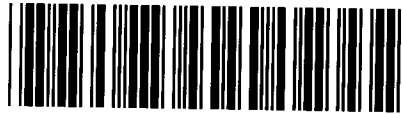




Control Number: 35077



Item Number: 521

Addendum StartPage: 0

PUC Project No. 35077

**Eighth Amendment to
INTERCONNECTION AGREEMENT**

Between

Guadalupe Valley Electric Cooperative, Inc.

and

LCRA Transmission Services Corporation

December 19, 2014

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**EIGHTH AMENDMENT TO
INTERCONNECTION AGREEMENT**

This Eighth Amendment ("Amendment") is made and entered into this 19th day of December, 2014, between the Guadalupe Valley Electric Cooperative, Inc. ("GVEC") and LCRA Transmission Services Corporation ("LCRA TSC") collectively referred to hereinafter as the Parties.

WHEREAS, LCRA TSC and GVEC entered into that certain Interconnect Agreement executed February 8, 2011; as amended by that certain Amendment No. 1, executed as of August 26, 2011; as amended by that certain Amendment No. 2, executed as of October 13, 2011; as amended by that certain Amendment No. 3, executed as of November 30, 2011; as amended by that certain Amendment No. 4, executed as of December 19, 2011, as amended by that certain Amendment No. 5, executed as of February 16, 2012, as amended by that certain Amendment No. 6, executed as of April 25, 2013, as amended by that certain Amendment No. 7, executed as of July 29, 2013 (collectively, as amended, the "Agreement"); and

WHEREAS, GVEC will add a disconnect switch between the 138 kV operating bus and circuit switcher CS2535 at Hallettsville Substation; and

WHEREAS, LCRA TSC will add CCVTs and surge arresters and GVEC will upgrade the transformation facilities at FM 237 Yorktown Substation; and

WHEREAS, LCRA TSC will convert 69 kV operating bus #2 to 138 kV operating bus #1, in a single bus-single breaker configuration; sell 69 kV operating bus #1 to GVEC (Bill of Sale to be executed at the same time as this amendment) and GVEC will add one 45 MVA 138/69 kV autotransformer and associated circuit breakers at LCRA Nixon Substation; and

WHEREAS, LCRA TSC will add a wave trap, CCVTs, surge arresters and remove a capacitor bank and 138 kV circuit breaker at Nordheim West Substation; and

WHEREAS, LCRA TSC will add a wave trap, CCVTs, surge arresters and remove a capacitor bank and 138 kV circuit breaker at Lost Creek Substation; and

WHEREAS, LCRA TSC will purchase property and install Gillett Substation along the existing LCRA Nixon Substation to Kennedy Switch 138 kV transmission line and GVEC will install the Nopal Substation and install a new 138 kV radial transmission line from GVEC Nopal Substation to Gillett Substation; and

WHEREAS, LCRA TSC will purchase property and install Deer Creek Substation and GVEC will add 138 kV terminal equipment for T606 to Seguin Substation and 69 kV terminal equipment for T377 to Nash Creek Substation;

NOW, THEREFORE, in consideration of the mutual promises and undertakings herein set forth, the Parties agree to amend the Agreement as follows:

1. Exhibit "A" is deleted in its entirety and the Exhibit "A" attached to this Eighth

Amendment is hereby added to the Agreement in lieu thereof.

2. Facility Schedule No.4 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 4 attached to this Eighth Amendment is hereby added to the Agreement in lieu thereof.
3. Facility Schedule No. 4 (including the diagrams attached thereto) attached to this Eighth Amendment will become effective upon execution of this Eighth Amendment by the Parties.
4. Facility Schedule No. 5 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 5 attached to this Eighth Amendment is hereby added to the Agreement in lieu thereof.
5. Facility Schedule No. 5 (including the diagrams attached thereto) attached to this Eighth Amendment will become effective upon execution of this Eighth Amendment by the Parties.
6. Facility Schedule No. 7 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 7 attached to this Eighth Amendment is hereby added to the Agreement in lieu thereof.
7. Facility Schedule No. 7 (including the diagrams attached thereto) attached to this Eighth Amendment will become effective upon execution of this Eighth Amendment by the Parties.
8. Facility Schedule No. 20 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 20 attached to this Eighth Amendment is hereby added to the Agreement in lieu thereof.
9. Facility Schedule No. 20 (including the diagrams attached thereto) attached to this Eighth Amendment will become effective upon execution of this Eighth Amendment by the Parties.
10. Facility Schedule No. 21 (including the diagrams attached thereto) is deleted in its entirety and Facility Schedule No. 21 attached to this Eighth Amendment is hereby added to the Agreement in lieu thereof.
11. Facility Schedule No. 21 (including the diagrams attached thereto) attached to this Eighth Amendment will become effective upon execution of this Eighth Amendment by the Parties.
12. Facility Schedule No. 25 (including the diagrams attached thereto) attached to this Eighth Amendment is hereby added to the Agreement.
13. Facility Schedule No. 25 (including the diagrams attached thereto) attached to this Eighth

Amendment will become effective upon execution of this Eighth Amendment by the Parties.

14. Facility Schedule No. 26 (including the diagrams attached thereto) attached to this Eighth Amendment is hereby added to the Agreement.

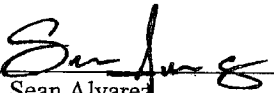
15. Facility Schedule No. 26 (including the diagrams attached thereto) attached to this Eighth Amendment will become effective upon execution of this Eighth Amendment by the Parties.

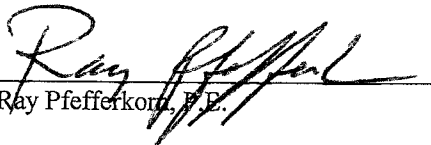
Except as otherwise expressly provided for herein, the Agreement will continue in full force and effect in accordance with its terms.

IN WITNESS WHEREOF, the Parties have caused this Eighth Amendment to be executed in several counterparts, each of which shall be deemed an original but all shall constitute one and the same instrument.

GUADALUPE VALLEY ELECTRIC
COOPERATIVE, INC.

LCRA TRANSMISSION SERVICES
CORPORATION

By: 
Name: Sean Alvarez

By: 
Name: Ray Pfefferkorn, P.E.

Title: Chief Operating Officer and
Senior Executive, Engineering and Operations

Title: LCRA Transmission
Engineering Manager

Date: 12/19/2014

Date: 12/8/14



Exhibit A
Amendment No. 8

FACILITY SCHEDULE NO.	LOCATION OF POINT(S) OF INTERCONNECTION (# of Points)	INTERCONNECTION VOLTAGE (KV)	EFFECTIVE DATE OF INTERCONNECTION
1	Cuero (18)	12.5 kV	8/26/2011
2	Geronimo (4)	138 kV	7/29/2013
3	Gonzales (2)	138 kV	2/8/2011
4	Hallettsville (2)	138 kV	Date of 8th amendment
5	FM 237 Yorktown (1)	138 kV	Date of 8th amendment
6	Marion (2)	138 kV	8/26/2011
7	LCRA Nixon (1)	138 kV	Date of 8th amendment
8	Parkway (6)	138 kV	2/8/2011
9	Schumansville (1)	138 kV	2/8/2011
10	Seguin (6)	138 kV	2/8/2011
11	Seguin West (6)	138 kV	2/8/2011
12	Sweet Home (6)	24.9 kV	2/8/2011
13	Thompsonville (3)	4.16 kV	2/8/2011
14	Waelder (6)	12.5 kV	2/8/2011
15	Weiderstein (2)	138 kV	2/8/2011
16	Yoakum-Gartner (11)	12.5 kV	2/8/2011
17	York Creek (1)	138 kV	2/8/2011
18	Cheapside (2)	138 kV	2/8/2011
19	Pilot Grove (2)	138 kV	8/26/2011
20	Nordheim West (1)	138 kV	Date of 8th amendment
21	Lost Creek (2)	138 kV	Date of 8th amendment
22	Mont (1)	138 kV	2/16/2012
23	Lindenau (1)	138 kV	2/16/2012
24	Highway 123 (4)	138 kV	4/25/2013
25	Gillett (1)	138 kV	Date of 8th amendment
26	Deer Creek (2)	69 kV/138 kV	Date of 8th amendment
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FACILITY SCHEDULE NO. 4
Amendment No. 8

1. **Name:** Hallettsville Substation
2. **Facility Location:** The Hallettsville Substation is located at 2537 W US Hwy 90A, Hallettsville, Lavaca County, Texas 77964.
3. **Points of Interconnection:** There are two (2) Points of Interconnection in the Hallettsville Substation generally described as:
 - where the jumper from the 138 kV operating bus bolts to the 4 hole pad on switch 2534.
 - where the jumper from the 138 kV transfer bus bolts to the 4 hole pad on switch 2533.
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** No
6. **Delivery Voltage:** 138 kV
7. **Metered Voltage and Location:** N/A.
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**

GVEC owns:

 - One (1) 138 kV circuit switcher CS2535 and associated disconnect switches 2533 and 2534, protective relaying panel utilizing tripping and close inhibit contacts from LCRA TSC's 138 kV bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its breaker failure relaying scheme
 - One (1) 138/69 kV auto transformer AT1 with associated surge arresters, 138 kV-600:5 multi ratio relaying bushing current transformers for use by LCRA TSC's 138 kV bus differential relaying scheme
 - 69 kV dead-end structures, foundations, insulators and jumpers
 - 69 kV operating and transfer bus including structures, insulators, foundations and jumpers
 - One (1) 69 kV circuit breaker 480 including jumpers and protective relay package
 - Six (6) 69 kV disconnect switches 479, 481, 483, 1049, 1051 and 1053
 - One (1) 69 kV bus potential transformer PT2Underfrequency relay equipment
 - One (1) 69 kV surge arrester SA6
 - One (1) station service SS1 and associated fuse F1

LCRA TSC owns: The Hallettsville Substation including, but not limited to, the following items:

- 138 kV operating and transfer bus including structures, insulators, foundations and jumpers
- One (1) 138 kV bus potential transformer PT1
- One (1) 138 kV circuit switcher CS2495 and associated disconnect switch 2492
- One (1) 138 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 138 kV-600:5 multi ratio bushing current transformers from auto transformer AT1 and breaker failure initiate contacts from GVEC's circuit switcher CS2535 relaying panel
- One (1) capacitor bank CP1
- One (1) 138 kV current transformer CT6
- One (1) single phase current transformers CT5
- One (1) 69 kV current transformer CT3
- One (1) capacitor bank potential transformer PT5
- One (1) station service SS2 and associated fuse F2 (not shown on attached one-line diagram)
- Control house and battery bank
- Substation property, ground grid, gravel, fencing and other appurtenances

10. Operational Responsibilities of Each Party: Each Party is responsible for the operation of the equipment it owns.

11. Maintenance Responsibilities of Each Party: Each Party will be fully responsible for the maintenance of the equipment it owns.

12. Other Terms and Conditions:

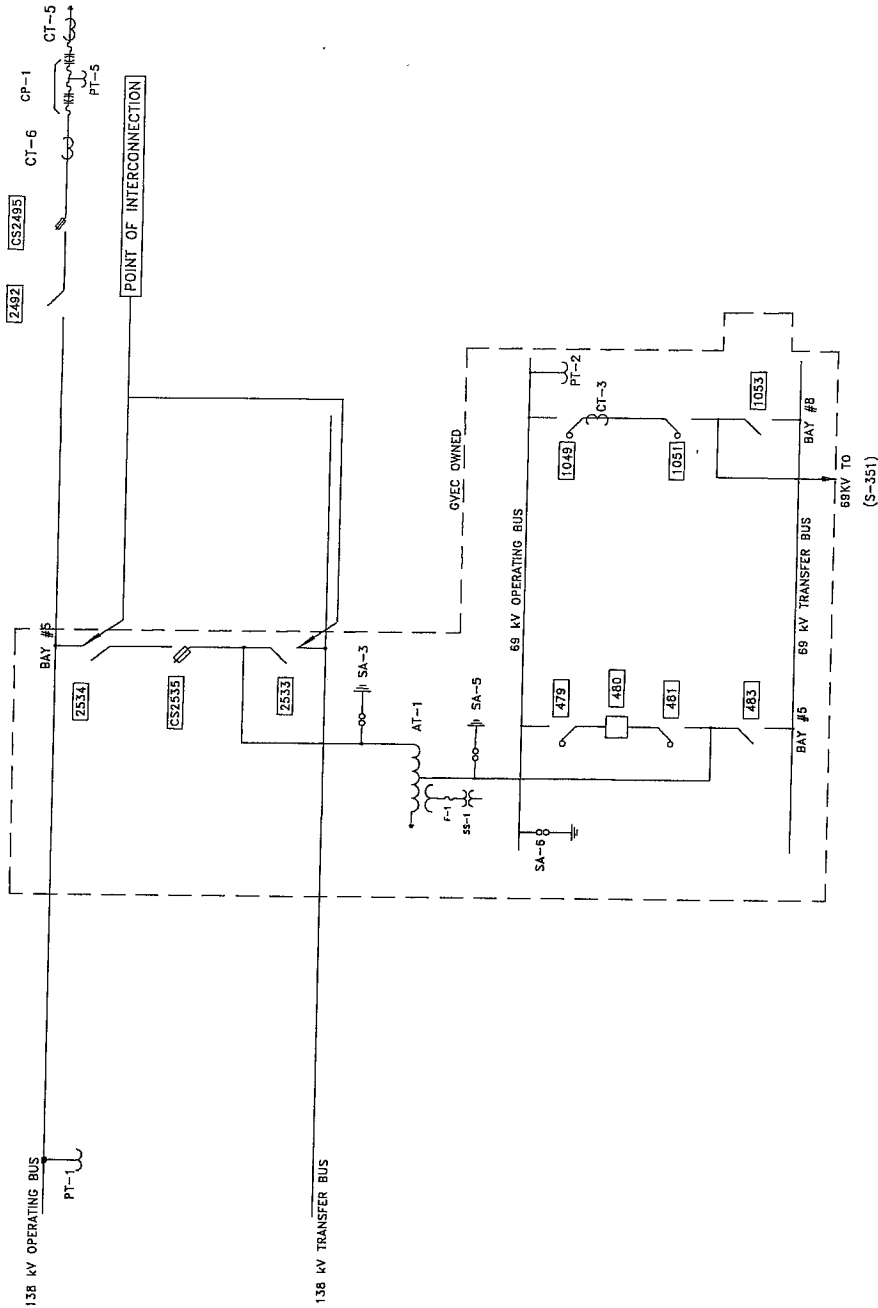
- GVEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
- GVEC will supply and allow LCRA TSC use of transformer AT1 relaying bushing current transformers for its 138 kV bus differential relaying scheme.
- LCRA TSC will provide tripping and close inhibit contacts from its 138 kV bus differential & breaker failure relaying panel to GVEC's circuit switcher CS3525 relaying panel.
- GVEC will provide breaker failure initiate contacts from its circuit switcher CS3525 relaying panel to LCRA TSC's 138 kV bus differential & breaker failure relaying panel.
- LCRA TSC and GVEC shall design, provide, and coordinate their respective protection system equipment so that adjacent zones of protection overlap, in accordance with ERCOT Nodal Operating Guides.
- LCRA TSC will provide GVEC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards. Panel boards containing the OCPD may belong to either LCRA TSC (if space is available) or GVEC.
- LCRA TSC will provide GVEC with floor space (as available and as necessary)

in its control house for the installation of GVEC required relay panel boards and equipment.

- LCRA TSC will provide GVEC access to its station service SS2 as needed.
- GVEC will provide LCRA TSC access to its station service SS1 as needed.

HALLETTSVILLE ONE-LINE DIAGRAM

Amendment No. 8



HALLETTSVILLE
 THIS IS NOT A COMPLETE ONE-LINE DIAGRAM
 FOR A COMPLETE ONE-LINE DIAGRAM OF THIS
 SUBSTATION, REFER TO DRAWING S137-E-0001.

FACILITY SCHEDULE NO. 5
Amendment No. 8

1. **Name:** FM 237 Yorktown Substation
2. **Facility Location:** The FM 237 Yorktown Substation is located at 810 FM 237, De Witt County, Texas 78164.
3. **Points of Interconnection:** There is (1) Point of Interconnection in the FM 237 Yorktown Substation generally described as:
 - where the 138 kV operating bus connector bolts to the four hole pad on switch 22994
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** Yes
6. **Delivery Voltage:** 138 kV
7. **Metered Voltage and Location:** The metering voltage is 12.5 kV. The metering current transformer is located inside T2. The bus potential transformer is located on the 12.5 kV operating bus.
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**
GVEC owns:

The FM237 Yorktown Substation including, but not limited to, the following items:

 - One (1) 138 kV circuit switcher CS22995 with associated disconnect switch 22994, protective relaying panel utilizing tripping and close inhibit contacts from LCRA TSC's bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its breaker failure relaying scheme
 - One (1) 138 kV mobile disconnect switch 23004
 - One (1) power transformer T2 with associated surge arresters, 12.5 kV-600:5 multi ratio (metering accuracy) bushing current transformers for use by LCRA TSC's metering circuit and 138 kV-1200:5 multi ratio relaying bushing current transformers for use by LCRA TSC's bus differential relaying scheme
 - One (1) 12.5 kV transformer bus disconnect switch YK30 (25 kV switch operating at 12.5 kV)
 - All distribution circuits including dead end insulators that attach to the dead end structure, conductors, and hardware
 - All distribution circuit breakers including jumpers, protective relay packages and foundations.
 - All distribution and total bays including A-frames, trusses, insulators, disconnect

switches, surge arresters, 12.5 kV operating and transfer bus (built for 25 kV, operating at 12.5 kV), 12.5 kV bus potential transformer, for use by LCRA TSC's metering circuit, and associated cabling

- One (1) MTU, MTU1 with associated fused disconnects F2 and F4
- Station service, SS1, fuse F1 and surge arrester SA5
- Control house (24' x 36')
- Batteries and battery charger
- Substation property, ground grid, gravel, fencing and other appurtenances

LCRA TSC owns:

- Two (2) 138 kV dead-end structures, foundations, insulators and jumpers
- Two (2) 138 kV surge arresters SA1 and SA2
- Two (2) 138 kV coupling capacitor voltage transformers CCVT1 and CCVT2
- 138 kV operating bus #1 including support structures, foundations and jumpers
- Two (2) 138 kV circuit breakers 22990 and 23000 including jumpers, protective relay packages and foundations
- Six (6) 138 kV disconnect switches 22989, 22991, 22993, 22999, 23001 and 23003
- One (1) 138 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 138 kV-1200:5 multi ratio bushing current transformers from power transformer T2 and breaker failure initiate contacts from GVEC's circuit switcher CS22995 relaying panel
- One (1) metering package utilizing GVEC supplied 12.5 kV-600:5 multi ratio (metering accuracy) bushing current transformers from power transformer T2 and GVEC supplied 12.5 kV bus potential transformer PT3
- 48-fiber OPGW with splice cans and patch panels

10. Operational Responsibilities of Each Party: Each Party is responsible for the operation of the equipment it owns.

11. Maintenance Responsibilities of Each Party: Each Party will be fully responsible for the maintenance of the equipment it owns.

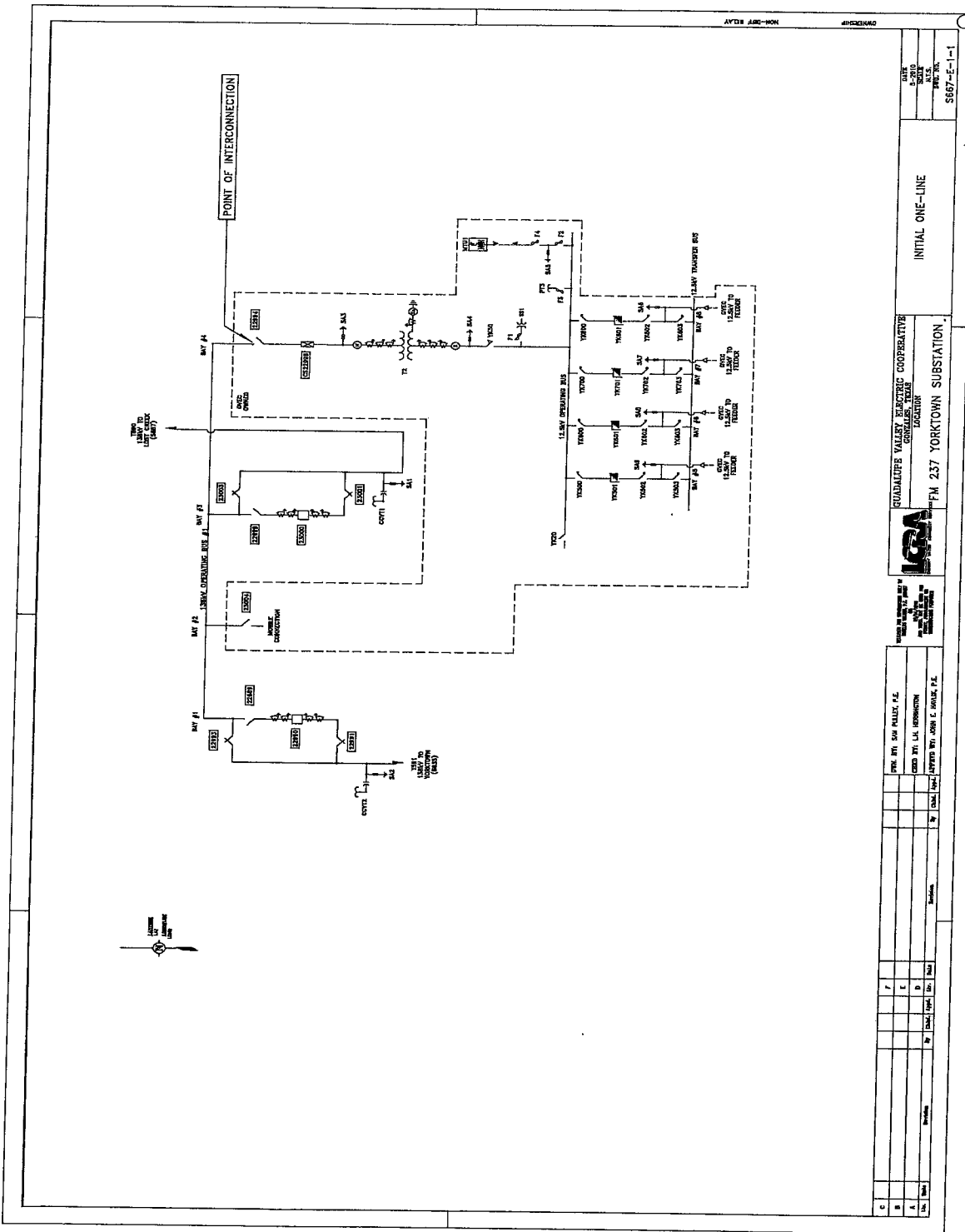
12. Other Terms and Conditions:

- GVEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
- GVEC will supply and allow LCRA TSC use of its 12.5 kV bus potential transformer PT3 for metering.
- GVEC will supply and allow LCRA TSC use of transformer T2 metering and relaying bushing current transformers for its metering and bus differential relaying scheme.
- LCRA TSC will provide tripping and close inhibit contacts from its bus differential & breaker failure relaying panel to GVEC's circuit switcher CS22995 relaying panel.

- GVEC will provide breaker failure initiate contacts from its circuit switcher CS22995 relaying panel to LCRA TSC's bus differential & breaker failure relaying panel.
- LCRA TSC and GVEC shall design, provide, and coordinate their respective protection system equipment so that adjacent zones of protection overlap, in accordance with ERCOT Nodal Operating Guides.
- GVEC will provide LCRA TSC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards. Panel boards containing the OCPD may belong to either GVEC (if space is available) or LCRA TSC
- GVEC will provide LCRA TSC with floor space (as available and as necessary) in its control house for the installation of LCRA TSC required relay panel boards and equipment.

FM 237 YORKTOWN ONE-LINE DIAGRAM

Amendment No. 8



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FACILITY SCHEDULE NO. 7
Amendment No. 8

1. **Name:** LCRA Nixon Substation
2. **Facility Location:** The LCRA Nixon Substation is located at 2654 FM 2922, Nixon, Gonzales County, Texas 78140.
3. **Points of Interconnection:** There is one (1) Point of Interconnection in the LCRA Nixon Substation generally described as:
 - where the aluminum pipe bus from the LCRA TSC 138 kV operating bus #1 attaches to the four hole pad on GVEC 138 kV switch 9041.
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** No
6. **Delivery Voltage:** 138 kV
7. **Metered Voltage and Location:** N/A
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**

GVEC owns:

- One (1) 138 kV circuit breaker 9040 including foundation, jumpers , surge arresters, 138 kV-2000:5 multi ratio bushing current transformers for use by LCRA TSC's bus differential relaying scheme and protective relay panels utilizing tripping and close inhibit contacts from LCRA TSC's 138 kV bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its breaker failure relaying scheme
- Three (3) 138 kV disconnect switches 9039, 9041 and 9043
- The following transmission lines comprised of conductors, insulators, and connecting hardware:
 - LCRA-Nixon to Cost 69 kV transmission line
 - LCRA-Nixon to GVEC Nixon 69 kV transmission line
- Two (2) 69 kV dead-end structures, foundations, insulators and jumpers
- 69 kV operating bus #2 including structures, insulators, foundations and jumpers
- Three (3) 69 kV circuit breakers 9020, 9030 and 25210 including foundations, jumpers and protective relay packages
- One (1) 69 kV motor operated switch MO9018
- One (1) 69 kV bus differential and breaker failure relaying scheme
- Nine (9) 69 kV switches 9019, 9021, 9023,9029, 9031, 9033, 9038, 25209 and

25211

- Seven (7) A-Frames
- Five (5) A-Frame upper trusses
- Five (5) A-Frame lower trusses
- One (1) 69 kV surge arresters SA1
- One (1) 138/69 kV auto transformer AT1 with associated surge arresters
- One (1) 69 kV bus potential transformers PT1
- One (1) station service SS1 with associated fuse F2

LCRA TSC owns:

The LCRA Nixon Substation including, but not limited to, the following items:

- Two (2) 138 kV dead-end structures, foundations, insulators and jumpers
- 138 kV operating bus #1 including structures, insulators, foundations and jumpers
- Pipe bus from 138 kV operating bus #1 to GVEC switch 9041
- The following transmission lines comprised of conductors, insulators, and connecting hardware:
 - LCRA-Nixon to Deer Creek 138 kV transmission line
 - LCRA-Nixon to Nixon AEP 138 kV transmission line
- Two (2) 138 kV capacitor coupling voltage transformers CCVT1 and CCVT2
- Three (3) 138 kV surge arresters SA2, SA3 and SA4
- Two (2) 138 kV circuit breakers 7500 and 7595 with foundations, jumpers and protective relay packages
- Six (6) 138 kV disconnect and bypass switches 7499, 7501, 7503, 7593, 7594 and 7596
- One (1) 138 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 138 kV 2000:5 multi ratio bushing current transformers from GVEC's 138 kV circuit breaker 9040 and breaker failure initiate contacts from GVEC's circuit breaker 9040 relaying panel
- Control house and 125 VDC battery bank
- Station Service SS2 from GVEC distribution (not shown on one line diagram)
- Substation property, ground grid, gravel, fencing and other appurtenances
- 48-fiber OPGW with splice cans and patch panels

10. Operational Responsibilities of Each Party: Each Party is responsible for the operation of the equipment it owns.

11. Maintenance Responsibilities of Each Party: Each Party will be fully responsible for the maintenance of the equipment it owns.

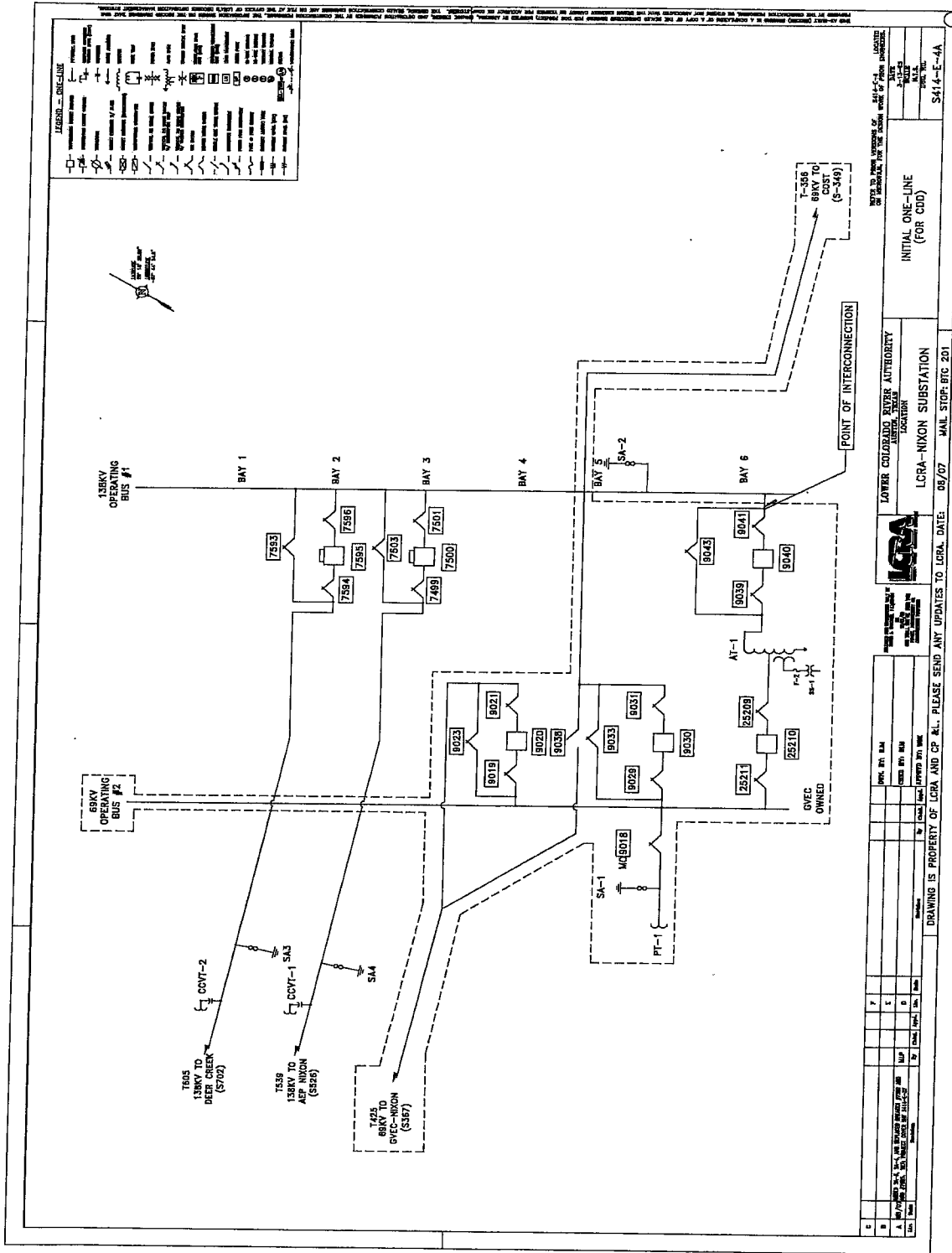
12. Other Terms and Conditions:

- GVEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
- GVEC will supply and allow LCRA TSC use of its 138 kV circuit breaker 9040 relaying bushing current transformers for LCRA TSC's 138 kV bus differential relaying scheme.

- LCRA TSC will provide tripping and close inhibit contacts from its 138 kV bus differential & breaker failure relaying panel to GVEC's 138 kV circuit breaker 9040 relaying panel.
- GVEC will provide breaker failure initiate contacts from its circuit breaker 9040 relaying panel to LCRA TSC's 138 kV bus differential & breaker failure relaying panel.
- LCRA TSC and GVEC shall design, provide, and coordinate their respective protection system equipment so that adjacent zones of protection overlap, in accordance with ERCOT Nodal Operating Guides.
- LCRA TSC will provide GVEC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards. Panel boards containing the OCPD may belong to either LCRTA TSC (if space is available) or GVEC.
- LCRA TSC will provide GVEC with floor space (as available and as necessary) in its control house for the installation of GVEC required relay panel boards and equipment.
- GVEC will provide LCRA TSC access to its station service SS1 as needed.
- LCRA TSC will provide GVEC access to its station service SS2 as needed.

LCRA NIXON ONE-LINE DIAGRAM

Amendment No. 8



FACILITY SCHEDULE NO. 20
Amendment No. 8

1. **Name:** Nordheim West Substation
2. **Facility Location:** The Nordheim West Substation is located at 601 Gilbert Mueller Road, Nordheim, Texas 78141 .
3. **Points of Interconnection:** There is (1) Point of Interconnection in the Nordheim West Substation generally described as:
 - where the 138 kV operating bus connector bolts to the four hole pad on switch 23964
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** Yes
6. **Delivery Voltage:** 138 kV
7. **Metered Voltage and Location:** The metering voltage is 24.9 kV. The metering current transformer is located inside T1. The bus potential transformer is located on the 24.9 kV operating bus.
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**

GVEC owns:

The Nordheim West Substation including, but not limited to, the following items:

 - One (1) circuit switcher CS23965 with associated disconnect switch 23964, protective relaying panel utilizing tripping and close inhibit contacts from LCRA TSC's 138 kV bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its breaker failure relaying scheme
 - One (1) 138 kV mobile disconnect switch 23968
 - One (1) power transformer T1 with associated surge arresters, 138 kV-2000:5 multi ratio bushing current transformers for use by LCRA TSC's 138 kV bus differential relaying scheme and 24.9 kV-1200:5 multi ratio (metering accuracy) bushing current transformers for use by LCRA TSC's metering circuit
 - One (1) 24.9 kV transformer bus disconnect switch NW01
 - All distribution circuits including dead end insulators that attach to the dead end structure, conductors, and hardware
 - All distribution circuit breakers including jumpers, protective relay packages and foundations.
 - All distribution and total bays including A-frames, trusses, insulators, disconnect

switches, surge arresters, 24.9 kV operating and transfer bus, bus potential transformer, to be used in LCRA TSC metering circuit, and associated cabling

- One (1) MTU, MTU1 with associated fused disconnect F4 and surge arrester SA5
- Station service, SS1 and fuse F1
- Control house (24' x 36')
- Batteries and battery charger
- Substation property, ground grid, gravel, fencing and other appurtenances

LCRA TSC owns:

- Two (2) 138 kV dead-end structures, foundations, insulators and jumpers
- Two (2) capacitor coupled voltage transformers CCVT1 and CCVT2
- Two 138 kV surge arresters SA1 and SA2
- 138 kV operating bus #1 including support structures, foundations and jumpers
- Two (2) 138 kV circuit breakers 23960 and 23970 including jumpers, protective relay packages and foundations
- Six (6) 138 kV disconnect switches 23959, 23961, 23963, 23969, 23971 and 23973
- One (1) 138 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 138 kV-2000:5 multi ratio bushing current transformers from power transformer T1 and breaker failure initiate contacts from GVEC's circuit switcher CS23965 relaying panel
- One (1) metering package utilizing GVEC supplied 24.9 kV-1200:5 multi ratio (metering accuracy) bushing current transformers from power transformer T1 and GVEC supplied 24.9 kV bus potential transformer PT3
- 48-fiber OPGW with splice cans and patch panels

10. Operational Responsibilities of Each Party: Each Party is responsible for the operation of the equipment it owns.

11. Maintenance Responsibilities of Each Party: Each Party will be fully responsible for the maintenance of the equipment it owns.

12. Other Terms and Conditions:

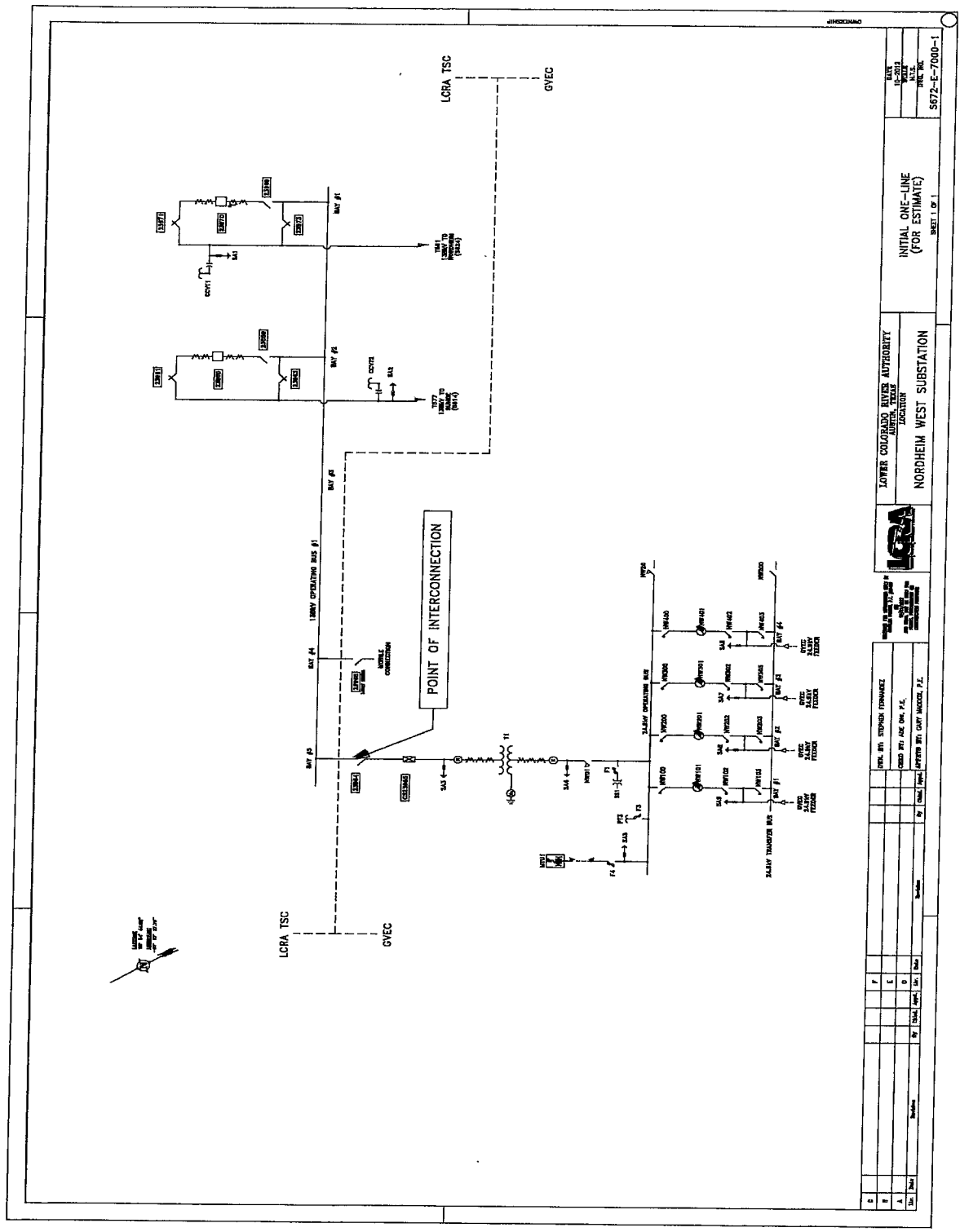
- GVEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
- GVEC will purchase and provide to LCRA TSC the necessary transmission line easements into the substation in a form acceptable to LCRA TSC.
- GVEC will supply and allow LCRA TSC use of its 24.9 kV bus potential transformer PT3 for metering.
- GVEC will allow LCRA TSC use of transformer T1 metering and relaying bushing current transformers for its metering and bus differential relaying scheme.
- LCRA TSC will provide tripping and close inhibit contacts from its 138 kV bus

differential & breaker failure relaying panel to GVEC's circuit switcher CS23965 relaying panel.

- GVEC will provide breaker failure initiate contacts from its circuit switcher CS23965 relaying panel to LCRA TSC's 138 kV bus differential & breaker failure relaying panel.
- LCRA TSC and GVEC shall design, provide, and coordinate their respective protection system equipment so that adjacent zones of protection overlap, in accordance with ERCOT Nodal Operating Guides.
- GVEC will provide LCRA TSC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards. Panel boards containing the OCPD may belong to either GVEC (if space is available) or LCRA TSC.
- GVEC will provide LCRA TSC with floor space (as available and as necessary) in its control house for the installation of LCRA TSC required relay panel boards and equipment.

NORDHEIM WEST ONE-LINE DIAGRAM

Amendment No. 8



DATE 10-2013 DRAWN BY CHECKED BY PROJECT NO. 5872-E-7000-1	INITIAL ONE-LINE (FOR ESTIMATE)	SHEET 1 OF 1	LOWER COLORADO RIVERS AUTHORITY NORDHEIM WEST SUBSTATION		TITLE SHEET PROJECT NO. 5872-E-7000-1 PROJECT NAME NORDHEIM WEST SUBSTATION
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FACILITY SCHEDULE NO. 21
Amendment No. 8

1. **Name:** Lost Creek Substation
2. **Facility Location:** The Lost Creek Substation is located at 235 Bell Road, Cuero, Dewitt County, Texas 77954.
3. **Points of Interconnection:** There are two (2) Points of Interconnection in the Lost Creek Substation generally described as:
 - where the 138 kV operating bus connector bolts to the four hole pad on switch 23909
 - where the 138 kV operating bus connector bolts to the four hole pad on switch 23919
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** Yes
6. **Delivery Voltage:** 138 kV
7. **Metered Voltage and Location:** The metering voltage is 4.16 kV. The metering current transformers are located inside T3 and T4. The bus potential transformers are located on the 4.16 kV operating buses.
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**

GVEC owns:

The Lost Creek Substation including, but not limited to, the following items:

 - Five (5) 138 kV A frame structures
 - 138 kV buswork from disconnect switches 23909 and 23919 to disconnect switches 23884 and 23894
 - Two (2) circuit switchers CS23885 and CS23895 with associated disconnect switches 23884 and 23894, protective relaying panel utilizing tripping and close inhibit contacts from LCRA TSC's 138 kV bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its breaker failure relaying scheme
 - Three (3) 138 kV bus disconnect switches 23899, 23909 and 23919
 - Two (2) power transformers T3 and T4 with associated surge arresters, 138 kV-2000:5 multi ratio bushing current transformers for use by LCRA TSC's 138 kV bus differential relaying scheme and 4.16 kV-2000:5 multi ratio (metering accuracy) bushing current transformers for use by LCRA TSC's metering circuit
 - Two (2) transformer bus disconnect switches T301 and T401

- All distribution circuits including dead end insulators that attach to the dead end structure, conductors, and hardware
- All distribution circuit breakers including jumpers, protective relay packages and foundations.
- All distribution and total bays including A-frames, trusses, insulators, disconnect switches, surge arresters, fused disconnects, 4.16 kV operating and transfer buses, bus potential transformers PT3 and PT4, for use by LCRA TSC metering, and associated cabling
- Two (2) station service, SS3 and SS4 with fused disconnects F7 and F8
- Control house (30' x48')
- Batteries and battery charger
- Substation property, ground grid, gravel, fencing and other appurtenances

LCRA TSC owns:

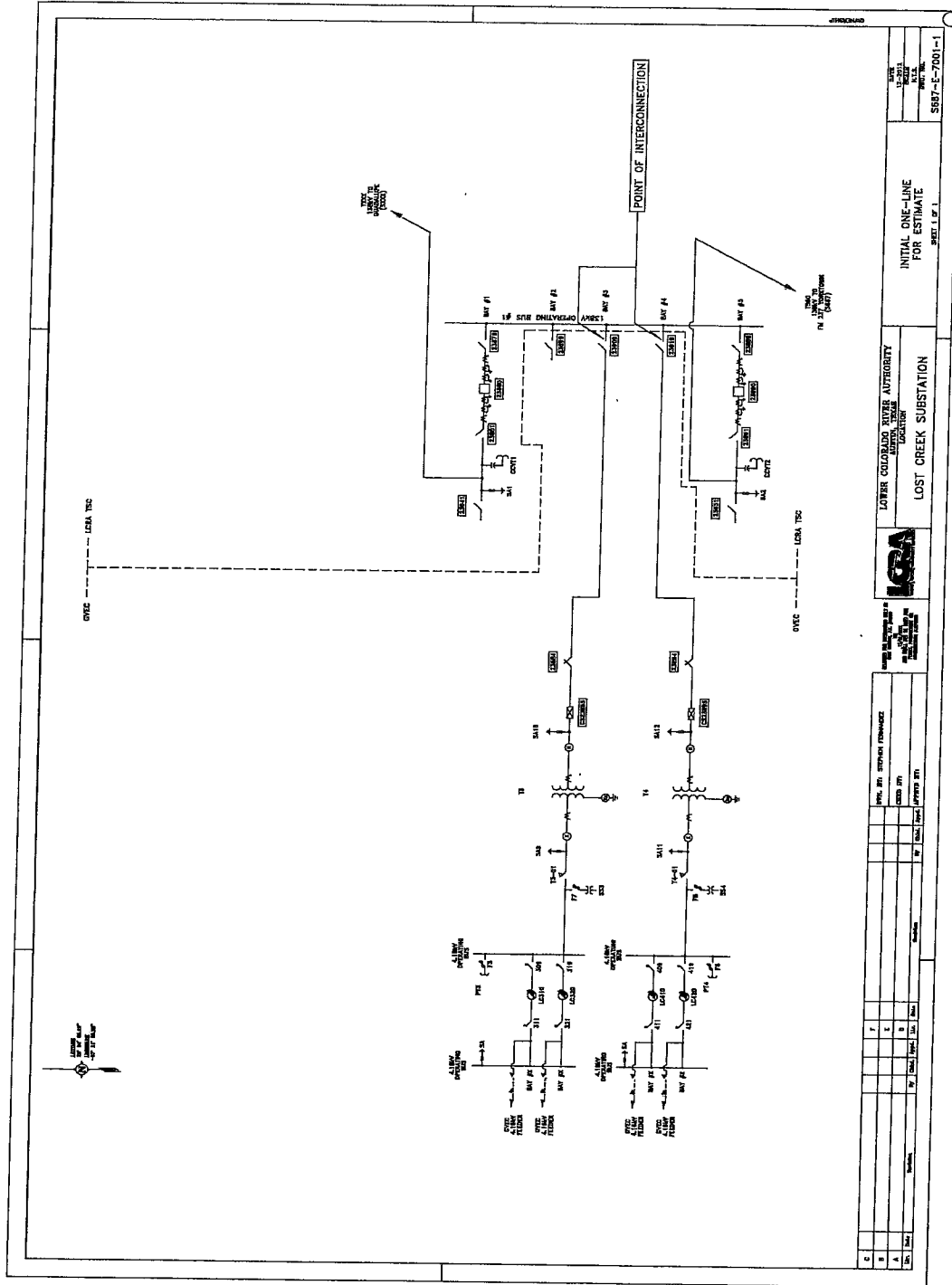
- Two (2) 138 kV dead-end structures, foundations, insulators and jumpers
- Two (2) capacitor couple voltage transformers CCVT1 and CCVT2
- Three (3) 138 kV surge arresters SA1, SA2 and SA5
- 138 kV operating bus #1 including support structures, foundations and jumpers
- Two (2) 138 kV circuit breakers 23880 and 23890, including jumpers, protective relay packages and foundations
- Six (6) 138 kV disconnect switches 23879, 23881, 23889, 23891, 23941 and 23951
- One (1) 138 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 138 kV-2000:5 multi ratio bushing current transformers from power transformers T3 and T4 and breaker failure initiate contacts from GVEC's circuit switchers CS23885 and CS23895 relaying panels
- One (1) metering package utilizing GVEC supplied 4.16 kV-2000:5 multi ratio (metering accuracy) bushing current transformers from power transformer T3 and T4 and GVEC supplied 4.16 kV bus potential transformer PT3 and PT4
- 48-fiber OPGW with splice cans and patch panel

10. **Operational Responsibilities of Each Party:** Each Party is responsible for the operation of the equipment it owns.
11. **Maintenance Responsibilities of Each Party:** Each Party will be fully responsible for the maintenance of the equipment it owns.
12. **Other Terms and Conditions:**
 - GVEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
 - GVEC will purchase and provide to LCRA TSC the necessary transmission line easements into the substation in a form acceptable to LCRA TSC.
 - GVEC will supply and allow LCRA TSC use of its 4.16 kV bus potential transformers PT3 and PT4 for metering.

- GVEC will supply and allow LCRA TSC use of transformer T3 and T4 metering and relaying bushing current transformers for its metering and 138 kV bus differential relaying scheme.
- LCRA TSC will provide tripping and close inhibit contacts from its 138 kV bus differential & breaker failure relaying panel to GVEC's circuit switcher CS23885 and CS23895 relaying panels.
- GVEC will provide breaker failure initiate contacts from its circuit switcher CS23885 and CS23895 relaying panels to LCRA TSC's 138 kV bus differential & breaker failure relaying panel.
- LCRA TSC and GVEC shall design, provide, and coordinate their respective protection system equipment so that adjacent zones of protection overlap, in accordance with ERCOT Nodal Operating Guides.
- GVEC will provide LCRA TSC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards. Panel boards containing the OCPD may belong to either GVEC (if space is available) or LCRA TSC
- GVEC will provide LCRA TSC with floor space (as available and as necessary) in its control house for the installation of LCRA TSC required relay panel boards and equipment.

LOST CREEK ONE-LINE DIAGRAM

Amendment No. 8



FACILITY SCHEDULE NO. 25

Amendment No. 8

1. **Name:** Gillett Substation
2. **Facility Location:** The Gillett Substation is located along the AEP Nixon to Milton 138 kV transmission line ("LCRA TSC's Transmission Line") at a site to be determined by LCRA TSC in conjunction with the GVEC CCN (defined below) process for a new GVEC line to a new Nopal Substation.
3. **Points of Interconnection:** There is one (1) Point of Interconnection in the Gillett Substation generally described as:
 - where the LCRA TSC jumpers connect to the 4 hole pad on the line-side of the dead-end assemblies of the circuit in GVEC's new approximately 10 mile radial single-circuit 138 kV transmission line (which will extend from GVEC's new Nopal Substation to LCRA TSC's dead-end structures to be located inside the Gillett Substation) ("GVEC's Transmission Line")
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** No
6. **Delivery Voltage:** 138 kV
7. **Metered Voltage and Location:** N/A
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**

GVEC owns:

At Gillett Substation:

- One (1) 138 kV transmission line from Nopal Substation to Gillett Substation including insulators and dead end hardware to terminate GVEC's Transmission Line on LCRA TSC's dead-end structures located inside the Gillett Substation
- 96-fiber OPGW with splice cans and patch panels to Nopal Substation

LCRA TSC owns:

At Gillett Substation; The Gillett Substation including, but not limited to, the following items:

- One (1) 138 kV dead end structure and foundations
- Two (2) 138 kV transmission lines from AEP Nixon and Milton Substations including insulators, jumpers and dead end hardware
- One (1) power potential transformer PVT1
- Three (3) 138 kV motor operated switches 25122, 25126 and 25128 with relaying

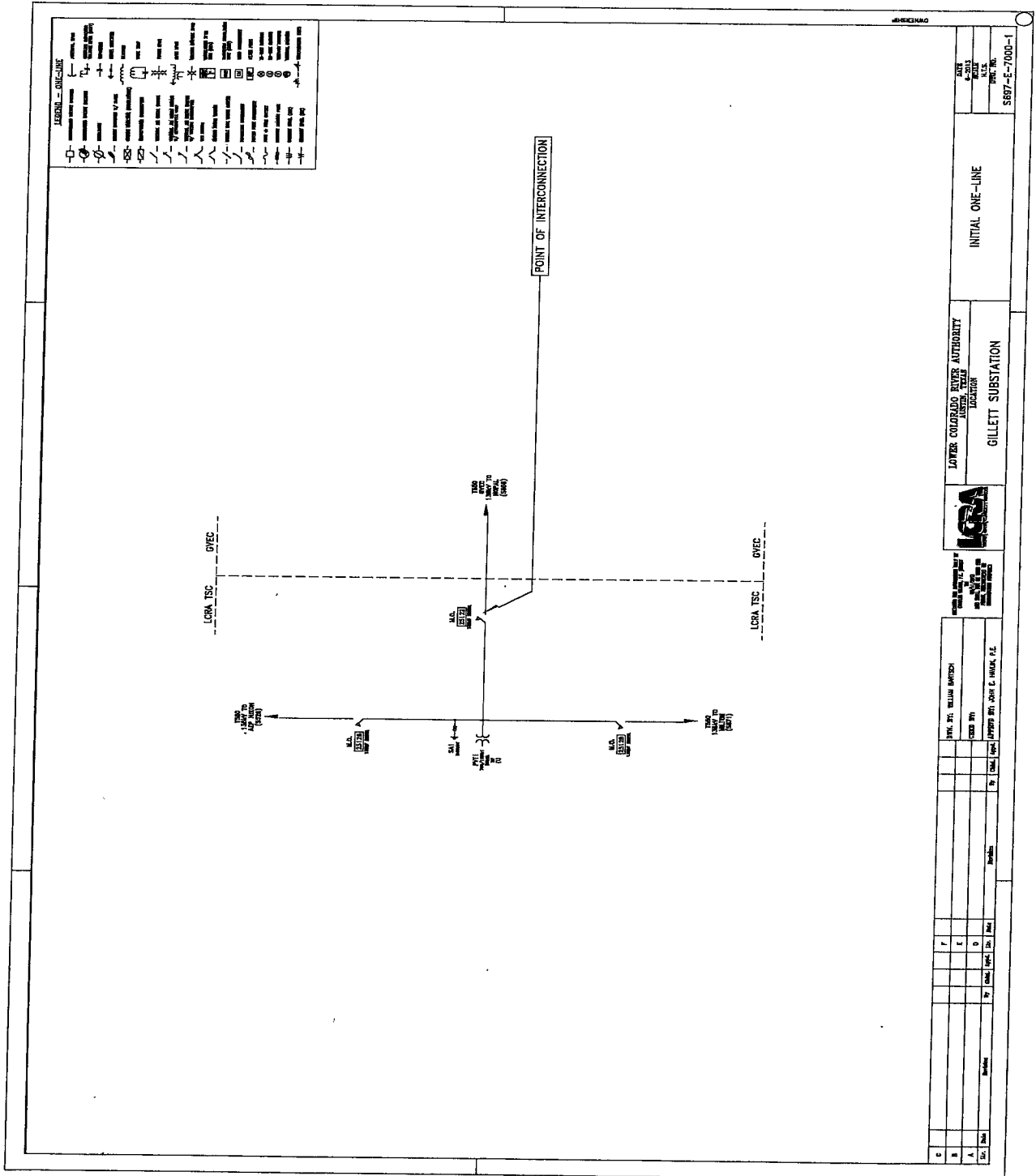
panel

- One (1) 138 kV surge arrester SA1
- One (1) remote terminal unit
- Control house and battery
- 48-fiber OPGW with splice cans and patch panels
- Substation property, ground grid, gravel, fencing and other appurtenances

- 10. Operational Responsibilities of Each Party:** Each Party is responsible for the operation of the equipment it owns.
- 11. Maintenance Responsibilities of Each Party:** Each Party will be fully responsible for the maintenance of the equipment it owns.
- 12. Other Terms and Conditions:**
- GVEC and LCRA TSC are to share access to the Gillett substation by LCRA TSC locks in the gate and in the control house doors.
 - GVEC will share fibers with LCRA TSC from its OPGW network as necessary and available for system operation and protection.
- 13. Cost Responsibility:**
- (a) GVEC and LCRA TSC will each be responsible for all costs that each incurs in connection with constructing, operating, and maintaining its facilities; provided, however, that this Paragraph 13(a) is subject to i) Paragraph 13(b) below, and ii) any other provisions of this Agreement with respect to liability and indemnification, and this Paragraph 13(a) shall not relieve either Party of its respective obligations under those provisions.
- (b) Upon execution of this Amendment, LCRA TSC may proceed with the engineering, procurement of equipment and materials, and construction of the LCRA TSC Facilities in accordance with the Agreement and this Facility Schedule No. 25. If the Public Utility Commission of Texas ("PUCT") does not approve an amendment to GVEC's certificate of convenience and necessity ("CCN") for GVEC's Transmission Line or GVEC's Transmission Line is not terminated at the Gillett Substation and energized by the earlier of: i) two (2) years after the PUCT issues a final non-appealable order approving an amendment to GVEC's CCN for GVEC's Transmission Line or ii) November 30, 2016, then GVEC will pay to LCRA TSC all costs incurred by LCRA TSC pursuant to this Facility Schedule No. 25 that i) LCRA TSC has incurred prior to such date for engineering, procuring equipment and materials, construction, and any other costs related to the LCRA TSC Facilities, ii) LCRA TSC has committed to incur prior to such date that it is unable to avoid using commercially reasonable steps, and iii) LCRA TSC incurs to return LCRA TSC's Transmission Line to a condition consistent with the LCRA TSC construction standards. In calculating LCRA TSC's costs under this Paragraph 13(b), such costs shall include the normal loadings that LCRA TSC applies to construction projects of this nature. The provisions of this Paragraph 13(b) shall survive termination or deletion of this Facility Schedule No. 25.

GILLETT ONE-LINE DIAGRAM

Amendment No. 8



FACILITY SCHEDULE NO. 26
Amendment No. 8

1. **Name:** Deer Creek Substation
2. **Facility Location:** The Deer Creek Substation will be located in Guadalupe County, Texas near the intersection of the existing LCRA TSC Luling City – LCRA Nixon transmission line and Seguin – Nash Creek transmission line at a site to be determined by LCRA TSC.
3. **Points of Interconnection:** There are (2) Points of Interconnection in the Deer Creek Substation generally described as:
 - where the 138 kV operating bus terminal connector bolts to the four hole pad on GVEC switch 25099.
 - where the 69 kV operating bus terminal connector bolts to the four hole pad on GVEC switch 25059
4. **Transformation Services Provided by LCRA TSC:** No
5. **Metering Services Provided by LCRA TSC:** No
6. **Delivery Voltage:** 69 kV/138 kV
7. **Metered Voltage and Location:** N/A
8. **One Line Diagram Attached:** Yes
9. **Description of Facilities Owned by Each Party:**

GVEC owns:

 - One (1) 138 kV A-frame dead end structure, insulators, hardware and foundations
 - One (1) 69 kV A-frame dead end structure, insulators, hardware and foundations
 - Three (3) 69 kV switches 25059, 25061 and 25063
 - Three (3) 138 kV switches 25099, 25101 and 25103
 - One (1) 138 kV circuit breaker 25100 including foundation, jumpers, 138 kV-2000:5 multi ratio bushing current transformers for use by LCRA TSC's 138 kV bus differential breaker failure relaying scheme, protective relay panels utilizing tripping and close inhibit contacts from LCRA TSC's 138 kV bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its 138 kV breaker failure relaying scheme
 - One (1) 69 kV circuit breaker 25060 including foundation, jumpers, 69 kV-2000:5 multi ratio bushing current transformers for use by LCRA TSC's 69 kV bus differential breaker failure relaying scheme, protective relay panels utilizing

tripping and close inhibit contacts from LCRA TSC's 69 kV bus differential & breaker failure relaying panel and providing breaker failure initiate contacts for LCRA TSC's use in its 69 kV breaker failure relaying scheme

- One (1) 138 kV coupling capacitor voltage transformer CCVT2
- One (1) 69 kV surge arrester SA6
- One (1) 138 kV surge arrester SA2
- 96-fiber OPGW with splice can and patch panel to Capote Substation

LCRA TSC own: The Deer Creek Substation including, but not limited to, the following items:

- One (1) 138 kV A-frame dead end structure, insulators, hardware and foundations
- One (1) 2 bay-69 kV A-frame dead end structure, insulators, hardware and foundations
- One (1) 69 kV operating bus including supports, foundations, insulators and hardware
- One (1) 138 kV operating bus including supports, foundations, insulators and hardware
- One (1) 69 kV bus potential transformer PT1
- Two (2) 69 kV surge arresters SA5 and SA7
- One (1) 138 kV capacitor coupled voltage transformer CCVT1
- One (1) 138 kV surge arrester SA1
- One (1) 138 kV power potential transformer PVT2
- Two (2) 69 kV circuit breakers 25070 and 25080 with foundations, jumpers and protective relaying
- Five (5) 69 kV switches 25069, 25071, 25073, 25079 and 25081
- One (1) 138/69 kV auto transformer AT1 with associated surge arresters
- Two (2) 138 kV circuit breakers 25090 and 25110 with foundation, jumpers and protective relaying
- Four (4) 138 kV switches 25089, 25109, 25111 and 25113
- One (1) 69 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 69kV-2000:5 multi ratio bushing current transformers and breaker failure initiate contacts from GVEC's circuit breaker 25060 relaying panel
- One (1) 138 kV bus differential & breaker failure relaying scheme utilizing GVEC supplied 138 kV-2000:5 multi ratio bushing current transformers and breaker failure initiate contacts from GVEC's circuit breaker 25100 relaying panel
- Control house and battery
- 48-OPGW with splice can and patch panel
- Station service SS1 with fuse F1
- Substation property, ground grid, gravel, fencing and other appurtenances

- 10. Operational Responsibilities of Each Party:** Each Party is responsible for the operation of the equipment it owns.

11. Maintenance Responsibilities of Each Party: Each Party will be fully responsible for the maintenance of the equipment it owns.

12. Other Terms and Conditions:

- GVEC and LCRA TSC are to share access to the substation by LCRA TSC locks in the gate and in the control house doors.
- LCRA TSC will provide tripping and close inhibit contacts from its 69 kV bus differential & breaker failure relaying panel to GVEC's circuit breaker 25060 relaying panel.
- LCRA TSC will provide tripping and close inhibit contacts from its 138 kV bus differential & breaker failure relaying panel to GVEC's circuit breaker 25100 relaying panel.
- GVEC will provide breaker failure initiate contacts from its 69 kV circuit breaker 25060 relaying panel to LCRA TSC's 69 kV bus differential & breaker failure relaying panel.
- GVEC will provide breaker failure initiate contacts from its 138 kV circuit breaker 25100 relaying panel to LCRA TSC's 138 kV bus differential & breaker failure relaying panel.
- LCRA TSC will provide GVEC access to 125 VDC and 120 VAC power. Circuits must have over current protection devices (OCPD) sized according to NEC standards. Panel boards containing the OCPD may belong to either LCRA TSC (if space is available) or GVEC.
- LCRA TSC will provide GVEC with floor space (as available and as necessary) in its control house for the installation of GVEC required relay panel boards and equipment.
- LCRA TSC and GVEC will share fibers with each other from their OPGW networks as necessary and available for system operation and protection.

