

# GENERAL STRUCTURAL NOTES

## 1. SCOPE

- 1.1 THESE GENERAL STRUCTURAL NOTES COVER ALL STRUCTURAL FEATURES OF THE DEXTER DAM ADULT FISH COLLECTION FACILITY FOUND ON THE "S" SERIES DRAWINGS.
- 1.2 THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS.
- 1.3 FISH CONTACT SURFACES. ALL SURFACES INSIDE THE FISH LADDER, TRANSPORTATION CHANNEL, PRESORT POOL, POST SORT POOL, AND OTHER POTENTIAL FISH CONTACT SURFACES MUST BE GROUND FLUSH AND SMOOTH TO THE TOUCH. THIS INCLUDES ALL CONCRETE, STEEL, OR OTHER MATERIAL SURFACES AND INCLUDES JOINTS, WELDS, EDGES, EMBEDDED ITEMS, GATES, SCREENS, FISH EXCLUSION DEVICES, INTERFACE WITH EQUIPMENT, ETC. THE CONTRACTOR IS RESPONSIBLE TO ENSURE FISH CONTACT SURFACES ARE SMOOTH TO THE TOUCH AND SAFE FOR FISH CONTACT. SHOP AND SITE INSPECTIONS WILL INCLUDE A USACE BIOLOGIST WHEN APPROPRIATE. THE CONTRACTOR MAY REQUEST A BIOLOGIST EVALUATION VIA GOAR. ALL EXPOSED EDGES ARE TO BE GROUND TO A 1/8" MINIMUM RADIUS UNO.

## 2. CONCRETE

- 2.1 THERE ARE TWO CONCRETE MIXES REQUIRED FOR THIS CONTRACT. THE CONTRACTOR MUST DEVELOP AND SUBMIT EACH MIX ACCORDING TO SECTION 03 IN THE SPECIFICATIONS. THE MIX DESIGNS ARE:  
  
MIX 1 - CAST-IN-PLACE CONCRETE. THE 28 DAY COMPRESSIVE STRENGTH FOR THIS CAST-IN-PLACE CONCRETE (f<sub>c</sub>) MUST BE 4500 PSI.  
  
MIX 2 - MASS CONCRETE. THE 28 DAY COMPRESSION STRENGTH FOR MASS CONCRETE (f<sub>c</sub>) MUST BE 2500 PSI.
- 2.2 ALL EXPOSED EDGES AND CORNERS OF CONCRETE MUST HAVE 3/4" CHAMFERS UNLESS OTHERWISE NOTED. THIS MUST INCLUDE CORNERS OF ABUTTING CONTRACTION JOINTS BUT MUST NOT INCLUDE BLOCKOUTS FOR RAILS, GATE GUIDES, HANDRAIL SOCKETS AND STAIR TREADS OR AS NOTED OTHERWISE AND/OR MARKED N.C.
- 2.3 ALL RE-ENTRANT CORNERS MUST HAVE 1 1/2" FILLETS EXCEPT AT THE JUNCTION OF WALL AND FLOOR SURFACES WHERE FILLET IS NOT CAST SIMULTANEOUSLY WITH ADJOINING MEMBER OR AS NOTED OTHERWISE. NO FILLETS MUST BE PLACED IN THE INTERIOR CORNERS OF AREAS SUBJECT TO WATER FLOW UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
- 2.4 AGGREGATES MUST MEET THE QUALITY AND GRADING REQUIREMENTS OF ASTM C33, CLASS DESIGNATIONS 4M OR BETTER.

## 3. CONCRETE FINISHING

- 3.1 REQUIRED CONCRETE FINISHES ARE DESCRIBED IN THE SPECIFICATIONS.
- 3.2 ALL SURFACES INSIDE THE FISH LADDERS, TRANSPORTATION CHANNELS, PRE-SORT POOLS, AND POST-SORT POOLS MUST RECEIVE A CLASS A FINISH. ALL OTHER SURFACES MUST RECEIVE A CLASS C FINISH.
- 3.3 ANY DAMAGE TO THE CONCRETE FINISH DURING CONSTRUCTION MUST BE REPAIRED AS DESCRIBED IN THE SPECIFICATIONS.
- 3.4 CONCRETE CURING AND PROTECTION MUST BE PERFORMED ACCORDING TO THE SPECIFICATIONS SECTION 03 31 01.25

## 4. CONCRETE COVER

- 4.1 UNLESS NOTED OTHERWISE, THE MINIMUM COVER MUST BE IN ACCORDANCE WITH TABLE 1. THE MINIMUM COVER MUST BE THE CLEAR DISTANCE FROM THE EDGE OF THE REINFORCEMENT TO THE EDGE OF THE CONCRETE.
- 4.2 IN NO CASE MUST THE COVER BE LESS THAN 1.5 TIMES THE NOMINAL MAXIMUM SIZE OF AGGREGATE OR 2.5 TIMES THE MAXIMUM DIAMETER OF REINFORCEMENT.

## 5. REINFORCEMENT

- 5.1 PREPARATION FOR PLACING DRAWINGS AND BAR BENDING SCHEDULES MUST BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
- 5.2 ALL REINFORCEMENT STEEL MUST CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS.
- 5.3 UNLESS NOTED OTHERWISE, ALL HOOKS MUST BE STANDARD HOOKS AS DEFINED BY ACI 350.06.
- 5.4 BAR SPACING DIMENSIONS ARE MEASURED TO THE CENTERS OF BARS.
- 5.5 A SYMBOL SUCH AS  $\frac{STAG}{SPL}$  INDICATES REINFORCING BARS TO BE STAGGER LAP SPLICED (CLASS B) BY ALTERNATING LAP LOCATIONS AS SHOWN, AND PROVIDING THE INDICATED LAP LENGTH.
- 5.6 A NOTATION SUCH AS  $\frac{7-6}{1-6}$  FOLLOWING THE BAR SIZE AND SPACING INDICATES A BENT BAR WITH AN OUTSIDE-TO-OUTSIDE DIMENSION (NOT BAR LENGTH) OF 7'-6". A LETTER OR DIMENSION ON THE SHORT LEG INDICATES THE FOLLOWING:  
  
L: EXTEND BAR LAP SPLICE LENGTH BEYOND BEND  
  
E: EXTEND BAR EMBEDMENT LENGTH BEYOND CROSSING BAR  
  
DIMENSION: OUTSIDE-TO-OUTSIDE LENGTH OF SHORT LEG  
  
WHEN NO LETTER OR DIMENSION IS GIVEN, PROVIDE A STANDARD 90° HOOK
- 5.7 ALL LAP SPLICES ARE CLASS B IN ACCORDANCE WITH ACI UNLESS NOTED OTHERWISE.

- 5.8 ALL BARS MUST BE SPACED AS SHOWN ON DRAWINGS.
- 5.9 REINFORCING BARS MUST NOT CONTINUE ACROSS AN EXPANSION OR CONTRACTION JOINT.
- 5.10 REINFORCING BARS SHOWN AS DRILL AND GROUT MUST BE PLACED INTO CONCRETE OR ROCK A DISTANCE EQUAL TO THE EMBEDMENT LENGTH SHOWN IN TABLE 2 FOR THE RESPECTIVE BAR SIZE OR AS SHOWN ON THE DRAWINGS.
- 5.11 HORIZONTAL BARS THAT ARE DRILLED AND GROUTED MUST BE SUPPORTED AS NEEDED IN ACCORDANCE WITH THE SPECIFICATIONS AND/OR THE MANUFACTURER'S RECOMMENDATIONS AS APPROVED BY THE GOAR.
- 5.12 VERTICAL REINFORCEMENT PROJECTING ABOVE THE FORMS MUST BE SUPPORTED TO PREVENT THE BREAKING OF BOND BETWEEN THE REINFORCING BARS AND FRESHLY PLACED CONCRETE.

## 6. REINFORCEMENT TABLE (GRADE 60), REFER TO TABLES 2 AND 3

- 6.1 DEVELOPMENT AND SPLICE LENGTHS FOR REINFORCING BARS USED IN THIS CONTRACT MUST BE AS DESCRIBED IN A.C.I. 318-11 U.N.O. AND ARE SHOWN IN THE TABLES 2 AND 3.
- 6.2 THE TABLES PROVIDED ARE ONLY FOR FIELD INSPECTION REFERENCE. ANY OMISSIONS OR VARIANCES FROM A.C.I. MUST NOT BE CONSTRUED AS CHANGES IN THE A.C.I. REQUIREMENTS.
- 6.3 TOP BARS ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BEFORE THE DEVELOPMENT LENGTH OR SPLICE.

## 7. STRUCTURAL STEEL

- 7.1 ALL STRUCTURAL STEEL MUST CONFORM TO ASTM A36, A992 OR A709 GRADE 50 STANDARDS AS NOTED IN THE DRAWINGS AND SECTION 05 OF THE SPECIFICATIONS. TOUGHNESS REQUIREMENTS MUST BE MET IN ACCORDANCE WITH THE SPECIFICATIONS.
- 7.2 STRUCTURAL STEEL PIPE MUST CONFORM TO ASTM A53, GRADE B OR ASTM A500, GRADE B UNLESS NOTED OTHERWISE.
- 7.3 STRUCTURAL STEEL TUBING MUST CONFORM TO ASTM A500, GRADE B OR ASTM A1085, GRADE A.
- 7.4 GALVANIZING OF STEEL MUST CONFORM TO ASTM A123, UNLESS OTHERWISE NOTED.
- 7.5 ALL CARBON STEEL BOLTS, NUTS, AND WASHERS USED FOR STRUCTURAL STEEL CONNECTIONS MUST BE OF THE MATERIAL, GRADE, TYPE, CLASS, STYLE AND FINISH INDICATED BELOW UNLESS NOTED OTHERWISE:  
  
a. BOLTS - ASTM A325, TYPE 1  
b. NUTS - ASTM A563, GRADE DH, TYPE 1  
c. PLAIN WASHERS - ASTM F436, TYPE 1, GALVANIZED  
d. GALVANIZING OF THE STRUCTURAL BOLTS AND NUTS MUST BE DONE ONLY AS NOTED IN THE SPECIFICATIONS OR AS SPECIFICALLY NOTED ON THE DRAWINGS

- 7.6 WELDING MUST CONFORM TO AWS D1.1 OR D1.6 STRUCTURAL WELDING CODE AND AS NOTED IN THE SPECIFICATIONS. ALL WELDING OF GATES OR BULKHEADS WITH FCM MUST CONFORM TO AWS D1.5. WELDING THAT IS NOT SHOWN ON THE DRAWINGS MUST NOT BE PERMITTED EXCEPT BY WRITTEN PERMISSION FROM THE CONTRACTING OFFICER AND ENGINEER.
- 7.7 FIELD WELDING MUST NOT BE PERMITTED UNLESS SHOWN ON THE DRAWINGS OR AUTHORIZED BY THE CONTRACTING OFFICER.
- 7.8 ALL WELDS MUST BE CONTINUOUS UNLESS OTHERWISE NOTED. EVERY ACCESSIBLE JOINT NOT HAVING A DESIGNATED TYPE AND SIZE OF WELD MUST BE SEAL WELDED PER AISC MINIMUM WELD SIZE.
- 7.9 ALL SHARP EDGES MUST BE GROUND TO A 1/8" MIN. RADIUS UNO.
- 7.10 ALL WELDS MUST BE GROUND HAND SMOOTH SUCH THAT THERE ARE NO BURRS, OFFSETS OR ROUGH AREAS.
- 7.11 POST ANCHORAGE SLEEVES MUST BE GALVANIZED STEEL PIPE NOT LESS THAN 6" LONG AND HAVING A DIAMETER NOT LESS THAN 1/2" GREATER THAN THE OUTSIDE DIAMETER OF THE POST DIAMETER.
- 7.12 UNLESS NOTED OTHERWISE, ALL HANDRAIL IS 1 1/2" SCH 40 PIPE. ALL HANDRAIL POSTS MUST BE 1 1/2" SCH 80 PIPE. ALL HANDRAIL MATERIAL MUST BE ASTM A53, TYPE S, GRADE B (GALVANIZED).
- 7.13 UNLESS NOTED OTHERWISE, HANDRAIL, GRATING, AND STAIRWAYS MUST BE INSTALLED WHERE INDICATED ON DRAWINGS. CONTRACTOR MUST DESIGN IN ACCORDANCE WITH THE SPECIFICATIONS, ALL HANDRAIL, GRATING, AND STAIRWAYS THAT ARE NOT ALREADY SIZED AND DETAILED ON THE DRAWINGS.

- 7.14 ALL GALVANIZING WEEP HOLES MUST BE PLUGGED IN ACCORDANCE WITH SPECIFICATIONS.
- 7.15 STEEL BAR GRATING MUST MEET DESIGN STANDARDS OF NAAMM 531 AND MUST BE GALVANIZED. SEE SPECIFICATIONS FOR MORE INFORMATION.
- 7.16 CONCRETE CONTROL JOINTS MUST NOT EXCEED 30FT, UNLESS APPROVED OTHERWISE.
- 8.0 STAINLESS STEEL
- 8.1 ALL SHAPES, PLATES AND BARS MUST MEET REQUIREMENTS OF ASTM A276 OR ASTM A240 TYPE 304 UNLESS NOTED OTHERWISE (UNO).

- 8.2 WELDING OF STAINLESS STEEL MUST BE IN ACCORDANCE WITH PROVISIONS OF AWS D1.6 WELDING CODE AND AS NOTED IN THE SPECIFICATIONS. NO FIELD WELDING MUST BE PERMITTED UNLESS NOTED ON THE DRAWINGS OR AUTHORIZED IN WRITING BY THE CONTRACTING OFFICER AND DESIGN ENGINEER.
- 8.3 FASTENERS MUST BE AS LISTED IN THE ALUMINUM CONNECTIONS SECTION OF THESE NOTES.
- 8.4 S.S. FASTENERS MUST BE INSTALLED USING BOSTIK MARINERS CHOICE ANTI-SEIZING OR SAF-T-EZE MARINE GRADE ANTI-SEIZE OR APPROVED EQUAL WITH SIMILAR SALIENT CHARACTERISTICS.
- 9.0 ALUMINUM
- 9.1 ALL SHAPES, PLATES AND BARS MUST BE ALUMINUM ALLOY 6061-T6 MEETING REQUIREMENTS OF ASTM B221.
- 9.2 WELDING OF ALUMINUM MUST BE IN ACCORDANCE WITH PROVISIONS OF AWS D1.2 WELDING CODE AND AS NOTED IN THE SPECIFICATIONS. NO FIELD WELDING MUST BE PERMITTED UNLESS NOTED ON THE DRAWINGS OR AUTHORIZED IN WRITING BY THE CONTRACTING OFFICER AND ENGINEER.
- 9.3 THE SYMBOL "G" SHOWN IN ALUMINUM WELD CALL OUTS MEANS THAT THE DESIGNATED WELD JOINT MUST BE A HAND SMOOTH WELDED SURFACE THAT IS OBTAINED BY GRINDING, FORMING, SANDING, POLISHING, ETC. DONE AS NECESSARY TO OBTAIN THE SMOOTH JOINT.
- 9.4 ALL BOLTS, NUTS, AND WASHERS USED FOR STRUCTURAL ALUMINUM CONNECTIONS MUST BE OF THE MATERIAL, GRADE, TYPE, CLASS, STYLE, AND FINISH INDICATED BELOW:  
  
a. BOLTS - ASTM A593, GROUP 1, COLD WORKED STAINLESS STEEL  
b. NUTS - ASTM A594, GROUP 1, COLD WORKED STAINLESS STEEL  
c. PLAIN WASHERS - FABRICATE FROM MATERIAL CONFORMING TO TYPE 304, TYPE 308, OR TYPE 316 THAT CONFORMS TO ASTM A240
- 9.5 THE BOTTOM SURFACE OF ALL ALUMINUM BASE PLATES OR OTHER ALUMINUM PIECES THAT WILL BE IN CONTACT WITH CONCRETE SURFACES MUST BE COATED WITH ONE COAT OF ZINC MOLYBDATE PRIMER CONFORMING TO FEDERAL SPECIFICATION TT-P-645B PRIOR TO PLACEMENT ON TO THE CONCRETE SURFACE.

- 10.0 EMBEDDED METALS
- 10.1 POST INSTALLED ANCHORS MUST BE IN ACCORDANCE WITH SPECIFICATION SECTION 05 20.00 25. CONCRETE ANCHORS MUST BE INSTALLED PER MANUFACTURER'S PUBLISHED WRITTEN RECOMMENDATIONS. ALL ANCHORS EXPOSED TO THE WEATHER MUST BE STAINLESS STEEL. ADHESIVE ANCHORS MUST NOT BE USED IN CONTINUOUS TENSION SITUATIONS AND MUST NOT BE USED FOR OVERHEAD INSTALLATION SITUATIONS.
- 10.2 ALL PIPES SPECIFIED ON THE STRUCTURAL DRAWINGS MUST MATCH THE SIZE AND MATERIAL OF THE MECHANICAL PIPING BEING ATTACHED TO THE STRUCTURES UNLESS NOTED OTHERWISE (U.N.O.). FLANGES MUST BE PROVIDED FOR CONNECTIONS AS NEEDED TO MEET MECHANICAL PIPING REQUIREMENTS.
- 10.3 ALL EMBEDDED (CAST IN PLACE) THREADED ANCHOR RODS (CONCRETE ANCHORS) MUST MEET ASTM F1554, GRADE 36 REQUIREMENTS AND MUST BE GALVANIZED. ANCHOR NUTS MUST MEET ASTM A563, GRADE DH, HEX STYLE (GALVANIZED). WASHERS MUST MEET ASTM F436 (GALVANIZED) UNLESS OTHERWISE NOTED.
- 10.4 UNLESS NOTED OTHERWISE, EMBEDDED PIPES MUST BE WRAPPED WITH A HYDROPHILIC WATERSTOP AS INDICATED ON MECHANICAL PIPING DRAWINGS.

- 11.0 WATERSTOPS
- 11.1 WATERSTOPS MUST BE STORED UNDER COVER TO PROTECT FROM DIRT OIL AND SUNLIGHT PRIOR TO INSTALLATION IN THE FORMS.
- 11.2 FIELD SPLICES AND CORNERS MUST BE HEAT FUSE WELDED PER MANUFACTURER'S RECOMMENDATIONS.
- 11.3 WATERSTOPS MUST BE CENTERED IN JOINT GEOMETRY UNLESS NOTED OTHERWISE ON THE DRAWINGS.

- 12.0 MISCELLANEOUS
- 12.1 THE PHRASE "BY CONTRACTOR" THAT MAYBE FOUND ON VARIOUS STRUCTURAL DRAWINGS MEANS THAT THE CONTRACTOR MUST DESIGN THE ITEM/FEATURE AS WELL AS FURNISH IT.
- 12.2 ANY STRUCTURES BEARING ON THE GROUND THAT ARE DESIGNED BY THE CONTRACTOR MUST USE FOUNDATION BEARING CAPACITY AS SHOWN IN THE SPECIFICATIONS AND/OR AS APPROVED BY THE GOVERNMENT.

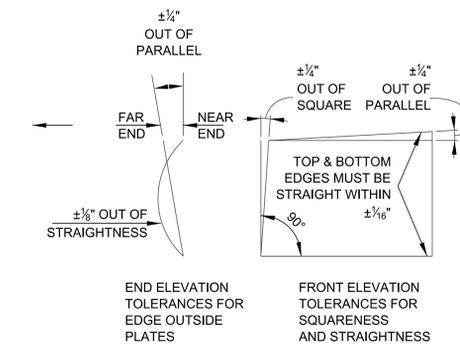
## STRUCTURAL LEGEND:

	DEMOLITION OF CONCRETE		STEEL
	NEW CONCRETE		GROUT
	EXISTING CONCRETE		

CONCRETE SECTION	MINIMUM CLEAR COVER, INCHES
UNFORMED SURFACES IN CONTACT WITH FOUNDATION	4
FORMED AND SCREEDED SURFACES EQUAL TO OR GREATER THAN 24 INCHES IN THICKNESS:	
#4 TO #11 BARS	4
FORMED AND SCREEDED SURFACES GREATER THAN 12" AND LESS THAN 24" IN THICKNESS:	
#4 TO #9 BARS	3
#10 & #11 BARS	3 1/2
FORMED AND SCREEDED SURFACES EQUAL TO OR LESS THAN 12 INCHES IN THICKNESS:	
#4 TO #6 BARS	2
#7 TO #9 BARS	3

BAR SIZE NUMBER	TOP BARS EMBEDMENT LENGTH	OTHER BARS EMBEDMENT LENGTH	TOP BAR SPLICE LENGTH	OTHER BARS SPLICE LENGTH	MINIMUM HOOK EMBEDMENT LENGTH
3	18	14	23	18	7
4	23	18	30	23	9
5	29	23	38	29	11
6	35	27	46	35	13
7	51	39	67	51	16
8	59	45	76	59	18
9	66	51	86	66	20
10	74	57	97	74	23
11	82	63	107	82	25
14	99	76	--	--	30

BAR SIZE NUMBER	TOP BARS EMBEDMENT LENGTH	OTHER BARS EMBEDMENT LENGTH	TOP BAR SPLICE LENGTH	OTHER BARS SPLICE LENGTH	MINIMUM HOOK EMBEDMENT LENGTH
3	24	19	32	24	9
4	33	25	42	33	12
5	41	31	53	41	15
6	49	38	63	49	18
7	57	44	74	57	21
8	65	50	85	65	24
9	73	56	95	73	27
10	83	64	107	83	30
11	92	71	119	92	34
14	110	85	--	--	41



## TYPICAL TOLERANCES

N.T.S.

(NOTE: TOLERANCES APPLY TO ASSEMBLED SCREEN FRAMES, PERFORATION PLATE FRAMES, AND EMBEDDED PLATES)



US Army Corps of Engineers  
PORTLAND DISTRICT

BCOES REVIEW

DESCRIPTION

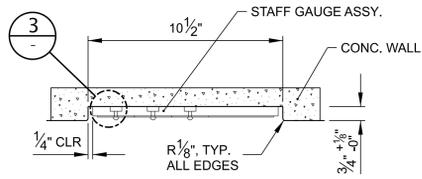
MARK

DESIGNED BY: CARL M. HARRIS, P.E.  
DRAWN BY: CAD BY:  
SUBMITTED BY: MATTHEW D. HANSEN, P.E.  
DATE: 10/01/2022  
SOLUTION NO.:  
CONTRACT NO.:  
FILE NUMBER:  
PLOT SCALE: PLOT DATE:  
SIZE: DWF 101.S-001.rvt

DEXTER DAM AND RESERVOIR ADULT FISH FACILITY UPGRADE  
STRUCTURAL GENERAL NOTES

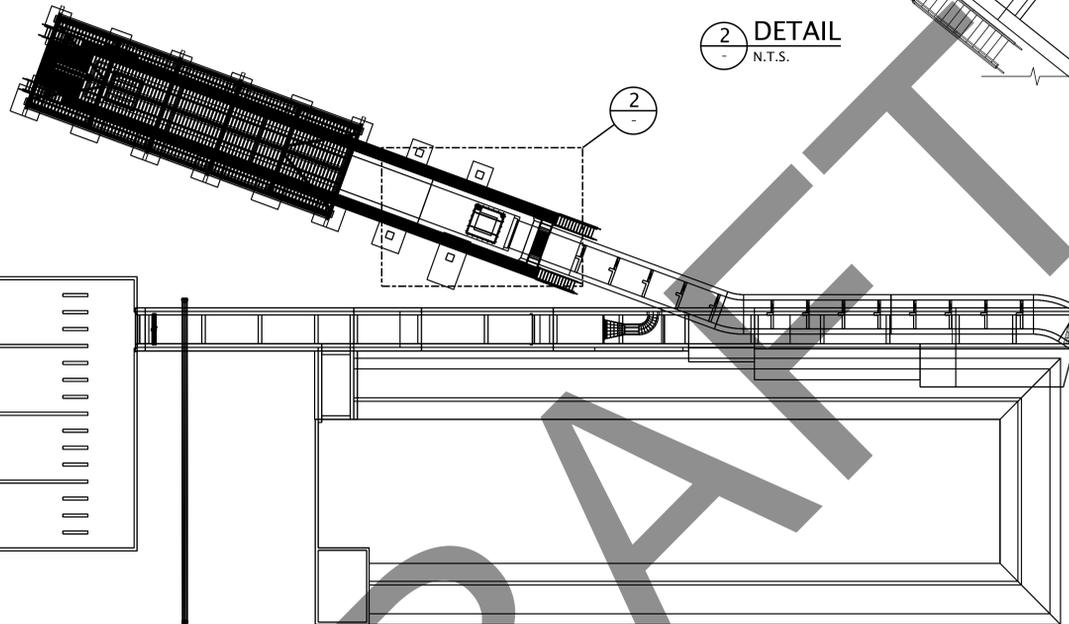
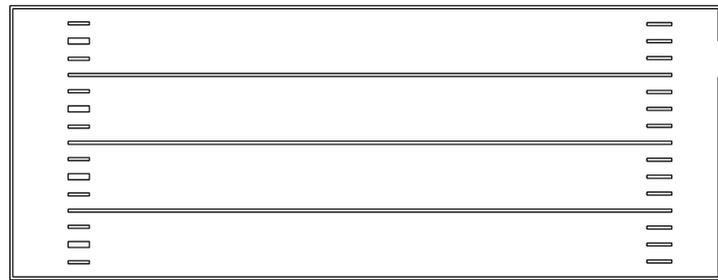
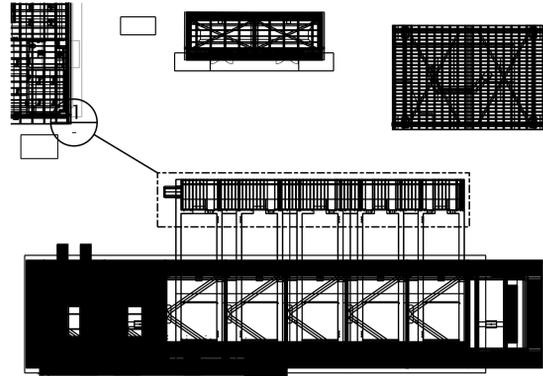
SHEET IDENTIFICATION  
S-001





TYPICAL BLOCKOUT CROSS SECTION

SCALE: 3" = 1'-0"

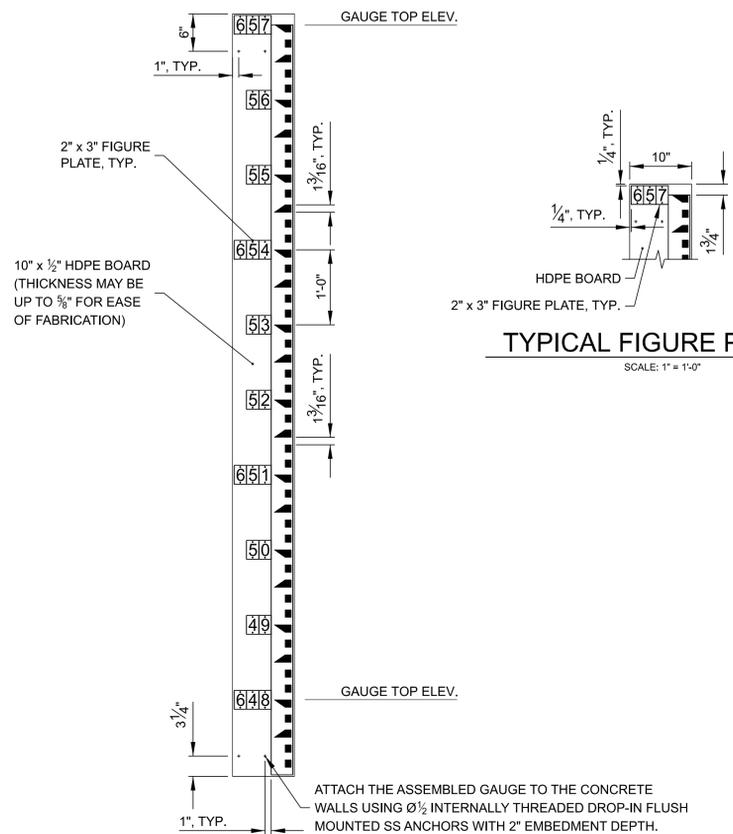


STAFF GAUGES LOCATION PLAN

N.T.S.

NOTES:

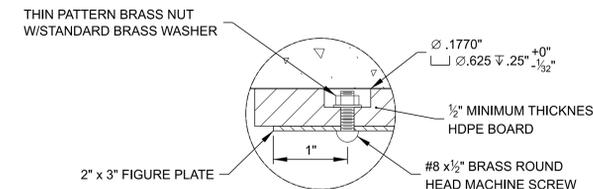
- SEE SHEET G-001 FOR GENERAL NOTES SYMBOLS AND ABBREVIATIONS. SEE SHEET S-001 FOR STRUCTURAL GENERAL NOTES.
- ALL STAFF GAUGES MUST BE STEVENS WATER MONITORING SYSTEMS TYPE "E" BLACK AND WHITE PORCELAIN ENAMELED IRON OR APPROVED EQUAL.
- ALL FIGURE PLATES MUST BE STEVENS WATER MONITORING SYSTEMS 2" x 3" BLACK AND WHITE PORCELAIN ENAMELED IRON OR APPROVED EQUAL.
- ALL HDPE MATERIAL MUST BE "NATURAL" OR WHITE IN COLOR, TYPE PE300, DENSETEL MARINE AS MANUFACTURED BY POLYMER INDUSTRIES OR APPROVED EQUAL.
- ALL STAFF GAUGES AND FIGURE PLATES TO BE ACCURATELY FABRICATED AND INSTALLED TO THE DIMENSIONS SHOWN. ATTACH STAFF GAGES AND FIGURE PLATES TO HDPE MATERIAL WITH #8 x 1/2" RH BRASS M.S. NUTS AND LOCK WASHERS. NUTS MUST BE ON THE COVERED FACE INSIDE A COUNTERBORED HOLE.
- WATER LEVELS SHOWN IN THE DETAILS ARE FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL WATER LEVELS MUST BE AS SHOWN IN THE "GAUGE PLACEMENT CHART" ON THIS SHEET.
- BLOCKOUTS ARE REQUIRED WHERE FISH CROWDERS PASS BY STAFF GAUGES.
- THE LENGTH OF THE BLOCKOUT SLOT MUST BE 1" LONGER THAN THE TOTAL HEIGHT OF THE STAFF GAUGE TO BE INSTALLED AT THE RESPECTIVE SITE SO THAT SOME ELEVATION ADJUSTMENT IS POSSIBLE.
- THE 10" WIDE STAFF GAUGES MUST BE CENTERED IN THE BLOCKOUT SLOT WHEN INSTALLED.
- THE 26.5 FT LONG STAFF GAUGE MAY BE BUILT OF TWO OR THREE PIECES. THE PIECES MUST BE INSTALLED USING THREE ANCHORS PER PIECE AS INDICATED IN THE TYPICAL STAFF GAUGE DETAIL. IF ONE PIECE IS SUPPLIED, THEN INSTALL THE STAFF GAUGE WITH TWO ADDITIONAL ANCHORS LOCATED NEAR THE QUARTER POINT LOCATIONS OF THE UHMV BOARD.
- ELEVATION VALUES OF THE INTERMEDIATE 3 PLACE NUMBERS MUST BE ON THE FIVES FOR THE 26.5 FT LONG STAFF GAUGE AND NEAR THE MIDDLE OF THE RANGE FOR THE 6 FT, 7 FT AND 8 FT LONG STAFF GAUGES.
- STAFF GAUGE #8 TO BE INSTALLED IN THE FISH LADDER APPROACH POOL AND MUST BE PLACED SUCH THAT THE ZERO LEVEL MATCHES THE ELEVATION OF THE TOP OF THE OVERFLOW WEIR AT U/S END OF WEIR #32. ESTIMATED ELEVATION FOR TOP OF WEIR IS 670.82'.



TYPICAL FIGURE PLATES

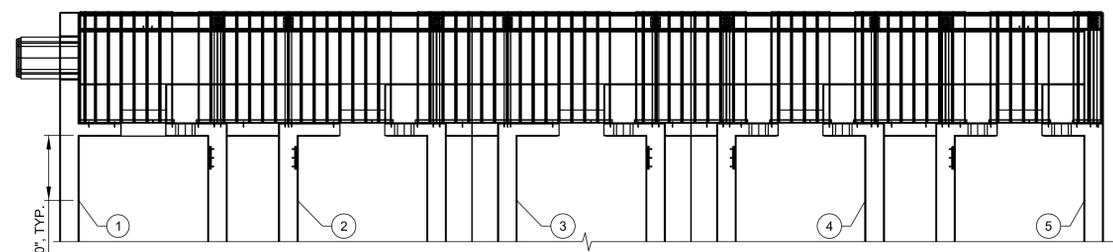
SCALE: 1" = 1'-0"

GAUGE #	GAUGE LOCATION	ELEVATION VALUES (FT)	
		TOP OF GAUGE	BOTTOM OF GAUGE
1	POST-SORT POOL	660.0	652.5
2	POST-SORT POOL	660.0	652.5
3	POST-SORT POOL	660.0	652.5
4	POST-SORT POOL	660.0	652.5
5	POST-SORT POOL	660.0	652.5
6	POST-SORT POOL	674.0	666.5
7	POST-SORT POOL	674.0	666.5
8	FISH LADDER APPROACH POOL	2.0	0.0
9	FISH LADDER ENTRANCE	661.0	634.5



TYPICAL INSTALLATION DETAIL

SCALE: 12" = 1'-0"



DETAIL 1

N.T.S.



US Army Corps of Engineers  
PORTLAND DISTRICT

DESIGNED BY: CARL M. HARRIS, P.E.  
DRAWN BY: CHRIS WILSON, P.E.  
SUBMITTED BY: MATTHEW D. HANSEN, P.E.DATE: 10/01/2022  
SOLICITATION NO.: 2020-001  
CONTRACT NO.:  
FILE NUMBER:  
PLOT SCALE: 12" = 1'-0"  
PLOT DATE: 10/01/2022  
PLOT TIME: 10:11:50 AM  
SIZE: A  
MARK: ANSIF

BCOES REVIEW

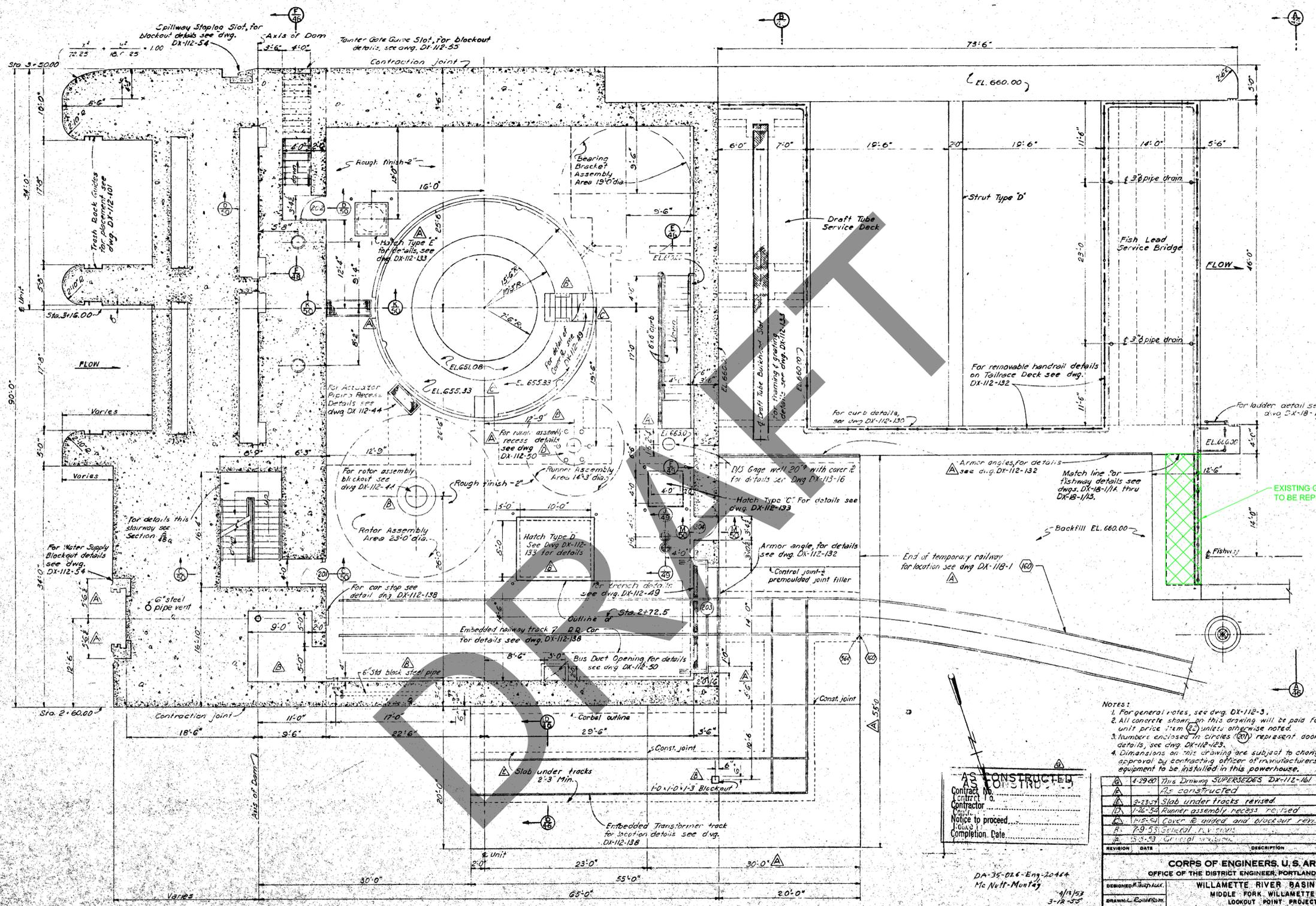
DEXTER DAM AND RESERVOIR  
ADULT FISH FACILITY UPGRADE

STAFF GAUGES  
LOCATION PLAN AND DETAILS

SHEET IDENTIFICATION  
S-501







PLAN AT ELEVATION 660  
GENERATOR AND ASSEMBLY FLOOR  
SCALE IN FEET  
0 2 4 6 8 10

- Notes:
1. For general notes, see dwg. DX-112-3.
  2. All concrete shown on this drawing will be paid for at contract unit price 14m (2) unless otherwise noted.
  3. Numbers enclosed in circles (Ø) represent door styles. For details, see dwg. DX-112-123.
  4. Dimensions on this drawing are subject to change pending approval by contracting officer of manufacturers drawings of equipment to be installed in this powerhouse.

AS CONSTRUCTED
Contract No. _____
Contractor _____
Notice to proceed _____
Completion Date _____

1-29-60	This Drawing SUPERSEDES DX-112-161 Steps	TEP
1-29-60	As constructed	
2-23-57	Slab under tracks revised	DM
10-7-56	Runner assembly recess revised	DM
1-15-54	Cover B added and blockout revised	DM
8-29-53	General revision	DM
1-15-53	General revision	DM

DESIGNED BY WALLA WALLA DISTRICT OFFICE OF THE DISTRICT ENGINEER, WALLA WALLA, WASHINGTON	RECOMMENDED BY DATE 3-10-52	APPROVED BY DATE 3-10-52
DESIGNED BY WALLA WALLA DISTRICT OFFICE OF THE DISTRICT ENGINEER, WALLA WALLA, WASHINGTON	RECOMMENDED BY DATE 3-10-52	APPROVED BY DATE 3-10-52

CORPS OF ENGINEERS, U.S. ARMY OFFICE OF THE DISTRICT ENGINEER, PORTLAND, OREGON			
DESIGNED BY: [Signature] DRAWN BY: [Signature] CHECKED BY: [Signature]			
WILLAMETTE RIVER BASIN, OREGON MIDDLE FORK WILLAMETTE RIVER LOOKOUT POINT PROJECT DEXTER REREGULATING DAM POWERHOUSE CONCRETE OUTLINE PLAN AT ELEVATION 660			
REVISION	DATE	DESCRIPTION	BY
1	1-29-60	This Drawing SUPERSEDES DX-112-161 Steps	TEP
2	1-29-60	As constructed	
3	2-23-57	Slab under tracks revised	DM
4	10-7-56	Runner assembly recess revised	DM
5	1-15-54	Cover B added and blockout revised	DM
6	8-29-53	General revision	DM
7	1-15-53	General revision	DM
APPROVED: [Signature] DATE 3-10-52			
SCALE: AS SHOWN - W.P.S.C. NO. _____			
SHEET 49 OF 41 DX-112-41			

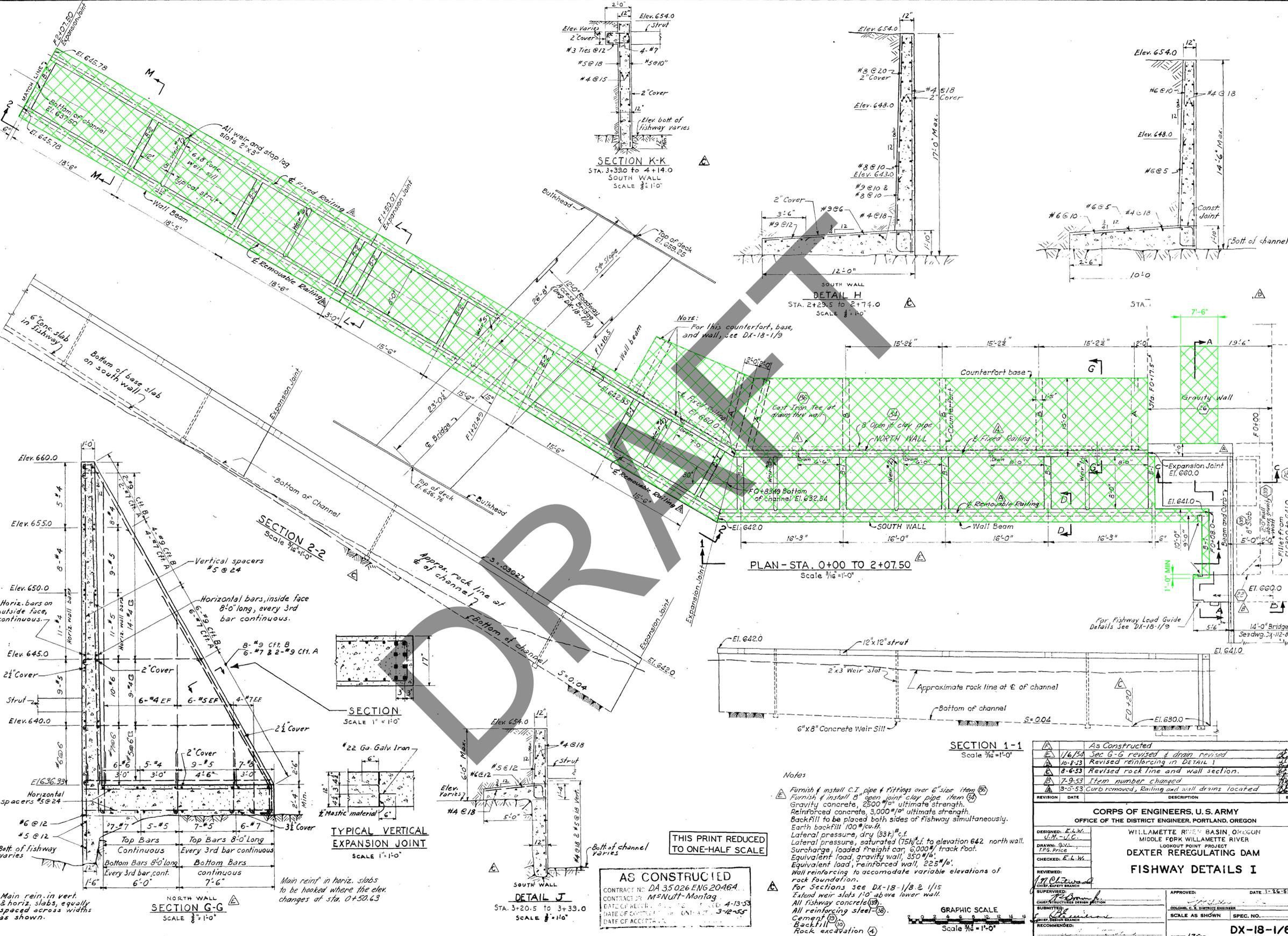
IMPORTANT: THIS DRAWING SHOWS DEMOLITION IN COLOR AND IS INTENDED TO BE PRINTED IN COLOR

BCOES REVIEW

DATE: 10/07/2002	DESIGNED BY: CARL M. HARRIS P.E.	CONTRACT NO.:
DATE 08	DRAWN BY: [Signature]	CONTRACT NO.:
DATE 05	SUBMITTED BY: [Signature]	CONTRACT NO.:
DATE 04	FILE NUMBER:	CONTRACT NO.:
DATE 03	FILE NAME:	CONTRACT NO.:
DATE 02	FILE NAME:	CONTRACT NO.:
DATE 01	FILE NAME:	CONTRACT NO.:
DATE	FILE NAME:	CONTRACT NO.:

DEXTER DAM AND RESERVOIR  
ADULT FISH FACILITY UPGRADE  
DEMOLITION  
POWERHOUSE

SHEET IDENTIFICATION  
SD103



**AS CONSTRUCTED**  
 CONTRACT NO. DA 35026 ENG 20464  
 CONTRACTOR: M. Nutt-Montag  
 DATE OF REVISION: 1-13-53  
 DATE OF COMPLETION: 3-12-55  
 DATE OF ACCEPTANCE:

**Notes**

- Furnish & install C.I. pipe & fittings over 6" size item (6)
- Furnish & install 8" open joint clay pipe item (6)
- Gravity concrete, 2500 psi ultimate strength.
- Reinforced concrete, 3,000 psi ultimate strength.
- Backfill to be placed both sides of fishway simultaneously.
- Earth backfill 100% c.u. ft.
- Lateral pressure, dry (33%) c.f.
- Lateral pressure, saturated (75%) c.f. to elevation 642 north wall.
- Surcharge, loaded freight car, 6,000#, track foot.
- Equivalent load, gravity wall, 350#/ft.
- Equivalent load, reinforced wall, 225#/ft.
- Wall reinforcing to accommodate variable elevations of rock foundation.
- For Sections see DX-18-1/8 & 1/15
- Extend weir slots 1'-0" above lower wall.
- All fishway concrete (3)
- All reinforcing steel (3)
- Cement (3)
- Backfill (3)
- Rock excavation (4)

REVISION	DATE	DESCRIPTION	BY
As Constructed			
1/6/54		Sec G-G revised & drain revised	
10-8-53		Revised reinforcing in DETAIL J	
8-6-53		Revised rock line and wall section.	
7-9-53		Item number changed	
3-5-53		Curb removed, Railing and wall drains located	

**CORPS OF ENGINEERS, U. S. ARMY**  
 OFFICE OF THE DISTRICT ENGINEER, PORTLAND, OREGON

WILLAMETTE RIVER BASIN, OREGON  
 MIDDLE FORK WILLAMETTE RIVER  
 LOOKOUT POINT PROJECT  
**DEXTER REREGULATING DAM**  
**FISHWAY DETAILS I**

DESIGNED BY: E.L.W.  
 DRAWN BY: G.W.L.  
 T.P.S. Price  
 CHECKED BY: E.L.W.  
 REVIEWED BY: J.P. [Signature]  
 SUPERVISED BY: [Signature]  
 SUBMITTED BY: [Signature]  
 RECOMMENDED BY: [Signature]

APPROVED: [Signature] DATE: 1-13-53  
 SPECIAL ENGINEER  
 SCALE AS SHOWN SPEC. NO.  
**DX-18-1/8**  
 SHEET 720P

**IMPORTANT: THIS DRAWING SHOWS DEMOLITION IN COLOR AND IS INTENDED TO BE PRINTED IN COLOR**



US Army Corps of Engineers  
 PORTLAND DISTRICT

**BCOES REVIEW**

| DATE |
|------|------|------|------|------|------|------|------|
|      |      |      |      |      |      |      |      |

DESIGNED BY: LARL M. HARRIS, P.E.  
 DRAWN BY: CAROL M. HARRIS, P.E.  
 SUBMITTED BY: MATTHEW D. HANSON, P.E.  
 PLOT SCALE: 1/8" = 1'-0"  
 FILE NAME: DX-18-1/8-1/8-1/8  
 ANSIF

DEXTER DAM AND RESERVOIR  
 ADULT FISH FACILITY UPGRADE

SHEET IDENTIFICATION  
**SD104**



