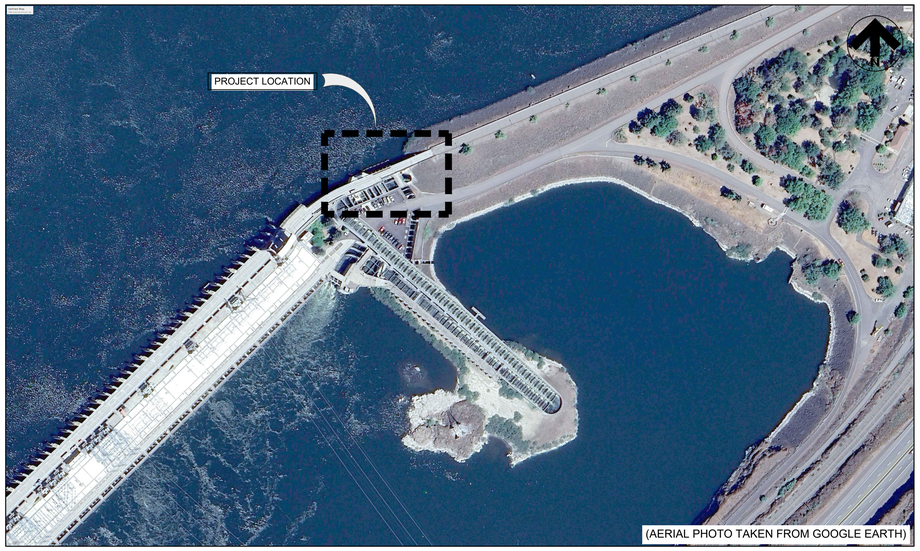
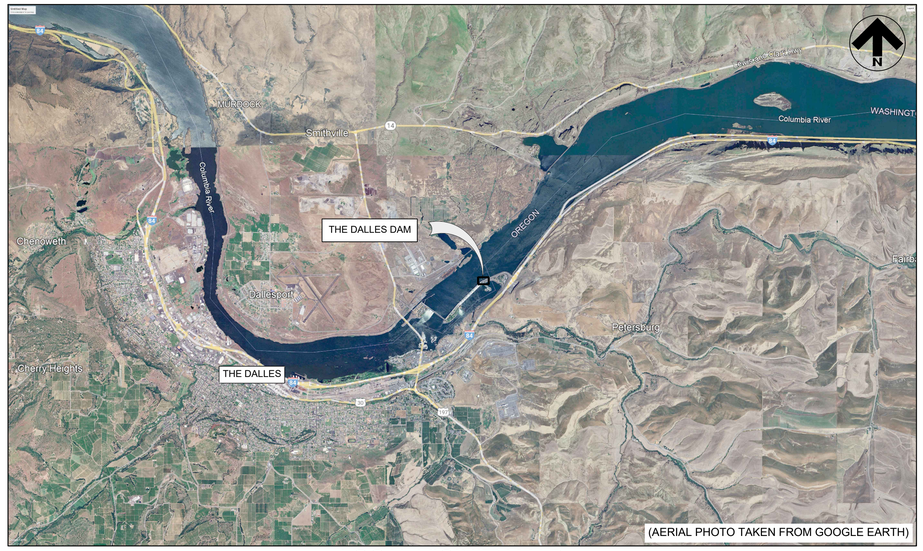
US Army Corps of Engineers®
PORTLAND DISTRICT

GENERAL, CIVIL SHEETS MECHANICAL SHEETS	STRUCTURAL SHEETS	ELECTRICAL SHEETS
REGISTERED PROFESSIONAL ENGINEER 106617PE OREGON MARCH 11, 2005 EVAN CLOUGH	REGISTERED PROFESSIONAL ENGINEER OREGON JULY 08, 2014 MATTHEW ERICH PERKINS	REGISTERED PROFESSIONAL ENGINEER 92497PE OREGON JULY 11, 2017 CHRISTOPHER EDEN
EVAN CLOUGH 06-20-2025	MATTHEW PERKINS 06-20-2025	CHRISTOPHER EDEN 06-20-2025
BY DATE	BY DATE	BY DATE

THE DALLES, OREGON
THE DALLES DAM
TDA AWS BACKUP DEBRIS MANAGEMENT



SITE MAP



LOCAL VICINITY MAP

SOLICITATION NO.:

CONTRACT NO.:

ISSUE DATE:

File Last Saved By: RTOLENTINO

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT 333 SW FIRST AVENUE PORTLAND, OR 97204-3440	Baird. Stantec 2810 CROSSROADS DR, SUITE 1200 MADISON, WI USA 53718
DESIGNED BY: E. CLOUGH	ISSUE DATE:
DRAWN BY: E. CLOUGH	SOLICITATION NO.:
CHECKED BY: E. CLOUGH	CONTRACT NO.:
SUBMITTED BY: E. CLOUGH	FILE NUMBER:
PLOT SCALE: 1" = 1'-0"	PLOT DATE: 6/19/2025
SIZE: F SIZE	FILE NAME: 199127K_G-001.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

COVER SHEET
SITE AND VICINITY MAP

SHEET IDENTIFICATION
G-001

DRAWING INDEX

SHEET COUNT	SHEET NUMBER	DESCRIPTION
	GENERAL	
1	G-001	COVER SHEET, SITE AND VICINITY MAP
2	G-002	DRAWING INDEX
3	G-003	NOTES, SYMBOLS, AND ABBREVIATIONS
4	G-004	SITE PLAN
	CIVIL	
5	C-001	CIVIL NOTES, ABBREVIATIONS AND SYMBOLS
6	C-002	TEMPORARY EROSION AND SEDIMENTATION CONTROL NOTES
7	C-101	GENERAL PLAN - ISO VIEW
8	C-102	GENERAL PLAN
9	C-501	CIVIL DETAILS
	STRUCTURAL	
10	S-001	STRUCTURAL NOTES
11	SD101	ACCESS PLATFORM DEMOLITION
12	S-101	ACCESS PLATFORM GENERAL ARRANGEMENT
13	S-102	UPPER FIXED ACCESS PLATFORM
14	S-103	LOWER FIXED ACCESS PLATFORM
15	S-501	STRUCTURAL DETAILS - SHEET 1 OF 6
16	S-502	STRUCTURAL DETAILS - SHEET 2 OF 6
17	S-503	STRUCTURAL DETAILS - SHEET 3 OF 6
18	S-504	STRUCTURAL DETAILS - SHEET 4 OF 6
19	S-505	STRUCTURAL DETAILS - SHEET 5 OF 6
20	S-506	STRUCTURAL DETAILS - SHEET 6 OF 6
	MECHANICAL	
21	M-001	MECHANICAL NOTES, LEGEND AND ABBREVIATION
22	M-101	NEW DEBRIS BRUSH MACHINE GENERAL ARRANGEMENT
23	M-102	NEW DEBRIS BRUSH MACHINE ELEVATION AND PLAN
24	M-103	NEW DEBRIS BRUSH RAKE MACHINERY HOUSE AND SUPPORT BRACKET DETAILS
25	M-104	NEW DEBRIS BRUSH MACHINE OPERATIONAL RANGE
26	M-105	DEBRIS BRUSH POSITIONS - ELEVATIONS
27	M-501	NEW DEBRIS BRUSH MACHINE SYSTEM OPERATION VIEWS AND DETAILS
	ELECTRICAL	
28	E-001	ELECTRICAL SYMBOLS AND ABBREVIATIONS
29	E-101	ELECTRICAL PLAN
30	E-401	ELECTRICAL SECTION AND DETAIL SHEET SHEET 1
31	E-501	ELECTRICAL DETAILS
32	E-601	ELECTRICAL SINGLE LINE DIAGRAM
33	E-602	ELECTRICAL AWS BACKUP INTAKE BRUSH SYSTEM CONTROL PANEL LAYOUT
34	E-603	ELECTRICAL EAST EXIT FISH SCADA PLC ENCLOSURE CONTROL SCHEMATIC
35	E-604	ELECTRICAL EAST EXIT FISH SCADA PLC ENCLOSURE BACK PANEL WIRING DIAGRAM
36	E-701	ELECTRICAL CONDUIT SCHEDULE
37	E-702	ELECTRICAL CABLE SCHEDULE
	REFERENCE DRAWINGS	
38	SC202	CONCRETE PIERS - PLAN AND ELEVATION
39	SC203	CONCRETE PIERS - SECTION AND DETAILS
40	SK511	REMOVABLE HANDRAIL AND GRATING
41	SK505	TRASHRACK ASSEMBLY
42	SK506	TRASHRACK DETAILS
43	SK517	COFFERDAM AND TRASHRACK GUIDES (SHT 2 OF 2)
44	SC703	PRECAST GUIDES AND REINFORCEMENT
45	R-1	PRECAST SECTIONS - SHOP DRAWING
46	SC705	BEARING BLOCK REBAR SECTION AND DETAILS
47	DDF-1 -6-5/1	POWER, CONTROL, AND GROUNDING SERVICE GALLERY (EL 168.0, EL 115.5 ,& LADDER)
48	DDF-10.0-6-5/4	EAST FISH LADDER POWER & CONTROL WEIR 153-159 & COUNTING HOUSE EL 168.0
49	DDF-1-6-5/12	POWER & CONTROL MANHOLE DETAILS (EL. 111.5 & BOX DETAILS)
50	DDF-10.0-6-5/2	EAST FISH LADDER POWER & CONTROL GALLERY DETAIL, ELEVATIONS, & SECTIONS

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2025
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: E. CLOUGH
DRAWN BY: R. TOVES
CHECKED BY: E. CLOUGH
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1" = 1'
PLOT DATE: 03/11/2025
SIZE: F SIZE
FILE NAME: W912TN_G-002.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

DRAWING INDEX

SHEET IDENTIFICATION
G-002

File Last Saved By: RTOLENTINO

GENERAL NOTES:

1. SEE SHEET G-001 FOR OVERALL PROJECT SITE BOUNDARY AND VICINITY MAP.
2. SEE SHEET S-001 FOR STRUCTURAL GENERAL NOTES.
3. SEE SHEET M-001 FOR MECHANICAL GENERAL NOTES.
4. SEE SHEET C-003 FOR PROJECT SITE PLAN.
5. SEE SHEET E-001 FOR ELECTRICAL GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
6. PROJECT ELEVATION DATUM IS NGVD 29-47. THE CONVERSION BETWEEN PROJECT DATUM AND NAVD88 IS: NAVD88 = PROJECT DATUM + 3.58 FEET.

SYMBOL LEGEND:

EXISTING CONCRETE

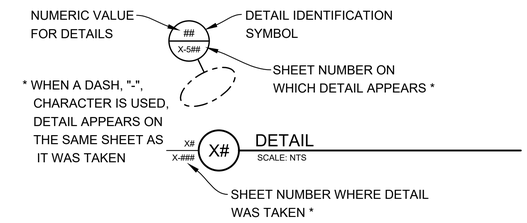
EXISTING GROUT

STEEL

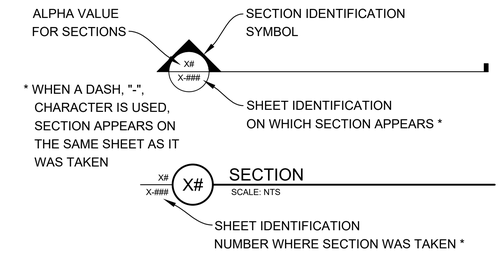
STAINLESS STEEL (S.S.)

LEGEND:

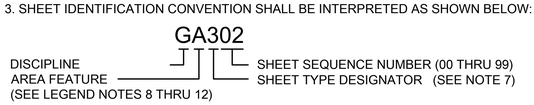
1. DETAILING CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



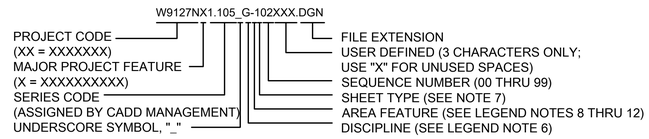
2. SECTIONING CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



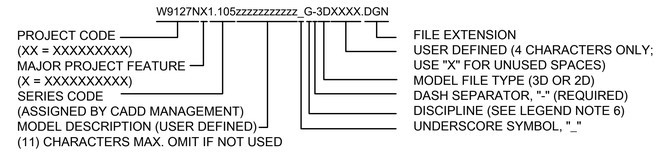
3. SHEET IDENTIFICATION CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



4. SHEET FILE NAME CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



5. MODEL FILE NAME CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



6. ENGINEERING DISCIPLINE DESIGNATOR FOR SHEET IDENTIFICATION SHALL BE AS SHOWN BELOW:

G	GENERAL
B	GEOTECHNICAL
C	CIVIL
S	STRUCTURAL
M	MECHANICAL
E	ELECTRICAL

7. SHEET TYPE DESIGNATOR FOR SHEET IDENTIFICATION SHALL BE AS SHOWN BELOW:

0	GENERAL *(symbols legend, notes, ect.)*
1	PLANS *(horizontal views)*
2	ELEVATIONS *(vertical views)*
3	SECTIONS *(sectional views, wall sections)*
4	LARGE-SCALE VIEWS *(plans, elevations, stair sections, or sections that are not details)*
5	DETAILS
6	SCHEDULES AND DIAGRAMS
7	USER DEFINED *(for types that do not fall in other categories, including typical detail sheets)*
8	USER DEFINED *(for types that do not fall in other categories)*
9	3D REPRESENTATIONS *(isometrics, perspectives, photographs)*

8. GEOTECHNICAL AREA FEATURE DESIGNATOR FOR "B" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

-	DENOTES GENERAL FEATURES
D	DENOTES DEMOLITION

9. CIVIL AREA FEATURE DESIGNATOR FOR "C" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

-	DENOTES GENERAL FEATURES (OR "ALL SHEETS ARE CIVIL")
S	DENOTES SITE PLANS

10. STRUCTURAL AREA FEATURE DESIGNATOR FOR "S" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

-	DENOTES GENERAL FEATURES
D	DENOTES DEMOLITION
SV	DENOTES VAULT
SB	DENOTES BOAT BARRIER
SC	DENOTES CONDUIT AREA SUPPORT
SS	DENOTES FISH SCREEN

11. MECHANICAL AREA FEATURE DESIGNATOR FOR "M" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

-	DENOTES GENERAL FEATURES
D	DENOTES DEMOLITION
P	DENOTES PIPING

12. ELECTRICAL AREA FEATURE DESIGNATOR FOR "E" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

-	DENOTES GENERAL FEATURES
D	DENOTES DEMOLITION
B	DENOTES
I	DENOTES INSTRUMENTATION

THE FOLLOWING ABBREVIATIONS MAY BE USED ON THE DRAWINGS IN THIS VOLUME

ANCH.	= ANCHOR	GA.	= GAUGE	PTFE	= POLYTETRAFLOURIDETHYLENE (TEFLON)
A.B.	= ANCHOR BOLT	GAC	= GRANULAR ACTIVATED CARBON	PVC	= POLYVINYL CHLORIDE
AC	= ASPHALT CONCRETE	GALV.	= GALVANIZED	PVI	= POINT OF VERTICAL INTERSECTION
AFF	= ADULT FISH FACILITY	GV	= GATE VALVE	RAD. OR R	= RADIUS
APPROX.	= APPROXIMATE	H	= HORIZONTAL	R.H.	= ROUND HEAD
ARCH.	= ARCHITECTURAL	H.D.	= HEAVY DUTY	REF	= REFERENCE
ARV	= AIR RELEASE VALVE	H.M.	= HOLLOW METAL	RAD.I.	= REINFORCEMENT
AWS	= ATTRACTION WATER SUPPLY	HOR.	= HORIZONTAL	REQ'D	= REQUIRED
AWSB	= ATTRACTION WATER SUPPLY BACKUP	ID	= INSIDE DIAMETER	R.O.	= ROUGH OPENING
B.B.	= BOLT CENTERS	I.E.	= INVERT ELEVATION	RT	= RIGHT
B.F.	= BOTTOM FACE	IF	= INSIDE FACE	SCH	= SCHEDULE
BG	= BACK GOUGE	I.E.	= INSIDE LAYER	SHT	= SHEET
B.L.	= BOTTOM LAYER	IN.	= INCH, INCHES	SIM	= SIMILAR
BLDG.	= BUILDING	INFO	= INFORMATION	STAG. SPL.	= STAGGER SPLICE
BRG	= BEARING	IS	= INSIDE	STD	= STANDARD
B TO B	= BACK TO BACK	ISO JT	= ISOLATION JOINT	STIR.	= STIRRUP
C	= CHANNEL	IWRC	= INDEPENDENT WIRE ROPE CORE	STL.	= STEEL
C TO C	= CENTER TO CENTER	JFR	= JUVENILE FISH RETURN	S.F.	= SQUARE FOOT
C/E JT	= CONTRACTION JOINT/EXPANSION JOINT	JT.	= JOINT	SHLDR	= SHOULDER
		KSI	= KIPS PER SQUARE INCH	SPEC	= SPECIFICATION
CF	= CUBIC FEET	L	= ANGLE	SQ	= SQUARE
CI	= CAST IRON	LF.	= LINEAR FEET	S.S.	= STAINLESS STEEL
C.J.	= CONSTRUCTION JOINT	LG.	= LONG	STA.	= STATION
CJP	= COMPLETE JOINT PENETRATION	LT	= LEFT	STC	= STEEL TROWELED CONCRETE
CL	= CENTERLINE	LTH	= LENGTH	SYM	= SYMMETRICAL
CL2	= CHLORINE	LONG.	= LONGITUDINAL	T & B	= TOP AND BOTTOM
CLR	= CLEAR	L.P.	= LOW POINT	T.B.P.	= TO BE DETERMINED
CONC.	= CONCRETE	MAX.	= MAXIMUM	T.F.	= TOP FACE
CONN	= CONNECTION	MIN.	= MINIMUM	T.J.	= TROWELED JOINT
CONT	= CONTINUOUS	M.B.	= MACHINE BOLT	T.L.	= TOP LAYER
CONT. JT.	= CONTRACTION JOINT	MECH.	= MECHANICAL	T.O.	= TOP OF
C.M.P.	= CORRUGATED METAL PIPE	MK	= MARK	TOC	= TOP OF CONCRETE
CP	= COMPLETE PENETRATION	MSE	= MECHANICALLY STABLILIZED EARTH	TOF	= TOP OF FOOTING
CRES	= CORROSION RESISTING STEEL	NAT.	= NATURAL	TOS	= TOP OF SLAB
CSP	= CORNER SUPPORT PIECE	N.A.	= NO CHAMFER	TOW	= TOP OF WALL
CSK	= COUNTERSINK	NF	= NEAR FACE	T.S.	= TUBULAR STEEL
CU	= COPPER	NO.	= NUMBER	TYP.	= TYPICAL
DET.	= DETAIL	NOM	= NOMINAL	UNO	= UNLESS NOTED OTHERWISE
D&G	= DRILL & GROUT	NPS	= NOMINAL PIPE SIZE	U.N.O.	= UNLESS NOTED OTHERWISE
DIA. OR Ø	= DIAMETER	NPT	= NATIONAL PIPE THREAD	U/S	= UPSTREAM
DI	= DUCTILE IRON	NTS	= NOT TO SCALE	UW	= UNWATERING PUMP
DIP	= DUCTILE IRON PIPE	O.A.	= OVERALL LENGTH	UWCP	= UNWATERING PUMP CONTROL PANEL
D/S	= DOWNSTREAM	O.C.	= ON CENTER	V	= VERTICAL
DWG	= DRAWING	O.D.	= OUTSIDE DIAMETER	VBS	= VERTICAL BARRIER SCREEN
DWL'S	= DOWELS	OF	= OUTSIDE FACE	VC	= VERTICAL CURVE
DIA.	= EACH	O.L.	= OUTSIDE LAYER	VERT.	= VERTICAL
EF	= EACH FACE	OPP	= OPPOSITE	W/	= WITH
E.L.	= EACH LAYER	OS	= OUTSIDE	WL	= WATERLINE
EL OR ELEV	= ELEVATION	OSAY	= OUTSIDE STEM AND YOKE (VALVES)	WP	= WELD PLATE
E.J.	= EXPANSION JOINT	O TO O	= OUT TO OUT	W.P.	= WORK POINT
EQ.SP.	= EQUALLY SPACED	PC	= POINT OF CURVATURE	W.S.	= WATERSTOP
E.W.	= EACH WAY	PCF	= POUNDS PER CUBIC FOOT	WCJ	= WALL CONSTRUCTION JOINT
EXAM.	= EXAMINATION	PERF.	= PERFORATED	WWF	= WELDED WIRE FABRIC
E.W.	= EACH WAY	PL	= PLATE		
EXIST.	= EXISTING	PLF	= POUNDS PER LINEAR FOOT		
F.B.	= FLAT BAR	PRE-FAB	= PREVIOUSLY FABRICATED		
F.D.	= FLOOR DRAIN	PSF	= POUNDS PER SQUARE FOOT		
F.F.	= FAR FACE	PSI	= POUNDS PER SQUARE INCH		
FG	= FINISH GRADE	PSPD	= POST SORT POOL DRAIN		
F.H.	= FLAT HEAD	PT	= POINT OF TANGENCY (CIVIL SHEETS)		
FLG	= FLANGE	PT.	= POINT		
FT.	= FOOT, FEET				
F.W.	= FLAT WASHER				
FWS	= FACILITY WATER SUPPLY				
FWWS	= FACILITY WARM WATER SUPPLY				

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2008
EVAN CLOUGH

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: E CLOUGH	ISSUE DATE:	SOLICITATION NO.:	
DRAWN BY: E CLOUGH	CHECKED BY: E CLOUGH	CONTRACT NO.:	
SUBMITTED BY: E CLOUGH	PLOT DATE: 11/7/2008	FILE NUMBER: 1	
	PLOT SCALE: 1" = 1'	SIZE: F SIZE	FILE NAME: W9127N_G-003.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

NOTES, SYMBOLS AND ABBREVIATIONS

SHEET IDENTIFICATION
G-003

File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

1. CONTRACTOR TO COORDINATE TEMPORARY OFFICE UTILITIES WITH GOVERNMENT AND INDICATE EXPECTED REQUIREMENTS WITH BID.
2. CONTRACTOR TO SUPPLY TEMPORARY POWER FOR CONSTRUCTION ACTIVITIES. THERE IS LIMITED SPARE POWER FROM EASTERN NON-OVERFLOW DAM DISTRIBUTION.
3. CONTRACTOR TO COORDINATE WITH GOVERNMENT FOR EQUIPMENT ON THE FOREBAY ACCESS ROAD. BLOCKING OF ROADWAY SHALL NOT BE PERMITTED AND THE CONTRACTOR SHALL SUPPLY EQUIPMENT LOADING FOR REVIEW PRIOR TO MOBILIZATION. COORDINATE WITH PROJECT TRAFFIC CONTROL REQUIREMENTS SHOWN ON SHEET C-001.

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 13, 2026
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Santec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: R. McEWAN
DRAWN BY: E. KAHLER
SUBMITTED BY: E. CLOUGH
CHECKED BY: ZACD BY:
PLOT SCALE: 1:1
PLOT DATE: 3/13/2026
SIZE: F SIZE
FILE NAME: W9127N_C-003.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

SITE PLAN

SHEET IDENTIFICATION
G-004

File Last Saved By: RYTAN

CIVIL GENERAL NOTES

GENERAL

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTORS EXPENSE.
3. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD CONCRETE, PIPING , ROCK RUBBLE, ETC. AT AN APPROVED LANDFILL OR, OTHER SUITABLE DISPOSAL SITES AT THE CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.
5. AZIMUTHS SHOWN ARE MEASURED CLOCKWISE FROM THE NORTH.
6. DIMENSIONS AND/OR ELEVATIONS MARKED THUS (+) ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL DIMENSIONS IN THE FIELD.
7. DIMENSION AND/OR ELEVATIONS MARKED '(NTS)' ARE NOT SHOWN TO SCALE. DRAWINGS ARE GENERALLY TO SCALE, BUT NTS IS SHOWN ONLY WHERE DRAWING IS OBVIOUSLY OUT OF SCALE.
8. CONTRACTOR SHALL MAINTAIN CONSTRUCTION STAGING AREAS AS NEEDED FOR WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND VERIFYING ALL MEASUREMENTS AND GRADES PRIOR TO BEGINNING CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH TEMPORARY BENCHMARKS AS NEEDED. ALL CONTROL POINTS REQUIRED FOR CONSTRUCTION SHALL BE ESTABLISHED PRIOR TO DESTROYING EXISTING MONUMENTS/NAILS/CROSS CUTS, ETC.
10. PROJECT ROADS ARE TO BE KEPT CLEAN DURING CONSTRUCTION. ANY NECESSARY HAUL ROAD INSIDE THE PROJECT LIMITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND MAINTAIN.
11. THE CONTRACTOR SHALL PREPARE THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THIS PROJECT. ALL NECESSARY BMPS SHALL BE CONSTRUCTED PRIOR TO ANY GROUND DISTURBING ACTIVITIES AS SHOWN ON THESE DRAWINGS AND AS INDICATED IN THE SWPPP.
12. ALL NEW CONSTRUCTION SHALL BE PREPARED TO FINISH GRADES, AND ALL DISTURBED AREAS SHALL BE RETURNED TO PRE-CONSTRUCTION CONDITION. VEGETATION OF ALL NEW CONSTRUCTION AND DISTURBED AREAS SHALL BE RESTORED TO PRE-DISTURBED CONDITION.
13. DUST CONTROL - CONTRACTOR SHALL TAKE MEASURES TO PREVENT UNNECESSARY DUST IN ACCORDANCE WITH THE SWPPP. EACH SURFACE SUBJECT TO DUSTING SHALL BE KEPT MOIST WITH WATER OR BY APPLICATION OF CHEMICAL DUST SUPPRESSANT. DUSTY MATERIALS IN PILES OR IN TRANSIT SHALL BE COVERED TO PREVENT BLOWING.
14. CONTRACTOR SHALL NOT RESTRICT DRAINAGE FLOW DURING RAIN EVENTS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR BEING FAMILIAR WITH THE SITE AND SHALL VERIFY EXISTING CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
16. CONTRACTOR TO SEED AND FERTILIZE ALL DISTURBED NON-PAVED AREAS IF DAMAGED OR REMOVED DURING CONSTRUCTION ACTIVITIES.
17. CONTRACTOR SHALL NOT REMOVE ANY TREES UNLESS CALLED TO BE REMOVED ON PLAN AND PROFILE SHEETS OR AS DIRECTED BY THE CONTRACTING OFFICER.
18. THE CONTRACTOR IS ENTIRELY RESPONSIBLE FOR PROTECTION OF THE EXCAVATION AGAINST CAVING OR SETTING OF THE BANKS, AND FOR ALL DAMAGE TO PAVEMENTS, BUILDINGS, HOUSES, FENCES, BRIDGES, UTILITY TOWERS, PUBLIC INFRASTRUCTURE, AND OTHER PROPERTY CAUSED BY THE EXCAVATION. CONTRACTOR SHALL PROTECT THE SIDES OF THE EXCAVATION BY AN INTERLOCKED SHEETING AND BRACING SYSTEM OR OTHER SHORING AS NECESSARY.
19. ALL EXCAVATED MATERIAL NOT USED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE HAULED OFF SITE AND DISPOSED LEGALLY AND PROPERLY AT CONTRACTOR EXPENSE WITHOUT ADDITIONAL COMPENSATION.
20. CONTRACTOR SHALL CONDUCT PRE-CONSTRUCTION VIDEO AND PHOTOGRAPHIC DOCUMENTATION OF EXISTING CONDITIONS, PER SPECIFICATIONS.
21. ALL WORK AROUND HIGH VOLTAGE POWER LINES SHALL BE IN ACCORDANCE WITH OSHA AND ENERGY REQUIREMENTS, ALONG WITH USACE SAFETY MANUAL "EM-385-1-1".
22. CONTRACTOR SHALL ADHERE TO THE TRAFFIC PLAN FOR ACCEPTABLE HAULING ROUTES. HAULING TRUCKS SHALL ABIDE BY REQUIRED WEIGHT LIMITS, PROVIDED BY THE GOVERNMENT.
23. CONTRACTOR SHALL CLEAN AND REMOVE ALL TRASH IN PROJECT LIMITS PRIOR TO END OF CONTRACT.
24. THE CONTRACTOR IS RESPONSIBLE FOR THE TURF MAINTENANCE OF THE PROJECT THROUGH CLOSEOUT.
25. CONTRACTOR SHALL OBTAIN ALL NECESSARY ENVIRONMENTAL, AGENCY, AND OTHER PERMITS PRIOR TO BEGINNING CONSTRUCTION.
26. THE CONTRACTOR IS ADVISED THAT THE DALLES DAM RESERVOIR COULD RISE DURING THE CONSTRUCTION PERIOD WHICH MAY REQUIRE TEMPORARILY SEALING HOLES, SECURING THE DAM, AND REMOVING PERSONNEL AND EQUIPMENT IN THE EVENT OF A FORECASTED IMPENDING STORM.
27. PROJECT DATUM IS NGVD 29-47.

TRAFFIC CONTROL NOTES

1. CONTRACTOR SHALL COMPLY WITH ANY TRAFFIC CONTROL PLANS PROVIDED BY GOVERNMENT.
2. CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR REVIEW FOR ACTIVITIES WHICH IMPACT PROJECT ROADS.

UTILITIES

1. THE USE OF GROUND PENETRATING RADAR (GPR), SUPPLEMENTED BY SOFT DIGS, SHALL BE UTILIZED FOR THE ROADWAY DUCT BANK EXCAVATION TO LOCATE KNOWN UTILITIES IN THE EMBANKMENT DAM IN THE VICINITY OF THE EXCAVATION.
2. THE CONTRACTOR SHALL PROTECT ALL REMAINING EXISTING UTILITIES.
3. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE CONTRACTING OFFICER'S REPRESENTATIVE AND UTILITY OWNER.
4. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLEUM PRODUCT, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE CONTRACTING OFFICERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID CONTRACTING OFFICERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.
5. ALL EXISTING UTILITIES ARE TO REMAIN UNLESS OTHERWISE NOTED.
6. PRIOR TO REMOVING EXISTING UTILITIES, THE CONTRACTOR SHALL VERIFY THAT THE UTILITY IS NO LONGER IN SERVICE.
7. UTILITY LOCATIONS SHOWN ARE APPROXIMATE, CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO WORKING NEAT EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES NOT TO BE DISTURBED WHICH OCCURS BY HIS FAULT DURING CONSTRUCTION AND SHALL IMMEDIATELY REPORT ANY DAMAGE TO THE UTILITY ENTITIES. ALL REPAIR COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. TO REQUEST AND LOCATE OF UNDERGROUND UTILITIES IN A PROPOSED EXCAVATION AREA, DIAL 811 OR SUBMIT A REQUEST ONLINE AT OREGON 811 UTILITY NOTIFICATION CENTER.

GENERAL CIVIL SYMBOLS

NEW

EXISTING

FUTURE

EXISTING TO BE REMOVED OR DEMOLISHED

CENTERLINE

EARTH (IN SECTION)

COMPACTED EARTH (IN SECTION)

S=0.0123 SLOPE ON PAVED SURFACE

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2016
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: R. McEWAN
DRAWN BY: T. CHAMBERS
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: 2/29/2016
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: E. CLOUGH
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W9127N_C-001.dwg
SOLICITATION NO.:

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

CIVIL NOTES
ABBREVIATIONS AND SYMBOLS

SHEET IDENTIFICATION
C-001

EROSION AND SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL USE ALL REASONABLE MEASURES TO MINIMIZE THE IMPACTS OF CONSTRUCTION ACTIVITY ON SURFACE AND GROUND WATERS. WATER QUALITY CONSTITUENTS OF PARTICULAR CONCERN ARE TURBIDITY, SUSPENDED SEDIMENTS, SETTLEABLE SOLIDS.

2. THE CONTRACTOR SHALL USE PROPER EROSION AND SEDIMENT CONTROL PRACTICES ON THE CONSTRUCTION SITE AND ADJACENT CONSTRUCTION STAGING AREAS TO PREVENT EROSION IN AND DOWNHILL OF DISTURBED AREAS, AND TO PREVENT THE DISCHARGE OF UPLAND SEDIMENTS OR SEDIMENT-LADEN WATER INTO THE WETLANDS, WATER BODIES, AND LOCAL DRAINAGE DITCHES. EXCEPT FOR TEMPORARILY SIDECAST OR TRENCH EXCAVATION, ALL STOCKPILES SHALL BE LOCATED NO CLOSER THAN 100 FEET FROM THE BOUNDARY OF ANY CRITICAL AREA AND SHALL NOT BE PLACED IN ANY UNDISTURBED AREA.

3. THE MEASURES SHOWN ON THESE PLANS ARE THE MINIMUM THAT ARE REQUIRED FOR THE ANTICIPATED SITE CONDITIONS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES AS NEEDED DUE TO WEATHER, AND/OR FIELD CONDITIONS, AND/OR CONSTRUCTION ACTIVITIES, AND/ OR AS DIRECTED BY THE ENGINEER.

4. THE CONTRACTOR SHALL NOT DISCHARGE TURBID WATER GENERATED FROM CONSTRUCTION ACTIVITIES, INCLUDING TURBID DEWATERING WATER, DIRECTLY TO THE CREEKS OR TO ANY OF THE DRAINAGE DITCHES THAT DRAIN TO THE CREEKS BEFORE THE SOLIDS HAVE SETTLED OUT OF THE WATERS. ALL SURFACE WATER FLOWS IN DITCHES, OR CULVERTS SHALL BE MAINTAINED, SUCH THAT FLOW IS NOT DISRUPTED DURING OR AFTER CONSTRUCTION. ANY INTENTIONAL DEWATERING DISCHARGES TO SURFACE WATERS MUST FIRST PASS THROUGH SEDIMENT TANKS (BAKER TANKS). THE MAXIMUM ALLOWABLE TURBIDITY IS 25 NTUS. THE APPROXIMATE TOTAL VOLUME OF TANKS REQUIRED EQUALS DEWATERING FLOW (GPM) X 16 = CUBIC FEET OF WET STORAGE REQUIRED. A FLOW METER MUST BE INSTALLED ON THE COMBINED DISCHARGE PIPE.

5. ALL TEMPORARY EROSION AND SEDIMENT CONTROLS (TESC) SHALL REMAIN IN PLACE THROUGHOUT THE WORK. INSTALLED EROSION AND SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED UPON STABILIZATION OF DISTURBED AREAS AND WITH THE APPROVAL OF THE ENGINEER.

6. THE CONTRACTOR SHALL SEED, PLANT, COVER WITH PLASTIC, MULCH, OR PROVIDE SOME OTHER EQUIVALENT TYPE OF PROTECTION AGAINST EROSION TO ALL EARTHEN AREAS DISTURBED OR NEWLY CREATED BY THE PROJECT CONSTRUCTION. HAND APPLICATION OF TURF GRASS SEED IS ACCEPTABLE FOR TEMPORARY SITE RESTORATION.

7. THE CONTRACTOR SHALL PROVIDE REGULAR INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT ALL TIMES. THE CONTRACTOR SHALL REPAIR, REPLACE, AND INSTALL ADDITIONAL MEASURES SO THAT THEY ARE EFFECTIVE IN PREVENTING EROSION AND SEDIMENTATION.

8. AFTER ANY SIGNIFICANT RAINFALL, THE CONTRACTOR SHALL INSPECT SEDIMENT CONTROL STRUCTURES FOR INTEGRITY. ANY DAMAGED DEVICES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND REPAIRED IMMEDIATELY.

9. FOLLOWING CONSTRUCTION, THE CONTRACTOR SHALL RESTORE DISTURBED AREAS TO ORIGINAL CONDITION AND ACHIEVE AN ADEQUATE VEGETATIVE COVER BEFORE REMOVING ANY SEDIMENT TRAPS OR SETTLING BASINS AND THEIR ASSOCIATED TEMPORARY DIVERSION DITCHES. THE CONTRACTOR SHALL CLEAN OUT TEMPORARY SETTLING BASINS (SEDIMENT TRAPS) AND REMOVE THE SETTLED SEDIMENTS OR HYDROSEED THE AREA (IF IN BARE LAND) BEFORE REMOVING THE SETTLING BASINS. SETTLED SEDIMENTS SHALL NOT BE ALLOWED TO ENTER ANY STREAM OR DITCH AS A RESULT OF RUNOFF THAT MAY OCCUR AFTER CONSTRUCTION IS COMPLETED. HAND APPLICATION OF TURF GRASS SEED IS ACCEPTABLE FOR PERMANENT SITE RESTORATION.

10. ALL TEMPORARY SURFACING OR OTHER APPROVED MATERIAL USED FOR TEMPORARY SURFACING OF THE CONSTRUCTION STAGING AND WORK AREAS SHALL BE REMOVED AND DISPOSED OF AT THE COMPLETION OF THE PROJECT. RESTORATION OF THE GROUND SURFACE SHALL BE COMPLETED IMMEDIATELY AFTER REMOVAL OF MATERIAL.

11. FINAL CONTRACT PAYMENT REQUIRES ALL CATCHBASIN FILTERS AND STORMWATER INLET PROTECTION TO BE REMOVED AND DISPOSED. THE CONTRACTOR SHALL SET ASIDE A SEPARATE AREA ON SITE WHICH DOES NOT HAVE ANY POSSIBILITY OF DRAINING TO SURFACE WATERS, FOR THE WASH-OUT OF CONSTRUCTION EQUIPMENT AND TOOLS.

12. THE CONTRACTOR SHALL NOT DISCHARGE ANY CLEANING SOLVENTS OR CHEMICALS UTILIZED FOR TOOL OR EQUIPMENT CLEANING TO THE GROUND. REFUELING OF EQUIPMENT SHALL BE CONDUCTED AWAY FROM THE DRAINAGE DITCHES AND CRITICAL AREAS AND DONE IN SUCH A MANNER AS TO PREVENT SPILLS FROM ENTERING THE GROUNDWATER OR WATERBODIES (INCLUDING WETLANDS). MOBILE EQUIPMENT MUST NOT BE REFUELED WITHIN THE CONSTRUCTION LIMITS OF THE AGRICULTURAL FIELDS OR WETLANDS.

13. THE CONTRACTOR SHALL PREVENT ANY PETROLEUM PRODUCTS, CHEMICALS, OR OTHER TOXIC OR DELETERIOUS MATERIALS FROM ENTERING THE GROUNDWATER IN ANY MANNER. CONTRACTOR SHALL SUPPLY AND STOCK CHEMICAL SPILL KITS AT PROJECT SITE AT ALL TIMES.

14. ALL GROUNDWATER PUMPED FROM EXCAVATED TRENCHES SHALL BE TREATED IN PORTABLE SEDIMENT TANKS OR TEMPORARY SETTLING BASINS AND RELEASED AT LESS THAN 25 NTUS OF TURBIDITY.

15. THE CONTRACTOR SHALL TEST DECHLORINATED WATER TO VERIFY THAT A MAXIMUM CHLORINE RESIDUAL OF 0.0 MG/L AND A MINIMUM DISSOLVED OXYGEN LEVEL OF 1.0 PPM IS OBTAINED PRIOR TO DISCHARGING. IF THE TESTS RETURN RESULTS OTHER THAN THOSE LISTED ABOVE, THE DECHLORINATED WATER SHALL NOT BE DISCHARGED. DISCHARGE AREAS SHALL BE LOCATED AT LEAST 200 FEET FROM THE ON SITE CREEKS.

16. THE CONTRACTOR SHALL INSTALL BARRIER FENCE AND SILT PROTECTION ALONG PERIMETER OF WORK SITE AS SHOWN ON STAGING AND TESC PLANS.

17. DURING THE WET SEASON, FROM OCTOBER 1 THROUGH APRIL 30, FOR PROJECT AREAS OUTSIDE OF DESIGNATED WETLANDS, THE PROJECT WILL FOLLOW SPECIAL EROSION CONTROL MEASURES AS SHOWN BELOW. THESE INCLUDE:

    - DENUDED AREAS AND SOILS EXPOSED FOR A PERIOD OF GREATER THAN 48 HOURS SHALL BE PROTECTED FROM POSSIBLE EROSION BY THE APPLICATION OF A COVER, MULCH OR OTHER SATISFACTORY METHOD OF STABILIZATION.

    - ALL INSTALLED EROSION CONTROL MEASURES, INCLUDING SILT FENCING, SEDIMENT TRAPS, CHECK DAMS AND STORMWATER DIVERSION BERMS/SWALES, SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER ANY RAINFALL EVENT GREATER THAN ONE INCH IN A 24-HOUR PERIOD. ACCUMULATED SEDIMENT SHALL BE REMOVED IMMEDIATELY AND REPAIRS MADE TO ANY DAMAGED OR MALFUNCTIONING EROSION CONTROL DEVICES.

18. INSTALL TEMPORARY COVER MEASURES OF DISTURBED SOILS NOT CURRENTLY BEING WORKED. FROM OCTOBER 1 TO APRIL 30 (WET SEASON), NO UNWORKED SOIL SHALL REMAIN EXPOSED FOR MORE THAN 48 HOURS. TEMPORARY MEASURES MAY INCLUDE SOD, STRAW MULCH, PLASTIC, AND/ OR HYDROSEEDING AS APPROVED BY THE OWNER.

19. THE IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN AND CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THE EROSION AND SEDIMENT CONTROL MEASURES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE UNTIL FINAL ACCEPTANCE BY THE OWNER AND ALL PERMITS RELATED TO TEMPORARY EROSION AND SEDIMENT CONTROL ARE TERMINATED.

20. THE CONTRACTOR SHALL SUBMIT AND HAVE A DETAILED STORM WATER POLLUTION PREVENTION PLAN, STAMPED AND SIGNED BY A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD REGISTERED IN THE STATE OF OREGON ACCEPTED BY THE OWNER AND SHALL INSTALL ALL TESC PRIOR TO PERFORMING ANY CLEARING OR OTHER EARTH DISTURBING ACTIVITIES AT THE PROJECT SITE.

21. THE CONTRACTOR SHALL FOLLOW AND IMPLEMENT ALL SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL SPECIFIED IN THE CONTRACT DOCUMENTS. ADJUSTMENTS TO PLANNED EROSION AND SEDIMENT CONTROL MAY BE NECESSARY TO SUCCESSFULLY CONTROL SILTATION FROM THE SITE WHICH IS NOT COVERED UNDER THIS TEMPORARY EROSION AND SEDIMENT CONTROL PLAN.

22. ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS DRAWING SHALL BE INSTALLED PRIOR TO OR AS THE FIRST STAGE OF SITE PREPARATION.

23. SHOULD THE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THIS DRAWING NOT PROVE ADEQUATE TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL FACILITIES AS NECESSARY TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES, AND/OR STORM DRAINAGE SYSTEMS.

24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING THE CLEARING LIMITS AND ESTABLISHING THOSE BOUNDARIES WITH BRIGHT COLORED FLAGGING. THE CONTRACTOR SHALL CLEAR TO THE LIMITS AS ESTABLISHED ON THIS PLAN AND AS APPROVED.

25. IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT PREVENTING THE SPREAD OF SOIL OFF OF THE SITE (TRACKOUT), THEN THE CONTRACTOR SHALL PROVIDE STREET SWEEPING ON ADJACENT PAVED SURFACES AND EVALUATE THE CONSTRUCTION ENTRANCE FOR REPLACEMENT.

26. CONCRETE WASH WATER SHALL BE HAULED OFF-SITE AND DISPOSED AT A LOCATION WHERE IT CANNOT ENTER SURFACE WATERS. IF CONCRETE WASH WATER IS COMBINED WITH GENERAL DEWATERING FLOW, THEN DAILY SAMPLING FOR PH IS REQUIRED.

TESC CONSTRUCTION SEQUENCE

THE FOLLOWING CONSTRUCTION SEQUENCE PROVIDES A CONCEPTUAL APPROACH TO THE TESC CONSTRUCTION ACTIVITIES REQUIRED BY THIS PROJECT.THE CONTRACTOR IS REQUIRED TO SUBMIT A MORE DETAILED CONSTRUCTION SCHEDULE AS PART OF THE TESC PLAN AS DEFINED IN THE CONTRACT DOCUMENTS. THE SEQUENCE OF CONSTRUCTION INCLUDES PRECONSTRUCTION ACTIVITIES AND TESC CONSTRUCTION.

PRECONSTRUCTION TESC ACTIVITIES

1. PREPARE CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP) ALSO KNOWN AS A TEMPORARY EROSION AND SEDIMENT CONTROL PLAN (TESC PLAN).

2. PREPARE SPILL PREVENTION, CONTROL AND COUNTER MEASURE PLAN.

3. ATTEND PRECONSTRUCTION CONFERENCE.

TESC CONSTRUCTION

1. CLEARLY FLAG THE LIMITS OF CONSTRUCTION SHOWN ON THE DRAWINGS AND ESTABLISH STAGING AREA LIMITS.

2. WITHIN THE LIMITS OF CONSTRUCTION, FLAG ALL TREES TO BE SAVED AND OTHER VEGETATION TO REMAIN UNDISTURBED FOR THE APPROVAL OF THE ENGINEER.

3. CONSTRUCT ACCESS ROAD(S) AND INSTALL STABILIZED CONSTRUCTION ENTRANCE(S) AS SHOWN ON THE DRAWINGS.

4. INSTALL TEMPORARY SILT FENCING AS SHOWN ON THE DRAWINGS.

5. INSTALL SOIL PROTECTION MEASURES IN WETLANDS AS DESCRIBED IN CONTRACT DOCUMENTS.

6. PERFORM SITE GRADING.

7. UPON COMPLETION OF THE PROJECT, STABILIZE AND RESEED/REPLANT ALL DISTURBED AREAS.

8. PERFORM FINAL CLEAN UP.

9. REMOVE AND DISPOSE OF TESC BMPS.

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2005
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: R. McEWAN
DRAWN BY: E. CLOUGH
CHECKED BY: E. CLOUGH
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: FOR POSTER
SIZE: F SIZE
FILE NAME: W9127N_C-002.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:

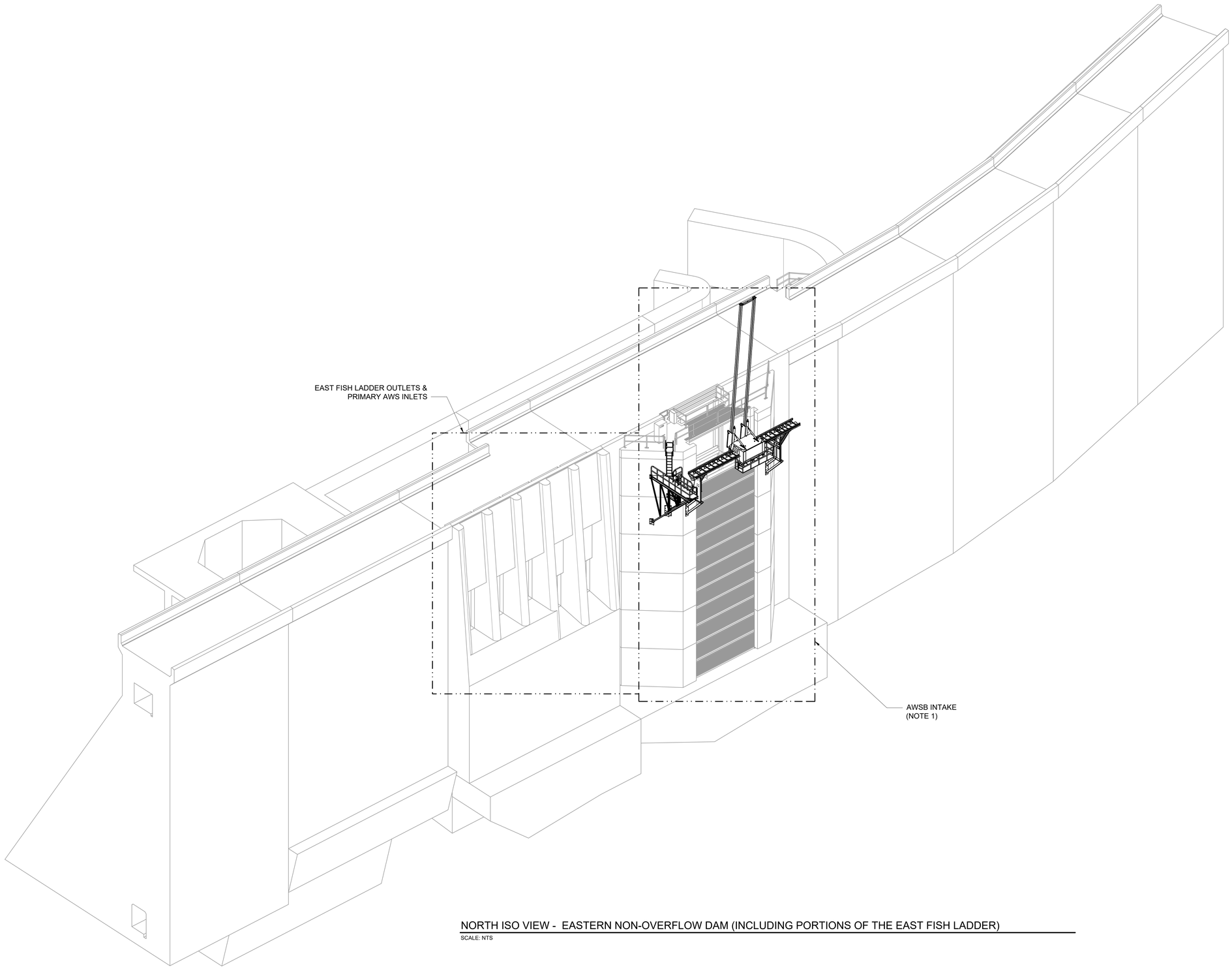
THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

TEMPORARY EROSION AND SEDIMENTATION CONTROL NOTES

SHEET IDENTIFICATION
C-002

GENERAL SHEET NOTE

1. THE AWSB INTAKE WAS CONSTRUCTED IN 2020 TO PROVIDE AN ALTERNATIVE AWS SOURCE AND IS NOT PART OF THE ORIGINAL 1950s DAM. REFER TO REFERENCE DOCUMENTS FOR SPECIFIC INFORMATION ON THE AS CONSTRUCTED INTAKE STRUCTURE.



NORTH ISO VIEW - EASTERN NON-OVERFLOW DAM (INCLUDING PORTIONS OF THE EAST FISH LADDER)

SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2025
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

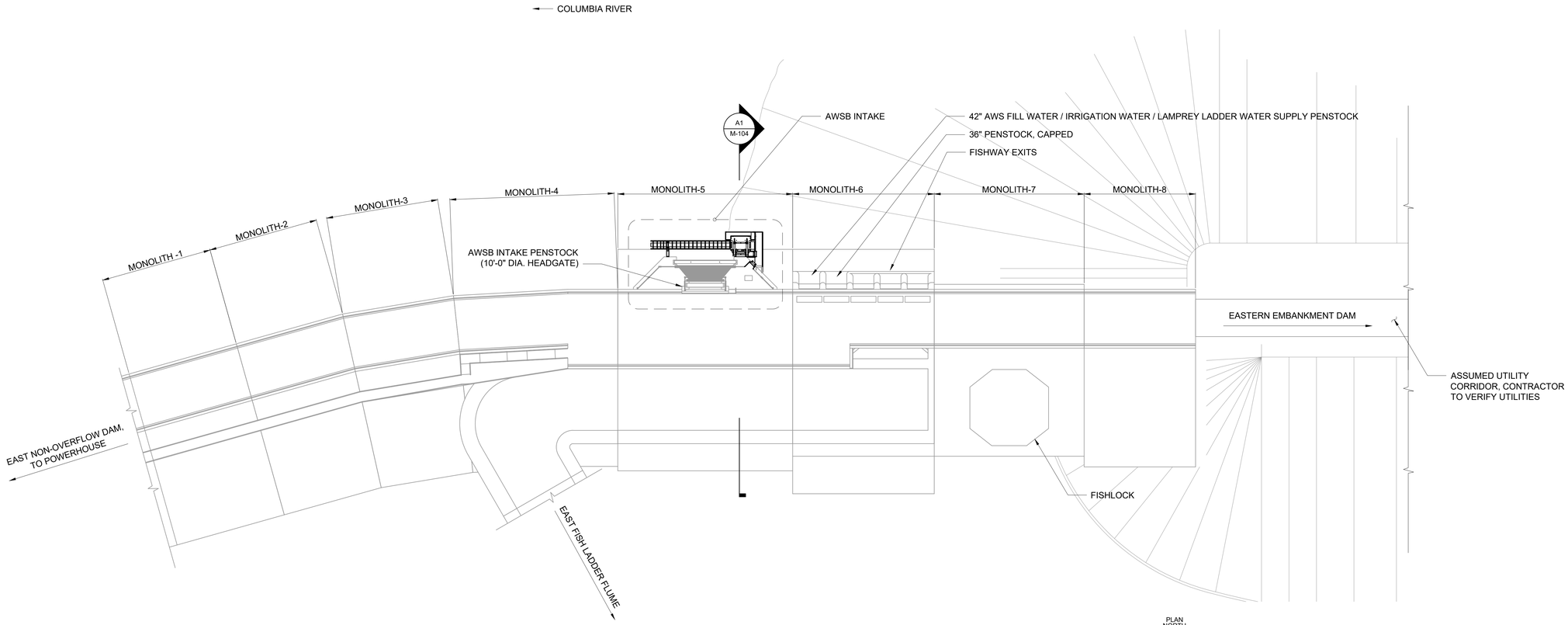
DESIGNED BY: R. McEWAN	ISSUE DATE:
DRAWN BY: R. McEWAN	CHECKED BY: E. CLOUGH
SUBMITTED BY: E. CLOUGH	SOLICITATION NO.:
PLOT SCALE: 1:1	CONTRACT NO.:
PLOT DATE: 03/07/25	FILE NUMBER: 1
SIZE: F SIZE	FILE NAME: W91278_C-101.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

GENERAL PLAN - ISO VIEW

SHEET IDENTIFICATION
C-101

File Last Saved By: RTOLENTINO



B1 PLAN AT EL 185.00

SCALE: 1" = 20'-0"

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

DESIGNED BY: R. McEWAN	ISSUE DATE: MARCH 2025
DRAWN BY: TSAYRE	CHECKED BY: E. CLOUGH
SUBMITTED BY: E. CLOUGH	CONTRACT NO.:
PLOT SCALE: 1:1	PLOT DATE: 3/11/2025
SIZE: F SIZE	FILE NUMBER: 1
	FILE NAME: W9127N_C-102.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

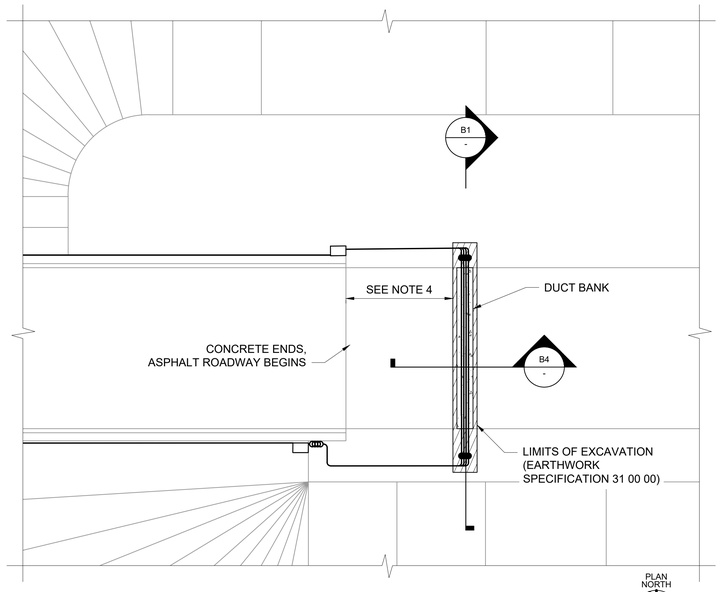
THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

GENERAL PLAN

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2025
EVAN CLOUGH

SHEET IDENTIFICATION
C-102

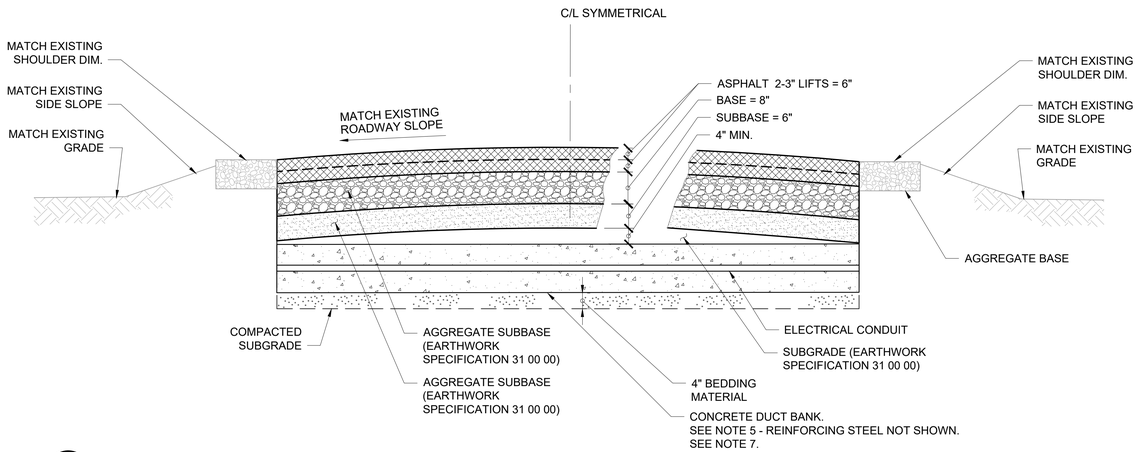
File Last Saved By: RTOLENTINO



D1 PLAN

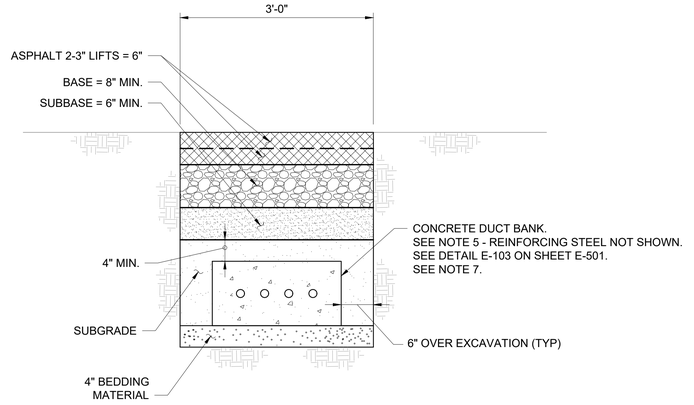
SCALE: 1/8" = 1'-0"

0 4' 8' 16'



B1 SECTION - ROAD

SCALE: NTS



B4 SECTION - DUCTBANK

SCALE: 1" = 1'-0"

0 6" 1' 2'

GENERAL SHEET NOTES

1. EXCAVATION SIDE SLOPES SHALL NOT BE FLATTER THAN 1V:1.5H UNLESS OTHERWISE DIRECTED BY ENGINEER. REFER TO SPEC 31 00 00 FOR EXCAVATION AND GRADING.
2. WHEN REPLACING ROADWAY MATERIAL, APPLY ASPHALT, BASE, SUBBASE AND SUBGRADE MATERIAL. THICKNESS AS DEPICTED IN SECTION B3. REFER TO SPEC 31 00 00 FOR GRADING.
3. WHEN REPLACING ROADWAY MATERIAL, REFER TO SPECS 31 00 00, 32 11 23, AND 32 12 16.16. THE FINAL CROSSING LOCATION TO BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
4. EXCAVATION LIMITS FOR CONDUIT CROSSING SHALL BE APPROXIMATELY 14' FROM END OF THE CONCRETE DAM. THE FINAL LOCATION SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER.
5. COORDINATE WORK ON THIS DRAWING WITH SHEETS E-101 AND E-501. DUCT BANK REINFORCING AND DIMENSIONS SHALL BE SIMILAR TO THAT SHOWN IN DETAIL E-103 ON SHEET E-501.
6. PRIOR TO EXCAVATION, AREAS TO BE EXCAVATED MUST LOCATE UTILITIES VIA GROUND PENETRATING RADAR (GPR) OR SOFT DIGS.
7. DUCT BANK CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE IN CONFORMANCE WITH SECTION 00440 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AS ISSUED BY THE OREGON DEPARTMENT OF TRANSPORTATION. CONCRETE TO BE RED-DYED CONCRETE. DEFORMED BAR REINFORCEMENT SHALL CONFORM TO ASTM A615 OR ASTM A706 FOR GRADE 60 REINFORCEMENT.

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2025
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec

2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: R. McEWAN
DRAWN BY: R. McEWAN
CHECKED BY: E. CLOUGH
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: 3/10/25
FILE NUMBER: -
CONTRACT NO.: -
SOLICITATION NO.: -
ISSUE DATE: -
SIZE: F SIZE
FILE NAME: W91279_C-501.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

CIVIL DETAILS

SHEET IDENTIFICATION
C-501

File Last Saved by RMNO

GENERAL STRUCTURAL NOTES

1. SCOPE

1.1 THESE GENERAL STRUCTURAL NOTES COVER STRUCTURAL FEATURES OF THE DALLES DAM AWSB DEBRIS MANAGEMENT PROJECT FOUND ON THE "S" SERIES DRAWINGS.

1.2 THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS.

DESIGN CODES

- EM 385-1-1: SAFETY AND OCCUPATIONAL HEALTH (SOH) REQUIREMENTS
- USACE. 2003. EM 1110-2-2400, STRUCTURAL DESIGN OF SPILLWAY AND OUTLET WORKS
- USACE. 2007. EM 1110-2-6053, ENGINEERING AND DESIGN - EARTHQUAKE DESIGN AND EVALUATION OF CONCRETE HYDRAULIC STRUCTURES
- USACE. 2016. ER 1110-2-1806, EARTHQUAKE DESIGN AND EVALUATION FOR CIVIL WORKS PROJECTS
- U.S. GEOLOGICAL SURVEY (USGS). 2014. NATIONAL SEISMIC HAZARD MAPS
- ACI 318-19, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2018
- OREGON STRUCTURAL SPECIALTY CODE, 2019
- AISC 360-22 - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- ASCE 7-22, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

FOR SIMPLICITY NOT ALL CODES ARE SHOWN, PLEASE REFER TO BASIS OF DESIGN (BOD).

DESIGN LOADS

LIVE LOADS

- WALKWAYS/ELEVATED PLATFORMS (UNIFORM LOAD): 100 PSF
- WALKWAYS/ELEVATED PLATFORMS (CONCENTRATED LOAD): 300 LBS
- HANDRAILS (LINE LOAD): 50 PSF
- HANDRAILS (CONCENTRATED LOAD): 200 LBS

DEAD LOADS

- SELF WEIGHT OF ALL STEEL STRUCTURE: 490 PCF
- REINFORCED CONCRETE: 150 PCF
- WATER: 62.4 PCF

WIND LOADS

- BASIC WIND SPEED: 105 MPH
- EXPOSURE: D
- EXPOSURE: OPEN
- RISK CATEGORY: III
- SURFACE ROUGHNESS CATEGORY: D
- CODE: ASCE 7-2022
- WIND DIRECTIONALITY FACTOR K_d: 0.85
- TOPOGRAPHIC FACTOR K_{zt}: 1.00
- GUST EFFECT FACTOR Ke: 1.0
- VELOCITY PRESSURE COEFFICIENT K_z: 1.43

SNOW LOADS

- GROUND SNOW LOADS: 51 PSF

SEISMIC LOADS

- LATITUDE = 45.615
- LONGITUDE = -121.138
- SITE CLASS: B/C
- SOURCE: USGS 2018 DATA
- CODE: ASCE 7-2022
- SEISMIC DESIGN CATEGORY: B
- SEISMIC IMPORTANCE FACTOR I_e: 1.25

SEISMIC DATA (MDE)

S_S = 0.46
S_1 = 0.17
S_{MS} = 0.42
S_{M1} = 0.17
S_{DS} = 0.28
S_{D1} = 0.11
T_L = 16
PGA_M = 0.2
V_{S30} = 760

2. STRUCTURAL STEEL

2.1 ALL W AND WT SHAPES SHALL CONFORM TO A992. PLATES AND MISC SHAPES SHALL CONFORM TO ASTM A-36.

2.2 STRUCTURAL STEEL HSS WILL CONFORM TO ASTM A500, GRADE C UNLESS NOTED OTHERWISE.

2.3 STAINLESS STEEL SHAPES SHOWN ON THE DRAWINGS WILL CONFORM TO AND TO ASTM A276 OR ASTM 240 TYPE 316L UNLESS NOTED OTHERWISE.

2.4 GALVANIZING OF STEEL WILL CONFORM TO ASTM A123, UNLESS NOTED OTHERWISE.

2.5 ALL HANDRAIL IS 1 1/2" SCH 40 PIPE. ALL HANDRAIL POSTS SHALL BE 1 1/2" SCH 80 PIPE. ALL HANDRAIL MATERIAL SHALL BE ASTM A53, TYPE S, GRADE B (GALVANIZED). HANDRAILS MUST INCLUDE TOE KICK PLATES AS IDENTIFIED IN S-505.

2.6 WALKWAYS, HANDRAILS, LADDERS AND ALL APPLICABLE CONNECTION DETAILS SHALL BE CONTRACTOR DESIGNED WHERE CALLED OUT ON THE DRAWINGS AND SHALL MEET ALL REQUIREMENTS SET FORTH IN THE LATEST EM 385-1-1 "SAFETY AND HEALTH REQUIREMENTS MANUAL". SUBMIT ALL CALCULATIONS AND DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF OREGON FOR GOVERNMENT REVIEW AS CALLED OUT IN THE SPECIFICATIONS.

3. DECKING

3.1 DECKING SHALL BE COMPRISED OF A CLOSE-MESH WELDED SERRATED BAR GRATING.

3.2 THE GRATING DIMENSIONS ARE SHOWN ON THE DRAWINGS AND SHOULD BE SUPPLIED AS 19W4 - 1 1/2" x 3/16", UNLESS OTHERWISE NOTED.

3.3 THE DESIGN AND RATING OF THE GRATING SHALL BE BASED ON ANSI/NAAMM MBG 534-19 AND FABRICATED FROM ASTM A1011CS TYPE B.

3.4 ALL GRATING TO BE SECURED WITH CLIPS AS SHOWN ON THE DRAWINGS.

3.5 ALL GRATING AND SUPPORT ANGLES TO BE GALVANIZED.

4. ANCHORING SYSTEMS

4.1 POST INSTALLED EPOXY ANCHORS
- SHALL MEET ASTM F1554, GRADE 55 AND BE GALVANIZED.

4.2 PLACEMENT GUIDELINES:
- FOLLOW MANUFACTURER'S WRITTEN INSTRUCTIONS.
- REFER TO SECTION 05 05 20 - POST INSTALLED ANCHORS.

4.3 CONTRACTOR MUST LOCATE EXISTING REINFORCEMENT AND ADJUST PLATE HOLES AND ANCHOR LOCATIONS TO AVOID REINFORCEMENT PRIOR TO FABRICATION.

5. **CONNECTIONS AND FASTENERS**

5.1 POST-INSTALLED ANCHORS:
- SHALL MEET ACI 355.4 FOR ADHESIVE ANCHORS.

5.2 WELDING REQUIREMENTS:
- WELDING ELECTRODES SHALL BE E70XX.
- WELDING SHALL CONFORM TO AWS CODES D1.1, D1.6 AND AWS D1.8 TO SPECIFICATION SECTION 05 05 23.16 AS APPLICABLE WELDING THAT IS NOT SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED EXCEPT BY WRITTEN PERMISSION FROM THE CONTRACTING OFFICER AND ENGINEER.
- FIELD WELDING WILL NOT BE PERMITTED UNLESS SHOWN ON DRAWINGS OR AUTHORIZED BY THE CONTRACTING OFFICER.
- ALL WELDS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. EVERY ACCESSIBLE JOINT NOT HAVING A DESIGNATED TYPE AND SIZE OF WELD SHALL BE SEAL WELDED PER AISC MINIMUM WELD SIZE.
- ALL SHARP EDGES SHALL BE GROUND TO A 1/16" RADIUS MIN. UNLESS NOTED OTHERWISE.
- GRIND ALL GROOVE WELDS FLUSH SUCH THAT THERE ARE NO BURRS, OFFSET OR ROUGH AREAS. GRIND ALL WELDS ON HANDRAILS SMOOTH SUCH THAT THERE ARE NO BURRS, OFFSETS OR ROUGH AREAS.

5.3 ALL CARBON STEEL BOLTS, NUTS, AND WASHERS USED FOR STRUCTURAL STEEL CONNECTIONS SHALL BE OF THE MATERIAL, GRADE, TYPE, CLASS, STYLE AND FINISH INDICATED BELOW UNLESS NOTED OTHERWISE:

a. BOLTS - ASTM F3125, GRADE A325, TYPE 1, GALVANIZED

b. NUTS - ASTM A563, GRADE DH, TYPE 1, GALVANIZED

c. WASHERS - ASTM F436, TYPE 1, GALVANIZED

6. FINISHING AND PROTECTION

6.1 STEEL PROTECTION:
- STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE PREPARED WITH SSPC SP6 FINISH AND HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A 123.

7. GROUTING

7.1 NON-SHRINK, NON-METALLIC TYPE WITH A COMPRESSIVE CUBE STRENGTH OF 5000 PSI. MUST PROVIDE 1 1/2" THK, 100% BEARING AFTER PLACEMENT

7.2 PROTECT FRESHLY PLACED GROUT FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. COMPLY WITH MANUFACTURER'S REQUIREMENTS FOR COLD-WEATHER AND HOT-WEATHER PROTECTION DURING CURING.

8. FALL PROTECTION

8.1 FALL PROTECTION TIE-OFF POINTS TO BE LOCATED AS SHOWN ON THE DRAWINGS AND AS DESCRIBED IN SECTION 05 05 20 - POST INSTALLED ANCHORS.

8.2 ALL ANCHORAGE POINTS MUST HAVE A MINIMUM CAPACITY OF 5000LBS PER OSHA 1926 AND BE COMPLIANT WITH EM 385-1-1.

8.3 ANCHORAGES ARE SPECIFIED AS POST-INSTALLED MECHANICAL CONCRETE ANCHORS PER ACI 355.2 AND THE MANUFACTURER'S RECOMMENDATIONS FOR THE FIXED PLATFORM.

8.4 MACHINERY PLATFORM ARE SPECIFIED AS WELDED OR BOLTED ANCHORS TO BE COORDINATED WITH THE MACHINERY DESIGN REQUIREMENTS.

8.5 ALL TIE-OFF POINTS MUST BE SWIVEL BODY D-RING STYLE, UNLESS OTHERWISE NOTED.

REGISTERED PROFESSIONAL ENGINEER
92642PE
OREGON
JULY 08, 2024
MATTHEW ERICH PERKINS

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: P. PENA-SERRANO
DRAWN BY: J. DAVEY
SUBMITTED BY: M. PERKINS
PLOT SCALE: 1:1
PLOT DATE: 8/7/2024
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: M. BARRERA
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W912TN_S-001.dwg

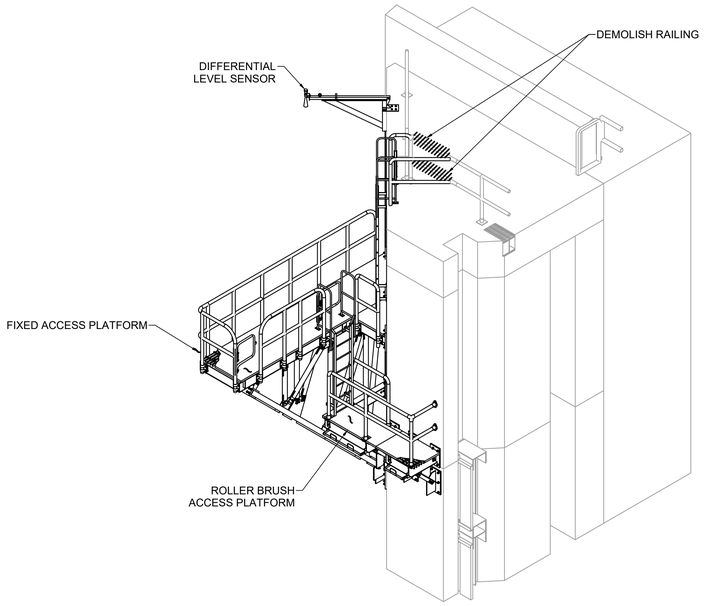
U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

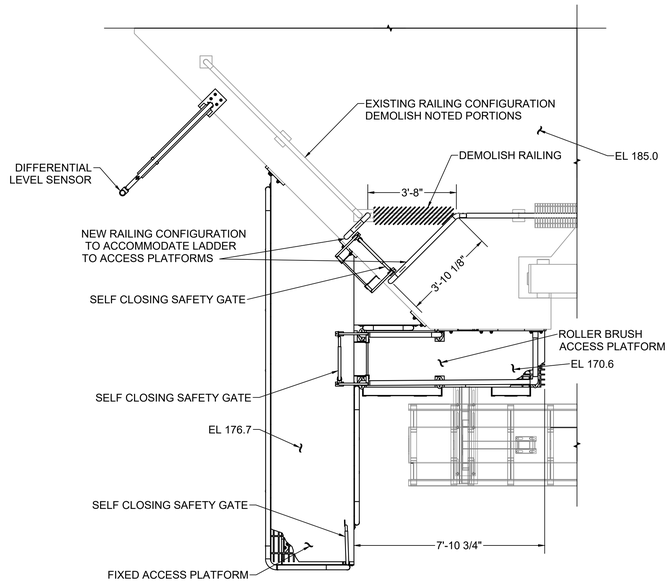
STRUCTURAL NOTES

SHEET IDENTIFICATION
S-001



C1 ISO VIEW - FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM

SCALE: NTS



C3 PLAN - FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM

SCALE:3/8" = 1'-0"

0 2' 4' 8'

REGISTERED PROFESSIONAL ENGINEER
88432PE
OREGON
JULY 28, 2021
MATTHEW ERICH PERKINS

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: P. PENA-SERRANO
DRAWN BY: A.WEBB
CHECKED BY: E. KAMREZA
SUBMITTED BY: M. PERKINS
PLOT SCALE: 1:1
PLOT DATE: 7/27/2021
SIZE: F SIZE
FILE NAME: W9127N_SD101.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

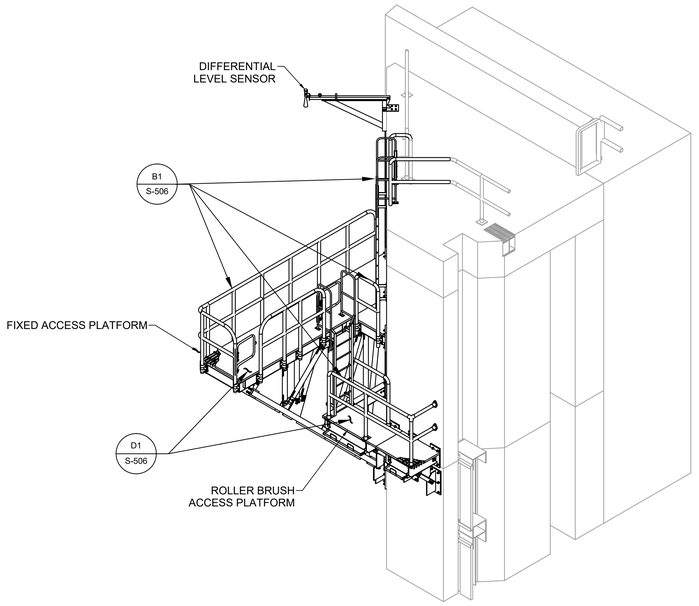
STRUCTURAL
ACCESS PLATFORM
DEMOLITION

SHEET IDENTIFICATION
SD101

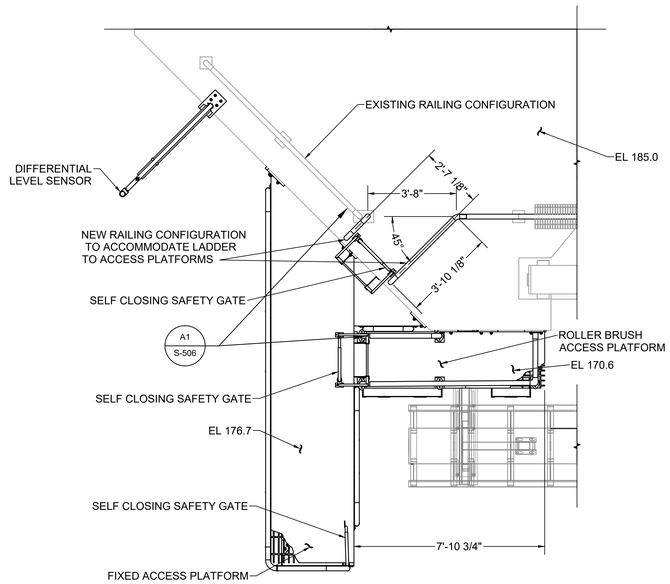
File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

1. ELEVATION NOTED AS THE TOP OF PLATFORM GRATING.

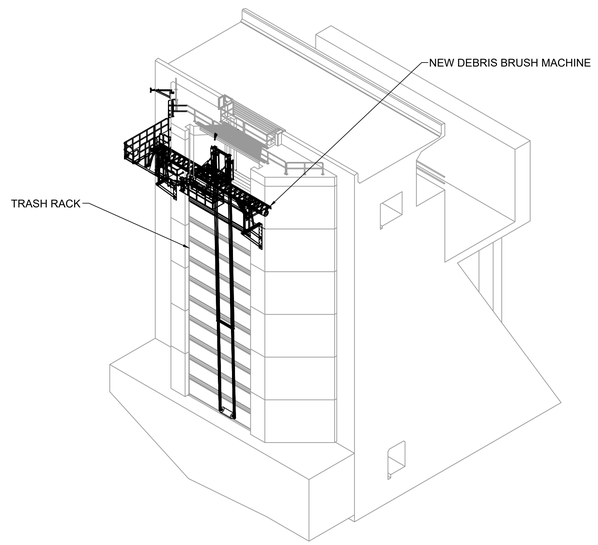


C1 ISO VIEW - FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM
SCALE: NTS

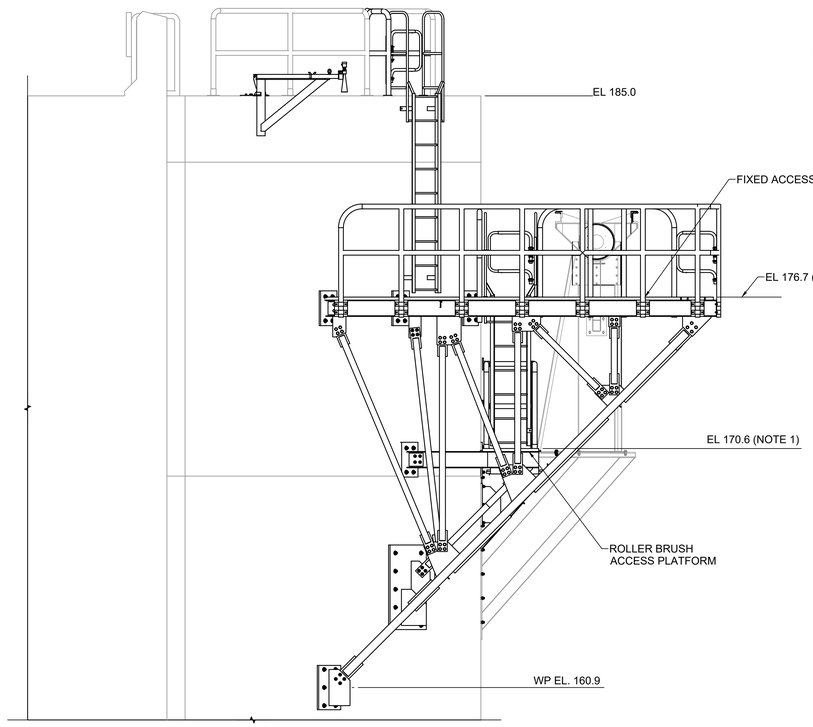


C3 PLAN - FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM
SCALE:3/8" = 1'-0"

0 2' 4' 8'

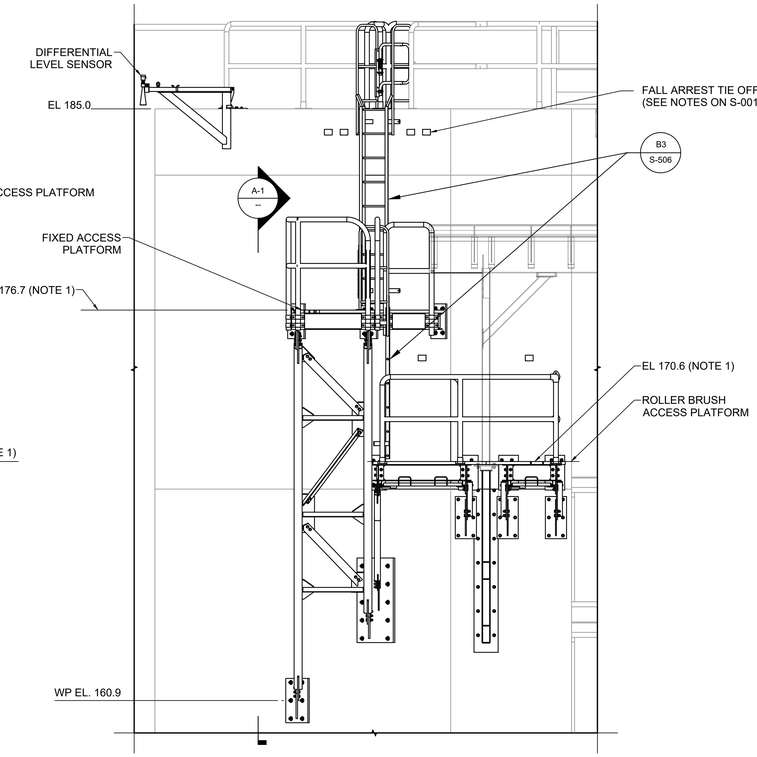


C5 ISO VIEW - TRASHRACK AND TRASHRAKE MACHINERY
SCALE: NTS



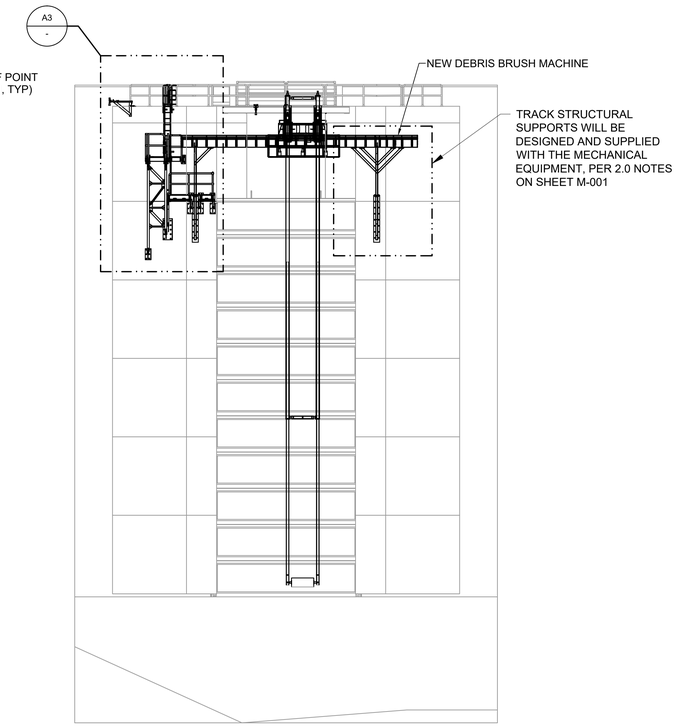
A1 ELEVATION - FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM
SCALE: 1/4" = 1'-0"

0 2' 4' 8'



A3 DETAIL - FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM
SCALE: 1/4" = 1'-0"

0 2' 4' 8'



A5 ELEVATION - TRASHRACK AND DEBRIS BRUSH MACHINE
SCALE: 3/32" = 1'-0"

0 8' 16' 32'

REGISTERED PROFESSIONAL ENGINEER
82842PE
OREGON
JULY 08, 2016
MATTHEW ERICH PERKINS

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

DESIGNED BY: P PENA-SERRANO	ISSUE DATE:
DRAWN BY: J CARPENTER	CHECKED BY: M BARRERA
SUBMITTED BY: M PERKINS	SOLICITATION NO.:
PLOT SCALE: 1:1	PLOT DATE: 6/27/2016
SIZE: F SIZE	CONTRACT NO.:
FILE NAME: W912TN_S-101.dwg	FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

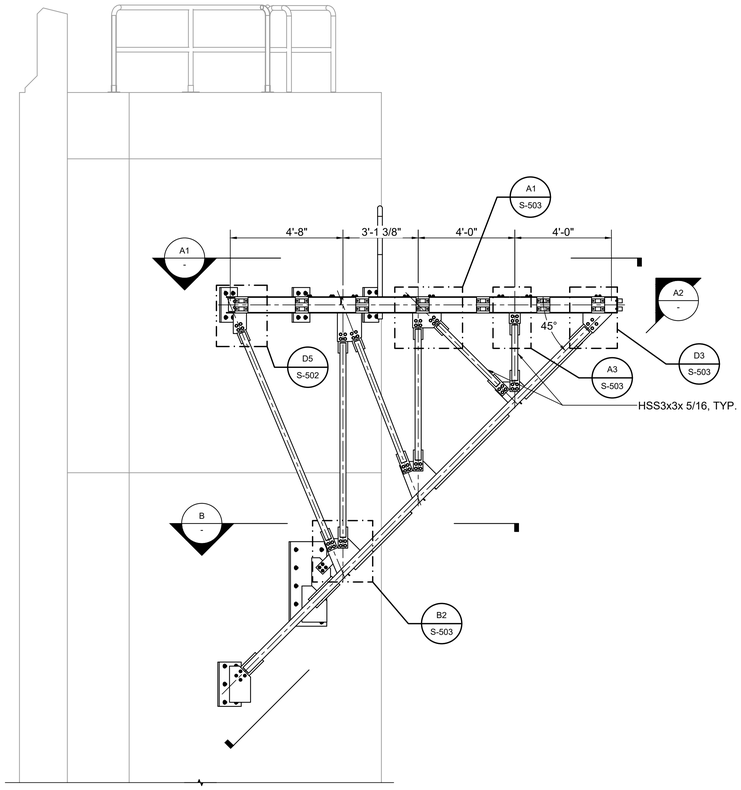
STRUCTURAL
ACCESS PLATFORM
GENERAL ARRANGEMENT

SHEET IDENTIFICATION
S-101

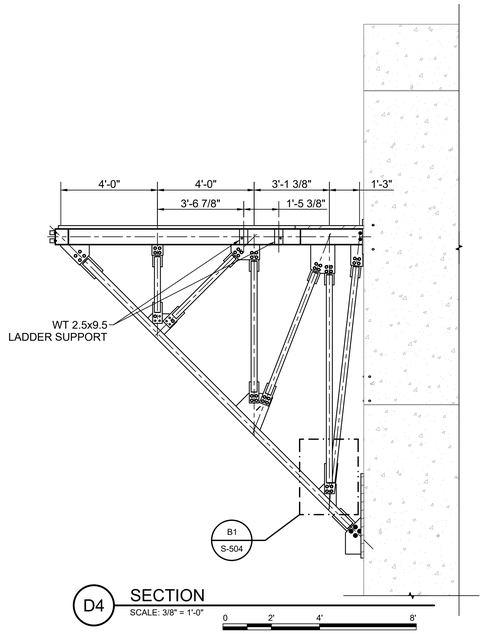
File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

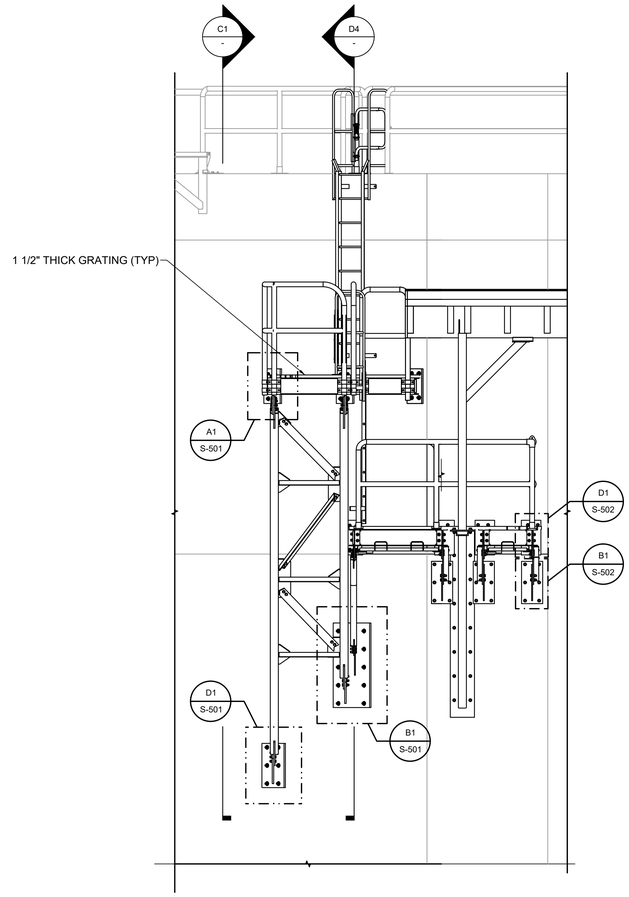
1. HANDRAIL AND GRATINGS NOT SHOWN FOR CLARITY.



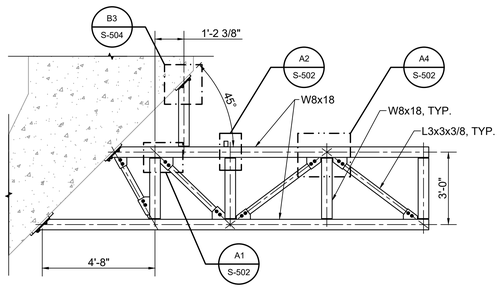
C1 SECTION - FIXED ACCESS PLATFORM
SCALE: 3/8" = 1'-0"
0 2' 4' 8'



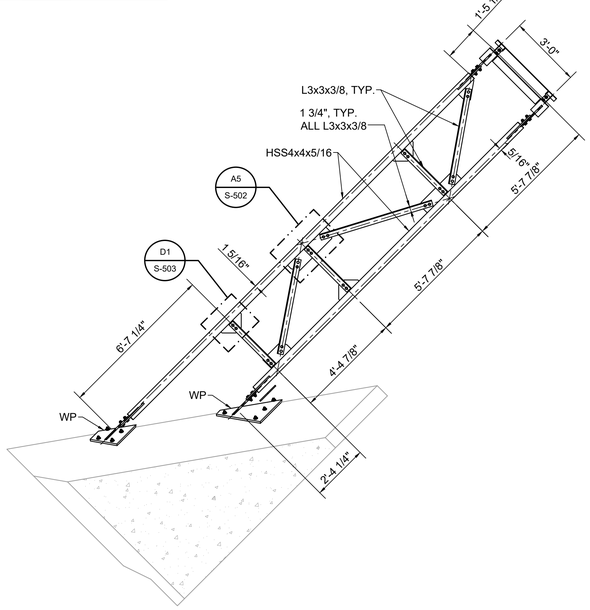
D4 SECTION
SCALE: 3/8" = 1'-0"
0 2' 4' 8'



A4 ELEVATION - FIXED ACCESS PLATFORM
SCALE: 3/8" = 1'-0"
0 2' 4' 8'



A1 SECTION
SCALE: 3/8" = 1'-0"
0 2' 4' 8'



A2 DETAIL
SCALE: 3/8" = 1'-0"
0 2' 4' 8'

REGISTERED PROFESSIONAL ENGINEER
92642PE
OREGON
NOV. 08, 2024
MATTHEW ERICH PERKINS

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
POWELL DISTRICT OFFICE
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

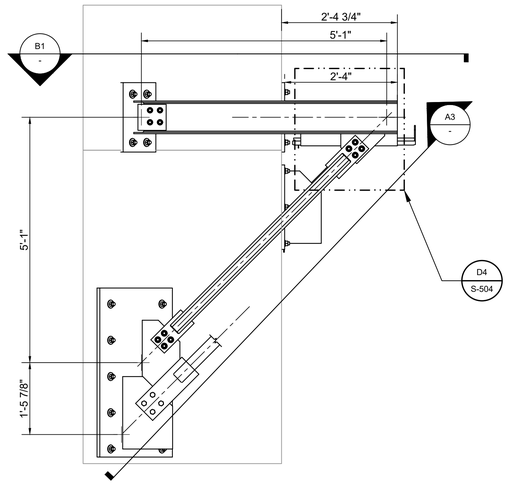
Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: J. PEÑA-SERRANO
DRAWN BY: E. CORTES
CHECKED BY: R. BARRERA
SUBMITTED BY: M. PERKINS
SOLICITATION NO.:
CONTRACT NO.:
PLOT SCALE: 1:1
PLOT DATE: 6/27/2025
FILE NUMBER:
SIZE: F SIZE
FILE NAME: W9127N_S-102.dwg
ISSUE DATE:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

STRUCTURAL
UPPER FIXED ACCESS PLATFORM

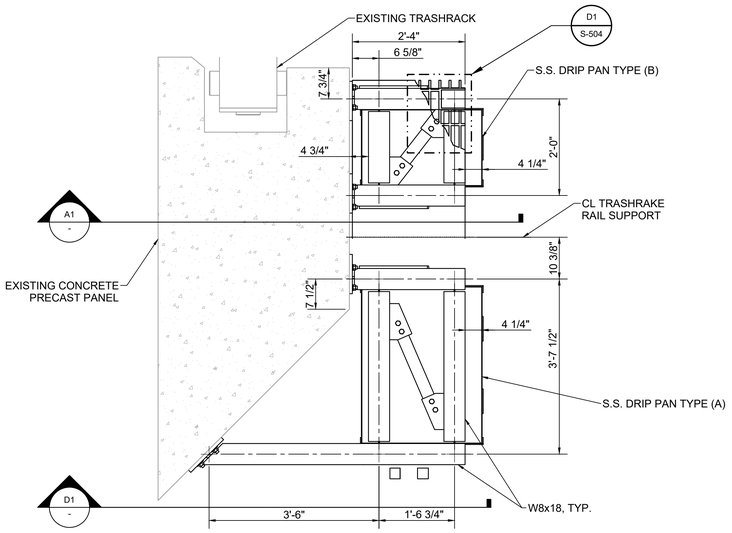
SHEET IDENTIFICATION
S-102



D1 SECTION - ROLLER BRUSH ACCESS PLATFORM

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

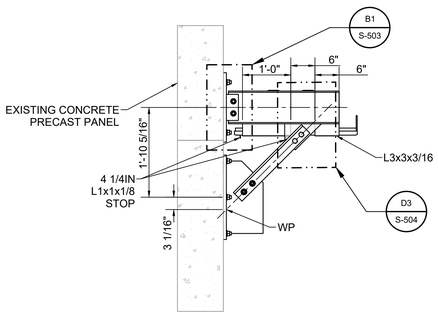
0 1' 2' 4'



B1 PLAN

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

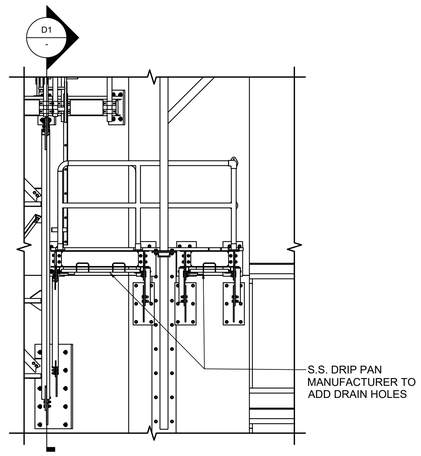
0 1' 2' 4'



A1 SECTION

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

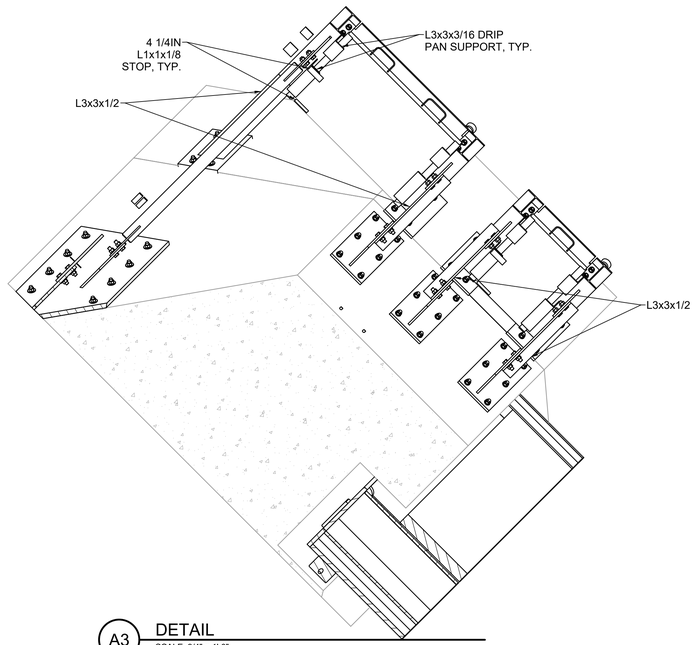
0 1' 2' 4'



C3 DETAIL

SCALE: 3/8" = 1'-0"

0 2' 4' 8'



A3 DETAIL

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

0 1' 2' 4'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: P. PEÑA-SERRANO	ISSUE DATE:
DRAWN BY: P. PEÑA-SERRANO	CHECKED BY: M. BARRERA
SUBMITTED BY: M. PERKINS	PLOT DATE: 8/27/2025
PLOT SCALE: 1:1	FILE NUMBER:
SIZE: F SIZE	FILE NAME: W912PN_S-103.dwg
SOLICITATION NO.:	
CONTRACT NO.:	

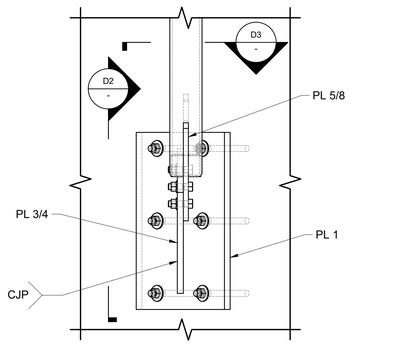
THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

STRUCTURAL
LOWER FIXED ACCESS PLATFORM

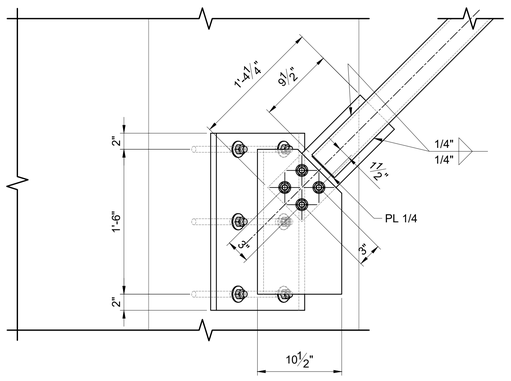
REGISTERED PROFESSIONAL ENGINEER
89342PE
OREGON
OCT. 08, 2025
MATTHEW ERICH PERKINS

SHEET IDENTIFICATION
S-103

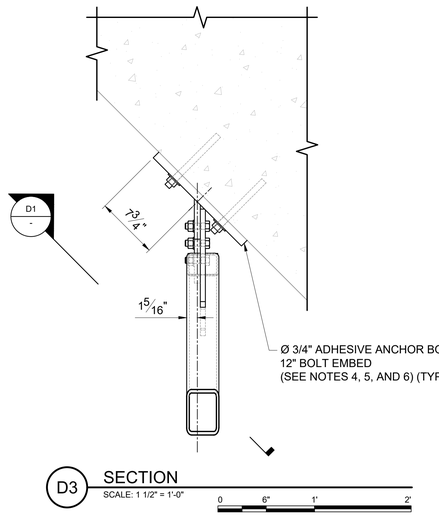
File Last Saved By: RTOLENTINO



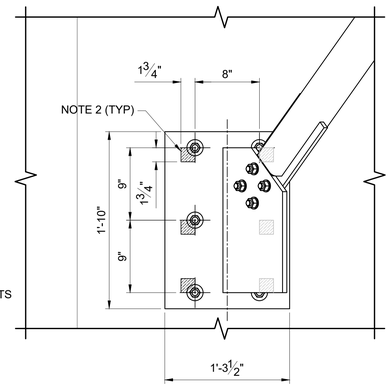
A4 S-102 **D1** DETAIL
SCALE: 1 1/2" = 1'-0"



D2 SECTION
SCALE: 1 1/2" = 1'-0"



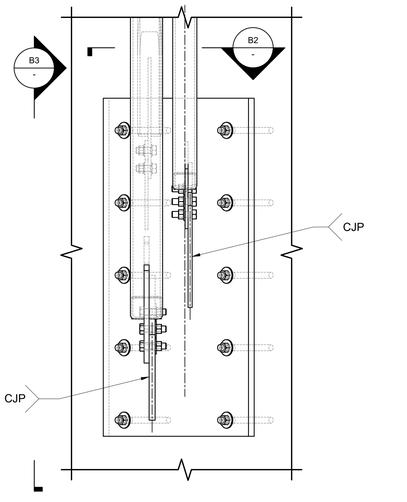
D3 SECTION
SCALE: 1 1/2" = 1'-0"



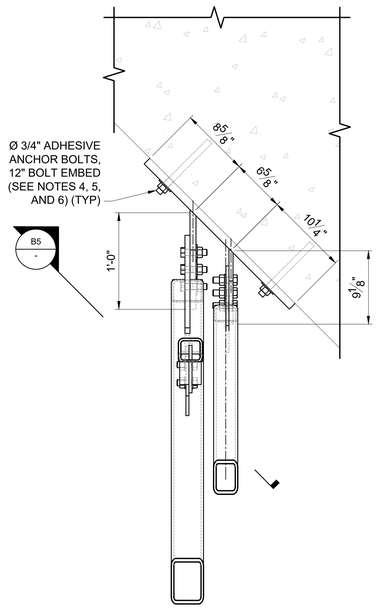
D4 SECTION
SCALE: 1 1/2" = 1'-0"

GENERAL SHEET NOTES

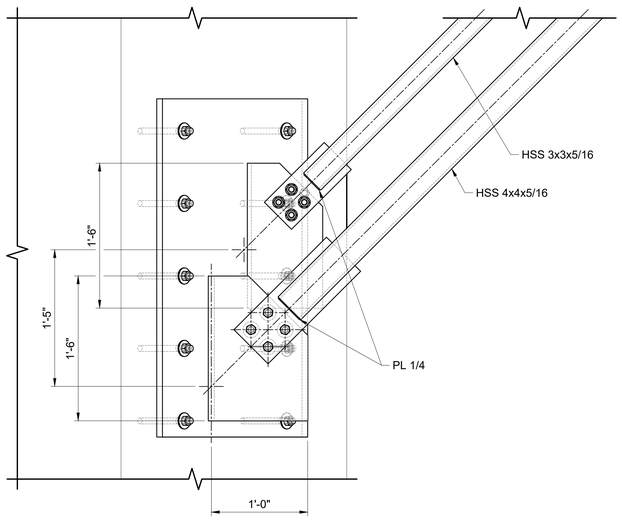
1. CONTRACTOR SHALL SCAN CONCRETE WITH GROUND PENETRATING RADAR (GPR) TO DEFINE THE LOCATION OF EACH DRILLED HOLE PRIOR TO DRILLING IN ORDER TO AVOID DRILLING INTO EXISTING REBAR.
2. ANCHOR BOLT LOCATIONS SHOWN IN DRAWINGS ARE IDEAL. BOLTS MAY BE RELOCATED ONLY WITHIN THE SHOWN ENCLOSED AREAS. CONTRACTOR SHALL PREPARE THE HOLES FOR ANCHOR HATCHED BOLTS IN BASE PLATES AFTER GPR SCAN IS PERFORMED AND ANCHOR BOLT LOCATION IS IDENTIFIED.
3. FOR 1 IN. THICK BASE PLATES CONNECTING FIXED ACCESS PLATFORM W8X18 MEMBERS TO CONCRETE, HORIZONTAL DISTANCE BETWEEN ANCHOR BOLTS SHALL BE BETWEEN 5 IN. AND 6.75 IN. VERTICAL DISTANCE BETWEEN ANCHOR BOLTS SHALL BE BETWEEN 10.75 IN. AND 12.5 IN.
4. ANCHOR BOLTS IN CONCRETE SHALL HAVE 12 IN. EMBEDMENT FOR ALL BASE PLATES LOCATED ON THE 45° INCLINED SURFACE AND 8 IN. EMBEDMENT FOR ALL BASE PLATES LOCATED ON THE FRONT CONCRETE SURFACE.
5. ANCHOR BOLT HOLES IN CONCRETE SHALL BE DRILLED TO Ø7/8 IN. AND FILLED WITH ADHESIVE ANCHOR AS DEFINED IN SPECIFICATION 05 05 20.
6. ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED STEEL, AND SHALL CONFORM TO ASTM F1554, GRADE 55.



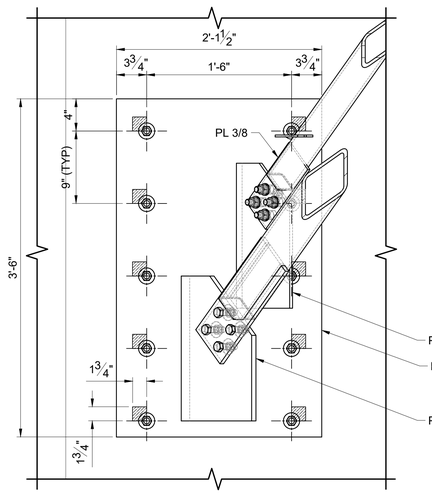
A4 S-102 **B1** DETAIL
SCALE: 1 1/2" = 1'-0"



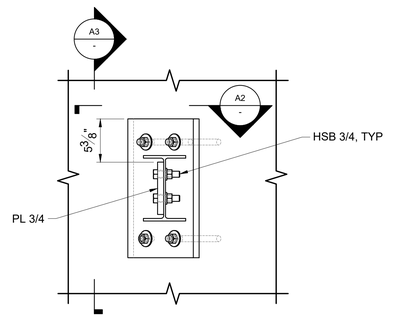
B2 SECTION
SCALE: 1 1/2" = 1'-0"



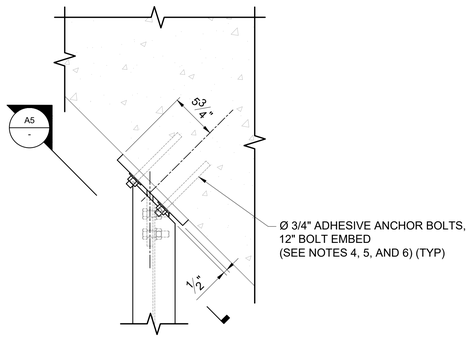
B3 SECTION
SCALE: 1 1/2" = 1'-0"



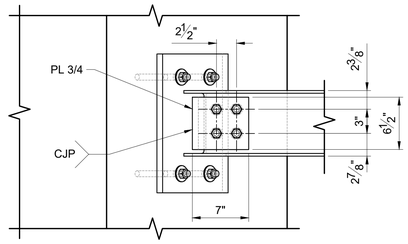
B5 SECTION
SCALE: 1 1/2" = 1'-0"



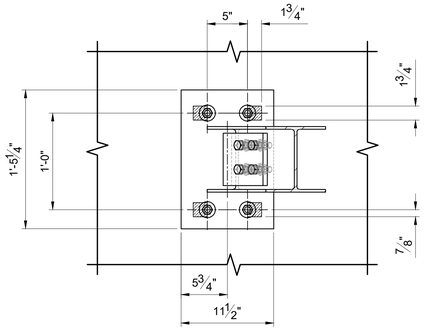
A4 S-102 **A1** DETAIL
SCALE: 1 1/2" = 1'-0"



A2 SECTION
SCALE: 1 1/2" = 1'-0"



A3 SECTION
SCALE: 1 1/2" = 1'-0"



A5 SECTION
SCALE: 1 1/2" = 1'-0"

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.
-	-	-	-

DESIGNED BY: P. PEÑA-SERRANO
DRAWN BY: P. PEÑA-SERRANO
SUBMITTED BY: M. PERKINS
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
PLOT DATE: 11 SEP 2024
PLOT SCALE: 1:1
STYLE:
SIZE: F SIZE
FILE NAME: W912TN_S-501.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

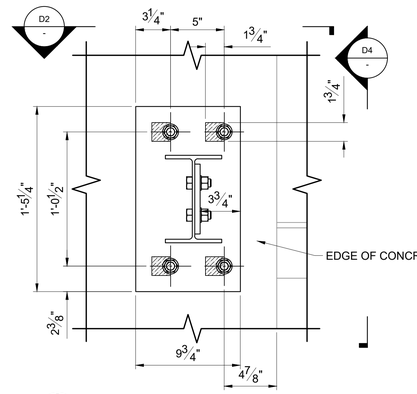
THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

STRUCTURAL
STRUCTURAL DETAILS
SHEET 1 OF 6

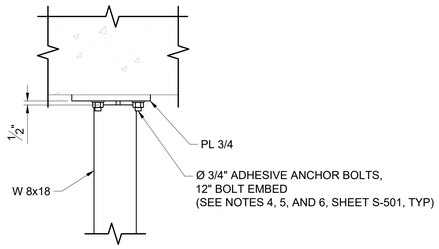
SHEET IDENTIFICATION
S-501

REGISTERED PROFESSIONAL ENGINEER
92042PE
OREGON
JULY 08, 2024
MATTHEW ERICH PERKINS

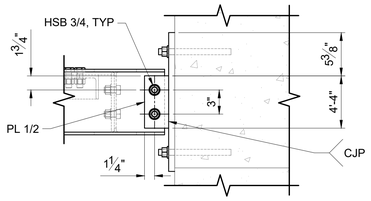
File Last Saved By: RTOLENTINO



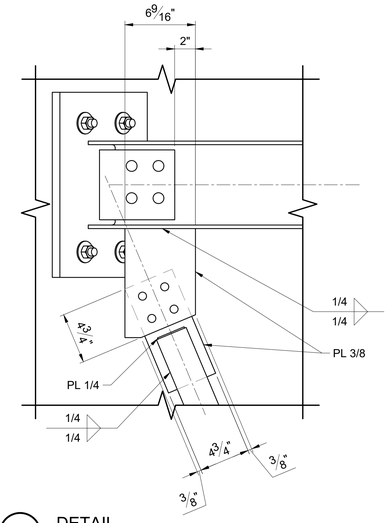
A4 S-102 **D1** DETAIL
SCALE: 2" = 1'-0"



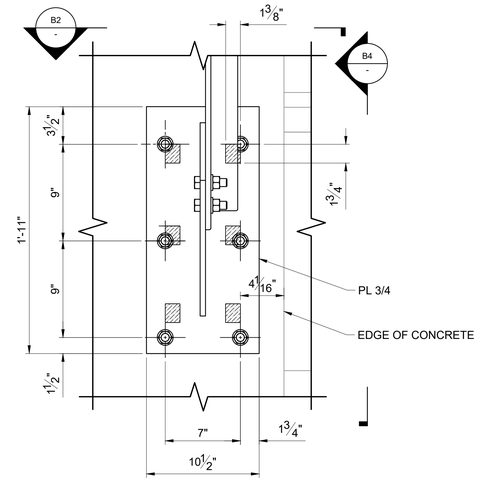
D2 SECTION
SCALE: 2" = 1'-0"



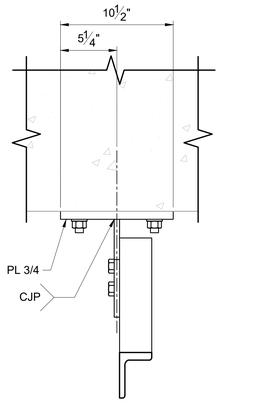
D4 SECTION
SCALE: 2" = 1'-0"



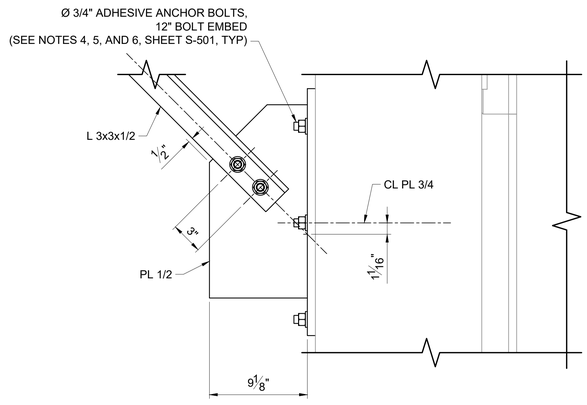
C1 S-102 **D5** DETAIL
SCALE: 2" = 1'-0"

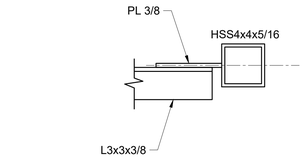


A4 S-102 **B1** DETAIL
SCALE: 2" = 1'-0"

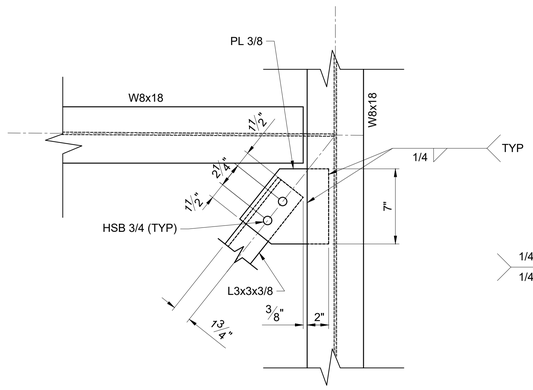


B2 SECTION
SCALE: 2" = 1'-0"

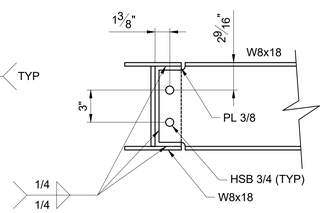




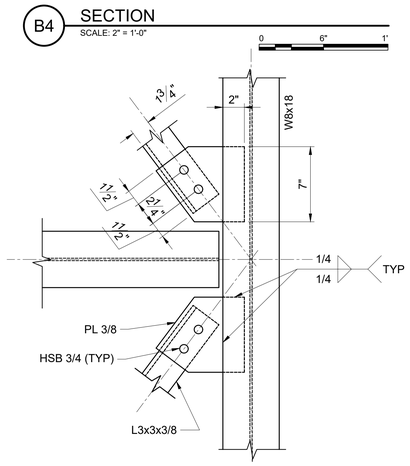
C5 SECTION
SCALE: 2" = 1'-0"



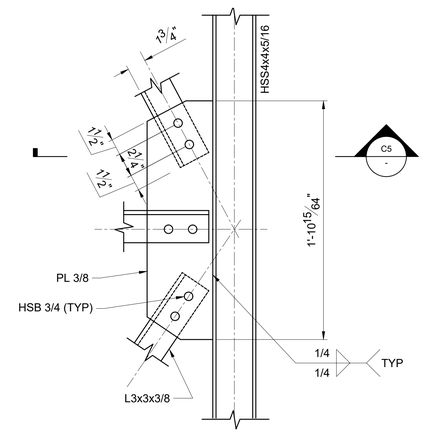
A1 S-102 **A1** DETAIL
SCALE: 2" = 1'-0"



A1 S-102 **A2** DETAIL
SCALE: 2" = 1'-0"



A1 S-102 **A4** DETAIL
SCALE: 2" = 1'-0"



A2 S-102 **A5** DETAIL
SCALE: 2" = 1'-0"

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
.	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

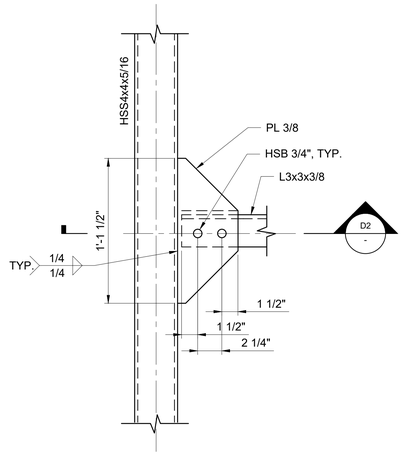
DESIGNED BY: P. PENA-SERRANO
DRAWN BY: P. PENA-SERRANO
CHECKED BY: M. BARRERA
SUBMITTED BY: M. PERKINS
PLOT SCALE: 1:1
PLOT STYLE: FULL
SIZE: F SIZE
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
PLOT DATE: 10/7/2025
FILE NAME: W912PN_S-501.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

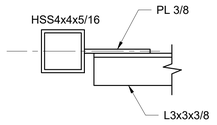
STRUCTURAL
STRUCTURAL DETAILS
SHEET 2 OF 6

SHEET IDENTIFICATION
S-502

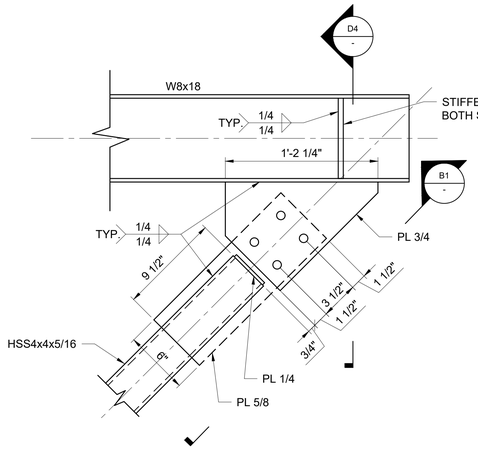
REGISTERED PROFESSIONAL ENGINEER
92842PE
OREGON
OCT. 08, 2025
MATTHEW ERICH PERKINS



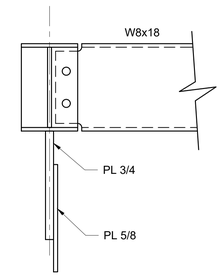
A2 S-102 **D1** DETAIL
SCALE: 2" = 1'-0"



D2 SECTION
SCALE: 2" = 1'-0"



C1 S-102 **D3** DETAIL
SCALE: 1 1/2" = 1'-0"

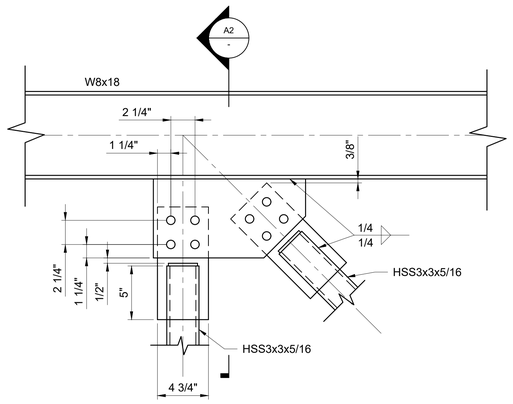


D4 SECTION
SCALE: 2" = 1'-0"

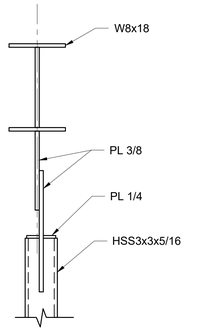
B1 SECTION
SCALE: 1 1/2" = 1'-0"

C1 S-102 **B2** DETAIL
SCALE: 2" = 1'-0"

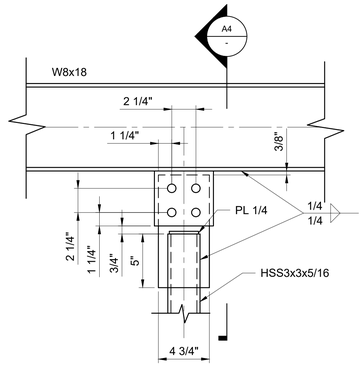
B3 SECTION
SCALE: 2" = 1'-0"



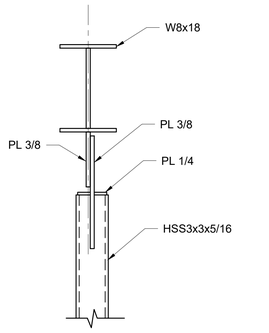
C1 S-102 **A1** DETAIL
SCALE: 2" = 1'-0"



A2 SECTION
SCALE: 2" = 1'-0"



C1 S-102 **A3** DETAIL
SCALE: 2" = 1'-0"



A4 SECTION
SCALE: 2" = 1'-0"

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.
-	-	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: P. PENA-SERRANO
DRAWN BY: P. CARTER
SUBMITTED BY: M. PERKINS
CHECKED BY: R. BARRERA
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
PLOT SCALE: 1:1
PLOT DATE: 6/7/2023
SIZE: F SIZE
FILE NUMBER:
FILE NAME: W91227N_S-501.dwg

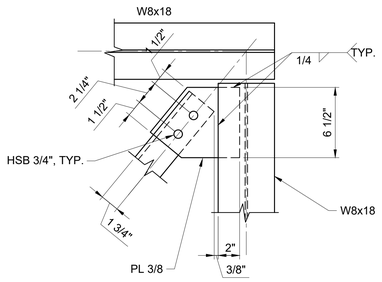
THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

STRUCTURAL
STRUCTURAL DETAILS
SHEET 3 OF 6

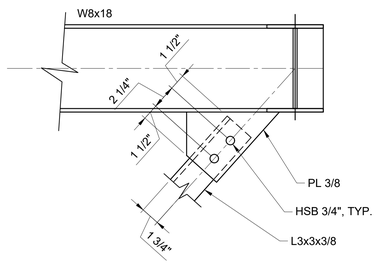
SHEET IDENTIFICATION
S-503

REGISTERED PROFESSIONAL ENGINEER
92642PE
OREGON
NOV. 08, 2022
MATTHEW ERICH PERKINS

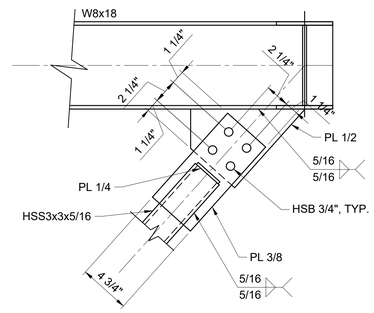
File Last Saved By:



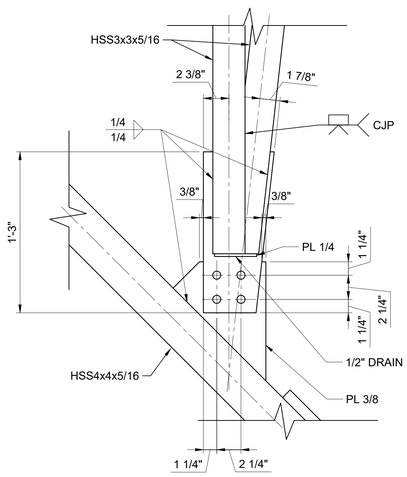
B1 S-103 **D1** DETAIL
SCALE: 2" = 1'-0"



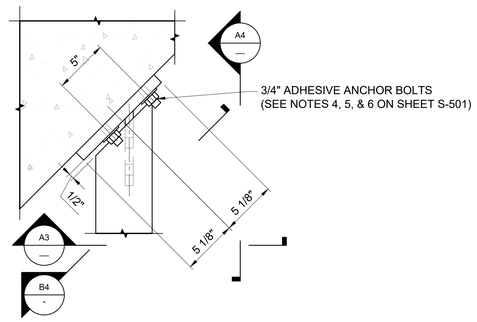
B1 S-103 **D3** DETAIL
SCALE: 2" = 1'-0"



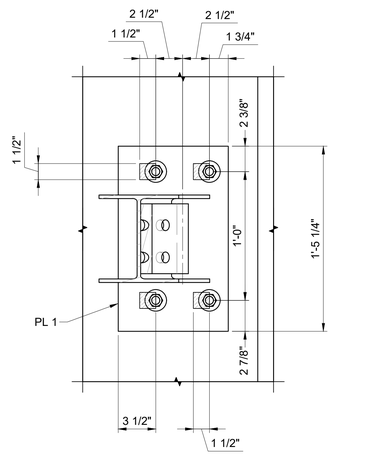
D1 S-103 **D4** DETAIL
SCALE: 2" = 1'-0"



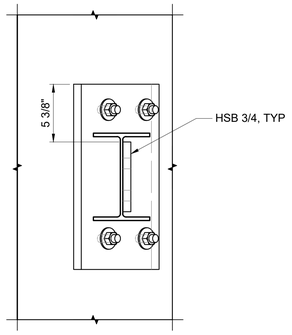
D4 S-102 **B1** DETAIL
SCALE: 2" = 1'-0"



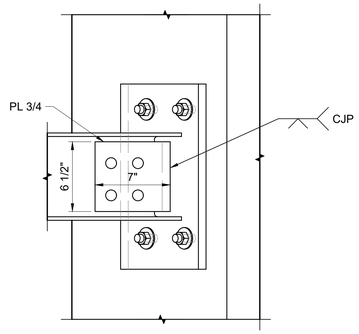
A1 S-102 **B3** DETAIL
SCALE: 2" = 1'-0"



B4 SECTION
SCALE: 2" = 1'-0"



A3 SECTION
SCALE: 2" = 1'-0"



A4 SECTION
SCALE: 2" = 1'-0"

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.
-	-	-	-

DESIGNED BY: P. PENA-SERRANO
DRAWN BY: P. PENA-SERRANO
SUBMITTED BY: M. PERKINS
PLOT SCALE: 1:1
PLOT DATE: AS NOTED
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: E. BARRERA
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W912N_S-501.dwg
SOLICITATION NO.:

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

STRUCTURAL
STRUCTURAL DETAILS
SHEET 4 OF 6

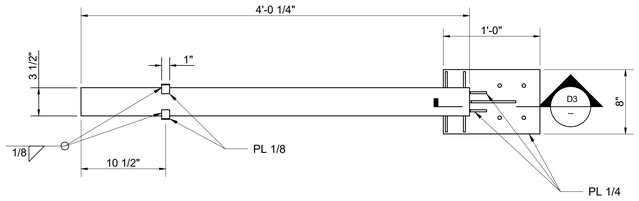
SHEET IDENTIFICATION
S-504

REGISTERED PROFESSIONAL ENGINEER
92642PE
OREGON
JULY 08, 2022
MATTHEW ERICH PERKINS

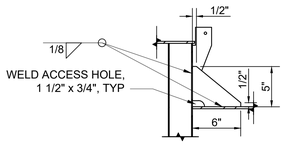
File Last Saved By:

GENERAL SHEET NOTES

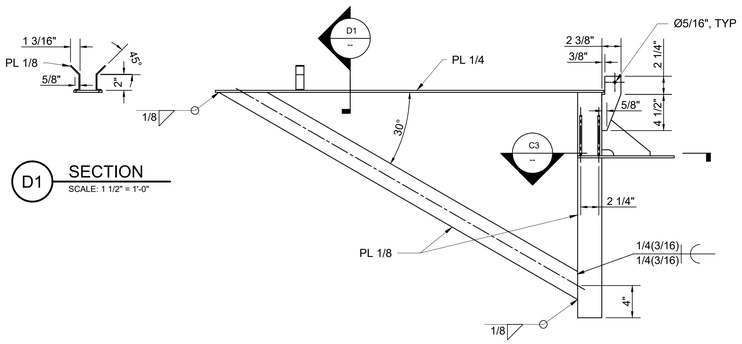
1. UHMW RUNNERS ARE TO BE BONDED TO STAINLESS STEEL DRIP PANS WITH ADHESIVE THAT IS RATED FOR:
   - BONDING UHMW TO STAINLESS STEEL
   - OUTDOOR USE



ELEVATION VIEW - RADAR LEVEL SENSOR BRACKET
SCALE: 1 1/2" = 1'-0"

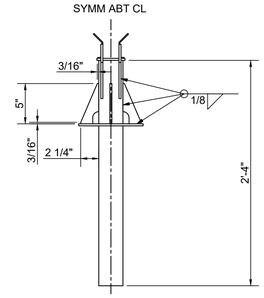


D3 SECTION
SCALE: 1 1/2" = 1'-0"

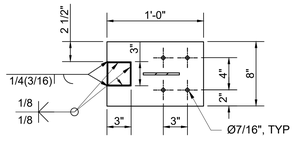


D1 SECTION
SCALE: 1 1/2" = 1'-0"

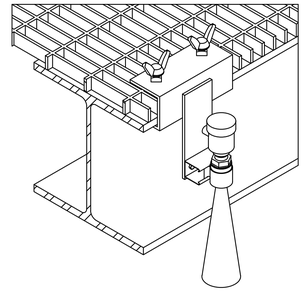
PLAN VIEW - RADAR LEVEL SENSOR BRACKET
SCALE: 1 1/2" = 1'-0"



SIDE VIEW - RADAR LEVEL SENSOR BRACKET
SCALE: 1 1/2" = 1'-0"

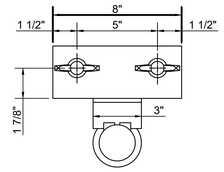


C3 SECTION
SCALE: 1 1/2" = 1'-0"

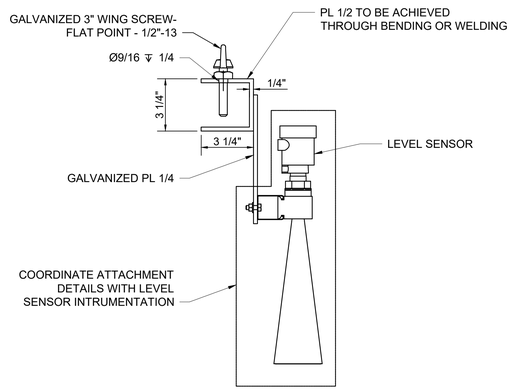


ISO VIEW - RADAR LEVEL SENSOR CLAMP
SCALE: NTS

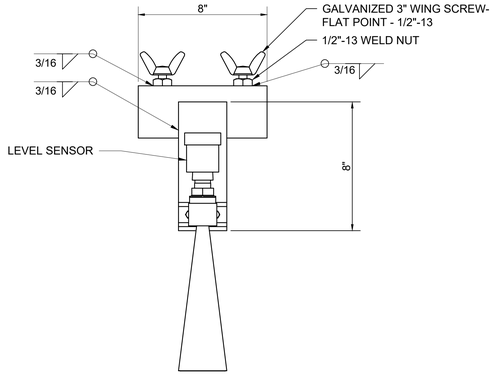
CONTRACTOR TO VERIFY THAT SCREW SPACING ALLOWS FOR CLAMPING THROUGH GRATING TO UPPER FLANGE OF BEAM



PLAN VIEW - RADAR LEVEL SENSOR CLAMP
SCALE: 3" = 1'-0"

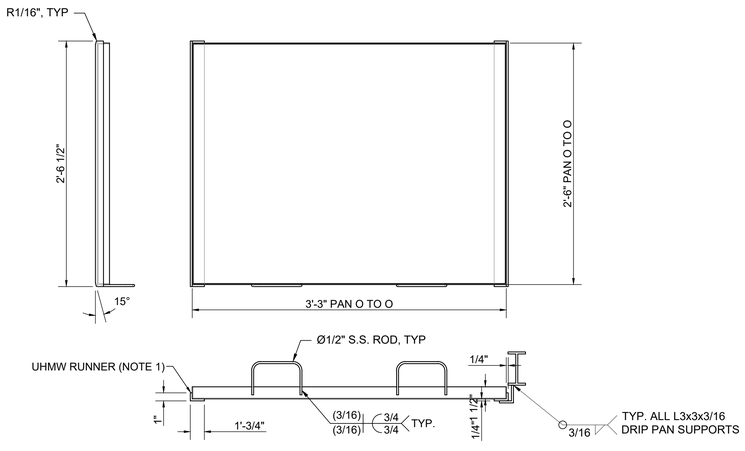


ELEVATION VIEW, SIDE - RADAR LEVEL SENSOR CLAMP
SCALE: 3" = 1'-0"



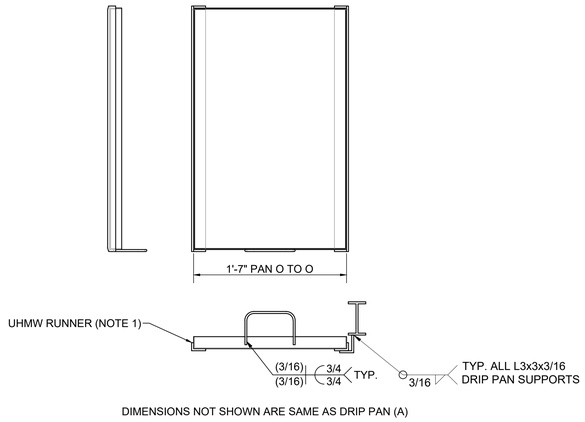
ELEVATION VIEW, FRONT - RADAR LEVEL SENSOR CLAMP
SCALE: 3" = 1'-0"

B1 FOREBAY (UPSTREAM) LEVEL SENSOR



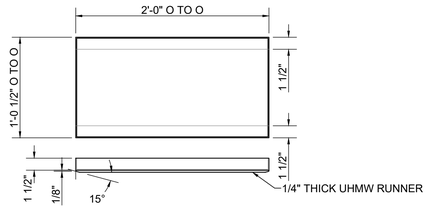
A1 ROLLER BRUSH ACCESS PLATFORM DRIP PAN (A)
SCALE: 1 1/2" = 1'-0"
MATERIAL: 18 GA 316 S.S. SHT

B3 INTAKE (DOWNSTREAM) LEVEL SENSOR



DIMENSIONS NOT SHOWN ARE SAME AS DRIP PAN (A)

A3 ROLLER BRUSH ACCESS PLATFORM DRIP PAN (B)
SCALE: 1 1/2" = 1'-0"
MATERIAL: 18 GA 316 S.S. SHT



A5 TROLLEY MAINTENANCE PLATFORM DRIP PAN
SCALE: 1 1/2" = 1'-0"
MATERIAL: 18 GA 316 S.S. SHT
NOTE: 4 PANS NEEDED FOR TROLLEY

REGISTERED PROFESSIONAL ENGINEER
92042PE
OREGON
NOV. 08, 2024
MATTHEW ERICH PERKINS

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.
-		-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

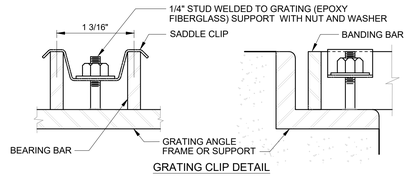
DESIGNED BY: J. PENA-SERRANO
DRAWN BY: E. CORTEZ
SUBMITTED BY: M. PERKINS
CHECKED BY: R. BARRERA
PLOT SCALE: 1:1
PLOT DATE: 10/29/24
SIZE: F SIZE
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W912TN_S-502.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

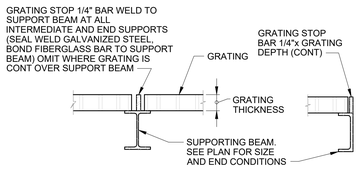
STRUCTURAL
STRUCTURAL DETAILS
SHEET 5 OF 6

SHEET IDENTIFICATION
S-505

File Last Saved By: RTOLENTINO



GRATING CLIP DETAIL



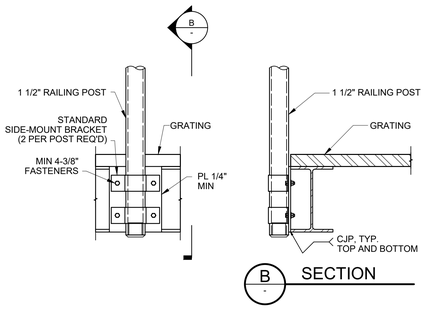
GRATING STOP DETAIL

NOTES:

1. ALL GRATING SHALL BE GALVANIZED STEEL.
2. GRATING DEPTH TO BE DETERMINED BY MANUFACTURER AND APPROVED BY ENGINEER (UNO).
3. ALL ENDS AND OPENINGS SHALL BE BANDED.
4. WEIGHT OF GRATING SECTION SHALL NOT EXCEED 80 LBS.
5. METAL BEARING BARS SHALL BE DEPTH Tx3/16" @1 3/16" OC CROSS BARS SHALL BE @ 4" OC.
6. PROVIDE A MINIMUM OF 4 CLIPS PER GRATING PANEL, APPROX 4" FROM PANEL CORNERS. MAXIMUM CLIP SPACING AT 36" OC.
7. ALL GALVANIZED MATERIAL TO BE GALVANIZED AFTER FABRICATION.

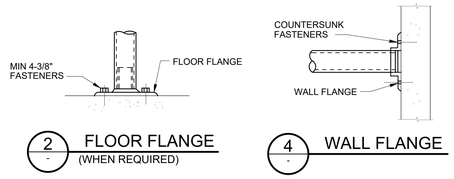
C1 S-101 **D1** GRATING

SCALE: NTS



B SECTION

1 SIDE-MOUNTING BRACKET



2 FLOOR FLANGE (WHEN REQUIRED)

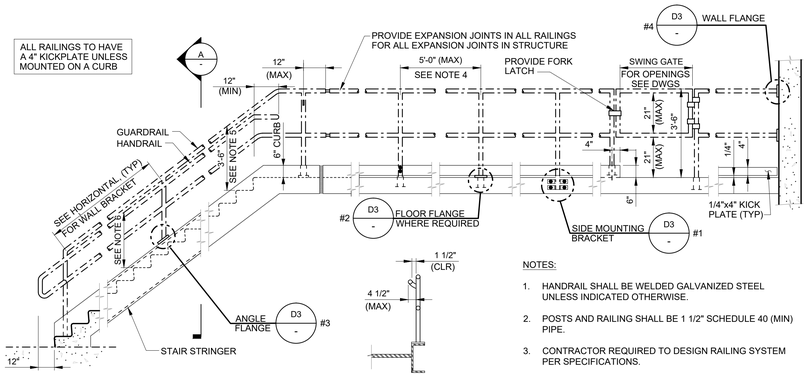
4 WALL FLANGE

3 ANGLED FLANGE

NOTES:

1. IF FASTENING INTO CONCRETE, FASTENERS SHALL BE ADHESIVE ANCHORS.
2. CONTRACTOR REQUIRED TO DESIGN RAILING SYSTEM PER SPECIFICATIONS.

D3 SCALE: NTS **RAILING, GUARDRAIL AND HANDRAIL SUPPORT**



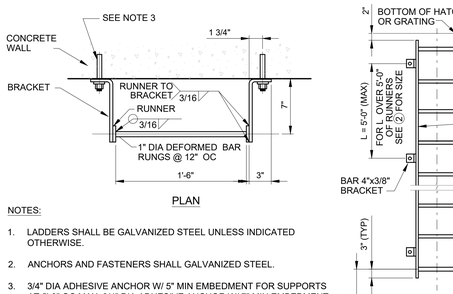
A SECTION

NOTES:

1. HANDRAIL SHALL BE WELDED GALVANIZED STEEL UNLESS INDICATED OTHERWISE.
2. POSTS AND RAILING SHALL BE 1 1/2" SCHEDULE 40 (MIN) PIPE.
3. CONTRACTOR REQUIRED TO DESIGN RAILING SYSTEM PER SPECIFICATIONS.
4. DIMENSION IS FROM THE LEADING EDGE OF TREAD.
5. 2'-10" TO 3'-2" ABOVE STAIR TREAD NOSING.

B1 **TWO-RAIL RAILING**

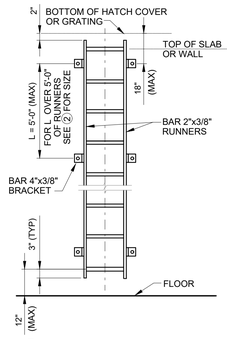
SCALE: NTS



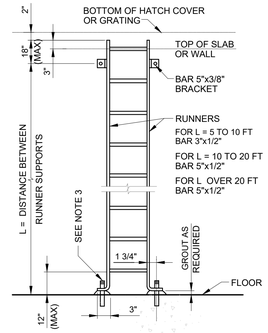
PLAN

NOTES:

1. LADDERS SHALL BE GALVANIZED STEEL UNLESS INDICATED OTHERWISE.
2. ANCHORS AND FASTENERS SHALL GALVANIZED STEEL.
3. 3/4" DIA ADHESIVE ANCHOR W/ 5" MIN EMBEDMENT FOR SUPPORTS AT 5'-0" OC MAX. 3/4" DIA ADHESIVE ANCHOR W/ 7" MIN EMBEDMENT FOR SUPPORTS OVER 5'-0" OC.
4. LADDERS SHALL MEET THE REQUIREMENTS OF OSHA AND ANSI.
5. LADDER MEMBERS AND DETAILS SHALL BE SIZED BY THE MANUFACTURER PER THE SPECIFICATIONS.
6. LADDERS USING THIS DETAIL ARE DESIGNED FOR THE FOLLOWING LIVE LOADS AND NO OTHER LOADS HAVE BEEN CONSIDERED:
   a. OSHA SECTION 1926.1053(a)
   b. ASCE 7-16 SECTION 4.5.4



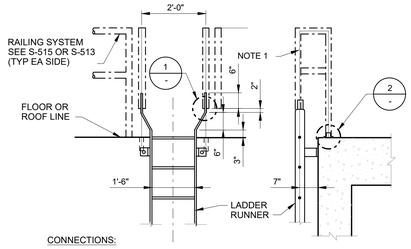
1 STANDARD LADDER WITH RUNNER SUPPORTS AT 5'-0" OC MAX



2 LADDER WITH RUNNER SUPPORTS OVER 5'-0" OC

A3 S-101 **B3** FIXED - NON FALL ARREST LADDER

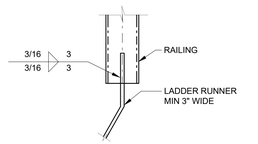
SCALE: NTS



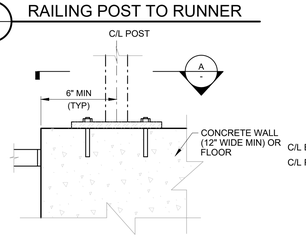
CONNECTIONS:

NOTES:

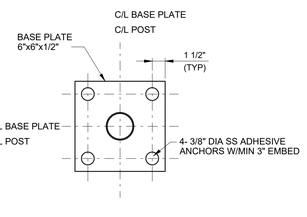
1. VERTICAL POSTS, TOP AND INTERMEDIATE RAIL TO BE 1 1/2" DIA SCHEDULE 40 PIPE. POST AND RAIL MATERIAL SHALL MATCH LADDER MATERIAL.
2. USE MIN 3" WIDE LADDER RUNNER WITH WALK - THRU EXTENSIONS.



1 RAILING POST TO RUNNER



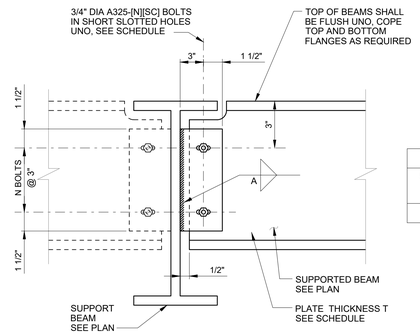
2 RAILING POST TO WALL OR SLAB



A SECTION

C3 S-101 **A1** FIXED LADDER WITH WALK-THRU

SCALE: NTS



BEAM TO BEAM CONNECTION SCHEDULE				
SUPPORTED BEAM SIZE	NO OF BOLTS N	PLATE THICKNESS T	WELD SIZE A	COMMENTS
W8 OR C8	2	1/4	3/16	-

A3 **BEAM TO BEAM CONNECTION**

SCALE: NTS

(PLATE CONNECTION)

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.

ISSUE DATE:

DESIGNED BY: J. PENA-SERRANO
DRAWN BY: J. CORTEZ
SUBMITTED BY: M. PERKINS
CHECKED BY: R. BARRERA
PLOT DATE: 6/7/2023
PLOT SCALE: As Noted
SIZE: F SIZE
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W9127N_S-503.dwg

U.S. ARMY CORPS OF ENGINEERS NORTHWESTERN DIVISION 333 SW FIRST AVENUE PORTLAND, OR 97204-3440

Baird. Stantec

2810 CROSSROADS DR, SUITE 1200 MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

STRUCTURAL
STRUCTURAL DETAIL
SHEET 6 OF 6

SHEET IDENTIFICATION
S-506

REGISTERED PROFESSIONAL ENGINEER
92642PE
OREGON
NOV. 08, 2022
MATTHEW ERICH PERKINS

GENERAL MECHANICAL NOTES:

1. SCOPE

1.1 THESE GENERAL STRUCTURAL NOTES APPLY TO THE "M" SERIES DRAWINGS.

1.2 THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS.

2. DESIGN

2.1 THE DEBRIS BRUSH (TRASHRAKE) MACHINERY, STRUCTURE, ANCHORAGES, CONTROLS, AND ASSOCIATED COMPONENTS MUST BE SUPPLIED BY THE CONTRACTOR (SUPPLIER) IN ACCORDANCE WITH SPECIFICATION SECTION 35 01 41 00.10 AND CONTROLLING DIMENSIONS/LAYOUT AS SHOWN IN THE FOLLOWING M-SHEETS.

2.2 DEBRIS BRUSH (TRASHRAKE) EQUIPMENT AND ALL APPLICABLE CONNECTION DETAILS SHALL BE CONTRACTOR DESIGNED WHERE CALLED OUT ON THE DRAWINGS AND SHALL MEET ALL REQUIREMENTS SET FORTH IN THE LATEST EM 385-1-1 "SAFETY AND HEALTH REQUIREMENTS MANUAL". SUBMIT ALL CALCULATIONS AND DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF OREGON.

2.3 DESIGN BRIEF - THE BRUSHING MACHINE WILL BE BASED ON A POWERED ROTATING BRUSH HEAD TO DISLODGE IMPINGED DEBRIS ON THE AWSB INTAKE TRASHRACKS WITH THE BRUSH POSITIONED AND POWERED USING TELESCOPING MECHANICAL BOOM ARM AFFIXED TO A TROLLEY CHASSIS TRAVELING ON A DECK FACE MOUNTED RAIL BEAM. THE BRUSH IS POSITIONED AND INDEXED OVER THE ENTIRE RACK SURFACE USING THE HYDRAULICALLY OR ELECTRICALLY POWERED TELESCOPING, SLEWING, AND TRAVELING MOTIONS OF THE EQUIPMENT.

2.4 DESIGN CRITERIA - THE MECHANICAL DESIGN OF THE EQUIPMENT WILL BE BASED ON A STANDARD PRODUCT LINE AND IS EXPECTED TO INCLUDE THE STRUCTURAL DESIGN OF THE EQUIPMENT COMPONENTS/FRAMES (REFER TO STRUCTURAL CRITERIA AND REQUIREMENTS OUTLINED ON SHEET S-001), MECHANICAL DESIGN OF ROTATIONAL COMPONENTS, DESIGN OF HYDRAULIC FLUID AND /OR ELECTRICAL POWER SYSTEMS, AND THE DESIGN OF THE MACHINE CONTROL SYSTEMS; ALL OF WHICH WILL BE DETAILED BY THE PRODUCT MANUFACTURER BASED ON THE FOLLOWING CRITERIA:

- EQUIPMENT LOCATION: EL 170.6; AWSB INTAKE FOREBAY
- MAXIMUM OPERATIONAL DEPTH: EL. 104.0
- TRASHRACK SIZE: 23-FT W (CLEAR) x 66-FT H
- TRASHRACK DETAILS: VERTICAL; 1-1/4" x 3/16" STEEL BAR GRATING
- NORMAL BRUSH FORCE: 100-LBS (MIN)
- BRUSH WIDTH: 5-FT (APPROX)
- BRUSH POWER: HYDRAULIC
- TELESCOPING BOOM: POWER HYDRAULIC
- TROLLEY TRAVEL POWER: ELECTRIC
- SPEEDS: REFER TO M-502 FOR OPERATIONAL DETAILS INCLUDING SPEEDS.

2.5 POWER - THE POWER WILL BE SUPPLIED BY A 480V (AC) 3-PHASE (UNGROUNDED DELTA) ELECTRICAL SUPPLY WHICH POWERS ELECTRIC MOTORS FOR THE ELECTRICAL MOTORS AND HYDRAULIC FLUID POWER SYSTEMS. HYDRAULIC SYSTEMS WILL UTILIZE BIODEGRADABLE ENVIRONMENTALLY ACCEPTABLE LUBRICANTS (EAL) IN ACCORDANCE WITH EAL PROVISIONS OF EM 1110-2-1424.

3. GENERAL:

3.1 CONTRACTOR'S WORK INCLUDES FABRICATION, SHOP ASSEMBLY, SHOP TESTING, AND DELIVERY TO THE SITE OF ONE (1) DOUBLE TELESCOPIC BOOM AUTOMATIC TRASHRAKE MACHINERY FOR TRASH REMOVAL FROM THE EXISTING INTAKE TRASHRACKS AND ALL ACCESSORIES REQUIRED FOR THE EQUIPMENT'S INTENDED FUNCTION.

3.2 GENERAL LAYOUT OF THE TRASHRAKE MACHINERY TO BE SUPPLIED IS TO BE AS SHOWN ON SHEETS M-101 THROUGH M-501 AND M-502. NOTES ON THIS SHEET AND OTHER SHEETS SHALL APPLY TO ALL MECHANICAL DRAWINGS.

3.3 ALL EQUIPMENT MUST BE SUITABLE FOR PERFORMING ITS INTENDED FUNCTIONS AS DESCRIBED IN THESE DRAWINGS AND SPECIFICATIONS. ALL EQUIPMENT SHALL BE OF WELDED CONSTRUCTION UNLESS OTHERWISE NOTED OR SPECIFIED.

3.4 THE CONTRACTOR MUST VERIFY ALL DIMENSIONS BEFORE START OF THE FABRICATION. CORRECT FIT OF PARTS SHALL BE CONTRACTOR'S RESPONSIBILITY.

3.5 ELEVATIONS ARE IN DECIMALS OF FEET AND DIMENSIONS ARE IN FEET AND INCHES.

4. MATERIALS:

4.1 REFER TO SHEET S-001 FOR DETAILS ON STRUCTURAL STEEL.

4.2 ALL STAINLESS STEEL MATERIAL ("SS") SHALL CONFORM TO ASTM A240 OR A276, TYPE 316, EXCEPT AS OTHERWISE NOTED OR SPECIFIED. ANY BRONZE COMPONENTS SHALL CONFORM TO ASTM B584. SELF-LUBRICATING BUSHINGS AND WASHERS/BACKING/SUBSTRATES SHALL BE OF SELF-LUBRICATING BRONZE MATERIAL, SUITABLE FOR POTABLE WATER ENVIRONMENT. CAST IRON OR ALUMINUM ARE ONLY PERMITTED FOR NON-STRUCTURAL MEMBERS.

4.3 BRUSHES WILL BE SUPPLIED IN NYLON, PROPYLENE AND NATURAL FIBERS IN TWO DIFFERENT STIFFNESSES AND BRISTLE LENGTHS.

5. THREADED FASTENERS:

5.1 REFER TO SHEET S-001 FOR DETAILS ON STRUCTURAL BOLTS AND ANCHORS.

5.2 ALLOY BOLTS AND NUTS, INCLUDING SCREWS, SHALL BE OF ASTM F593/F594 OR ASTM A193, UNLESS OTHERWISE NOTED OR SPECIFIED.

5.3 ALL THREADED FASTENERS SHALL BE PROVIDED WITH A LOCKING DEVICE.AN APPROVED ANTI-SEIZE COMPOUND SHALL BE APPLIED TO THREADS OF SS FASTENERS DURING ASSEMBLY TO PREVENT GALLING. INSULATORS SHALL BE PROVIDED BETWEEN ALL DISSIMILAR METALS IN CONTACT.

5.4 SURFACES OF DIFFERENT METALS IN CONTACT WITH EACH OTHER, SUBJECT TO CONTINUOUS IMMERSION, SHALL BE ISOLATED BY THE USE OF AN INSULATING MATERIAL TO PREVENT ANODIC CORROSION.

6. WELDING:

6.1 REFER TO SHEET S-001 FOR DETAILS ON STRUCTURAL WELDING.

6.2 STRUCTURAL WELDING OF STAINLESS STEELS (IF REQUIRED BY THE MACHINERY DESIGN) SHALL CONFORM TO AWS D 1.4 AND SPECIFICATION SECTION 05 05 23.16, AS APPLICABLE.

6.3 WELDING OF ALUMINUM IS LIMITED TO NON STRUCTURAL COMPONENTS.

7. MACHINING:

7.1 SURFACES TO BE MACHINED SHALL INCLUDE ALL SURFACES REQUIRED TO BE PRECISELY ALIGNED.

7.2 SURFACE TEXTURE WHERE GIVEN IS ACCORDING TO ANSI B46.1. SURFACES NOT MARKED, SHALL HAVE A FINISH OF 250 MICRO-INCHES RMS OR BETTER. NO MACHINING IS REQUIRED IF OTHERWISE FINISHED (ROLLED, CAST, ETC.) SURFACE IS BETTER THAN THE INDICATED REQUIREMENTS. SURFACE FINISH IN EACH CASE SHALL BE SUBJECT TO ENGINEER'S APPROVAL.

7.3 ROUNDING OF EDGES WHERE SHOWN SHALL BE FULL RADIUS.

8. COATINGS:

8.1 ALL STRUCTURAL STEEL COMPONENTS INCLUDING RAIL BEAM, SUPPORT BRACKETS, TROLLEY STRUCTURE, AND BOOM MUST BE GALVANIZED. REFER TO SHEET S-001 FOR COATING OF STRUCTURAL STEEL.

8.2 PAINTING OF NON-STRUCTURAL COMPONENTS OR IN ACCORDANCE WITH THE MACHINERY PRODUCTION IS PERMISSIBLE A MARINE-GRADE HI-SOLIDS EPOXY COATING, IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS.

8.3 FACTORY FINISHES MECHANICAL COMPONENTS INCLUDING HYDRAULIC CYLINDERS, GEARBOXES OR OTHER BOUGHT OUT COMPONENTS IS ACCEPTABLE, PROVIDED THE COATING SYSTEM IS COMPLIANT WITH THE OUTDOOR ENVIRONMENT.

9. **FALL PROTECTION:**

9.1 FALL PROTECTION TIE-OFFS (MINIMUM 2) TO BE LOCATED ON THE MACHINERY ACCESS PLATFORM AS DETERMINED BY THE MACHINERY DESIGNER TO SUPPORT MAINTENANCE ACCESS TO THE MACHINERY.

9.2 ALL ANCHORAGE POINTS MUST HAVE A MINIMUM CAPACITY OF 5000 LBS PER OSHA 1926 AND BE COMPLIANT WITH EM 385-1-1.

9.3 ALL TIE-OFF POINTS MUST BE SWIVEL BODY D-RING STYLE, UNLESS OTHERWISE NOTED.

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2005
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

DESIGNED BY: R. DHANASEKARAN
DRAWN BY: R. DHANASEKARAN
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: 03/11/2025
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: E. CLOUGH
CONTRACT NO. -
PLOT STYLE: BLACK AND WHITE
FILE NUMBER: 1
FILE NAME: W912TN_M-001.dwg
SOLICITATION NO. -

U.S. ARMY CORPS OF ENGINEERS
NORTHWESTERN DIVISION
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

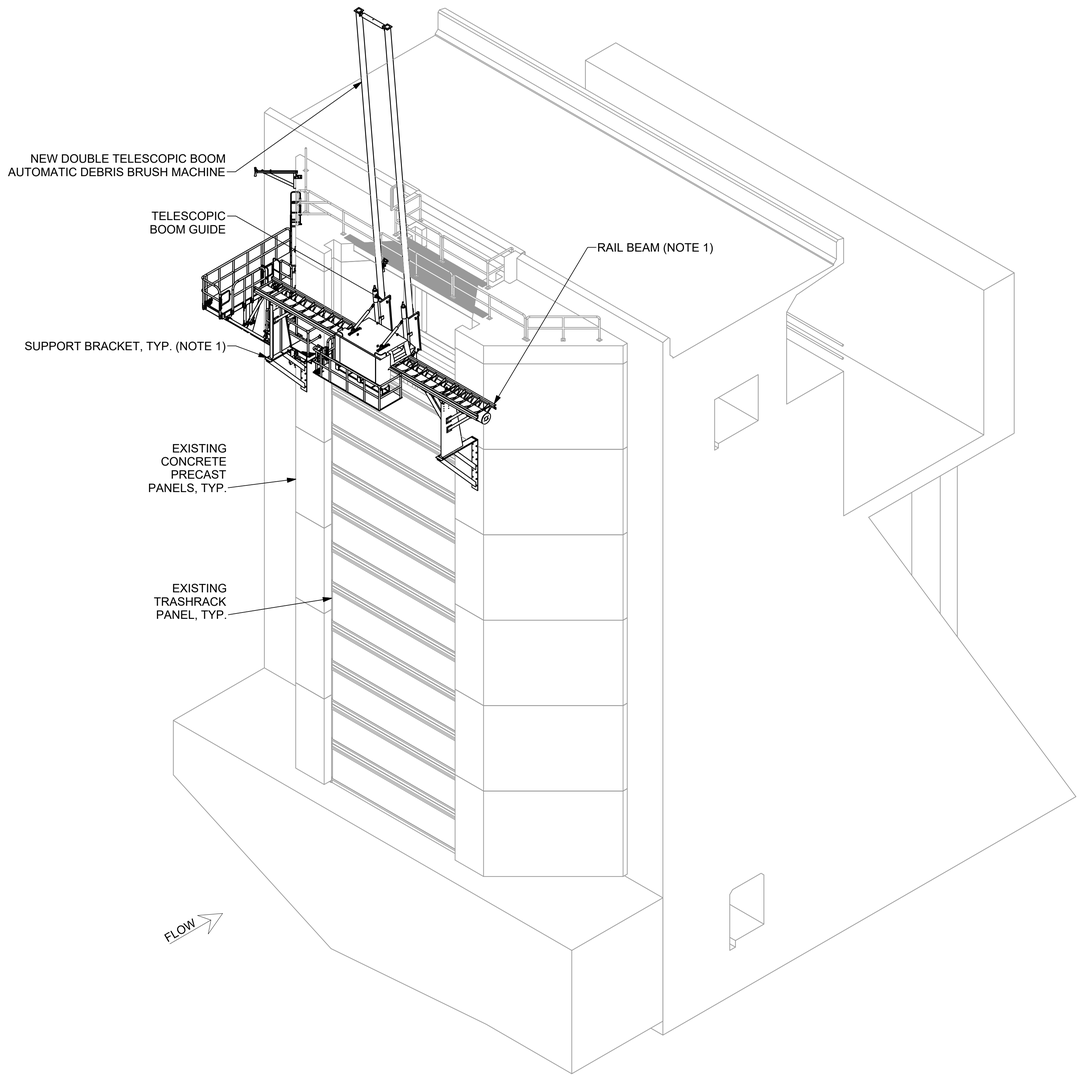
MECHANICAL NOTES, LEGENDS AND ABBREVIATIONS

SHEET IDENTIFICATION
M-001

File Last Saved By: RTOLENTINO

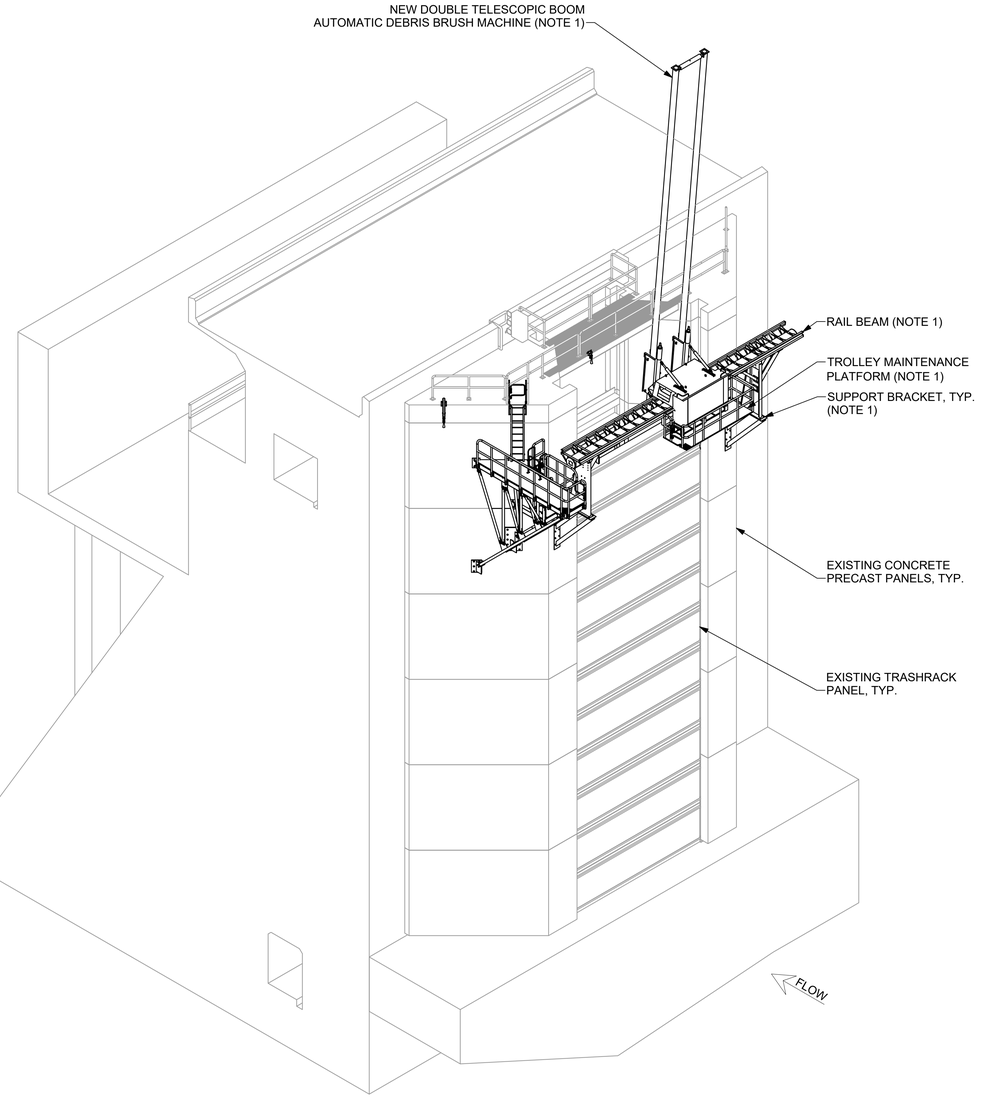
GENERAL SHEET NOTES

1. EQUIPMENT AND FABRICATIONS TO BE DESIGNED AND SUPPLIED BY THE EQUIPMENT SUPPLIER IN ACCORDANCE WITH THE SPECIFICATIONS.
2. CONTROL PANEL TO BE SUPPLIED BY THE EQUIPMENT VENDOR AS A PACKAGE WITH THE MECHANICAL EQUIPMENT. FOR DETAILS, REFER TO THE ELECTRICAL AND CONTROL DRAWINGS.



ISO VIEW - EASTERN PERSPECTIVE - NEW DEBRIS BRUSH MACHINE ARRANGEMENT

SCALE: NTS



ISO VIEW - WESTERN PERSPECTIVE - NEW DEBRIS BRUSH MACHINE ARRANGEMENT

SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2026
EVAN CLOUGH

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.
-	-	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: K. DHANASEKARAN
DRAWN BY: E. TOLENTINO
CHECKED BY: M. HEGI
SOLICITATION NO.:
SUBMITTED BY: E CLOUGH
CONTRACT NO.:
PLOT SCALE: 1:1
PLOT DATE: 4/7/2026
FILE NUMBER: 1
SIZE: F SIZE
FILE NAME: W9127N_TA-101.dwg
ISSUE DATE:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

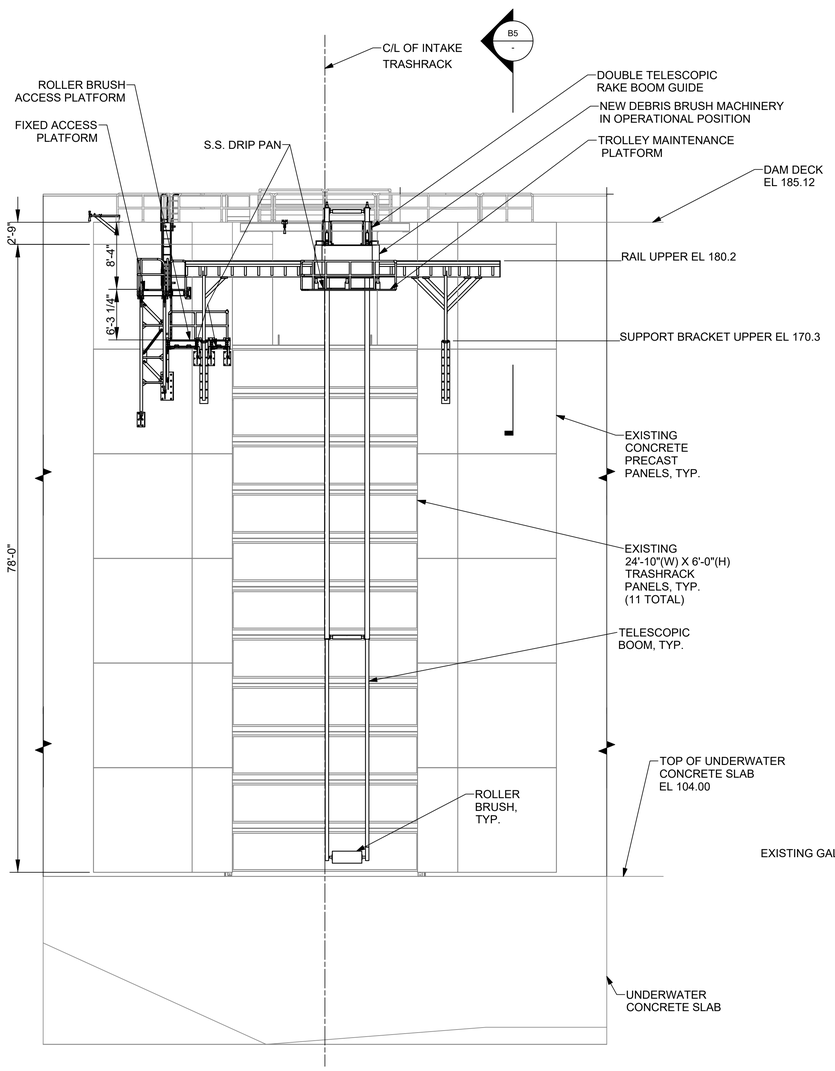
MECHANICAL
NEW DEBRIS BRUSH MACHINE
GENERAL ARRANGEMENT

SHEET IDENTIFICATION
M-101

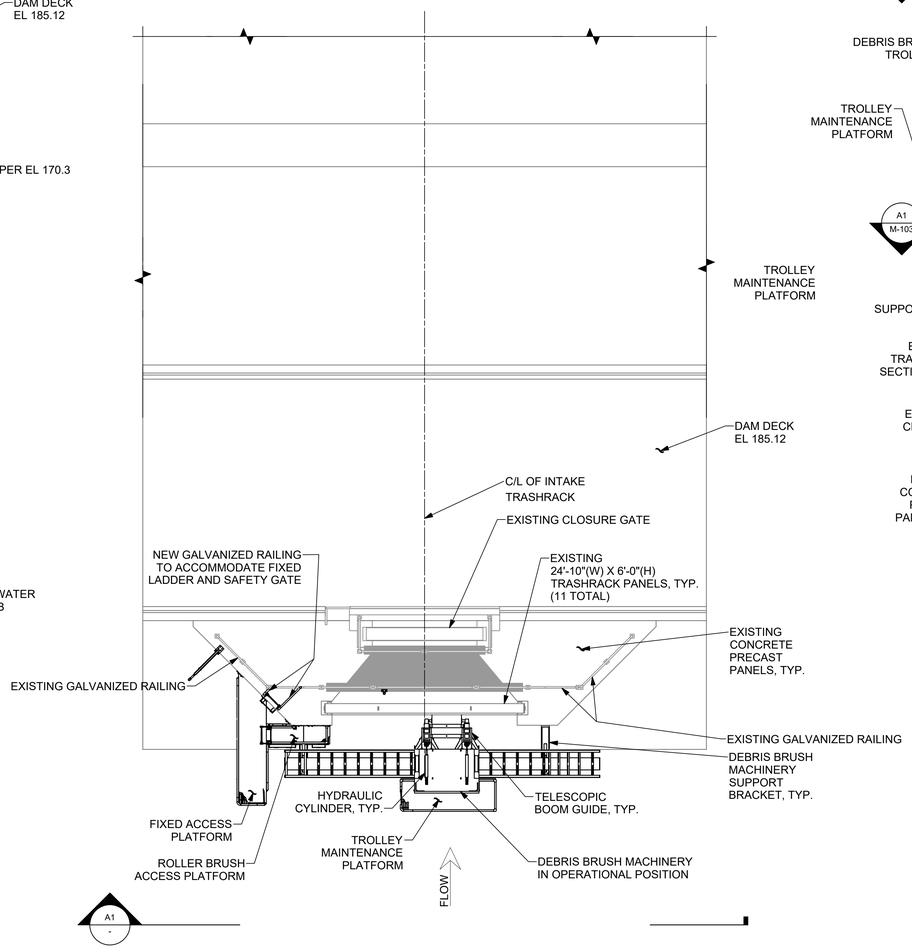
File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

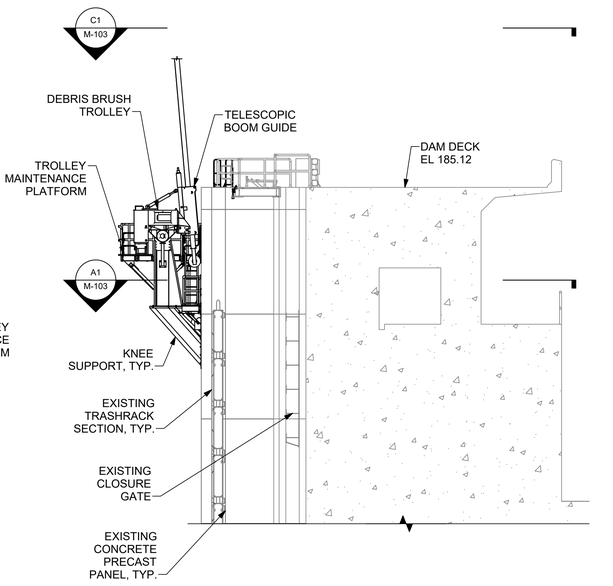
1. THE DRAWING SHOWS THE GENERAL LAYOUT OF THE DOUBLE TELESCOPIC BOOM AUTOMATIC DEBRIS BRUSH CLEANING MACHINE FOR THE INTAKE TRASHRACKS.
2. TOTAL NUMBER OF DEBRIS BRUSH CLEANING MACHINE REQUIRED FOR THE PROJECT = ONE (1).
3. MAXIMUM CLEANING DEPTH SHALL BE APPROX 81.12 FT BELOW THE DAM DECK ELEVATION.
4. THE DEBRIS BRUSH MACHINE SHALL BE SUITABLE FOR 480 VAC UNGROUNDED DELTA, 3-PHASE, 60 HZ POWER SUPPLY.



A1 ELEVATION - TRASHRACK AND DEBRIS BRUSH MACHINE
SCALE: 1/8" = 1'-0"
0 4' 8' 16'



PLAN - TRASHRACK AND DEBRIS BRUSH MACHINERY
SCALE: 1/8" = 1'-0"
0 4' 8' 16'



B5 SECTION
SCALE: 1/8" = 1'-0"
0 4' 8' 16'

File Last Saved By: RTOLENTINO

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

DESIGNED BY: R. DHANASEKARAN
DRAWN BY: TEAM MEMBER
CHECKED BY: LT. REGI.
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: AUTOMATIC
FILE NUMBER: -
SIZE: F SIZE
FILE NAME: V91277K_M-102.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

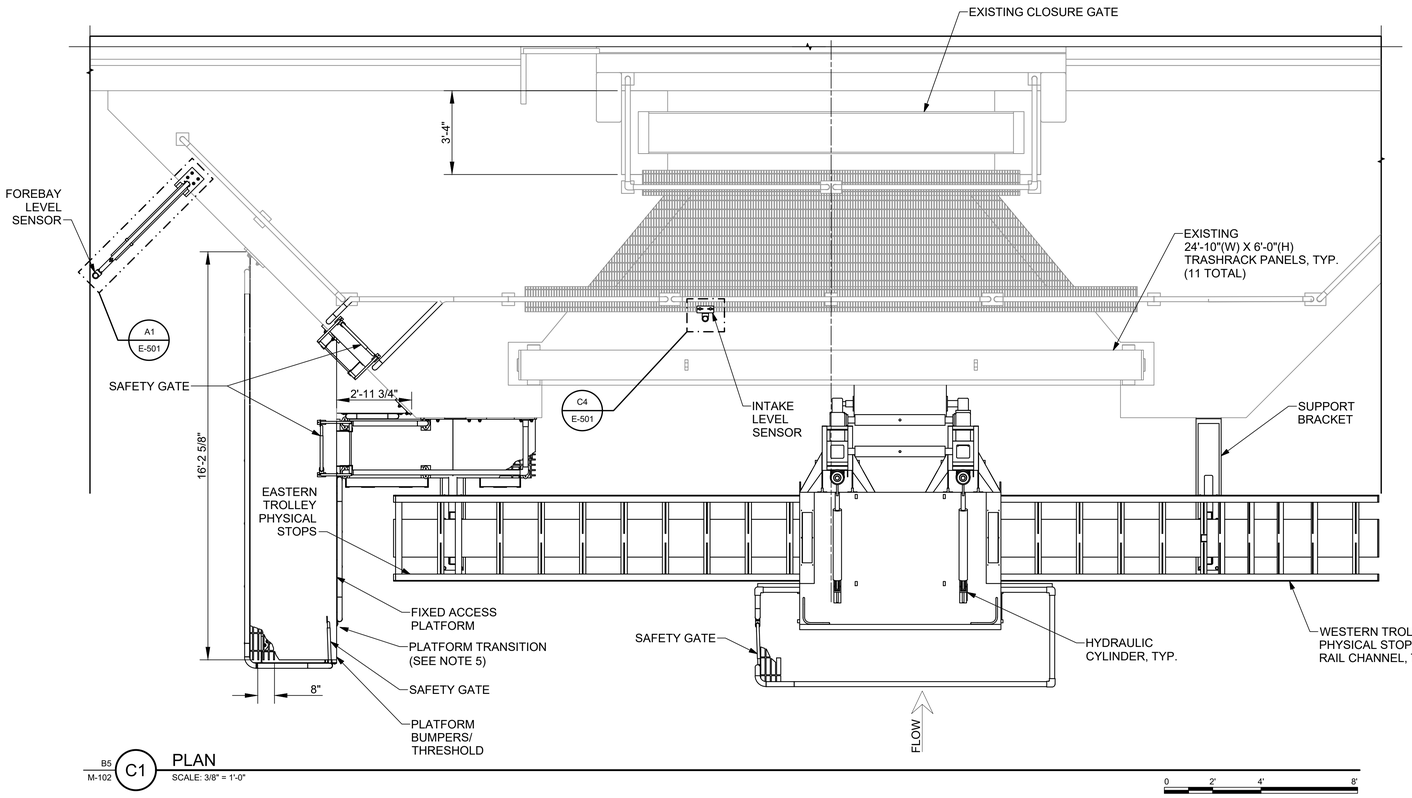
Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

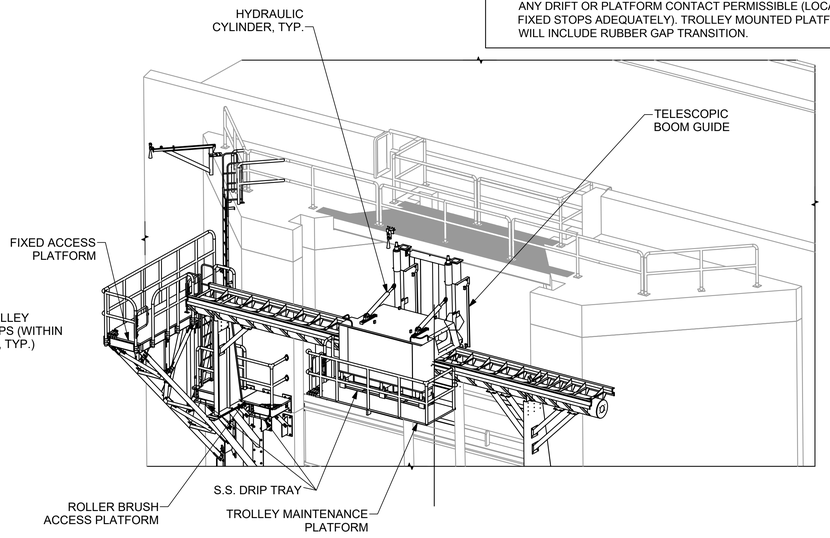
NEW DEBRIS BRUSH MACHINE
ELEVATION AND PLAN

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2026
EVAN CLOUGH

SHEET IDENTIFICATION
M-102



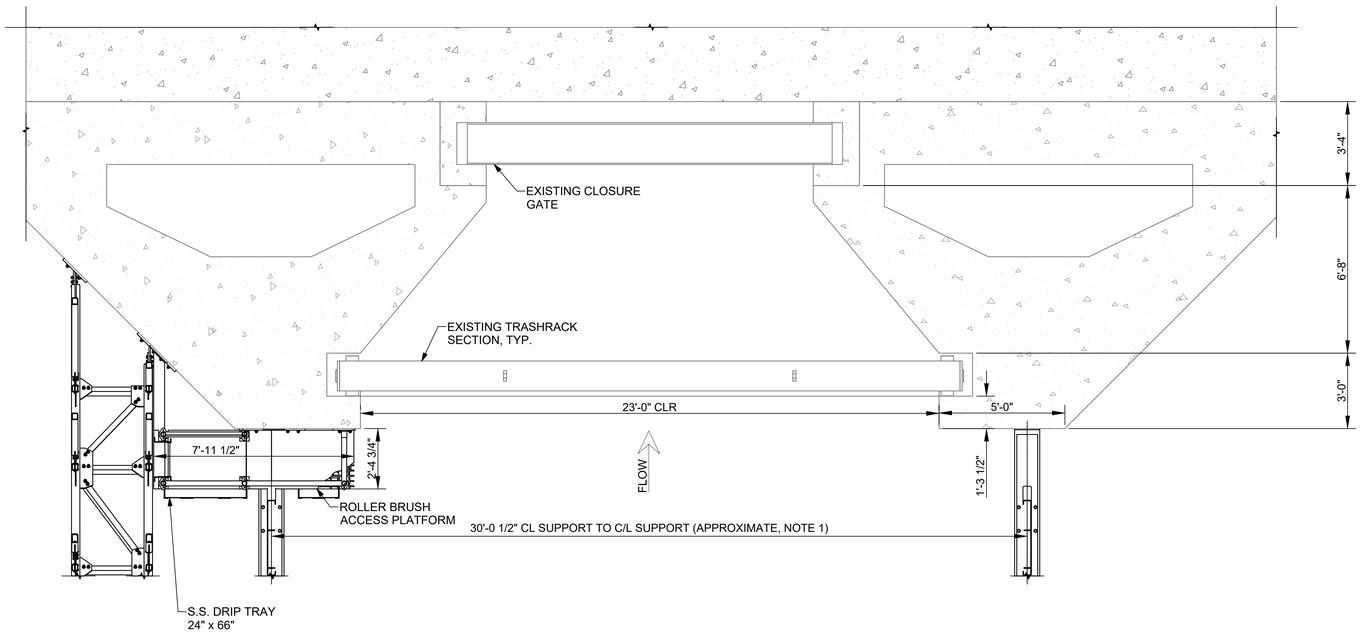
B5 M-102 C1 **PLAN**
SCALE: 3/8" = 1'-0"



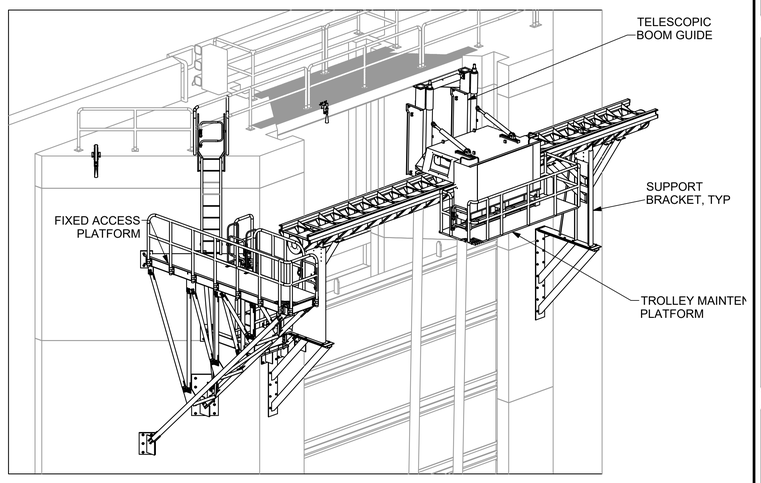
ISO VIEW - EASTERN PERSPECTIVE DEBRIS BRUSH MACHINERY ASSEMBLY
SCALE: NTS

GENERAL SHEET NOTES

1. THE CONTRACTOR SHALL SUBMIT DESIGN OF THE SUPPORT FRAME AND ANCHORING WITH THE EXISTING INTAKE CONCRETE, WHICH SHALL BE SUBJECT TO OWNER'S APPROVAL. THE DIMENSIONS SHOWN FOR THE SUPPORT FRAME ON THE DRAWINGS ARE PRELIMINARY.
2. REFER TO S-001 FOR CONCRETE ANCHORAGE REQUIREMENTS.
3. DEBRIS BRUSH CHASIS LENGTH SHALL BE SUCH THAT DEBRIS BRUSH TROLLEY WILL BE CLEAR FROM THE TRASHRACK SLOT BY AT LEAST TWO FEET IN THE PARKING POSITION. TELESCOPING HEAD SHOULD BE CAPABLE OF BEING LOWERED TO THE OUTSIDE OF THE WESTERN SUPPORT BRACKET TO FACILITATE CRANE ACTIVITIES IN THE AREA.
4. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF THE FIXED ACCESS PLATFORM, WALKWAY AND HANDRAILS, ETC.
5. MACHINERY APPROACH MUST MAINTAIN A MINIMUM CLEARANCE FROM THE FIXED ACCESS PLATFORM AND IN NO SITUATION IS ANY DRIFT OR PLATFORM CONTACT PERMISSIBLE (LOCATE FIXED STOPS ADEQUATELY). TROLLEY MOUNTED PLATFORM WILL INCLUDE RUBBER GAP TRANSITION.



B5 M-102 A1 **PLAN**
SCALE: 3/8" = 1'-0"
0 2' 4' 8'



ISO VIEW - WESTERN PERSPECTIVE DEBRIS BRUSH MACHINERY ASSEMBLY
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER 106617PE OREGON MARCH 11, 2005 EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: R. DHANASEKARAN
DRAWN BY: K. VEERI
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: 11/7/2025
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: K. VEERI
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W9127N_M-103.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

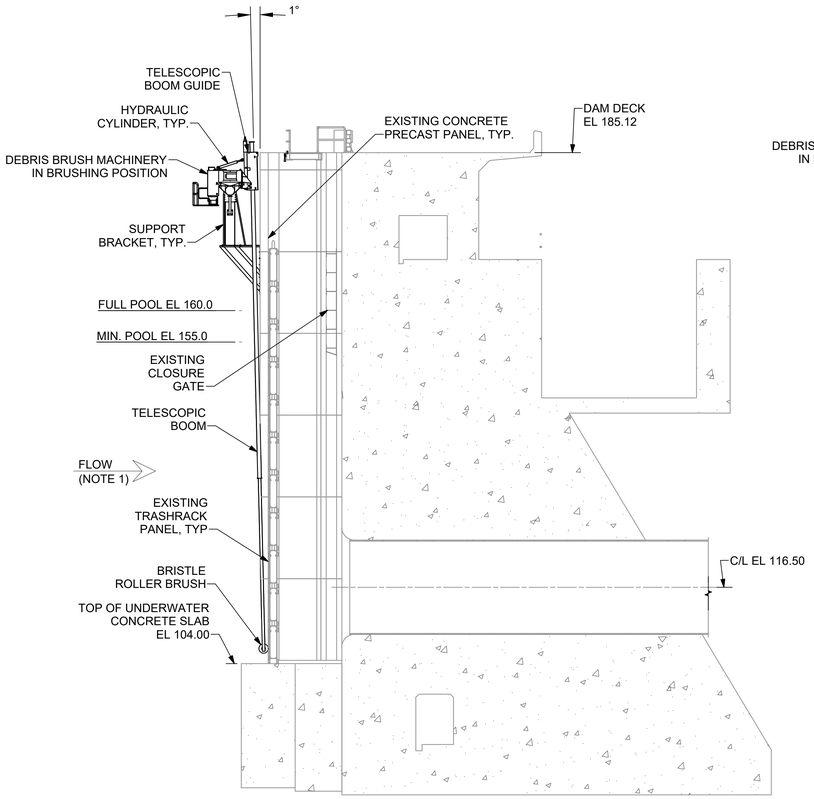
MECHANICAL
NEW DEBRIS BRUSH MACHINE
RAKE MACHINERY HOUSE AND SUPPORT BRACKET DETAILS

SHEET IDENTIFICATION
M-103

File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

1. INTAKE FLOW; NOT OPERATIONAL DURING CLEANING CYCLES. REFER TO SHEET M-501 FOR DETAILS.



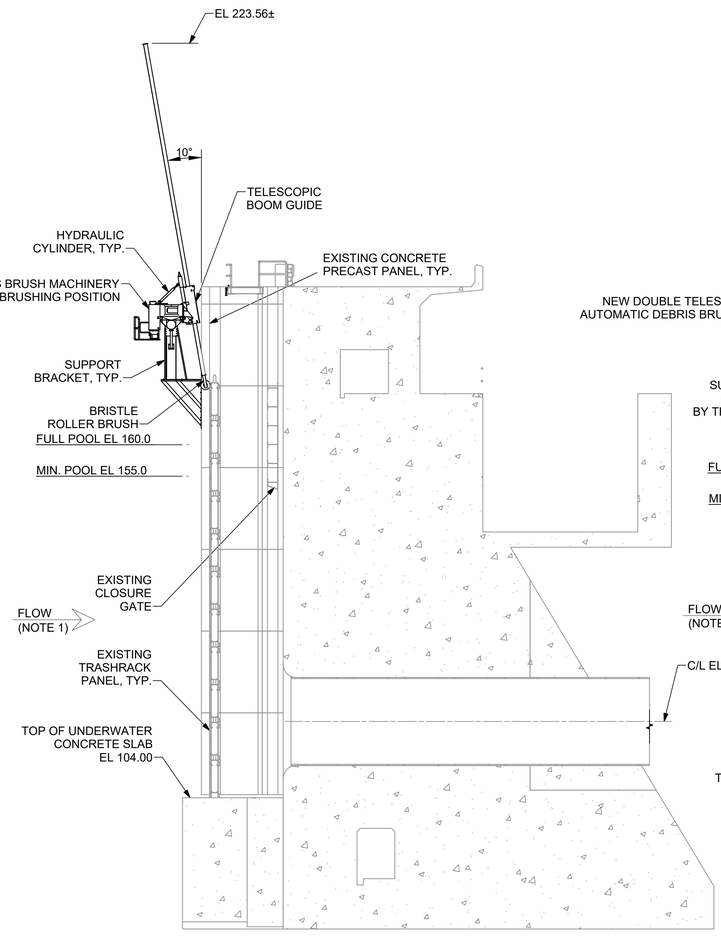
B1 / C-102 — A1

SECTION - DEBRIS BRUSH POSITION AT NEAR BOTTOM OF TRASHRACK (LOWER CLEANING REACH)

SCALE: 3/32" = 1'-0"

(NOTE: FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM HIDDEN FOR CLARITY)

0 8' 16' 32'

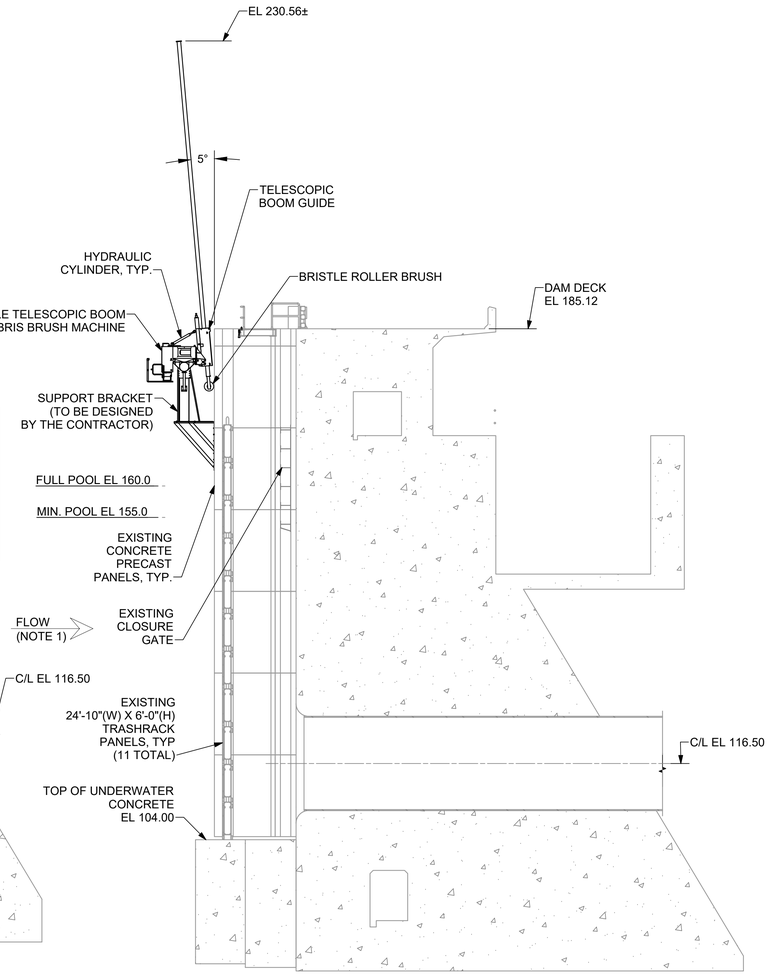


SECTION - DEBRIS BRUSH POSITION AT TOP OF TRASHRACK (UPPER CLEANING REACH)

SCALE: 3/32" = 1'-0"

(NOTE: FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM HIDDEN FOR CLARITY)

0 8' 16' 32'



SECTION - DEBRIS BRUSH IN MAINTENANCE POSITION

SCALE: 3/32" = 1'-0"

(NOTE: FIXED ACCESS PLATFORM AND ROLLER BRUSH ACCESS PLATFORM HIDDEN FOR CLARITY)

0 8' 16' 32'

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2016
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

DESIGNED BY: R. DHANASEKARAN
DRAWN BY: P. WHITE, D. HEGI
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: 11/7/2022
SIZE: F SIZE
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
FILE NAME: 999127K_M-104.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

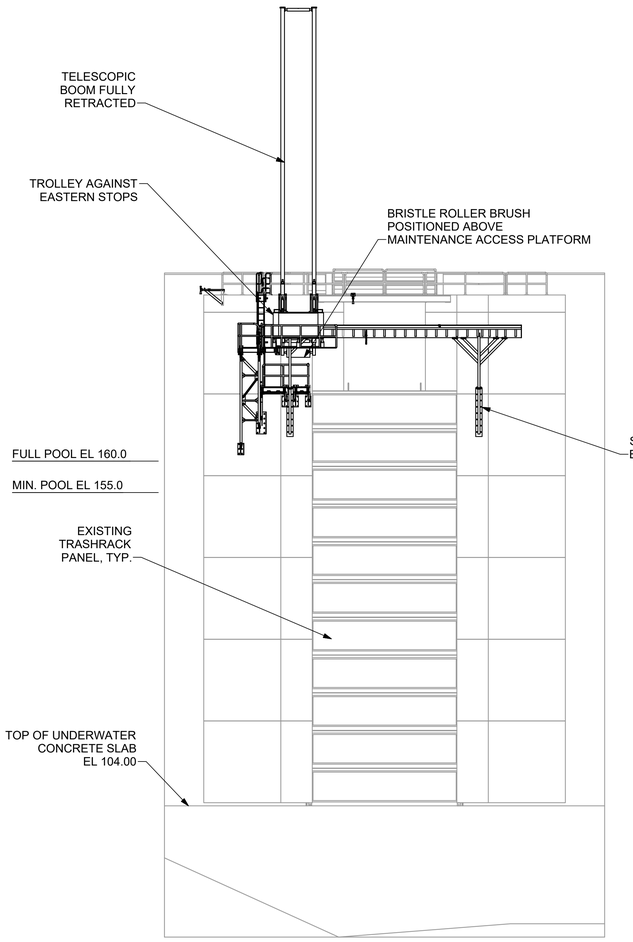
MECHANICAL
NEW DEBRIS BRUSH MACHINE
OPERATIONAL RANGE

SHEET IDENTIFICATION
M-104

File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

1. PREVAILING RIVER FLOW IS PERPENDICULAR TO AWSB INTAKE DURING CLEANING CYCLES. REFER TO SHEET M-501 FOR ADDITIONAL INFORMATION. MACHINERY MUST BE CAPABLE OF OPERATION DURING MAXIMUM RIVER FLOW STAGES OF UP TO 5.5 FT/SEC CROSS FLOW.

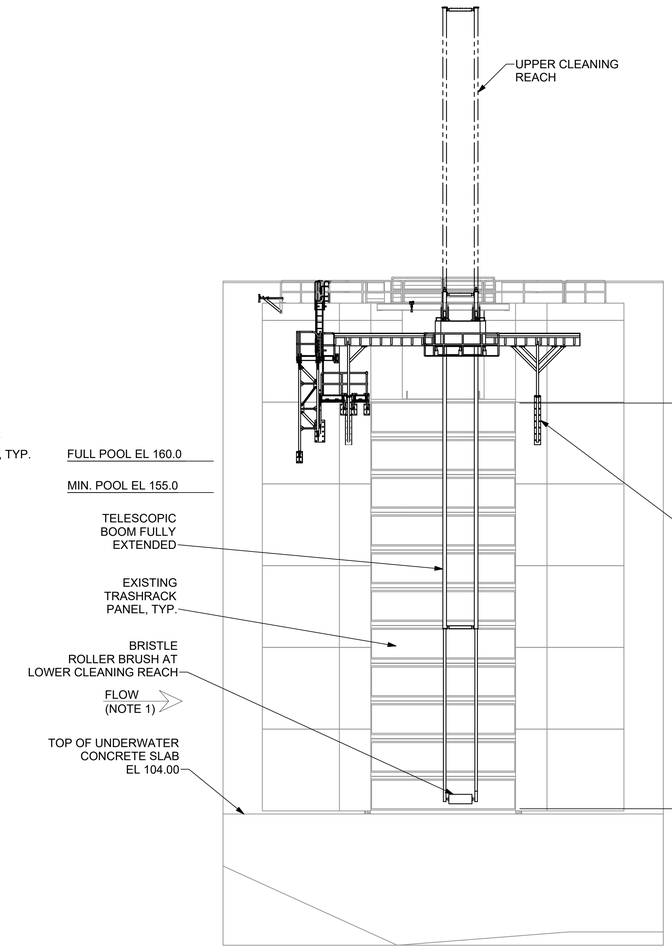


ELEVATION - DEBRIS BRUSH MAINTENANCE AND PARKING POSITION

SCALE: 3/32" = 1'-0"

0 8' 16' 32'

BRUSH MAINTENANCE AND PARKING POSITION -
INTENDED FOR NORMAL IDLE PARKING AND MAINTENANCE OF EQUIPMENT

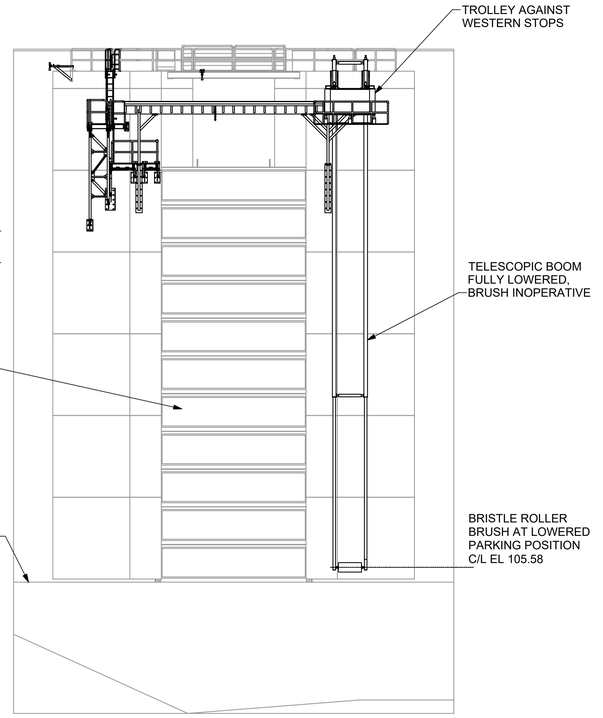


ELEVATION - DEBRIS BRUSH OPERATING POSITION(S)

SCALE: 3/32" = 1'-0"

0 8' 16' 32'

BRUSH OPERATION - MANUAL OR LOCAL AUTOMATIC OPERATION



ELEVATION - DEBRIS BRUSH IN CLEARANCE PARKING POSITION

SCALE: 3/32" = 1'-0"

0 8' 16' 32'

CLEARANCE PARKING - INTENDED TO PROVIDE
CLEARANCE FOR CRANE OPERATIONS AT INTAKE

REGISTERED PROFESSIONAL ENGINEER
106617PE
OREGON
MARCH 11, 2025
EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: R. DHANASEKARAN
DRAWN BY: E. CHENG
CHECKED BY: V. MEER
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
PLOT DATE: 11/7/2025
FILE NUMBER: -
SIZE: F
FILE NAME: W9127N_M-105.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

MECHANICAL
DEBRIS BRUSH POSITIONS
ELEVATION

SHEET IDENTIFICATION
M-105

File Last Saved By: RTOLENTINO

DEBRIS BRUSH OPERATIONAL NOTES:

DEBRIS BRUSH OPERATION SCHEME

1. CONTROL EQUIPMENT

1.1 A PROGRAMMABLE LOGIC CONTROLLER (PLC) WILL BE USED FOR CONTROL AND MONITORING OF THE DERIS BRUSH OPERATION. THE PLC WILL BE LOCATED IN THE LOCAL CONTROL PANEL (LCP) ON FOREBAY INTAKE DECK. THE PLC WILL BE PROVIDED WITH INPUT/OUTPUT (I/O) MODULES FOR INTERFACING WITH THE VARIOUS SENSORS & OPERATING DEVICES INCLUDING SAFETY DEVICES MOUNTED ON THE RAKE. THE PLC WILL ALSO BE PROVIDED WITH A COMMUNICATION INTERFACE FOR COMMUNICATING WITH REMOTE DEVICES USING ETHERNET PROTOCOL, IN FUTURE.

1.2 A TOUCH SCREEN HUMAN MACHINE INTERFACE (HMI) PANEL WILL BE PROVIDED ON THE FRONT OF THE LCP. THE HMI WILL PROVIDE AN INTERFACE FOR MONITORING AND CONTROLLING THE TRASHRAKE. ACCESS TO THE HMI MONITORING FUNCTIONS WILL BE AVAILABLE TO ALL AUTHORIZED PERSONNEL. ACCESS TO THE HMI CONTROL FUNCTIONS WILL BE PASSWORD PROTECTED TO LIMIT ACCESS TO QUALIFIED PERSONNEL ONLY. HMI SCREENS WILL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

- OVERVIEW: THIS SCREEN WILL DISPLAY AN OVERVIEW OF THE DEBRIS BRUSH SYSTEM. OVERALL SYSTEM DATA SUCH AS RAKING OPERATION, OPERATING MODES OF THE RAKE, ETC., WILL BE MONITORED FROM THIS SCREEN.
- RAKE: HMI SCREENS WILL DISPLAY THE STATUS OF THE DEBRIS BRUSH AND ASSOCIATED AUXILIARY EQUIPMENT. RAKE OPERATIONAL CONTROL WILL ALSO BE INITIATED VIA THIS SCREEN IN PLC MODE.
- ALARM SUMMARY: THIS SCREEN(S) WILL DISPLAY ALL OF THE SYSTEM ALARMS WITH TIME, DATE, TYPE, AND STATUS DATA. THIS INFORMATION WILL BE AUTOMATICALLY BACKED UP IN A FILE.

2. MODES OF OPERATION

2.1 THREE MODES OF OPERATION FOR THE DEBRIS BRUSH WILL BE PROVIDED, LOCAL-HMI, LOCAL-PENDANT AND AUTOMATIC. THE DEBRIS BRUSH WILL HAVE THE CAPABILITY TO BE INDEPENDENTLY PLACED IN ANY OPERATING MODE BY SELECTING THE APPROPRIATE MODE OF OPERATION. THE DEBRIS BRUSH IS INTENDED TO BE OPERATED ONLY WHEN THE INTAKE FLOW IS TURNED OFF. AUTOMATIC REMOTE OPERATION SHOULD BE PROVIDED AS NOTED BUT MUST BE DISABLED UNLESS INTAKE OPERATIONS HAVE BEEN INTERLOCKED WITH EQUIPMENT CONTROLS (BY OTHERS) TO PREVENT UNINTENDED RAKE OPERATION DURING INTAKE OPERATION. DEBRIS BRUSH OPERATING SCENARIOS WILL BE AS FOLLOWS:

- **LOCAL-PENDANT:** WHEN AN DEBRIS BRUSH CONTROL IS PLACED IN "LOCAL-PENDANT" OPERATION VIA HAND-HELD CONTROLLER (REMOVABLE WITH CANNON PLUG), THE DEBRIS BRUSH POSITION WILL BE MANUALLY CONTROLLED FROM THE PENDANT STATION USING VARIOUS COMMANDS SUCH AS "RAISE", "LOWER", "TILT" AND "STOP" BUTTONS. THE MACHINERY MUST INCLUDE LIMITS OR RELIEF CIRCUITRY WHICH PREVENTS AN EXCESSIVE AMOUNT OF FORCE BEING APPLIED TO INTAKE FROM OPERATOR.
- **LOCAL-AUTOMATIC:** WHEN AN DEBRIS BRUSH CONTROL IS PLACED IN "LOCAL-AUTOMATIC" OPERATION VIA THE HMI TOUCHSCREEN, THE DEBRIS BRUSH OPERATION WILL BE AUTOMATICALLY CONTROLLED BY THE PLC BUT WILL STILL BE AN OPERATOR INITITATED FUNCTION AND REQUIRE USER VERIFICATION OF THE INTAKE STATUS. THE OPERATOR WILL SIMPLY START THE TRASHRACK MACHINE, AND MACHINE WILL MOVE THE BOOM, TILL THE BOOM FOR CLEANING POSITION, ROTATE THE BRISTLE ROLLER, RETRACT THE BOOM AND AUTOMATICALLY MOVE THE TROLLEY TO NEXT POSITION ONCE A CLEANING CYCLE IS COMPLETE. DEPENDING UPON THE PLC PROGRAMMING, DEBRIS BRUSH WILL STOP WORKING AFTER CLEANING THE ENTIRE INTAKE, UNTILL ANOTHER AUTOMATIC CLEANING OPERATION IS INITIATED AGAIN. DEBRIS BRUSH MAY BE PROGRAMMED TO OPERATE AUTOMATICALLY AFTER A FIXED PERIOD OF TIME OR CONTINUOUSLY FOR A GIVEN PERIOD OF TIME.
- **REMOTE-AUTOMATIC (FUTURE):** PROVISION WILL BE IN THE DEBRIS BRUSH CONTROL SYSTEM FOR FUTURE ADDITION OF "REMOTE-AUTOMATIC" OPERATION. WHEN PLACED IN "REMOTE-AUTOMATIC" MODE, THE OPERATION OF THE DEBRIS BRUSH WILL BE TRIGGERED BY THE SENSORS SENSING THE BLOCKAGE OF THE TRASHRACKS TO A GIVEN SET VALUE. A TERMINAL POINT SHALL BE AVAILABLE IN THE PLC CONTROL PANEL FOR ACTIVATING THE START BASED ON THE PRESSURE DIFFERENTIAL ACROSS THE RACK BARS INDICATING THE BLOCKAGE. WHEN CONTACT IS CLOSED ALONG THIS TERMINAL POINT, THE RAKER WILL INITIATE A CLEANING CYCLE, THIS WILL CONTINUE UNTIL THE CONTACT CLOSURE IS NO LONGER THERE. A WARNING SOUND/ALARM OR LIGHT WILL BE INITIATED BEFORE TRASHRACK STARTS WORKING. ALL FEDERAL, STATE OR CITY MANDATED SAFETY PROTOCOLS WILL BE IMPLEMENTED BEFORE TRASHRACK OPERATION IN ANY OF THE ABOVE MODES.

OPERATION OF DEBRIS BRUSH

3. DEBRIS BRUSH BOOMS OPERATION

3.1 DEBRIS BRUSH HAS A ROPE AND PULLEY OR HYDRAULIC BASED DOUBLE TELESCOPIC BOOM SYSTEM MOUNTED ON A TROLLEY, WHICH IS RUNNING OVER THE MAIN BEAM OR RUNNING RAILS. RAKING HEAD IS COMPRISED OF ROTATING BRISTLE ROLLER. DEBRIS BRUSH BOOM MOVES THE RAKE HEAD OVER THE VERTICAL TRASHRACKS FOR DISLODGING OR DISTURBING THE DEBRIS- WHICH IS MOSTLY COMPRISED OF SMALL STICKS AND AQUATIC PLANT FOLIAGE. EACH OF THE TWO BOOMS HAS A TILTING CYLINDER TO MOVE THE BOOM OUTWARD OR TOWARDS THE TRASHRACK. WHEN BOOM IS EXTENDED, IT IS TILTED OUTWARD BEFORE TO PREVENT ANY COLLISION WITH TRASHRACKS. BOOM IS MOVED TOWARDS TRASHRACKS FOR ROLLER OR BRUSH ENGAGEMENT WITH TRASHRACKS/DEBRIS BEFORE THE CLEANING PROCESS STARTS. ALL OPERATIONS, SUCH AS “RAISE”, “LOWER”, OUTWARD TILT, INWARD TILT, BRUSH ROTATION, AND “STOP” CAN BE CARRIED OUT FROM PENDANT CONTROL OR HMI CONTROL AS STATED ABOVE.

3.2 INITIAL CONDITION: DEBRIS BRUSH MOVING TROLLEY IS SET UP IN THE INTAKE OVER TRASHRACKS AND TELESCOPIC BOOM SYSTEM READY TO START THE RAKING POSITION; SELECTOR SWITCH ON THE CONTROL PANEL IN "PENDANT" POSITION; DEBRIS BRUSH BOOM IS FULLY RETRACTED AND TILTED AWAY FROM THE TRASHRACK SURFACE. THERE IS NO FLOW THROUGH THE TRASHRACKS.

3.3 PRECONDITION: ALL PRE-OPERATION SAFETY PROTOCOL HAVE BEEN IMPLEMENTED AND AREA IF CLEARED FOR RAKING OPERATION.

3.4 DEBRIS BRUSH MACHINE IS STARTED, BOOM LOWER BUTTON IS OPERATED TO LOWER THE MULTI-STAGE TELESCOPIC BOOM. WHEN BOOM POSITION INDICATOR INDICATES THE CORRECT LOCATION OF THE ROLLER HEAD, BOOM INWARD TILT BUTTON IS OPERATED TO PRESS THE RAKE/ROLLER HEAD AGAINST THE TRACKRACKS/DEBRIS.

3.5 WHILE BOOM IS IN THE LOWEST POSITION, NOW COMMAND FOR ROTATING THE ROLLER/RAKE HEAD IS GIVEN, WHICH START ROTATING THE BRISTLE ROLLER WITH THE HELP OF HYDRAULIC MOTOR. WHILE ROLLER IS ROTATING AND CLEANING THE DEBRIS FROM THE RACK BARS, DEBRIS BRUSH BOOM IS SLOWLY RAISED SO AS TO DISLODGE OR DISTURB THE DEBRIS DOWNWARDS TO THE TRASHRACK BOTTOM SO THAT IT IS WASHED AWAY BY THE NATURAL FLOW OF THE RIVER. IT MAY BE NOTED THAT TRASHRACK PANELS HAVE PROTRUDING MEMBERS, AND DO NOT PROVIDE A SMOOTH CONTINUOUS SURFACE FOR CLEANING, THEREFORE THE DESIGN OF THE BRISTLE ROLLER WILL BE SUCH THAT IT IS NOT AFFECTED BY IRREGULARITIES AND PROTRUSIONS OF THE RACK-BAR SURFACE. THUS, RAKE/ROLLER HEAD WILL BE KEPT AT A FIXED DISTANCE (FEW INCHES) FROM THE ONE VERTICAL PLANE OF RACK-BARS THROUGHOUT THE CLEANING OPERATION. BOOM TILTING CYLINDERS WILL HELP IN MAINTAINING THAT FIXED POSITION. THIS POSITION MAY HOWEVER BE CHANGED DEPENDING ON THE DEBRIS THICKNESS AT ANY GIVEN POSITION.

3.6 AFTER DEBRIS BRUSH BOOM REACHED ITS HIGHEST POSITION DURING CLEANING, NOW DEBRIS BRUSH TROLLEY IS COMMANDED TO MOVE BY APPROXIMATELY 4-5 FEET, DEPENDING UPON THE BRISTLE ROLLER WIDTH.

3.7 NOW, WHEN DEBRIS BRUSH TROLLEY IS IN NEW POSITION, CLEANING OPERATION IS STARTED BY FIRST TILTING THE BOOM OUTWARD, LOWERING OR EXTENDING THE TELESCOPIC BOOM DOWNWARDS, BRISTLE ROLLER IS PRESSED AGAINST THE TRASHRACKS WITH THE HELP OF INWARD TILT COMMAND, AND ROTATION OF ROLLER IS STARTED TO RESUME THE CLEANING IN POSITION.

3.8 REPEAT THE STEPS 4-7 ABOVE FOR CLEANING THE ENTIRE 23 FEET WIDE AND 66 FEET DEEP VERTICAL TRASHRACKS.

4. BRISTLE ROLLER OPERATION

4.1 RAKE HEAD IS COMPOSED OF APPROX. 5 FEET LONG AND APPROX. 8” DIAMETER NYLON BRISTLE ROLLER, SUPPORTED ON THE TWIN TELESCOPIC BOOMS AND ROTATED WITH HYDRAULIC MOTOR. BRISTLE IS CAPABLE OF DISLODGING OR DISTURBING DEBRIS, INCLUDING SMALL STICKS AND AQUATIC PLANT FOLIAGE, LEAVES, ETC. TO ACCUMULATE AT THE BOTTOM OF INTAKE.

4.2 INITIAL POSITION: DEBRIS BRUSH TROLLEY IS LOCKED IN POSITION IN THE FORBAY INTAKE; BOOM IS ALL THE WAY DOWN AND BRISTLE ROLLER IS FEW INCHES AWAY FROM THE TRASHRACK/DEBRIS. DEBRIS BRUSH IS READY TO START CLEANING OPERATION.

4.3 CLEANING PROCESS STARTS BY INITIATING THE ROTATION OF THE BRISTLE ROLLER, THEN PRESSING THE ROLLER AGAINST THE TRASHRACKS/DEBRIS WITH THE HELP OF TILT CYLINDERS. THE DIRECTION OF ROLLER ROTATION IS SUCH THAT DEBRIS IS FREELY ALLOWED TO FALL AT THE RACK BAR BOTTOM/SILL. AS ROLLER ROTATES, PRESSES AGAINST THE TRASHRACKS, DEBRIS BRUSH BOOM IS SLOWLY MOVED UPWARD WHILE CLEANING CONTINUES WITH THE ROLLER.

4.4 DEBRIS BRUSH BOOM'S UPWARD MOVEMENT IS CONTINUED TO THE FULL STROKE, TILL THE FULL HEIGHT OF TRASHRACKS (WHICH IS 66 FEET FROM THE BOTTOM) WHILE BRISTLE ROLLER IS CONTINUOUSLY ROTATING AND CLEANING THE DEBRIS. AT THE END OF THE STROKE, BOOM RETRACTION IS STOPPED, TROLLEY IS MOVED TO NEW POSITION, BOOM IS TILTED AWAY FROM TRASHRACKS, AND BOOM IS LOWERED DOWN TO START A NEW CLEANING CYCLE.

4.5 FOLLOW STEPS 3-4 TO PERFORM MULTIPLE CLEANING CYCLES ON INTAKE TRASHRACKS.

4.6 IN CASE BRISTLE ROLLER CEASES TO ROTATE FOR UNKNOWN REASON, DEBRIS BRUSH SHALL BE CAPABLE OF LIMITED UP AND DOWN RAKING OPERATION WITH BRUSH FOR CONTINUED DEBRIS CLEANING OPERATION UNTIL REPAIRS CAN BE MADE.

5. AUTOMATIC OPERATION (INDEXING)

5.1 DEBRIS BRUSH MACHINE IS CAPABLE OF AUTOMATIC OPERATION IF MACHINE IS PLACED IN “AUTOMATIC OPERATION” MODE. IN THIS MODE, MACHINE MOVES AUTOMATICALLY AFTER COMPLETING THE ONE RAKING CYCLE. ONE COMPLETE RAKING INCLUDES, LOWERING OF THE BOOMS IN RAKING POSITION, ROTATION OF BRISTLE ROLLER, TILTING OR SLEWING OF RAKE BOOMS TOWARDS THE RACH BARS FOR CLEANING, SLOWING RAISING OF BOOMS WHILE CLEANING OPERATION IS CONTINUED, AND TILTING BOOMS OUT AFTER BOOM IS FULLY RETRACTED.

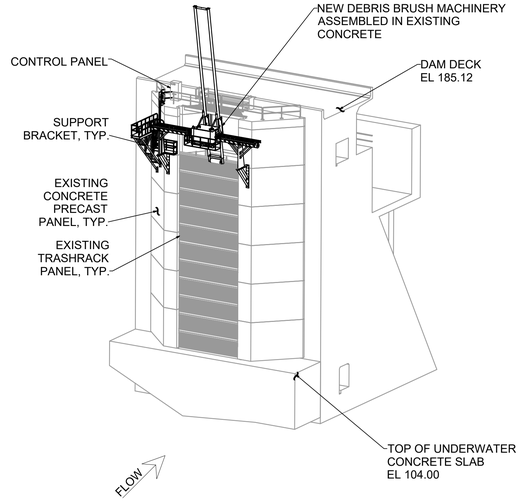
5.2 AFTER COMPLETING ONE COMPLETE CLEANING CYCLE, DEBRIS BRUSH TOLLEY IS INDEXED OR MOVED BY PREPROGRAMMED DISTANCE (4-5 FEET) AUTOMATICALLY BEFORE THE START OF THE SECOND CYCLE. ITS IS ASSUMED THAT ONE CYCLE OF OPERATION WILL TAKE APPROXIMATELY 5 MINUTES, WITH TOTAL CLEANING TIME FOR FULL FORBAY INTAKE (23 FEET WIDE) OF 30 MINUTES (FIELD ADJUSTABLE).

5.3 IT IS EXPECTED THAT DEBRIS BRUSH MAY BE PLACED IN REMOTE AUTOMATIC OPERATION, THUS INITIATING THE INTAKE CLEANING PROCESS FROM A SIGNAL GENERATED BY THE PRESSURE DIFFERENTIAL FROM THE FLOWS IN THE UPSTREAM AND DOWNSTREAM, INDICATING THE CLOGGING OF THE INTAKE TRASHRACKS.

5.4 AUTOMATIC OPERATION IS ONLY PERMITTED IF EQUIPMENT CONTROLS ARE INTERLOCKED WITH INTAKE OPERATIONS (BY OTHERS-FUTURE) TO PREVENT RAKE OPERATION WHILE THE INTAKE IS FLOWING WATER.

6. OPERATING SPEEDS

- DEBRIS BRUSH BOOM OPERATING SPEED - 20-45 FPM
- TROLLEY TRAVEL SPEED - 20-45 FPM
- BRISTLE ROLLER RPM - 25-30 RPM
- APPROX. CYCLE TIME FOR 1 FULL STROKE - 5 MINUTES
- TOTAL BRUSHING AND FULL INTAKE - 30 MINUTES (APPROX)
- BOOM TRAVELING DISTANCE - 85 FEET
- TROLLEY TRAVEL - 32 FEET (APPROX)



ISO VIEW - THRASHRACK AND DEBRIS BRUSH MACHINERY

SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER 106617PE OREGON MARCH 11, 2005 EVAN CLOUGH

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
-	P&S PRE-BCOES REVIEW	-	-

U.S. ARMY CORPS OF ENGINEERS
NORTHWESTERN DIVISION
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: R. DHANASEKARAN
DRAWN BY: R. DHANASEKARAN
SUBMITTED BY: E. CLOUGH
PLOT SCALE: 1:1
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: J. HEID
CONTRACT NO.:
PLOT DATE: 6/2/2015
FILE NAME: W912TN_M-501.dwg
SOLICITATION NO.:
FILE NUMBER: -

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

MECHANICAL
NEW DEBRIS BRUSH MACHINE
SYSTEM OPERATION VIEWS AND DETAILS

SHEET IDENTIFICATION
M-501

File Last Saved By: RTOLENTINO

ELECTRICAL SYMBOLS AND ABBREVIATIONS

GRAPHIC SYMBOLS

- ELEVATION REFERENCE (A / E-01) — LETTER INDICATES ELEVATION; NUMBER INDICATES SHEET REFERENCED
- SECTION REFERENCE (B / E-02) — LETTER INDICATES SECTION; NUMBER INDICATES SHEET REFERENCED
- DETAIL REFERENCE (2 / E-05) — TOP NUMBER INDICATES DETAIL; BOTTOM NUMBER INDICATES SHEET REFERENCED
- E-103 — STANDARD DETAIL REFERENCE; NUMBER INDICATES DETAIL
- J — JUNCTION BOX
- MAJOR ELECTRICAL EQUIPMENT (MCC, PANELBOARD, ETC)
- X / X/M — CIRCUIT BREAKER; XXXA CURRENT RATING NOTED OR MOTOR CIRCUIT PROTECTOR; XX/M MAG ONLY RATING SHOWN; DIAMOND: WITH LOCK OUT PROVISIONS FOR LOCKOUT/TAGOUT
- PLUG ASSEMBLY (MALE & FEMALE CONNECTORS)
- 3P / 90 — MOLDED-CASE CIRCUIT BREAKER, NUMBER INDICATES TRIP RATING IN AMPERES. 2P INDICATES 2-POLE; 3P INDICATES 3-POLE
- DISCONNECT SWITCH
- VOLTAGE OR CONTROL TRANSFORMER
- POWER TRANSFORMER (ONE LINE DIAGRAM)
- OL / OL — OVERLOAD RELAY
- FUSE
- CONTACTS (NORMALLY CLOSE) / CONTACTS (NORMALLY OPEN) — IN DE-ENERGIZED POSITION OR WHEN QUANTITIES TO WHICH THEY RESPOND ARE OF THE LOWEST VALUE
- B / PTT — PRESS TO TEST INDICATING LIGHT, COLOR AS INDICATED (A=AMBER,G=GREEN,R=RED, W=WHITE, ETC)
- M / 5 — MOTOR, NUMBER INDICATES APPROXIMATE HP
- CONNECTION TO GROUND
- 480V RECEPTACLE / STANDBY GENERATOR RECEPTACLE
- 240V RECEPTACLE
- 125V, 20A DUPLEX RECEPTACLE, GFCI - INDICATES GFCI PROTECTED; WP - INDICATES WEATHERPROOF COVER
- SINGLE-POLE, SINGLE-THROW (SPST) SWITCH
- $ — SINGLE POLE SNAP SWITCH 125V, 20A
- $3 — 3-WAY SNAP SWITCH 125V, 20A
- XYZ — NEW CIRCUIT IDENTIFICATION PER SCHEDULE
- XYZ — NEW CONDUIT IDENTIFICATION PER SCHEDULE
- NON-FUSED HP RATED DISCONNECT SWITCH
- FUSED HP RATED DISCONNECT SWITCH
- 1 — COMBINATION MOTOR STARTER (NUMBER INDICATES NEMA SIZE RATING)
- INTEGRAL MOTOR STARTER
- N.C. PUSH BUTTON
- N.O. PUSH BUTTON
- EMERGENCY PUSH BUTTON
- XW — LIGHTING FIXTURE (XW INDICATES FIXTURE WATTAGE)
- WALL MOUNTED EXIT LED LIGHT
- NEW EQUIPMENT
- EXISTING EQUIPMENT

SAMPLE DEVICE FUNCTIONS

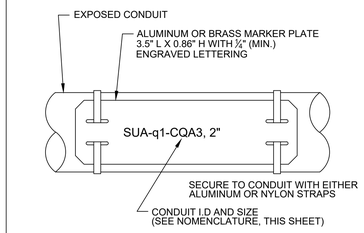
- 1-() — MASTER CONTROL SWITCH
- 20 — ELECTRICALLY OPERATED VALVE (SOLENOID)
- 33 — POSITION SWITCH
- 42 — AC CONTACTOR
- 43 — MANUAL TRANSFER DEVICE
- 50 — INSTANTANEOUS OVERCURRENT OR RATE-OF-RISE RELAY

EXAMPLES

- 23 OR (23) — NUMBER OR LETTERS INDICATE DEVICE FUNCTION AS NOTED.
- 42X OR (42 X) — SUFFIX X INDICATES ASSOCIATED AUXILIARY RELAY.
- 42-1 OR (42 1) — SUFFIX USED FOR IDENTIFICATION.
- (50-Q Z) — SUFFIX Z INDICATES OPERATED BY BELL ALARM CONTACT.

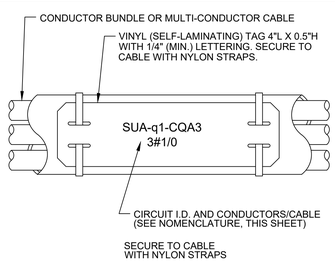
CONDUIT AND GROUNDING

- CONDUIT EXPOSED
- CONDUIT EMBEDDED IN FLOOR OR WALL
- CONDUIT TURNING TOWARD OBSERVER.
- CONDUIT TURNING AWAY FROM OBSERVER.
- EMBEDDED GROUND CONDUCTOR (SIZE AS INDICATED).
- G.I. — GROUND INSERT IN FLOOR
- CONDUIT CAPPED BELOW FIN. GRADE
- LP-1.3 — HOME RUN TO PANELBOARD. ARROWS INDICATE NUMBER OF CKTS, LETTERS IDENTIFY PANEL, NUMBER(S) AT ARROW IDENTIFIES CKTS.
- CONDUIT TICK MARKS DESIGNATION
- TO BE REMOVED
- FIELD WIRING (I/O DRAWINGS)



NOTE: TAG MAY BE ROUND WHERE REQUIRED FOR EMBEDDED CONDUITS TERMINATING IN ENCLOSURES.

CONDUIT I.D. TAGS



CABLE/CONDUCTOR I.D. TAGS

NOMENCLATURE

A. TERMINAL EQUIPMENT

L - LOCK
F - FISH RELATED
D - NON-OVERFLOW DAM

1. SWITCHBOARDS AND SWITCHGEAR

LCQ - 480V SWITCHGEAR (NAV LOCK)
SU - 480V SWITCHBOARD (MAIN UNITS)
SUA - 480V SWITCHBOARD (FISHWATER UNITS)
SJ - 13.8kV SWITCHGEAR (STATION SERVICE)

2. LOAD CENTERS

CQ - 480V (POWERHOUSE)
DCR1 - 480V (DAM LIGHTING)
DQ - 480V (NON-OVERFLOW DAM)
FCQ - 480V (FISH RELATED)
SQ - 480V SUBSTATION (POWERHOUSE)

3. APPARATUS

B - BATTERY
CT - CURRENT TRANSFORMER
IOR - REMOTE PLC INPUT/OUTPUT RACK
L - LIGHTING
M - MOTOR
MCC - MOTOR CONTROL CENTER
T - TRANSFORMER (POWER)
TR - TRANSFORMER (LIGHTING)
X - BREAKER (ADD VOLTAGE LETTER)
Z - DISC. SWITCH (ADD VOLTAGE LETTER)

B. MODIFYING TERMS FOR TERMINAL EQUIPMENT

1. AS AN AID TO FURTHER IDENTIFICATION OF VOLTAGE CLASS AND LOCATION OF THE EQUIPMENT, THE FOLLOWING ARE APPLIED TO SEPARATELY MOUNTED BREAKERS, DISCONNECTING MOUNTED BREAKERS, DISCONNECTING SWITCHES, CURRENT TRANSFORMER AND VOLTAGE TRANSFORMERS.

J - 13.8kV
P - 5kV
Q - 480V
R - 120/240 (120/208)
N - NEUTRAL (i.e. GN1,TN1)

2. SERVICE CODE OR VOLTAGE CLASS

c - CONTROL CIRCUITS
d - 0-48V AC/DC
j - POWER CIRCUIT, 13.8kVAC
p - POWER CIRCUIT, 4160VAC
q - POWER CIRCUIT, 480VAC
r - POWER CIRCUIT (LIGHTING) 120/240 OR 120/208 VAC
s - SPARE CONDUIT
tn - LOCAL AREA NETWORK (LAN) CIRCUITS
tt - TELEPHONE/PBX CIRCUITS, COMMUNICATION CIRCUITS
tv - CLOSED CIRCUIT TELEVISION (CCTV) VIDEO CIRCUITS
T1 - DEDICATED T1 CIRCUITS
u - ALARM CIRCUITS, ANNUNCIATOR CIRCUITS, SELF-SYNCHRONOUS INDICATING CIRCUITS, RTD AND TRANSDUCER OUTPUT CIRCUITS, RECORDER, OTHER LOW-LEVEL SIGNAL CIRCUITS.

C. CIRCUIT AND ROUTING IDENTIFICATION

1. ELECTRICAL CIRCUITS AND CONDUITS ARE IDENTIFIED AS FOLLOWS:

A. BETWEEN MAJOR ITEMS OF EQUIPMENT, A THREE PART NUMBER IS USED.

START OF RUN — SUA-q1-CQA3 — END OF RUN
SERVICE CODE OR VOLTAGE CLASS — CIRCUIT NUMBER

B. A TWO-PART NUMBER IS USED FOR MOST LIGHTING AND SOME POWER DISTRIBUTION CIRCUITS; I.E., THE END OF RUN IS OMITTED.

C. CONTROL CIRCUIT NUMBERS CORRESPOND TO THE NUMBER OF THE CONTROLLED POWER CIRCUIT; e.g. CQA3-c1 WOULD CONTROL CQA3-q1.

D. CONDUIT NUMBERS ARE GENERALLY IDENTICAL TO THE CIRCUIT CONTAINED WITHIN THE CONDUIT.

E. CIRCUITS TO DEVICES FORMING AN INTEGRAL PART OF TERMINAL EQUIPMENT RECEIVE THE TERMINAL EQUIPMENT DESIGNATION (e.g. THE CIRCUIT TO CT'S IN CIRCUIT BREAKER XJ1 COULD BE DESIGNATED SU1-q1-XJ1). CIRCUITS TO SEPARATELY MOUNTED DEVICES RECEIVE THE DESIGNATION ASSIGNED TO THE DEVICE (i.e. CQ24-q1-4C1 IS A CIRCUIT GOING TO TRANS. OIL PUMP 4C1).

2. MULTI-CONDUCTOR CABLES ARE IDENTIFIED BY SUFFIX "C", i.e., 3/C INDICATES A THREE-CONDUCTOR CABLE WHILE A NUMERAL 3 INDICATES THREE CONDUCTORS.

D. FIBER OPTIC CABLE IDENTIFICATION

ABC-FO1-XYZ
ORIGIN — DESTINATION
CABLE ID

ELECTRICAL ABBREVIATIONS

A	AMMETER, AMPERE
AF	AMP FUSE, AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AIR	AMPERE INTERRUPTING RATING
AL	ALUMINUM
ARS	AREA LIGHT SWITCH
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BCG	BARE COPPER GROUND
BCPC	BULKHEAD CRANE POWER CABINET
BCPCD	BULKHEAD CRANE POWER CABINET DISCONNECT
BK	BRAKE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CGB	CABLE GLAND BUSHING
CLCP	COMPRESSOR LOCAL CONTROL PANEL
CPB	CONTROL PULLBOX
CPMP	CIRCULATING PUMP
CPT	CONTROL POWER XFMR
CPU	CENTRAL PROCESSING UNIT
CRS	CONVENIENCE RECEPTACLE STATION
CRT	CATHODE RAY TUBE
CS	COUNTING STATION
CT	CABLE TRAY / CURRENT TRANSFORMER
CV	CABLE VAULT
DG	DIESEL GENERATOR
DGAM	DIFFUSION GATE ACTUATOR MOTOR
DH	DEHUMIDIFIER
DIV	DIVISION
DMDP	DAM MAIN DISTRIBUTION PANEL
DRP	120VAC DISTRIBUTION PANEL
DSDP	DAM SUB DISTRIBUTION PANEL
D/S	DOWNSTREAM
EGB	EMERGENCY GATE BRAKE
EGCP	EMERGENCY GATE CONTROL PANEL
EGM	EMERGENCY GATE MOTOR
EGRS	EMERGENCY GATE RECEPTACLE STATION
EF	EXHAUST FAN
EL	ELEVATION
EM	EMERGENCY
EMC	ELECTROMAGNETIC COMPATIBILITY
EXST	EXISTING
F,FU	FUSE
FCB	FEEDER CIRCUIT BREAKER
FCSP	FUEL CLEANING SYSTEM PANEL
FDR	FEEDER
FLR	FLOOR
FLUOR	FLUORESCENT LIGHTING
F/O	FIBER OPTIC
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GAM	GATE ACTUATOR MOTOR
G/GND	GROUND
GALV	GALVANIZED
GFCI	GND, FAULT CIRCUIT INTERRUPTER
GFE	GOVT FURNISHED EQUIPMENT
GI	GROUND INSERT
HB	HIGH BAY
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HTR	HTR
IG	ISOLATED GROUND
INCAND	INCANDESCENT
INST	INSTANTANEOUS
IPS	INTAKE AND PUMP STRUCTURE
J/JB	JUNCTION BOX
LC	LIGHT CONTACTOR
LT-FLEX	LIQUID TIGHT FLEX CONDUIT
LTG	LIGHTING
LR	LATCHING RELAY
L/R	LOCAL/REMOTE
M/MTR	MOTOR
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MD	MOTION DETECTOR
MH	MANHOLE / METAL HALIDE
MLO	MAIN LUGS ONLY
MPC	MINI-POWER CENTER (XFMR AND PNL)
MS	MOTOR STARTER
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NP	NAMEPLATE
O/L	OVERLOAD RELAY
PART	PARTIAL
PB	PUSH BUTTON
PC	PHOTOCELL
PH	PHASE
PL	PILOT LIGHT
PNL	PANEL
PR	PAIR
PS	PRESSURE SWITCH
PSF	PRE-SORT FLUME
PSS	PRE-SORT SUPPLY
PTT	PUSH TO TEST
PVC	POLYVINYL CHLORIDE CONDUIT
PWWC	POTABLE WATER WELL CONTROLLER
Q	QUARTS LIGHTING
QC	QUALITY CONTROL
RCPT	RECEPTACLE
REF	REFERENCE INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RN	RUN
SA	SURGE ARRESTOR
SF	SUPPLY FAN
SG	SWITCHGATE
SGB	SERVICE GATE BRAKE
SGCP	SERVICE GATE CONTROL PANEL
SGM	SERVICE GATE MOTOR
SLRSD	STOP LOG RECEPTACLE STATION DISCONNECT
SM	SINGLE MODE (FIBER)
S/N	SOLID NEUTRAL
SPD	SURGE PROTECTION DEVICE
SPDT	SINGLE-POLE DOUBLE-THROW
SPST	SINGLE-POLE SINGLE-THROW
SS	STAINLESS STEEL / SOFT STARTER
SSCP	SANITARY SEWER CONTROL PANEL
STB	SHORTING TERMINAL BLOCK
SV	SOLENOID VALVE
TB	TERMINAL BLOCK
TC	TERMINAL CABINET
TR	TRIAD
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
U/S	UPSTREAM
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VAM	VALVE ACTUATOR MOTOR
VFD/VSD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VS	VOLTMETER SWITCH
W	WATT
WP	WEATHERPROOF
WT	WATERTIGHT
W/	WITH
XFMR	TRANSFORMER

CONTROL ABBREVIATIONS

AE	ABSOLUTE ENCODER
AI	ANALOG INPUT
AIR	AMPERE INTERRUPT RATING
ALM/AH	ALARM/ANNUNCIATOR HORN
AO	ANALOG OUTPUT
AUX	AUXILIARY
AWS	AUXILLARY WATER SUPPLY
BHCP	BULKHEAD CRANE HOIST CONTROL PANEL
BTCP	BULKHEAD CRANE TRAVEL CONTROL PANEL
CCT	CONTROL CIRCUIT TRANSFORMER
CP	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL SWITCH
CU	COPPER
CV	CONTROL VALVE
DI	DISCREET INPUT
DNET	DEVICENET
DTAP	DEVICENET TAP
DO	DISCREET OUTPUT
DPM	DIGITAL POWER METER
DS	DISCONNECT SWITCH
DSA	DEVICENET STARTER ASSEMBLY
DT	DEVICENET TAP
ETM	ELAPSED TIME METER
FC	FLOW CONTROLLER
FM	FLOW METER
FU	FUSE
FWS	FACILITY WATER SUPPLY
FZ	VALVE POSITION (FLOW)
HOA	HAND-OFF-AUTO
HMI	HUMAN MACHINE INTERFACE
HPU	HYDRAULIC PRESSURE UNIT
HV	HAND VALVE
I/O	INPUT/OUTPUT
I/P	CURRENT TO PRESSURE TRANSMITTER
IY	CURRENT CONVERTER
IR	INDUCTION RELAY
LC	LEVEL CONTROLLER
LE	LEVEL ELEMENT
LGGR	LOGGER
LS	LIMIT SWITCH
LT	LEVEL TRANSMITTER
MCC	MOTOR CONTROL CENTER
MCR	MASTER CONTROL RELAY
ME	RELATIVE HUMIDITY/MOISTURE ELEMENT
MIT	RELATIVE HUMIDITY INDICATING XMTR
MTS	MANUAL TRANSFER SWITCH
PA	PLANT AIR
PB	PUSH BUTTON
PBL	ILLUMINATED PUSH BUTTON
PC	PERSONAL COMPUTER
PDP	POWER DISTRIBUTION PANEL
PDT	DIFFERENTIAL PRESSURE TRANSMITTER
PIO	POINT INPUT/OUTPUT
PIT	PRESSURE INDICATING TRANSMITTER
PIT TAG	PASSIVE INTEGRATED TRANSPONDER TAG
PL	PILOT LIGHT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PPB	POWER PULLBOX
PRV	PRESSURE REGULATING VALVE
PRX	PROXIMITY SWITCH
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
PTT	PRESS TO TEST
PWR	POWER
PY	PRESSURE CONVERTER
REG	PRESSURE REGULATOR
RIO	REMOTE I/O
RLS	ROTARY LIMIT SWITCH
S/N	SOLID NEUTRAL
SCADA	SUPERVISORY CTRL & DATA ACQUISITION
SCR	SAFETY CONTROL RELAY
SGR	STANDBY GENERATOR RECEPTACLE
SOL/SV	SOLENOID/SOLENOID VALVE
SPL	STATION PILOT LIGHT
SS	SELECTOR SWITCH
STA	STATION (OPERATOR CNTRL)
SV	SOLENOID VALVE
SW	SWITCH
T/XFMR	TRANSFORMER
TD	TIME DELAY RELAY
TE	TEMPERATURE ELEMENT
TGCP	TAINTER GATE CONTROL PANEL
TI	TEMPERATURE INDICATOR
TT	TEMPERATURE TRANSMITTER
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UTP	UNSHIELDED TWISTED PAIR
VFD/VSD	VARIABLE FREQUENCY / SPEED DRIVE
VS	VIBRATION SWITCH
VT	VIBRATION TRANSMITTER
WS	WEIGHT/TENSION SWITCH
XMTR	TRANSMITTER
YS	AUX ATS SWITCH
ZS	LIMIT SWITCH
ZSM	MANUAL GATE RAISE LIMIT SWITCH
ZT	POSITION TRANSMITTER
ZV	PNEUMATIC PISTON ACTUATOR
ZZ	POSITIONING LINEAR ACTUATOR (ELECT)

NOTES:

1. ITEMS SHOWN ON THIS DRAWING ARE NOT ALL NECESSARILY REFERENCED ON THE FOLLOWING INDIVIDUAL DRAWINGS.
2. SYMBOLS, DEVICE NUMBERS AND LEGEND SHOWN ON THE DRAWING ARE APPLICABLE FOR ALL DRAWINGS. HOWEVER, IF SYMBOLS, DEVICE NUMBERS ARE LEGEND APPEAR ON AN INDIVIDUAL DRAWING AND DIFFER FROM THIS DRAWING, THE INFORMATION ON THE INDIVIDUAL DRAWING SHALL GOVERN.
3. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE 2023 EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
4. CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT INTERFERENCES WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS. IN THE EVENT OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY USACE IN WRITING AND USACE SHALL APPROVE PROPOSED CHANGES BEFORE FIELD WORK TO IMPLEMENT CHANGES HAS BEGUN.
5. THE OWNER SHALL DE-ENERGIZE ALL WIRING PRIOR TO REMOVAL OF EQUIPMENT, DEVICES, MOTORS INSTRUMENTATION, CONTROL PANELS, ETC. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE ENGINEER. OUTAGES MUST BE COORDINATED WITH OWNER AND REQUESTED A MINIMUM OF 14 DAYS IN ADVANCE.
6. EXPOSED RACEWAYS: PATCH TO MATCH EXISTING. FINISH-ALL OPENINGS IN WALLS AND FLOORS.

REGISTERED PROFESSIONAL ENGINEER — 92497PE — OREGON — JULY 11, 2017 — CHRISTOPHER EDEN

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
SUBMITTED BY: C. EDEN
PLOT SCALE: 1
PLOT DATE: 11 JULY 2025
SIZE: F SIZE
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
FILE NAME: W912TN_E-001.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

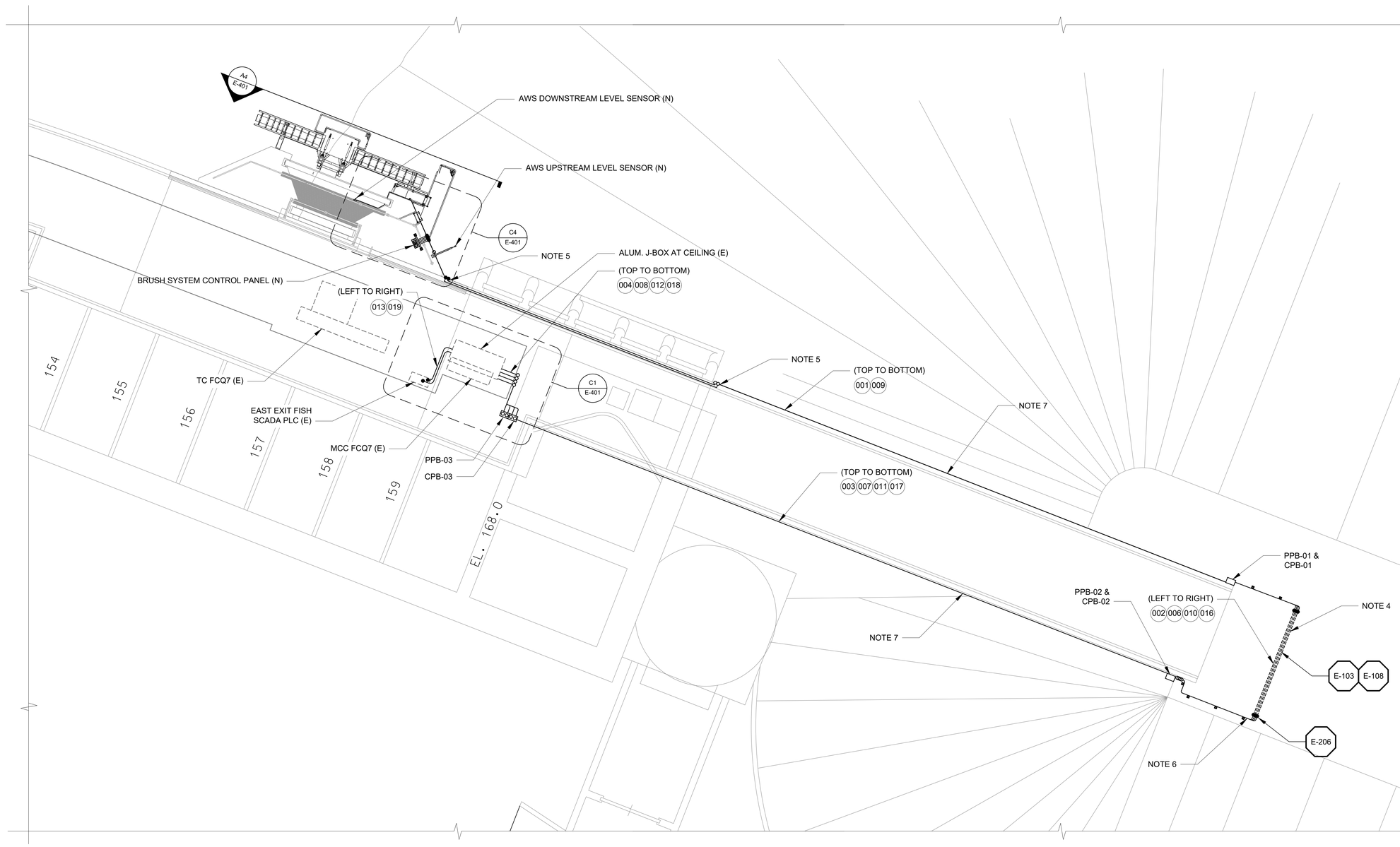
ELECTRICAL
SYMBOLS AND ABBREVIATIONS

SHEET IDENTIFICATION
E-001

File Last Saved By: CCRONE

GENERAL SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL ABBREVIATIONS AND SYMBOLS. REFER TO SHEET E-501 FOR ELECTRICAL DETAILS.
2. FOR ADDITIONAL INFORMATION ON CONDUIT AND CABLING, REFER TO CONDUIT SCHEDULE (E-701) & CABLE SCHEDULE (E-702).
3. CONDUITS ARE DIAGRAMMATICALLY SHOWN FOR REFERENCE. CONTRACTOR SHALL COORDINATE FINAL ROUTING OF CONDUITS IN THE FIELD.
4. FOR ADDITIONAL DETAIL ON UNDERGROUND RACEWAY INCLUDING BACKFILL & DEPTH REQUIREMENTS, SEE SHEET C-501.
5. CONTRACTOR SHALL INSTALL CONDUIT BODY TYPE "LR" & "LL" WHERE NOTED.
6. CONTRACTOR SHALL INSTALL CONDUIT BODY TYPE "C" WHERE NOTED.
7. CONTRACTOR SHALL INSTALL CONDUIT EXPANSION SLEEVES AT ALL MONOLITH JOINTS.



A1 PLAN - EAST FISH LADDER
SCALE: 1" = 10'-0"

PLAN NORTH

0 10' 20'

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
SUBMITTED BY: C. EDEN
PLOT SCALE: 1:1
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: C. ESPINOZA
CONTRACT NO.:
PLOT DATE: 07/11/2017
FILE NUMBER:
FILE NAME: W912TN_E-101.dwg

U.S. ARMY CORPS OF ENGINEERS
ATTN: TANA WESTERFIELD
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

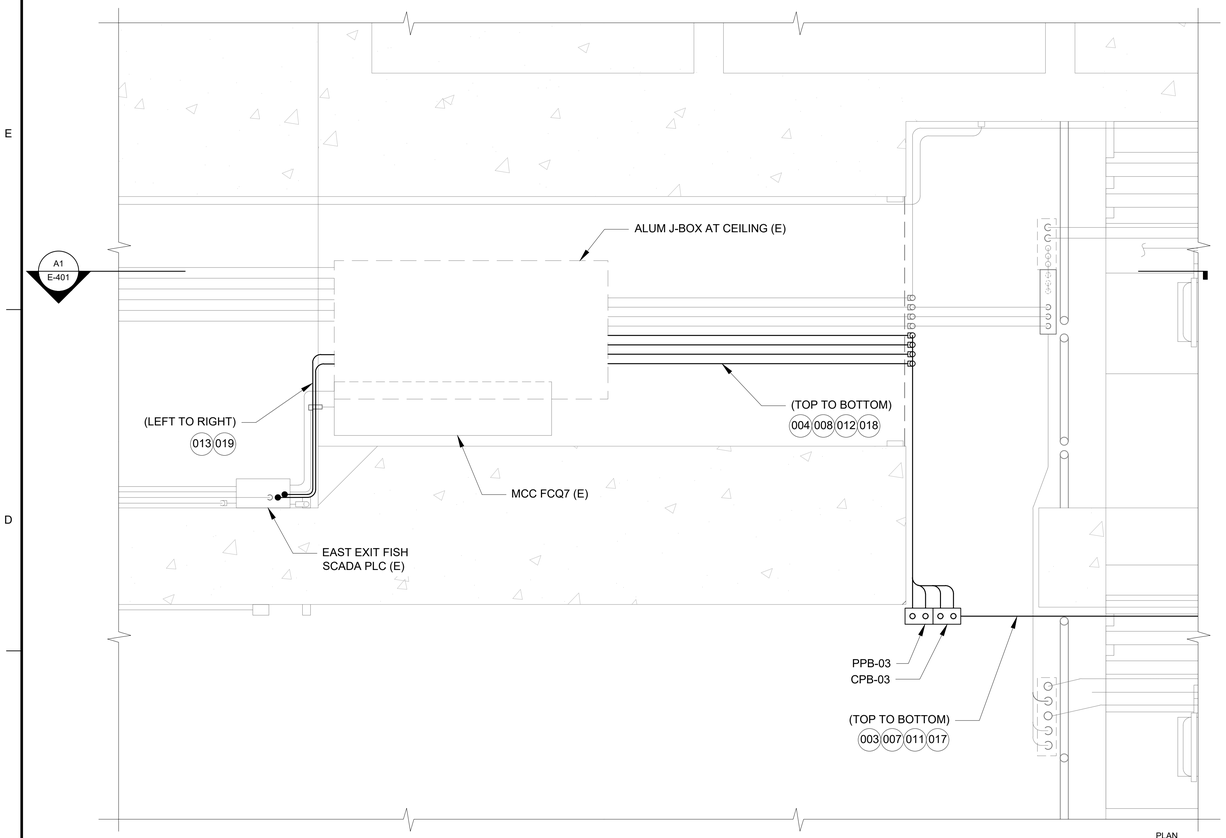
ELECTRICAL
PLAN

SHEET IDENTIFICATION
E-101
SNO NOS

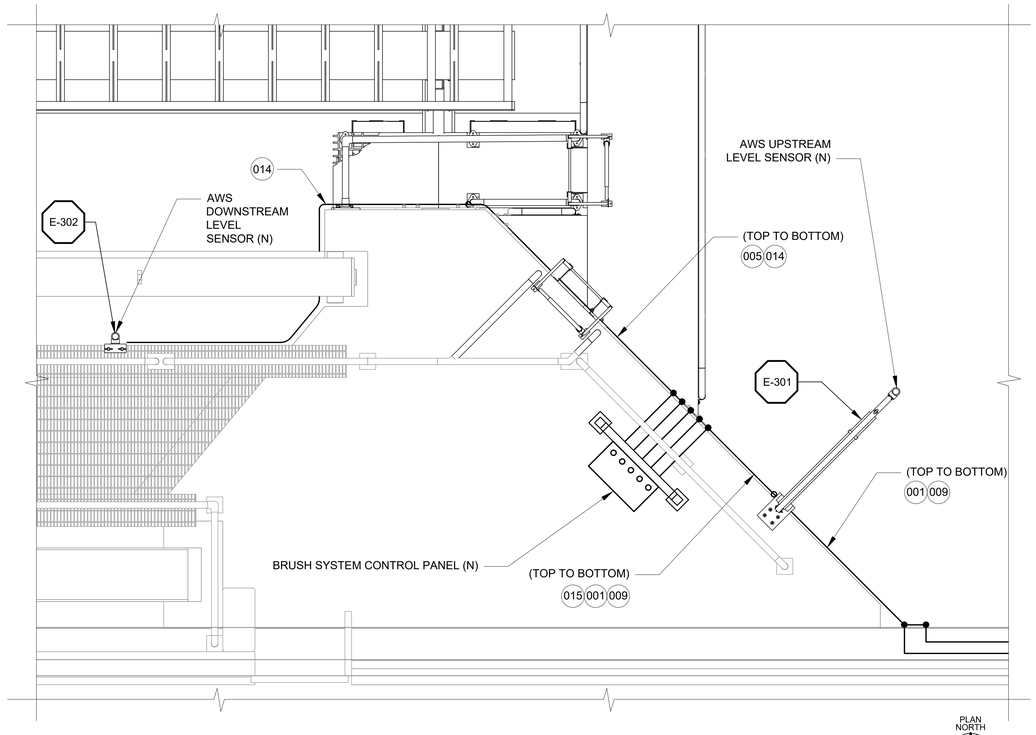
File Last Saved By: RTOLENTINO

GENERAL SHEET NOTES

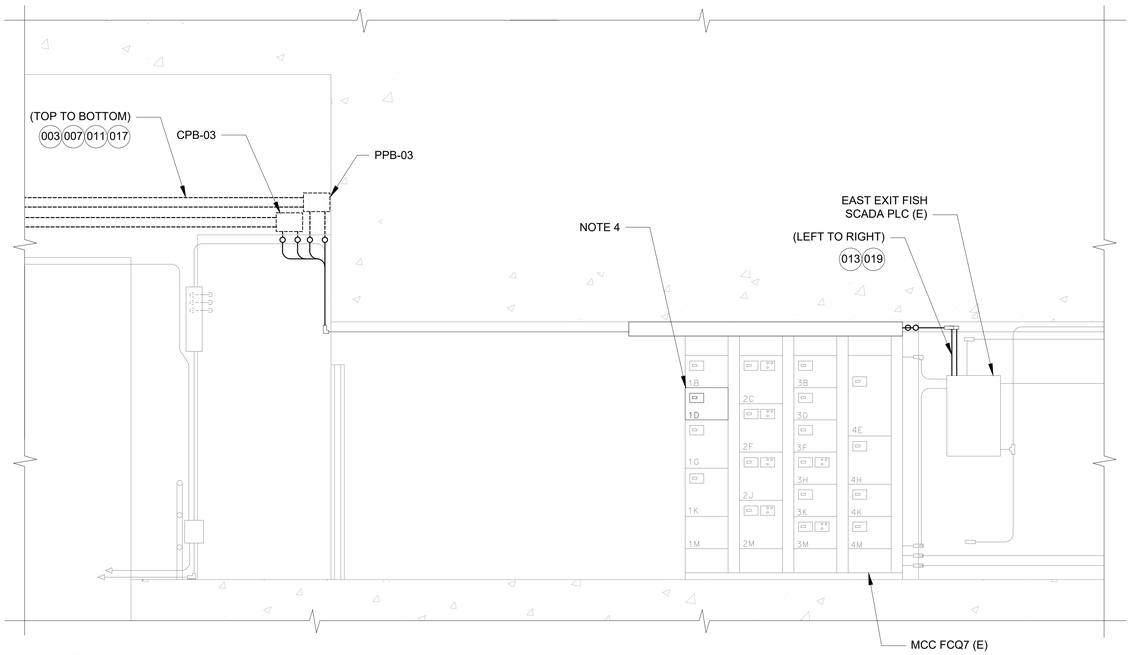
1. REFER TO SHEET E-001 FOR ELECTRICAL ABBREVIATIONS AND SYMBOLS. REFER TO SHEET E-501 FOR ELECTRICAL DETAILS.
2. FOR ADDITIONAL INFORMATION ON CONDUIT AND CABLING, REFER TO CONDUIT SCHEDULE (E-701) & CABLE SCHEDULE (E-702).
3. CONDUITS ARE DIAGRAMMATICALLY SHOWN FOR REFERENCE. CONTRACTOR SHALL COORDINATE FINAL ROUTING OF CONDUITS IN THE FIELD.
4. EXISTING MCC FCQ7 SPARE COMPARTMENT 1D WILL BE USED TO POWER NEW BRUSH SYSTEM CONTROL PANEL.



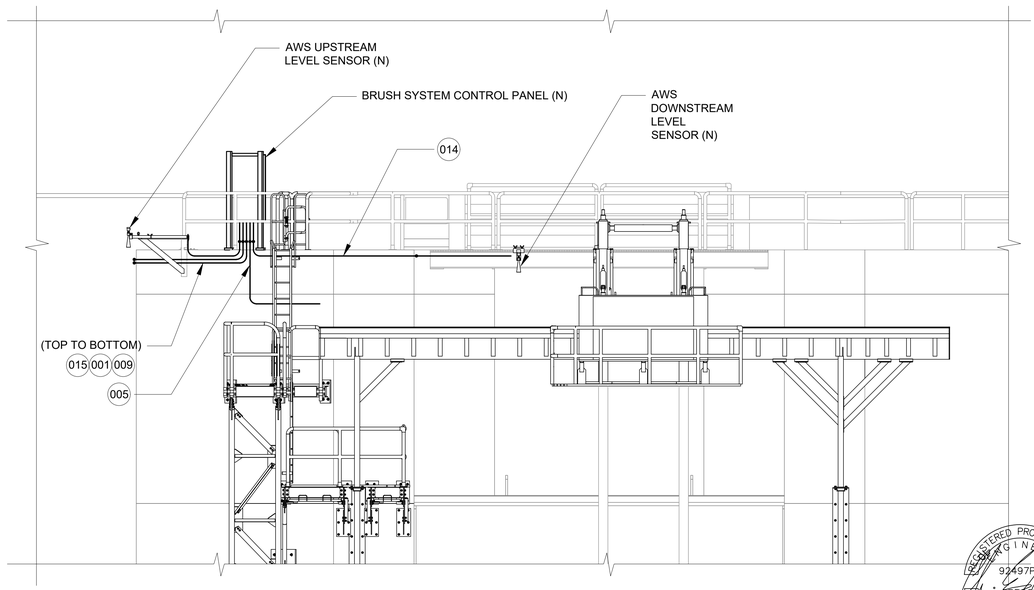
C1 E-101 DETAIL - SERVICE GALLERY @ EL 168.0
SCALE: 1/2" = 1'-0"



C4 E-101 DETAIL - DECK @ EL 185.12
SCALE: 1/2" = 1'-0"



A1 E-401 SECTION - SERVICE GALLERY @ EL 168.0
SCALE: 1/2" = 1'-0"



A4 E-101 SECTION - DECK @ EL 185.12
SCALE: 1/4" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
SUBMITTED BY: C. EDEN
PLOT SCALE: 1:1
PLOT DATE: BY PRINTING
SIZE: F SIZE
ISSUE DATE:
CHECKED BY: C. EDEN
CONTRACT NO.:
FILE NUMBER:
FILE NAME: V91277N_E-401.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

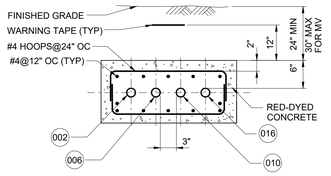
Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
SECTION & DETAIL SHEET 1

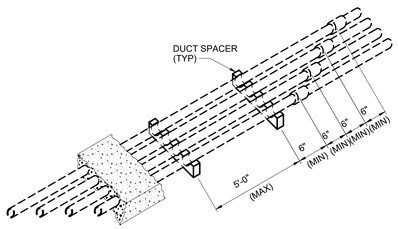
SHEET IDENTIFICATION
E-401
SNO NOS

File Last Saved By: RTOLENTINO

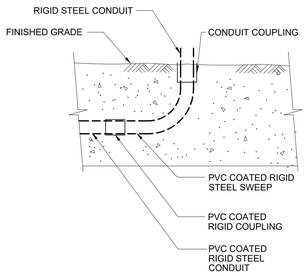


NOTES:
1. ALL CONDUIT LOCATED IN DUCTBANK SHALL BE PVC COATED RIGID STEEL.
2. FOR ADDITIONAL INFORMATION ON CONDUIT NOMENCLATURE, REFER TO CONDUIT SCHEDULE (E-701).
3. FOR ADDITIONAL DETAIL INCLUDING BACKFILL & DEPTH REQUIREMENTS, SEE SHEET C-501.

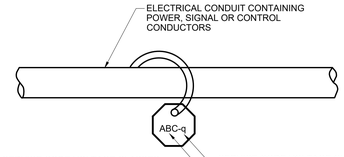
DUCTBANK
REV 110112 — E-103



TYPICAL DUCTBANK
JOINT/SUPPORT SPACING — REV 110112 — E-108



RISER FROM DUCTBANK
REV 110112 — E-206

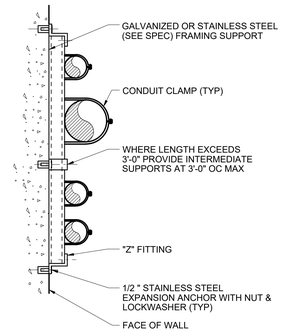


SERVICE CODE/VOLTAGE CLASSES:
q - POWER, 480VAC
c - CONTROL OR DIGITAL STATUS
u - SIGNAL

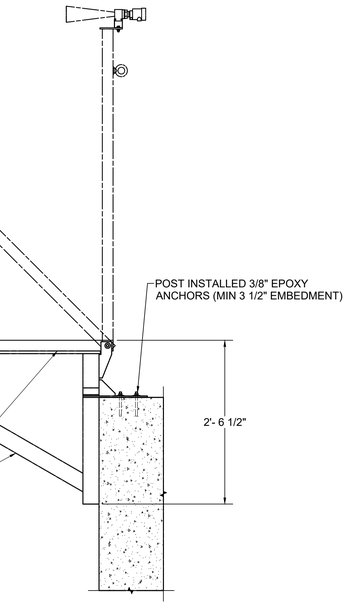
CONDUIT NUMBERS ARE LISTED ON THE CONDUIT / CABLE SCHEDULE

NOTE:
1. CONDUIT TAGS SHALL BE AFFIXED TO CONDUITS:
   A. AFTER ALL WORKING DRAWINGS ARE APPROVED AND ALL FIELD MODIFICATIONS HAVE BEEN MADE.
   B. BEFORE FINAL ACCEPTANCE TESTING HAS STARTED.

CONDUIT IDENTIFICATION TAG
REV 110112 — E-210

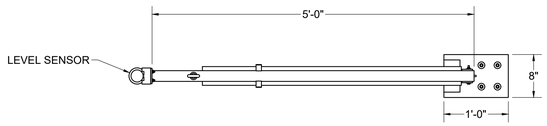


CONDUIT SUPPORT
FLUSH MOUNT — REV 110112 — E-212



NOTES:
1. COORDINATE LEVEL SENSOR CABLE INSTALLATION WITH OWNER TO MATCH EXISTING CONFIGURATION.
2. LEVEL SENSOR CABLE SHALL BE OUTDOOR RATED WITH A UV RESISTANT JACKET.

B1 ELEVATION VIEW - RADAR LEVEL SENSOR BRACKET
SCALE: 1" = 1'

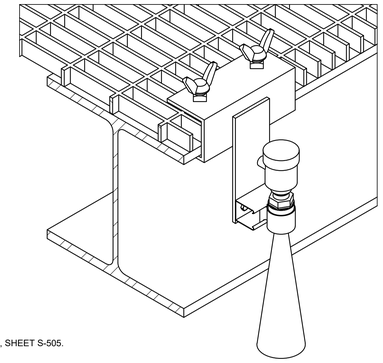


CONTRACTOR TO REPLICATE EXISTING BRACKETRY ON SOUTH TAILRACE.
FOREBAY LEVEL SENSOR DETAILS ABOVE ARE FOR INFORMATION ONLY.

NOTE:
SEE STRUCTURAL DETAIL B1, SHEET S-505.

A1 PLAN VIEW - RADAR LEVEL SENSOR BRACKET
SCALE: 1" = 1'

FOREBAY (UPSTREAM) LEVEL SENSOR
E-301



NOTE:
SEE STRUCTURAL DETAIL B3, SHEET S-505.

C3 ISO VIEW - RADAR LEVEL SENSOR CLAMP
SCALE: NTS

INTAKE (DOWNSTREAM) LEVEL SENSOR
E-302

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
SUBMITTED BY: C. EDEN
ISSUE DATE:
CHECKED BY: J. DIPANDA
PLOT SCALE: 1:1
SIZE: F SIZE
SOLICITATION NO.:
CONTRACT NO.:
PLOT DATE: 07/11/2017
FILE NAME: W912TN_E-501.dwg
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
NORTHWESTERN DIVISION
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL DETAILS

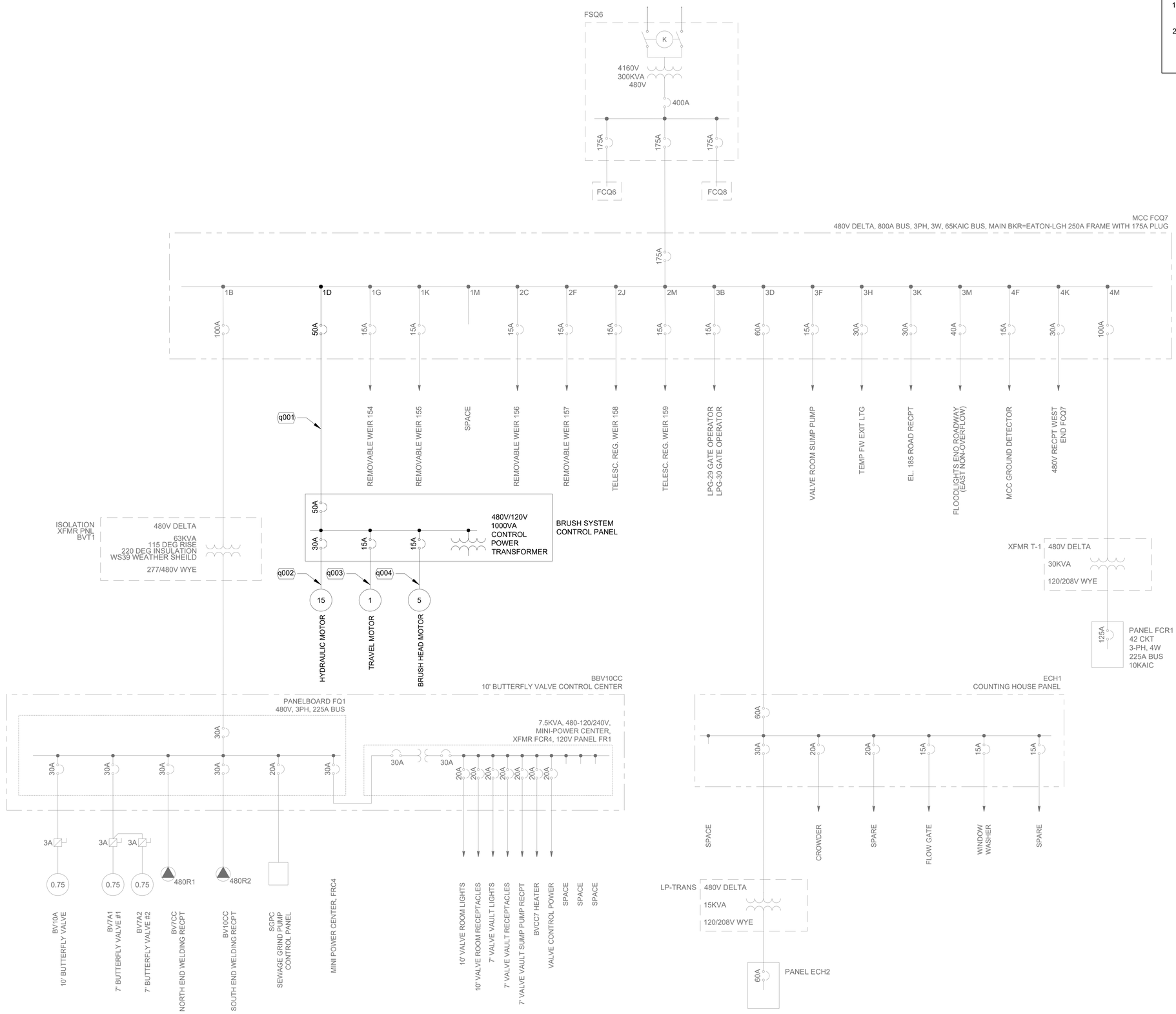
REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

SHEET IDENTIFICATION
E-501

File Last Saved By: CCRONE

GENERAL SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL ABBREVIATIONS AND SYMBOLS. REFER TO SHEET E-501 FOR ELECTRICAL DETAILS.
2. FOR ADDITIONAL INFORMATION ON CONDUIT AND CABLING, REFER TO CONDUIT SCHEDULE (E-701) & CABLE SCHEDULE (E-702).



A1 SINGLE-LINE DIAGRAM
SCALE: NTS

US Army Corps of Engineers®

P&S PRE-BCOES REVIEW

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: C. CRONE	ISSUE DATE:
DRAWN BY: C. CRONE	CHECKED BY: C. EDEN/GA
SUBMITTED BY: C. EDEN	SOLICITATION NO.:
PLOT SCALE: 1:1	CONTRACT NO.:
PLOT DATE: 07/11/2017	FILE NUMBER:
SIZE: F SIZE	FILE NAME: W912PN_E-601.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
SINGLE-LINE DIAGRAM

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

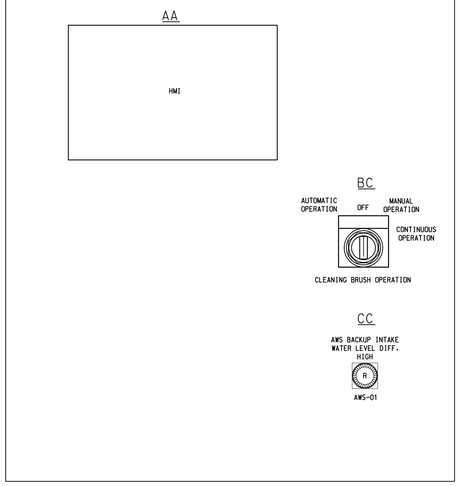
SHEET IDENTIFICATION
E-601

File Last Saved By: CCRONE

BRUSH SYSTEM CONTROL PANEL

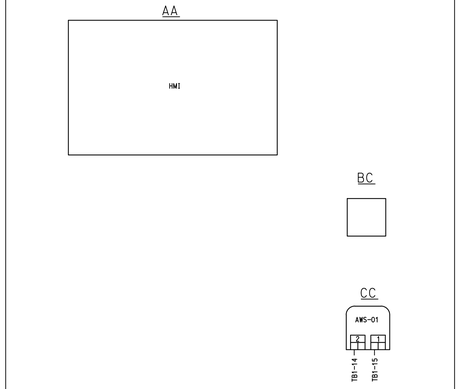
SWING PANEL

FRONT

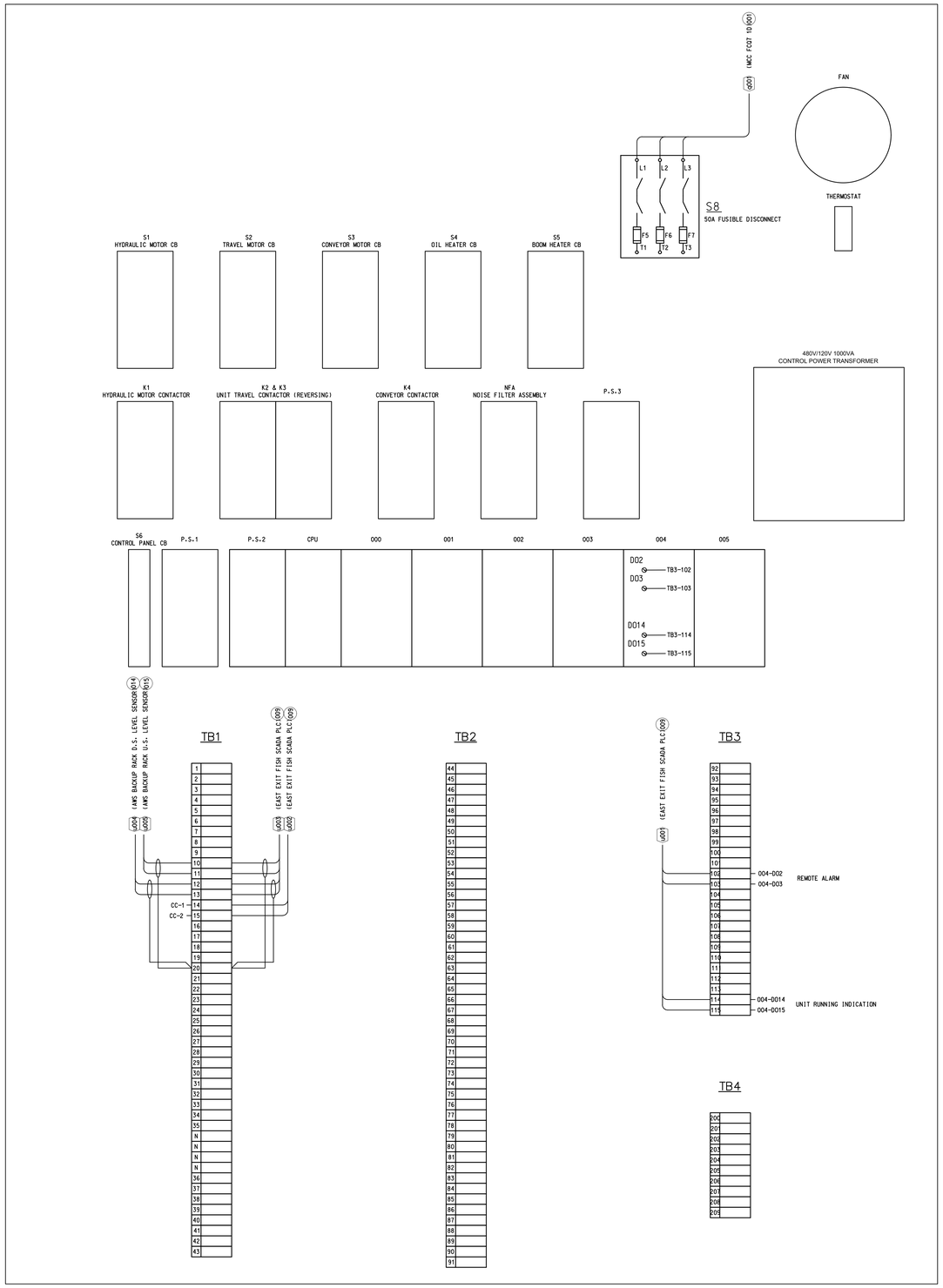


SWING PANEL

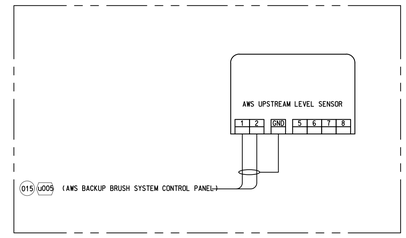
BACK



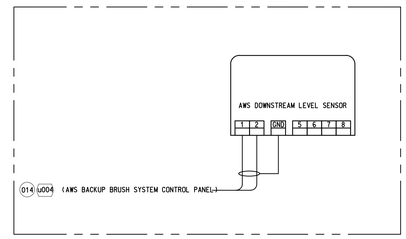
BACK PANEL



AWS UPSTREAM LEVEL SENSOR



AWS DOWNSTREAM LEVEL SENSOR



GENERAL SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL ABBREVIATIONS AND SYMBOLS. REFER TO SHEET E-501 FOR ELECTRICAL DETAILS.
2. FOR ADDITIONAL INFORMATION ON CONDUIT AND CABLING, REFER TO CONDUIT SCHEDULE (E-701) & CABLE SCHEDULE (E-702).
3. BRUSH SYSTEM CONTROL PANEL LAYOUT & TERMINATIONS ARE PROVIDED FOR DESIGN INTENT ONLY. FINAL DESIGN TO BE PROVIDED BY CONTROL PANEL SUPPLIER.
4. BRUSH SYSTEM CONTROL PANEL INTERNAL WIRING IS NOT SHOWN. INTERNAL WIRING TO BE PROVIDED BY CONTROL PANEL SUPPLIER.
5. BRUSH SYSTEM CONTROL PANEL SHALL BE INSTALLED WITH A LOCKABLE DEAD-FRONT PANEL.

A1 BRUSH SYSTEM CONTROL PANEL LAYOUT
SCALE: NTS

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

ISSUE DATE:

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
CHECKED BY: C. CERVIDA
SUBMITTED BY: C. EDEN
PLOT SCALE: 1:1
PAPER SIZE: F SIZE
PLOT DATE: 8/7/2020
FILE NUMBER:
CONTRACT NO.:
SOLICITATION NO.:
FILE NAME: W912PN_E-602.dwg

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
AWS BACKUP INTAKE BRUSH SYSTEM
CONTROL PANEL LAYOUT

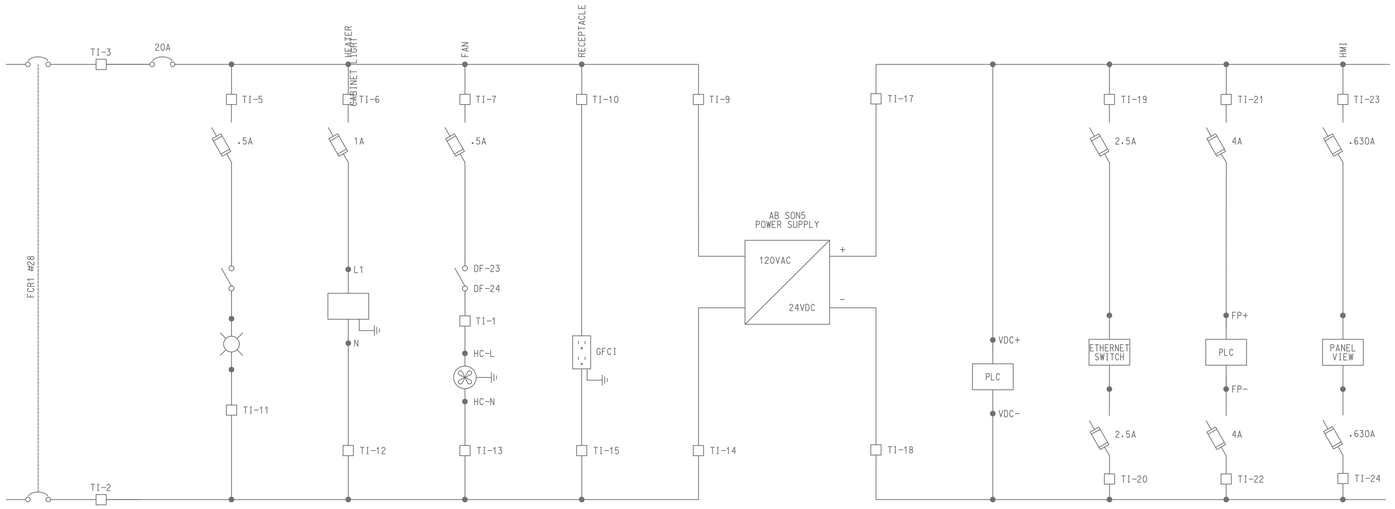
SHEET IDENTIFICATION
E-602

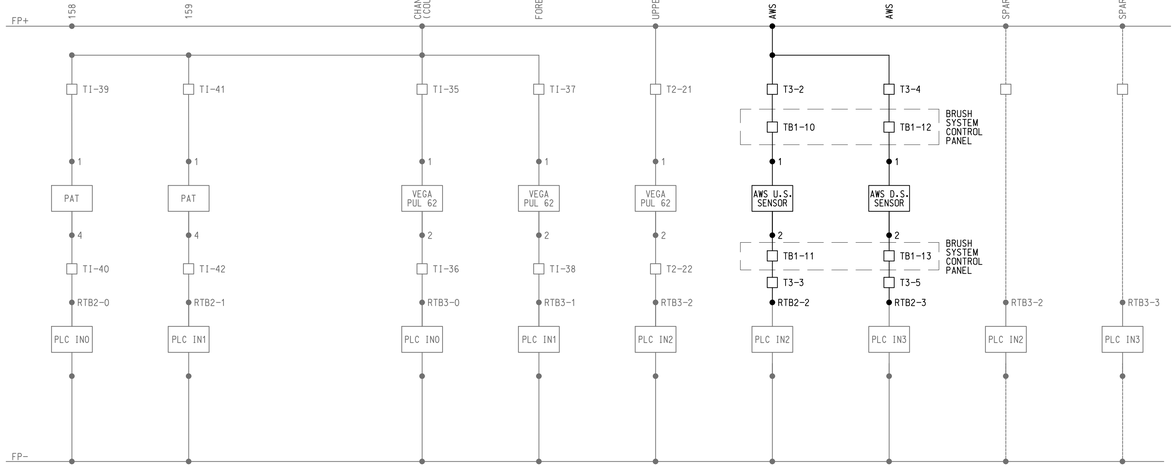
REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

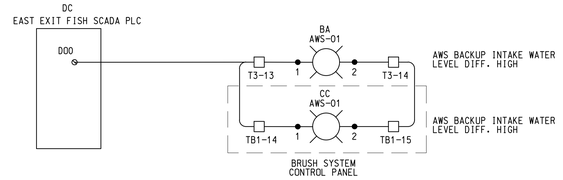
File Last Saved By: CCRONE

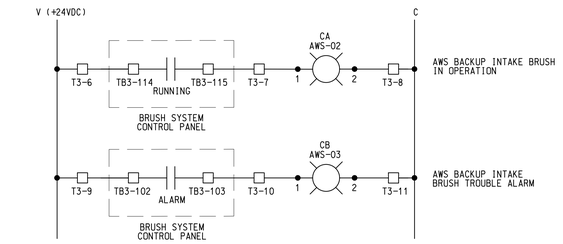
GENERAL SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL ABBREVIATIONS AND SYMBOLS. REFER TO SHEET E-501 FOR ELECTRICAL DETAILS.
2. FOR ADDITIONAL INFORMATION ON CONDUIT AND CABLING, REFER TO CONDUIT SCHEDULE (E-701) & CABLE SCHEDULE (E-702).
3. BRUSH SYSTEM CONTROL PANEL LAYOUT & TERMINATIONS ARE PROVIDED FOR DESIGN INTENT ONLY. FINAL DESIGN TO BE PROVIDED BY CONTROL PANEL SUPPLIER.
4. FOR HYDRAULIC, TRAVEL, AND BRUSH HEAD MOTOR CONTROL SCHEMATICS, REFER TO MANUFACTURER DRAWINGS.









Description	Cable(s)	Signal Type	From	To	Notes
DOWNSTREAM WATER LEVEL SENSOR	⟨u003⟩ ⟨u004⟩	AI	AWS D.S. SENSOR	E.E. FISH SCADA PLC	4-20mA
UPSTREAM WATER LEVEL SENSOR	⟨u003⟩ ⟨u005⟩	AI	AWS U.S. SENSOR	E.E. FISH SCADA PLC	4-20mA
INTAKE WATER LEVEL DIFFERENTIAL HIGH INDICATION	⟨u002⟩	DI	E.E. FISH SCADA PLC	BRUSH CONTROL PANEL	D.S. & U.S. DIFF > 2FT
BRUSH SYSTEM CONTROL PANEL INDICATION (OPERATION/ALARM)	⟨u001⟩	DI	BRUSH CONTROL PANEL	E.E. FISH SCADA PLC	

A1 EAST EXIT FISH SCADA PLC CONTROL SCHEMATIC
SCALE: NTS

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
SUBMITTED BY: C. EDEN
PLOT SCALE: 1:1
SIZE: F SIZE

ISSUE DATE:
CHECKED BY: C. ESPINOZA
PLOT DATE: 07/11/2017
FILE NAME: W9127N_E-603.dwg
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
NORTHWESTERN DIVISION
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR. SUITE 1200
MADISON, WI USA 53718

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
EAST EXIT FISH SCADA PLC ENCLOSURE CONTROL SCHEMATIC

SHEET IDENTIFICATION
E-603

File Last Saved By: CCRONE

GENERAL SHEET NOTES

1. REFER TO SHEET E-001 FOR ELECTRICAL ABBREVIATIONS AND SYMBOLS. REFER TO SHEET E-501 FOR ELECTRICAL DETAILS.
2. FOR ADDITIONAL INFORMATION ON CONDUIT AND CABLING, REFER TO CONDUIT SCHEDULE (E-701) & CABLE SCHEDULE (E-702).
3. CONTRACTOR SHALL VERIFY THAT THERE IS SUFFICIENT SPACE TO INSTALL NEW TERMINAL BLOCK T3.

SWING PANEL

FRONT

AA(1)

HMI

BA

AWS BACKUP INTAKE WATER LEVEL DIFF. HIGH

AWS-01

BB(1)

MANUAL OPERATION — ON PLC

PLC

CA

AWS BACKUP INTAKE BRUSH IN OPERATION

AWS-02

CB

AWS BACKUP INTAKE BRUSH TROUBLE ALARM

AWS-03

SWING PANEL

BACK

AA(1)

HMI

(REAR) DC-2

T1-23 T1-24 T1-46

BB(1)

HAND PLC

T1-25 T1-27 T1-29

T1-26 T1-28 T1-30

T2-1 T2-5 T2-9

T2-2 T2-6 T2-10

T2-3 T2-7 T2-11

T2-4 T2-8 T2-12

BA

AWS-01

T3-12 T3-13

CA

AWS-02

T3-8 T3-7

CB

AWS-03

T3-11 T3-10

BACK PANEL

AB

ENCLOSURE LIGHT

BRN (L)/T1-5

BLU (N)/T1-11

T2

WEIR 154 HOIST CONTROL
WEIR 155 HOIST CONTROL
WEIR 156 HOIST CONTROL
WEIR 157 HOIST CONTROL
FOREBAY VEGA

BB(1)-C1 — 1 WEIR 154
BB(1)-D1 — 2 WEIR 155
BB(1)-E1 — 3 WEIR 156
BB(1)-F1 — 4 WEIR 157
BB(1)-C12 — 5 WEIR 154 HAND
BB(1)-D12 — 6 WEIR 155 HAND
BB(1)-E12 — 7 WEIR 156 HAND
BB(1)-F12 — 8 WEIR 157 HAND

FUSED

(WEIR 154 PLC) RTB4-1 — RTB4-Q — 9 — BB(1)-C22
(WEIR 155 PLC) RTB4-5 — RTB4-4 — 10 — BB(1)-D22
(WEIR 156 PLC) RTB5-1 — RTB5-Q — 11 — BB(1)-E22
(WEIR 157 PLC) RTB5-5 — RTB5-4 — 12 — BB(1)-F22

(WEIR 154R) RTB4-R — 13
(WEIR 154L) RTB4-9 — 14
(WEIR 155R) RTB4-6 — 15
(WEIR 155L) RTB4-9 — 16
(WEIR 156R) RTB5-R — 17
(WEIR 156L) RTB5-9 — 18
(WEIR 157R) RTB5-6 — 19
(WEIR 157L) RTB5-R — 20
DC-V — 21 — FP+
RTB3-2 — 22

FIBER PATCH PANEL

DC
AB COMPACT LOGIX L16ER

DA

T1-17 T1-18
24VDC/5A
OK
24-28 V
SOLA
POWER SUPPLY
SDN 5-24-100P
110-240VAC 1.6A 50/60 HZ
T1-48 T1-14 T1-5
Allen-Bradley
CompactLogix
RUN FORCE I/O OK
OK LINK1 LINK2 NET
1769-OW8 OUTPUT MODULE
1769-IF8 ANALOG MODULE
EtherNet/IP
READ FRONT
AA(1)-1
DC-45
T1-17 T1-18 T1-21 T1-22
VDC+ VDC- NC FP+ FP-
T1-35 T2-21
T3-2
T3-12 T3-8 T3-13
RTB2-5 RTB3-5

RTB1
1734-OW4
SER C
FW 3.022

RTB2
1734-1E4C
SER C
FW 3.004

RTB3
1734-1E4C
SER C
FW 3.004

RTB4

RTB5

T1-29 T1-31 T1-30 T1-32 T1-34 T1-30 T1-33 T1-29 T1-35 T3-3
DC-c T1-42 T1-36 T2-22
DC-C T1-38 T2-9 T2-23 T2-15 T2-16 T2-10 T2-14 T2-4 T2-11 T2-17 T2-22 T2-19 T2-20 T2-18 T2-11

DE
FIBER SWITCH CISCO IE-2000

DF
THERMOSTAT

DG
ENCLOSURE RECEPTACLE

(FRONT)DC-1
1X
4X
G
T1-47
T1-20
T1-19
11 12 23 24
T1-7 T1-1
T1-15 T1-46 T1-10
N G L

T3

BA-1 BA-2 DC-O BA-C DC-C DB-2 DB-C T3-6 CA-2 DC-C CA-1 T3-9 T3-4 RTB2-4 T3-10 RTB2-2 (AWS BACKUP RACK UPSTREAM LEVEL) DC-V T3-4 T1-48 GND

24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

009 U002 (AWS BACKUP BRUSH SYSTEM CONTROL PANEL+)
009 U001 (AWS BACKUP BRUSH SYSTEM CONTROL PANEL+)
009 U003 (AWS BACKUP BRUSH SYSTEM CONTROL PANEL+)

T3-1

FUSED

SWING PANEL(G)-(+) — GND — 52
HMI — GND — 51
AA(1)-(+) — GND — 50
AA(1)-(-) — GND — 49
HC(G) — GND — 45
GND — 44
GND — 43

RTB2-1 (WEIR 159 POSITION) — 42
RTB2-3 (WEIR 158 POSITION) — 41
RTB2-5 — 40
RTB3-1 (UPPER CHANNEL LEVEL) — 39
RTB3-3 — 38
DC-V — 37
RTB1-1 (WEIR 159 L) — 36
RTB1-3 (WEIR 158 L) — 35
RTB1-6 (WEIR 159 R) — 34
RTB1-4 (WEIR 158 R) — 33
RTB2-6 (WEIR 159 PLC) — 32
RTB2-4 (WEIR 158 PLC) — 31
RTB1-5 (WEIR 159 PLC) — BB(1)-B12 — 30
RTB1-2 (WEIR 158 PLC) — BB(1)-A12 — 29
RTB1-4 (WEIR 158 PLC) — BB(1)-B11 — 28
WEIR 159 — BB(1)-A11 — 27
WEIR 158 — 26

WEIR 159 PAT
WEIR 158 PAT
UPPER CHANNEL WATER VEGA
LOWER CHANNEL WATER VEGA

WEIR 158 HOIST CONTROL STATION
WEIR 159 HOIST CONTROL STATION

FUSED

AA-1(+) — HMI — 24
AA-1(+) — 23
DC-P(+) — 22
DC-P(+) — 21
DE(+) — 20
DE(+) — 19
DC-VDC(-) — PLC VDC — 18
DC-VDC(+) — PLC VDC — 17
DA(-)

FUSED

19 G
DC-N 13 @RECEP
DA-N 14 @240VC
HC-N 15 @ FAN
HA-N 16 @HEATER
AB-N 17 @LIGHT
N/T1-2

FUSED

DC-L 10 @RECEP
DA-L 9 @240VC
8
DF-23 7 @FAN
AB-L 6 @LIGHT
5
4
CIRCUIT BREAKER
3 L T1-11
2 N DF-24
1 FAN HC-L

T1

HA

HEATER

T1-6 T1-12 T1-47

HC

FAN

T1-1 T1-13 T1-45

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

DESIGNED BY: C CRONE
DRAWN BY: C CRONE
SUBMITTED BY: C EDEN
U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT 333 SW FIRST AVENUE PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200 MADISON, WI USA 53718

ISSUE DATE:
CHECKED BY: C ESPINOSA
SOLICITATION NO.:
CONTRACT NO.:
PLOT DATE: 6/27/2018
FILE NUMBER:
PLOT SCALE: 100.0000 '= 1"
SIZE: F
FILE NAME: 9127N_E-604.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
EAST EXIT FISH SCADA PLC ENCLOSURE
BACK PANEL WIRING DIAGRAM

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

SHEET IDENTIFICATION
E-604

A1 EAST EXIT FISH SCADA PLC WIRING DIAGRAM
SCALE: NTS

File Last Saved By: CCRONE

CONDUIT				DESCRIPTION																					
NO.	I.D.	SIZE	TYPE	FUNCTION	FROM	TO	ROUTE	CKTS																	REMARKS
001	BSCP-q1-PPB1	1 1/2"	RGS	POWER	BRUSH SYSTEM CONTROL PANEL	PPB-01	EXPOSED	q001																	
002	PPB1-q2-PPB2	1 1/2"	RGS/PVC	POWER	PPB-01	PPB-02	EXPOSED/EMBED	q001																	
003	PPB2-q3-PPB3	1 1/2"	RGS	POWER	PPB-02	PPB-03	EXPOSED	q001																	
004	PPB3-q4-JBOX	1 1/2"	RGS	POWER	PPB-03	ALUM. J-BOX AT CEILING (MCC FCQ7) (E)	EXPOSED	q001																	
005	BSCP-q5-BSM	1"	RGS	POWER	BRUSH SYSTEM CONTROL PANEL	BRUSH SYSTEM MOTORS	EXPOSED	q002	q003	q004															
006	PPB1-s1-PPB2	1 1/2"	RGS/PVC	SPARE	PPB-01	PPB-02	EXPOSED/EMBED	-																	
007	PPB2-s2-PPB3	1 1/2"	RGS	SPARE	PPB-02	PPB-03	EXPOSED	-																	
008	PPB3-s3-JBOX	1 1/2"	RGS	SPARE	PPB-03	ALUM. J-BOX AT CEILING (MCC FCQ7) (E)	EXPOSED	-																	
009	BSCP-u1-CPB1	1 1/2"	RGS	SIGNAL	BRUSH SYSTEM CONTROL PANEL	CPB-01	EXPOSED	u001	u002	u003															
010	CPB1-u2-CPB2	1 1/2"	RGS/PVC	SIGNAL	CPB-01	CPB-02	EXPOSED/EMBED	u001	u002	u003															
011	CPB2-u3-CPB3	1 1/2"	RGS	SIGNAL	CPB-02	CPB-03	EXPOSED	u001	u002	u003															
012	CPB3-u4-JBOX	1 1/2"	RGS	SIGNAL	CPB-03	ALUM. J-BOX AT CEILING (E)	EXPOSED	u001	u002	u003															
013	JBOX-u5-EEFP	1 1/2"	RGS	SIGNAL	ALUM. J-BOX AT CEILING (E)	EAST EXIT FISH SCADA PLC (E)	EXPOSED	u001	u002	u003															
014	BSCP-u6-DSLS	3/4"	RGS	SIGNAL	BRUSH SYSTEM CONTROL PANEL	AWS DOWNSTREAM LEVEL SENSOR	EXPOSED	u004																	
015	BSCP-u7-USLS	3/4"	RGS	SIGNAL	BRUSH SYSTEM CONTROL PANEL	AWS UPSTREAM LEVEL SENSOR	EXPOSED	u005																	
016	CPB1-s1-CPB2	1 1/2"	RGS/PVC	SPARE	CPB-01	CPB-02	EXPOSED/EMBED	-																	
017	CPB2-s2-CPB3	1 1/2"	RGS	SPARE	CPB-02	CPB-03	EXPOSED	-																	
018	CPB3-s3-JBOX	1 1/2"	RGS	SPARE	CPB-03	ALUM. J-BOX AT CEILING (E)	EXPOSED	-																	
019	JBOX-s4-EEFP	1 1/2"	RGS	SPARE	ALUM. J-BOX AT CEILING (E)	EAST EXIT FISH SCADA PLC (E)	EXPOSED	-																	

A1 CONDUIT SCHEDULE
SCALE: NO SCALE

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

US Army Corps of Engineers®

NO.	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: C. CRONE | ISSUE DATE:
DRAWN BY: C. CRONE | CHECKED BY: C. CSPINOZA | SOLICITATION NO.:
SUBMITTED BY: C. EDEN | CONTRACT NO.:
PLOT SCALE: 1:1 | PLOT DATE: 11/7/2017 | FILE NUMBER:
SIZE: F SIZE | FILE NAME: W9127N_E-701.dwg

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
CONDUIT SCHEDULE

SHEET IDENTIFICATION
E-701

File Last Saved By: CCRONE

CABLE/CONDUCTORS						DESCRIPTION			
CKT	CKT I.D. (SEE NOTE 1)	NO. COND.	SIZE	INSULATION	RATED VOLTAGE	FUNCTION	FROM	TO	REMARKS
q001	BSCP-q1-JBOX	-	3#4, 1#10 G	600V	480VAC	POWER	BRUSH SYSTEM CONTROL PANEL	ALUM. J-BOX AT CEILING (MCC FCQ7) (E)	480V POWER FOR BRUSH SYSTEM CONTROL PANEL
q002	BSCP-q2-BHM	-	3#10, 1#10 G	600V	480VAC	POWER	BRUSH SYSTEM CONTROL PANEL	BRUSH HYDRAULIC MOTOR	480V POWER FOR BRUSH HYDRAULIC MOTOR
q003	BSCP-q3-BTM	-	3#12, 1#12 G	600V	480VAC	POWER	BRUSH SYSTEM CONTROL PANEL	BRUSH TRAVEL MOTOR	480V POWER FOR BRUSH TRAVEL MOTOR
q004	BSCP-q4-BHM	-	3#12, 1#12 G	600V	480VAC	POWER	BRUSH SYSTEM CONTROL PANEL	BRUSH HEAD MOTOR	480V POWER FOR BRUSH HEAD MOTOR
u001	BSCP-u1-EEFP	-	6#14	600V	120VAC	SIGNAL	BRUSH SYSTEM CONTROL PANEL	EAST EXIT FISH SCADA PLC (E)	BRUSH SYSTEM CONTROL PANEL INDICATION (OPER/ALARM)
u002	BSCP-u2-EEFP	-	4#14	600V	120VAC	SIGNAL	BRUSH SYSTEM CONTROL PANEL	EAST EXIT FISH SCADA PLC (E)	AWS BACKUP INTAKE WATER LEVEL DIFF. HIGH IND.
u003	BSCP-u3-EEFP	-	2-TSP #16	600V	24VDC	SIGNAL	BRUSH SYSTEM CONTROL PANEL	EAST EXIT FISH SCADA PLC (E)	WATER LEVEL SENSOR ANALOG SIGNALS
u004	BSCP-u4-DSLS	-	1-TSP #16	600V	24VDC	SIGNAL	BRUSH SYSTEM CONTROL PANEL	AWS DOWNSTREAM LEVEL SENSOR	D.S. WATER LEVEL SENSOR ANALOG SIGNAL
u005	BSCP-u5-USLS	-	1-TSP #16	600V	24VDC	SIGNAL	BRUSH SYSTEM CONTROL PANEL	AWS UPSTREAM LEVEL SENSOR	U.S. WATER LEVEL SENSOR ANALOG SIGNAL

A1 CABLE SCHEDULE
SCALE: NO SCALE

REGISTERED PROFESSIONAL ENGINEER
92497PE
OREGON
JULY 11, 2017
CHRISTOPHER EDEN

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE	APPR.
	P&S PRE-BCOES REVIEW		

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
333 SW FIRST AVENUE
PORTLAND, OR 97204-3440

Baird. Stantec
2810 CROSSROADS DR, SUITE 1200
MADISON, WI USA 53718

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
CHECKED BY: C. CSIRKOS
SUBMITTED BY: C. EDEN
PLOT SCALE: 1:1
PLOT DATE: 11/7/2017
SIZE: F SIZE
FILE NAME: W9127N_E-701.dwg
ISSUE DATE:
SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:

THE DALLES, OR
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
CABLE SCHEDULE

SHEET IDENTIFICATION
E-702

File Last Saved By: CCRONE

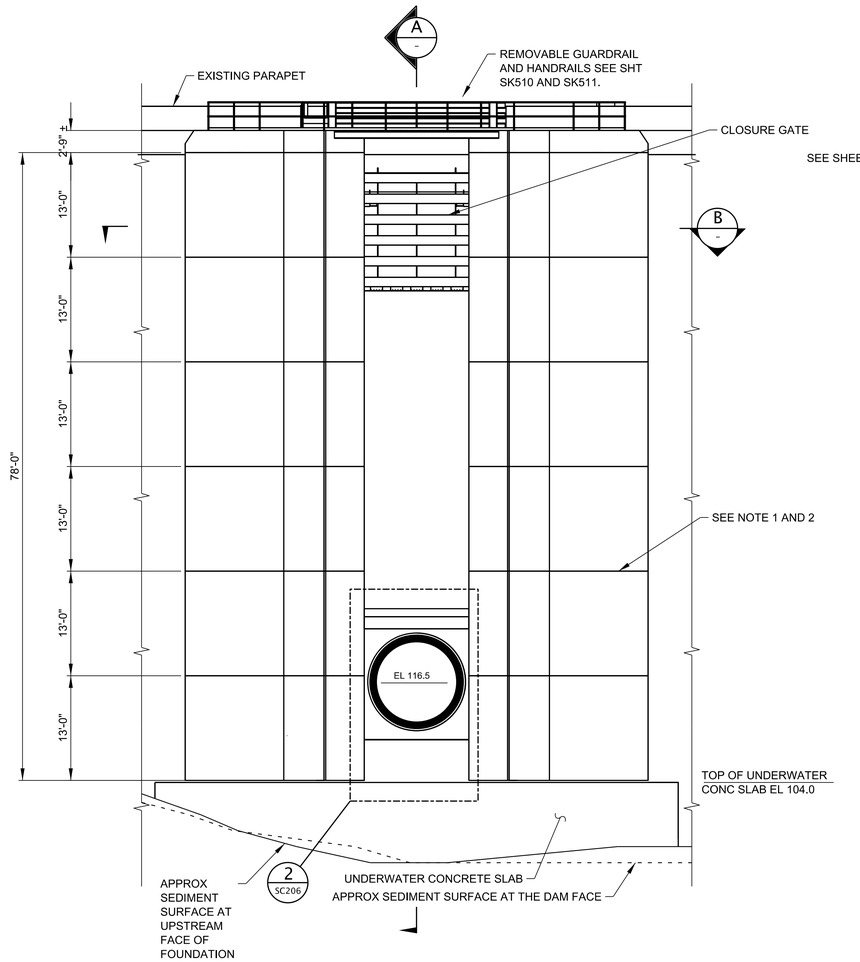
NOTES:

1. CONTRACTOR TO DESIGN SEALING SYSTEM BETWEEN HORIZONTAL JOINTS TO ACHIEVE MANAGEABLE LEAKAGE

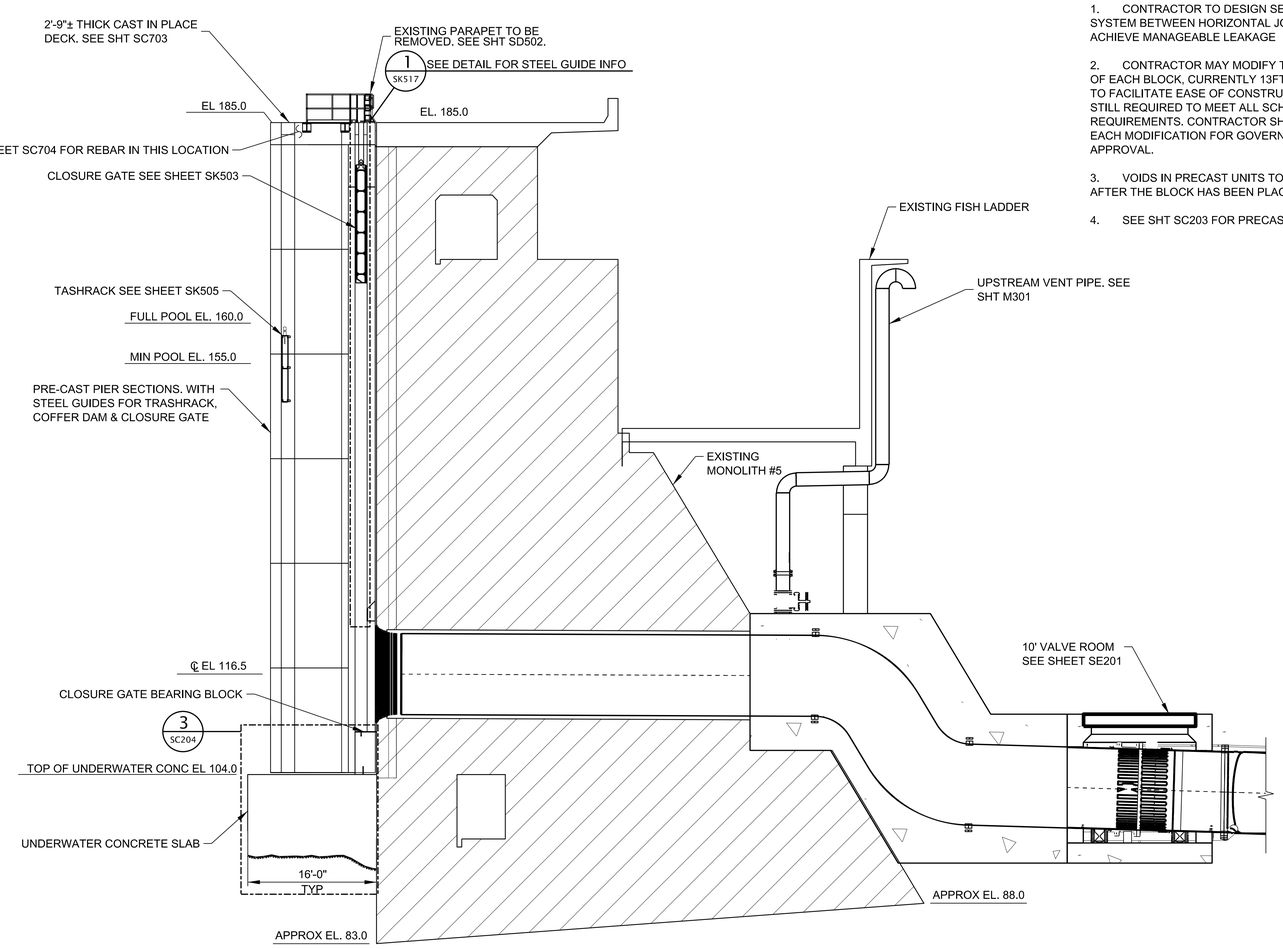
2. CONTRACTOR MAY MODIFY THE HEIGHT OF EACH BLOCK, CURRENTLY 13FT, IN ORDER TO FACILITATE EASE OF CONSTRUCTION BUT IS STILL REQUIRED TO MEET ALL SCHEDULE REQUIREMENTS. CONTRACTOR SHALL SUBMIT EACH MODIFICATION FOR GOVERNMENT APPROVAL.

3. VOIDS IN PRECAST UNITS TO BE FILLED AFTER THE BLOCK HAS BEEN PLACED.

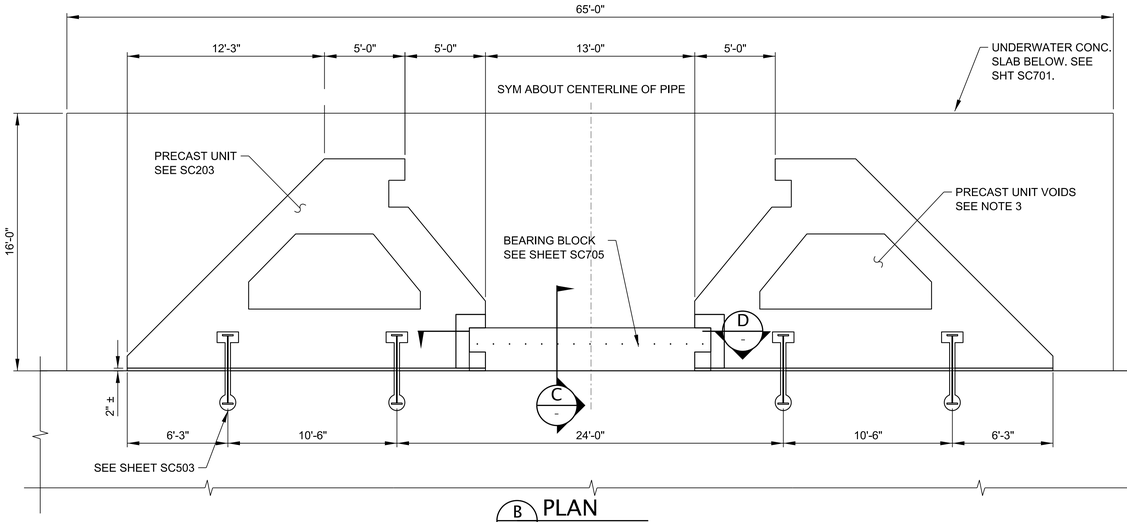
4. SEE SHT SC203 FOR PRECAST UNIT



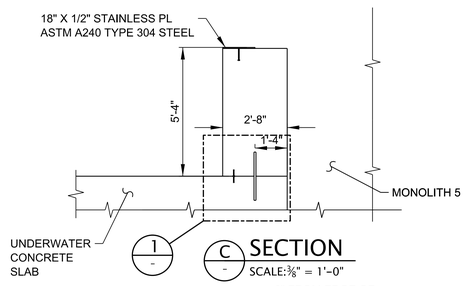
ELEVATION VIEW
SCALE: 1/8"=1'-0"



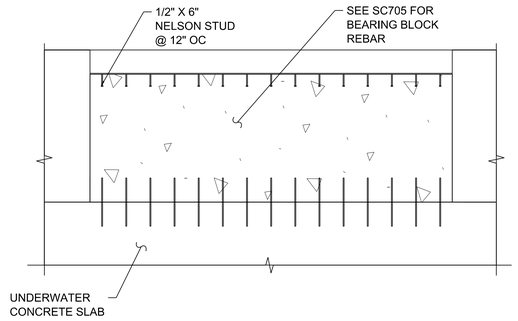
A SECTION
SCALE: 1/8" = 1'-0"



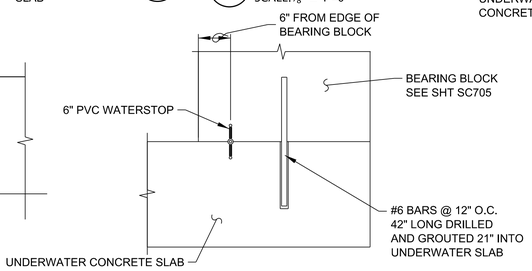
B PLAN
SCALE: 1/4" = 1'-0"



C SECTION
SCALE: 3/8" = 1'-0"



D SECTION
SCALE: 3/8" = 1'-0"



1 DETAIL
SCALE: 1" = 1'-0"

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: NICK HANSON
DRAWN BY: CC
SUBMITTED BY: MATTHEW D. HANSON, P.E.
PLOT SCALE: 1:1
SIZE: ANSI F
DATE: 06/15/2015
CHKD BY: CC/CE/DTMA
PLOT DATE: $$$DATE$$$$
FILE NUMBER: DSP1102_SC202XXX.DGN
SOLICITATION NO.: W912EK-14-R-0008
CONTRACT NO.:

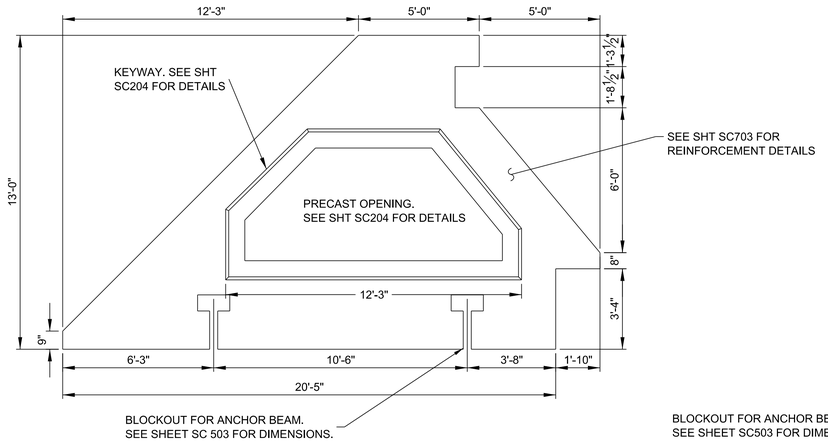
U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

THE DALLES LOCK AND DAM
EAST FISH LADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

CONCRETE PIERS
PLAN AND ELEVATION

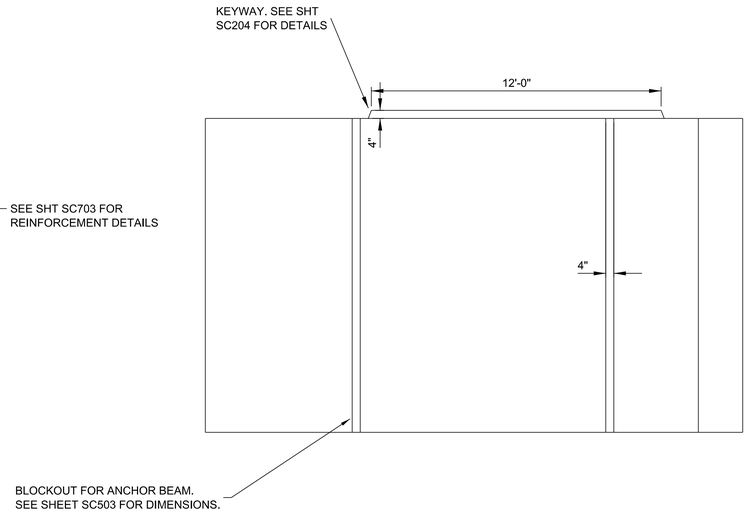
SHEET IDENTIFICATION
SC202
SHEET 0 OF 0

DRAWING PLOT SIZE: $BORDER$ | DATE AND TIME PLOTTED: $$$DATE$$$$ $TIME | BY USERNAME: $USER$ | SHEET NAME: $$SHEETN$



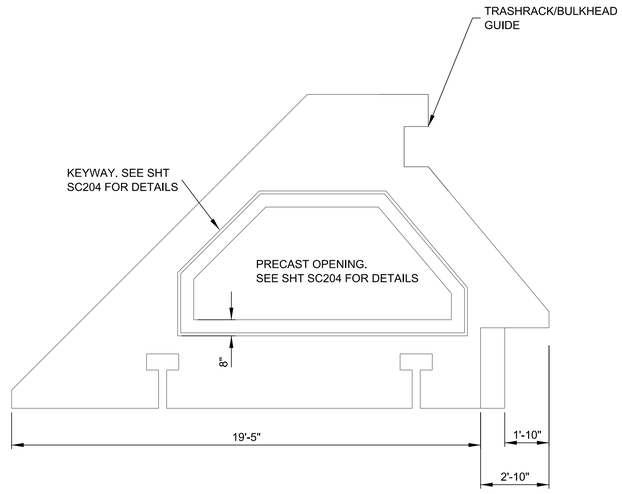
TYPICAL PRECAST UNIT – TOP VIEW

SCALE: 3/8" = 1' 0"



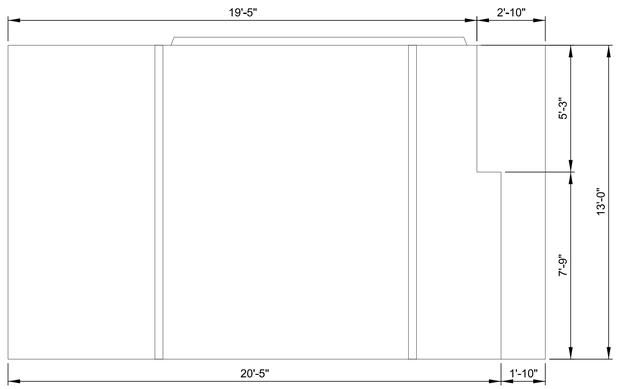
TYPICAL PRECAST UNIT – BACK VIEW

SCALE: 3/8" = 1'–0"



TOP PRECAST UNIT – TOP VIEW

SCALE: 3/8" = 1'–0"



TOP PRECAST UNIT – BACK VIEW

SCALE: 3/8" = 1'–0"

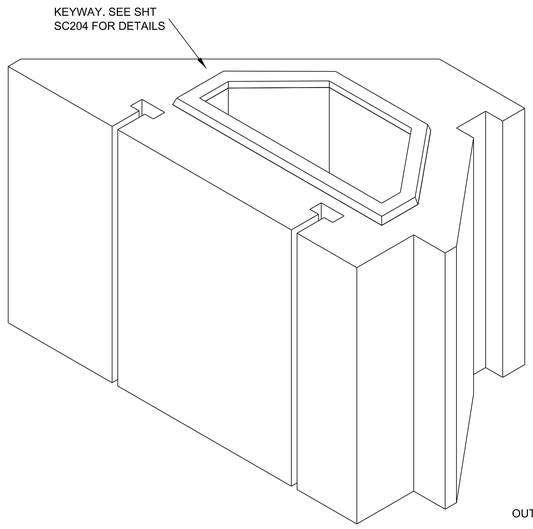
NOTES:

1. CONTRACTOR TO SUBMIT PLAN & PROCEDURE FOR ACHIEVING SPECIFIED ALIGNMENT OF PRECAST BLOCKS, AND TRASHRACK/ BULKHEAD GUIDES. THE CONTRACTOR TO CONSIDER MATCH CASTING AND USE OF FRAME, TEMPLATE OR EQUIVALENT SYS- TEM TO ASSURE CORRECT SPACING AND VERTICAL ALIGNMENT OF PRECAST UNITS DURING PLACEMENT. MUST SHOW THAT BULKHEAD AND TRASHRACK SECTIONS CAN BE INSTALLED AS DESIGNED.

2. THE CONTRACTOR IS REQUIRED TO TEST MATE THE FIRST 2 PRECAST UNITS IN THE PRESENCE OF THE GQAR PRIOR TO CASTING THE REMAINING UNITS AND PRIOR TO PLACEMENT IN THE WATER. IF IT IS DETERMINED THAT CHANGS TO THE UNIT ARE NECESSARY THE TEST MATING IS TO BE REPEATED.

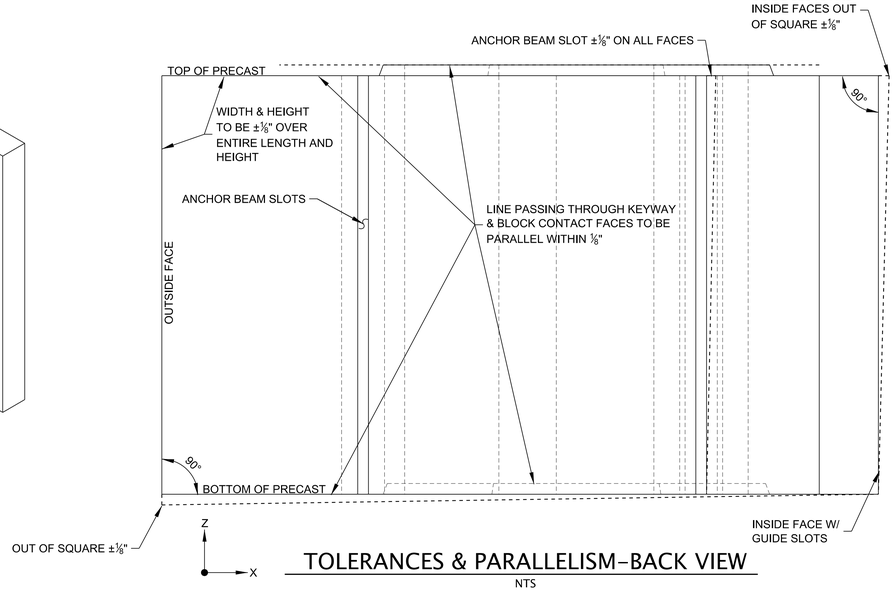
3. APROXIMATE WEIGHT OF PRECAST UNIT IS 261,000 LBS.

4. THE MAXIMUM OFFSET BETWEEN BLOCKS WHEN PLACED IS ⅛"



TYPICAL PRECAST UNIT – ISO

SCALE: 3/8" = 1'–0"



TOLERANCES & PARALLELISM–BACK VIEW

NTS

PRECAST UNIT TOLERANCES

1. 1/8" OUT OF VERTICAL OVER ENTIRE HEIGHT OF ONE BLOCK.

2. 3/4" OUT OF VERTICAL OVER ENTIRE HEIGHT OF THE PIERS WHEN ALL SIX (6) UNITS HAVE BEEN SET.

3. TOLERANCES PROVIDED MUST BE ACHIEVED IN ORDER TO ENSURE BULKHEAD WILL SEAL.

4. CONTRACTOR IS RESPOSIBLE FOR ENSURING THAT THE BULKHEAD SEALS.

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

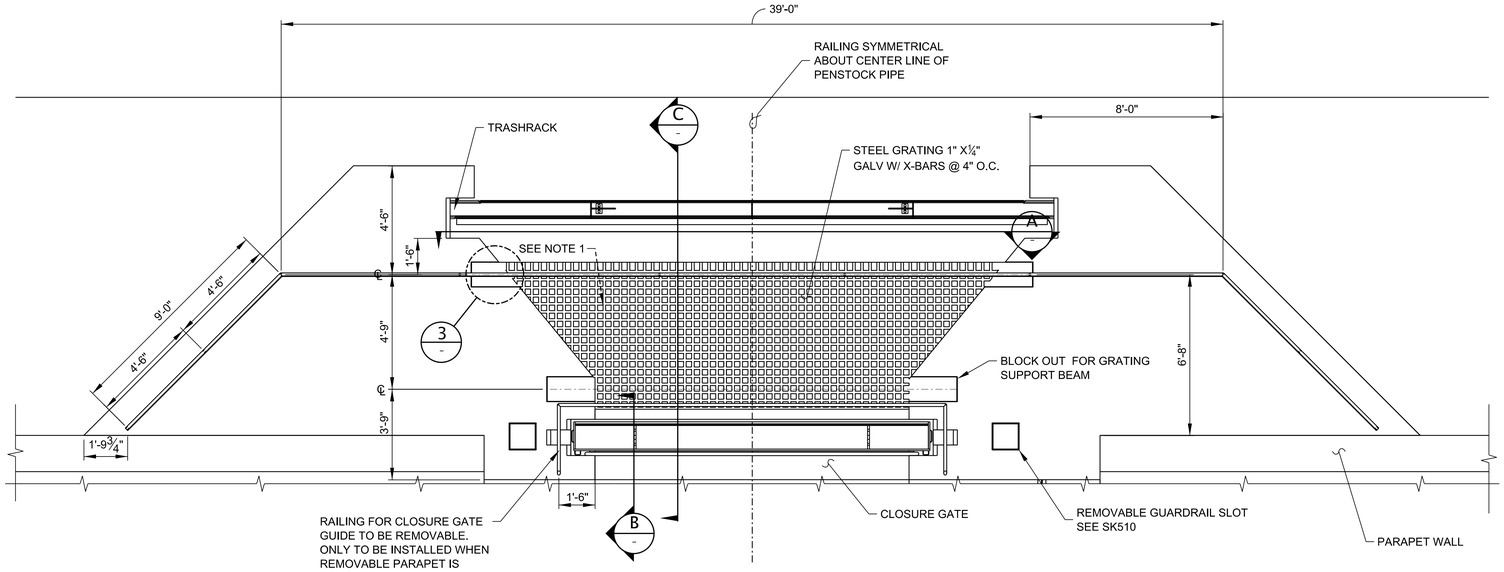
DESIGNED BY: NICK HANSON
DWN BY: CHRISTOPHER M. MCCOTTMA
CHKD BY:
SUBMITTED BY: MATTHEW D. HANSON, P.E.
PLOT SCALE: 1 : 1
PLOT DATE: 4.5000138888
SIZE: ANSI F
FILE NAME: D0P1-110_SC203XXX.DGN
SOLICITATION NO.: W912EP-14-R-0035
CONTRACT NO.:
FILE NUMBER:
DATE: 06/15/2015

THE DALLES LOCK AND DAM
EAST FISHLADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

CONCRETE PIERS
SECTION AND DETAILS

SHEET IDENTIFICATION
SC203
SHEET 0 OF 0

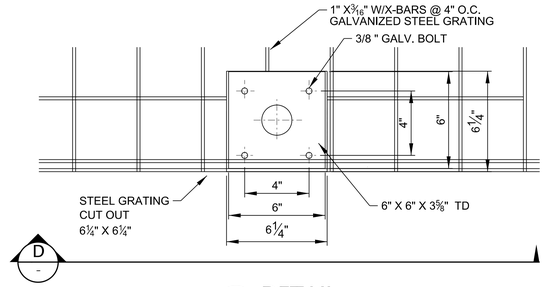
DRAWING PLOT SIZE: $BORDER$ | DATE AND TIME PLOTTED: $$$DATE$$$$ $TIME | BY USERNAME: $USER$ | SHEET NAME: $SHEETN$



HANDRAIL PLAN VIEW

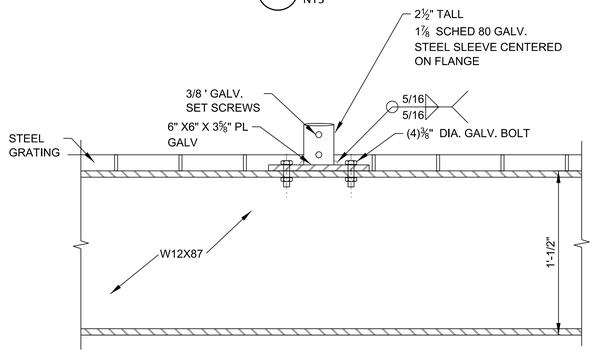
SCALE:¾"=1'-0"

(REMOVABLE GUARDRAIL NOT SHOWN FOR CLARITY)



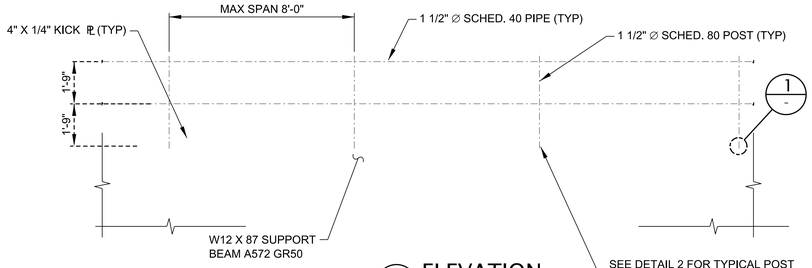
2 DETAIL

NTS



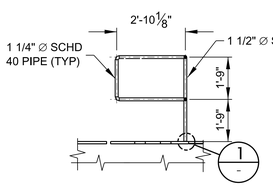
D SECTION

NTS



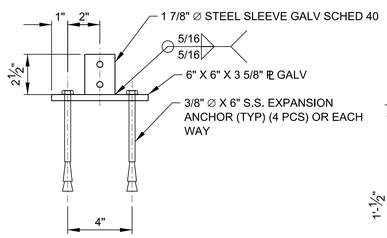
A ELEVATION

SCALE:⅜"=1'-0"



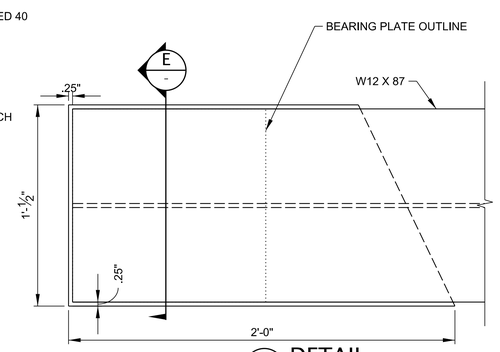
B SECTION

SCALE:⅜"=1'-0"



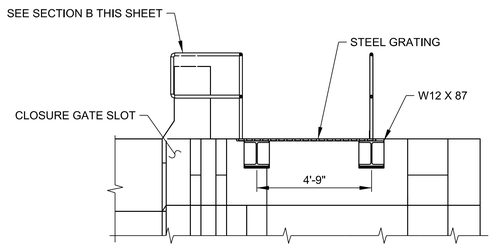
1 DETAIL

SCALE:3"=1'-0"



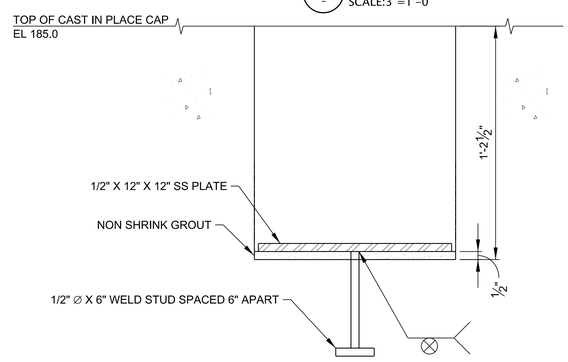
3 DETAIL

SCALE:3"=1'-0"



C SECTION

SCALE:⅜"=1'-0"



E SECTION

SCALE:3"=1'-0"

(W12 X 87 SUPPORT BEAM NOT SHOWN)

NOTES:

1. LOAD ON GRATING NOT TO EXCEED 75 PSF.
2. ALL HANDRAIL TO BE REMOVABLE
3. ALL GRATING SHALL BE ANCHORED WITH GRATING CLIPS AT A MAXIMUM SPACING OF 2'-0" IN EACH DIRECTION.

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.

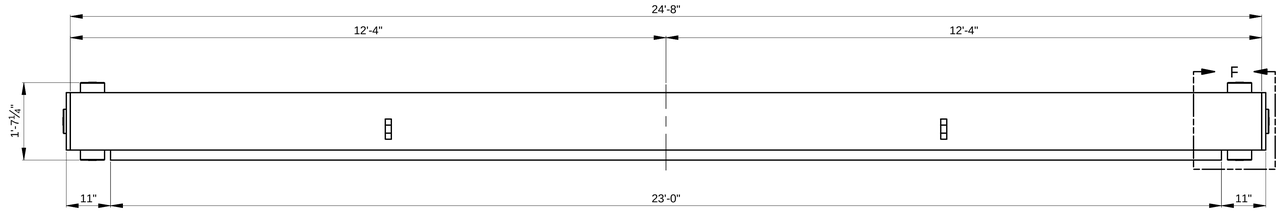
DESIGNED BY: NICHOLAS HANSON
DWN BY: CHRISTOPHER ROSCOTMA
SUBMITTED BY: MATTHEW D. HANSON, P.E.
PLOT SCALE: 1:1
SIZE: ANSI F
DATE: 06/15/2015
SOLICITATION NO.: W0127A14-13-0035
CONTRACT NO.:
PLOT DATE: $$$DATE$$$$
FILE NAME: DSP1:\10\2_3\651\XXX.DGN

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

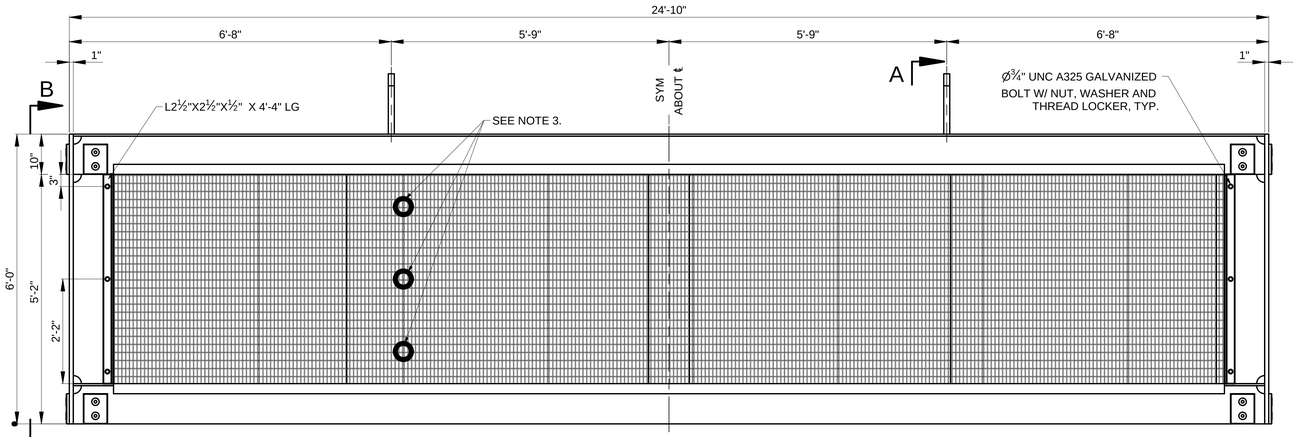
THE DALLES LOCK AND DAM
EAST FISHLADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

REMOVABLE HANDRAIL AND GRATING SECTION AND DETAILS

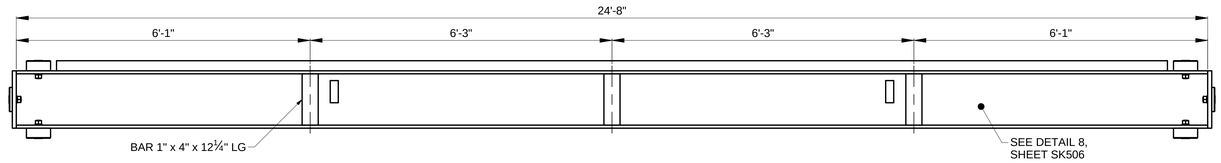
SHEET IDENTIFICATION
SK511
SHEET 0 OF 0



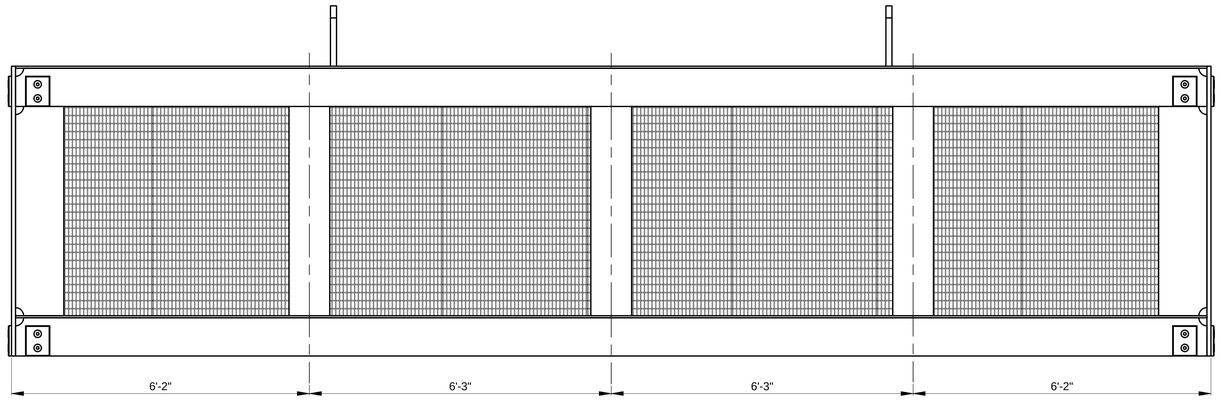
TOP VIEW
SCALE: 3/4" = 1'-0"



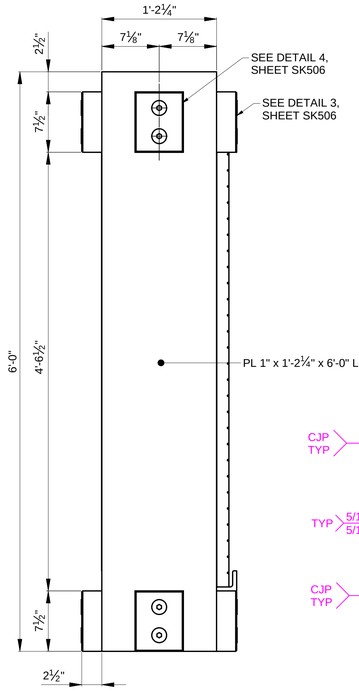
ELEVATION VIEW (11 REQUIRED)
SCALE: 3/4" = 1'-0"



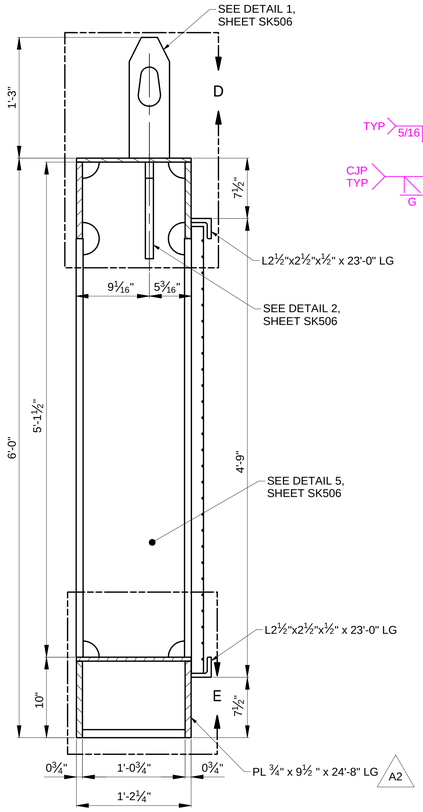
BOTTOM VIEW
SCALE: 3/4" = 1'-0"



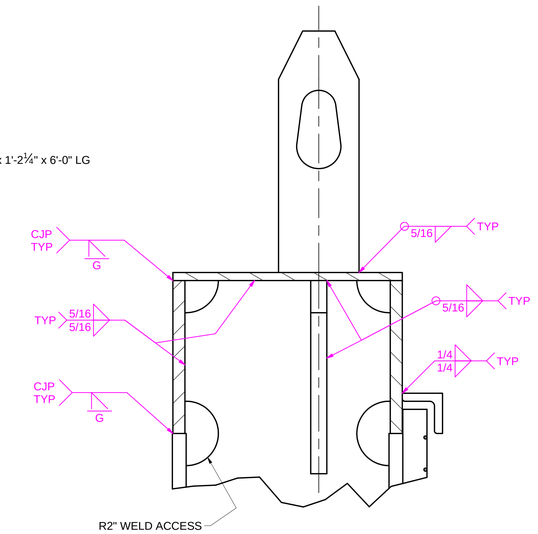
BACK VIEW
SCALE: 3/4" = 1'-0"



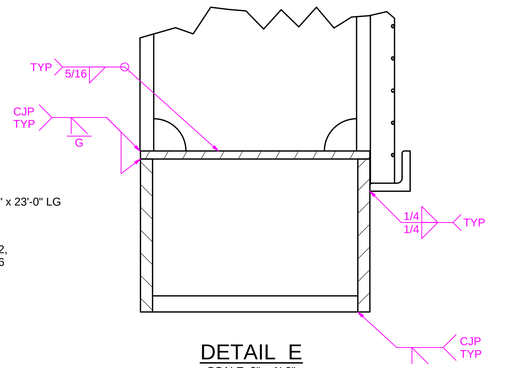
VIEW B-B
SCALE: 1 1/2" = 1'-0"



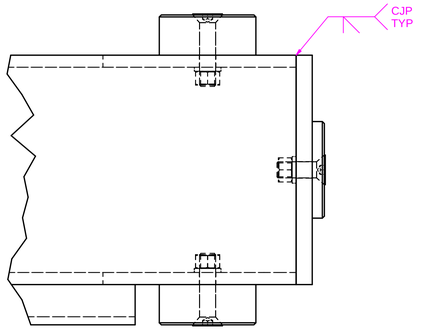
SECTION A-A
SCALE: 1 1/2" = 1'-0"



DETAIL D
SCALE: 3" = 1'-0"



DETAIL E
SCALE: 3" = 1'-0"



DETAIL F
SCALE: 3" = 1'-0"

NOTES:

1. SEE SHEET G-001 FOR GERNERAL NOTES SYMBOLS AND ABBREVIATIONS.
2. SEE SHEET S-001 FOR STRUCTURAL GENERAL NOTES.
3. THE 15-W-2, 1-1/2" X 3/16" STEEL GRATING MUST BE INSTALLED VERTICALLY AND SPAN BETWEEN GIRDERS. CONNECT GRATING SECTIONS AS SHOWN IN DETAIL 10 ON SK506. CONNECT ADJACENT GRATING PANELS AT THREE (3) EVENLY SPACED LOCATIONS AS SHOWN. THE PANELS MUST BE INSTALLED FULL HEIGHT FOR 23'-0" ACROSS THE FACE OF THE TRASHRACK.
4. PAINTING SHALL BE IAW WITH SPECIFICATION 09 97 02.13 26 SYSTEM 5-E-Z WILL BE USED FOR ALL COMPONENTS EXCEPT STEEL BAR GRATING.
5. TRASH RACKS ARE IDENTICAL AND CAN BE STACKED IN ANY ORDER.
6. ALL STRUCTURAL STEEL FOR THE TRASHRACK SHALL BE A709 GR 50 UNLESS OTHERWISE NOTED.
7. ELEVEN (11) IDENTICAL SECTIONS REQUIRED.

A2

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.
A1	NOTE REVISION ADDED	7/14/2015	JTH
A2	DIMENSION UPDATED	7/14/2015	JTH

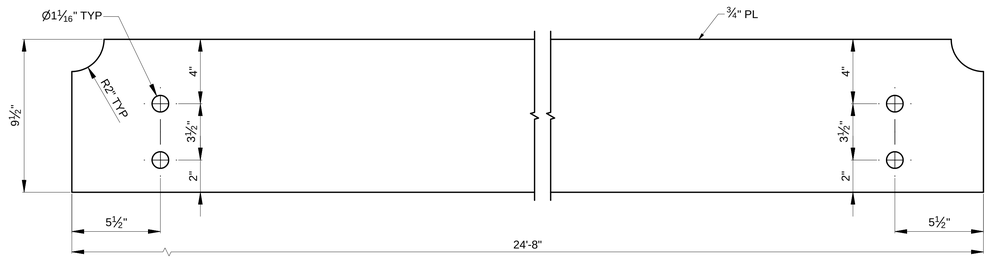
DESIGNED BY: JEFFREY HICKS
DRAWN BY: JEFFREY HICKS
SUBMITTED BY: MATTHEW D. HANSON, PE
PLOT SCALE: 1:1
SIZE: ANSI F
DATE: 6/15/2015
SOLICITATION NO.: W912EF-15-R-0035
CONTRACT NO.:
FILE NUMBER:
PLOT DATE:
FILE NAME: D0P1.102_SK505XXX.dwg

US ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

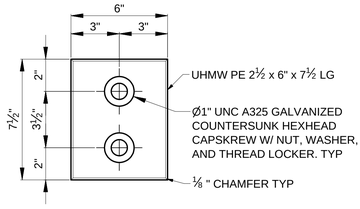
THE DALLES LOCK AND DAM
EAST FISHLADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

TRASH RACK
ASSEMBLY

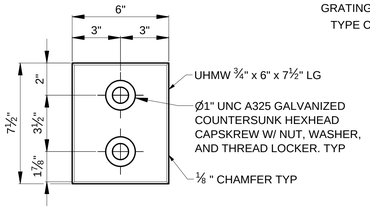
SHEET IDENTIFICATION
SK505
SHEET 1 OF 1



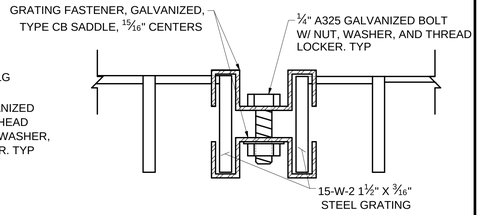
DETAIL 6
SCALE: 3" = 1'-0"



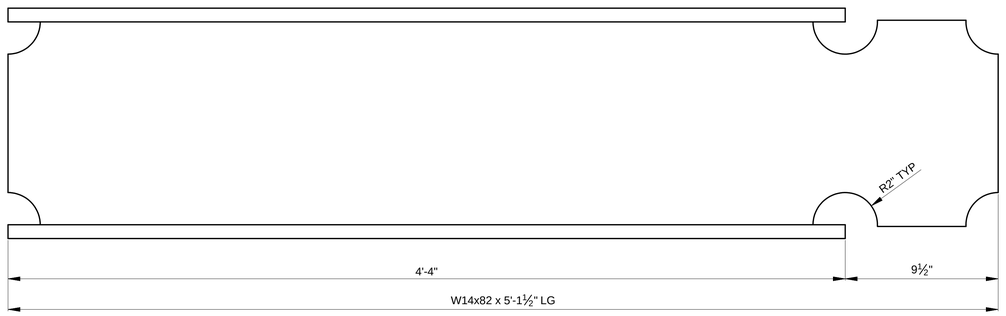
DETAIL 3
SCALE: 3" = 1'-0"



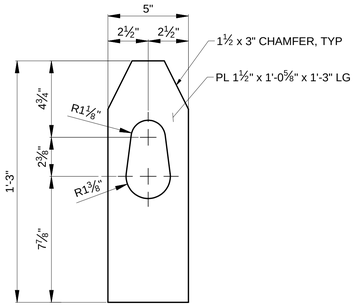
DETAIL 4
SCALE: 3" = 1'-0"



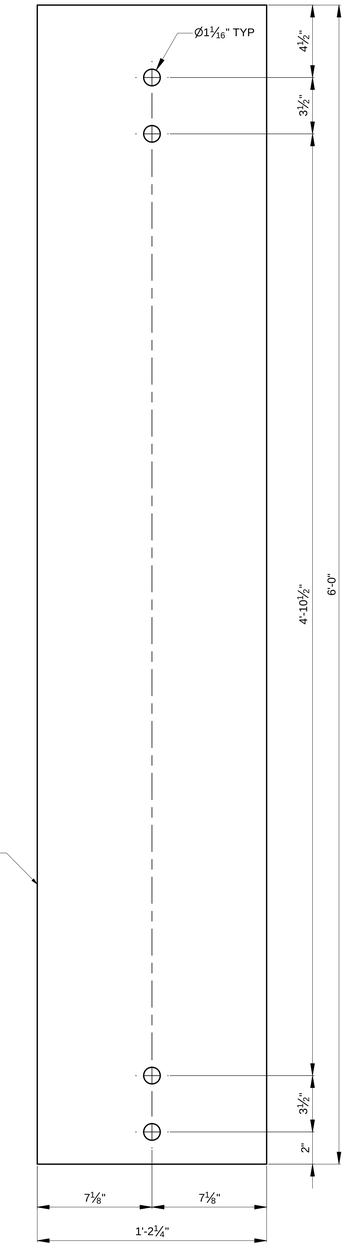
DETAIL 10
SCALE: 12" = 1'-0"



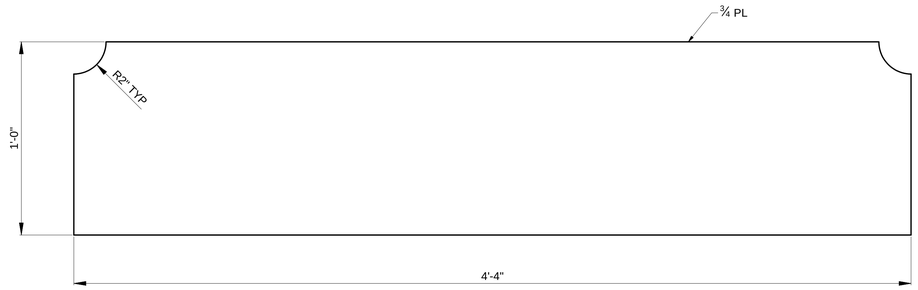
DETAIL 5
SCALE: 3" = 1'-0"



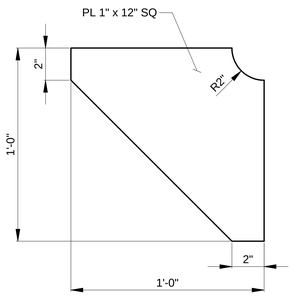
DETAIL 1
SCALE: 3" = 1'-0"



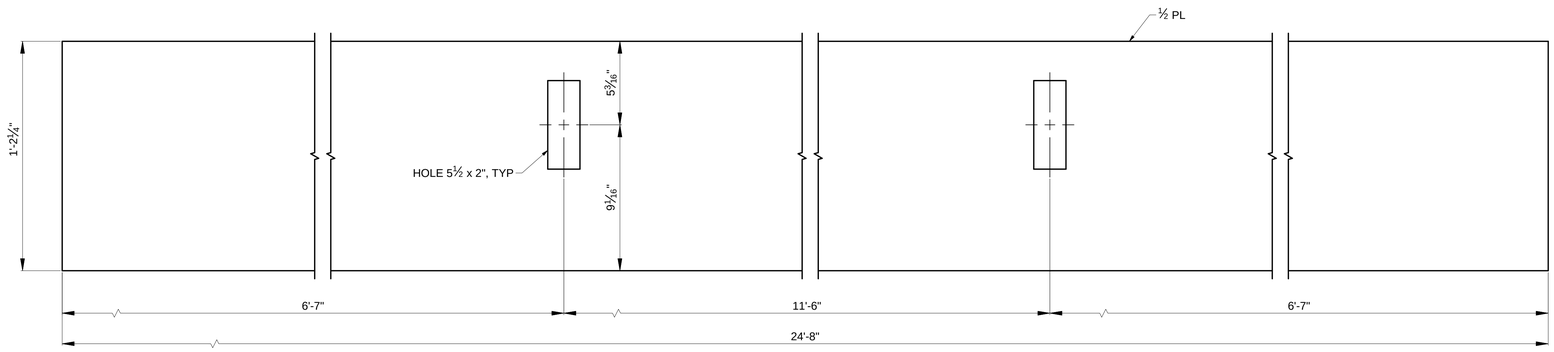
DETAIL 9
SCALE: 3" = 1'-0"



DETAIL 7
SCALE: 3" = 1'-0"



DETAIL 2
SCALE: 3" = 1'-0"



DETAIL 8
SCALE: 3" = 1'-0"

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: JEFFREY HICKS
DRAWN BY: CHRISTOPHER COX
SUBMITTED BY: MATTHEW D. HANSON, PE
PLOT SCALE: 1:1
SIZE: ANSI F
DATE: 6/19/2015
SOLICITATION NO.: W912EK-14-R-0035
CONTRACT NO.:
FILE NUMBER:
PLOT DATE:
FILE NAME: DDF1102_SK506XXX.dwg

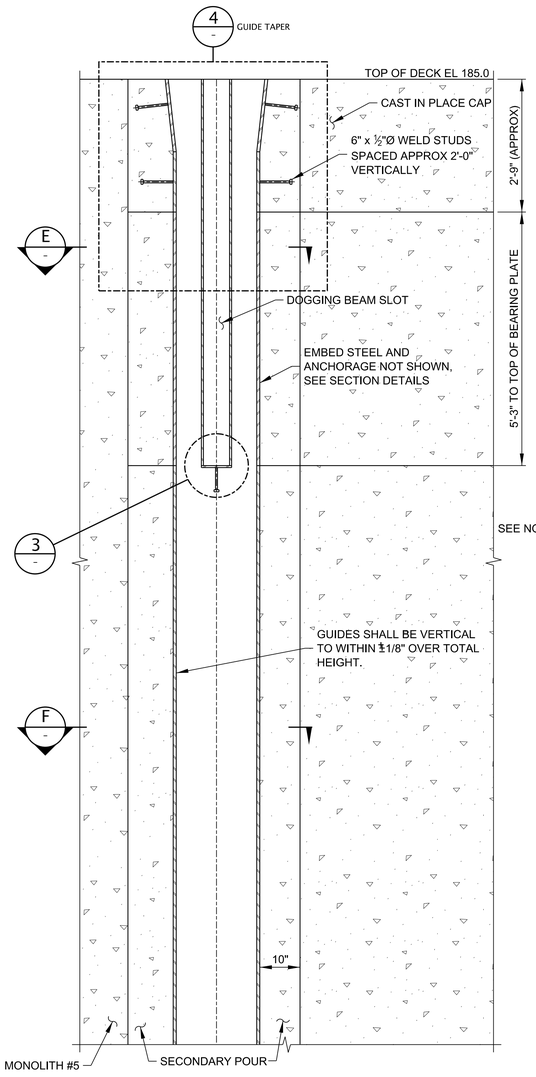
US ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

THE DALLES LOCK AND DAM
EAST FISHLADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

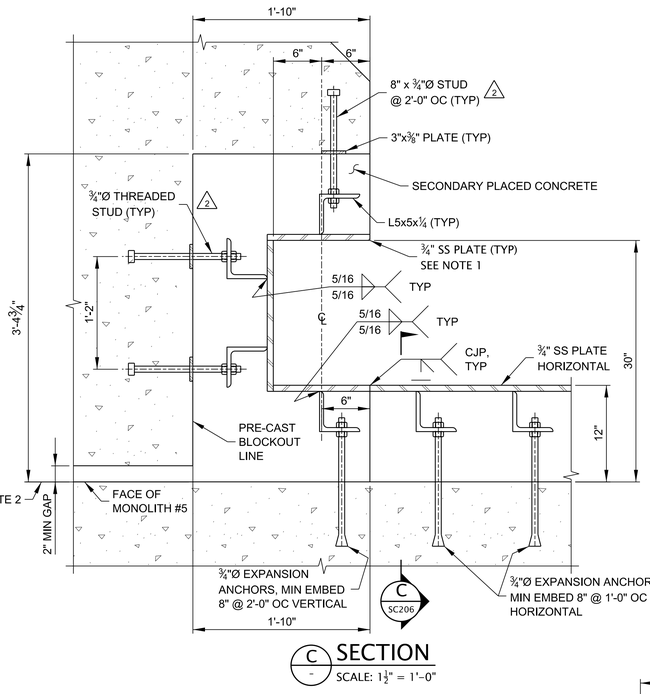
TRASH RACK
DETAILS

SHEET IDENTIFICATION
SK506
SHEET 1 OF

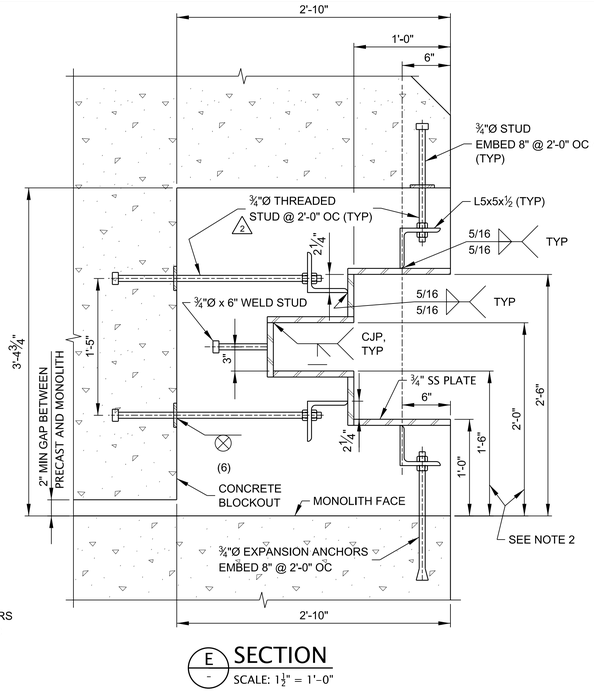
NORTH DIVISION UPDATE (04-2015)



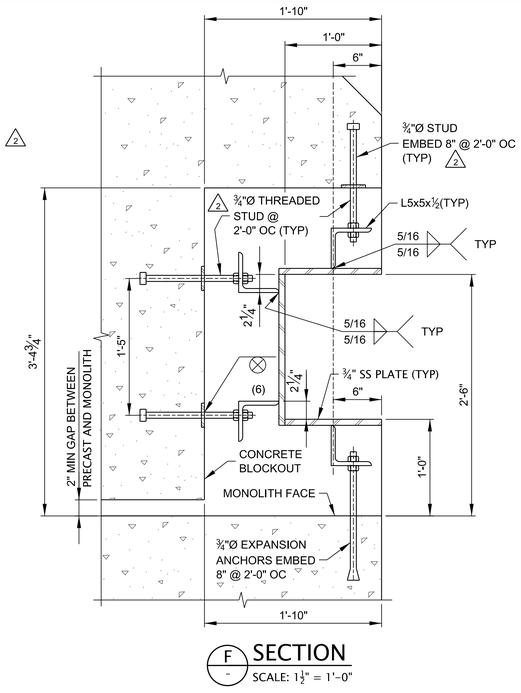
1 ELEVATION: CLOSURE GATE GUIDE
SC202
SCALE: $\frac{3}{4}$" = 1'-0"



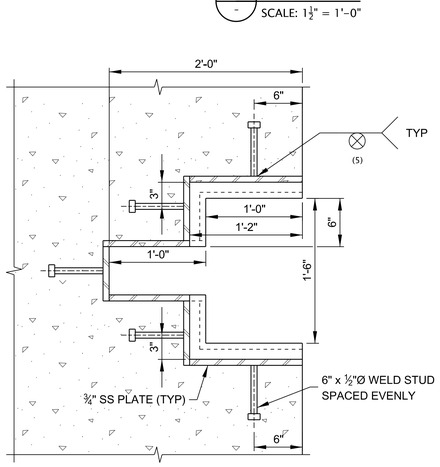
C SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"



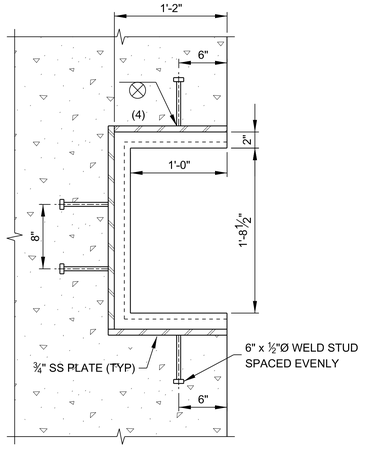
E SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"



F SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"

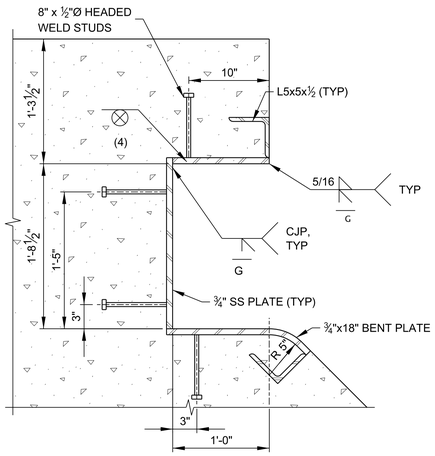


G SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"

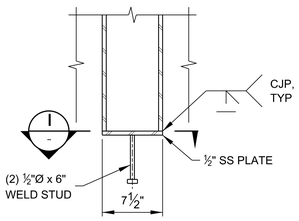


H SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"

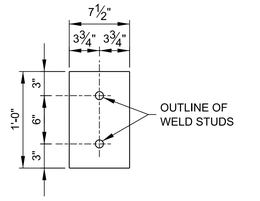
1. NOTES:
   1. ALL EMBEDDED PLATE DESIGNATED STAINLESS STEEL SHALL BE ASTM A240, TYPE 304.
   2. ALL EMBEDDED SHAPES AND STUDS SHALL BE ASTM 276, TYPE 304 STAINLESS STEEL.
   3. GUIDES ARE DIMENSIONED FROM FACE OF MONOLITH 5.



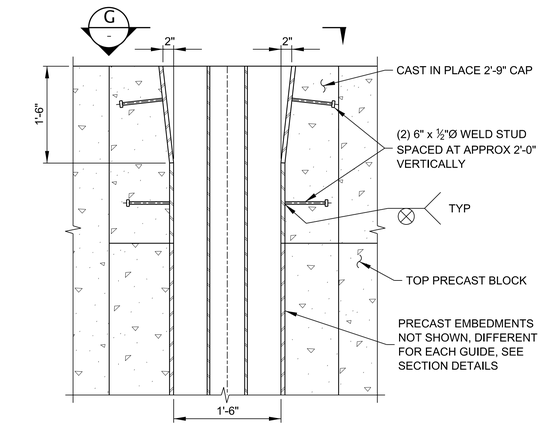
F SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"



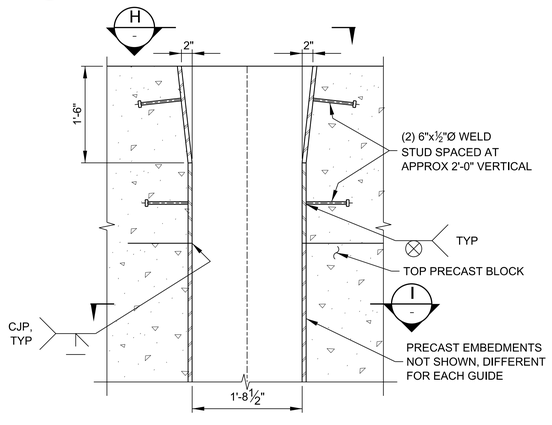
3 DETAIL
SCALE: $1\frac{1}{2}$" = 1'-0"



I DETAIL: SECTION
SCALE: $1\frac{1}{2}$" = 1'-0"



4 DETAIL: CLOSURE GATE GUIDE TAPER
SCALE: 1" = 1'-0"



2 DETAIL: TRASHRACK/BH GUIDE TAPER
SCALE: 1" = 1'-0"

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.
A3-2	MOVED "WELD" FROM STUD CALLOUT	07/16/15	
A3-1	MODIFIED NOTES	07/15/15	

DESIGNED BY: NICK HANSON
DRAWN BY: CC, MS
SUBMITTED BY: MATTHEW D. HANSON, P.E.
PLOT SCALE: 1
PLOT DATE: $$DATE$$$
SIZE: E
DATE: 06/15/2015
SOLICITATION NO.: W912EP-15-B-0030
CONTRACT NO.:
FILE NUMBER: E3206
CKD BY: CC/ED/JAM
DDF:L:\100_SK\517XXX.dgn

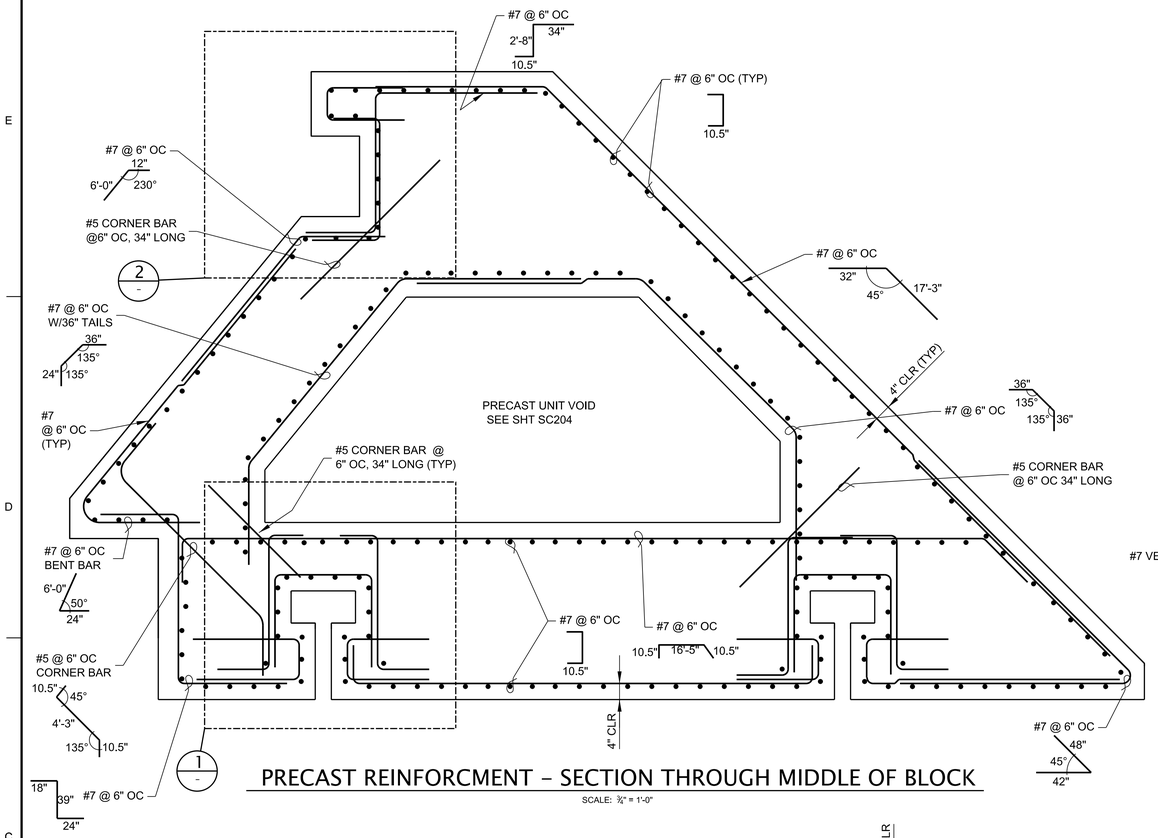
U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

THE DALLES LOCK AND DAM
EAST FISHLADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM
COFFER DAM AND TRASHRACK GUIDES
SHEET 2

SHEET IDENTIFICATION
SK517
SHEET 0 OF 0

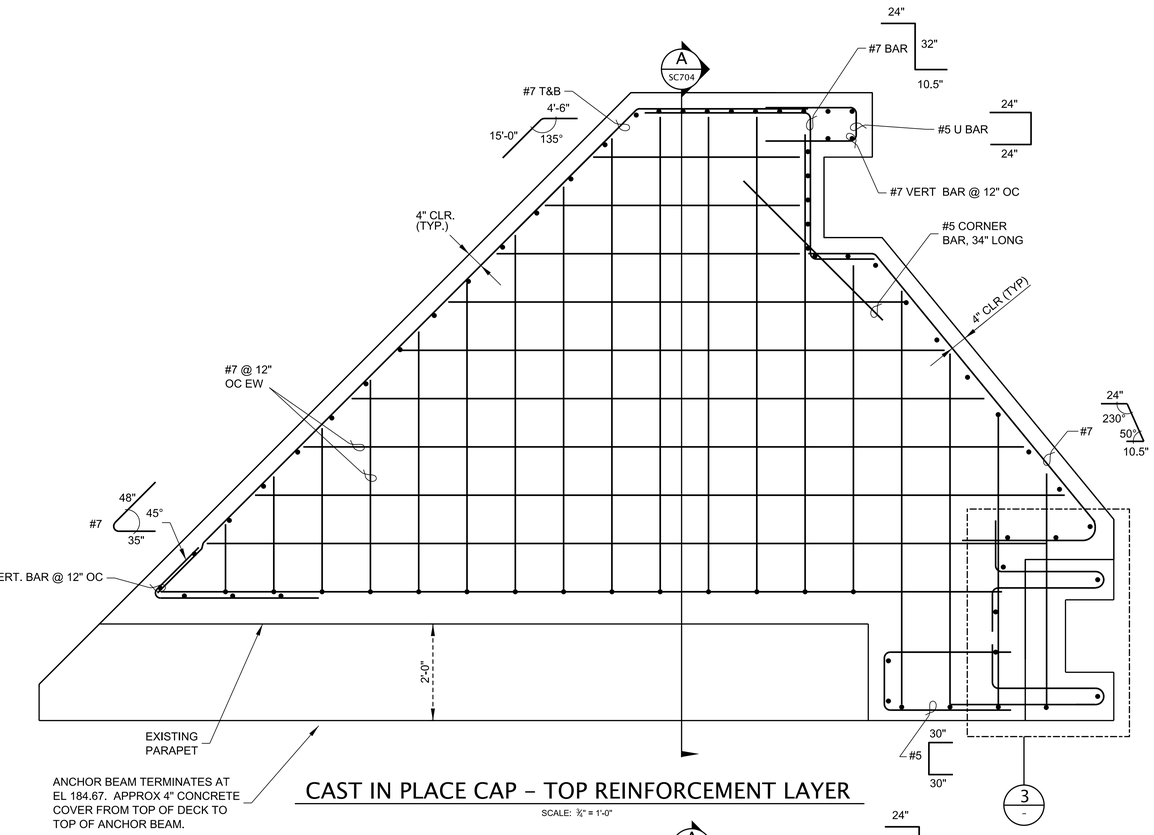
DESIGN FILE: $PWDIR$

DRAWING PLOT SIZE: $BORDER$ | DATE AND TIME PLOTTED: $$$DATE$$$$ $TIME | BY USERNAME: $USER$ | SHEET NAME: $$SHEETN$



PRECAST REINFORCMENT – SECTION THROUGH MIDDLE OF BLOCK

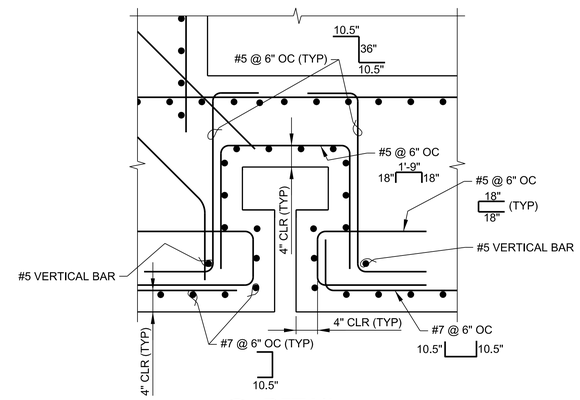
SCALE: ¾" = 1'-0"

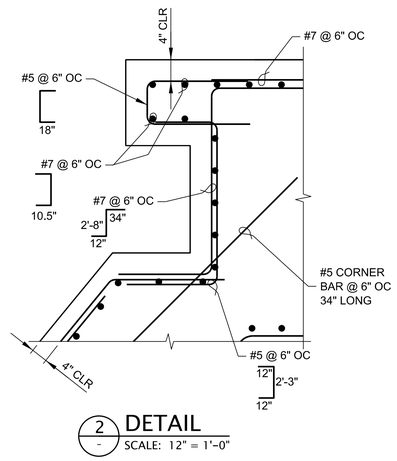


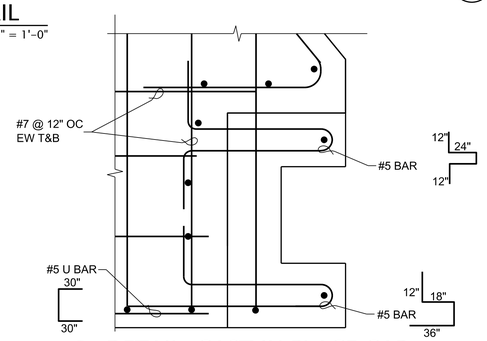
ANCHOR BEAM TERMINATES AT EL 184.67. APPROX 4" CONCRETE COVER FROM TOP OF DECK TO TOP OF ANCHOR BEAM.

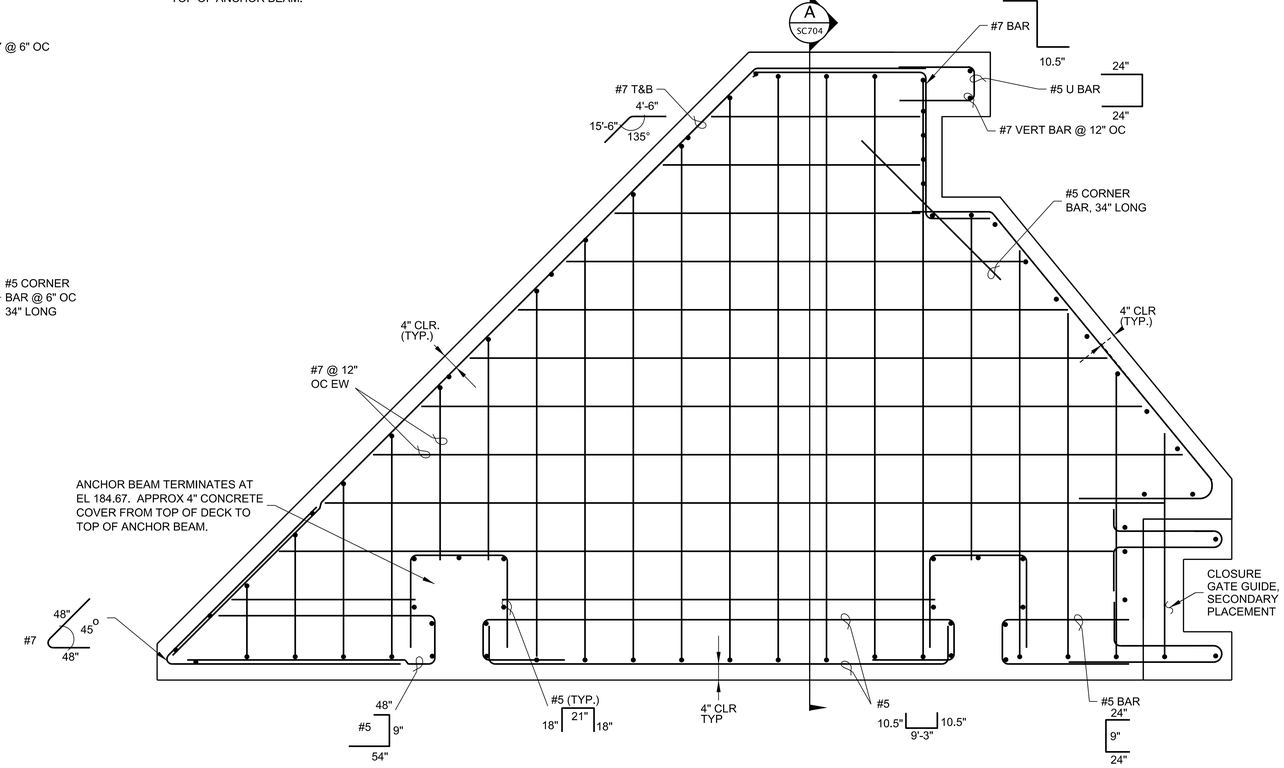
CAST IN PLACE CAP – TOP REINFORCEMENT LAYER

SCALE: ¾" = 1'-0"









CAST IN PLACE CAP – BOTTOM REINFORCEMENT LAYER

SCALE: ¾" = 1'-0"

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.

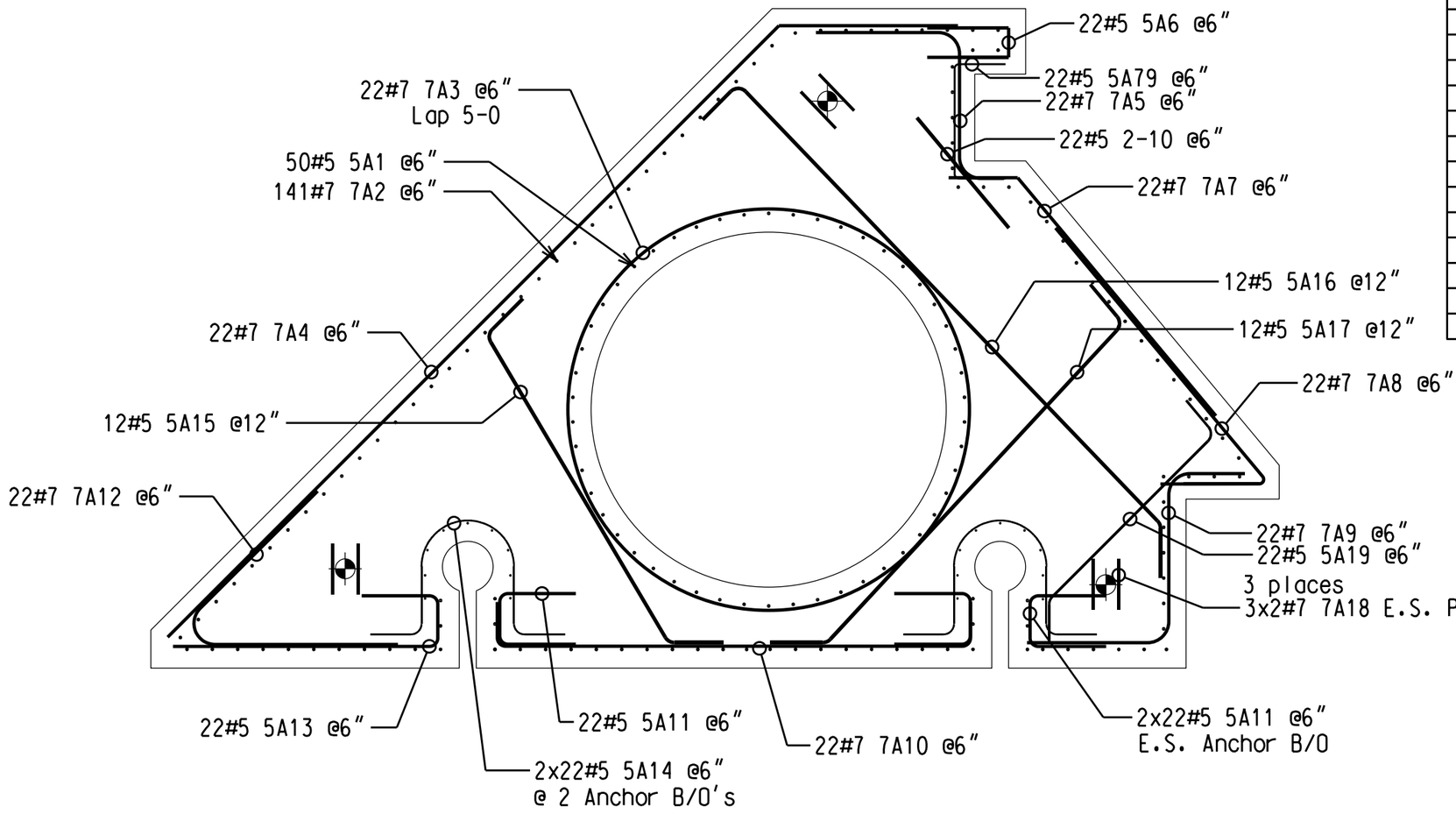
DATE: 06/15/2015
SOLICITATION NO.: W912EK-14-R-0030
CONTRACT NO.:
FILE NUMBER: DSP1110_SC703XXX.DGN
PLOT DATE: $$$DATE$$$$
PLOT SCALE: 1:1
SIZE: ANSI F
DESIGNED BY: NICHOLAS R. HANSON
DWN BY: ASHLEY A. OCCIDTMA
CKD BY: OCCIDTMA
SUBMITTED BY: MATTHEW D. HANSON, P.E.
U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

THE DALLES LOCK AND DAM
EAST FISH LADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

PRECAST GUIDES REINFORCMENT
PLAN AND DETAILS

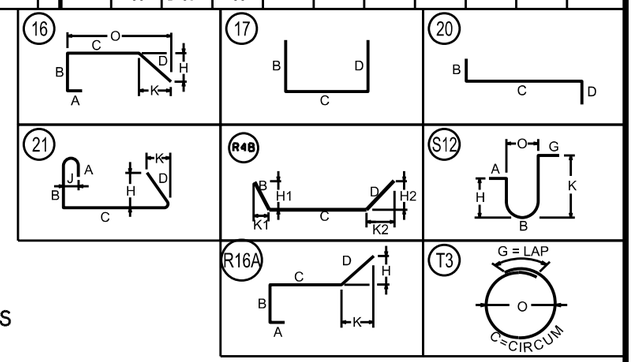
SHEET IDENTIFICATION
SC703
SHEET 0 OF 0

All Sections 11'-1 1/2" Tall



14 total
7 per above
7 mirrored

SIZE	EP	BAR MARK	V	BND TYP	CD	BENDING DIMENSIONS A	B	C	D	E	F/R	G	H	J	K	O
7		7A2		17			0-102	10-052	0-102							
7		7A3		T3				24-102				5-01				7-11
7		7A4		16				16-113	3-06				2-053		2-053	19-052
7		7A5		20			2-10	2-101	0-102							
7		7A7		16				6-00	1-00				0-091		0-073	6-073
7		7A8		21				6-00	2-01				1-083		1-052	
7		7A9		20			1-06	3-04	2-10							
7		7A10		17			0-102	9-04	0-102							
7		7A12		21				4-00	4-00				2-112		2-112	
7		7A18		S12		1-02	16-032					1-02	8-00		8-00	0-09
5		5A1		17			0-102	10-052	0-102							
5		5A6		17			1-06	0-072	1-06							
5		5A11		17			1-06	1-00	1-06							
5		5A13		17			1-06	1-00	5-03							
5		5A14		S12		0-102	6-00					0-102	2-06		2-06	1-11
5		5A15		R4B				0-102	7-032	0-102						
													0-101		0-023	
													0-09		0-051	
5		5A16		16			0-102	12-001	0-103				0-072		0-072	12-073
5		5A17		R4B				0-102	8-091	0-102						
													0-073		0-07	
													0-102		0-011	
5		5A19		R16A			0-102	4-08	0-102				0-072		0-072	
5		5A79		17			1-00	2-03	1-00							



DETAILED	TAKEN	BALANCE
146016	0	146016

Note:
1. Reinforcing steel detailed in accordance with CRSI and ACI315 standards.
2. Reinforcing steel is A615, Grade 60, unless otherwise noted.
3. Reinforcing steel placing drawings must be used in conjunction with, and do not supersede the engineering drawings.
4. Dimensions shown, if any, are for use in placing reinforcing steel only. Farwest assumes no responsibility for the dimensional accuracy, design, or consequences of defects when such dimensions are used for construction purposes.
5. Any errors, inconsistencies, or omissions between the placing drawings and engineering drawings shall be brought to Farwest's attention prior to fabrication.

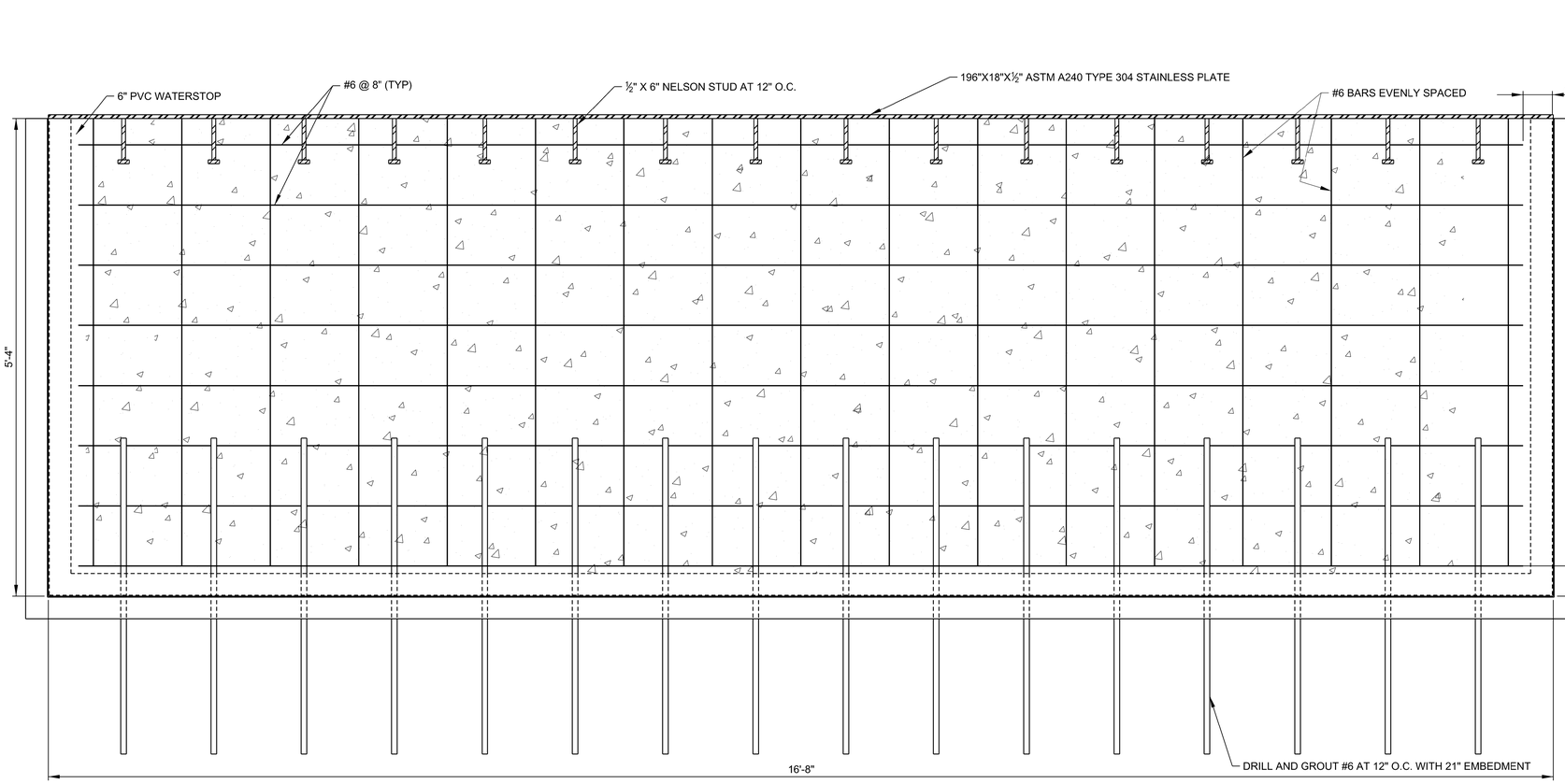
REVISION	REV. BY	DATE	CHECKED	BY	DATE
1 Added Missing #5 R16A	RMR	8/12/16	1 CHK1	CB1	CD1
2 Added 5A79	RMR	8/15/16	2 CHK2	CB2	CD2
3 Rev3	Revby3	RD3	3 CHK3	CB3	CD3
4 Rev4	Revby4	RD4	4 CHK4	CB4	CD4

Farwest Reinforcing Division

AUBURN, WA. 1-800-835-0576
BOISE, ID. 1-800-632-5951
EUGENE, OR. 1-800-269-8720
OGDEN, UT. 1-800-835-3039
VANCOUVER, WA. 1-800-793-1493

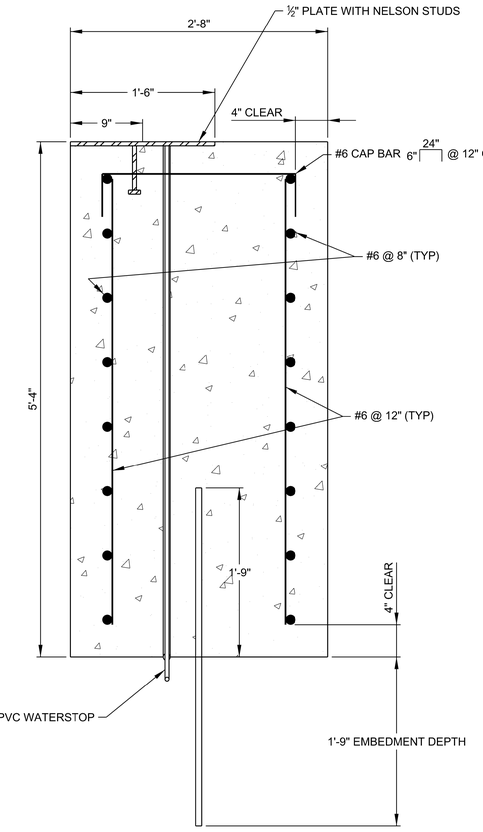
SHEET TITLE:	Precast Sections
PROJECT:	Dalles Lock & Dam
LOCATION:	The Dalles, OR
DESIGNER:	US Army Corp
CUSTOMER:	FWC/Kiewit

DRAWN BY:	RMR
DATE:	8/12/2016
STATUS:	Submittal
SHEET #:	R-1



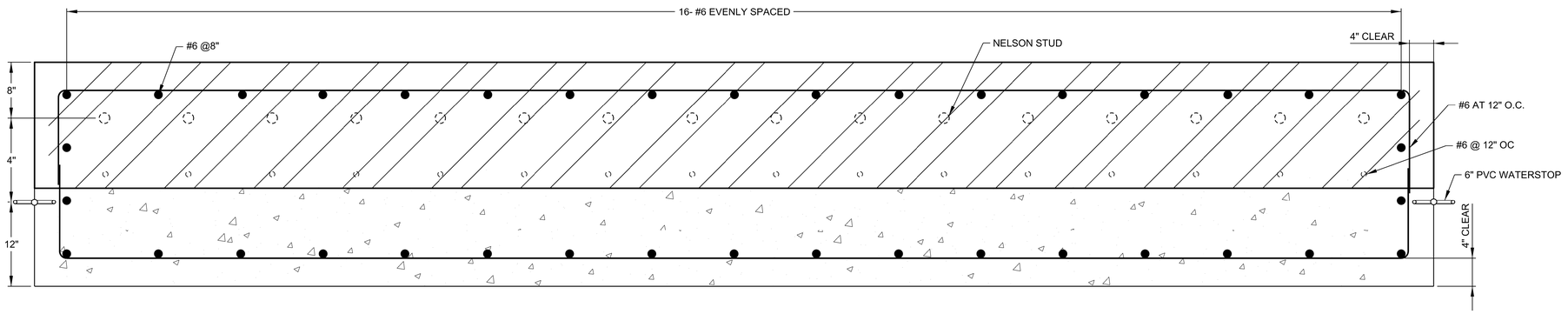
ELEVATION

1-1/2" = 1'-0"



B RIGHT SIDE ELEVATION

SCALE: 1½" = 1'-0"



PLAN

1-1/2" = 1'-0"

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

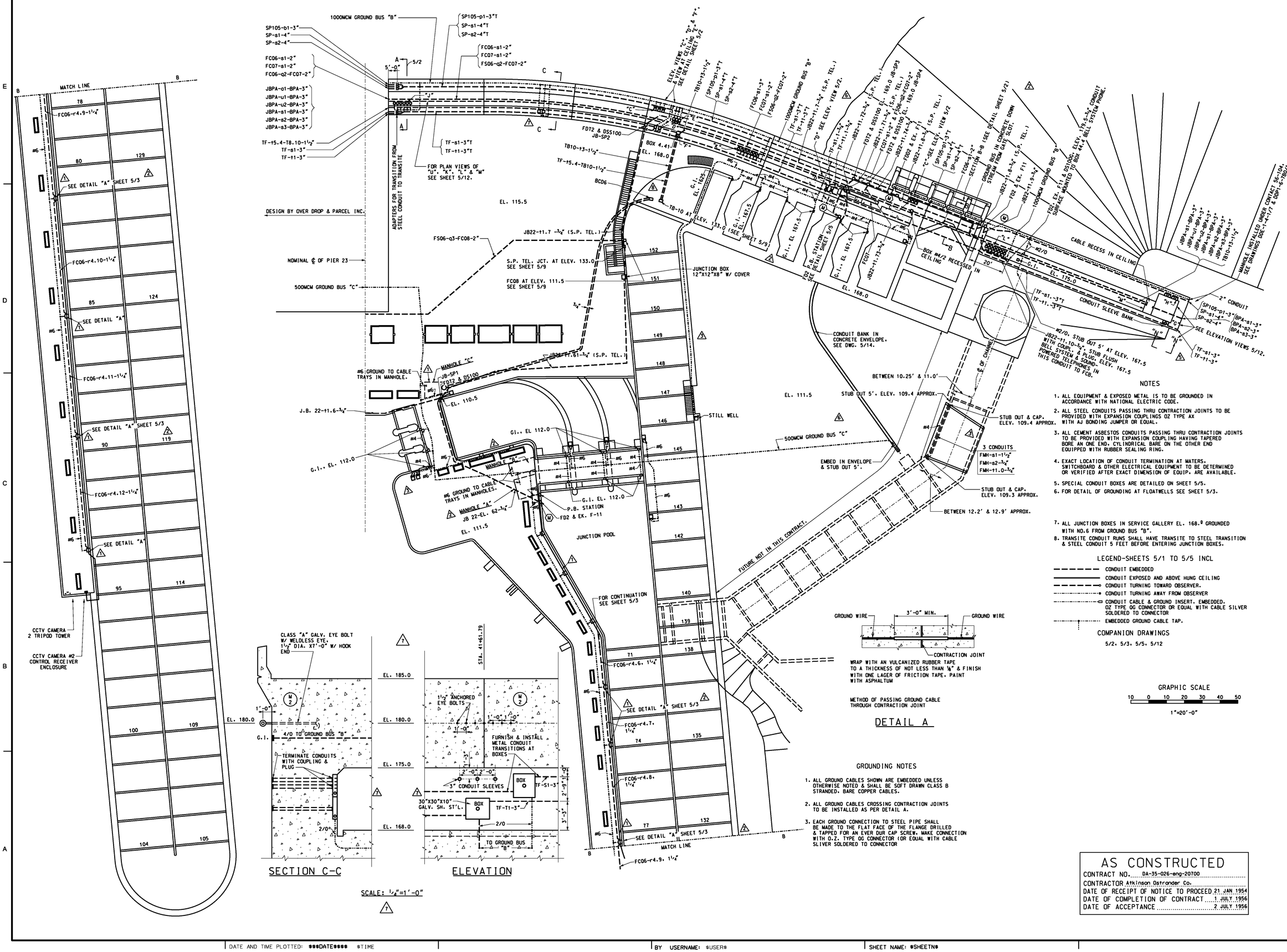
DESIGNED BY: JEFFREY HICKS
DRAWN BY: CHRIS M.
SUBMITTED BY: MATTHEW D. HANSON, P.E.
PLOT SCALE: 1:1
SIZE: ANSI F
DATE: 08/15/2015
CKD BY: GREGG M.
PLOT DATE: $$$$DATE$$$$
FILE NAME: DDF1102_SC705XXX.DGN
SOLICITATION NO: W912EK-14-R-0025
CONTRACT NO.:
FILE NUMBER: DDF1102_SC705XXX

THE DALLES LOCK AND DAM
EAST FISHLADDER
AUXILIARY WATER SUPPLY
BACKUP SYSTEM

BEARING BLOCK REBAR
SECTION AND DETAILS

SHEET IDENTIFICATION
SC705
SHEET 0 OF 0

DRAWING PLOT SIZE: $BORDER$ | DATE AND TIME PLOTTED: $$$DATE$$$$ $TIME | BY USERNAME: $USER$ | SHEET NAME: $SHEETN$



NOTES

1. ALL EQUIPMENT & EXPOSED METAL IS TO BE GROUNDED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.
2. ALL STEEL CONDUITS PASSING THRU CONTRACTION JOINTS TO BE PROVIDED WITH EXPANSION COUPLINGS OZ TYPE AX WITH AJ BONDING JUMPER OR EQUAL.
3. ALL CEMENT ASBESTOS CONDUITS PASSING THRU CONTRACTION JOINTS TO BE PROVIDED WITH EXPANSION COUPLING HAVING TAPERED BORE AN ONE END. CYLINDRICAL BARE ON THE OTHER END EQUIPPED WITH RUBBER SEALING RING.
4. EXACT LOCATION OF CONDUIT TERMINATION AT MATERS. SWITCHBOARD & OTHER ELECTRICAL EQUIPMENT TO BE DETERMINED OR VERIFIED AFTER EXACT DIMENSION OF EQUIP. ARE AVAILABLE.
5. SPECIAL CONDUIT BOXES ARE DETAILED ON SHEET 5/5.
6. FOR DETAIL OF GROUNDING AT FLOATWELLS SEE SHEET 5/3.
7. ALL JUNCTION BOXES IN SERVICE GALLERY EL. 168.⁰ GROUNDED WITH NO.6 FROM GROUND BUS "B".
8. TRANSITE CONDUIT RUNS SHALL HAVE TRANSITE TO STEEL TRANSITION & STEEL CONDUIT 5 FEET BEFORE ENTERING JUNCTION BOXES.

LEGEND-SHEETS 5/1 TO 5/5 INCL

- CONDUIT EMBEDDED
- CONDUIT EXPOSED AND ABOVE HUNG CEILING
- CONDUIT TURNING TOWARD OBSERVER.
- CONDUIT TURNING AWAY FROM OBSERVER
- CONDUIT CABLE & GROUND INSERT. EMBEDDED. OZ TYPE OG CONNECTOR OR EQUAL WITH CABLE SILVER SOLDERED TO CONNECTOR
- EMBEDDED GROUND CABLE TAP.

COMPANION DRAWINGS

5/2. 5/3. 5/5. 5/12

GROUNDING NOTES

1. ALL GROUND CABLES SHOWN ARE EMBEDDED UNLESS OTHERWISE NOTED & SHALL BE SOFT DRAWN CLASS B STRANDED. BARE COPPER CABLES.
2. ALL GROUND CABLES CROSSING CONTRACTION JOINTS TO BE INSTALLED AS PER DETAIL A.
3. EACH GROUND CONNECTION TO STEEL PIPE SHALL BE MADE TO THE FLAT FACE OF THE FLANGE DRILLED & TAPPED FOR AN EVER DUR CAP SCREW. MAKE CONNECTION WITH O.Z. TYPE OG CONNECTOR (OR EQUAL WITH CABLE SLIVER SOLDERED TO CONNECTOR

AS CONSTRUCTED

CONTRACT NO. DA-35-026-eng-20700
CONTRACTOR Atkinson Ostronder Co.
DATE OF RECEIPT OF NOTICE TO PROCEED 21 JAN 1954
DATE OF COMPLETION OF CONTRACT 1 JULY 1956
DATE OF ACCEPTANCE 2 JULY 1956

US Army Corps of Engineers®
PORTLAND DISTRICT

MARK	DESCRIPTION	DATE	APPR.
11	REDRAWN IN MICROSTATION BY C-CAD	10/04/2005	
10	ADDED 2 CCTV CAMERAS	2/27/1991	
9	ADDED FC06 ⅝"-PVC	7/28/1975	
	AS CONSTRUCTED	10/11/1957	
7	ADDED BOXES, CONDUITS & REVISED GROUND CABLES AT RAILROAD BRIDGE	4-29-1955	
6	ADDED CONDUITS & REVISED AROUND CABLES AT RAILROAD BRIDGE	2-15-1955	
5	ADDED CONDUIT SLEEVE BANK & DELETED BOXES & CONDUIT SERT. GALL. EL. 175	1-19-1955	

DESIGNED BY: M.P.
DRAWN BY: M.P.
SUBMITTED BY: H. WALKER
DATE: 3 JULY 1953
SOLICITATION NO.:
GRID BY: M.E.C.
CONTRACT NO.:
PLOT SCALE: 1:1
PLOT DATE:
DRAWING NUMBER: DDF-1-6-5/1
SIZE: ANSI F
FILE NAME: DDF-1-6-5_1.dgn

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

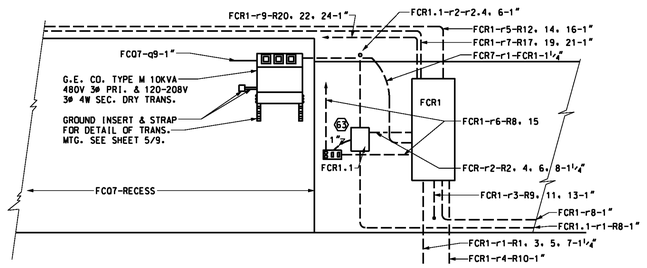
THE DALLES LOCK AND DAM
COLUMBIA RIVER
OREGON - WASHINGTON

POWER CONTROL & GROUNDING
SERVICE GALLERY
EL. 168.0, EL. 111.5 & LADDER

SHEET IDENTIFICATION
DDF-1-6-5/1
SHEET 353 OF

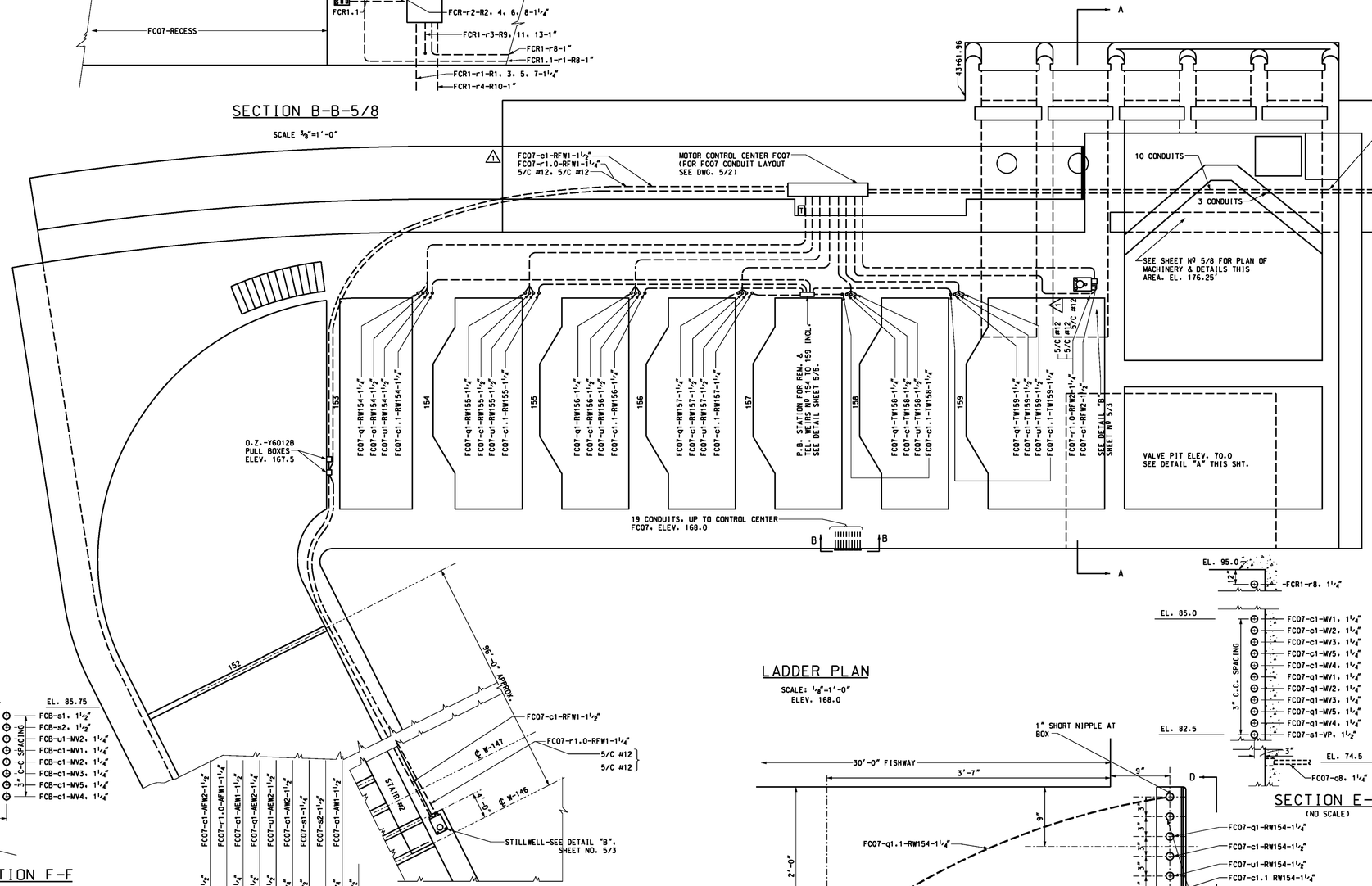
DESIGN FILE: ***DGN*****

DATE AND TIME PLOTTED: ***DATE**** $TIME
BY USERNAME: $USER$
SHEET NAME: $SHEETN$



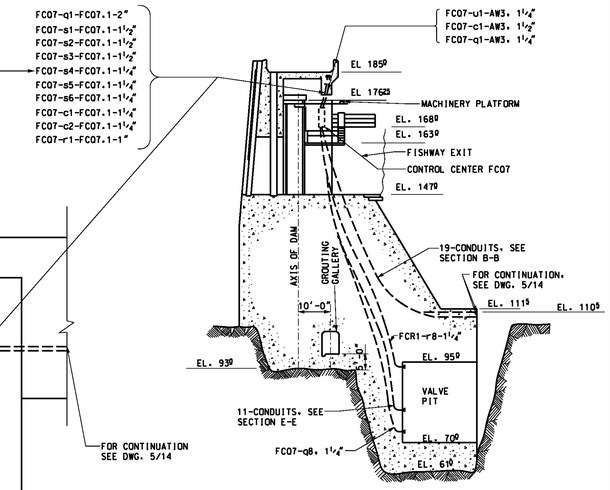
SECTION B-B-5/8

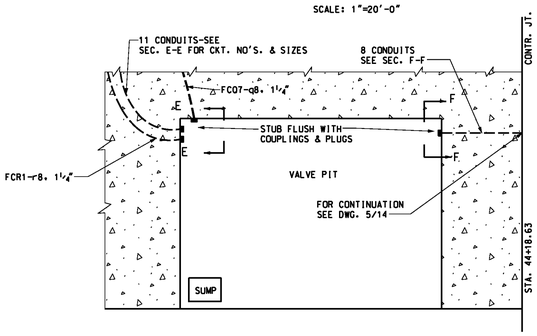
SCALE ⅜"=1'-0"



SECTION A-A

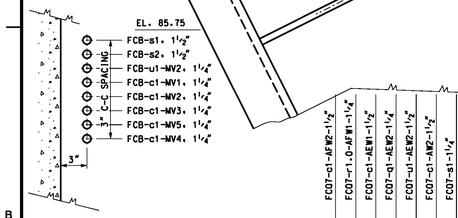
SCALE: 1"=20'-0"





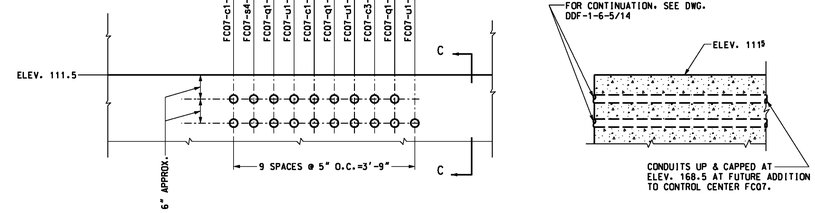
DETAIL "A"-PLAN

SCALE: ⅛"=1'-0"



SECTION F-F

(NO SCALE)



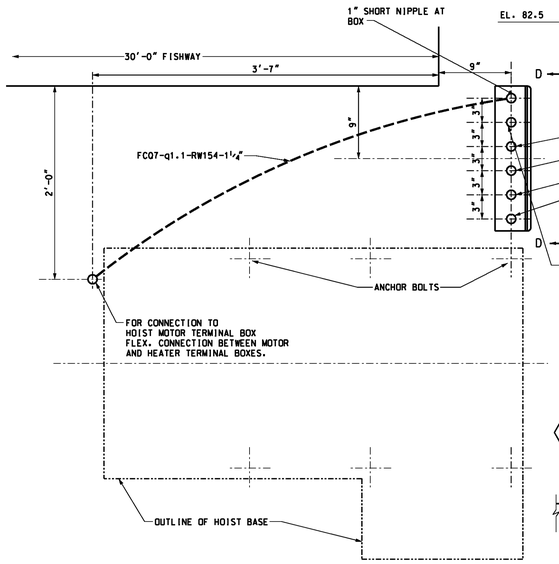
SECTION B-B

SECTION C-C

SCALE: ¾"=1'-0"

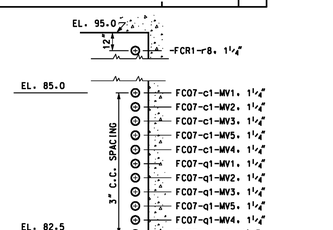
LADDER PLAN

SCALE: ⅛"=1'-0"
ELEV. 168.0



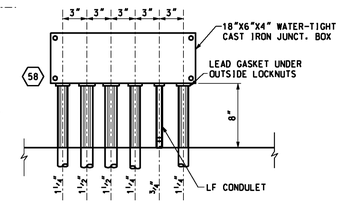
CONDUIT DETAIL AT WEIRS 154 TO 159 INCLUSIVE

SCALE: 1½"=1'-0"



SECTION E-E

(NO SCALE)



SECTION D-D

SCALE: 1½"=1'-0"

NOTES

FOR GENERAL NOTES & LEGEND SEE SHEET 5/1.

REFERENCE DRAWING

5/11

COMPANION DRAWINGS

5/1, 5/8, 5/2

GRAPHIC SCALES

1"=20'-0"
⅛"=1'-0"
¾"=1'-0"
1½"=1'-0"
⅜"=1'-0"

THIS DRAWING SUPERSEDES DWG. NO. DDF-1-6-5/4

US Army Corps of Engineers®
PORTLAND DISTRICT

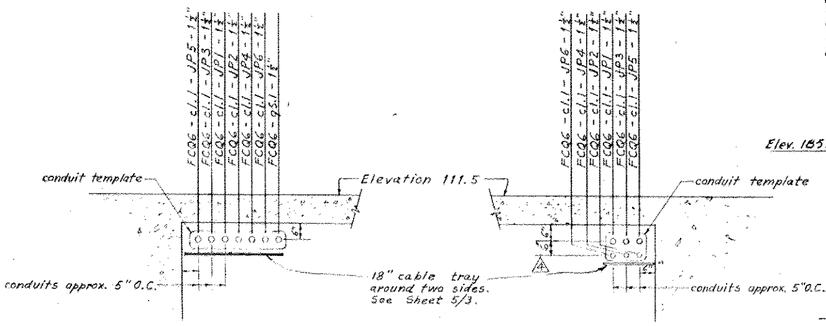
MARK	DESCRIPTION	DATE	APPR.
2	REDRAWN IN MICROSTATION BY G-CAD	10/3/15	MVV
1	INSTALLED WRNG FOR FSH EXIT AUTOMATION	6/30/08	

DESIGNED BY:
DRAWN BY: MVV
CKD BY:
SUBMITTED BY:
U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON
DATE: 30 JAN 1968
SOLICITATION NO.:
CONTRACT NO.:
PLOT SCALE: 1
PLOT DATE:
DRAWING NUMBER: DDF-10.0-6-5/4
SIZE: ANSI F
FILE NAME: DDF-10.0-6-5_4.dgn

THE DALLES DAM
COLUMBIA RIVER
OREGON - WASHINGTON
EAST FISHLADDER
POWER & CONTROL, WEIR 153-159 &
COUNTING HOUSE EL. 168.0

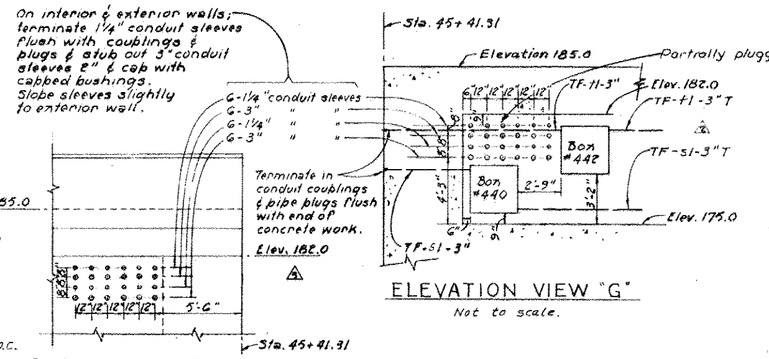
SHEET IDENTIFICATION
DDF-10.0-6-5/4
SHEET OF

DESIGN FILE: $$$DGN$$$

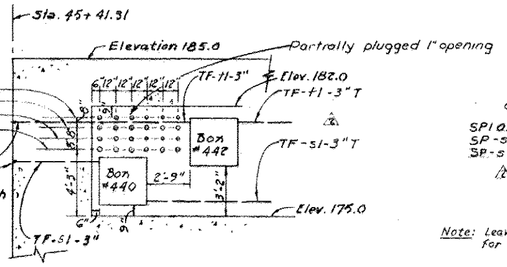


VIEW "T-T"
MANHOLE -"A"
Scale: ½" = 1'-0"

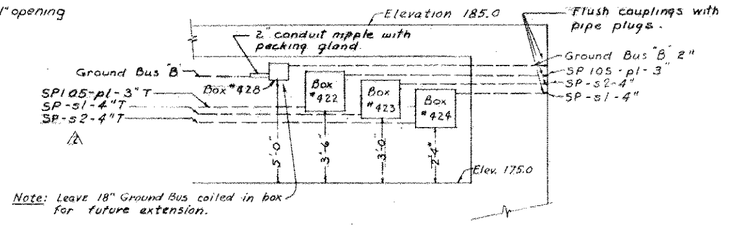
VIEW "S-S"
MANHOLE -"A"
Scale: ½" = 1'-0"



ELEVATION VIEW "N-N"
Scale: ¼" = 1'-0"

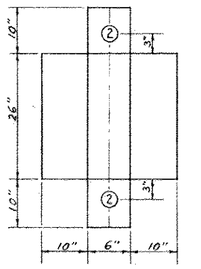


ELEVATION VIEW "G"
Not to scale.



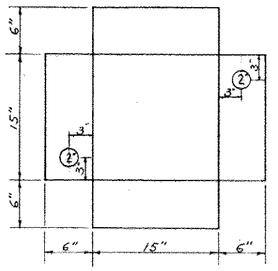
Note: Leave 18" Ground Bus coiled in box for future extension.

ELEVATION VIEW "H"
Not to scale.

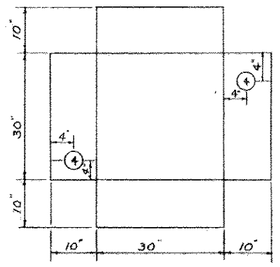


BOX 446 THRU 460

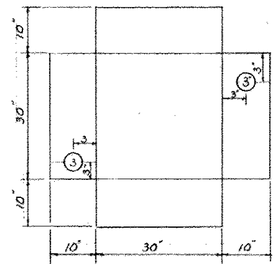
BOX 403, 408, 411
412.



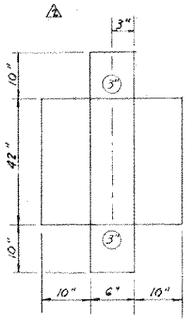
BOX 428



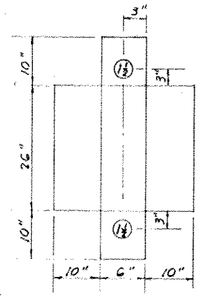
BOX 423, 424



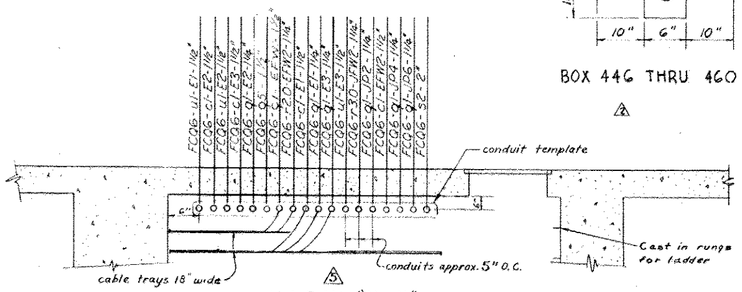
BOX 422



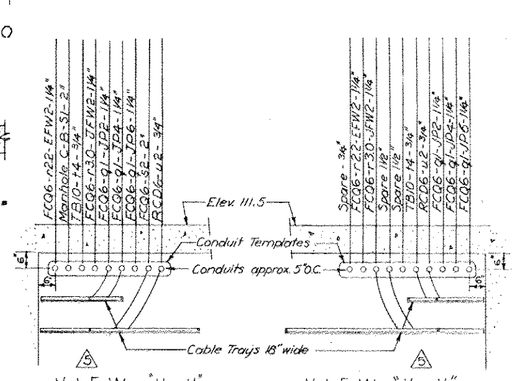
BOX 466 THRU 468



BOX 443, 444.

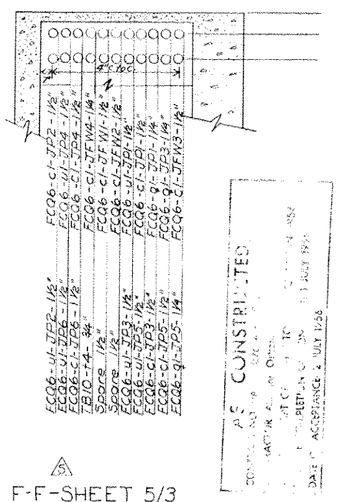


VIEW "X-X"
MANHOLE -"C"
Scale: ½" = 1'-0"

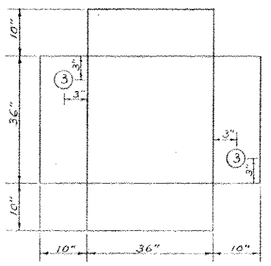


VIEW "U-U"
MANHOLE "B"
Scale: ⅜"=1'-0"

VIEW "V-V"
MANHOLE "B"
Scale: ⅜"=1'-0"



SECTION F-F-SHEET 5/3
Scale: ⅜"=1'-0"



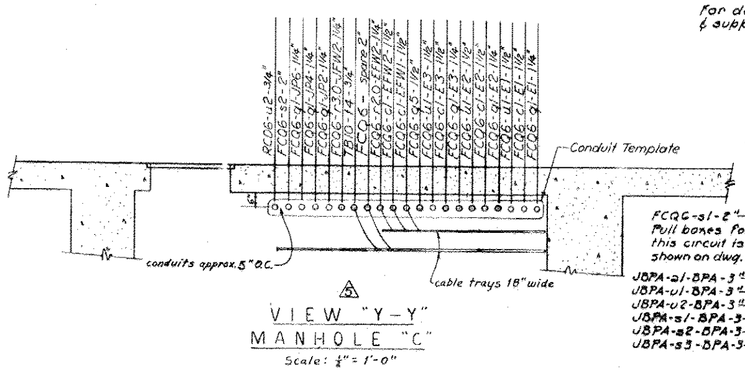
BOX 440

REFERENCE DRAWINGS

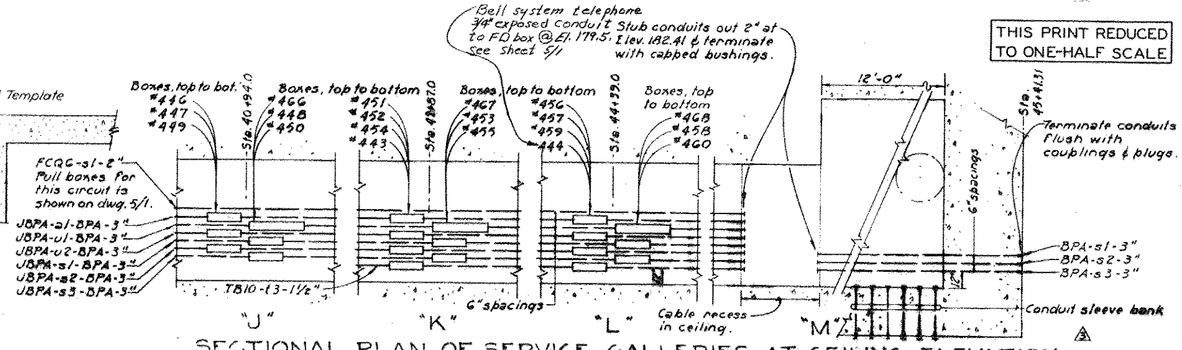
COMPANION DRAWINGS
5/1, 5/3, 5/5, 5/13

GRAPHIC SCALE
2 0 2 4 6 ½" = 1'-0"

NOTES:
For details of cable trays & supports, see sheet 5/13.



VIEW "Y-Y"
MANHOLE "C"
Scale: ½" = 1'-0"



SECTIONAL PLAN OF SERVICE GALLERIES AT CEILING ELEVATION
Scale: ½" = 1'-0"

REVISION	DATE	DESCRIPTION	BY
4	10-11-57	As Constructed	GZ
3	8-3-55	Revised Views U-U, V-V, XX, & Y-Y; added Section F-F.	MP
2	13 July 55	Added 3/4"ø 2" conduits. Revised View S-S.	MPM
1	19 Jan 55	Added elev. view "N-N" Deleted boxes. Revised plan & elev. details	MPM
1	19 Nov. 54	Added boxes & plan detail. Revised cht. nos.	MPM
1	9-16-54	Terminated spare conduit in Manhole "C". Added dimension	MPM

N. W. HANER & ASSOCIATES
MOFFATT, NICHOL & TAYLOR
ASSOCIATED ENGINEERS

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

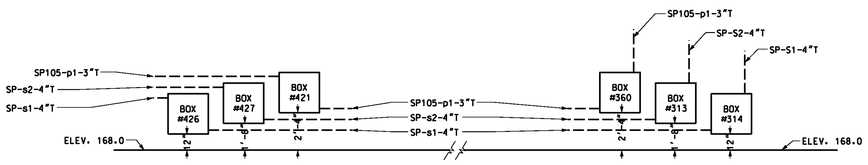
DRAWN BY: M.P.
TRACED BY: M.P.
CHECKED BY: W.E.C.
PREPARED: N. W. HANER & ASSOC., MOFFATT, NICHOL & TAYLOR
REVIEWED:
for CHIEF, SAFETY BRANCH
SUBMITTED:
CHIEF, DESIGN BRANCH
RECOMMENDED:
CHIEF, ENGINEERING DIVISION

THE DALLES DAM
COLUMBIA RIVER WASHINGTON-OREGON
EAST FISHLADDER
POWER & CONTROL
MANHOLE DETAILS EL.111.5 & BOX DETAILS

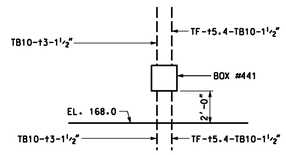
APPROVED: DATE 11-26-53
for COLONEL, U.S. DISTRICT ENGINEER

SCALE AS SHOWN.
CONTRACT NUMBER:
DRAWING NUMBER
DDF-1-6-5/12
SHEET 363 OF

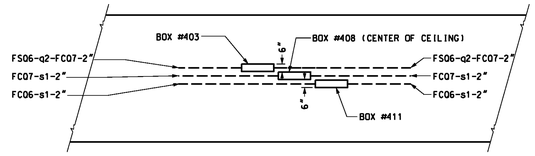
KILHAM STATIONERY & PRINTING CO., INC. 1ST GRAPHICS 8-53 10 1956-58



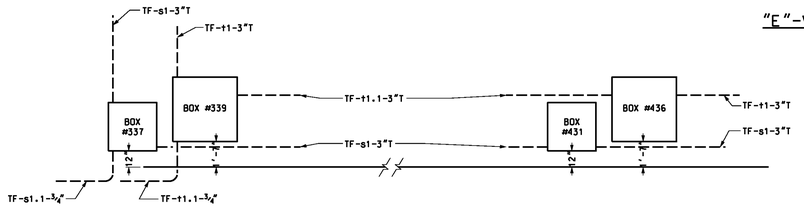
"C" ELEVATION VIEWS "C"
NOT TO SCALE.



ELEVATION VIEW "F"
SCALE: ¼"=1'-0"



"E"-VIEW AT CEILING-LOOKING UP "E"
SCALE: ¼"=1'-0"

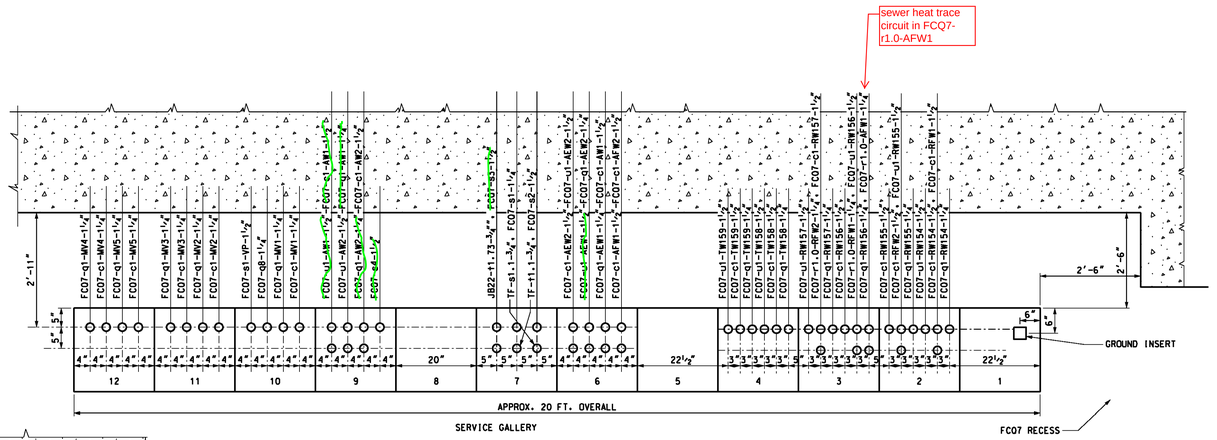


"D" ELEVATION VIEWS "D"
NOT TO SCALE.

FUTURE SECTION				THIS CONTRACT							
							EL 1859 480V RECEPT.		FLOATWELL HEATING	LIGHTING TRANS.	1A
MOTORIZED VALVE #4 STARTER	MOTORIZED VALVE #2 STARTER	AUX. WEIR #3 STARTER AW 3	AUX. WEIR #1 STARTER AW 1	MOTOR HEATER PANEL	WING GATE STARTER	AUX. ENTR. WEIR #1 STARTER	WEIR 157 ⚠1	WEIR #156 STARTER ⚠1	WEIR 155 STARTER ⚠1	WEIR #154 STARTER	1B FLOOD LIGHT CONTACTOR
MOTORIZED VALVE #5 STARTER	MOTORIZED VALVE #3 STARTER	MOTORIZED VALVE #1 STARTER	AUX. WEIR #2 STARTER AW 2		WING GATE STARTER	AUX. ENTR. WEIR #2 STARTER	COUNTING HOUSE STARTER.	⚠1 CONTING BOARD	⚠1 WEIR 159 STARTER	⚠1 WEIR #158 STARTER	1C CONT. XFMR MAIN
											1D CONT. XFMR 480-120/240
12	11	10	9	8	7	6	5	4	3	2	1

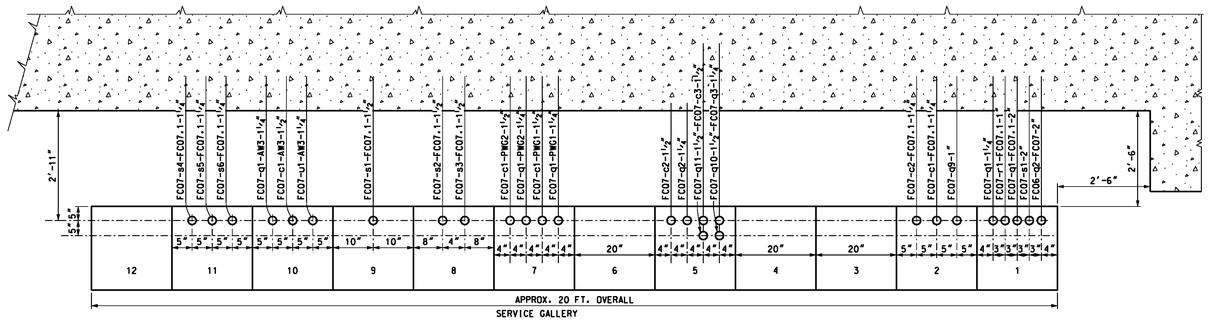
MOTOR CONTROL CENTER FCQ7

NO SCALE



BOTTOM CONDUIT LAYOUT FCQ7

NO SCALE



TOP CONDUIT LAYOUT FCQ7

NO SCALE

STUB CONDUIT FOR PRESENT SERVICE UP 3" & INSTALL BUSHING.

CONDUIT FOR FUTURE SECTION TO HAVE CONDUIT COUPLING INSTALLED FLUSH WITH CONCRETE & PLUGGED.

NOTE:
1. THIS DRAWING SUPERSEDES DRAWING NO. DDF-1-6-5/2

REFERENCE DRAWINGS

COMPANION DRAWINGS

5/5, 5/4

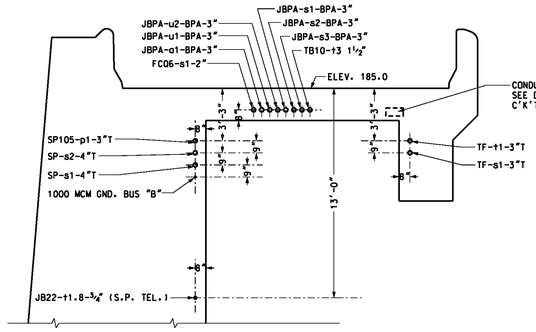
GRAPHIC SCALES

1 6"0 2 4 6 8 10 12 14 15 ¼"=1'-0"

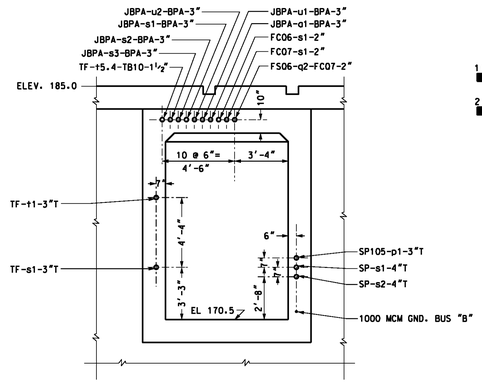
2 0 2 4 6 ½"=1'-0"

PAYMENT ITEMS

STEEL CONDUIT, FITTINGS, & OUTLET BOXES.	56
ELECTRICAL CABINETS & BOXES, GALV. SHEET METAL.	57
GALVANIZED CAST IRON BOXES.	58
NON-METALLIC CONDUIT & FITTINGS	59
MISCELLANEOUS AUXILIARY & POWER CONTROL EQUIPMENT	60
BARE COPPER GROUND CONDUCTOR & FITTINGS.	61
CABLE TRAYS AND SUPPORTS	62
LIGHT SYSTEM COMPLETE WITH FIXTURES, SWITCHES, RECEPTACLES, PANELBOARDS & WIRE	63
LIGHTING STANDARDS	64
INDOOR LOAD CENTER UNIT SUBSTATIONS	65
480-VOLT CONTROL CENTERS	66
DRY-TYPE LIGHTING TRANSFORMERS	67
ELECTRIC HEATERS	68
LOW-VOLTAGE POWER & CONTROL CABLES	69



SECTION B-B
SCALE: ½"=1'-0"



SECTION A-A
SCALE: ½"=1'-0"

MARK	DESCRIPTION	DATE	APPR.
2	REDRAWN IN MICROSTATION BY G-CAD	10/5/15	M.K.V.
1	MODIFIED FOR FISH EXIT AUTOMATION	7/23/03	

US Army Corps of Engineers®
PORTLAND DISTRICT

DESIGNED BY: | DATE: 23 JULY 1968
DWN BY: | CKD BY: | SOLICITATION NO.:
SUBMITTED BY: | CONTRACT NO.:
PLOT SCALE: 1 | PLOT DATE: | DRAWING NUMBER: DDF-10.0-6-5/2
FILE: ANSI F | FILE NAME: DDF-10.0-6-5.2.dgn

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON

THE DALLES DAM
COLUMBIA RIVER
OREGON - WASHINGTON

EAST FISHLADDER
POWER & CONTROL
GALLERY DETAIL, ELEVATIONS & SECTIONS

SHEET IDENTIFICATION
DDF-10.0-6-5/2
SHEET OF

DESIGN FILE: $$$DGN$$$