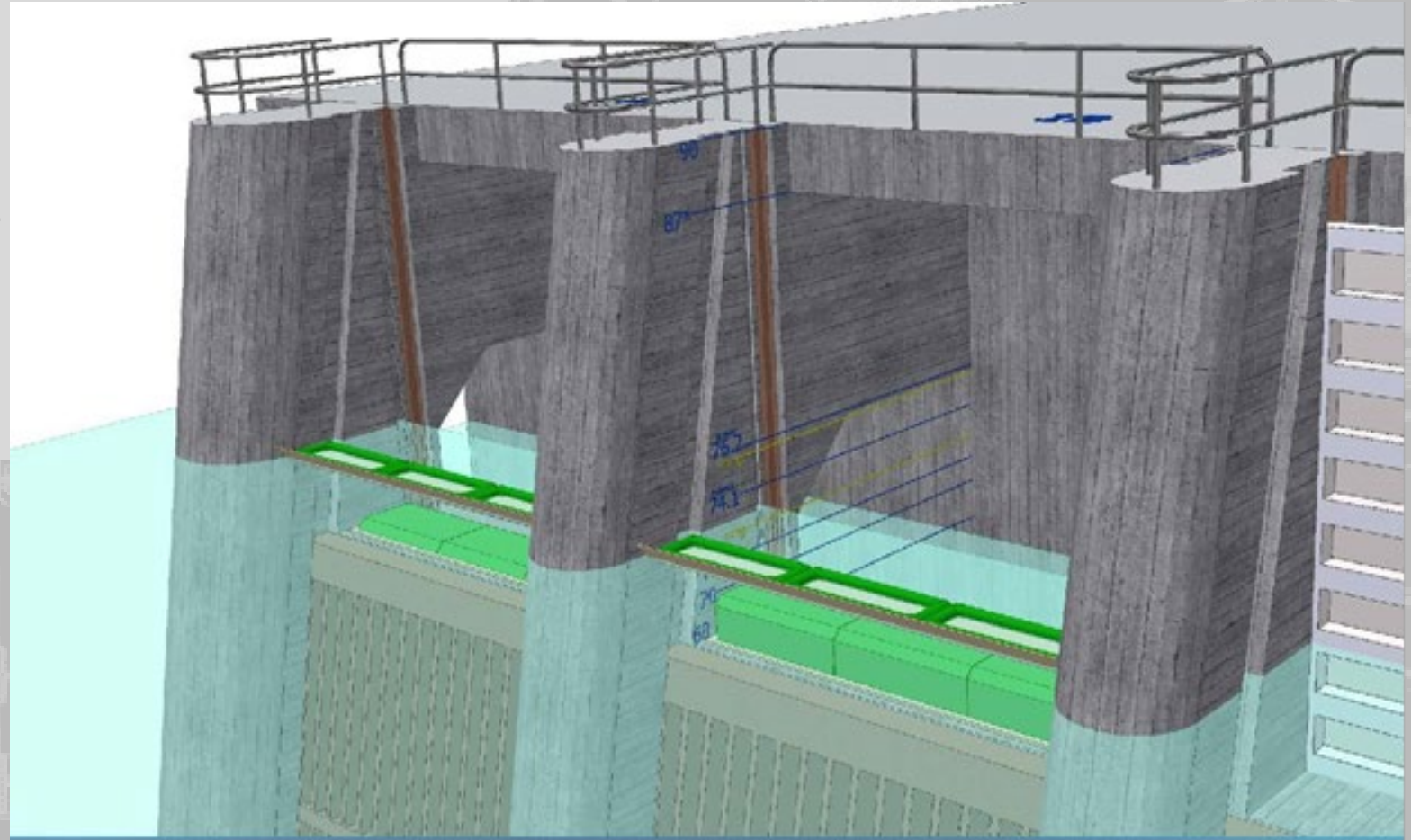
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Alternatives:

1. ITS Fixed Gate – Flat plate

-Gates 1A and 1B

-Efficiency compromised due to depth of water over weir

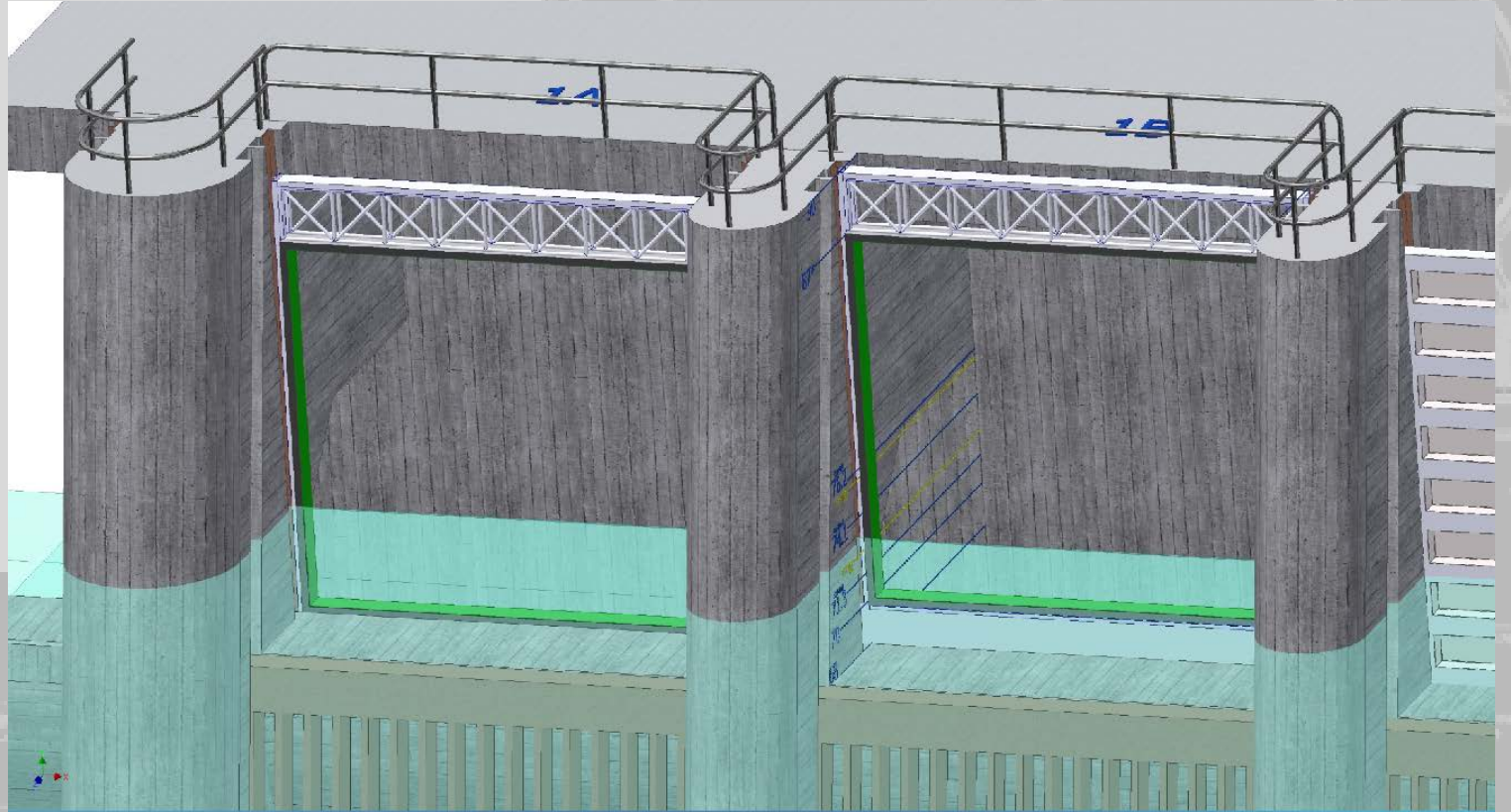


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Alternatives:

2. ITS Fixed Gate – Pass-through

- Gates 1A and 1B
- Efficiency compromised due to depth of water over weir and potential interference from adjacent metal structures

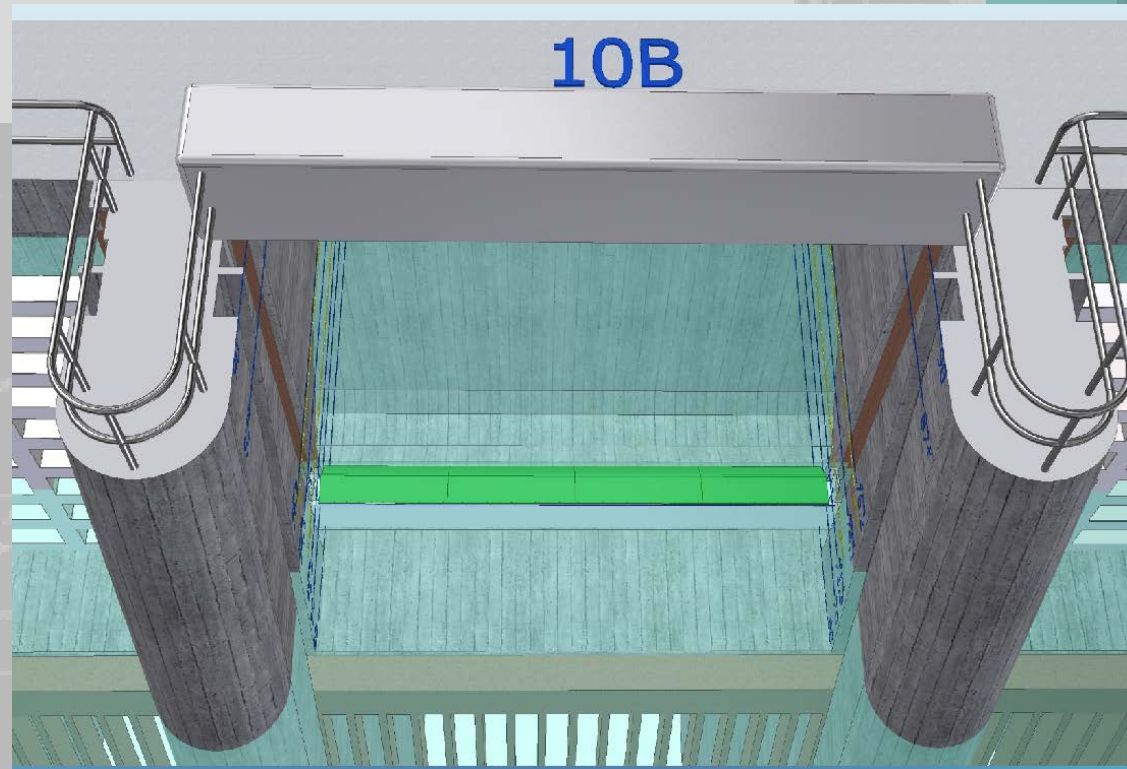
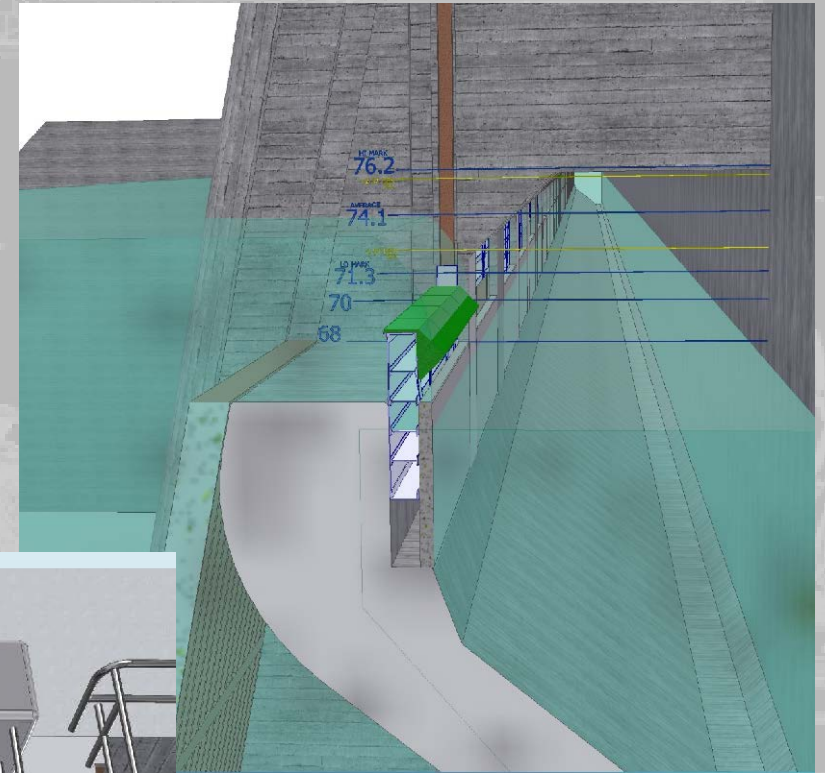


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Alternatives:

3. ITS Auto Gates – Fixed plate

- Gates 3B, 6C and 10B
- Relatively high detection efficiency



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Alternatives:

4. ITS Outfall Chute – Pass-through

- All ITS fish would pass by
- Efficiency compromised due to hydraulics and detection 'hole'

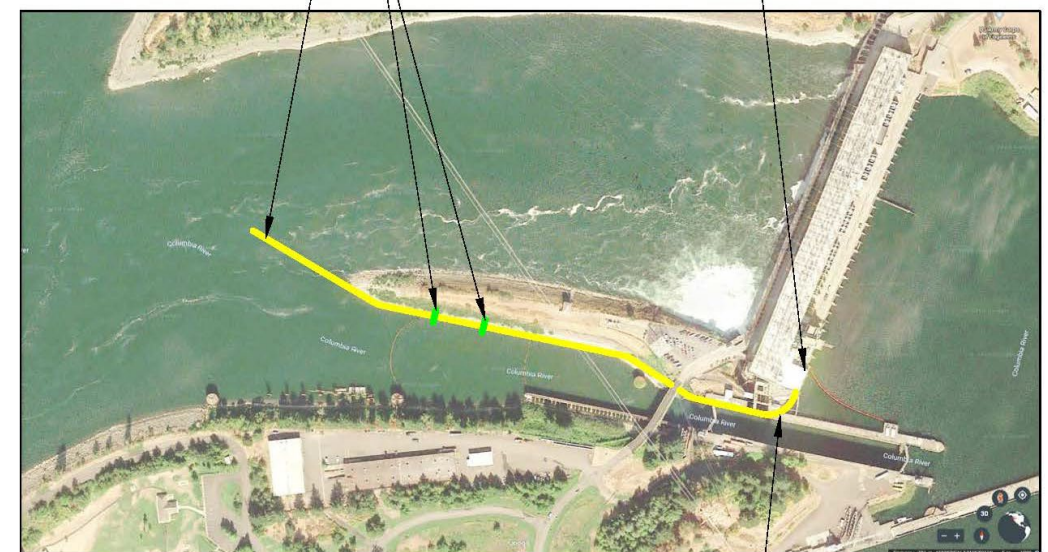
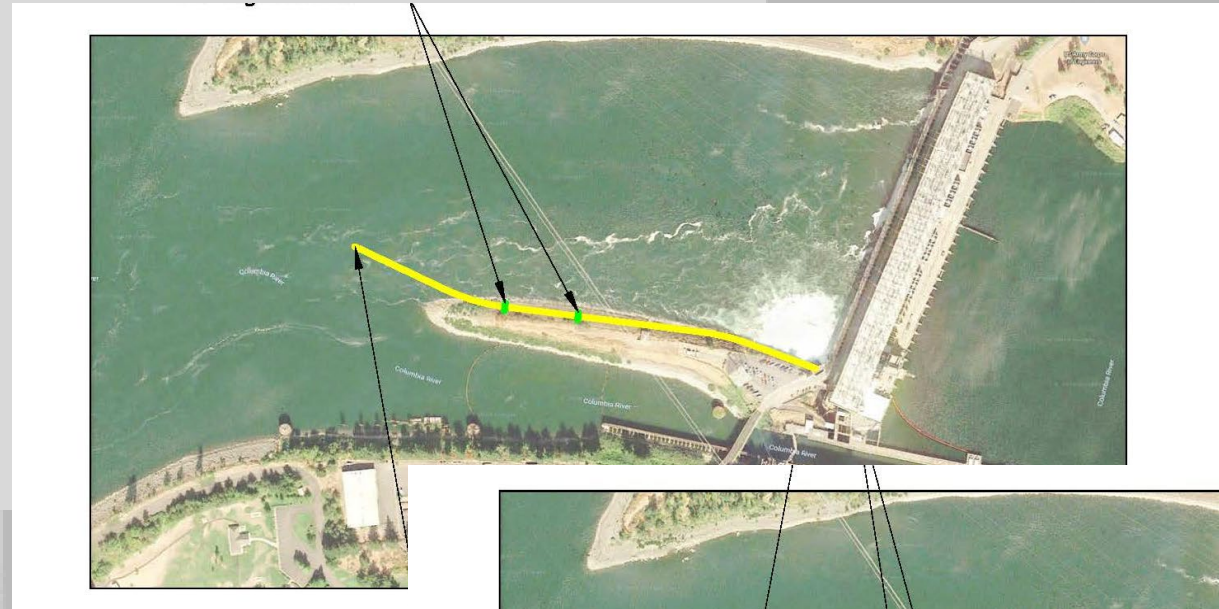


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Alternatives:

5 and 6. ITS Outfall Extensions – NOT CONSIDERED

-Does not fit constraints



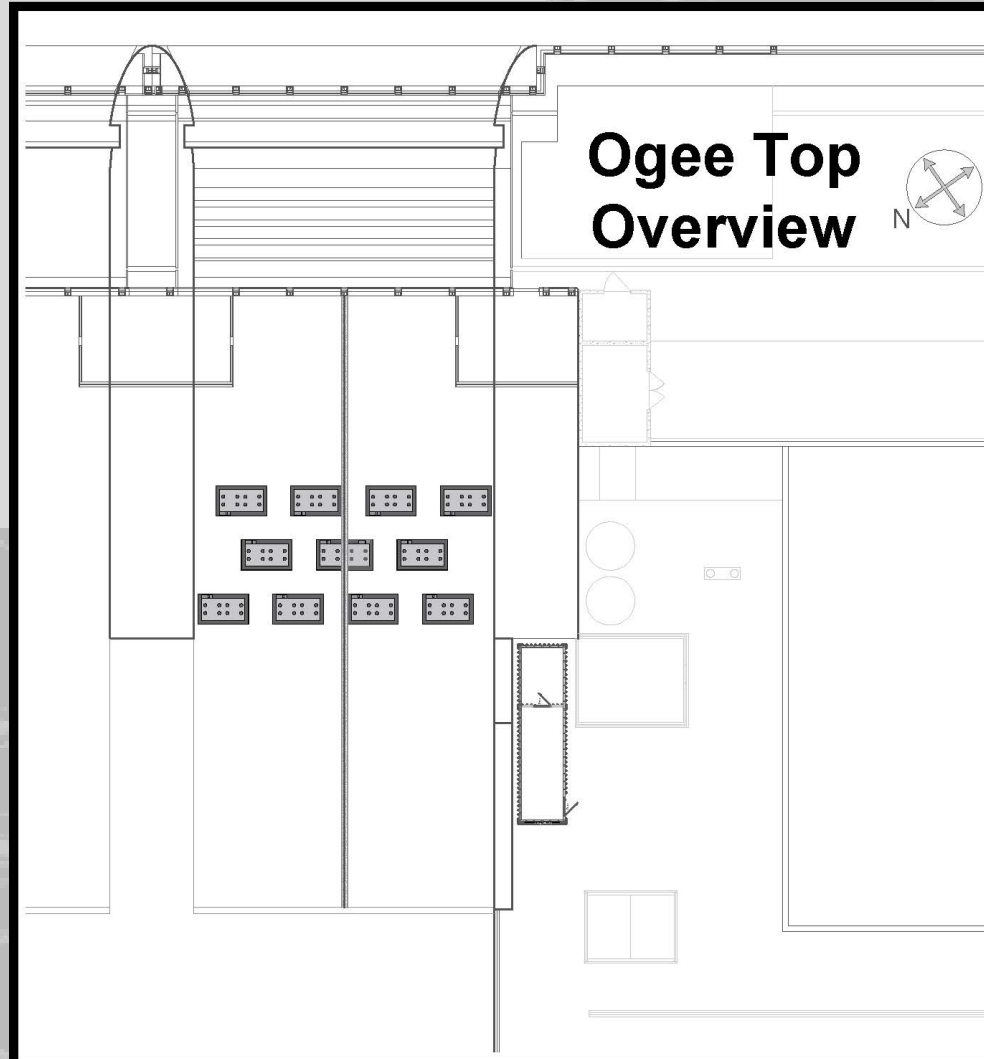
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Alternatives:

7. Spillway – Flat plate

-Bay 1 or 18

-Efficiency compromised due to hydraulics (turbulence and velocity)



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Alternatives:

8. B2CC – Pass-through

-Proven technology

-Not a large boost in PIT detection

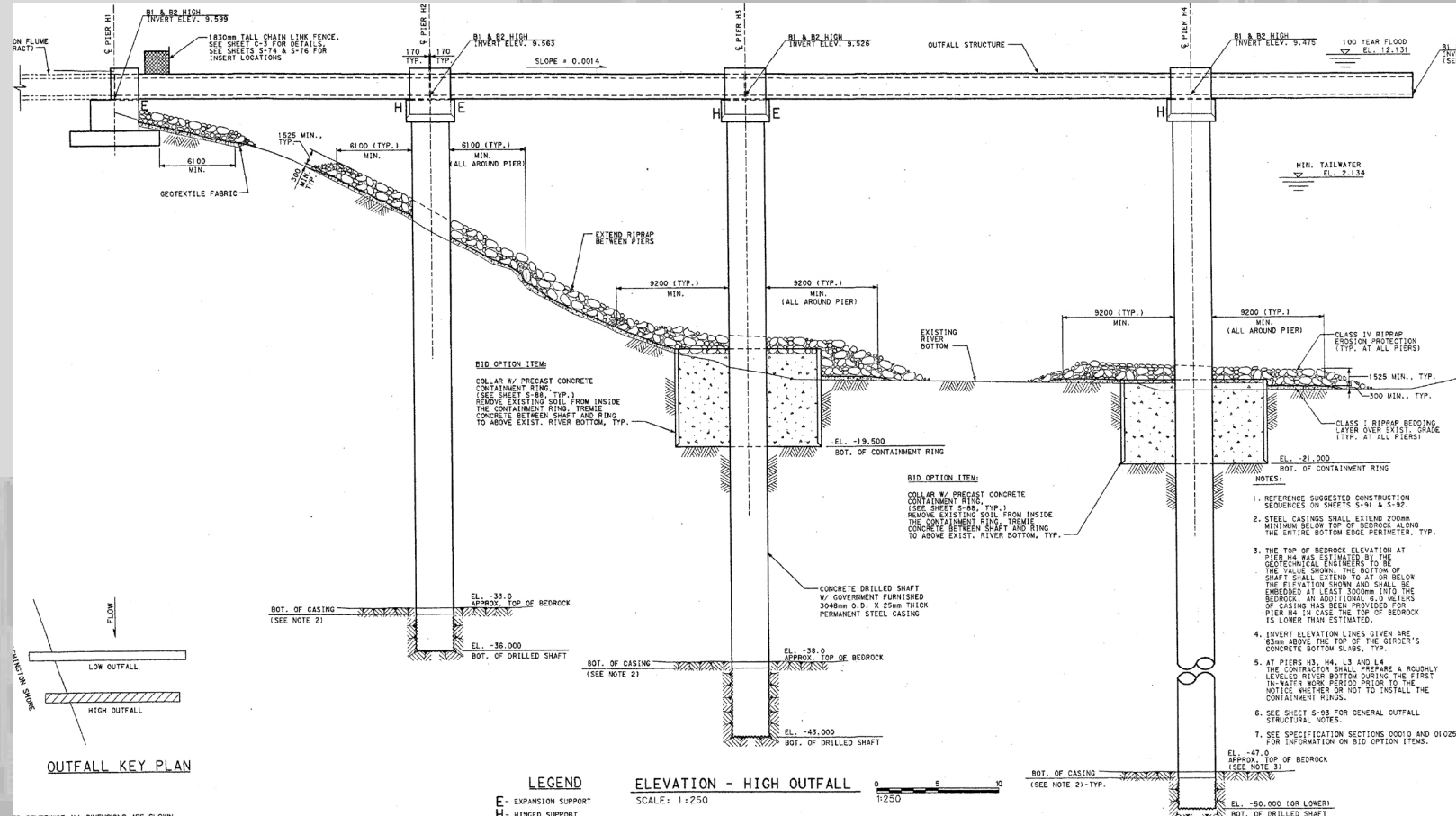


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Alternatives:

9. JBS Outfall Piers

- Integrity of piers a concern
- Technology questionable
- Unknown detection boost



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Alternatives:

10. JBS PIT Barge – Fin array

- Debris and mooring concerns
- Unknown detection boost



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Criteria:

- | | Weighting factor |
|---|-------------------------|
| ▶ Detection Delta: Antenna location
Antenna efficiency | 2.0 |
| ▶ Cost | 1.6 |
| ▶ O&M Burden | 1.0 |
| ▶ Constructability | 1.1 |
| ▶ Reliability/Durability | 1.5 |
| ▶ Secondary Biological Uses | 1.3 |



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Decision Matrix

		Weight: 1 - 2 (1 = Least Important, 2 = Most Important)								TOTALS (sum of ratings x weights)
		2.0		1.6	1.0	1.1	1.5	1.3		
Criteria		Detection Delta		Cost	O&M Burden	Constructability	Reliability/Durability	Secondary Biological Uses		
		Antenna Location	Antenna Efficiency							
Antenna Location/Description		Alternative No.	Rating: 1 - 5 (1 = Poor, 5 = Outstanding)							
B1	ITS Fixed Gate (Flat Plate)	1	2	65%	2	4	2	3	5	23.0
	ITS Fixed Gate (Pass-Thru)	2	2	50%	3	1	4	2	5	21.7
	ITS Auto Gate (Flat Plate)	3	3	90%	4	4	4	2	5	29.7
	ITS Outfall (Pass-thru)	4	5	20%	2	4	2	4	5	23.9
Spillway	Bay 1 or Bay 18 (Flat Plate array)	7	4	5%	1	4	1	4	3	17.0
B2	B2CC (Pass-thru)	8	2	99%	2	4	3	5	1	23.3
Downstream	JBS Outfall Piers (Fin Array)	9	1	50%	2	5	1	1	1	13.1
	PIT barge in tailrace (Fin Array)	10	2	4%	5	5	5	1	1	21.5



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Schedule:

60% EDR – 31 July 2019

To agencies for review 01 August 2019

Comments by 09 August

Draft Final report – late September 2019



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