



PIT Tag Information System

Columbia Basin

PTSC Annual Meeting
Field O&M Review For 2020
Projects for 2021

SbyC Diversion and JFF Antenna Efficiencies



- Antenna detection efficiencies remained high in 2020 at all PTAGIS main-stem juvenile facilities and full flow monitors.
- SbyC diversion gate efficiencies increased due to low numbers and ongoing PTAGIS-COE off-season maintenance programs. Replacement of LMJ Separator pneumatic gates with electronic gates increased overall efficiency.

PTAGIS Field Office O&M Yearly Reports- Gate Efficiency 2020

B2J - Bonneville PH2 Juvenile

Site Code	Diversion Gate Antenna Group	Total Fish	Success Count	Failure Count	Percent
B2J	SBYC SEPARATOR GATE	25,111	25,098	9	100.0%

Last Processed at 1/15/2021 9:15:01 AM

JDJ - John Day Dam Juvenile

Site Code	Diversion Gate Antenna Group	Total Fish	Success Count	Failure Count	Percent
JDJ	SBYC GATE	0	0	0	0.0%
	SBYC SEPARATOR GATE	3,020	3,012	8	99.7%

Last Processed at 1/15/2021 9:15:02 AM

GOJ - Little Goose Dam Juvenile

Site Code	Diversion Gate Antenna Group	Total Fish	Success Count	Failure Count	Percent
GOJ	A-SEPARATOR GATE	9,411	9,369	39	99.6%
	B-SEPARATOR GATE	16,546	16,385	147	99.1%
	DIVERSION SBYC GATE	11,137	11,091	28	99.7%

Last Processed at 1/15/2021 9:15:01 AM

LMJ - Lower Monumental Dam Juvenile

Site Code	Diversion Gate Antenna Group	Total Fish	Success Count	Failure Count	Percent
LMJ	A-SEPARATOR GATE	3,488	3,443	43	98.8%
	B-SEPARATOR GATE	10,153	10,044	106	99.0%

Last Processed at 1/15/2021 9:15:02 AM

GRJ - Lower Granite Dam Juvenile

Site Code	Diversion Gate Antenna Group	Total Fish	Success Count	Failure Count	Percent
GRJ	A-SEPARATOR GATE	21,998	21,797	179	99.2%
	B-SEPARATOR GATE	11,974	11,825	134	98.9%
	DIVERSION / SBYC GATE	13,742	13,727	5	100.0%
	RCWY-10 GATE	18,075	18,025	37	99.8%
	SBYC GATE	191	0	0	

Last Processed at 1/15/2021 9:15:01 AM

LMJ totals for 2019: 86,933

LMJ totals for 2020: 13,641

Adult Ladder Antenna Efficiencies for 2020

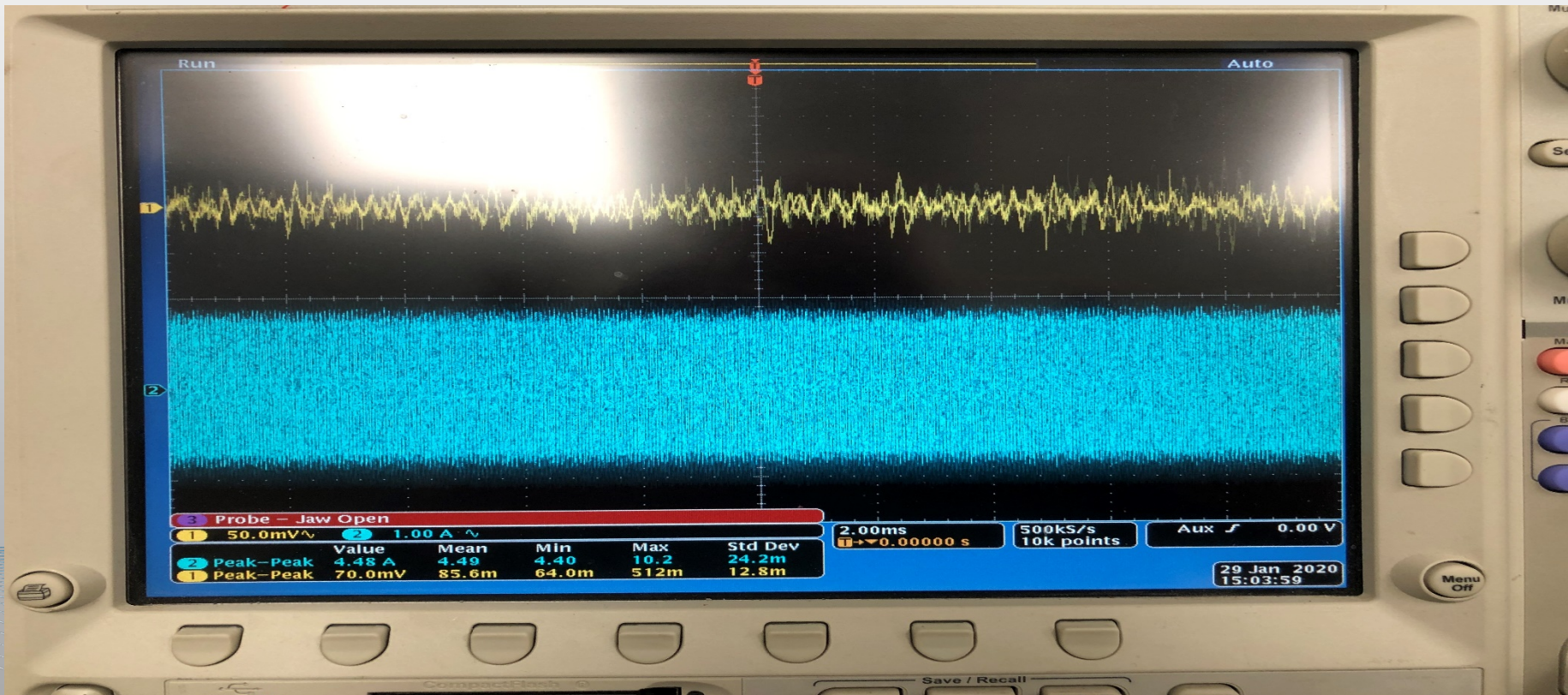
PTAGIS

Ladder Location	Bracket Tags	Ladder Tags	Missed Tags	Percent Detected
BON	5,326	5,325	1	100.0
GOA	3,793	3,775	18	99.5
GRA	670	670	0	100.0
ICH	4,088	4,043	45	98.9
JDA	12,556	12,310	246	98.0
LMA	3,865	3,833	32	99.2
MCN	4,173	4,155	18	99.6
TDA	12,581	12,420	161	98.7

Heavy shad traffic may affect JDA efficiency. It's suspected that adults use the navigation lock during peak shad runs. This is also suspected at ICH. TD1 dropped in efficiency due to antenna grounding failure on antenna 01. This has been resolved.

Continuous RF Noise Tracking and Mitigation at Sites

- Tracking of radio frequency (RF) noise affecting our 465 antennas is ongoing.
- COE and other agencies are cooperative in helping to control noise sources.
- Detection of new noise sources system-wide was low in 2020.

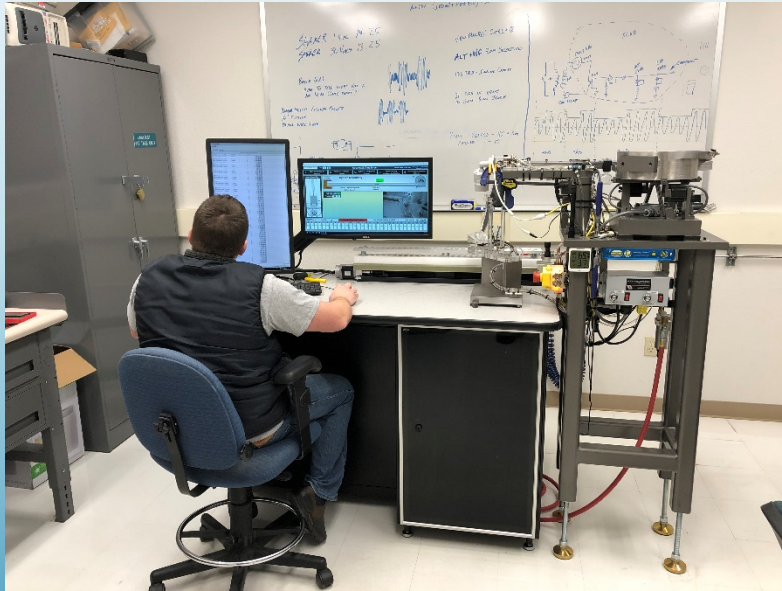


Transceiver Repair and Recycling



- PTAGIS continues to repair in-house all failed transceivers.
- The transceiver failure rate continued to remain flat in 2020 with only 8 units needing repair out of our 690 unit inventory. All 8 units were successfully repaired and returned to service.

Ongoing Tag QA



- Sampling of incoming BPA PIT tags continued at a 3% rate in 2020.
- BPA tag quality throughout 2020 met expectations for the 12 and 9 mm tags.
- PTAGIS Kennewick now stores the BPA reserves of preloaded tags.

Lower Granite Spillway Project (GRS)



160,036 unique detections in 2020!

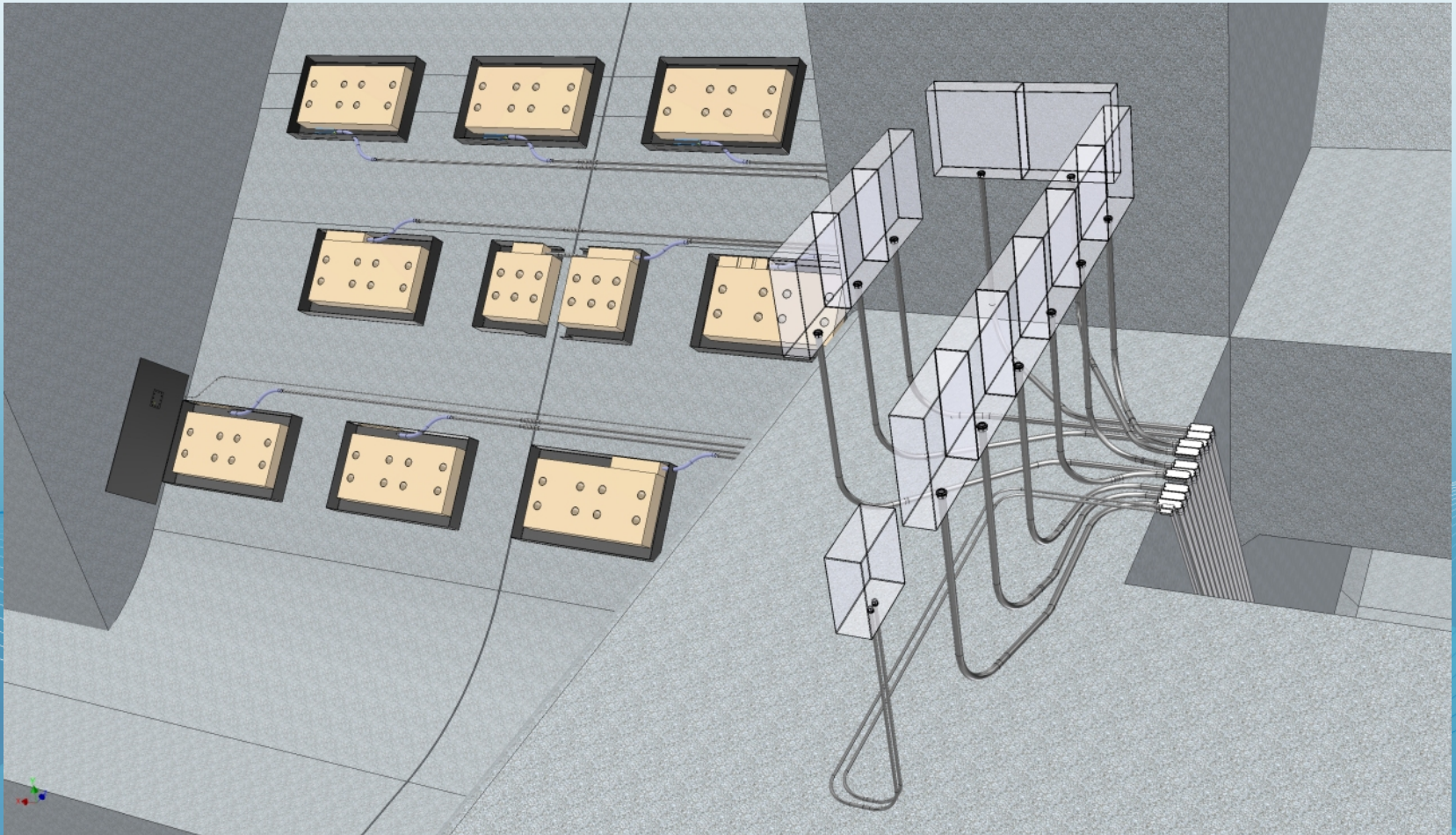
GRS Spillway Project

PTAGIS Contributions

- PTAGIS started working with the COE in **2008!**
- Originally slated for Ice Harbor then moved to Lower Granite
- Since the start of the Lower Granite effort in 2017, PTAGIS has devoted an estimated 6000 hours of infrastructure design and testing
- Designed all electrical infrastructure for the conex boxes
- Designed all hard-wired infrastructure control systems
- Designed all transceiver remote and automated control systems
- Provided all PTAGIS CAD drawings to the COE
- Hosted COE / NOAA / PTAGIS design team meetings
- Designed, prototyped and tested the spilt antenna (06)
- In partnership with NOAA, PTAGIS tested all phases of the project

PSMFC Conduit Layout Accepted by CoE

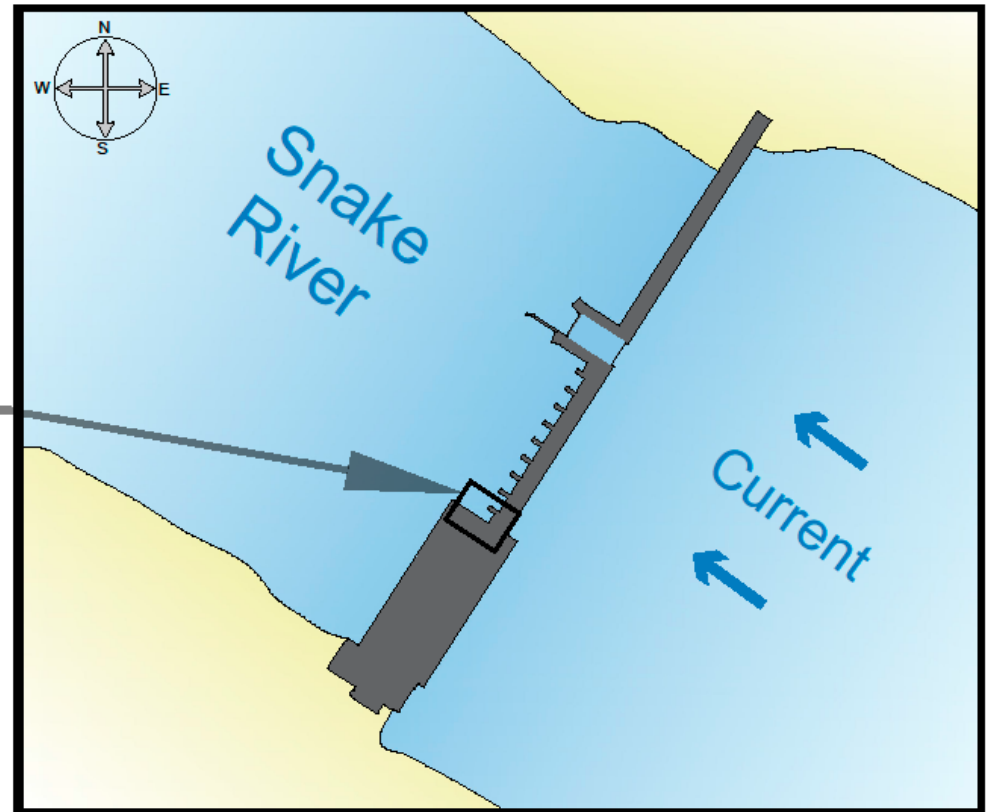
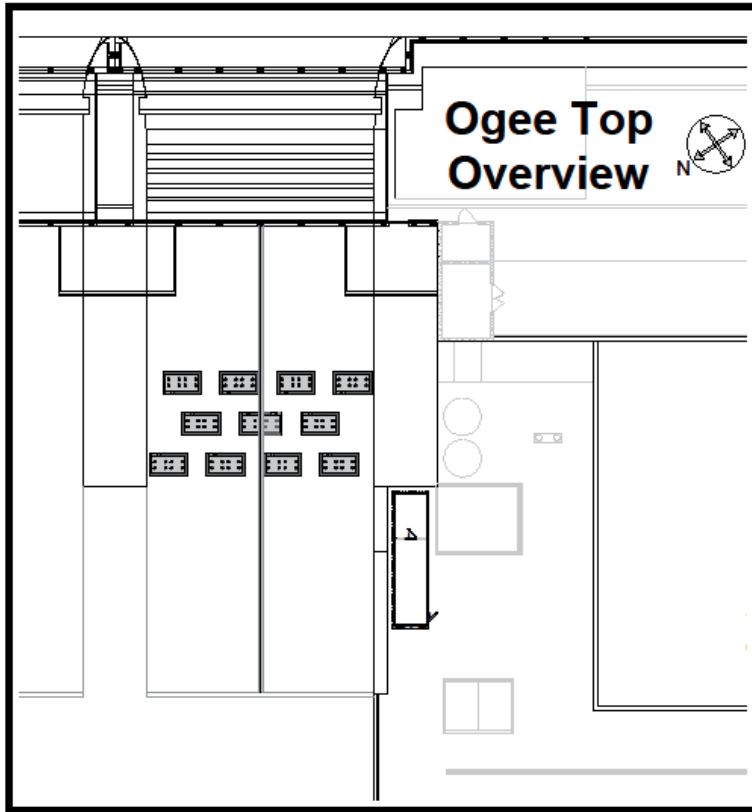
- Conduits with short exciter cable lengths designed by PTAGIS.



GRS Spillway Project



Lower Granite Spillway Project PIT Tag Detection Room Plans



NOTE #	NOTE DESCRIPTIONS
1	
2	
3	
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REVISIONS MADE TO CURRENT SHEET
1 All drawings were modified to reflect the correct construction to date.

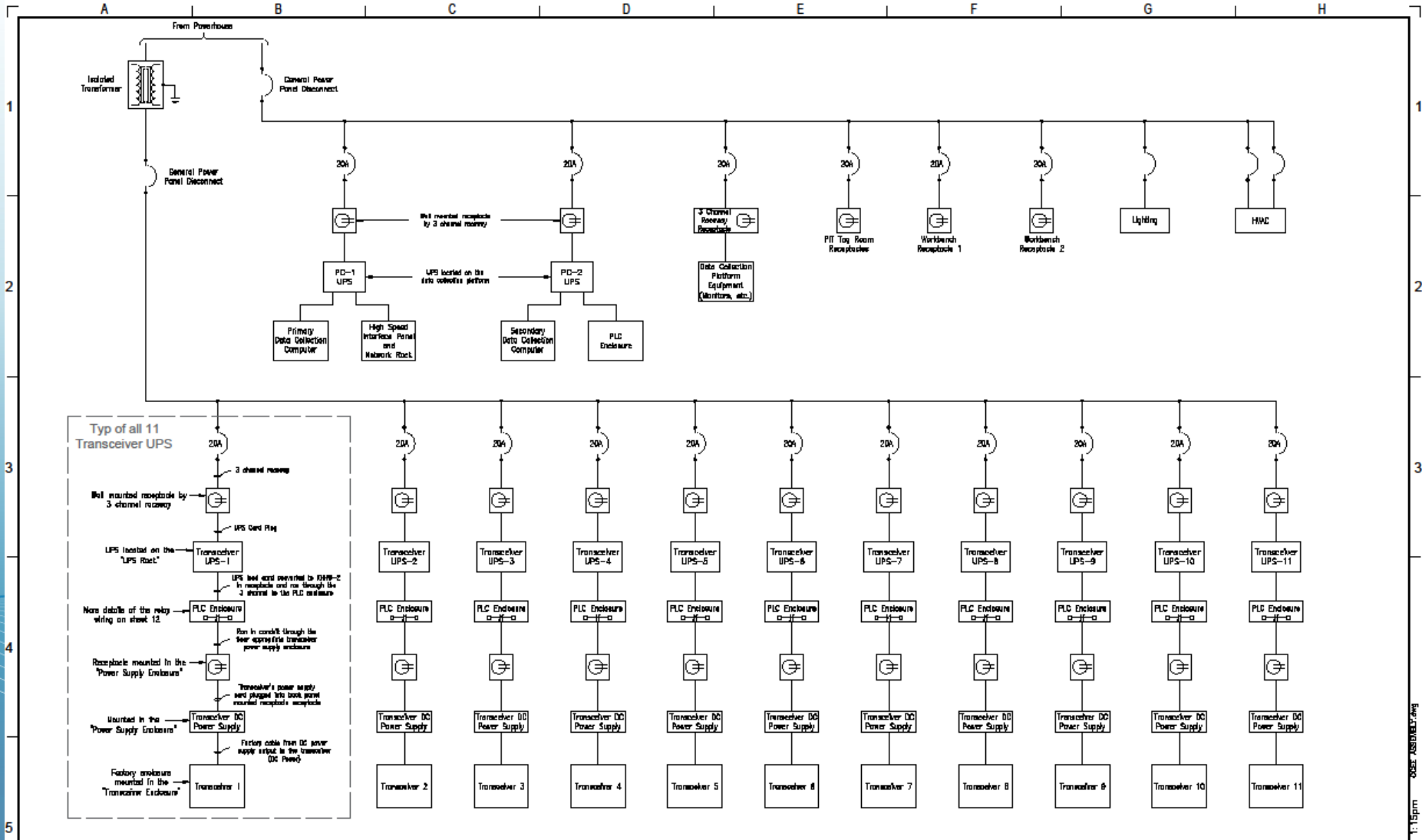
DRAWING LEGEND
General Power
Transfer Power
Network
Ground



DRAWING TITLE:	Project Cover Page
PROJECT INFORMATION:	Lower Granite Dam Spillway PIT Tag Project
DRAWING PACKET:	On Site Construction Drawings
SHEET:	1 OF 12
REV:	9

Dec 04, 2019 11:15am 681E-ASSIGN17.dwg

GRS Spillway Project



NOTE #	NOTE DESCRIPTIONS
1	
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REVISIONS MADE TO CURRENT SHEET
1 Changed what devices are powered from which PC UPS

DRAWING LEGEND
General Power:
Transceiver Power:
Network:
Ground:

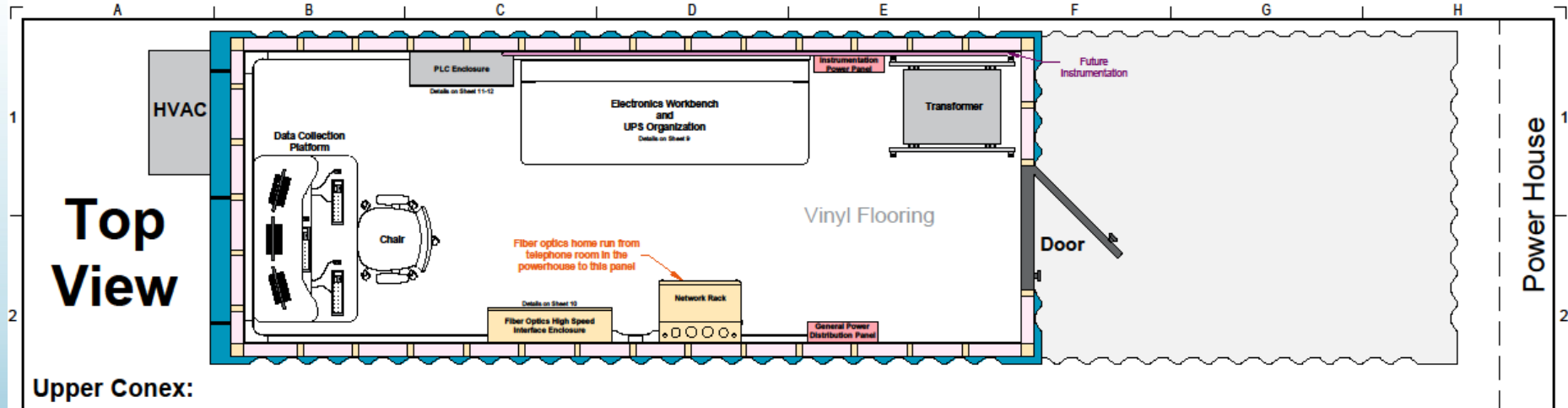


DRAWING TITLE: Data Collection Room One Line Diagram	REV: 9
PROJECT INFORMATION: Lower Granite Dam Spillway PIT Tag Project	SHEET: 3 OF 12
DRAWING PACKET: On Site Construction Drawings	

DATE: 04/2015 1:15pm USER: ASHLEY.RAY

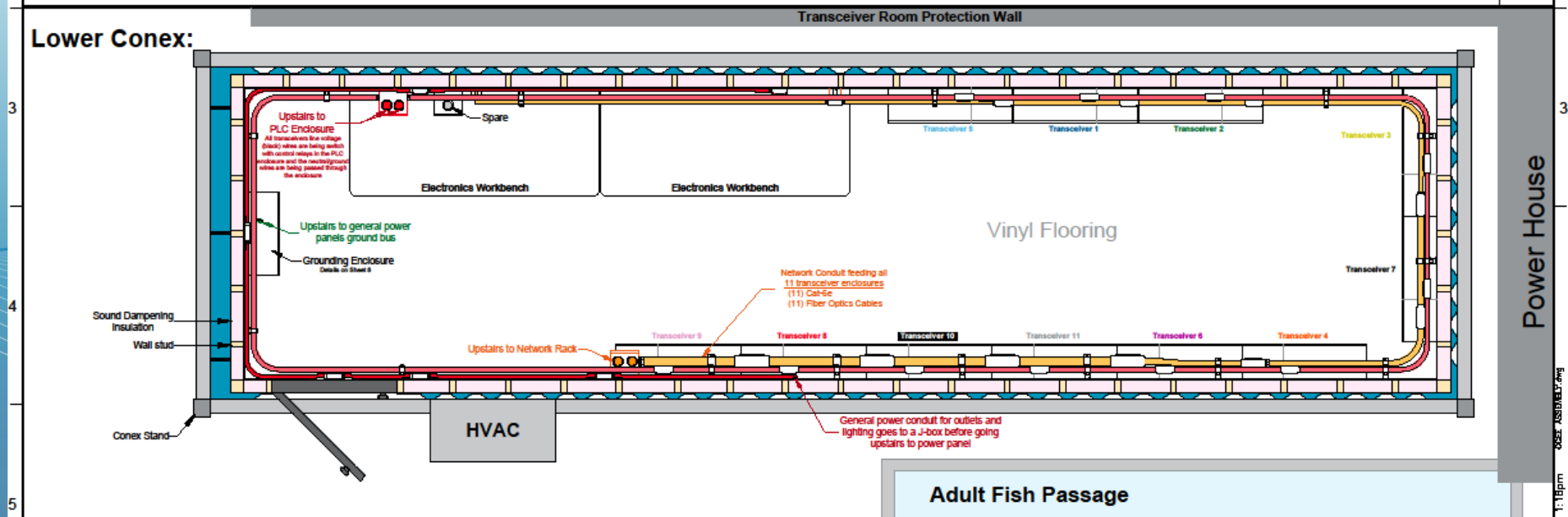
GRS Spillway Project

Top View



Upper Conex:

Lower Conex:



NOTE #	NOTE DESCRIPTIONS
1	
2	
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REVISIONS MADE TO CURRENT SHEET
1 Reflect the work done to the conex boxes to date

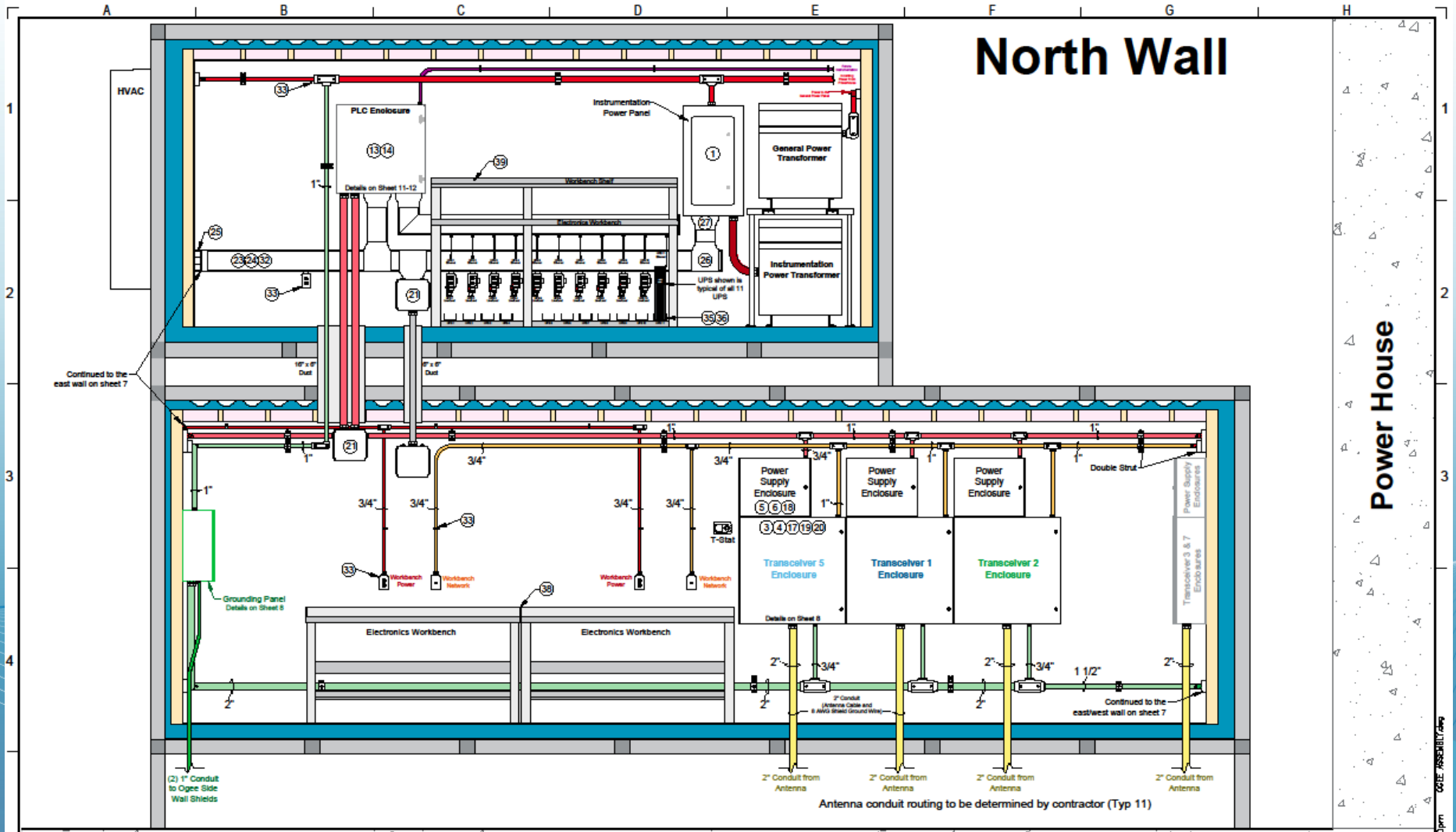
DRAWING LEGEND	
Conduit Color Scheme	
General Power	[Red Line]
Transceiver Power	[Orange Line]
Network	[Yellow Line]
Ground	[Green Line]



DRAWING TITLE:	Data Collection Room Top View Layout Drawing
PROJECT INFORMATION:	Lower Granite Dam Spillway PIT Tag Project
DRAWING PACKET:	On Site Construction Drawings
SHEET:	4 OF 12
REV:	9

DATE: 04/20/19 1:16pm USER: ASHLEY.W

GRS Spillway Project



North Wall

Power House

Raceway Deck

NOTE #	NOTE DESCRIPTIONS
1	
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REVISIONS MADE TO CURRENT SHEET
1 Reflect the work done to the corner boxes to date

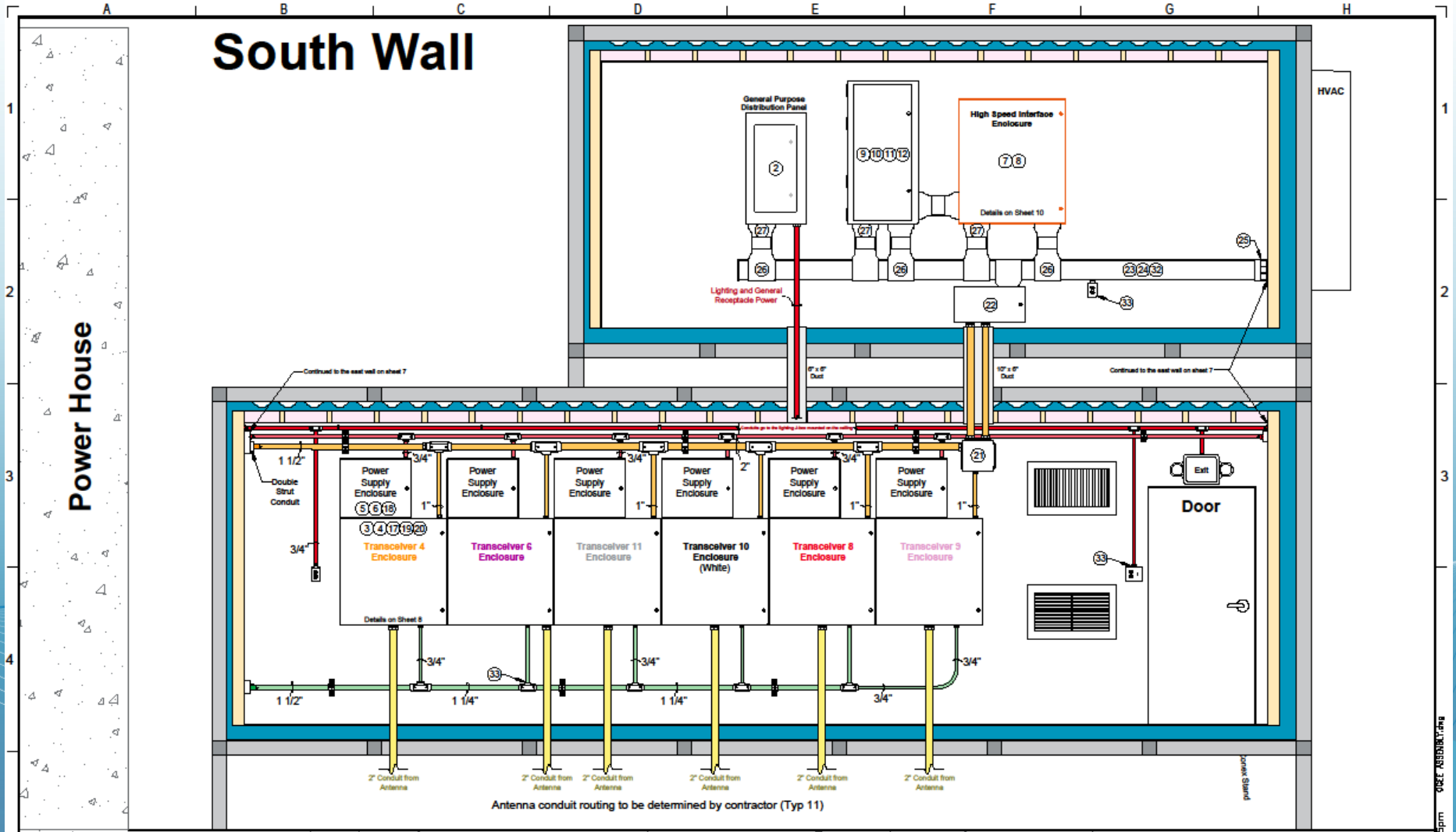
DRAWING LEGEND	
General Power:	—
Transceiver Power:	—
Network:	—
Ground:	—



DRAWING TITLE:	Data Collection Room
PROJECT INFORMATION:	North Wall Elevation Dam Spillway Lower Granite Dam Spillway PIT Tag Project
DRAWING PACKET:	On Site Construction Drawings
SHEET:	5 of 12
REV:	9

OCT 03, 2019 1:28pm GATE ASSOCIATES

GRS Spillway Project



NOTE #	NOTE DESCRIPTIONS
1	
2	
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REVISIONS MADE TO CURRENT SHEET
1 Reflect the work done to the corner boxes to date

DRAWING LEGEND	
Conduit Color Scheme	
General Power	Red
Transceiver Power	Green
Network	Yellow
Ground	Blue



DRAWING TITLE: Data Collection Room
South Wall Elevation Layout Drawing

PROJECT INFORMATION: Lower Granite Dam Spillway
PIT Tag Project

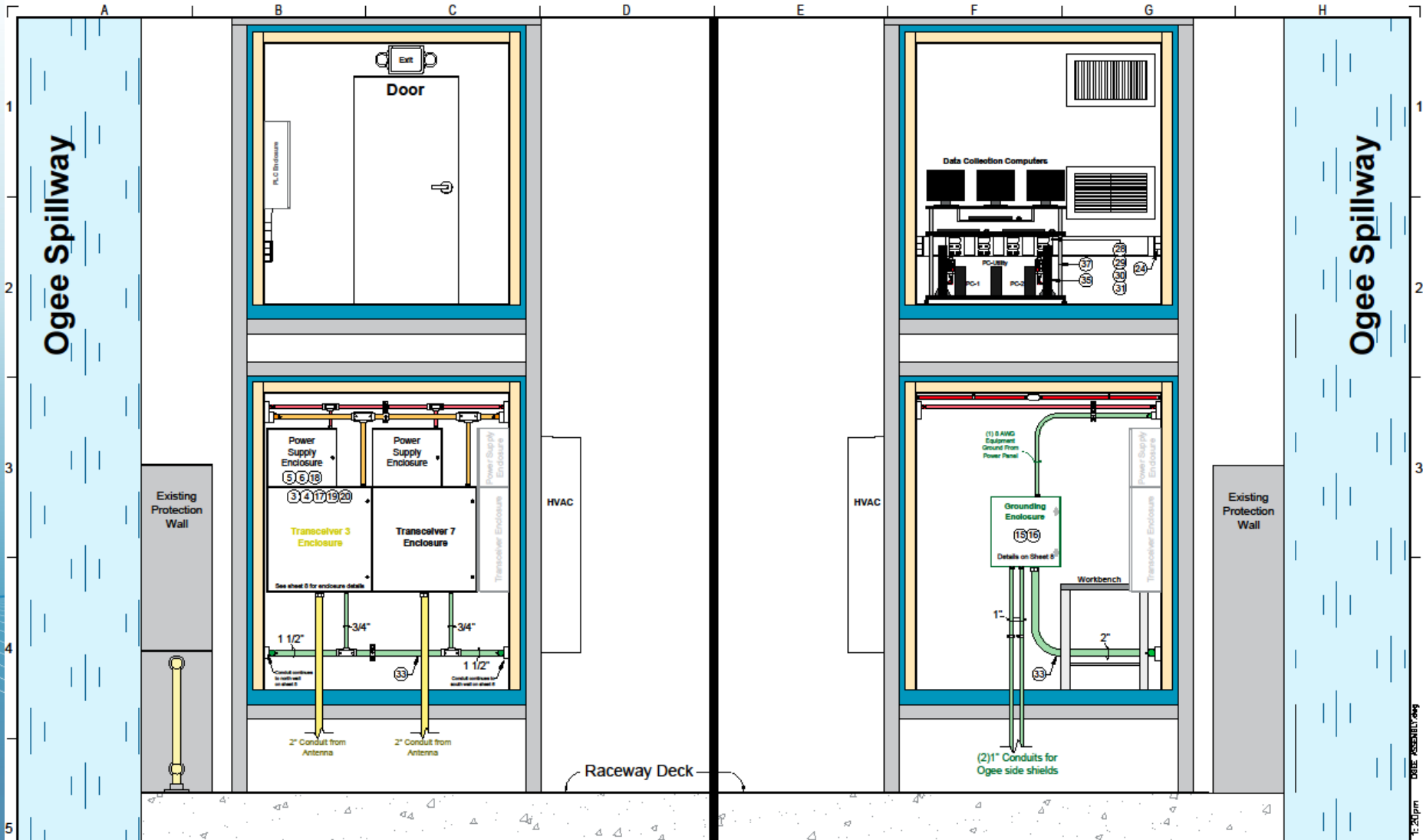
DRAWING PACKET: On Site Construction Drawings

SHEET: 6 OF 12

REV: 9

04/27/2019 2:35pm 04/27/2019

GRS Spillway Project



NOTE #	NOTE DESCRIPTIONS
1	
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REVISIONS MADE TO CURRENT SHEET
1 Reflect the work done to the corner boxes to date

DRAWING LEGEND	
General Power:	Red
Transceiver Power:	Orange
Network:	Yellow
Ground:	Green



DRAWING TITLE:	Data Collection Room
PROJECT:	East and West Wall Elevation Room Drawing
INFORMATION:	Lower Granite Dam Spillway PIT Tag Project
DRAWING PACKET:	On Site Construction Drawings
SHEET:	7 OF 12
REV:	9

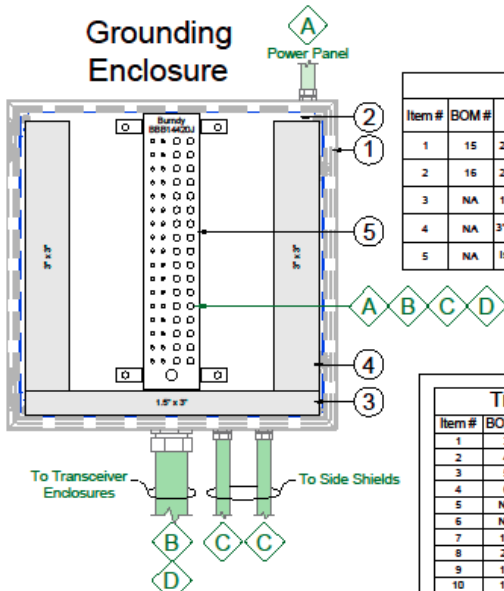
DATE: 04/20/19 TIME: 1:20pm DDB: ASSEMBLY.dwg

GRS Spillway Project

Grounding Panel Schedule

Item	Description	Quantity	Wire Size	From	Destination
A	Equipment Ground	1	6 AWG	Ground Enclosure Bus	Equipment Grounding Bus
B	Antenna Shield Grounding	12	8 AWG	Ground Enclosure Bus	Antenna Shields (10) & Split Antenna Shields (2), Passing Through Transceiver Enclosure
C	Ogee Side Shields	2	8 AWG	Ground Enclosure Bus	Ogee Side Plates, Independent Conduits Heading to Respective Side
D	Transceiver Enclosure's Ground Distribution Block	11	8 AWG	Ground Enclosure Bus	Transceiver Enclosure's Ground Distribution Block, 1 per Transceiver Enclosure
E	Transceiver Enclosure Ground	11	12 AWG	Transceiver Enclosure's Ground Distribution Block	Transceiver Enclosure's Back Panel Stud, 1 per Transceiver Enclosure
F	Transceiver Ground	11	12 AWG	Transceiver Enclosure's Ground Distribution Block	Transceiver's Ground Stud, 1 per Transceiver Enclosure
G	Power Supply Enclosure Ground	11	12 AWG	Transceiver Enclosure's Ground Distribution Block	Power Supply Enclosure's Back Panel Stud, 1 per Transceiver Enclosure
H	Power Supply Ground Ground	11	12 AWG	Transceiver Enclosure's Ground Distribution Block	Power Supply's Ground Stud, 1 per Transceiver Enclosure
I	Capacitor Enclosure Ground	11	12 AWG	Transceiver Enclosure's Ground Distribution Block	Capacitor Enclosure's Ground Stud, 1 per Transceiver Enclosure

Grounding Enclosure



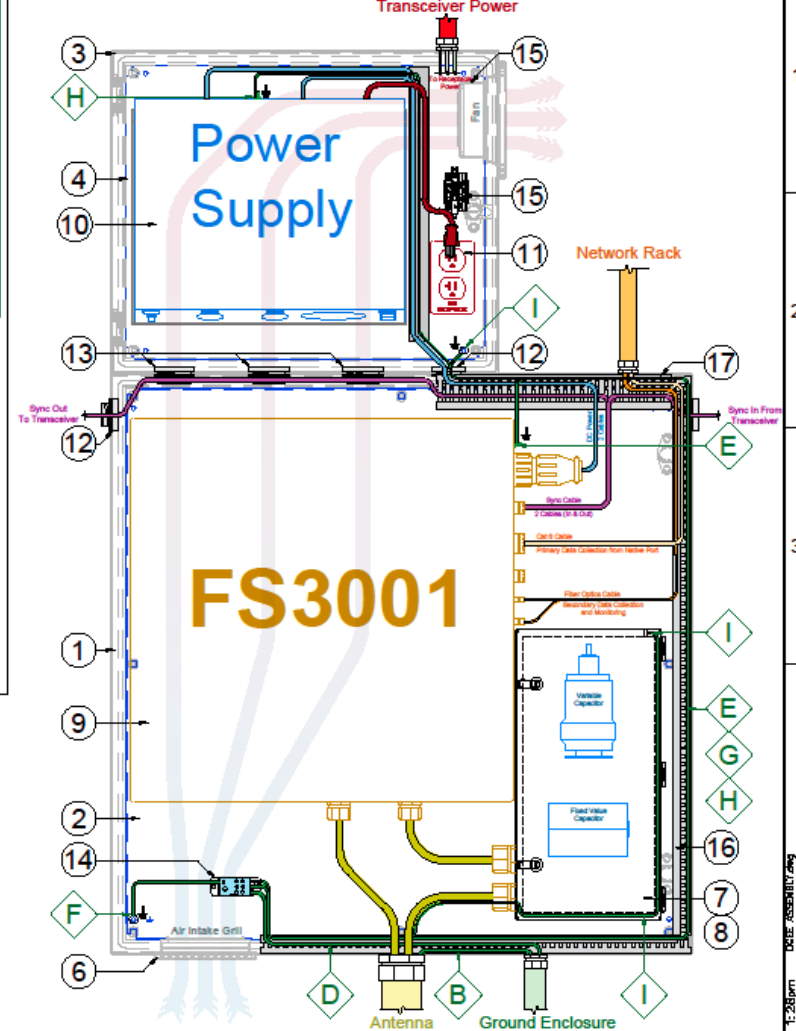
Grounding Enclosure Materials

Item #	BOM #	Description	Manufacturer	Part Number	Quant.
1	15	24" x 24" x 10" Enclosure	Hoffman	CS0242410	1
2	16	24" x 24" Back Panel	Hoffman	CP2424	1
3	NA	1.5" Wide x 3" High Gray Wire Duct	Thomas & Betts	TY15X3NPG6	As Req.
4	NA	3" Wide x 3" High Gray Wire Duct	Thomas & Betts	TY3X3NPG6	As Req.
5	NA	Isolated Bus Bar, 68 Slots	Bumdy	BBB14420J	2

Transceiver and Power Supply Enclosure Materials

Item #	BOM #	Description	Manufacturer	Part Number	Quantity
1	3	36" x 36" x 10" Enclosure for Transceiver	Hoffman	CS0363610	1
2	4	36" x 36" Back Panel	Hoffman	CP3636	1
3	5	20" x 24" x 10" Enclosure for Power Supply	Hoffman	CS0202410	1
4	6	24" x 24" Back Panel	Hoffman	CP2420	1
5	NA	Enclosure Fan	Hoffman	TFF41	1
6	NA	Enclosure Fan Air Intake Filter	Hoffman	TEP4	1
7	19	Auxiliary Capacitor Enclosure, 18" x 9" x 6"	Saginaw	SCE-L9188ELJ	1
8	20	Capacitor Mounting Back Panel	Blomark	Custom	1
9	17	Ogee Transceiver	Blomark	F33001	1
10	18	Transceiver Power Supply	Blomark	NA	1
11	33	20 Amp Receptacle	NA	NA	1
12	33	1.5" Chase Nipple for Cable Passage	NA	NA	3
13	33	2" Chase Nipples for Air Passage	NA	NA	3
14	NA	8 Slot Distribution Block Used for Grounding	Erico	UDJ-160A	1
15	NA	Terminal Block Group for Exhaust Fan Power	Weidmuller	NA	1
16	NA	1" Wide x 1" High Gray Wire Duct	Thomas & Betts	TY1X1NPG6	As Req.
17	NA	1" Wide x 2" High Gray Wire Duct	Thomas & Betts	TY1X2NPG6	As Req.

Transceiver and Power Supply Enclosures



NOTE #	NOTE DESCRIPTIONS
1	
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REVISIONS MADE TO CURRENT SHEET	
1	Reflect the work done to the enclosures to date

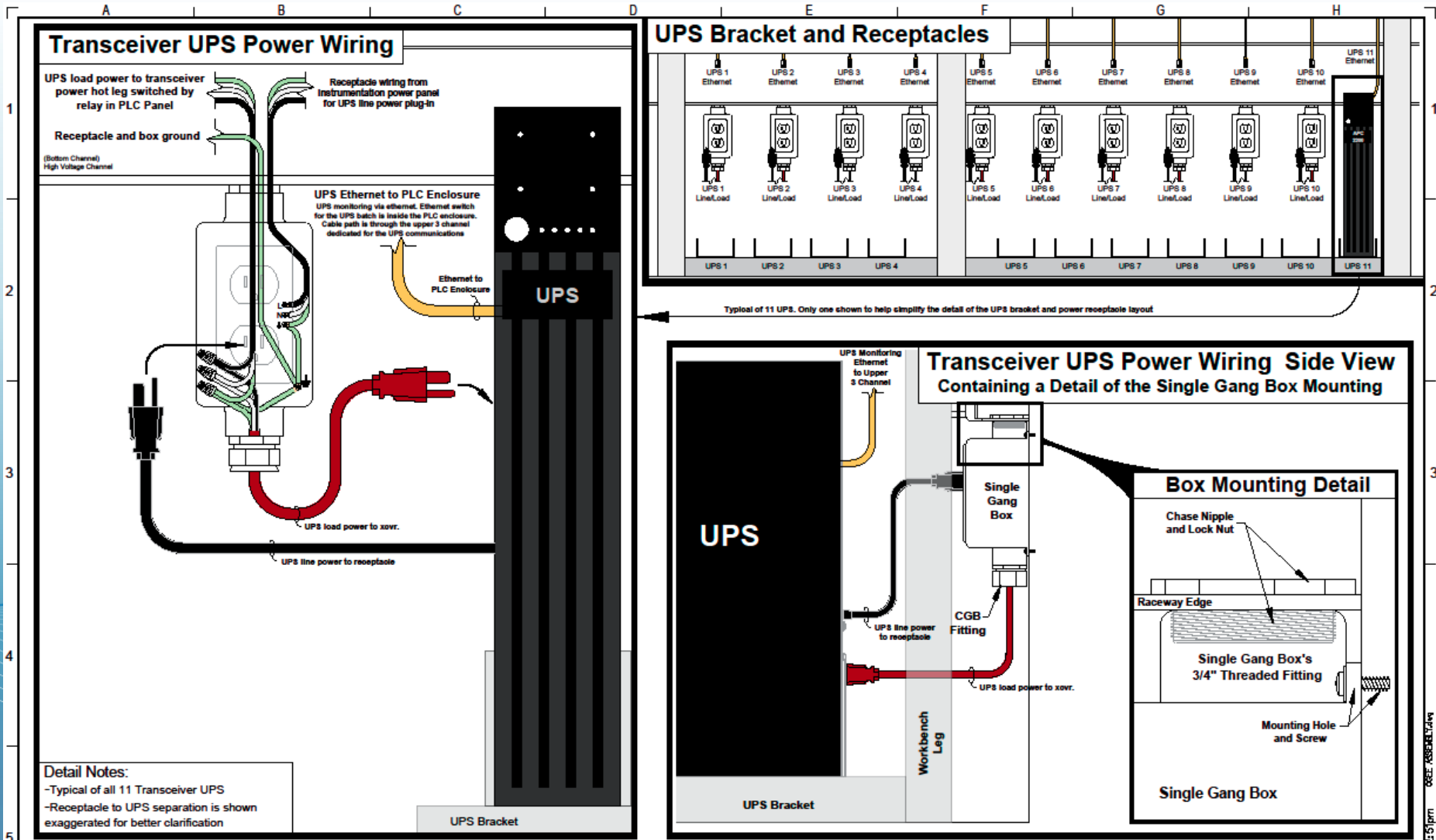
DRAWING LEGEND
 Control Color Scheme
 General Power: [Red Line]
 Transceiver Power: [Blue Line]
 Network: [Green Line]
 Ground: [Black Line]

PTAGIS
 PIT Tag Information System
 Columbia River - Oregon

DRAWING TITLE: Transceiver/Power Supply And Grounding Enclosures Drawing
PROJECT INFORMATION: Lower Granite Dam Spillway PIT Tag Project
DRAWING PACKET: On Site Construction Drawings
SHEET: 8 OF 12
REV: 9

DATE: 04/2019 1:28pm

GRS Spillway Project



Detail Notes:
 -Typical of all 11 Transceiver UPS
 -Receptacle to UPS separation is shown exaggerated for better clarification

NOTE #	NOTE DESCRIPTIONS	REVISIONS MADE TO CURRENT SHEET
1		1 Changed to reflect the work done to the cores boxes to date
2		2 Changed the UPS bracket to reflect the as built design
3		
4		
5		

DRAWING LEGEND	
General Power	Red
Transceiver Power	Green
Network	Blue
Ground	Black

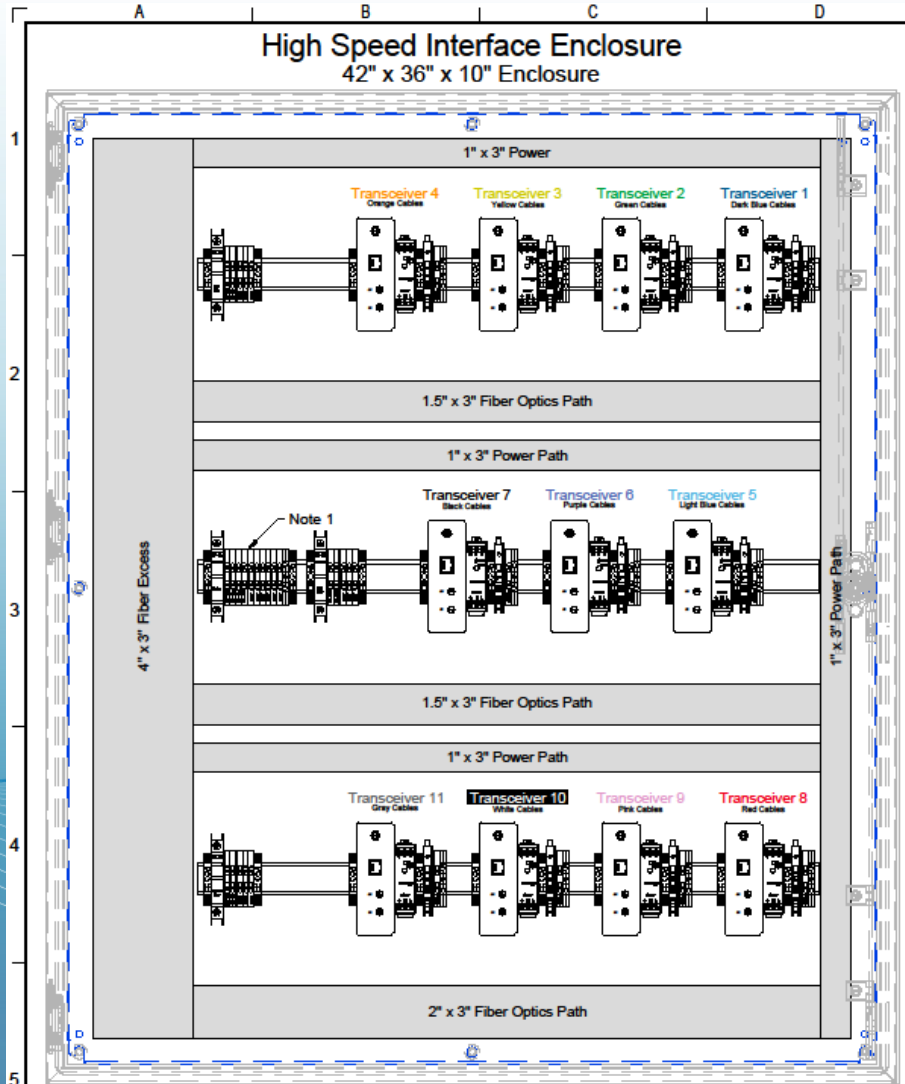


DRAWING TITLE:	UPS Power and Rack Mounting Details
PROJECT INFORMATION:	Lower Granite Dam Spillway PIT Tag Project
DRAWING PACKET:	On Site Construction Drawings
SHEET:	9 OF 12
REV:	9

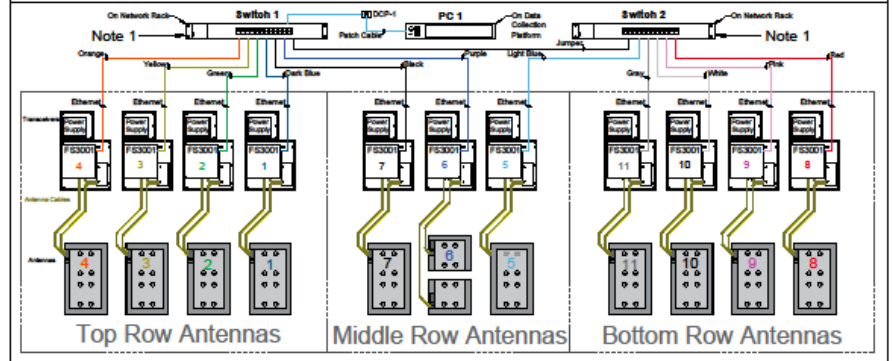
2:55pm 06/27/2016 06/27/2016

GRS Spillway Project

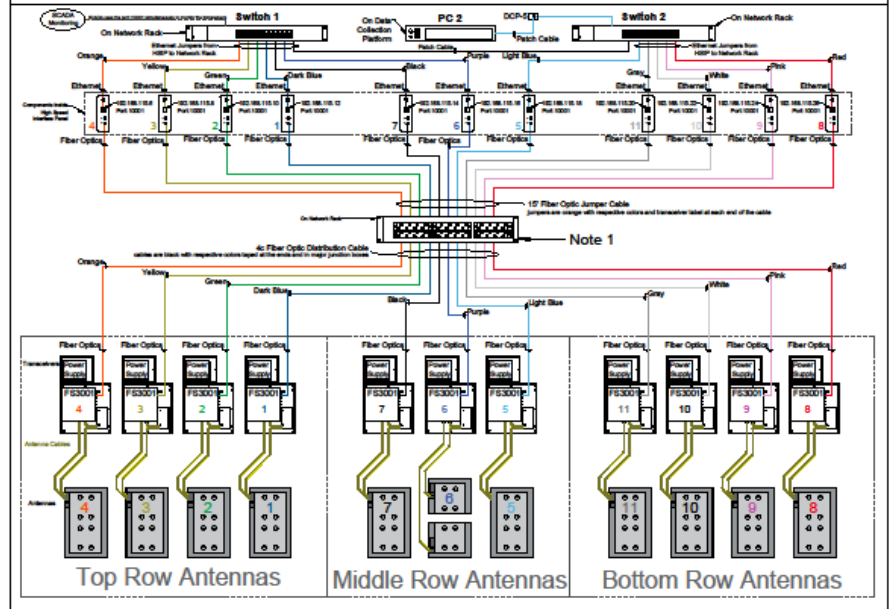
High Speed Interface Enclosure 42" x 36" x 10" Enclosure



Primary Data Collection Routing Using the Transceiver's Native Ethernet Port



Secondary Data Collection Routing Using The Fiber Optics Port to Custom Converter



NOTE #	NOTE DESCRIPTIONS
1	All networking devices shown on this page are powered from PCI-UPS (HSIP and network rack devices)
2	Sync order is as follows: 9 (master) > 8 > 10 > 11 > 6 > 4 > 7 > 3 > 2 > 1 > 5
3	
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REVISIONS MADE TO CURRENT SHEET
1 Changed to reflect the new networking scheme and new HSIP layout

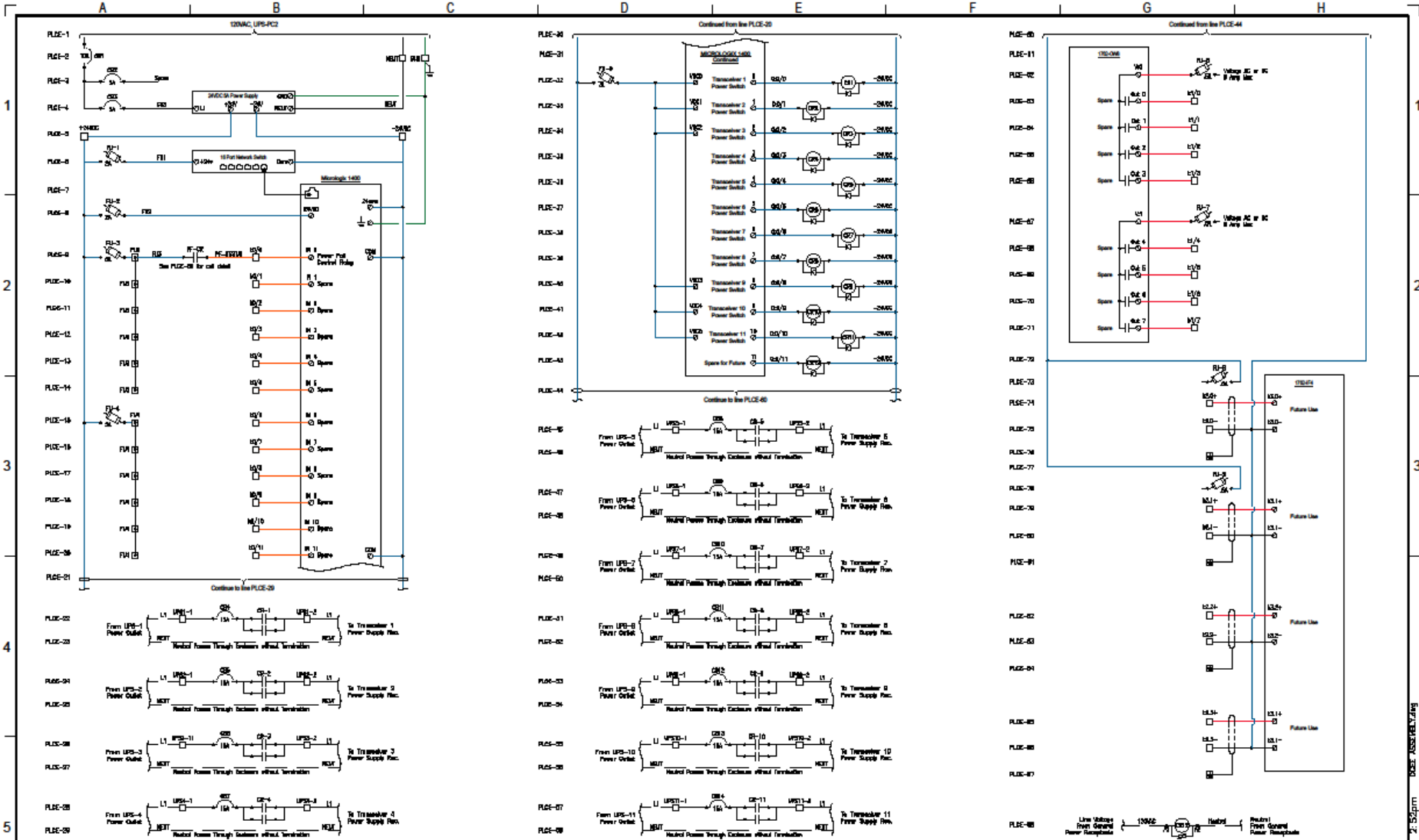
DRAWING LEGEND
Control Color Scheme
General Power
Transceiver Power
Network
Ground

PTAGIS
PIT Tag Information System
Columbia River - pitagis.org

DRAWING TITLE: Communication Scheme & High Speed Interface Enclosure Drawings
PROJECT INFORMATION: Lower Granite Dam Spillway
DRAWING PACKET: PIT Tag Project
ON SITE CONSTRUCTION DRAWINGS

SHEET: 10 OF 12
REV: 9


GRS Spillway Project




NOTE #	NOTE DESCRIPTIONS
1	20 Amp rated control relays to be used.
2	Power will be supplied from the load side of UPS-PC2 to support power in the event of an outage
3	
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REVISIONS MADE TO CURRENT SHEET
As Built Drawings

DRAWING LEGEND	
Control Color Schemes	
General Power	
Transmitter Power	
Network	
Ground	



PTAGIS
PIT Tag Information System
Colorado State's Engineering



COLORADO STATE UNIVERSITY
1876

DRAWING TITLE: PLC and Relay Enclosure Wiring
PROJECT: Lower Granite Dam Spillway
INFORMATION: PIT Tag Project
DRAWING PACKET: On Site Construction Drawings
SHEET: 12 OF 12
REV: 9

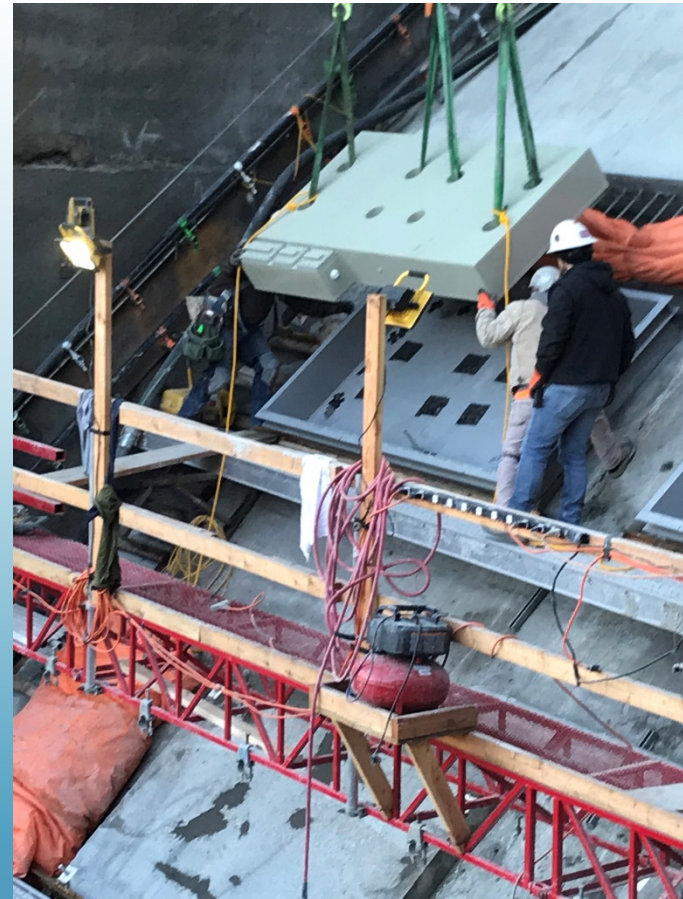
DATE: 04/2019 2:52pm DES: ASB/REJ/LJG

Lower Granite Spillway Project (GRS)



Sept-2019. Demolition of the OGEE surface begins

Lower Granite Spillway Project (GRS)



Nov. 2019. Antenna being flown into place and set into antenna shield.

Lower Granite Spillway Project (GRS)



Dec.2019. PSMFC and NOAA technicians make final connections and function test each antenna after placement into the shield.

Lower Granite Spillway Project (GRS)



Workers finishing the concrete in the non-metallic zone covering the antenna assemblies.

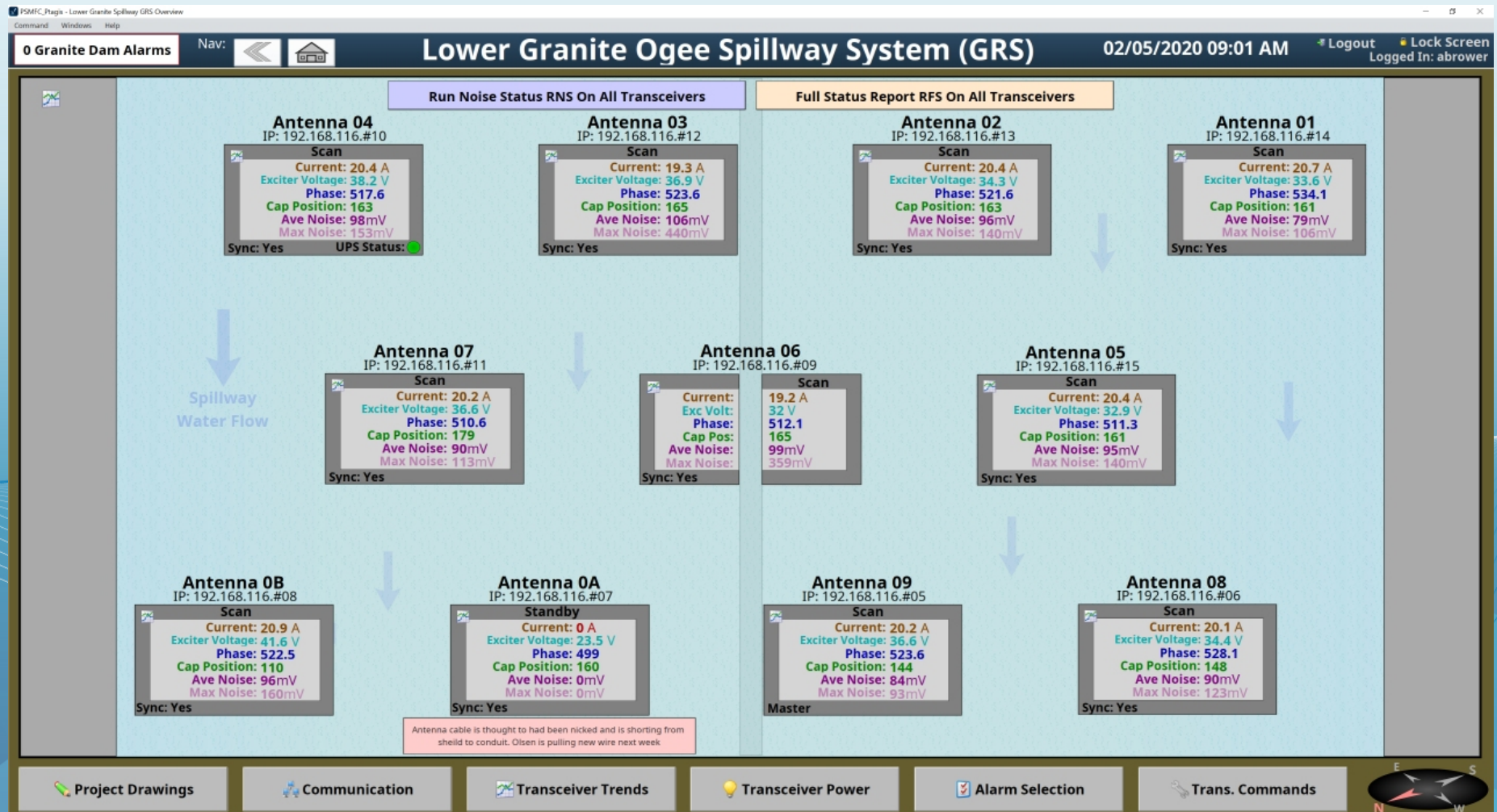
Lower Granite Spillway Project (GRS)



Lower Conex box complete with all 11 transceiver and power supply enclosures.

SCADA Control System for GRS

- The PSMFC SCADA system provides full remote control of the transceivers.
- In the near future SCADA will monitor the health of the transceivers real-time and issue automated corrective commands if needed.



GRS Detections by Antenna Row

GRS - Lower Granite Dam Spillway

[Species Breakdown](#)

Subsite	Antenna Group	Antenna	Unique Tags Detected by Subsite	Unique Tags Detected by Antenna Group	Unique Tags Detected by Antenna	Tags Missed per Antenna	Percent Tags Detected by Antenna	Tags Missed per Antenna Group	Percent Tags Detected by Antenna Group
GRS	Upstream	01	160,036	98,558	10,352	88,206	10.50%	61,478	61.58%
		02	160,036	98,558	33,496	65,062	33.99%	61,478	61.58%
		03	160,036	98,558	30,743	67,815	31.19%	61,478	61.58%
		04	160,036	98,558	23,984	74,574	24.33%	61,478	61.58%
	Middle	05	160,036	103,862	36,058	67,804	34.72%	56,174	64.90%
		06	160,036	103,862	28,978	74,884	27.90%	56,174	64.90%
		07	160,036	103,862	38,839	65,023	37.39%	56,174	64.90%
	Downstream	08	160,036	97,972	22,526	75,446	22.99%	62,064	61.22%
		09	160,036	97,972	33,578	64,394	34.27%	62,064	61.22%
		0A	160,036	97,972	34,515	63,457	35.23%	62,064	61.22%
		0B	160,036	97,972	7,368	90,604	7.52%	62,064	61.22%

Unresolved Issues

- **Antenna conduits are leaking.** Water in the antenna conduits is being forced toward the lower conex box electronic room. The COE has been asked to vent the conduit LB covers to prevent this. No action has been taken to-date.
- **Antenna conduits are periodically becoming loose due to vibration.** This is due to small unsupported junction boxes placed in line with the conduits. When the conduits become loose, micro-arcing occurs that causes debilitating noise on the antenna it feeds. The COE has been asked to properly support the boxes. No action has been taken to-date.
- **A barge access system to the ogee has not been completed.** This was to be a collaboration between the COE and NOAA. Due to COVID, the NOAA Pasco fabrication shop has been shut down. Because of this no inspections of the antennas will take place prior to the 2021 season. To compensate for this, PTAGIS has left the system in operation to monitor it's performance. To-date the system remains healthy.
- **A water up /down sensor needs to be developed.** This system would be used to switch the transceivers between read and standby modes. Different types of sensors are being investigated by PSMFC.
- **Fish in the tailrace can be detected on the lower row of antennas when the spillway is shut down.** Putting the system automatically into standby when the spillway is not in use should eliminate the problem.

Improvements to the System in 2021

- **A remote-control system for the transceiver power supplies needs to be designed.** During the 2020 season it was apparent that the system could be optimized by adjusting the power supply levels. Currently the power supplies can only be adjusted manually at the site. NOAA R&D has stated that this will take place in 2021.
- **A live fish test is being scheduled.** NOAA has stated that this would take place in early 2021. PTAGIS will assist.
- **A new synchronization scheme is being developed under a NOAA contract.** The current system's weakness is that if one transceiver fails, the remaining transceivers will struggle to synchronize, resulting in loss of detection ability. The new system will pass the synchronization signal regardless of a failed transceiver.

Projects for 2021

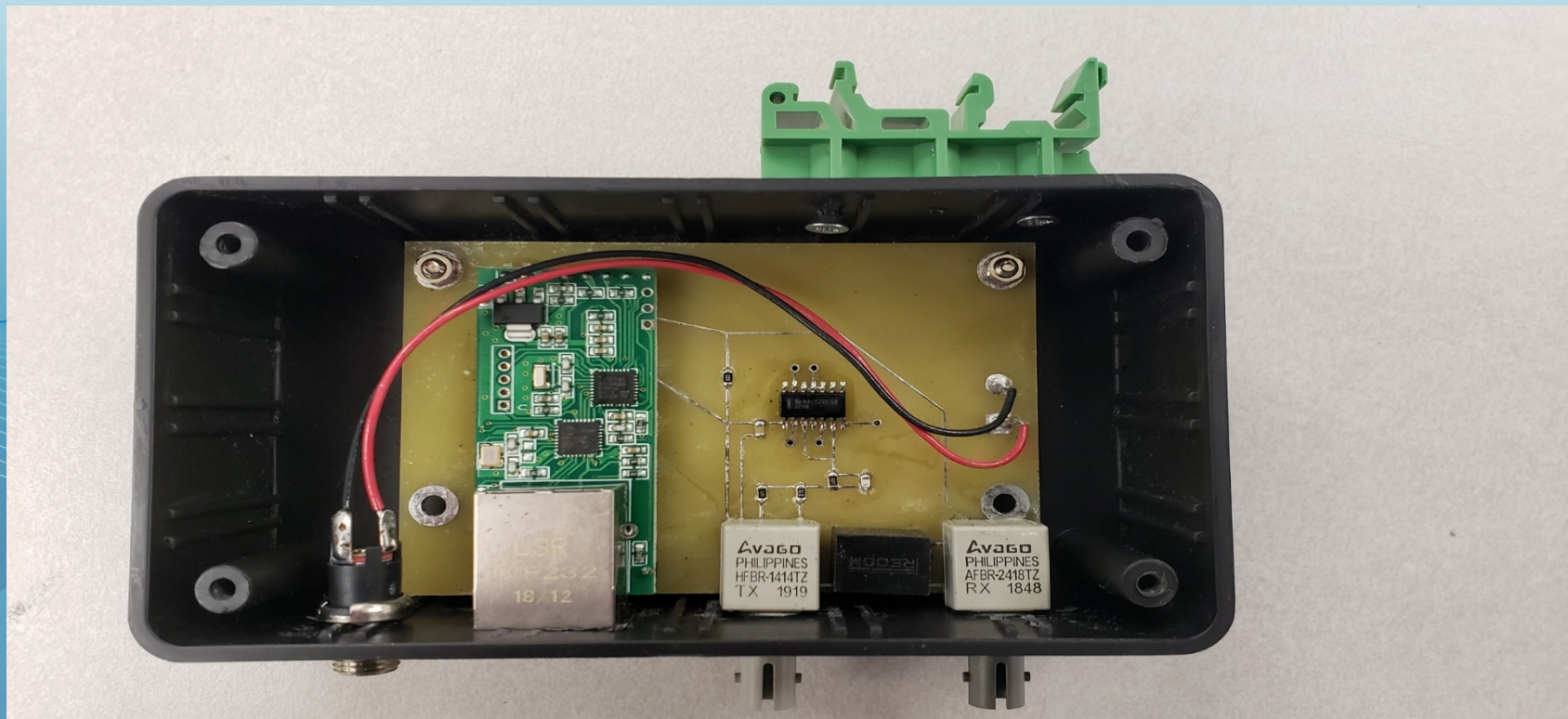
System Wide DCP / PLC Modernization

Goals:

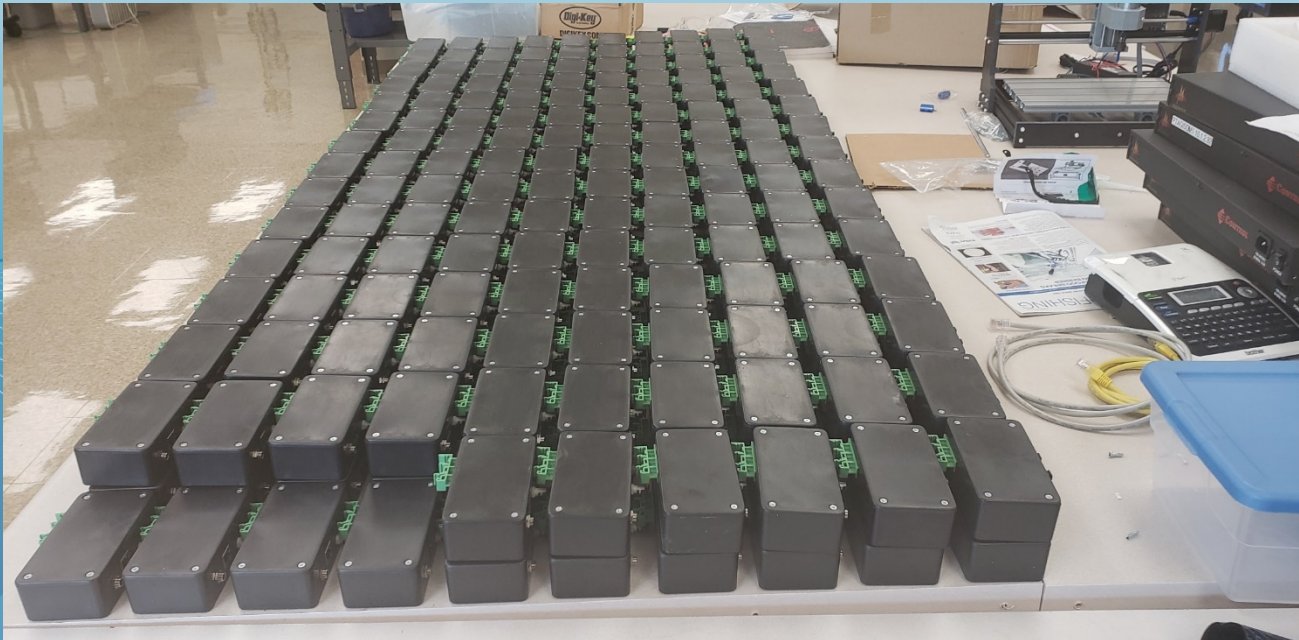
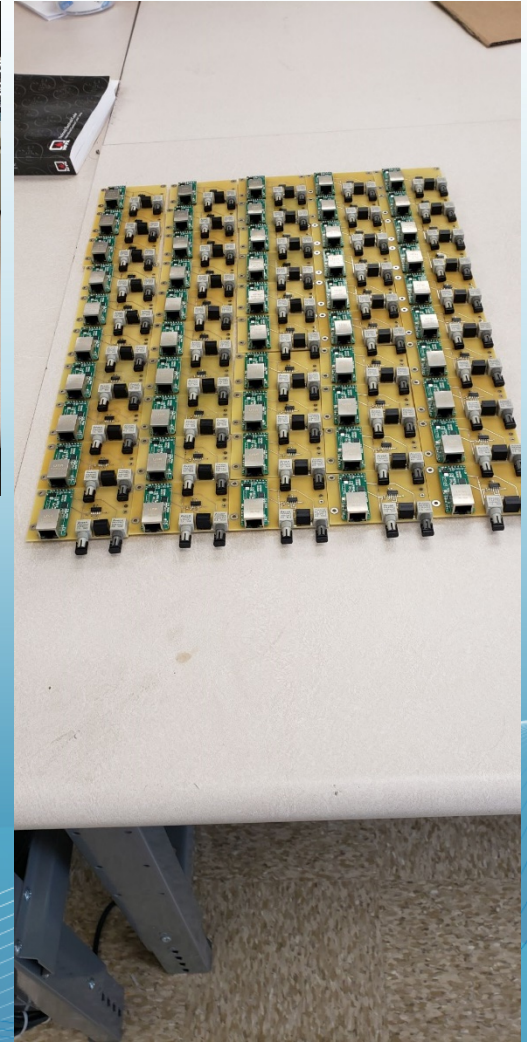
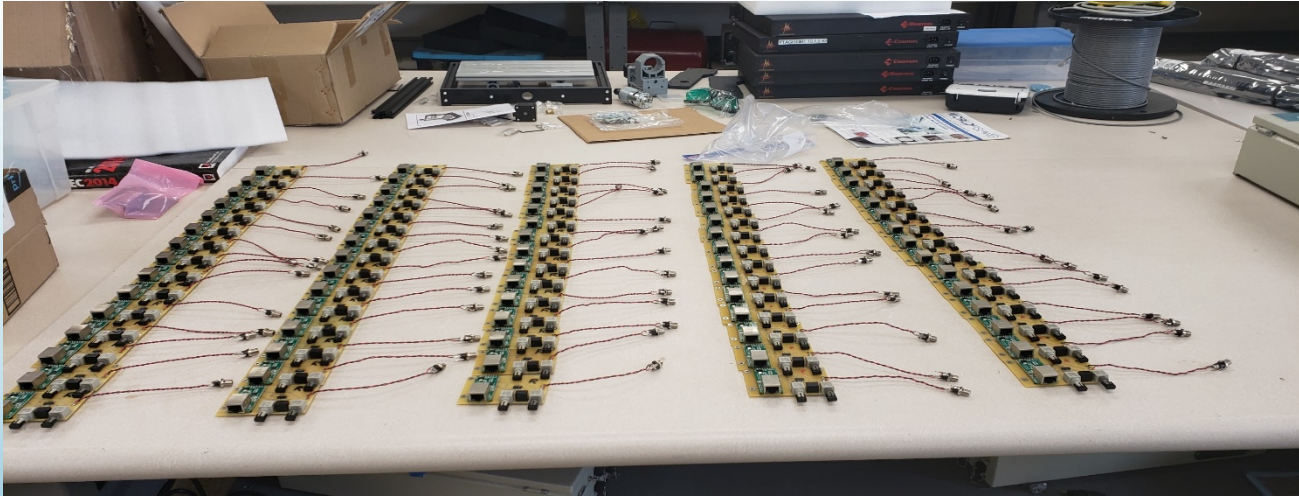
- Replace the current generation of consumer-level Windows-7 PCs (no longer supported by Microsoft) with industrial-rated Phoenix Contacts IPCs running Windows-10 LTSC. This will involve replacing 60 computers and remodeling 30 remote site PIT tag electronics rooms.
- Replace M4 with M5. M5 is being designed for the next generation of IPCs and PLCs using tag based programming.
- Replace the current generation of Allen-Bradley SLC-505 PLCs (no longer supported by Allen-Bradley) with Allen-Bradley Compact Logic 5380 PLCs and replace all HMIs with Phoenix Contacts WP4000s HMIs.
- Replace the majority of serial communications equipment with Ethernet.
- Replace all failing lead-acid UPSs with SCADA-ready lithium models.
- Link all DCPs, PLCs, UPSs and HMIs under SCADA.
- Meet FISMA security requirements for all systems.

Installation of PTAGIS Designed Serial To Ethernet Converters

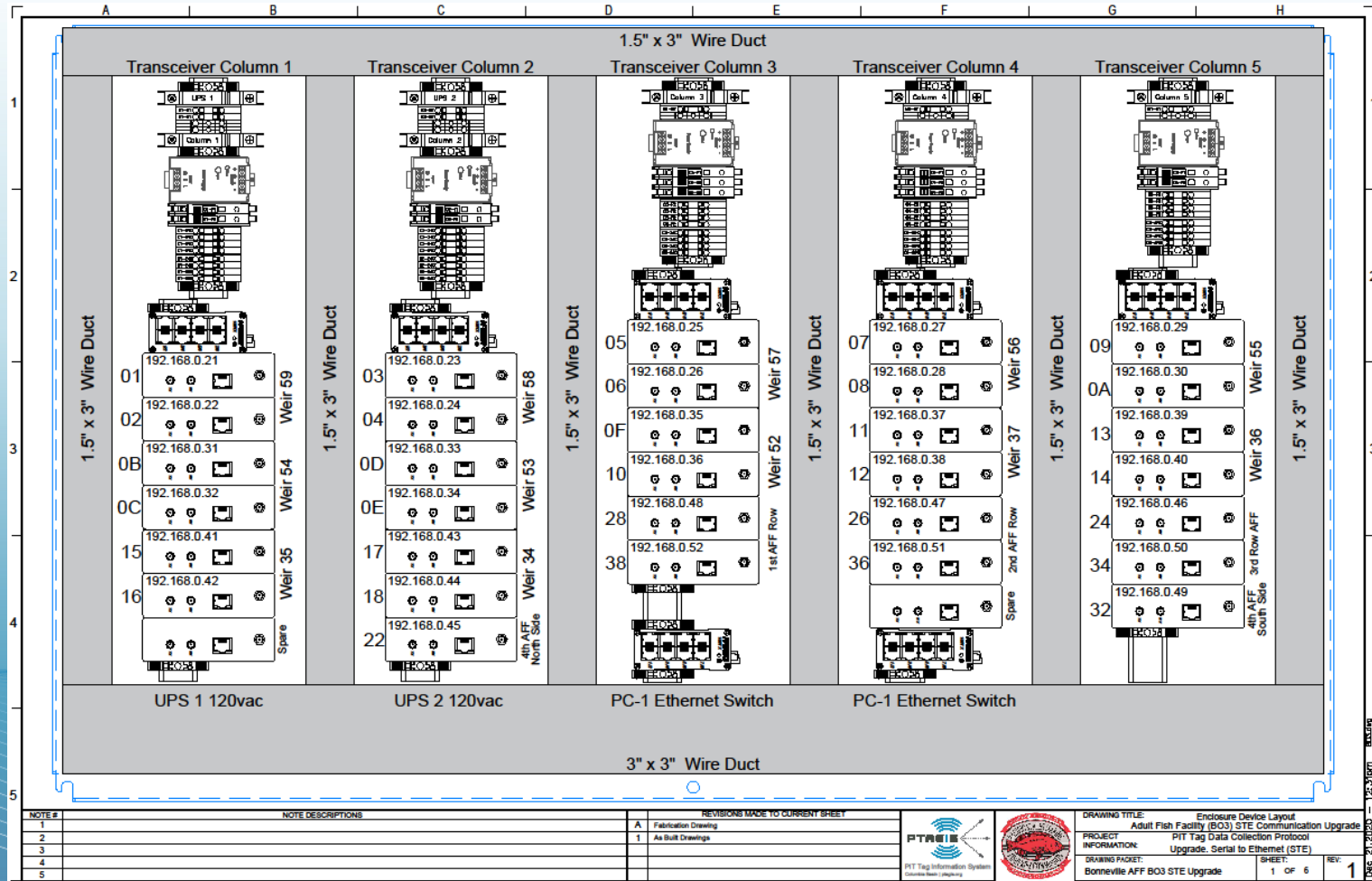
- Eliminates obsolete RocketPort multiports, serial cards and serial “Y” cables
- Enables simultaneous connections of multiple PC’s to each transceiver
- Cost savings of \$40k in 2020-2021
- To-date the project is 90% complete
- **Supports overall goal of transitioning to M5 running on a FISMA compliant industrial PC using a Window 10 LTSC operating system**



STE Project Progression



STE Project Progression



BO3 STE Panel Design

STE Project Progression



BO3 Completed STE Panel

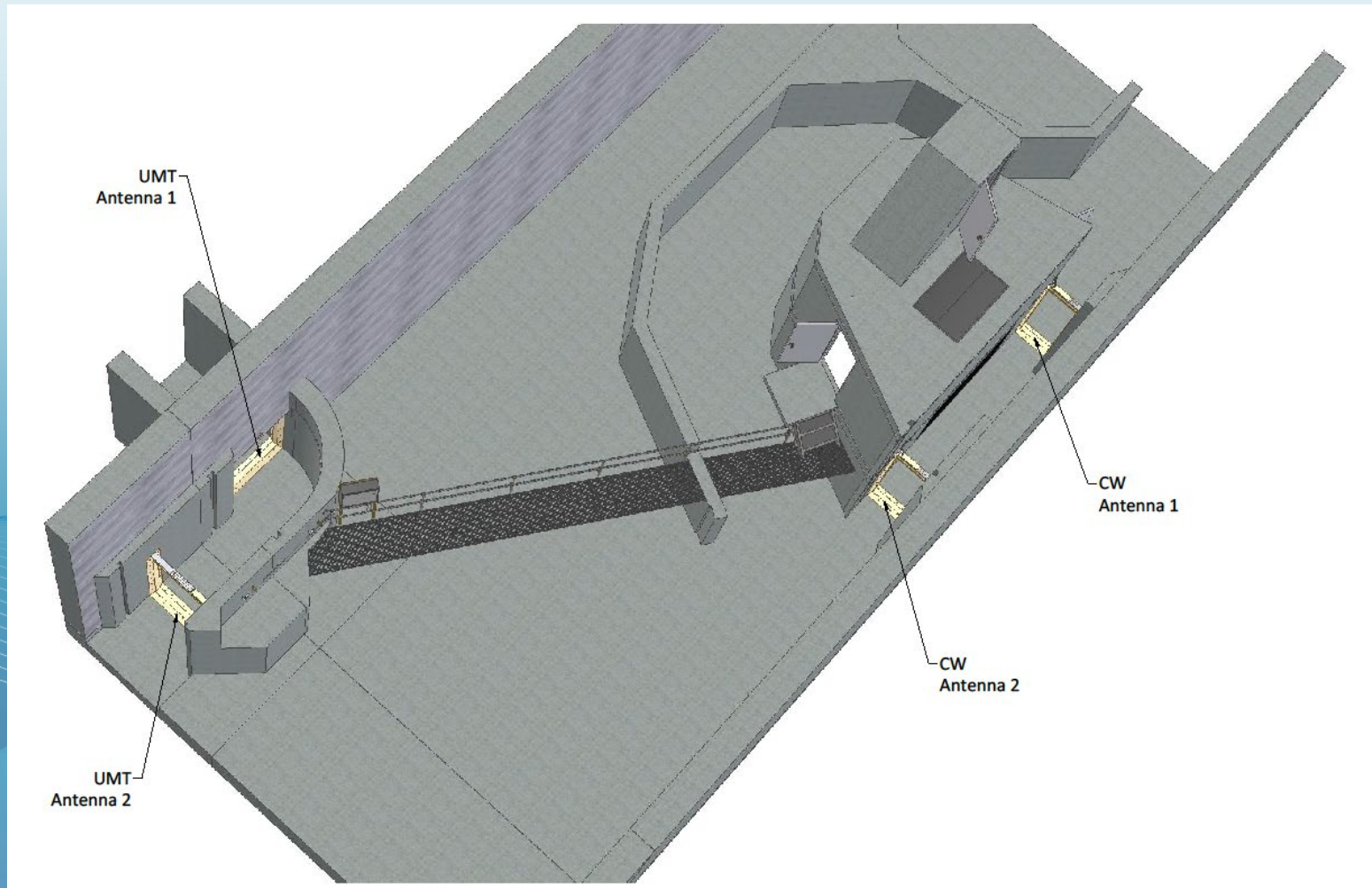
Consumer PCs to Industrial PCs (IPCs)



The existing DCPs (on left) will be reduced to a wall mounted 24" by 24" enclosed and lockable panel. Lab IPC prototype is pictured on right.

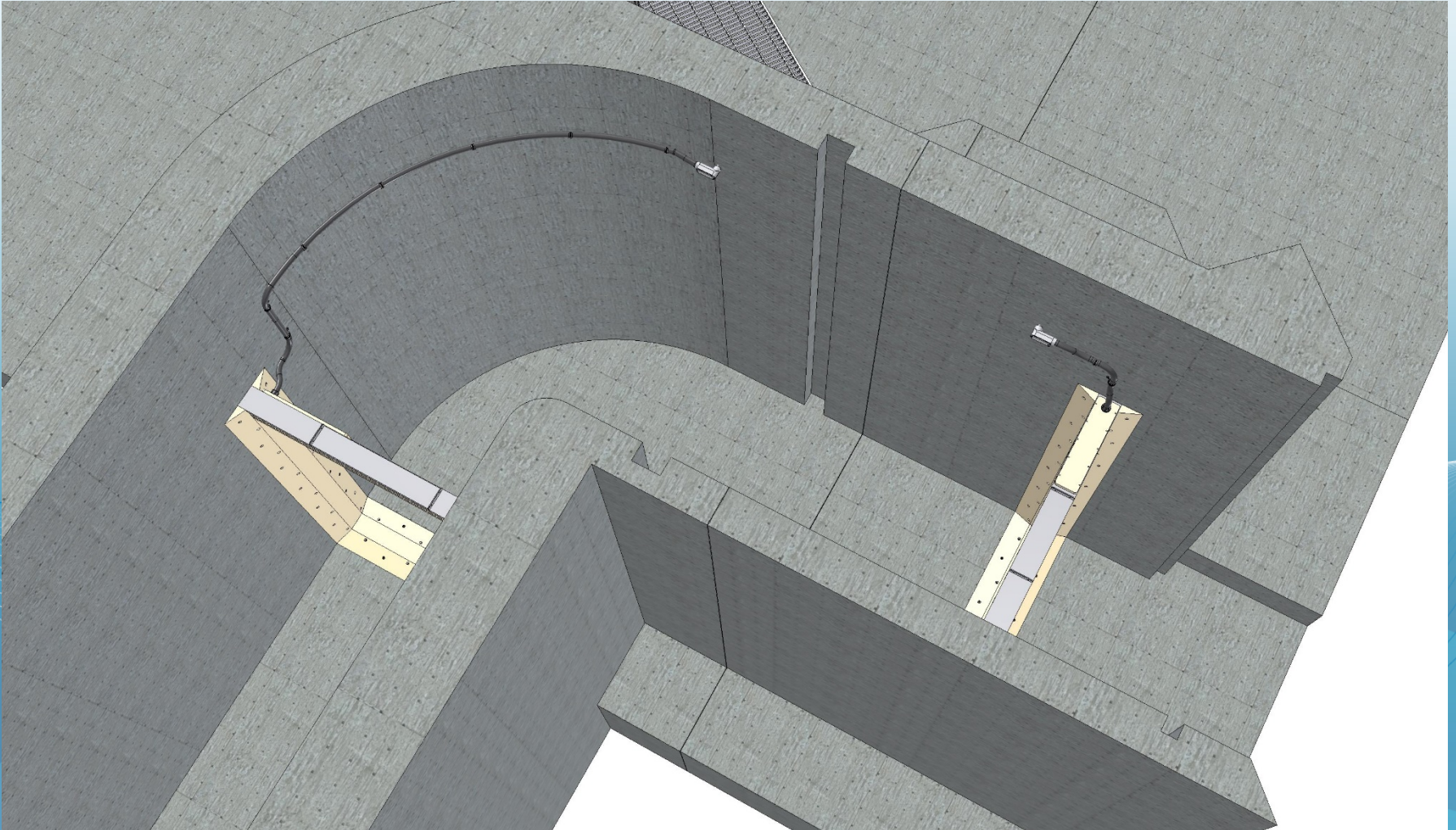
BO2 Cascades Island Relocation Project

- Installation is currently in progress
- To-date the COE has not committed to infrastructure support



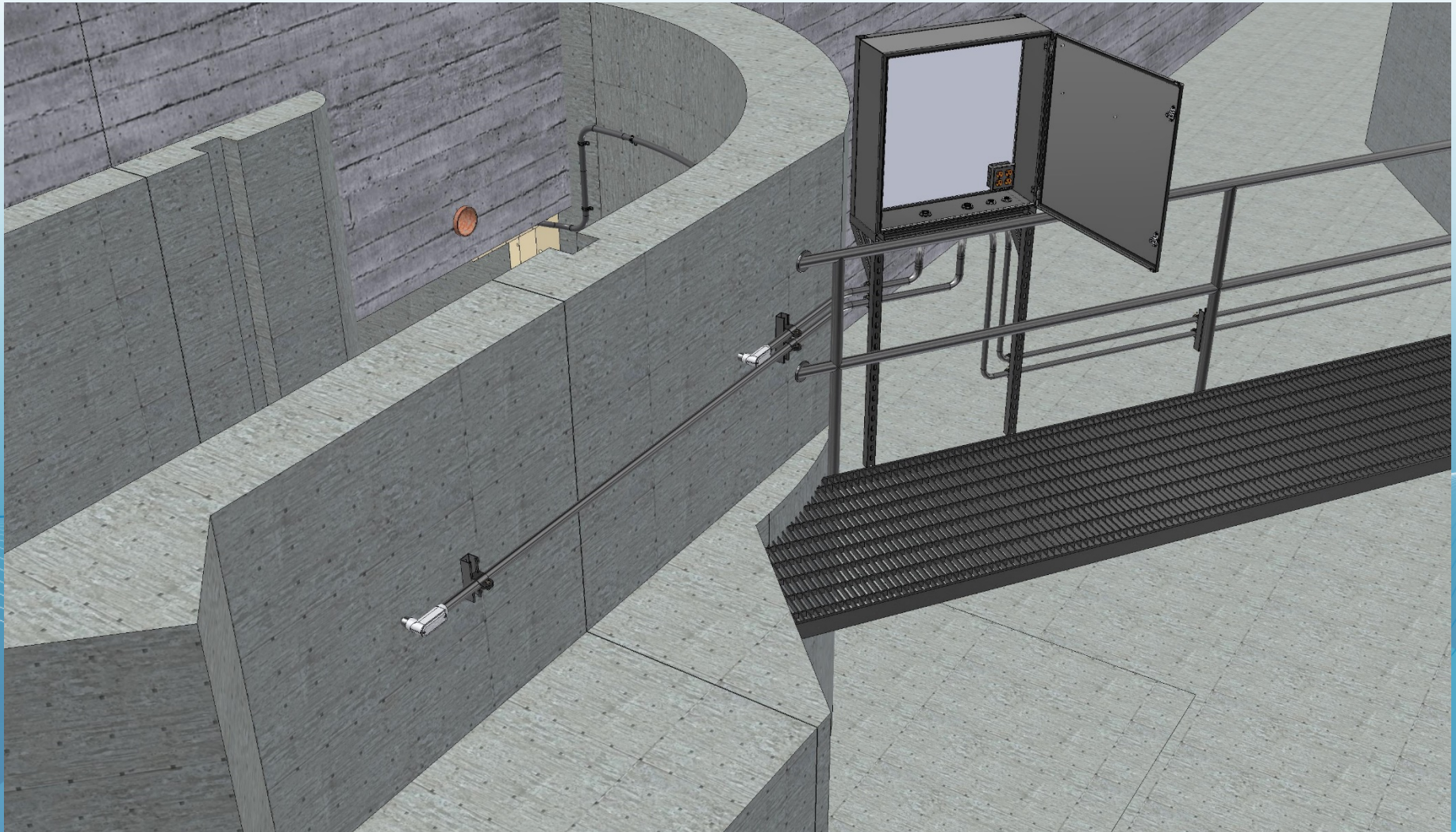
BO2 Cascades Island Relocation Project

- UMT antennas and exciter cable conduit routing.



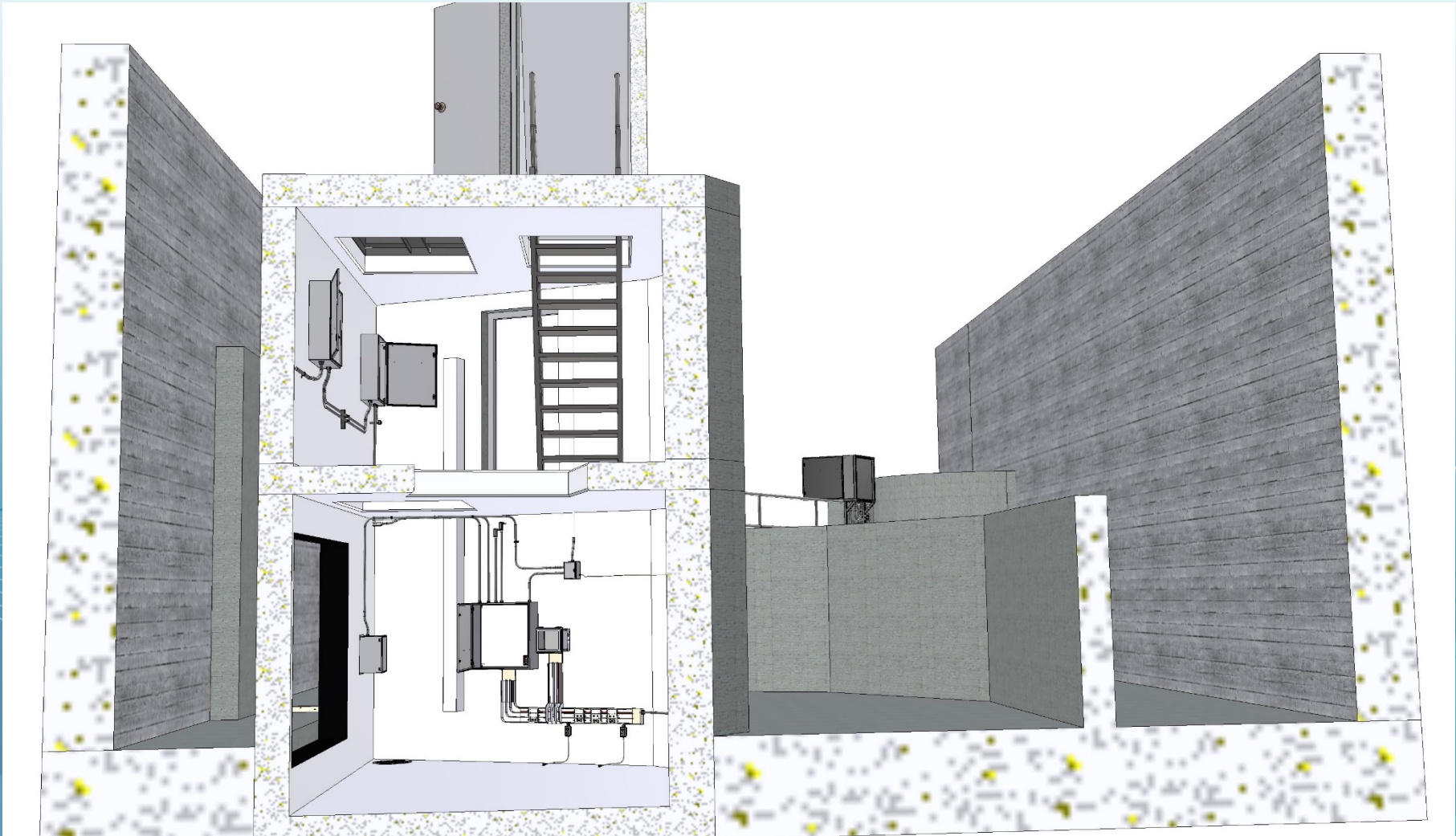
BO2 Cascades Island Relocation Project

- UMT exciter cable conduit routing.



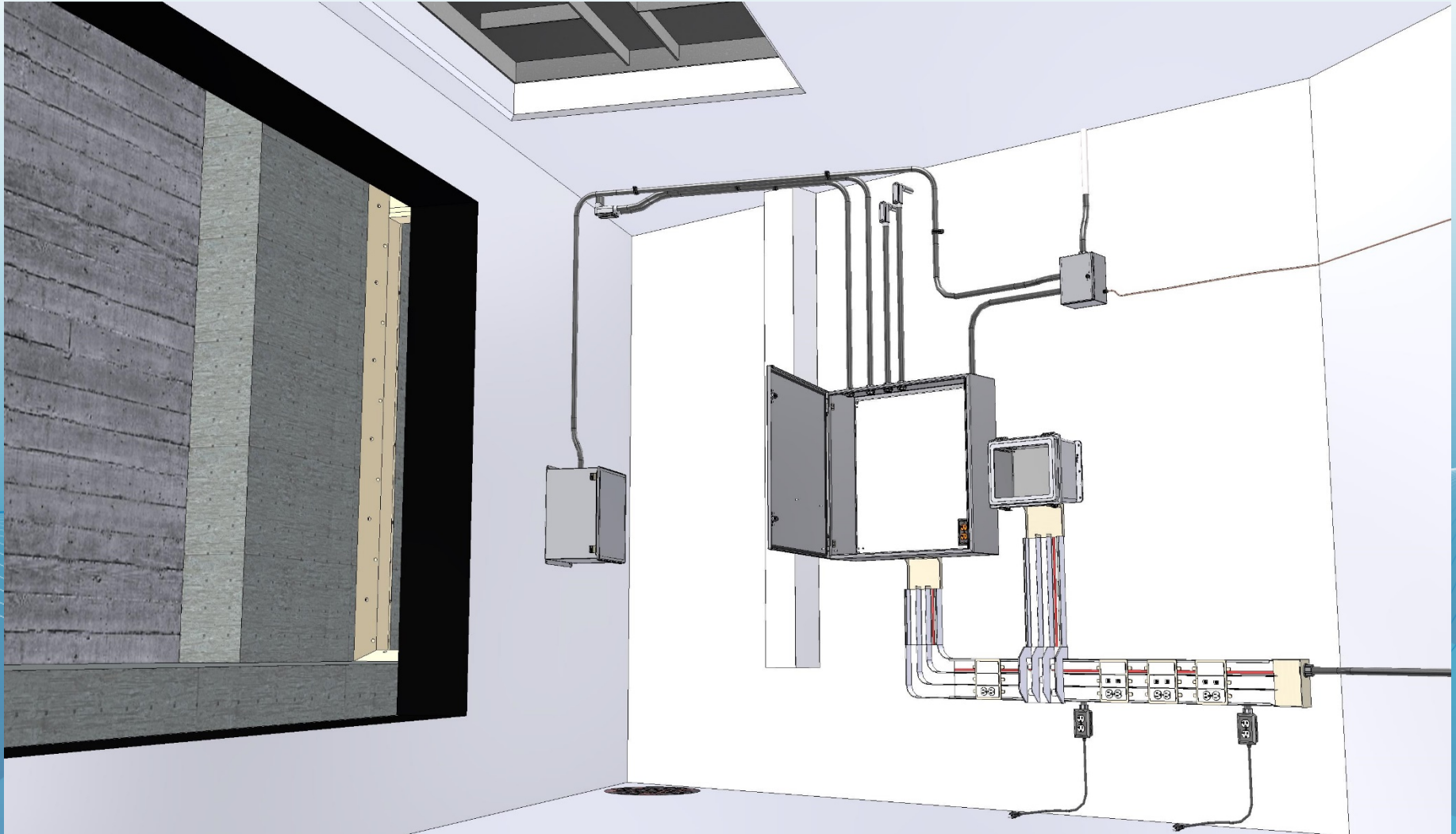
BO2 Cascades Island Relocation Project

- PIT tag room (lower) and counting window transceiver enclosures (upper).
- Existing lamprey antennas will be included in BO2.



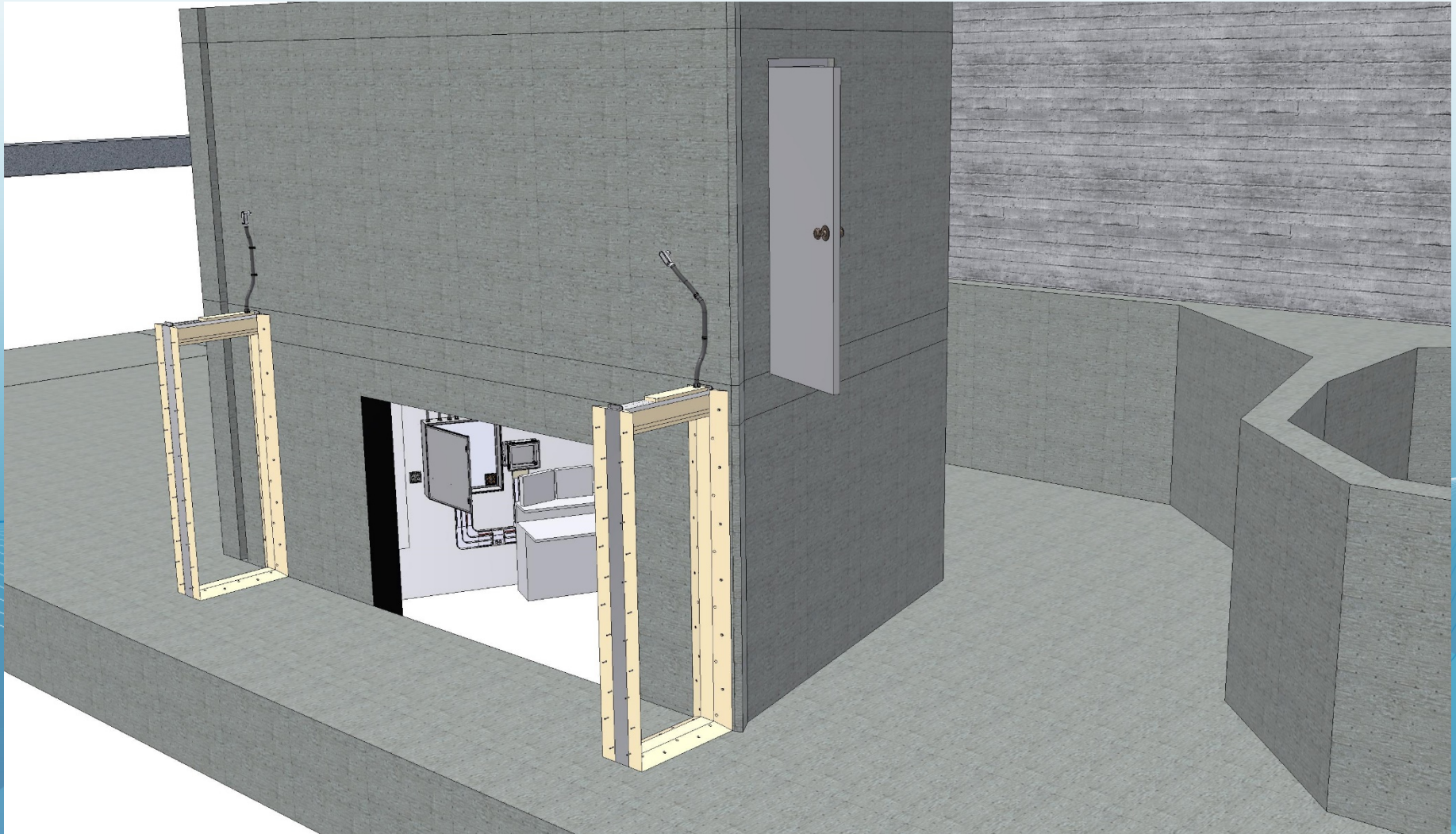
BO2 Cascades Island Relocation Project

- PIT tag room.



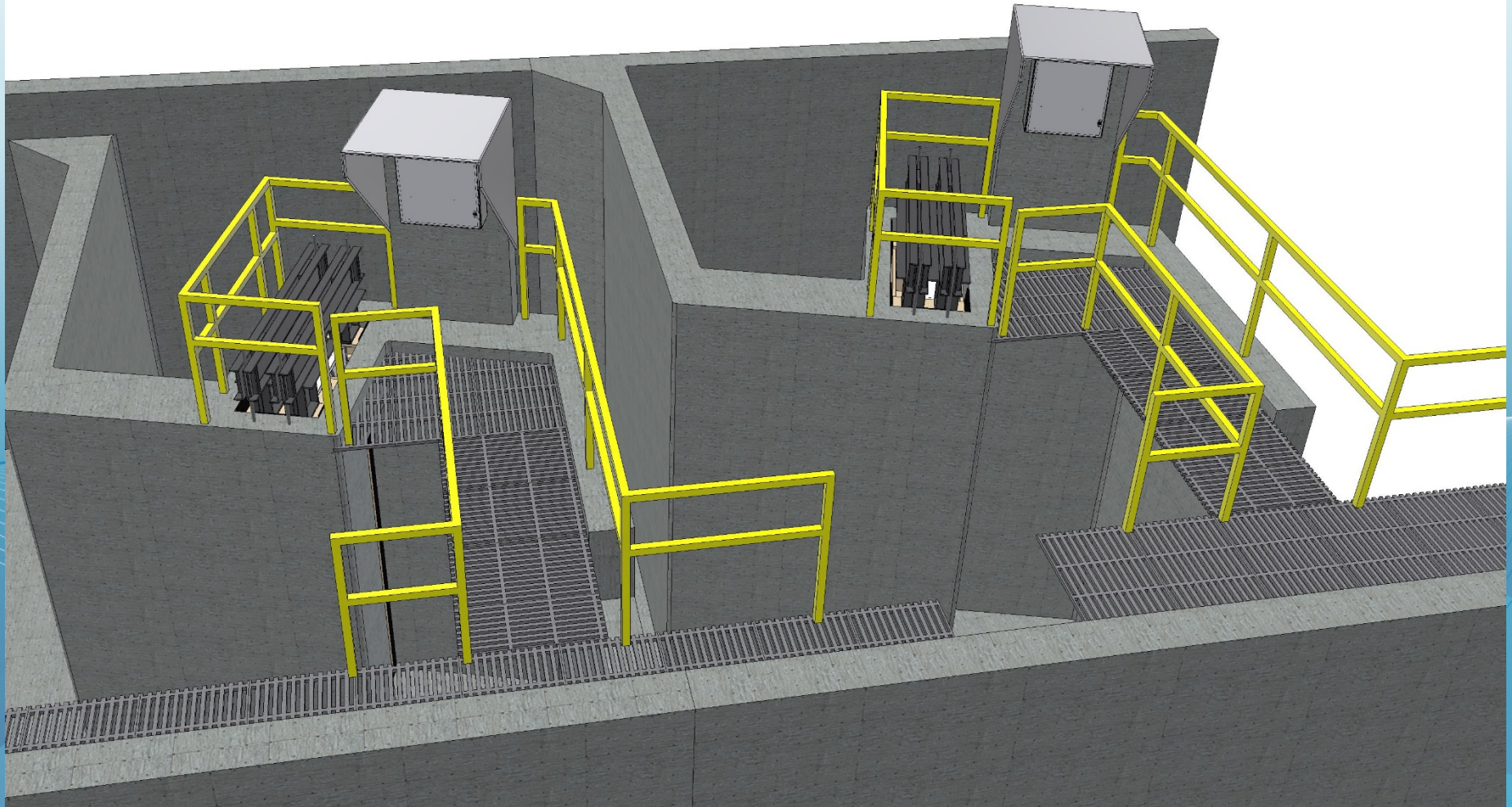
BO2 Cascades Island Relocation Project

- Counting window antennas.



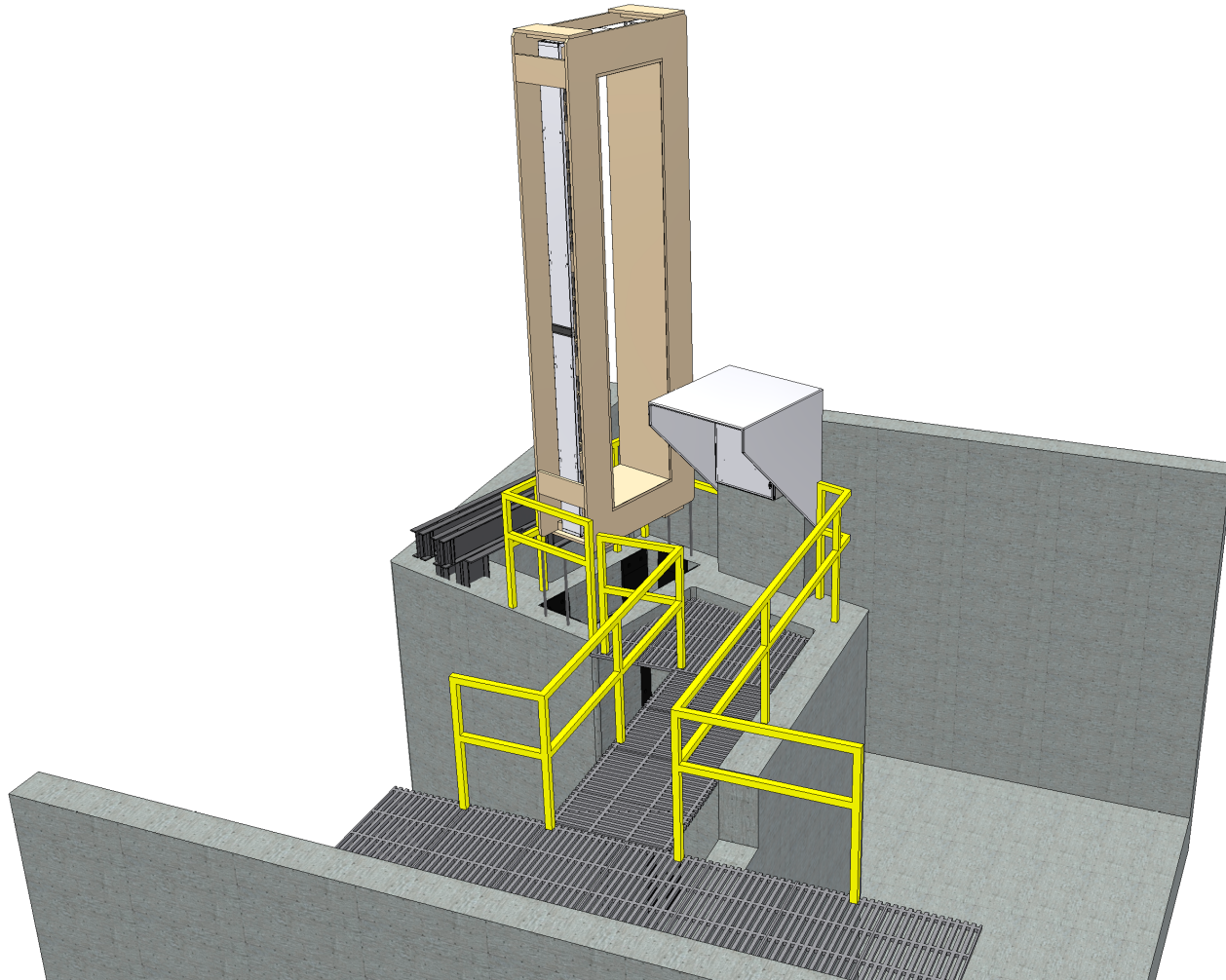
BO4 Slot Antenna Replacement Project

- Project started on Wednesday of this week
- Lowers cost of the original antennas by 75%



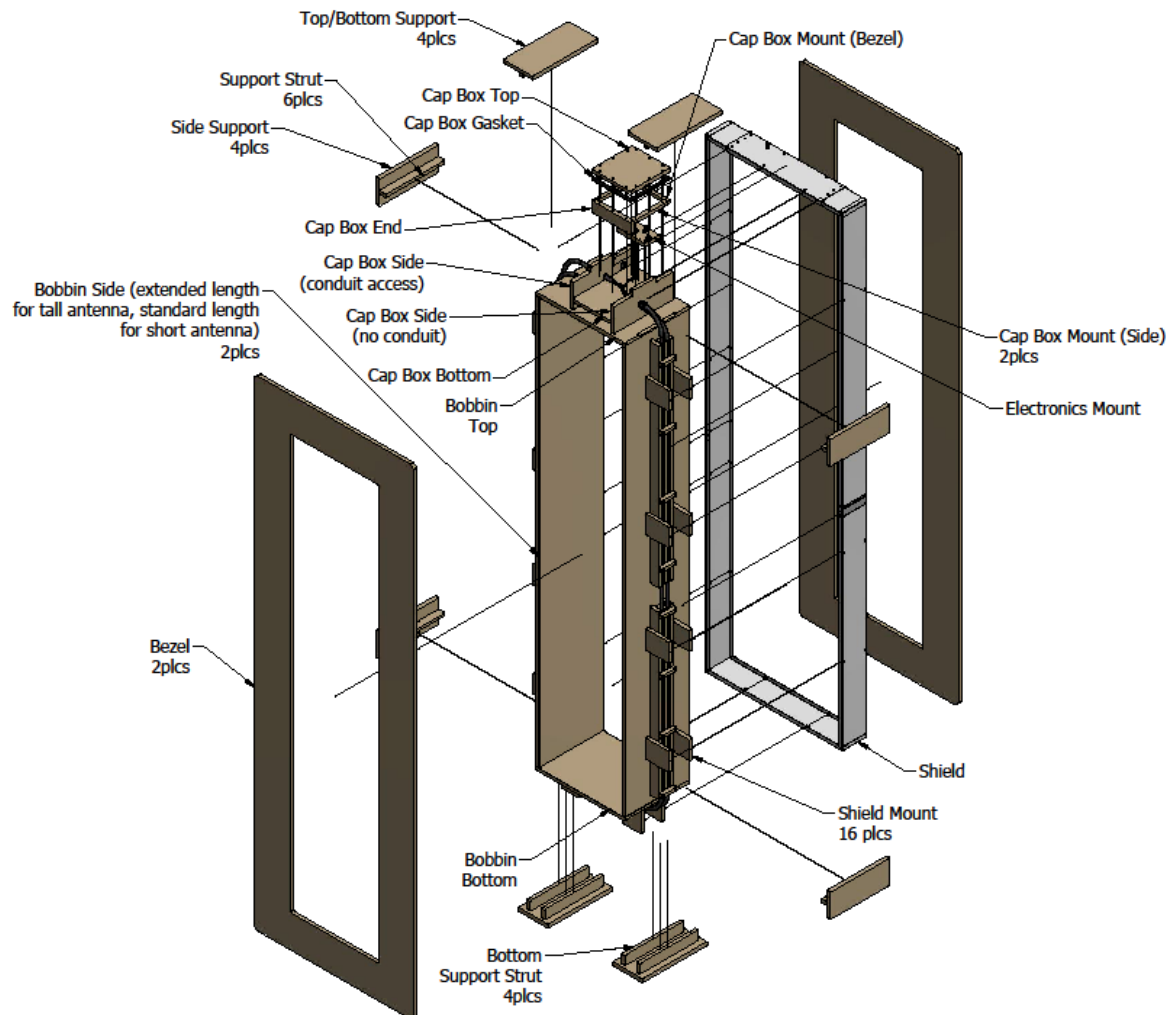
BO4 Slot Antenna Replacement Project

- Antenna shown prior to installation



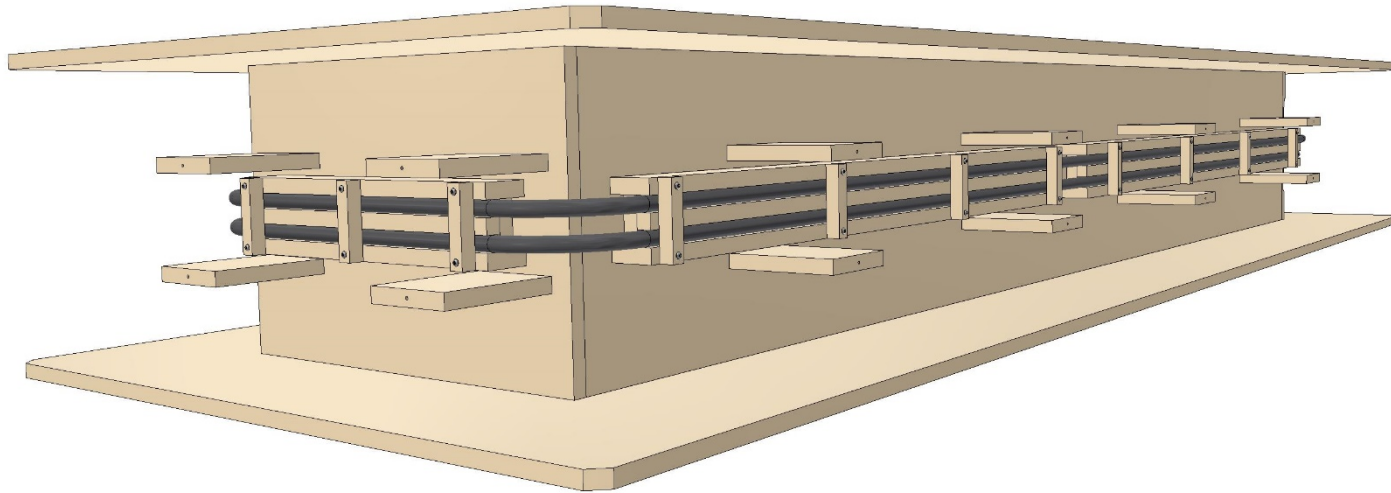
BO4 Slot Antenna Replacement Project

- Exploded view.



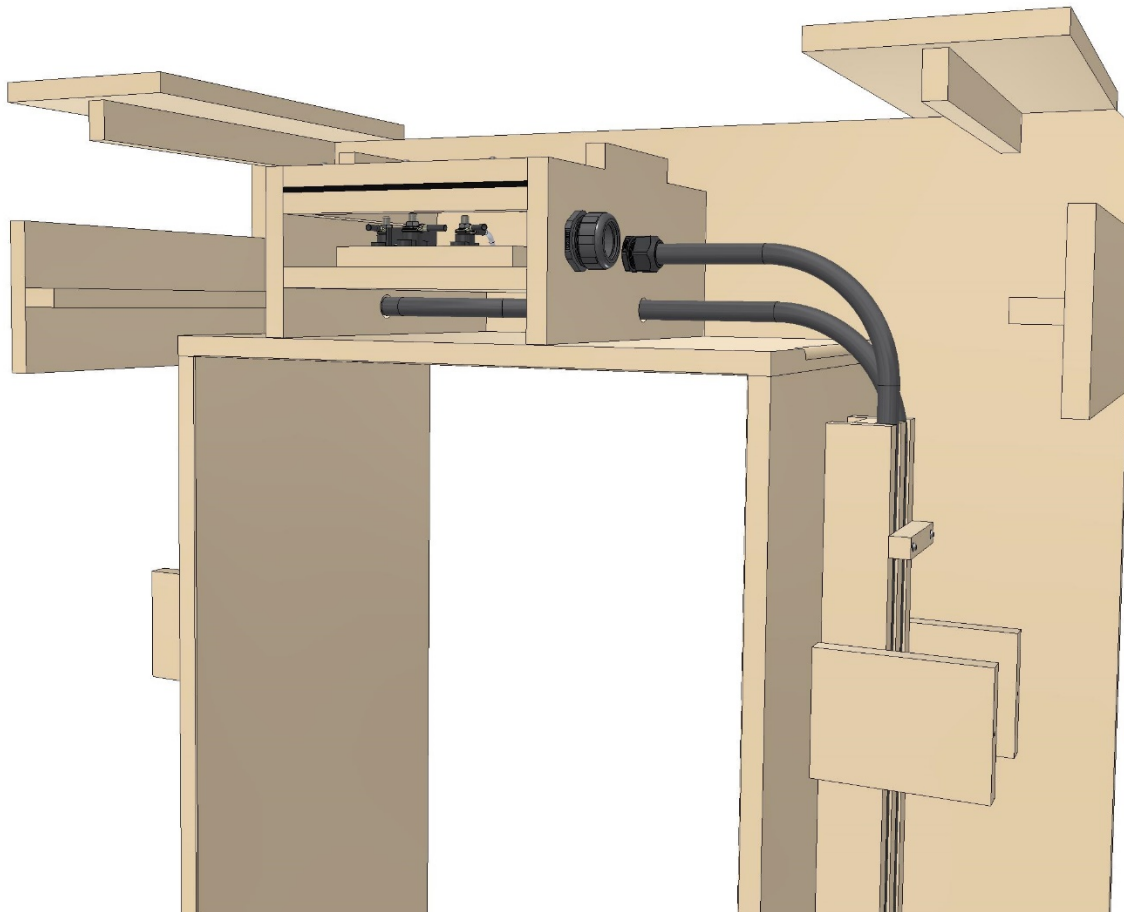
BO4 Slot Antenna Replacement Project

- Wrap Placement with NOAA Designed Flexible Antenna Cable



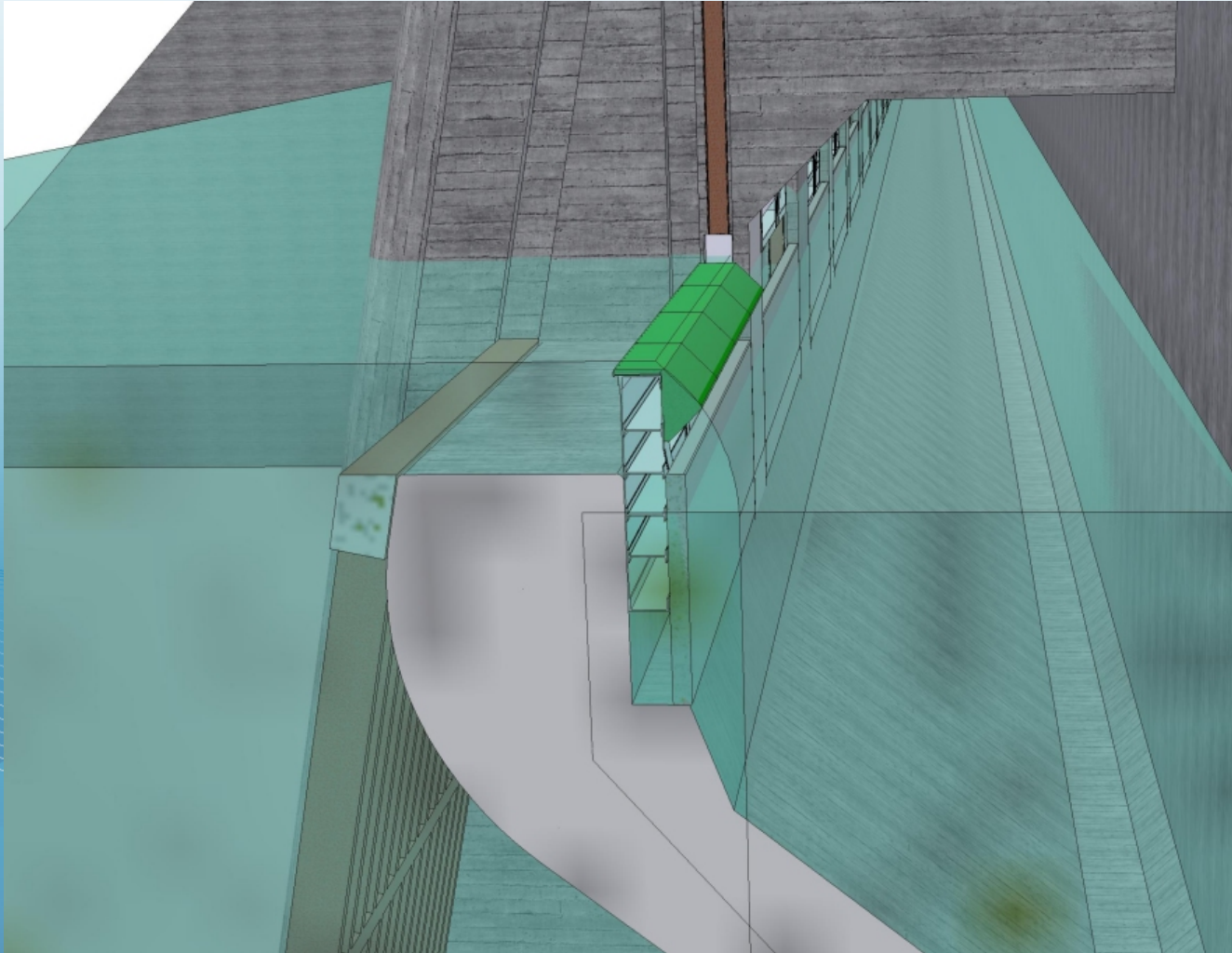
BO4 Slot Antenna Replacement Project

- Wrap passes under electronics box.

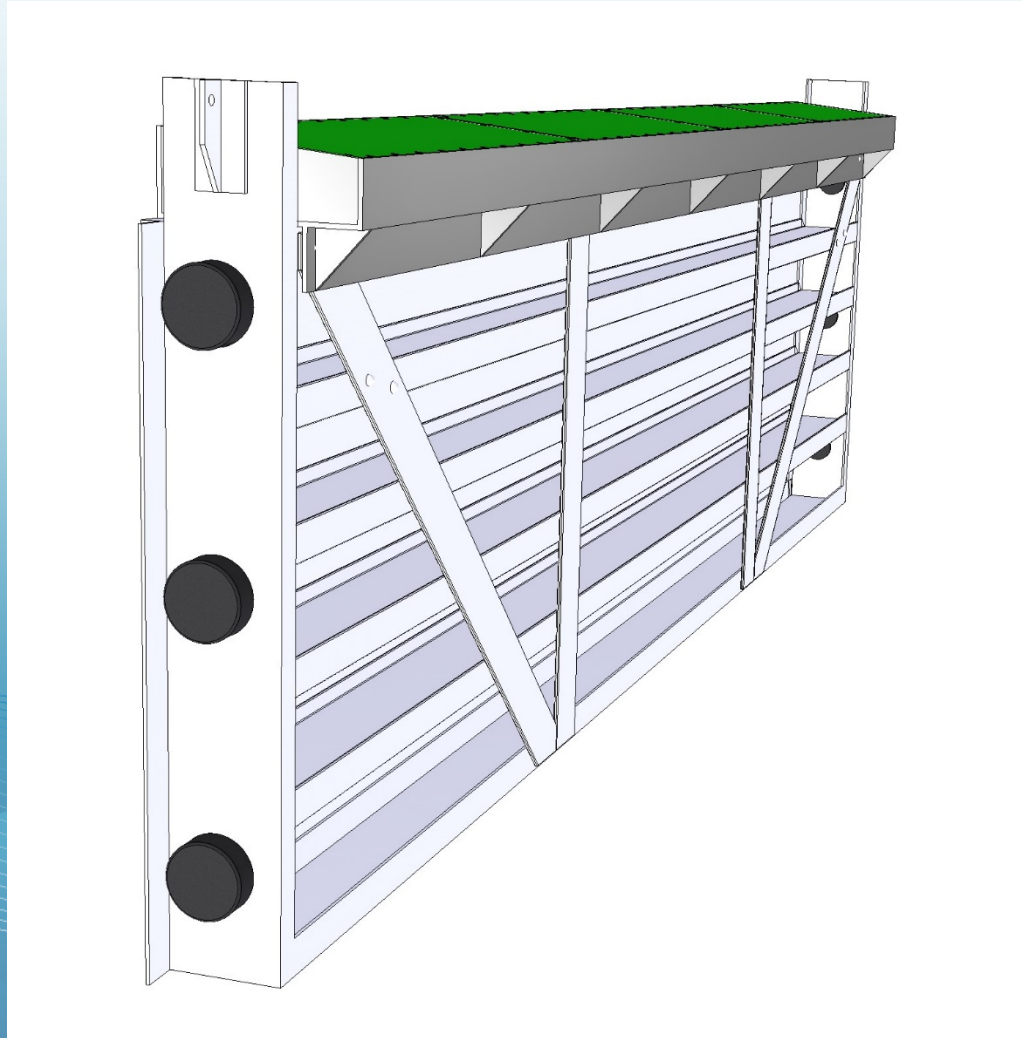


Bonneville Juvenile Detection Increase COE Project Delivery Team Final Choice

Flat Plates for Bays 3B, 6C & 10B (side view)

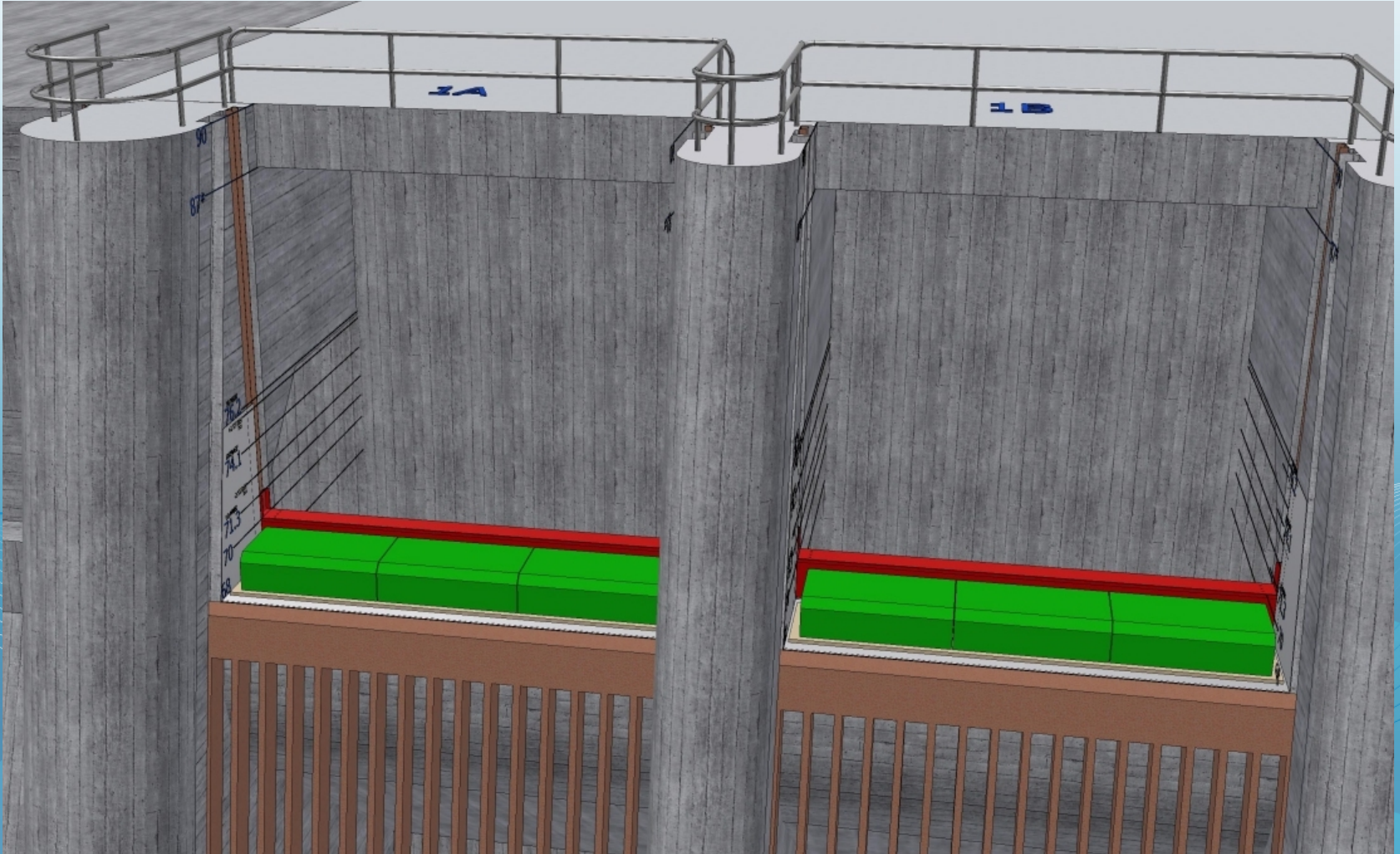


Latest B1 I&T Sluiceway Automated Antenna Gate Design



Bonneville Juvenile Detection Increase Project Delivery Team Final Choice

Flat Plates for Bays 1A & 1B (fixed height)



Barge Load Line Monitoring Projects at GRJ GOJ and LMJ

- All 3 sites are at 80% completion and should be operational by the end of February.
- The COE is assisting with the projects at all 3 sites.
- GRJ and LMJ will have 2 antenna assemblies. GOJ will have two of the 2 antenna assemblies.



BLL panels installed at LMJ



BLL panels installed at GRJ

Other Projects for 2021



Easton Dam Adult Ladder & Juvenile Bypass

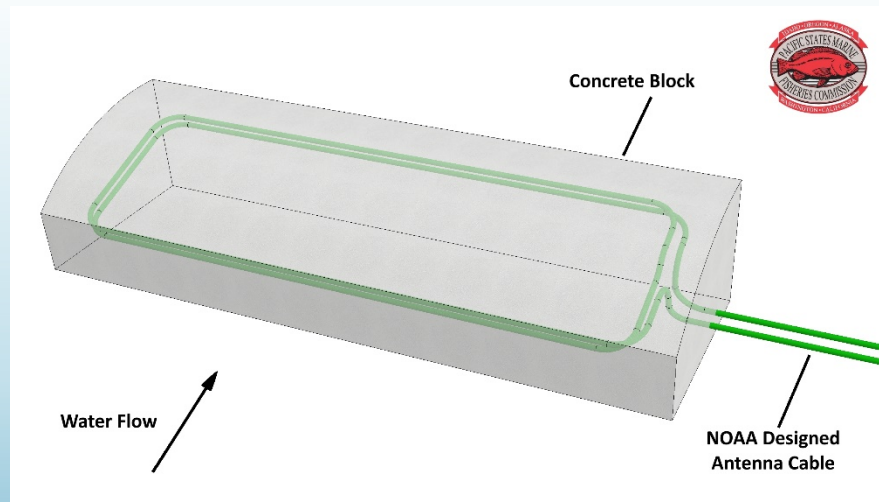
- Standard PTAGIS antenna installation on both routes is projected. First walkthrough of the site is scheduled for February.

Castile Falls Weir Wall

- PTAGIS site of CFF is currently in operation using satellite communications.
- PTAGIS will team with NOAA to R&D concrete antenna system.
- New system will become part of CFF.



Castile Falls Conceptual Design



More Projects for 2021

- Investigate the possibility of detection at the Little Goose adult ladder 3 entrances. A walkthrough of channel is tentatively scheduled for February.
- Update site maps for the PTAGIS website.
- Install and evaluate another electric actuator SbyC gate at GOJ.
- Continue to evolve the SCADA system.
- Work with BPA and the COE on renewing the PIT Tag MOU.
- Replace the unreliable DSL services at Lower Granite and Little Goose with Startouch Microwave Service We are currently using this service at Lower Monumental.

GRA West-Fork System Installed by the COE in 2016

- PTAGIS is now supporting the system
- Ownership transfer to PSMFC is still in progress
- System needs work

