



# GUAM POWER AUTHORITY

ATURIDÁT ILEKTRESEDÁT GUAHAN  
P.O.BOX 2977 • AGANA, GUAM U.S.A. 96932-2977

March 01, 2018

## AMENDMENT NO.: I

TO

INVITATION FOR BID NO.: GPA-050-18

FOR

**D20MX SUBSTATION CONTROLLER KITS**

Prospective Bidders are hereby notified of the following response to inquiry received from America's Best Electricmart, Inc. dated February 26, 2018:

### QUESTION:

1. Our vendor is requesting a 1 line diagram and the control architecture (what devices this relay will be operating) in order to quote. Is it possible to request this?

### ANSWER:

Attached is a copy of a similar GE D20MX substation architecture that will be enabled once the Authority has it in place. The D20MX will take the place of the DAP-100 devices in the print. Please be advised that the D20MX IS NOT A RELAY. It is a Substation host processor for SCADA applications. It does not serve as an equipment protection and is not used for any kind of metering.

All other Terms and Conditions in the bid package shall remain unchanged and in full force.

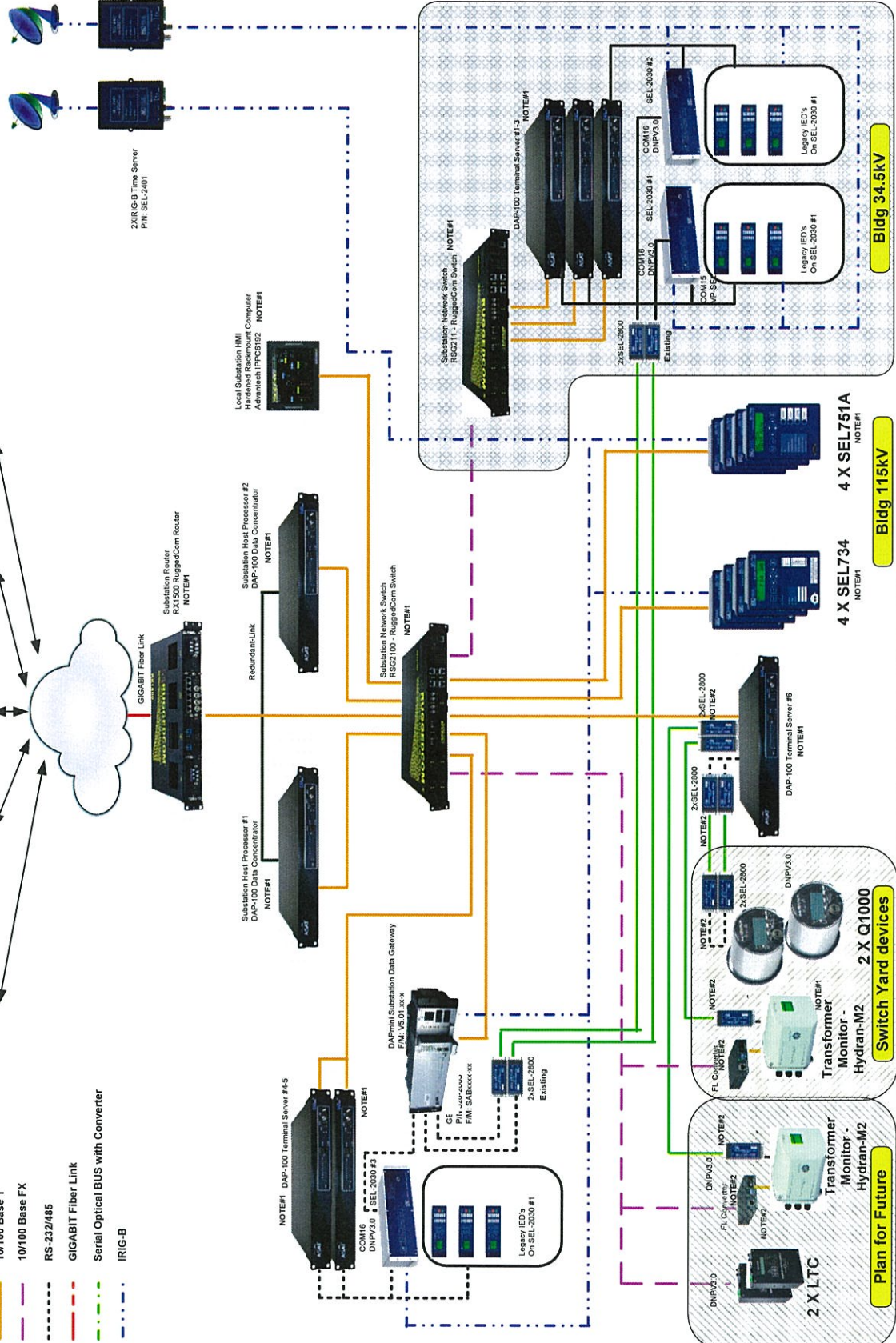
  
 JOHN M. BENAVENTE, P.E.  
General Manager

*JM*

# AGANA Substation Communication Architecture

- LEGENDE**
- 10/100 Base T
  - 10/100 Base FX
  - RS-232/485
  - GIGABIT Fiber Link
  - Serial Optical BUS with Converter
  - IRIG-B

- MAINTENANCE
- ENGINEERING
- METERING
- SECURITY



DRAWING NO. 1204128_Agana_com	
TITLE AGANA Substation Communication SYSTEM ARCHITECTURE	
DATE: 16.11.12	REV: 01
DRAWN: CHECKED:	SHEET: 1 of 5
GENERAL NOTES	
1. All NOTE#1 devices will be supplied by ASAT as part of the SA Smart Grid Project.	
2. All "NOTE#2" devices will be supplied by others as part of the SA Smart Grid Project	
3. All other devices without "NOTE" are existing equipment.	
4. Terminal servers provide virtual port for IED remote configuration port.	
5. Communication protocol for all SCADA devices are either LAN or Serial based DNP V3.0	
6. All DAP and SEL devices will be synchronized directly from existing SEL-2401 Time Server.	
7. DA-PMini COM 1 is used as terminal server for remote Configro and WESMAINT access via D20 com port configured as secondary Wesmain port.	
8. All SEL relay Port 1 connect to SEL-2030; Port 2 connect to terminal server.	
9. SEL-2030 is synchronized with IRIG-B from BNC connector, and legacy SEL relays will be synchronized from SEL-2030 Pin 4 and 6 or directly from BNC port too.	
10. Terminal servers are synchronized with IRIG-B from SEL-2030 port 15, Pin 4 and 6.	
11. The SEL-2800M is powered by +5Vdc on Pin 1 from SEL-2030 and pin 4 on D20 com port	
12. Set SEL-2030, D20 to position B, J21 to position A small supply +5Vdc, Pin 1 for Port 14 to 16.	
REVISIONS	



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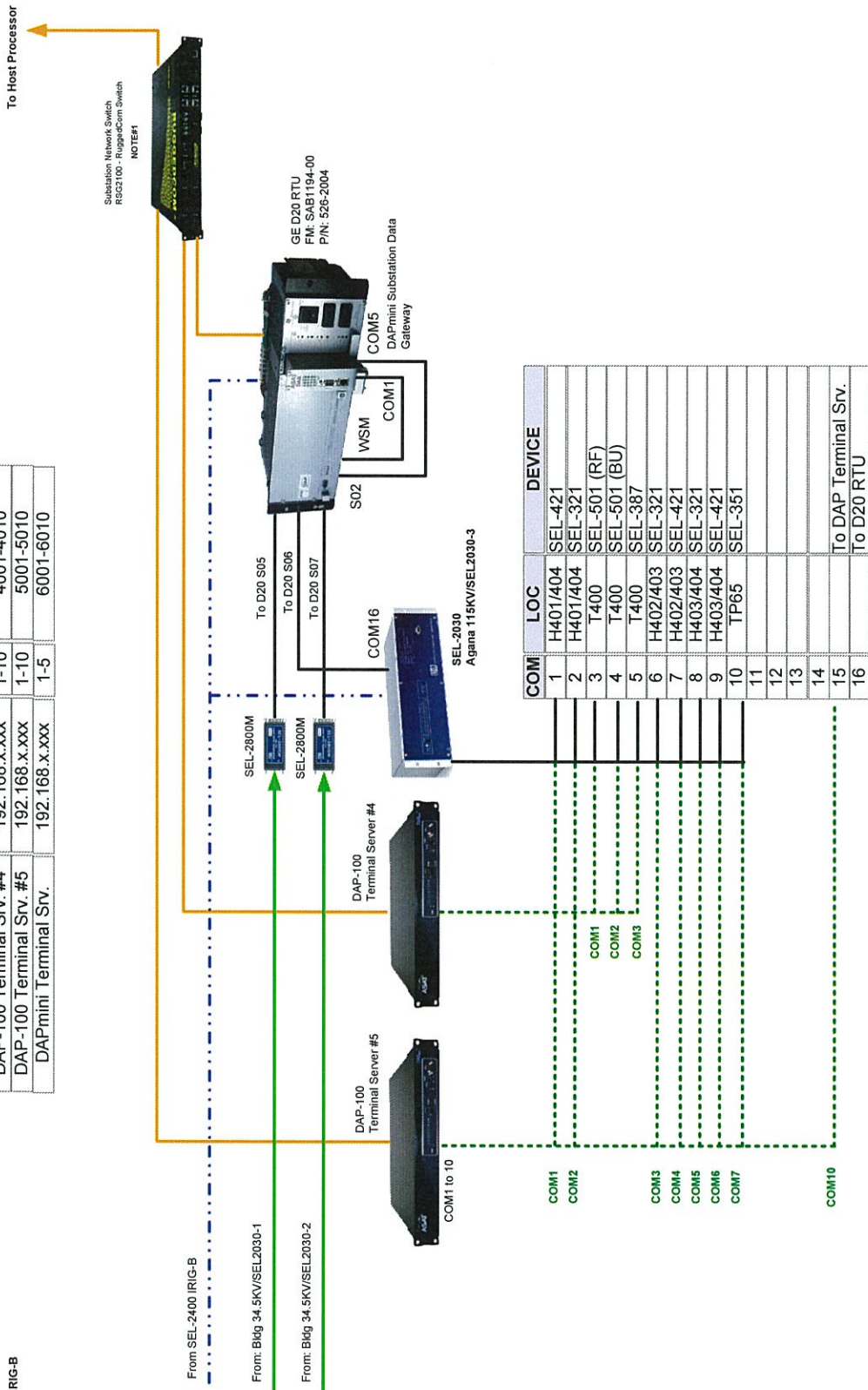
**LEGEND**

- 10 Base T
- RS-232/485
- Serial Optical BUS
- RS-232 for Virtual Port
- IRIG-B

**AGANA 115kV Building - Communication**

**IP Address Setting**

Device	IP Address	COM	LAN Port
DAP-100 Terminal Srv. #4	192.168.x.xxx	1-10	4001-4010
DAP-100 Terminal Srv. #5	192.168.x.xxx	1-10	5001-5010
DAPmini Terminal Srv.	192.168.x.xxx	1-5	6001-6010



DRAWING NO. 12M125L_Agana_com	
Guam Power Authority	
TITLE AGANA RTU and DAPmini Gateway Communication	
DATE 16-11-12	PROJECT Agana
DRAWN LF	CHECKED JF
REV 1	BY SIRET
GENERAL NOTES 2 of 5	

1. All **NOTE#1** devices will be supplied by ASAT as part of the SA Smart Grid Project.
2. All **NOTE#2** devices will be supplied by others as part of the SA Smart Grid Project.
3. All other devices without **NOTE#** are existing equipment.
4. Terminal servers provide virtual port for IED remote configuration port.
5. Communication protocol for all SCADA devices are either LAN or Serial based DNP V3.0
6. All DAP and SEL devices will be synchronized directly from existing SEL-2401 Time Server.
7. DAPmini COM 1 is used as terminal server for remote ConfigPro and WESMAINT access via D20 com port configured as secondary Wesmaint port.
8. All SEL relay Port 1 connect to SEL-2030; Port 2 connect to terminal server.
9. SEL-2030 is synchronized with IRIG-B from BNC connector; and legacy SEL relays can be synchronized from SEL-2030 Pin 4 and 6 or directly from BNC port too.
10. Terminal servers are synchronized with IRIG-B from SEL-2030 port 15, Pin 4 and 6.
11. The SEL-2800M is powered by +5Vdc on Pin 1 from SEL-2030 and pin 4 on D20 com port
12. Set SEL-2030 J20 to position **B**; J21 to position **A** shall supply +5Vdc, Pin 1 for Port 14 to 16.



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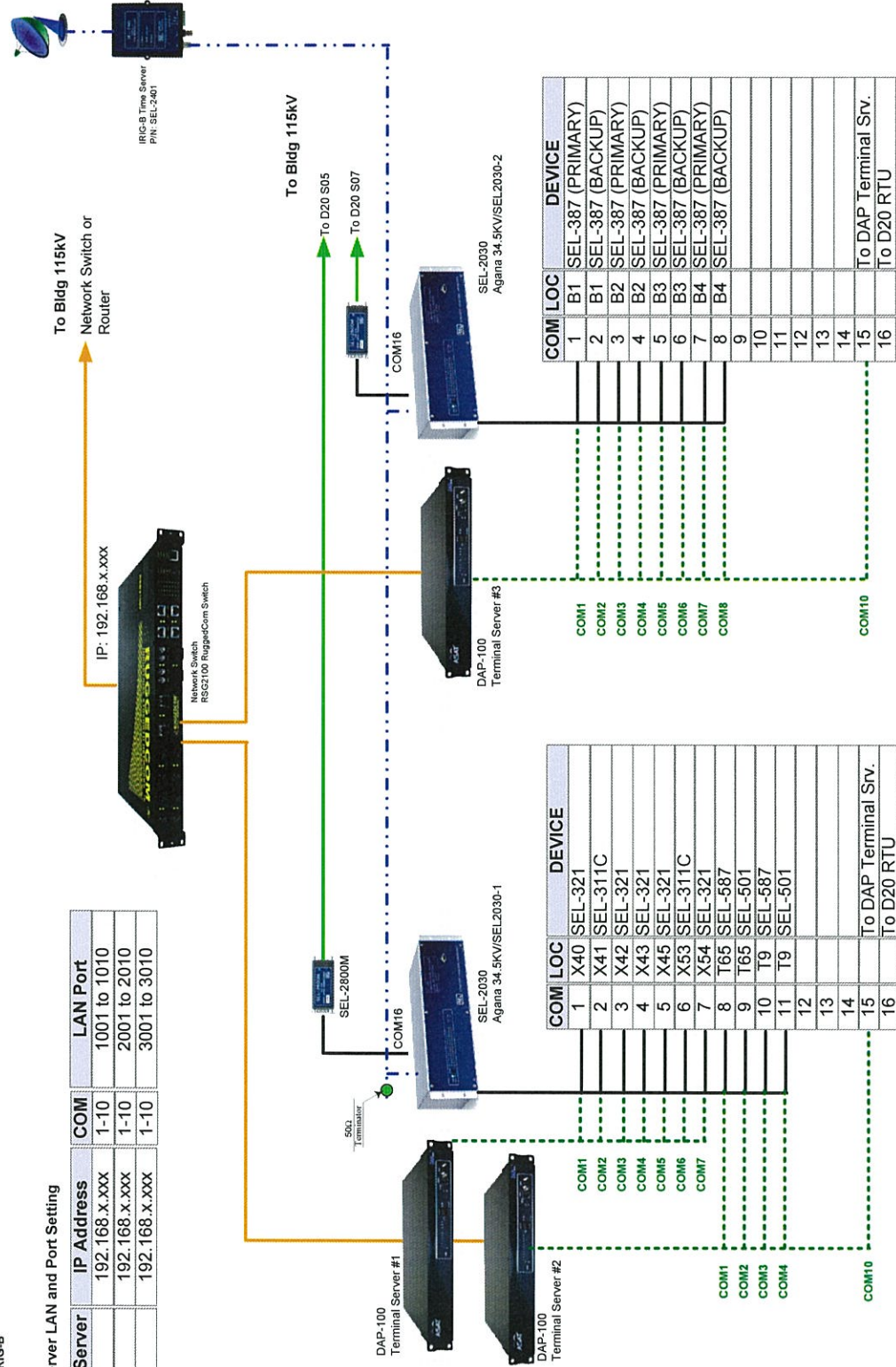
# AGANA Building 34.5kV Communications

## LEGENDE

- 10 Base T
- RS-232/485
- Serial Optical BUS
- RS-232 for Virtual Port
- IIRIG-B

### Terminal Server LAN and Port Setting

Terminal Server	IP Address	COM	LAN Port
#1	192.168.x.xxx	1-10	1001 to 1010
#2	192.168.x.xxx	1-10	2001 to 2010
#3	192.168.x.xxx	1-10	3001 to 3010



COM	LOC	DEVICE
1	B1	SEL-387 (PRIMARY)
2	B1	SEL-387 (BACKUP)
3	B2	SEL-387 (PRIMARY)
4	B2	SEL-387 (BACKUP)
5	B3	SEL-387 (PRIMARY)
6	B3	SEL-387 (BACKUP)
7	B4	SEL-387 (PRIMARY)
8	B4	SEL-387 (BACKUP)
9		
10		
11		
12		
13		
14		
15		To DAP Terminal Srv.
16		To D20 RTU

COM	LOC	DEVICE
1	X40	SEL-321
2	X41	SEL-311C
3	X42	SEL-321
4	X43	SEL-321
5	X45	SEL-321
6	X53	SEL-311C
7	X54	SEL-321
8	T65	SEL-587
9	T65	SEL-501
10	T9	SEL-587
11	T9	SEL-501
12		
13		
14		
15		To DAP Terminal Srv.
16		To D20 RTU

DRAWING NO. E44125_Agana.com	
Guam Power Authority	
TITLE AGANA 34.5kV Communication Architecture	
DATE 01/11/12	PROJECT RIV
DRAWN M.G.	CHECKED J.F.
SUBMIT 3/4/5	
GENERAL NOTES	
<ol style="list-style-type: none"> <li>All <b>NOTE#1</b> devices will be supplied by ASAT as part of the SA Smart Grid Project.</li> <li>All <b>NOTE#2</b> devices will be supplied by others as part of the SA Smart Grid Project.</li> <li>All other devices without <b>NOTE#</b> are existing equipment.</li> <li>Terminal servers provide virtual port for IED remote configuration port.</li> <li>Communication protocol for all SCADA devices are either LAN or Serial based DNP V3.0</li> <li>All DAP and SEL devices will be synchronized directly from existing SEL-2401 Time Server.</li> <li>DAP-mini COM 1 is used as terminal server for remote access via D20 com port configured as secondary Wesmairt port.</li> <li>All SEL relay Port 1 connect to SEL-2030; Port 2 connect to terminal server.</li> <li>SEL-2030 is synchronized with IIRIG-B from BNC connector; and legacy SEL relays can be synchronized from SEL-2030 Pin 4 and 6 or directly from BNC port too.</li> <li>Terminal servers are synchronized with IIRIG-B from SEL-2030 port 15, Pin 4 and 6.</li> <li>The SEL-2800M is powered by +5Vdc on Pin 1 from SEL-2030 and pin 4 on D20 com port</li> <li>Set SEL-2030 J20 to position B-J21 to position A shall supply +5Vdc. Pin 1 for Port 14 to 16.</li> </ol>	
REVISIONS	



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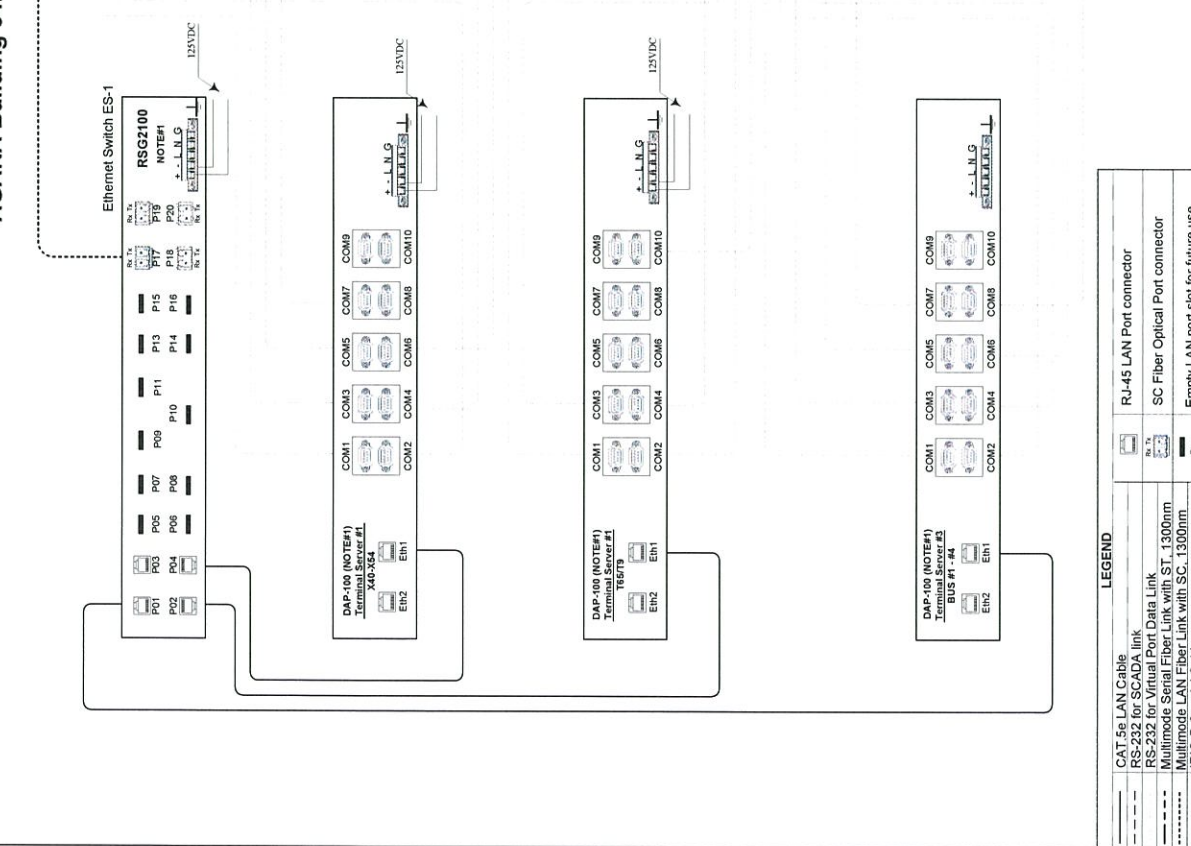
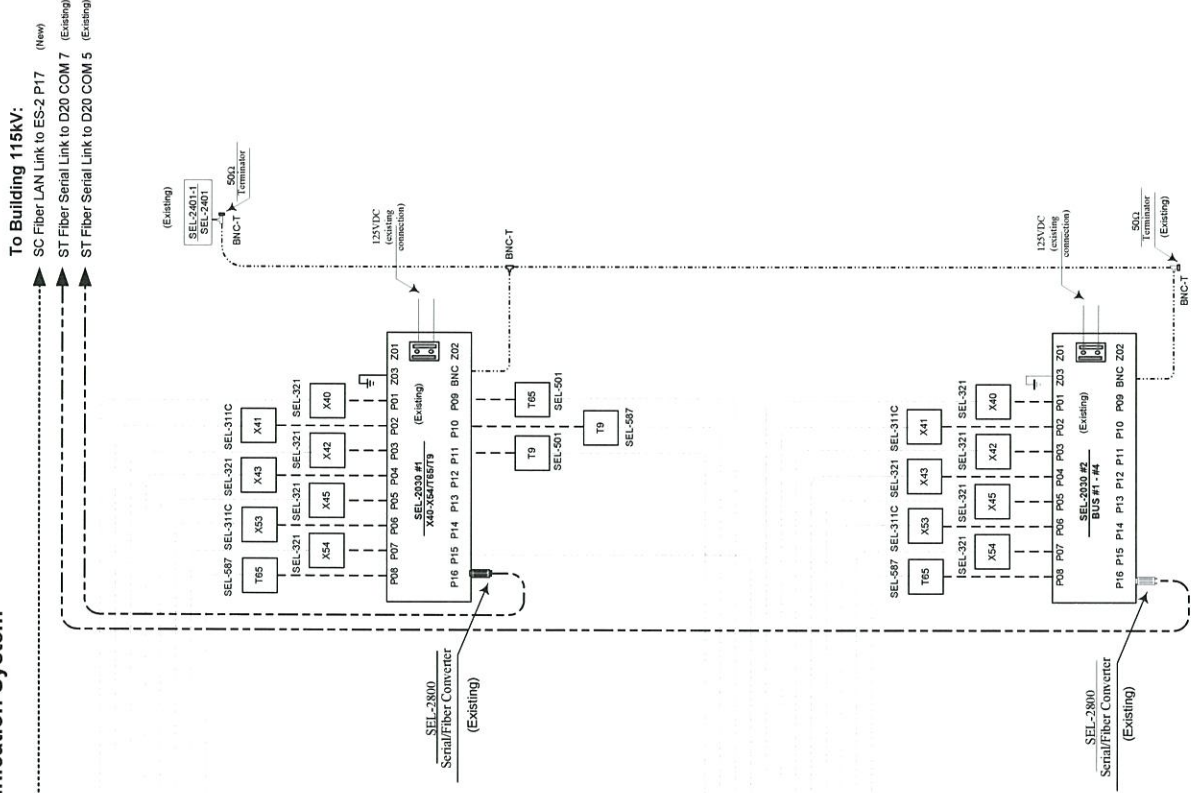
# AGANA Building 34.5kV Communication System

DRAWING NO	13H128_Agana_comm
TITLE	Guam Power Authority

DATE	PROJECT	REV.
16-11-12	AGANA Bldg 34.5kV Communication System	P9
DRAWN	CHECKED	SHEET
L.G.	L.F.	4 of 5

**GENERAL NOTES**

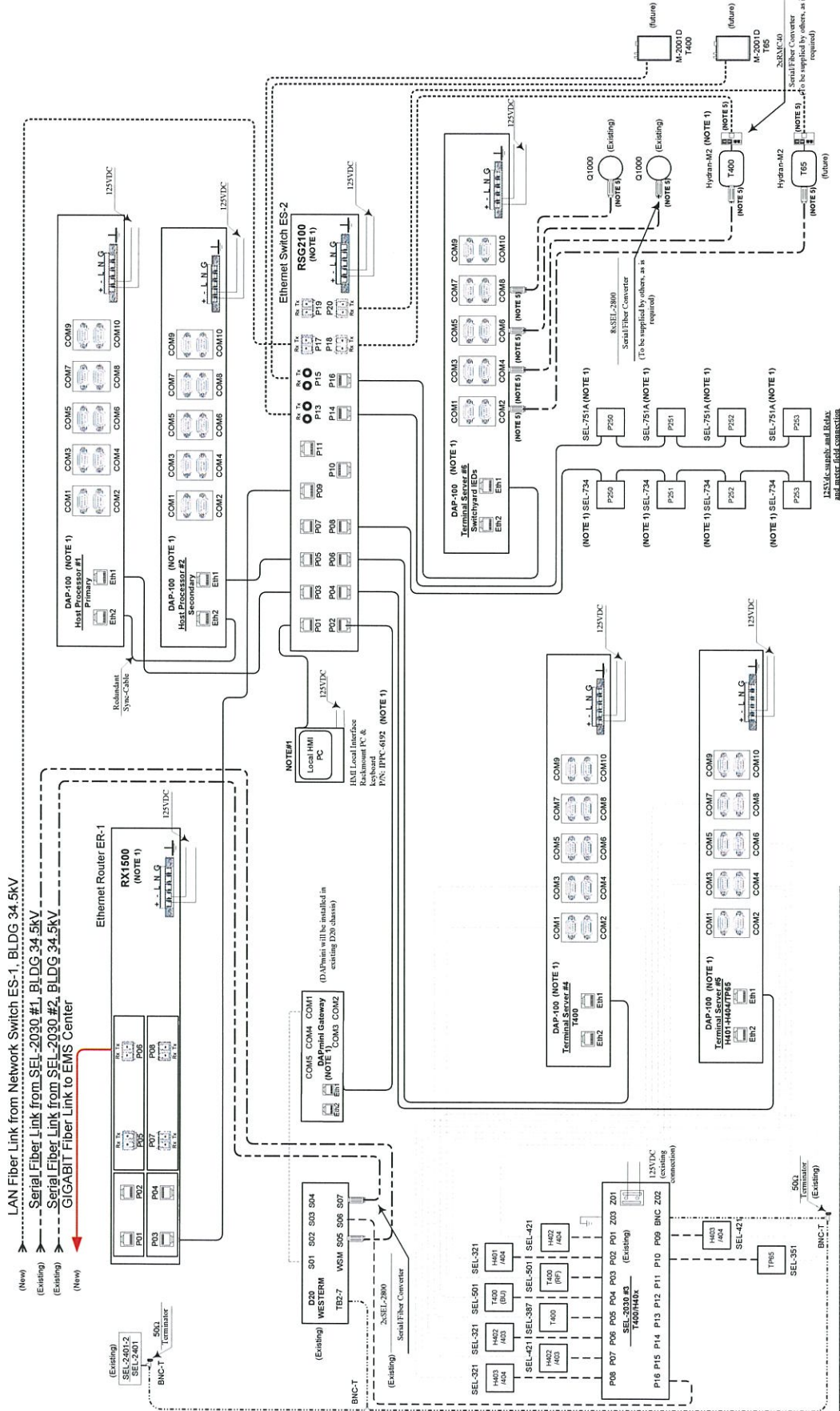
- All **NOTE#1** devices will be supplied by ASAT as part of the SA Smart Grid Project.
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- All DAP and SEL devices will be synchronized directly from existing SEL-2401 Time Server.
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- Terminal servers are synchronized with IRIG-B from SEL-2030 port 15, Pin 4 and 6.
- The SEL-2800M is powered by +5Vdc on Pin 1 from SEL-2030 and pin 4 on D20 com port
- Set SEL-2030 J20 to position B; J21 to position A shall supply +5Vdc; Pin 1 for Port 14 to 16.



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# AGANA Building 115kV Communication System

DRAWING NO. 1204128_Agana_Com	
Gtram Power Authority	
TITLE AGANA Bldg 115kV Communication System	
DATE 16-11-12	PROJECT IRV P0
DRAWN L.F	CHECKED SHEET 5 of 5
GENERAL NOTES	
1. All NOTE#1 devices will be supplied by ASAT as part of the SA Smart Grid Project.	
2. All NOTE#2 devices will be supplied by others as part of the SA Smart Grid Project	
3. All other devices without NOTE are existing	
4. Terminal servers provide virtual port for IED remote configuration port.	
5. Communication protocol for all SCADA devices are either LAN or Serial based DNP V3.0	
6. All DAP and SEL devices will be synchronized directly from existing SEL-2401 Time Server.	
7. DAPmini COM 1 is used as terminal server for remote ConfigPro and WESMAINT access via D20 com port configured as secondary Westmaint port.	
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11. The SEL-2800M is powered by +5Vdc on Pin 1 from SEL-2030 and pin 4 on D20 com port	
12. Set SEL-2030 J20 to position B; J21 to position A. Small supply +5Vdc, Pin 1 for Port 14 to 16.	



Legend	Legend
--- CAT 5e LAN Cable	--- RJ-45 LAN Port
--- RS-232 for SCADA link	--- SC Fiber Optical Port connection
--- RS-232 for Virtual Port Data Link	--- ST Fiber Optical Port connection
--- Multimode Serial Fiber Link with ST, 1300nm	
--- Multimode Serial Fiber Link with ST, 1300nm	
--- Multimode Serial Fiber Link with SC/ST, 1300nm	
--- IRIG-B Corbatal Cable	

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