

Appendix A: Fish Passage Option Cost Data

California American Water
Los Padres Dam Fish Passage Assessment
PRELIMINARY Opinion of Probable Construction Costs

Item	Quantity	Unit	Unit Cost	Amount	Total
<i>Direct Volitional Passage: Hybrid Fishway Surface Collector Flow in Lieu of AWS</i>					
Mobilization / Demobilization (7%)	1	LS	\$239,379	\$239,379	\$ 239,379
Sitework				\$	391,500
Dewatering	1	LS	\$30,000	\$30,000	
Erosion Control	1	LS	\$60,000	\$60,000	
Rock Slope Protection	146	CY	\$150	\$21,900	
Footing Preparation	1,220	LF	\$180	\$219,600	
Site Restoration	1	LS	\$60,000	\$60,000	
Fishway					
Ladder				\$	2,702,400
Concrete Wall	1,824	CY	\$1,100	\$2,006,400	
Wall Baffles	51	CY	\$1,300	\$66,300	
Wing Baffles	204	CY	\$1,300	\$265,200	
Concrete Slab	405	CY	\$900	\$364,500	
Resting Pools (11)				\$	325,800
Concrete Wall	156	CY	\$1,100	\$171,600	
Concrete Slab	70	CY	\$900	\$63,000	
Inlet Structure					
Concrete Slab	14	CY	\$900	\$12,600	
Concret Walls	30	CY	\$1,100	\$33,000	
Outlet Structure					
Concrete Slab	14	CY	\$900	\$12,600	
Concrete Walls	30	CY	\$1,100	\$33,000	
Subtotal Construction Costs				\$	3,659,079
Other Construction Costs					
Bonds and Insurance (4%)				\$	146,363
Construction Management (Contractor) (8%)				\$	292,726
Subtotal Construction Costs				\$	4,098,168
Contingency (20%)				\$	819,634
Total Construction Costs				\$	4,917,802
Total Rounded Construction Costs				\$	4,920,000

California American Water
Los Padres Dam Fish Passage Assessment
PRELIMINARY Opinion of Probable Construction Costs

Item	Quantity	Unit	Unit Cost	Amount	Total
<i>Trap and Haul to Forebay</i>					
Mobilization / Demobilization (7%)	1	LS	\$33,000	\$33,000	\$ 33,000
Demolition					\$ 20,000
Modify Existing Entrance Pool	1	LS	\$20,000	\$20,000	
Sitework					\$ 175,800
Dewatering	1	LS	\$30,000	\$30,000	
Erosion Control	1	LS	\$60,000	\$60,000	
Footing Preparation	85	LF	\$180	\$15,300	
Site Restoration	1	LS	\$60,000	\$60,000	
Rock Slope Protection	10	CY	\$150	\$1,500	
Truck Pad	10	CY	\$900	\$9,000	
Fishway Reconstruction					
Ladder					\$ 161,500
Concrete Wall	67	CY	\$1,100	\$73,700	
Wall Baffles	5	CY	\$1,300	\$6,500	
Wing Baffles	20	CY	\$1,300	\$26,000	
Concrete Slab	30	CY	\$900	\$27,000	
Entrance Pool					
Concrete Wall	20	CY	\$1,100	\$22,000	
Concrete Slab	7	CY	\$900	\$6,300	
Trap Reconstruction					\$ 171,550
Ramp at Reservoir	50	LF	\$225	\$11,250	
Components					
Fyke Panel	2000	LBS	\$8	\$16,000	
Metal Grating	1020	LBS	\$25	\$25,500	
Crowding Screen	168	SF	\$350	\$58,800	
Guardrail	5000	LBS	\$8	\$40,000	
Spool & Flange	1	LS	\$20,000	\$20,000	
Subtotal Construction Costs					\$ 561,850
Other Construction Costs					
Bonds and Insurance (4%)					\$ 22,474
Construction Management (Contractor) (8%)					\$ 44,948
Subtotal Construction Costs					\$ 629,272
Contingency (20%)					\$ 125,854
Total Construction Costs					\$ 755,130
Total Rounded Construction Costs					\$ 760,000

California American Water
Los Padres Dam Fish Passage Assessment
PRELIMINARY Opinion of Probable Construction Costs

Item	Quantity	Unit	Unit Cost	Amount	Total
<i>Fixed Surface Collector at Reservoir Outlet</i>					
Mobilization / Demobilization (7%)	1	LS	\$18,400	\$18,400	\$18,400
Sitework					\$20,000
Dewatering	1	LS	\$20,000	\$20,000	
Fixed Surface Collector					\$159,000
Boom, cables, guidance fence, anchors installation	1	LS	\$20,000		
Stainless steel box and supports, etc.	1	LS	\$35,000		
Pipe line and supports with connections	1	LS	\$64,000		
Cut through spillway	1	LS	\$40,000		
Debris Boom					\$26,000
TUFFBOOM ®	10	Per Boom	\$504	\$5,040	
Shipping of Tuffboom System	1	LS	\$3,000	\$3,000	
Anchor Block					
Concrete Block	3	CY	\$1,300	\$3,900	
Rebar Anchor	1	LS	\$1,000	\$1,000	
Steel Cable	1	LS	\$1,000	\$1,000	
Clevis and Turnbuckle	1	LS	\$500	\$500	
12" Diameter (Steel Pile 1/2" wall thickness)	150	LF	\$34	\$5,100	
Pile Installation (vibratory installation)	5	Per Pile	\$1,200	\$6,000	
Physical Guidance Structure					\$58,000
Tuffboom	10	Per Boom	\$504	\$5,040	
36" Debris Screen	10	Per Boom	\$800	\$8,000	
Steel Cable	1	LS	\$1,000	\$1,000	
Clevis and Turnbuckle	1	LS	\$500	\$500	
12" Diameter (Steel Pile 1/2" wall thickness)	150	LF	\$34	\$5,100	
Pile Installation (vibratory installation)	5	Per Pile	\$1,200	\$6,000	
Outfall					
40-ft Steel Pilings	2	EA	\$6,000	\$12,000	
Connection	1	LS	\$20,000	\$20,000	
Subtotal Construction Costs					\$281,400
Other Construction Costs					
Bonds and Insurance (4%)					\$11,256
Construction Management (Contractor) (8%)					\$22,512
Subtotal Construction Costs					\$399,168
Contingency (20%)					\$79,834
Total Construction Costs					\$479,010
Total Rounded Construction Costs					\$480,000

California American Water
Los Padres Dam Fish Passage Assessment
PRELIMINARY Opinion of Probable Construction Costs

Item	Quantity	Unit	Unit Cost	Amount	Total
<i>Floating Surface Collector at Reservoir Outlet</i>					
Mobilization / Demobilization (7%)	1	LS	\$33,000	\$33,000	\$33,000
Sitework					\$121,980
Dewatering	1	LS	\$20,000	\$20,000	
Floating Surface Collector					\$217,010
Deck Beams	4,655	LBS	\$4	\$18,620	
Truss	6,500	LBS	\$4	\$26,000	
Grating Deck	12,000	LBS	\$4	\$48,000	
Deck Stringers	1,560	LBS	\$4	\$6,240	
Misc Railings/Connections	780	LBS	\$4	\$3,120	
Trap Frame	480	LBS	\$4	\$1,920	
Guide Bumper	1,740	LBS	\$4	\$6,960	
Epoxy Paint	1	LS	\$10,000	\$10,000	
Pontoon	6	EA	\$5,000	\$30,000	
Jib Crane	1	EA	\$14,000	\$14,000	
Anchor Lines	750	LBS	\$8	\$6,000	
Live Box/Lifting Hopper	1846	LBS	\$25	\$46,150	
Debris Boom					\$33,000
TUFFBOOM ®	13	Per Boom	\$504	\$6,552	
Shipping of Tuffboom System	1	LS	\$3,000	\$3,000	
Anchor Block					
Concrete Block	5	CY	\$1,300	\$6,500	
Rebar Anchor	1	LS	\$1,000	\$1,000	
Steel Cable	1	LS			
Clevis and Turnbuckle	1	LS	\$500	\$500	
12" Diameter (Steel Pile 1/2" wall thickness)	250	LF	\$34	\$8,500	
Pile Installation (vibratory installation)	5	Per Pile	\$1,200	\$6,000	
Physical Guidance Structure					\$48,064
Tuffboom	13	Per Boom	\$504	\$6,552	
36" Debris Screen	13	Per Boom	\$424	\$5,512	
Steel Cable	1	LS	\$1,000	\$1,000	
Clevis and Turnbuckle	1	LS	\$500	\$500	
12" Diameter (Steel Pile 1/2" wall thickness)	250	LF	\$34	\$8,500	
Pile Installation (vibratory installation)	5	Per Pile	\$1,200	\$6,000	
Outfall					
Connection	1	LS	\$20,000	\$20,000	
Subtotal Construction Costs					\$453,054
Other Construction Costs					
Bonds and Insurance (4%)					\$18,122
Construction Management (Contractor) (8%)					\$36,244
Subtotal Construction Costs					\$588,484
Contingency (20%)					\$117,697
Total Construction Costs					\$706,190
Total Rounded Construction Costs					\$710,000

California American Water
Los Padres Dam Fish Passage Assessment
PRELIMINARY Opinion of Probable Construction Costs

Item	Quantity	Unit	Unit Cost	Amount	Total
<i>Head of Reservoir Fixed Trapping Facility</i>					
Mobilization / Demobilization (7%)	1	LS	\$158,631	\$158,631	\$158,631
Sitework					\$174,750
Dewatering	1	LS	\$30,000	\$30,000	
Erosion Control	1	LS	\$60,000	\$60,000	
Rock Slope Protection	65	CY	\$150	\$9,750	
Footing Preparation	1	LS	\$15,000	\$15,000	
Site Restoration	1	LS	\$60,000	\$60,000	
Fishway					\$267,850
Conc, wall	75	CY	\$950	\$71,250	
Conc, slab	54	CY	\$750	\$40,500	
Conc, slot baffles	4	CY	\$1,500	\$6,000	
GS bar grating	270	SF	\$30	\$8,100	
Cantilvered walkway	1	LS	\$2,000	\$2,000	
Misc Metals	1	LS	\$86,000	\$86,000	
Screens	1	LS	\$44,000	\$44,000	
Fish hopper	1	LS	\$10,000	\$10,000	
Trapping Components					\$160,300
Fyke Panel	2000	LBS	\$8	\$16,000	
Metal Grating	1020	LBS	\$25	\$25,500	
Crowding Screen	168	SF	\$350	\$58,800	
Guardrail	5000	LBS	\$8	\$40,000	
Spool & Flange	1	LS	\$20,000	\$20,000	
Picket Weir and Overflow Spillway					\$612,000
Earthwork	1	LS	\$14,000	\$14,000	
Sill	1	LS	\$115,000	\$115,000	
Weir	1	LS	\$433,000	\$433,000	
Emergency Overflow Spilway	1	LS	\$50,000	\$50,000	
Haul Road Construction					\$2,145,000
Bypass Road	16500	LF	\$130	\$2,145,000	
Subtotal Construction Costs					\$3,518,531
Other Construction Costs					
Bonds and Insurance (4%)					\$140,741
Construction Management (Contractor) (8%)					\$281,482
Subtotal Construction Costs					\$3,940,755
Contingency (20%)					\$788,151
Total Construction Costs					\$4,728,910
Total Rounded Construction Costs					\$4,730,000

Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Direct Volitional Passage: Hybrid Fishway with Surface Collector in Lieu of AWS

Item	Quantity	Unit Cost	Amount	Total
Labor				\$28,576
Maintenance person direct labor cost (average 3.0 hr/day for 7.5-month operating period)	0.154 FTE	\$41,000	\$6,318.49	
Maintenance person benefits @1.15 labor cost	0.154 FTE	\$47,200	\$7,273.97	
Seasonal technician direct labor cost (average 3.0 hrs/day for 120-day operating period)	0.123 FTE	\$21,300	\$2,626.03	
Seasonal technician benefits @1.15 labor cost	0.123 FTE	\$24,500	\$3,020.55	
Seasonal technician direct labor cost (average 8.0 hrs/day for 20-days)	0.438 FTE	\$21,300	\$9,336.99	
General Maintenance / Repair and Replacement				\$24,600
Estimated at 0.5% of capital cost	0.005	\$4,920,000	\$24,600	
Fuel costs (Travel)				\$33
(60 miles round trip at \$0.55/MI)	60 MI	\$0.55	\$33	
Subtotal:				\$53,209
Contingency (30%)				\$15,963
Total with contingency				\$69,172
Total Ronded Cost				\$70,000

Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Trap and Haul to Forebay

Item	Quantity	Unit Cost	Amount	Total
Labor				\$22,027
Maintenance person direct labor cost (average 4.0 hr/day for 8-month operating period)	0.164 FTE	\$41,000	\$6,740	
Maintenance person benefits @1.15 labor cost	0.164 FTE	\$47,200	\$7,759	
Seasonal technician direct labor cost (average 4.0 hrs/day for 120-day operating period)	0.164 FTE	\$21,300	\$3,501	
Seasonal technician benefits @1.15 labor cost	0.164 FTE	\$24,500	\$4,027	
General Maintenance / Repair and Replacement				\$3,800
Estimated at 0.5% of capital cost	0.005	\$760,000	\$3,800	
Fuel costs (Travel)				\$33
(60 miles round trip at \$0.55/MI)	60 MI	\$0.55	33	
Subtotal:				\$25,860
Contingency (30%)				\$7,758
Total with contingency				\$33,619
Total Ronded Cost				\$34,000

**Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Fixed Surface Collector at Reservoir Outlet**

Item	Quantity		Unit Cost	Amount	Total
Labor					\$19,239
Maintenance person direct labor cost (average 3.0 hr/day for 7.5-month operating period)	0.154	FTE	\$41,000.00	\$6,318.49	
Maintenance person benefits @1.15 labor cost	0.154	FTE	\$47,200.00	\$7,273.97	
Seasonal technician direct labor cost (average 3.0 hrs/day for 120-day operating period)	0.123	FTE	\$21,300.00	\$2,626.03	
Seasonal technician benefits @1.15 labor cost	0.123	FTE	\$24,500.00	\$3,020.55	
General Maintenance / Repair and Replacement					\$2,400
Estimated at 0.5% of capital cost	0.005		\$480,000	\$2,400	
Fuel costs (Travel)					\$33
(60 miles round trip at \$0.55/MI)	60	MI	\$0.55	\$33.00	
Subtotal:					\$21,672
Contingency (30%)					\$6,502
Total with contingency					\$28,174
Total Ronded Cost					\$29,000

**Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Floating Surface Collector at Reservoir Outlet**

Item	Quantity		Unit Cost	Amount	Total
Labor					\$28,576
Maintenance person direct labor cost (average 3.0 hr/day for 7.5-month operating period)	0.154	FTE	\$41,000	\$6,318	
Maintenance person benefits @1.15 labor cost	0.154	FTE	\$47,200	\$7,274	
Seasonal technician direct labor cost (average 3.0 hrs/day for 120-day operating period)	0.123	FTE	\$21,300	\$2,626	
Seasonal technician benefits @1.15 labor cost	0.123	FTE	\$24,500	\$3,021	
Seasonal technician direct labor cost (average 8.0 hrs/day for 20-days)	0.438	FTE	\$21,300	\$9,337	
General Maintenance / Repair and Replacement					\$3,550
Estimated at 0.5% of capital cost	0.005		\$710,000	\$3,550	
Fuel costs (Travel)					\$33
(60 miles round trip at \$0.55/MI)	60	MI	\$1	\$33	
Subtotal:					\$32,159
Contingency (30%)					\$9,648
Total with contingency					\$41,807
Total Ronded Cost					\$42,000

**Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Head of Reservoir Fixed Trapping Facility**

Item	Quantity		Unit Cost	Amount	Total
Labor					\$58,740
Maintenance person direct labor cost (average 8.0 hr/day for 8-month operating period)	0.438	FTE	\$41,000	\$17,973	
Maintenance person benefits @1.15 labor cost	0.438	FTE	\$47,200	\$20,690	
Seasonal technician direct labor cost (average 8.0 hrs/day for 160-day operating period)	0.438	FTE	\$21,300	\$9,337	
Seasonal technician benefits @1.15 labor cost	0.438	FTE	\$24,500	\$10,740	
General Maintenance / Repair and Replacement					\$23,650
Estimated at 0.5% of capital cost	0.005		\$4,730,000	\$23,650	
Fuel costs (Travel)					\$35
(64 miles round trip at \$0.55/MI)	64	MI	\$0.55	\$35	
Subtotal:					\$82,425
Contingency (30%)					\$24,727
Total with contingency					\$107,152
Total Rounded Cost					\$108,000

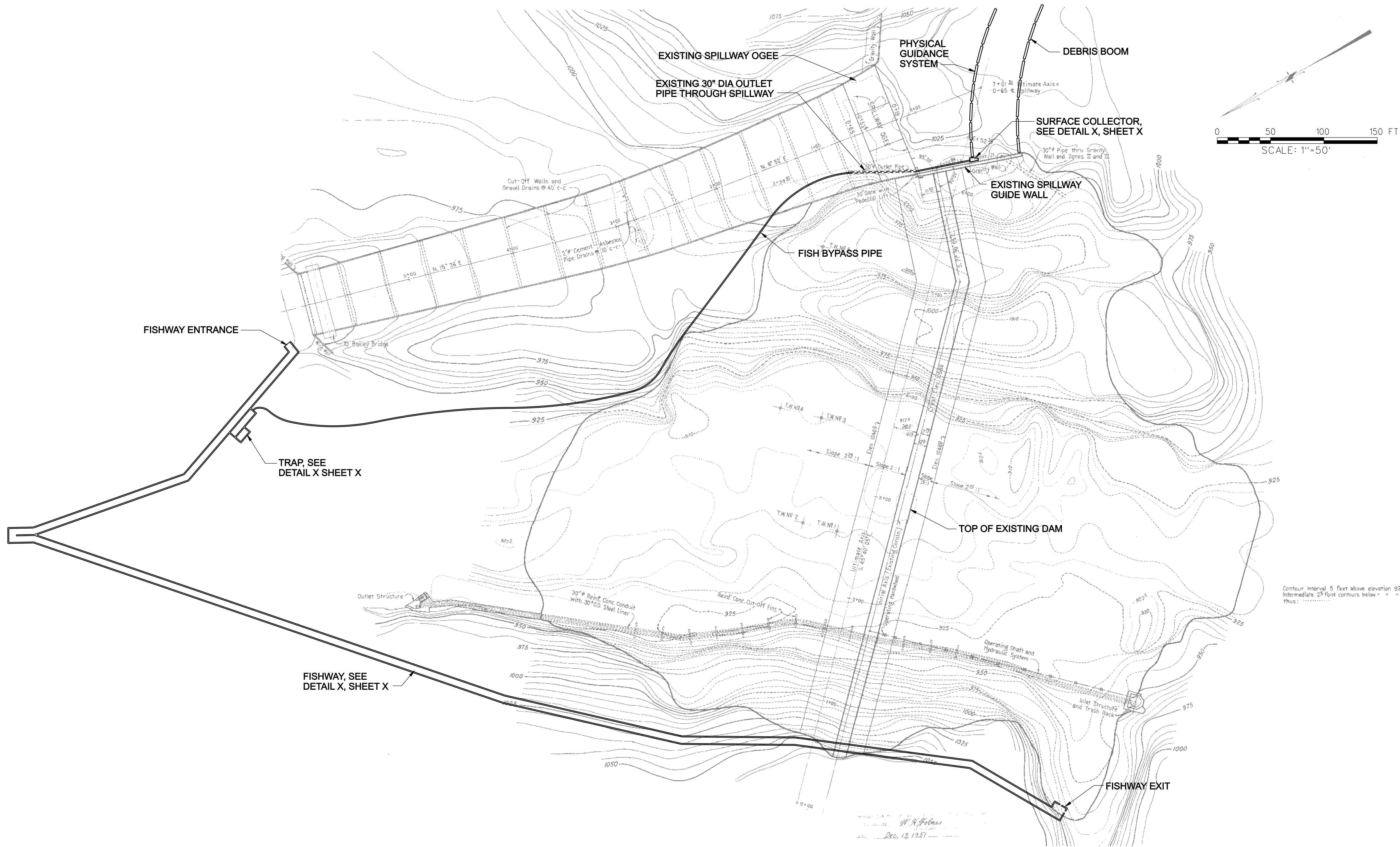
**Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Recommended Alternative 1**

Item	Quantity	Unit Cost	Amount	Total
Labor				\$22,027
Maintenance person direct labor cost (average 5.0 hr/day for 8-month operating period)	0.164 FTE	\$41,000	\$6,740	
Maintenance person benefits @1.15 labor cost	0.164 FTE	\$47,200	\$7,759	
Seasonal technician direct labor cost (average 5.0 hrs/day for 120-day operating period)	0.164 FTE	\$21,300	\$3,501	
Seasonal technician benefits @1.15 labor cost	0.164 FTE	\$24,500	\$4,027	
General Maintenance / Repair and Replacement				\$6,200
Estimated at 0.5% of capital cost	0.005	\$1,240,000	\$6,200	
Fuel costs (Travel)				\$33
(60 miles round trip at \$0.55/MI)	60 MI	\$0.55	33	
Subtotal:				\$28,260
Contingency (30%)				\$8,478
Total with contingency				\$36,739
Total Ronded Cost				\$37,000

Los Padres Dam Fish Passage Assessment
Preliminary Opinion of Probable Annual O&M Costs
Direct Volitional Passage: Recommended Alternative 2

Item	Quantity	Unit Cost	Amount	Total
Labor				\$33,107
Maintenance person direct labor cost (average 4.0 hr/day for 8-month operating period)	0.205 FTE	\$41,000	\$8,424.66	
Maintenance person benefits @1.15 labor cost	0.205 FTE	\$47,200	\$9,698.63	
Seasonal technician direct labor cost (average 4.0 hrs/day for 120-day operating period)	0.123 FTE	\$21,300	\$2,626.03	
Seasonal technician benefits @1.15 labor cost	0.123 FTE	\$24,500	\$3,020.55	
Seasonal technician direct labor cost (average 8.0 hrs/day for 20-days)	0.438 FTE	\$21,300	\$9,336.99	
General Maintenance / Repair and Replacement				\$27,000
Estimated at 0.5% of capital cost	0.005	\$5,400,000	\$27,000	
Fuel costs (Travel)				\$33
(60 miles round trip at \$0.55/MI)	60 MI	\$0.55	\$33	
Subtotal:				\$60,140
Contingency (30%)				\$18,042
Total with contingency				\$78,182
Total Ronded Cost				\$79,000

Appendix B: Schematics of Recommended Alternatives



PRELIMINARY
NOT FOR CONSTRUCTION

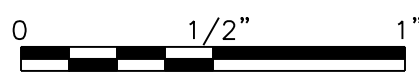
HDR

HDR Engineering, Inc.

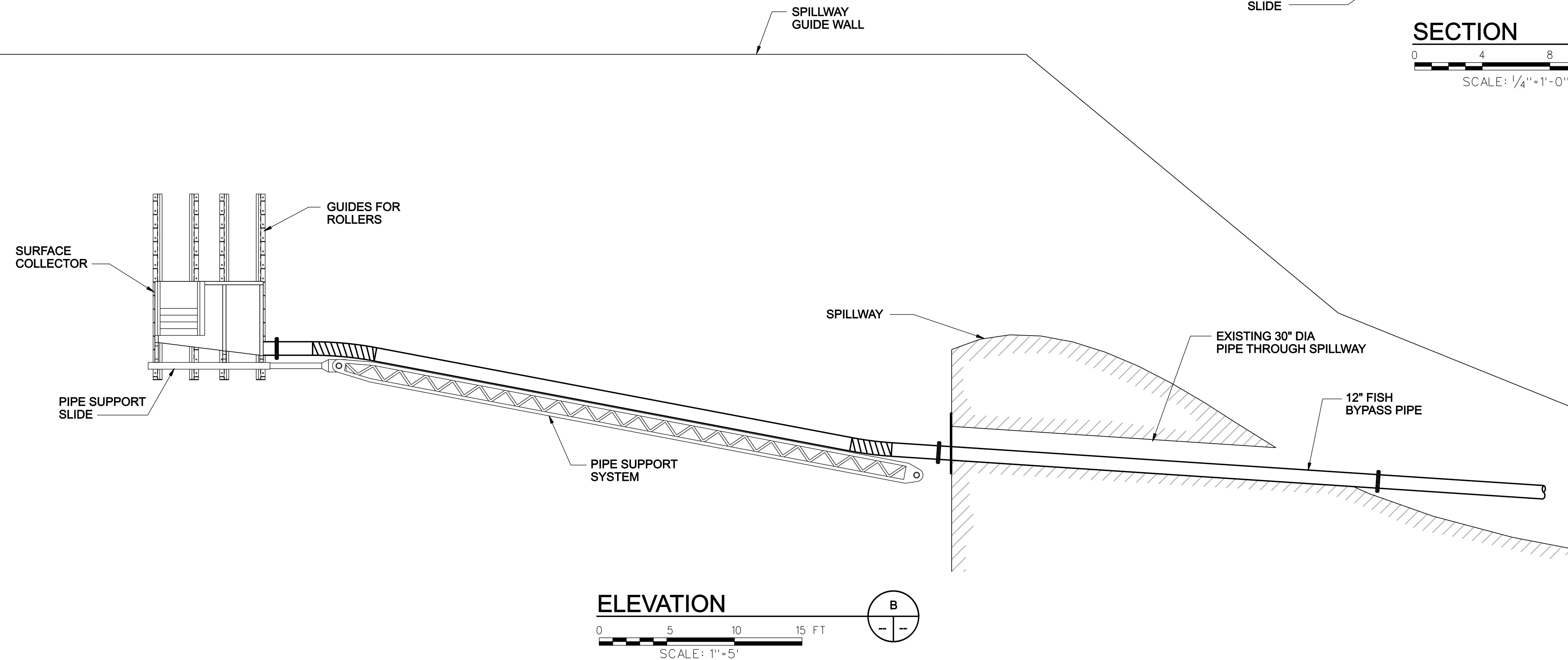
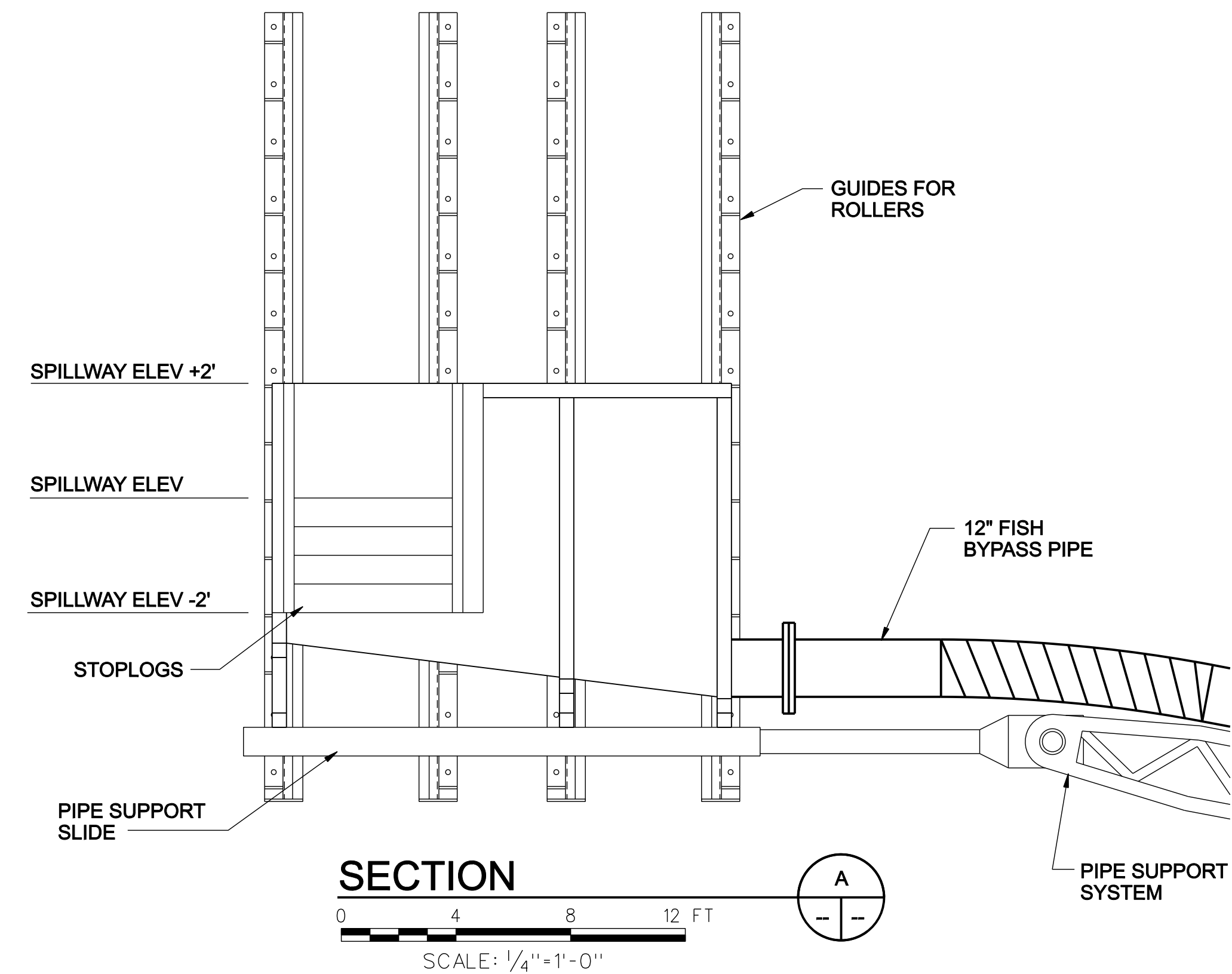
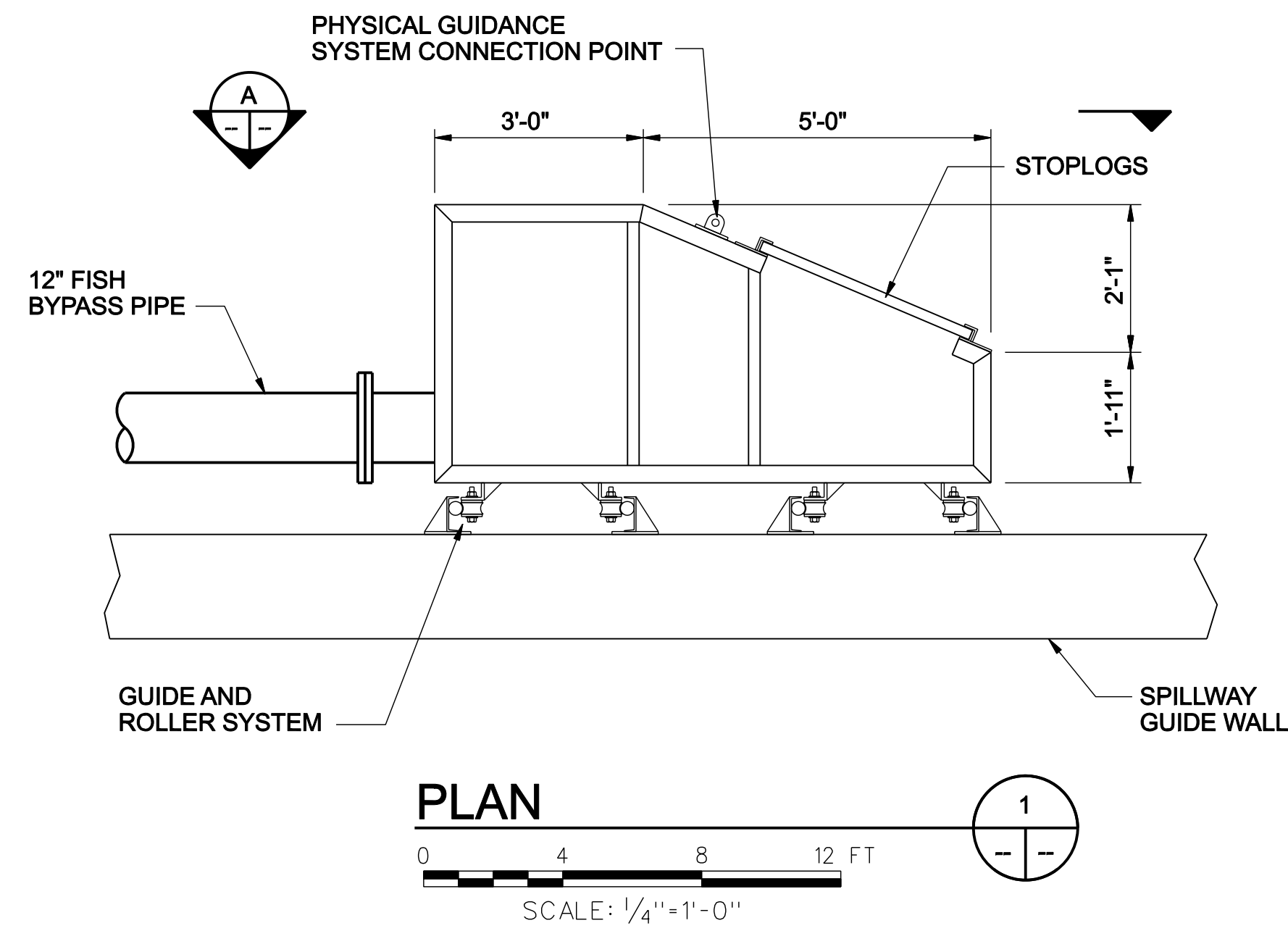
			PROJECT MANAGER	MCG
			CHECKED BY	-
			CHECKED BY	-
			DRAWN BY	ACB
			DESIGNED BY	-
			DESIGNED BY	-
-	-	-		
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	00000000106965

**LOS PADRES DAM
FISH PASSAGE**

OVERALL SITE PLAN



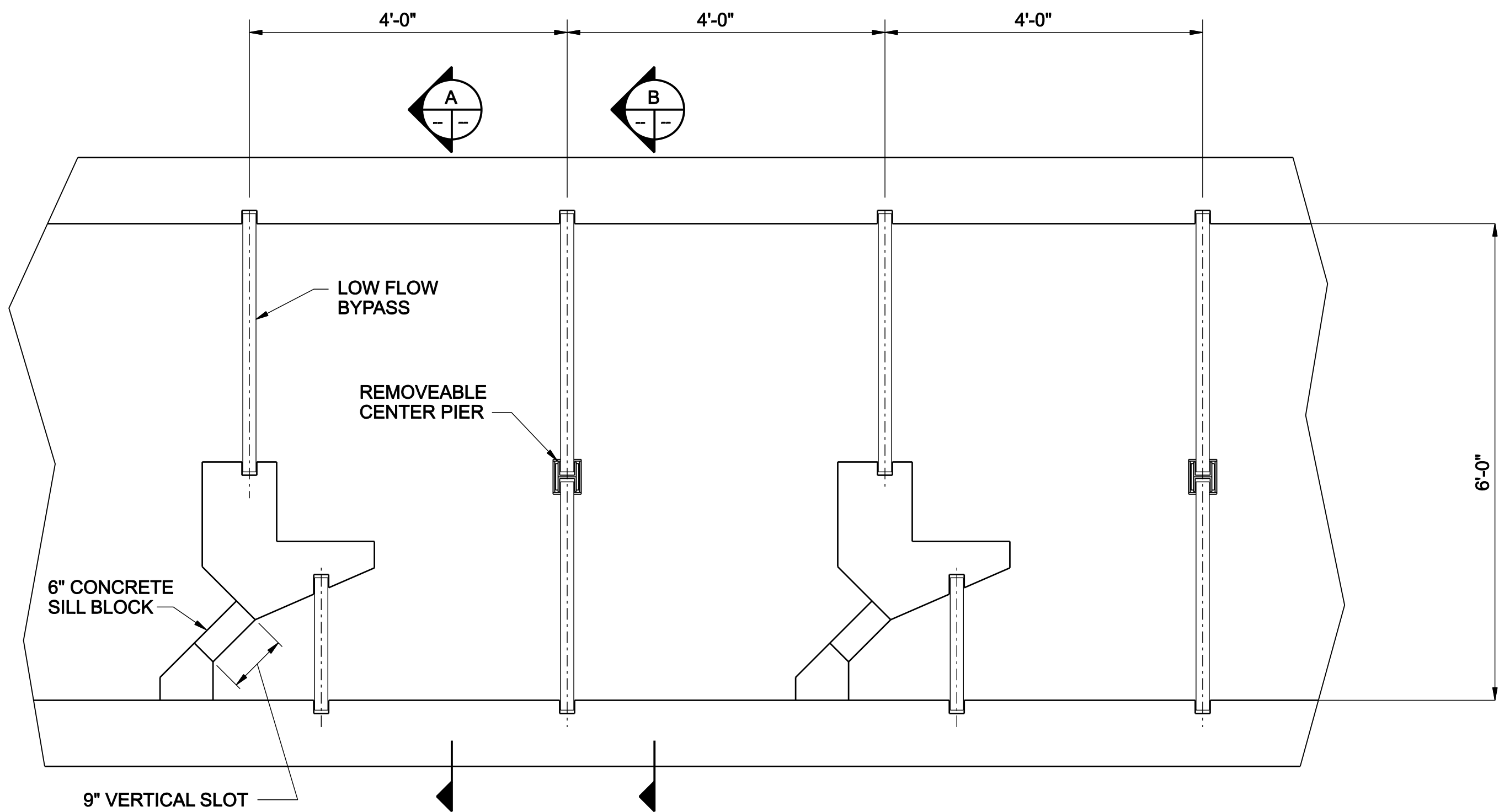
DATE	SEPTEMBER 9, 2009	SHEET
SCALE		



PRELIMINARY
NOT FOR CONSTRUCTION

			PROJECT MANAGER	MCG		LOS PADRES DAM FISH PASSAGE	SURFACE COLLECTOR PLAN, SECTION AND ELEVATION			SHEET
			CHECKED BY	-						
			CHECKED BY	-						
			DRAWN BY	ACB						
			DESIGNED BY	-						
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	000000000106965			0 1/2" 1"		DATE	SEPTEMBER 9, 2009
							SCALE			

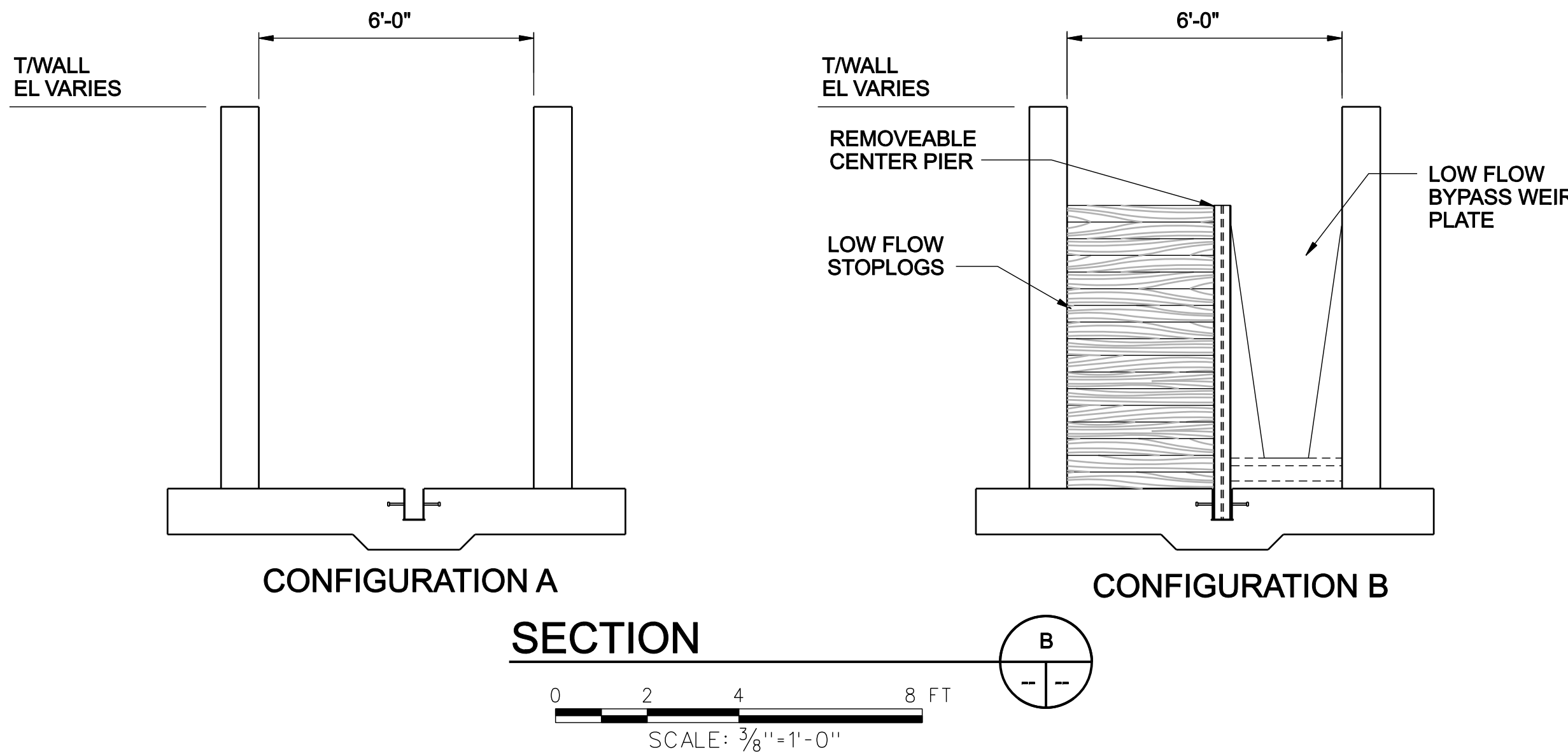
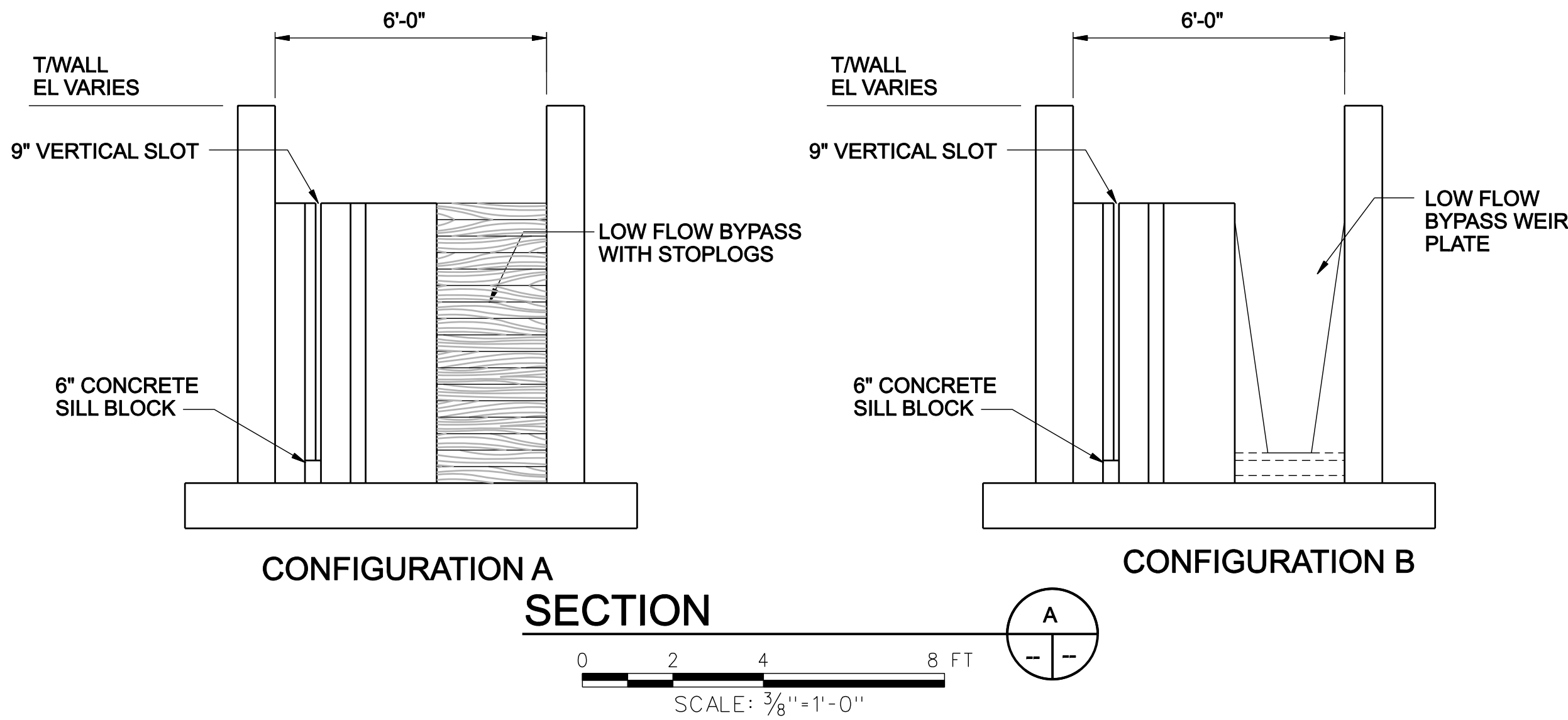
1 2 3 4 5 6 7 8



PARTIAL PLAN

0 1 2 4 FT
SCALE: 3/4"=1'-0"

1



PRELIMINARY
NOT FOR CONSTRUCTION



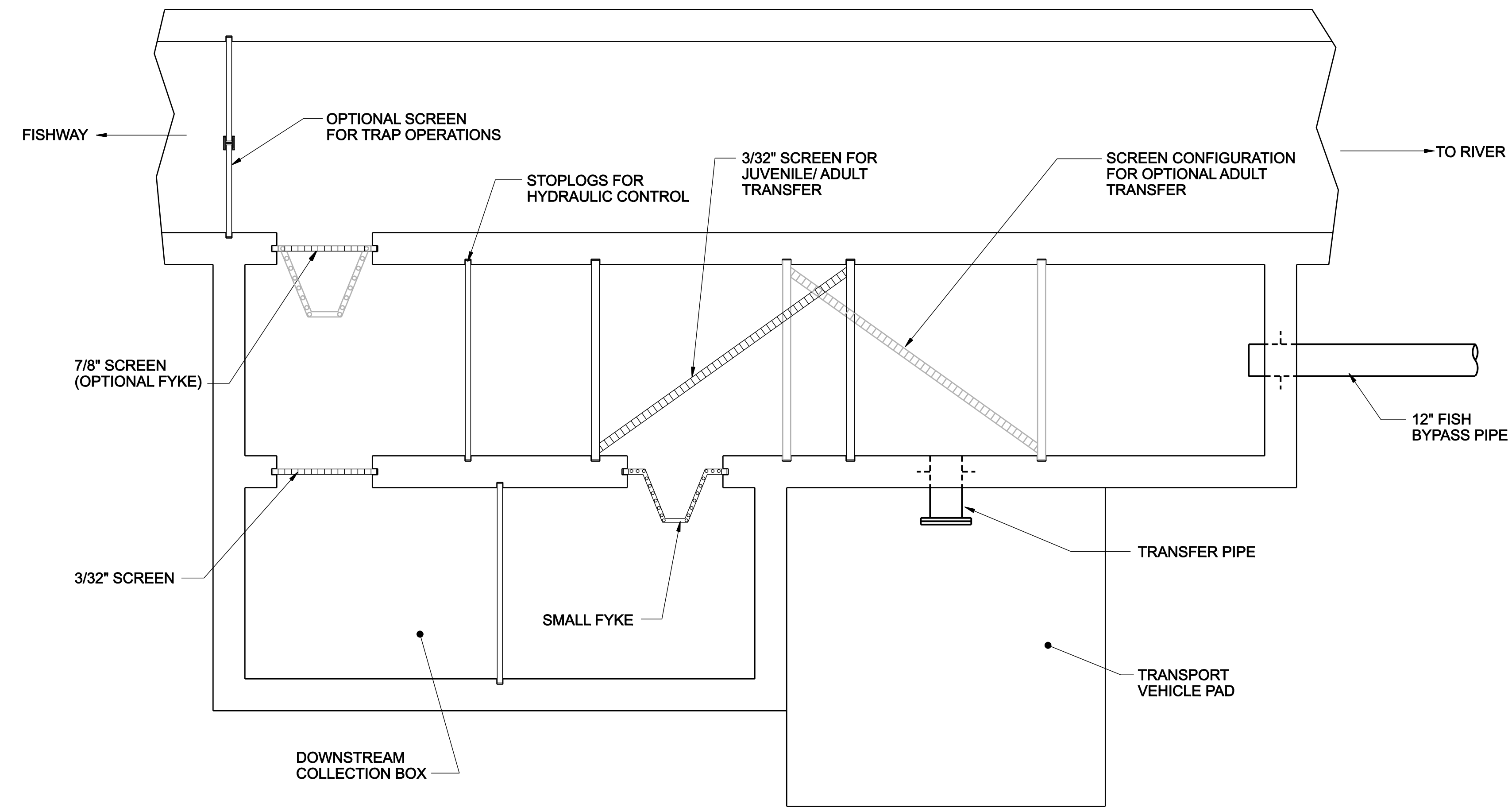
HDR Engineering, Inc.

			PROJECT MANAGER	MCG
			CHECKED BY	-
			CHECKED BY	-
			DRAWN BY	ACB
			DESIGNED BY	-
			DESIGNED BY	-
-	-	-		
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	000000000106965

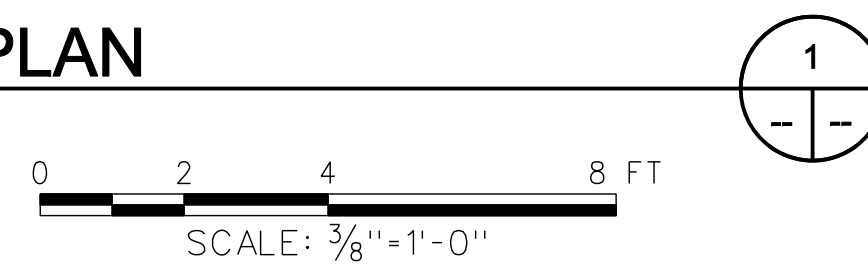
**LOS PADRES DAM
FISH PASSAGE**

FISHWAY PLAN AND SECTIONS

0 1/2" 1"	DATE	SEPTEMBER 9, 2009	SHEET
SCALE			




PLAN



PRELIMINARY
NOT FOR CONSTRUCTION



			PROJECT MANAGER	MCG	LOS PADRES DAM FISH PASSAGE	TRAP PLAN			
			CHECKED BY	—			DATE	SEPTEMBER 9, 2009	SHEET
			CHECKED BY	—			SCALE		
			DRAWN BY	ACB					
			DESIGNED BY	—					
			DESIGNED BY	—					
—	—	—							
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	000000000106965					